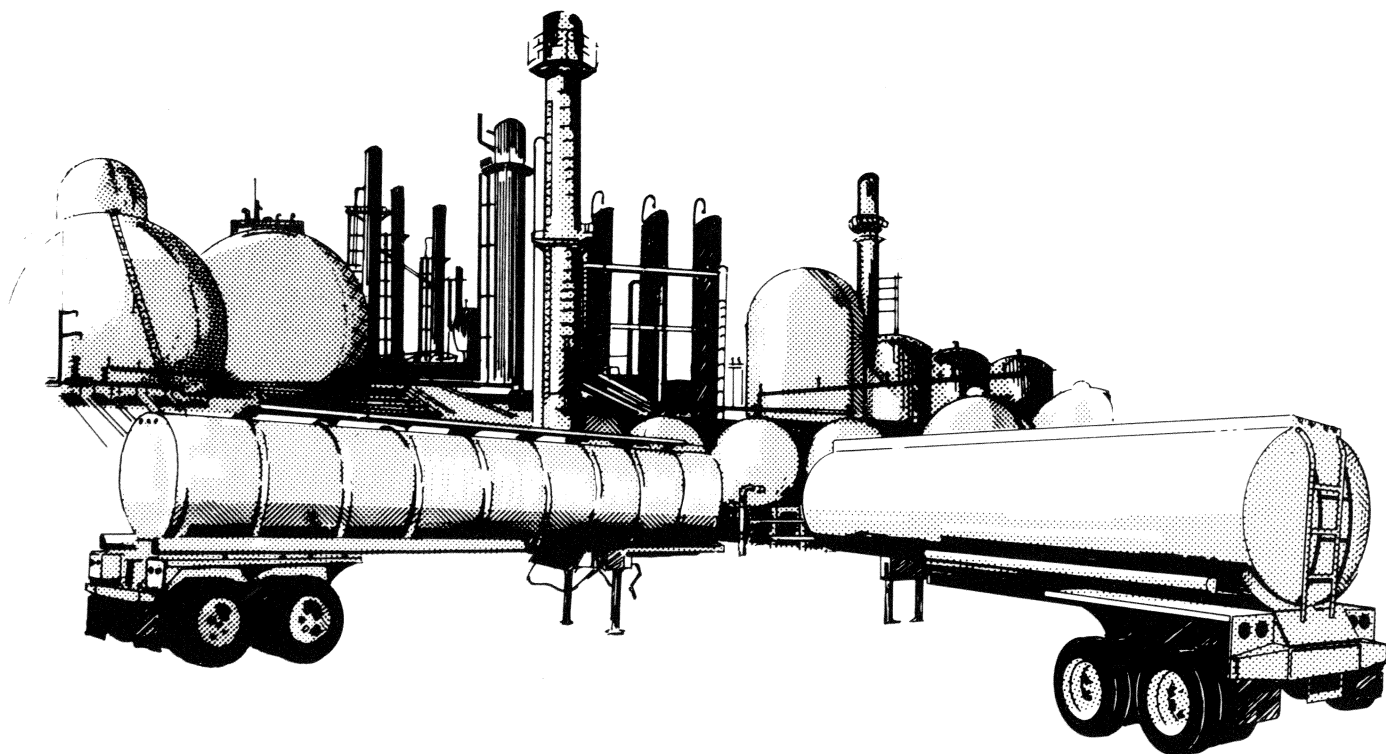


E. H. LYNN INDUSTRIES Inc.

**TRANSPORTER/INDUSTRIAL
HOSE AND COUPLINGS**

**LIQUID AND DRY
TANK TRUCK EQUIPMENT**



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To Our Customers:

This catalog is made possible through your confidence and loyal support. We are happy to present this bound edition to you with assurance it will be of constant service as a handy reference for your requirements. We will make every effort to conduct the affairs of our company so as to continue to merit the confidence and respect of our customers.

We have worked to make this catalog a complete and up-to-date reference guide, illustrating and describing with full specifications the materials for which there is a daily demand and carried in stock in our warehouses. However, it is practically impossible to include every article and all lines that we handle. So please don't hesitate to request information on products not shown.

We invite you to visit our offices and inspect various stocks of supplies and equipment on display.

Sincerely,

A handwritten signature in cursive script, reading "Eugene H. Lynn". The signature is fluid and extends to the right with a long horizontal stroke.

*President
E.H. Lynn Industries*

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NOTES

NOTES

CHICAGO HEADQUARTERS 1-708-344-9800
Milwaukee Branch 1-414-355-5454

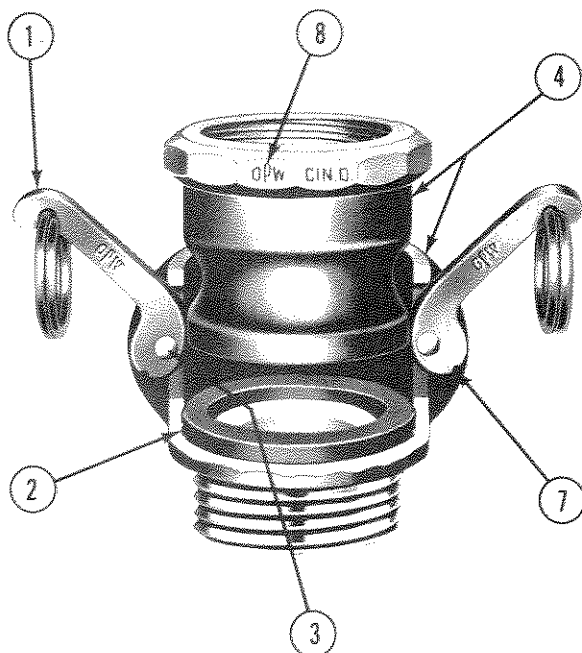
NOTES

Twin-Kam™

Kamlok® Couplers

OPW®

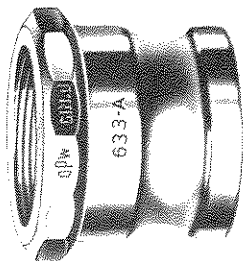
Features



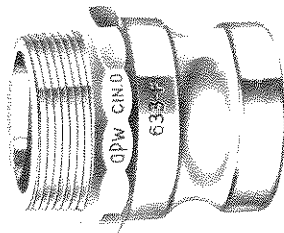
1. **Easy Coupling** action. Minimal effort at the ends of the cam arms close adaptor and coupler.
(Kamlok couplers are tested on MASTER couplings.)
2. **Highest Quality Gasket Materials**
3. **Stainless Steel Pins** will not rust or bind
4. **Thick Wall** construction, no weak spots
5. **Highest Quality Alloys**
6. **Hydrostatically Tested**
7. **Exclusive OPW TWIN-KAM Features**
8. **OPW Brandname** for identification and product warranty.
9. **Interchangeability** with other couplers made to the same specification. OPW Kamlok Quick Couplings are manufactured to the dimensional specifications of MIL-C-27487

Note: For orders to military specification, certification of compliance to MIL-C-27487 will be furnished, if requested with order.

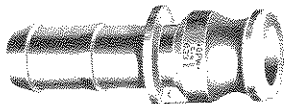
**A Adaptor
Female N.P.T.**



**F Adaptor
Male N.P.T.**



**E Adaptor
Hose Shank**

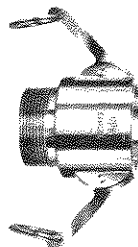


Standard Items

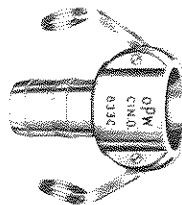
**D Coupler
Female N.P.T.**



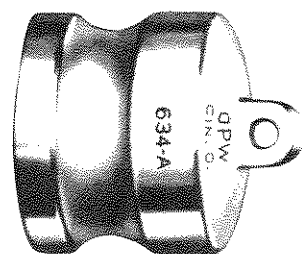
**B Coupler
Male N.P.T.**



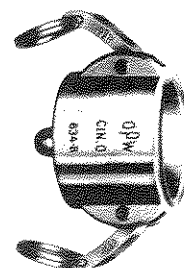
**C Coupler
Hose Shank**



Dust Plug



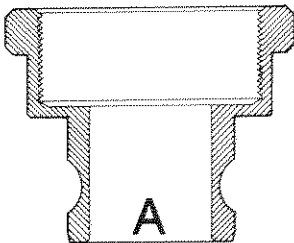
Dust Cap



REDUCING PARTS

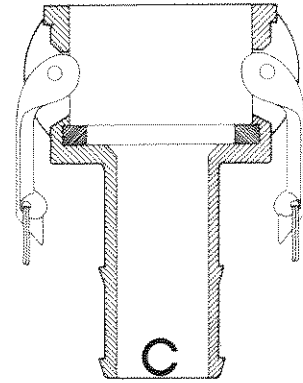
A SPECIAL ADAPTER

THREAD FEMALE NPT

Size in
Inches

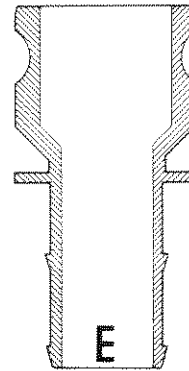
1½x2
2x1½
2x2½
2x3
2½x3
2½x4
3x2
3x4
4x2½
4x3
5x3

C SPECIAL COUPLER

HOSE
SHANK
REDUCINGSize in
Inches

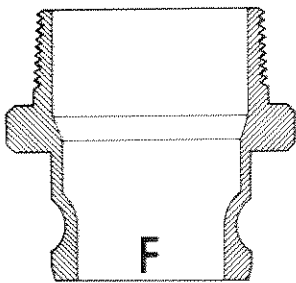
1½x2
2x1½
2x2½
3x2½
4x3
3x2

E

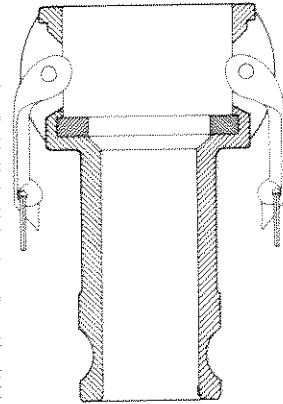
SPECIAL
ADAPTER
HOSE SHANK
REDUCINGSize in
Inches

2x2½
3x2
3x2½
4x3

F SPECIAL ADAPTER

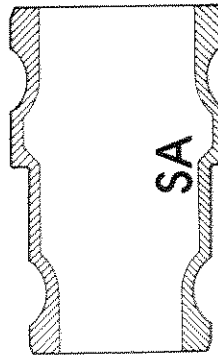
REDUCING THREAD
MALE NPTSize in
Inches

1½x2
2x1½
2x3
2½x3
3x1½
3x2
3x2½
3x4
4x2½
4x3
5x4

BxA SPECIAL COUPLER -
ADAPTER REDUCINGSize in
Inches

1x1½
1½x2
1½x4
2x1½
2x3
2½x4
3x1½
3x2
3x4
4x2
4x2½
4x3
4x6
6x4

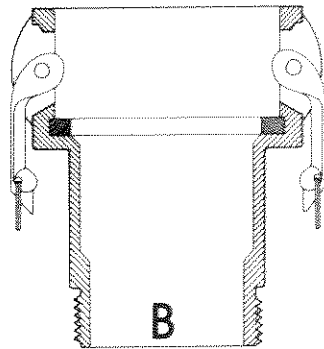
SPOOL ADAPTERS

Size in
Inches

1x1
1¼x1¼
1½x1½
1½x2
2x2
2x2½
2x3
2½x2½
2½x3
3x3
3x1½
3x4
4x2
4x4
5x5
5x4
6x4
6x6

B SPECIAL COUPLER

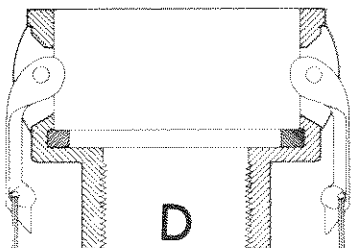
REDUCING THREAD MALE NPT

Size in
Inches

4x3
1x2
2½x3
3x2
4x2
2x1½

D SPECIAL COUPLER

REDUCING THREAD FEMALE NPT

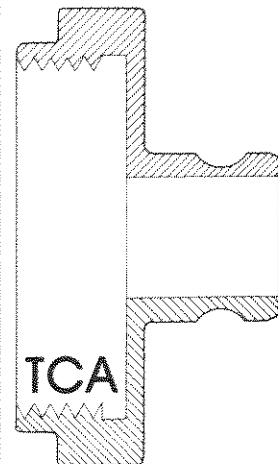
Size in
Inches

3x2
4x3

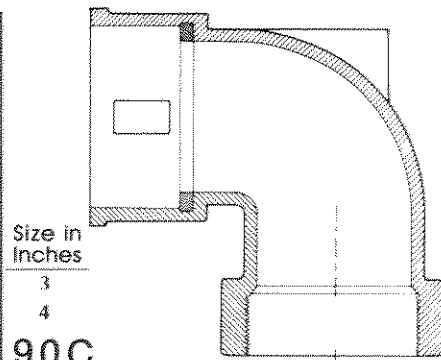
PARTS ADAPTED
FOR TANK CARS

TCA ADAPTER

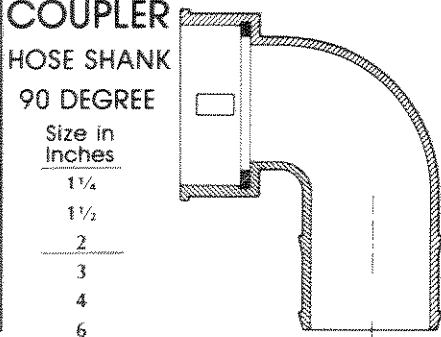
TANK CAR THREAD

Size in
Inches

2x5
2½x5
3x5
4x5

90 D FULL FLO 90 DEGREE
COUPLER THREAD FEMALE NPTSize in
Inches

3
4

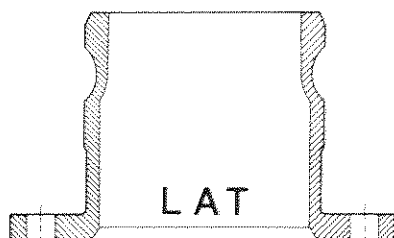
90 C
COUPLER
HOSE SHANK
90 DEGREESize in
Inches

1¼
1½
2
3
4
6

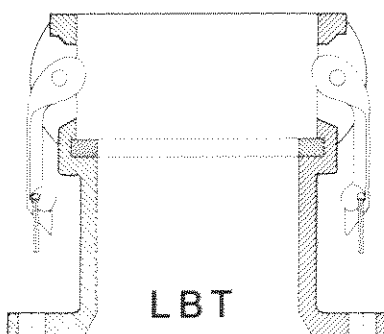
FLANGE PARTS

TANK TRUCK FLANGE

ADAPTER



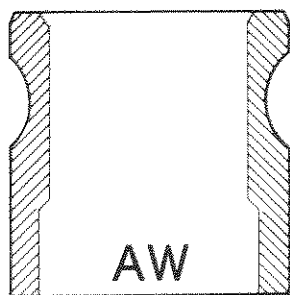
COUPLER



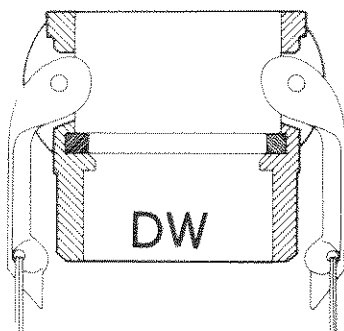
WELD PARTS

WELD PARTS SOCKET AND BUTT

ADAPTER

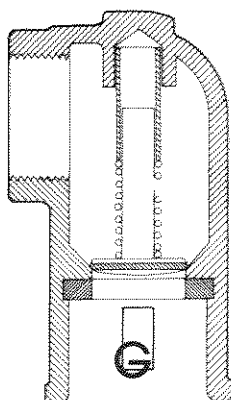


COUPLER



BASIC STANDARD PARTS

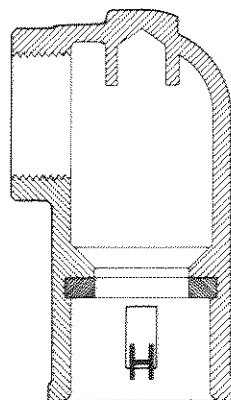
G ELBOW COUPLER
W/CHECK VALVE
THREAD FEMALE NPT



Size in
Inches

1
1 1/4
1 1/2
2
2 1/2
3
4

H ELBOW COUPLER
THREAD FEMALE NPT

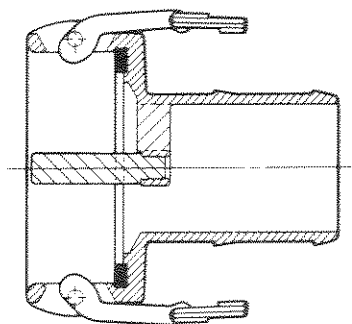


Size in
Inches

1
1 1/4
1 1/2
2
2 1/2
3
4
5
6

VAPOR RETURN HOSE COUPLERS

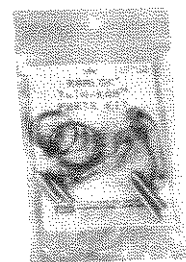
Available sizes:
3" x 3", 4" x 3"
and 4" x 4".



TWIN-KAM™ KAMLOK®

Coupler Parts Kits with Guaranteed For Life Twin-Kam® Arms

OPW KAMLOK® Coupler Parts Kits are packaged in convenient plastic pouches, pre-punched for easy hanging in stock room or display area.



Each Parts Kit includes two genuine patented Guaranteed For Life Twin-Kam® Arms, groove type pins, and finger rings necessary to repair a Coupler or Dust Cap.

Kits for Couplers and Dust Caps

Sizes	AL, BR, CI	S. ST
1/2" & 3/4" *	H9832	H2164
1"	H9833	H1835
1 1/4"	H1827	H2165
1 1/2"	H1828	H2166
2" & 2 1/2"	H1829	H1836
3", 4", & 5"	H487	H2167
** 6"	H2124	

ACCESSORIES:

CAM ARMS—

Bronze, sintered stainless steel, locking, paddle

RINGS ONLY—Small & Large

SECURITY CHAINS—12"

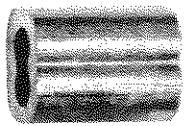
GASKETS AVAILABLE:

Buna N - Standard
Buna N - 3/8" Thick
Buna N - Hot Oil
Viton - A
Thiokol
Pure Gum
White Neoprene
Teflon Envelop - w/Buna
Teflon Envelop - w/Viton
Teflon Encapsulated Silicone
Silicone
Hypalon
Nordel

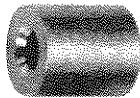
*Other fittings available on request

Ferrules, Stops and Swaging Tools

Wire Rope Clips and Thimbles



Cable Ferrule



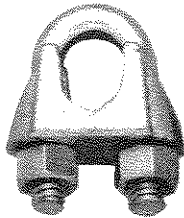
Cable Stop



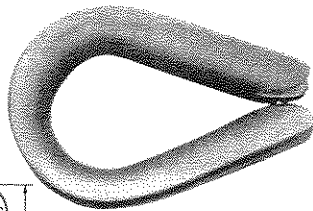
No. 2 Swage-It Tool



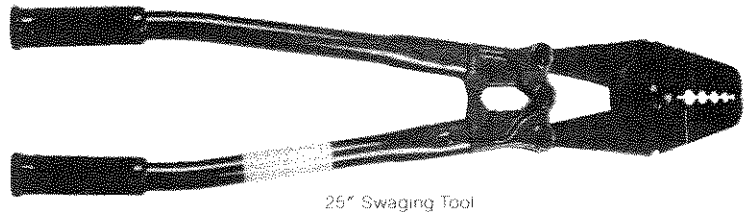
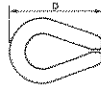
No. 3 Swage-It Tool



3300



323



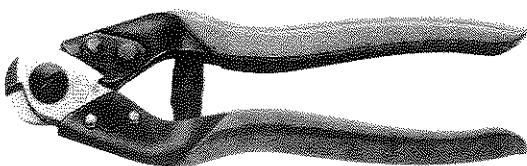
25" Swaging Tool

Swaging Tools Description	For Ferrules & Stops, "/mm - "/mm	Cat. No.	UPC Number 20418-	Weight Each Pounds
No. 2 Swage-It tool	$\frac{1}{8}$ /1 - $\frac{1}{4}$ /3	767-9032	16664	1.0
No. 3 Swage-It tool	$\frac{1}{8}$ /3 - $\frac{1}{4}$ /6	767-9033	16665	3.5
25" Swaging Tool	$\frac{1}{8}$ /1 - $\frac{3}{4}$ /5	767-9036	16860	7.0

Figure Number	Description, Bulk	For Cable, "/mm	Material	Cat. No.	UPC Number 20418-	No. Per Shelf Pack	Number Per Case	Case Weight, Pounds	Case Cubes
—	Cable Ferrule	$\frac{1}{8}$ /1	Aluminum	767-0704	16646	50	—	—	—
—	Cable Ferrule	$\frac{3}{8}$ /2	Aluminum	767-0714	16647	50	—	—	—
—	Cable Ferrule	$\frac{1}{2}$ /3	Aluminum	767-0724	16648	50	—	—	—
—	Cable Ferrule	$\frac{3}{4}$ /4	Aluminum	767-0734	16649	50	—	—	—
—	Cable Ferrule	$\frac{1}{2}$ /5	Aluminum	767-0744	16650	50	—	—	—
—	Cable Ferrule	$\frac{1}{2}$ /6	Aluminum	767-0754	16651	50	—	—	—
—	Cable Stop	$\frac{1}{8}$ /1	Aluminum	767-0804	16652	50	—	—	—
—	Cable Stop	$\frac{3}{8}$ /2	Aluminum	767-0814	16653	50	—	—	—
—	Cable Stop	$\frac{1}{2}$ /3	Aluminum	767-0824	16654	50	—	—	—
—	Cable Stop	$\frac{3}{4}$ /4	Aluminum	767-0834	16655	50	—	—	—
—	Cable Stop	$\frac{1}{2}$ /5	Aluminum	767-0844	16656	50	—	—	—
—	Cable Stop	$\frac{1}{2}$ /6	Aluminum	767-0854	16657	50	—	—	—

Figure Number Size ("/mm)	Description, Bulk	Dimensions, Inches			Cat. No.	UPC Number 20418-	No. Per Shelf Pack	Number Per Case	Case Weight, Pounds	Case Cubes
		A Wire Rope	B/D	C						
3300- $\frac{1}{8}$ /3	Wire Rope Clips	$\frac{1}{8}$	1	$\frac{1}{2}$	767-0419	14292	10	300	21	.41
3300- $\frac{1}{8}$ /5	Wire Rope Clips	$\frac{3}{8}$	1 $\frac{1}{2}$	$\frac{3}{4}$	767-0429	14293	10	300	24	.32
3300- $\frac{1}{8}$ /6	Wire Rope Clips	$\frac{1}{2}$	1 $\frac{1}{2}$	$\frac{1}{2}$	767-0439	14294	10	200	26 $\frac{1}{2}$	.41
3300- $\frac{1}{8}$ /8	Wire Rope Clips	$\frac{3}{8}$	1 $\frac{1}{2}$	$\frac{1}{2}$	767-0449	14295	10	200	29	.41
3300- $\frac{1}{8}$ /9	Wire Rope Clips	$\frac{1}{2}$	2	$\frac{1}{2}$	767-0459	14296	10	200	43 $\frac{1}{2}$	.46
3300- $\frac{1}{8}$ /11	Wire Rope Clips	$\frac{3}{4}$	2	$\frac{1}{2}$	767-0469	14297	10	200	51 $\frac{1}{2}$	.46
3300- $\frac{1}{4}$ /13	Wire Rope Clips	$\frac{1}{2}$	1 $\frac{1}{2}$	1	767-0479	14298	10	100	40 $\frac{1}{2}$	.74
3300- $\frac{1}{4}$ /16	Wire Rope Clips	$\frac{3}{4}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$	767-0489	14299	10	100	53	.74
3300- $\frac{3}{8}$ /19	Wire Rope Clips	$\frac{1}{2}$	3 $\frac{1}{2}$	1 $\frac{1}{2}$	767-0499	14300	5	50	41 $\frac{1}{2}$	.80
3300- $\frac{1}{2}$ /22	Wire Rope Clips	$\frac{1}{2}$	3 $\frac{1}{2}$	1 $\frac{1}{2}$	767-0509	14301	10	—	*129	—
3300-1/25	Wire Rope Clips	1	3 $\frac{1}{2}$	1 $\frac{1}{2}$	767-0519	14302	10	—	*129	—
323- $\frac{1}{8}$ /3	Wire Rope Thimbles	$\frac{1}{8}$	1 $\frac{1}{2}$	—	767-0609	14303	10	300	8 $\frac{1}{2}$	.32
323- $\frac{1}{8}$ /5	Wire Rope Thimbles	$\frac{3}{8}$	1 $\frac{1}{2}$	—	767-0619	14304	10	300	9 $\frac{1}{2}$	.32
323- $\frac{1}{8}$ /6	Wire Rope Thimbles	$\frac{1}{2}$	1 $\frac{1}{2}$	—	767-0629	14305	10	200	11	.41
323- $\frac{1}{8}$ /8	Wire Rope Thimbles	$\frac{3}{8}$	2 $\frac{1}{2}$	—	767-0639	14306	10	200	13 $\frac{1}{2}$	.41
323- $\frac{1}{8}$ /9	Wire Rope Thimbles	$\frac{1}{2}$	2 $\frac{1}{2}$	—	767-0649	14307	10	200	16 $\frac{1}{2}$	.41
323- $\frac{1}{4}$ /13	Wire Rope Thimbles	$\frac{1}{2}$	2 $\frac{1}{2}$	—	767-0659	14308	10	100	21 $\frac{1}{2}$	.46
323- $\frac{1}{4}$ /16	Wire Rope Thimbles	$\frac{3}{4}$	2 $\frac{1}{2}$	—	767-0669	14309	10	100	21 $\frac{1}{2}$	.74
323- $\frac{3}{8}$ /19	Wire Rope Thimbles	$\frac{1}{2}$	3 $\frac{1}{2}$	—	767-0679	14310	10	—	*36	—
323- $\frac{1}{2}$ /22	Wire Rope Thimbles	$\frac{1}{2}$	4	—	767-0689	14311	10	—	*51	—
323-1/25	Wire Rope Thimbles	1	4 $\frac{1}{2}$	—	767-0699	14312	10	—	*77	—

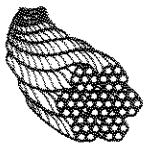
Pocket Wire Rope and Cable Cutter



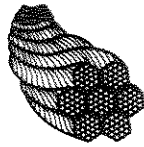
A top quality pocket cutter for $\frac{1}{16}$ " wire rope or cable. Excellent for piano wire or aircraft cable. Packaged for easy point-of-purchase display.

Cat. No.	N/S No.	Approx. Weight oz/g	Length "/mm	Capacity	
				Cable "/mm	Rod "/mm
0690TN	91131	10/280	7 $\frac{1}{2}$ /190	$\frac{1}{8}$ /5	$\frac{1}{8}$ /2.4

Cable

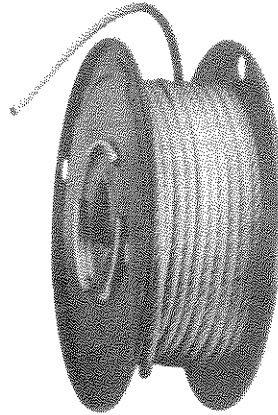


Cross Section
Flexible 7 x 7



Cross Section
Extra Flexible 7 x 19

Campbell's Blu-Krome® Cable is either 7 x 7 or extra flexible, 7 x 19 construction, as illustrated. It is high-strength, aircraft quality with a hot galvanized finish and has measure markings every foot. Vinyl coated cable is more resistant to abrasion and weathering; it can also be cleaned easily. Order unit is "each".



Cat. No.	Size, "/mm	Type Const.	Feet Per Reel	Size With Coating, "/mm	Reel Width, Inches	Lbs. Per Reel	Working Load Limit* lb/k
Uncoated							
700-0227	1/1	7 x 7	500	—	2	5	96/44
700-0327	1/2	7 x 7	500	—	3	14	184/83
700-0427	1/3	7 x 7	500	—	3	16	340/154
700-0627	1/5	7 x 19	250	—	3	18	840/381
700-0827	1/6	7 x 19	250	—	5 1/2	26	1,400/635

Vinyl Coated

700-0397	1/2	7 x 7	250	1 1/4	4.6	3	7 1/2	184/83
700-0497	1/3	7 x 7	250	1 1/4	4.6	3	10	340/154
700-0697	1/5	7 x 19	250	1 1/4	6.4	5 1/2	20 1/2	840/381
700-0897	1/6	7 x 19	200	1 1/4	7.9	5 1/2	27	1,400/635
700-3397	1/2	7 x 7	500	1 1/4	4.6	5 1/2	16	184/83
700-3497	1/3	7 x 7	500	1 1/4	4.6	5 1/2	20	340/154

*WARNING: Do not exceed Working Load Limit.

Straight Link Machine Chain

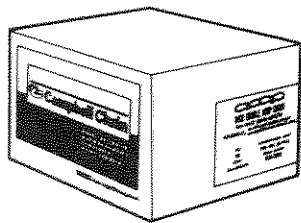


Uses: General utility; farm and animal. **Do not use for overhead lifting.**
Standard Material: Low carbon steel. Not heat treated.

Standard Finish: Bright, Blu-Krome (zinc-plated), and Hot Galvanized.

Packaging: 100-foot cartons (order unit is "feet"); refill reels to fit Campbell merchandisers (order unit is "each")

Cartons

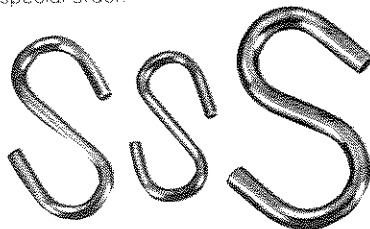


Trade Size	Cat. No.			Material Diameter "/mm	Inside Length, Inches	Inside Width, Inches	Pounds Per 100 Feet	Links Per Foot	Working Load Limit* lb/k
	Bright	B.K.	H.G.						
4	031-0414	031-0424	031-0434	.120/3.0	.55	.21	11	22	215/98
3	031-0314	031-0324	—	.135/3.4	.59	.24	15	20 1/2	270/122
2	031-0214	031-0224	031-0234	.148/3.7	.61	.26	19	19 1/2	325/147
1	031-0114	031-0124	—	.162/4.1	.63	.28	23	19	390/177
1/0	031-1014	031-1024	031-1034	.177/4.5	.74	.31	27	16 1/2	465/211
2/0	031-2014	031-2024	031-2034	.192/4.9	.78	.34	31	15 1/2	545/247
3/0	031-3014	031-3024	—	.207/5.3	1.01	.36	37	12	635/288
4/0	031-4014	031-4024	031-4034	.234/5.5	1.03	.38	47	11 1/2	700/318
5/0	031-5014	031-5024	031-5034	.250/6.4	1.07	.44	52	11 1/2	925/420

*WARNING: Do not exceed Working Load Limit.

"S" Hooks

Low carbon steel for attaching accessories to chain. Used normally when low working load limits are involved. **Do not use for overhead lifting.** Available in Bright, Blu-Krome and Hot Galvanized finish, packaged 50 per carton or 6 per card (10 cards per carton). Order unit is "each" or "card." Also available in 100 lb. pails on special order.

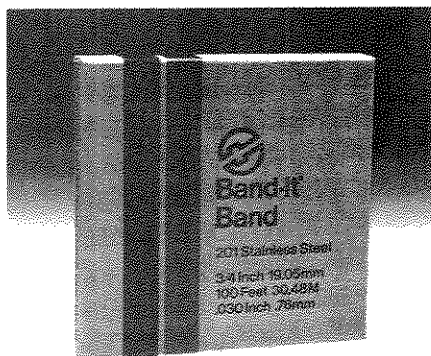


Trade Size	Wire Size "/mm	Inside Length, Inches	Cat. No.				Pounds Per 100 Pieces	Working Load Limit* (Closed Position) lb/k
			Bright Boxed	Blu-Krome Boxed	Blu-Krome Carded	H.G. Boxed		
20	.080/2.03	1/8	610-2014	610-2024	—	—	1 1/2	16/7
21	.080/2.03	1/8	610-2114	610-2124	—	—	1 1/2	16/7
40	.134/3.40	1	610-4014	610-4024	595-4024	—	1	42/19
60	.187/4.74	1 1/8	610-6014	610-6024	595-6024	—	3 1/2	75/34
61	.204/5.18	1 1/8	610-6114	610-6124	—	—	3 1/2	120/54
62	.175/4.44	1 1/8	610-6214	610-6224	—	—	2 1/2	95/43
70	.219/5.56	1 1/2	610-7014	610-7024	—	—	5	115/52
72	.225/5.71	1 1/2	610-7214	610-7224	—	—	4 1/2	130/59
80	.250/6.35	1 3/4	610-8014	610-8024	595-5024	610-8034	6 1/2	160/73
81	.250/6.35	2 1/4	610-8114	610-8124	—	—	8	150/68
84	.250/6.35	1 3/4	610-8414	610-8424	—	—	6 1/2	190/86
100	.312/7.92	2 1/2	610-1014	610-1024	—	610-1034	11 1/2	290/132
120	.375/9.52	2 3/4	610-1214	610-1224	—	610-1234	19 1/2	410/186

*WARNING: Do not exceed Working Load Limit.

Band-It® H OUDAILLE

Band, Buckles and Tools



Band-It Band

Band-It Band in Type 201 stainless steel has been the industry standard for over 50 years. Type 201 stainless steel has superior yield and tensile strength properties to provide maximum clamping strength. All Band-It sizes feature fully rounded smooth edges for safety and easy installation. For clamps of even greater strength, use a double wrap, threading the Ear-Lokt Buckle each time around.

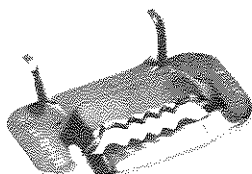
Band-It Band

100 Ft. Per Roll (30.5M)

Type 201 Stainless Steel

Cat. No.	EDP No.	Width Inches	mm	Thickness Inches	mm	Weight Lbs	Kg
C202	13202	1/4	6.35	.020	.51	1.7	.9
C203	13203	3/8	9.53	.025	.63	3.2	1.6
C204	13204	1/2	12.70	.030	.76	5.1	2.4
C205	13205	5/8	15.88	.030	.76	6.4	3.0
C206	13206	3/4	19.05	.030	.76	7.7	3.6

Available in mill coil lengths.



Band-It Buckles

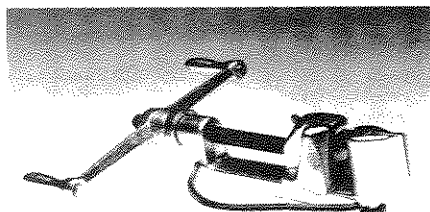
Ear-Lokt Buckles in Type 201 stainless steel are designed to accommodate both single and double wrap clamps. The unique teeth and ears provide for maximum clamping strength.

Band-It Buckles

Package Quantity — 100

Type 201 Stainless Steel

Cat. No.	EDP No.	Width Inches	mm	Weight Lbs	Kg
C252*	13252	1/4	6.35	.3	.1
C253	13253	3/8	9.53	.8	.4
C254	13254	1/2	12.70	2.1	1.0
C255	13255	5/8	15.88	2.4	1.1
C256	13256	3/4	19.05	3.7	1.7



The Band-It Tool

A drop forged electroplated tool with tensioning capability of over 2,400 pounds and built-in cutter. Used to apply Band-It Bands and Buckles, strapping and Free-End clamps.

The Band-It Tool

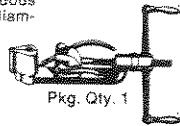
Cat. No.	EDP No.	Description
C001	13001	The Band-It Tool Pkg Qty 1 Weight 4.4 Lbs 2.0 Kg
C043	13043	Close Quarter Tension Nut Replaces tool tension handle when space is limited. Pkg Qty 1
C006	13006	Tension Screw/Handle Kit Pkg Qty 1

EARLOKT CLAMPS

BAND-IT EARLOKT CLAMPS are formed from a continuous 100' roll of BAND-IT band into any shape, contour or diameter, from 1/2" to over 30", using the BAND-IT tool.

C001 BAND-IT TOOL

Cat. No. C001 Shp. Wt. 4.44 lbs.



Pkg. Qty. 1

J800 BAND-IT BENCH MOUNT

Serves as a mounting base for the BAND-IT tool, especially when used with the J001 Jr. Adaptor.

Cat. No. J800 Shp. Wt. 4.25 lbs. Pkg. Qty. 1

C040 CLOSE-QUARTER TENSION NUT

In cramped quarters, use instead of tool tension handle.

Cat. No. C040 Shp. Wt. 13 lbs. Pkg. Qty. 1

C016 BALL BEARING FOR BAND-IT TOOL

Replacement item. Use between handle and body of C001 tool.

Cat. No. C016 Shp. Wt. .06 lb. Pkg. Qty. 1

C006 TENSION HANDLE & SCREW

Replacement items, sold only as a set.

Cat. No. C006 Shp. Wt. 1.06 lbs. Pkg. Qty. 1 set

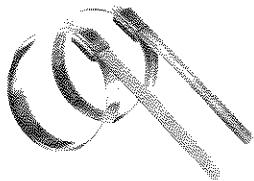
J102 POK-KIT TOOL

Small, lightweight, pocket-size tool for applying 1/4" and 3/8" width of BAND-IT EARLOKT (roll band & buckles) clamps, BAND-IT SCRU-LOKT and BAND-IT Jr. preformed clamps. Tensions and cuts band.



Cat. No.	Shp. Wt.	Pkg. Qty.
J102 Pok-Kit Tool	1.25 lbs.	1
J122 Mandrel Assembly	.06 lb.	1
J123 Locking Dog Assembly	.06 lb.	1

Center Punch™ Clamps



CP clamps should be installed with Band-It's T250, T240 or S38 Center Punch tools

Package Quantity—100 50 & 25

EDP No.	Cat. No.	Clamp I.D. X Width inches	Pkg Qty	Weight Lbs
Type 201 Stainless Steel				
		3/8" Wide Clamp — .025" Thick		
		3/8" Wide Clamp — .025" Thick		
37003	CP3S	1 1/2 x 3/8	100	3.6
37311	CP311S	1 3/8 x 3/8	100	4.6
37004	CP4S	1 x 3/8	100	8.3
37005	CP5S	1 1/4 x 3/8	100	8.7
37006	CP6S	1 1/2 x 3/8	100	9.7
37007	CP7S	1 3/4 x 3/8	100	10.6
37008	CP8S	2 x 3/8	100	11.5
37009	CP9S	2 1/4 x 3/8	100	12.6
37010	CP10S	2 1/2 x 3/8	50	6.8
37011	CP11S	2 3/4 x 3/8	50	7.3
37012	CP12S	3 x 3/8	50	7.7
37014	CP14S	3 1/2 x 3/8	50	8.7
37016	CP16S	4 x 3/8	25	4.9
37018	CP18S	4 1/2 x 3/8	25	5.5
37020	CP20S	5 x 3/8	25	5.9
37024	CP24S	6 x 3/8	25	6.8
37028	CP28S	7 x 3/8	25	7.4
37032	CP32S	8 x 3/8	25	8.2

Galvanized Carbon Steel				
		3/8" Wide Clamp — .025" Thick		
		3/8" Wide Clamp — .030" Thick		
36003	CP3	1 1/2 x 3/8	100	3.6
36311	CP311	1 3/8 x 3/8	100	4.6
36004	CP4	1 x 3/8	100	8.3
36005	CP5	1 1/4 x 3/8	100	8.7
36006	CP6	1 1/2 x 3/8	100	9.7
36007	CP7	1 3/4 x 3/8	100	10.6
36008	CP8	2 x 3/8	100	11.5
36009	CP9	2 1/4 x 3/8	100	12.6
36010	CP10	2 1/2 x 3/8	50	6.8
36011	CP11	2 3/4 x 3/8	50	7.3
36012	CP12	3 x 3/8	50	7.7
36014	CP14	3 1/2 x 3/8	50	8.7
36016	CP16	4 x 3/8	25	4.9
36018	CP18	4 1/2 x 3/8	25	5.5
36020	CP20	5 x 3/8	25	5.9
36024	CP24	6 x 3/8	25	6.8
36028	CP28	7 x 3/8	25	7.4
36032	CP32	8 x 3/8	25	8.2

BAND-IT H OUDAILLE

BAND

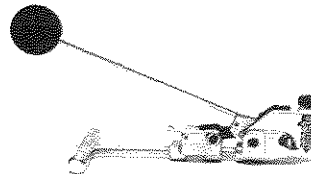
100 ft. (30.5 meters) per roll

CAT. NO.	WIDTH	THICKNESS	METAL	SHIP. WT.
C202	1/4"	.020"	TYPE 201 S.S.	2.00 lbs.
C203*	3/8"	.025"	TYPE 201 S.S.	3.25 lbs.
C204	1/2"	.030"	TYPE 201 S.S.	5.38 lbs.
C205**	5/8"	.030"	TYPE 201 S.S.	6.50 lbs.
C206	3/4"	.030"	TYPE 201 S.S.	7.88 lbs.
C303	3/8"	.025"	ELECTRO-GALVANIZED HI-CARBON STEEL	3.25 lbs.
C304	1/2"	.030"	ELECTRO-GALVANIZED HI-CARBON STEEL	5.38 lbs.
C305	5/8"	.030"	ELECTRO-GALVANIZED HI-CARBON STEEL	6.50 lbs.
C306	3/4"	.030"	ELECTRO-GALVANIZED HI-CARBON STEEL	7.88 lbs.
C402	1/4"	.020"	TYPE 316 S.S.	2.00 lbs.
C403	3/8"	.025"	TYPE 316 S.S.	3.25 lbs.
C404	1/2"	.030"	TYPE 316 S.S.	5.38 lbs.
C405	5/8"	.030"	TYPE 316 S.S.	6.50 lbs.
C406	3/4"	.030"	TYPE 316 S.S.	7.88 lbs.
C502	1/4"	.020"	SILICON BRONZE	2.00 lbs.
C503	3/8"	.025"	SILICON BRONZE	3.25 lbs.
C504	1/2"	.030"	SILICON BRONZE	5.38 lbs.
C505	5/8"	.030"	SILICON BRONZE	6.50 lbs.
C506	3/4"	.030"	SILICON BRONZE	7.88 lbs.

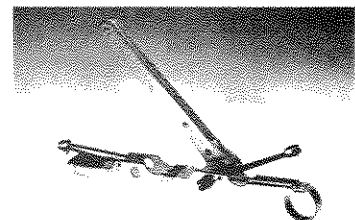
*S.S. = Stainless Steel

Center Punch Tools

These ratchet action tensioning tools are for applying Center Punch and Center Punch Open-End clamps with a center punch lock.



Center Punch Tool — T250



Center Punch Tool — S38

Center Punch Tools

Cat. No.	EDP No.	Description	Weight Lbs	Kg	Pkg Qty
T240	34240	For 3/8" (9.53mm) Wide Clamps	3.15	1.5	1
T250	34250	For 1/2" (15.88mm) Wide Clamps	3.15	1.5	1
S032	30032	3/8" Adapter Insert for T250 Tool	.4	.2	1
T256	34256	Mallet (Forged Steel)	2.05	.9	1
S38	30038	For 3/8" (9.53mm) and 1/2" (15.88mm) Wide Clamps	1.10	.5	1

Replacement Parts

T251	34251	Center Punch Head for T240 & T250			1
T252	34252	Center Punch Holder for T240 & T250			1
T253	34253	Punch for T240 & T250			1
T202	30202	Replacement Punch Assembly for S38			1
J038	20038	Winding Mandrel Assembly			1

BAND-IT OUDAILLE

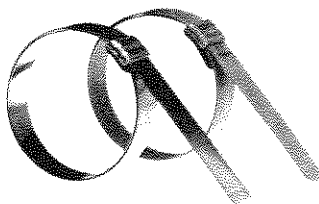
Preformed Clamps

Band-It Jr. Preformed Clamps

The Band-It Jr. Preformed clamp is vibration resistant and requires no hammering or crimping. It is automatically locked under full tension in one simple lever movement. Band-It Jr. Preformed clamps are available in type 201 and 316 stainless steel in five different widths. These clamps are applied with The Band-It Tool and the Jr. Adapter tool. For portable applications, use The Band-It Tool with the Heavy Duty Jr. Adapter tool. Band-It Air Tools are recommended for high volume production clamping jobs.

The 1/4" and 3/8" width clamps may also be applied with the J020 Pok-It II Tool.

Package Quantity — 100, 50 & 25



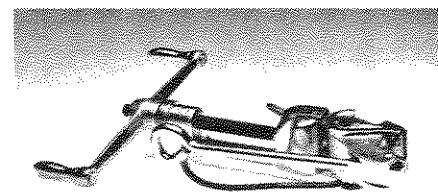
Band-It Jr. Preformed Clamps (Continued)

EDP No.	Cat. No.	Clamp ID Inches	Band Width Inches	Band Thickness Inches	Pkg Qty	Weight Lbs
Galvanized Carbon Steel (GCS)						
20301	J301	13/16	3/8	.025	100	3.6
20343	J343	1	3/8	.025	100	3.9
20302	J302	1 3/8	3/8	.025	100	4.7
20303	J303	1	1/2	.030	100	6.5
20304	J304	1 1/4	1/2	.030	100	7.2
20305	J305	1 1/2	5/8	.030	100	10.4
20336	J336	1 3/4	1/2	.030	100	8.7
20306	J306	1 3/4	5/8	.030	100	11.3
20345	J345	2	3/8	.025	100	5.5
20307	J307	2	5/8	.030	100	12.2
20327	J327	2	3/4	.030	100	14.9
20308	J308	2 1/4	5/8	.030	100	13.3
20309	J309	2 1/2	5/8	.030	100	13.9
20330	J330	2 3/4	1/2	.030	100	11.3
20310	J310	2 3/4	3/4	.030	50	9.2
20346	J346	3	3/8	.025	100	7.5
20311	J311	3	3/4	.030	50	9.7
20312	J312	3 1/2	3/4	.030	50	10.8
20313	J313	4	3/4	.030	25	6.1
20314	J314	4 1/2	3/4	.030	25	6.7
20315	J315	5	3/4	.030	25	7.2
20316	J316	6	3/4	.030	25	8.2
20318	J318	7	3/4	.030	25	10.2
20319	J319	8	3/4	.030	25	11.0

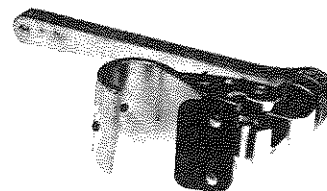
EDP No.	Cat. No.	Clamp ID Inches	Band Width Inches	Band Thickness Inches	Pkg Qty	Weight Lbs
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Type 201 Stainless Steel

20240	J240	3/4	1/4	.020	100	1.9
20201	J201	13/16	3/8	.025	100	3.6
20242	J242	1	1/4	.020	100	2.1
20243	J243	1	3/8	.025	100	3.9
20202	J202	1 3/8	3/8	.025	100	4.7
20203	J203	1	1/2	.030	100	6.5
20204	J204	1 1/4	1/2	.030	100	7.2
20241	J241	1 3/8	1/4	.020	100	2.5
20252	J252	1 1/2	1/4	.020	100	2.6
20205	J205	1 1/2	5/8	.030	100	10.4
20236	J236	1 3/4	1/2	.030	100	8.7
20206	J206	1 3/4	5/8	.030	100	11.3
20245	J245	2	3/8	.025	100	5.5
20253	J253	2	1/4	.020	100	3.2
20207	J207	2	5/8	.030	100	12.2
20227	J227	2	3/4	.030	100	14.9
20208	J208	2 1/4	5/8	.030	100	13.3
20209	J209	2 1/2	5/8	.030	100	13.9
20256	J256	2 3/4	1/4	.020	100	3.8
20230	J230	2 3/4	1/2	.030	100	11.3
20210	J210	2 3/4	3/4	.030	50	9.2
20244	J244	3	1/4	.020	100	4.2
20246	J246	3	3/8	.025	100	7.5
20211	J211	3	3/4	.030	50	9.7
20255	J255	3 1/4	3/8	.025	100	8.2
20257	J257	3 1/2	1/4	.020	100	4.6
20212	J212	3 1/2	3/4	.030	50	10.8
20249	J249	4	1/2	.030	100	14.9
20213	J213	4	3/4	.030	25	6.1
20214	J214	4 1/2	3/4	.030	25	6.7
20215	J215	5	3/4	.030	25	7.2
20216	J216	6	3/4	.030	25	8.2
20218	J218	7	3/4	.030	25	10.2
20219	J219	8	3/4	.030	25	11.0



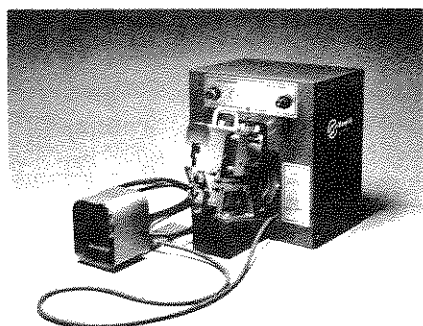
The Band-It Tool with the Jr. Adapter



Heavy Duty Jr. Adapter

Band-It Jr. Preformed Clamp Tools

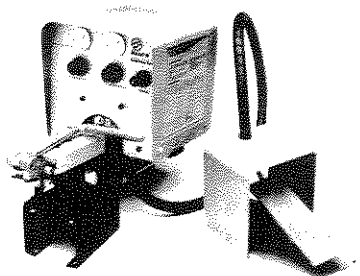
Cat. No.	EDP No.	
J050	20050	Heavy Duty Jr. Adapter for use with C001 tool to apply Band-It Jr. Preformed clamps Pkg Qty 1 Weight 1.7 Lbs .8 Kg



Automatic Air Tool

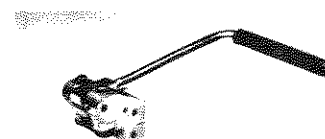
For high volume production clamping of all widths and sizes of Band-It Jr. Preformed clamps. Automatically tensions and cuts off clamp tail after locking. Operated on 80-120 p.s.i. air line pressure. Table top mounting with foot pedal operation. The Automatic Air Tool complete assembly consists of S350 and S260 as shown.

Band-It® HOUDAILLE



Standard Air Tool

The foot controlled standard economy air tool applies the complete range of Band-It Jr. Preformed clamps.



S180

Head for Standard Air Tool

Automatic Air Tool

Cat. No.	EDP No.	Description	Pkg Qty	Weight Lbs	Kg
S350	30350	Automatic Air Tool (Head Included) Overall Dimensions: Width 17" 431.8 mm, Height 18½" 469.9 mm, & Depth 21½" 596.9 mm	1	135.0	61.2

Standard Air Tool

S750	30750	Standard Air Tool (Head Included)	1	43.3	19.6
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Replacement Parts—Cutter Blade Kits for Air Tool Heads

Each kit contains a cutter blade, backing plate, hex wrench and two screws.

J920	20920	For S180 & S260 Heads	1		
S260	30260	Band-It Jr. Preformed Clamp Head for Automatic Air Tool	1	2.0	.9
S180	30180	Band-It Jr. Preformed Clamp Head for S750 Air Tool	1	3.2	1.5

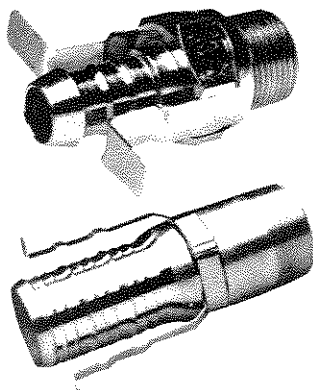
Tri-Lokt® Hose Nipples

Band-It's patented design of the Tri-Lokt Hose Nipple is the answer for heavy duty industrial hose applications including single and double wire braid hose. This Tri-Lokt Nipple should be used when a positive lock is required between the clamp and the nipple. The locking yoke together with the Band-It clamp accommodates the various wall thickness of different types of hoses.

Package Quantity—12 & 1

Nipples Complete with Yokes

EDP No.	Cat. No.	Hose ID X NPT inches	Weight Lbs
Package Quantity—12			
18106	H106	¼	1.4
18112	H112	⅜	2.0
18120	H120	½x¾	3.0
18122	H122	½	3.0
18132	H132	¾x½	6.3
18134	H134	¾	4.8
18140	H140	1	7.8

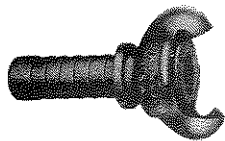


EDP No.	Cat. No.	Hose ID X NPT Inches	Weight Lbs
Swaged Design Package Quantity—1			
18600	H600	1¼	1.2
18610	H610	1½	1.4
18620	H620	2	2.1
18630	H630	2½	3.8
18640	H640	3	5.0
18650	H650	4	6.8
18656	H656	5	11.4
18658	H658	6	16.9

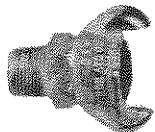
EDP No.	Cat. No.	Hose ID Inches	NPT Inches	Weight Lbs.
Type 316 Stainless Steel Nipples Complete With Yokes				
30600	S600	1¼	1¼	1.3
30610	S610	1½	1½	1.4
30620	S620	2	2	2.1
30630	S630	2½	2½	3.5
30640	S640	3	3	4.6
30650	S650	4	4	6.8
30660	S660	5	5	11.2
30670	S670	6	6	17.2

QUICK DISCONNECT
FITTINGS & ACCESSORIES

"AIR KING" UNIVERSAL COUPLINGS



HOSE ENDS



MALE N.P.T. ENDS



FEMALE N.P.T. ENDS



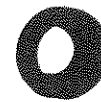
BLANK ENDS



TRIPLE CONNECTIONS

Size	IRON		BRASS		STAINLESS
	Part No.	Carton	Part No.	Carton	
3/8"	AMH	25	ABH	25	RAM-1
1/2"	AM-1	50	AB-1	50	
5/8"	AM-5	50	AB-5	50	
3/4"	AM-6	50	AB-6	50	
1"	AM-11	50	AB-11	50	RAM-11
1/4"	AMB-1	25	ABB-1	25	RAM-2
3/8"	AMB	25	ABB	25	
1/2"	AM-2	50	AB-2	50	
3/4"	AM-7	50	AB-7	50	
1"	AM-12	50	AB-12	50	RAM-12
1/4"	AMC-1	25	ABC-1	25	RAM-3
3/8"	AMC	25	ABC	25	
1/2"	AM-3	50	AB-3	50	
3/4"	AM-8	50	AB-8	50	
1"	AM-13	50	AB-13	50	RAM-13
	AM-0	25	AB-0	25	RAM-0
	AM-10	25	AB-10	25	

Meets MIL Spec. WWC-633C with AWS-6-1 Washers.



WASHERS

Part	
Air & Water	AWR-4
Oil	AWS-6

(In Bags of 50)

Same Size for all Coupling Sizes.



LANYARDS

Part

ACL-8

(In Bags of 25)

Same Size for all Coupling Sizes.



SAFETY CLIPS

Part

AC-1

(In Bags of 25)

Same Size for all Coupling Sizes.

WASHERS for 4-Lug

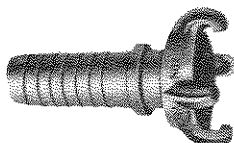
Part

AWR-14

All Sizes

The use of an "Air King" Safety Clip or wire type retainer is necessary to assure "Air King" Universal Couplings will not become accidentally disconnected. This guarantees the fittings are properly connected as pin will not go through holes in mating flanges until couplings are locked in place.

"KING" Four-Lug Quick-Acting Coupling



HOSE END

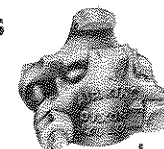


FEMALE N.P.T. END

Size	IRON		BRASS	
	Part No.	Brass Part No.		
1 1/4"	AM-16	AB-16		
1 1/2"	AM-21	AB-21		
2"	AM-26	AB-26		
1 1/4"	AM-18	AB-18		
1 1/2"	AM-23	AB-23		
2"	AM-28	AB-28		

"AIR KING" Clamps

Plated Malleable Iron



'BOSS' CLAMPS
recommended
for these couplings

Clamp Size:	For Hose O.D.'s From:	To:	Part Number
3/8"	1 1/16"	7/8"	CD
1/2"	1"	1 3/16"	A-4
3/4"	1 1/8"	1 5/16"	A-9
7/8"	1 5/16"	1 1/2"	A-10
1"	1 1/2"	1 13/16"	A-14

WARNING:
NEVER USE ANY "AIR KING"
COUPLING FOR STEAM
SERVICE!

None of Dixon's catalog information is to be interpreted to mean that this coupling is suitable for use on steam hose

NOTE: Safety Clips are same size for both 2-lug & 4-lug "Universal Couplings". Use on all Universal Coupling applications.



QUICK DISCONNECT AIR FITTINGS & ACCESSORIES

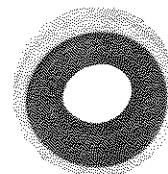
TEFLON SEALANTS

A convenient and efficient way to seal threads



THREAD SEALANT CANS

Can Size	Part No.
1/2 Pint	TS1
1 Pint	TS2
1 Quart	TS3
1 Gallon	TS4



TEFLON TAPE

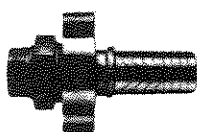
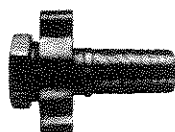
Size / Length	Part No.
1/2" x 260"	TTA 50
1/2" x 520"	TTB 50
1/2" x 1296"	TTC 50
3/4" X 260"	TTA 75
3/4" X 520"	TTB 75

**Meets Military Specification,
MIL - T - 27730A.**

BOSS COUPLINGS

"BOSS" GROUND JOINT SEAL

PLATED STEEL &/or MALLEABLE IRON

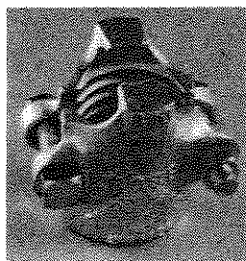


Sizes	Coupling With Female Spud Part #	Coupling With Male Spud Part #	Stem Part #	Wing Nut Part #	Female Spud Part #	Male Spud Part #	Double Spud Part #
1/4	GF1	MG1	GBA	BA2	GBC	GMB	
3/8	GF3	MG3	GCA	CB	GCC	GMC	
1/2	GF6	MG6	GB1	B2	GB3	GM3	GDB3
3/4	GF26	MG26	GB6	B12	GB8	GM8	GDB13
1	GF36	MG36	GB11	B12	GB13	GM13	GDB13
1 1/4	GF51	MG51	GB16	B17	GB18	GM18	GDB23
1 1/2	GF61	MG61	GB21	B17	GB23	GM23	GDB23
2	GF81	MG81	GB26	B27	GB28	GM28	GDB28
2 1/2	GF96	MG96	GB31	B32	GB33	GM33	GDB33
3	GF111	MG111	GB36	B37	GB38	GM38	GDB38
4	GF141		GB46	B47	GB48		
5	GF171		GB56	B67	GB58		
6	GF201		GB66	B67	GB68		

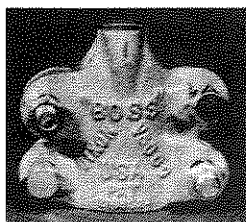
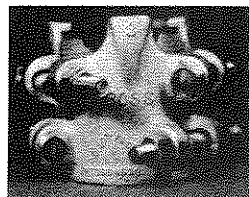


BOSS COUPLINGS

"BOSS" CLAMPS

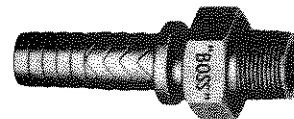


2-BOLT TYPE

4-BOLT TYPE
2 GRIPPING FINGERS4-BOLT TYPE
*4 GRIPPING FINGERSTHREE-PIECE
6-BOLT TYPE

Hose I.D.	Hose O.D.		Part #	Brass Part #	Stainless Steel Part #
	From:	To:			
1/4"	9/16"	21/32"	BD		
3/8"	11/16"	7/8"	CD		
1/2"	13/16"	15/16"	DD		
1/2"	15/16"	1 1/16"	B-4	BB-4	RB-4
1/2"	1 1/16"	1 3/16"	B-5		
3/4"	1 3/16"	1 5/16"	BU-9	BBU-9	RBU-9
3/4"	1 5/16"	1 1/2"	B-9	BB-9	RB-9
3/4"	1 1/2"	1 11/16"	B-10		
1/2"	29/32"	1 1/32"	968 X		
1"	1 13/32"	1 9/16"	156*		
1"	1 17/32"	1 23/32"	BU-14	BBU-14	RBU-14
1"	1 11/16"	1 15/16"	B-14	BB-14	RB-14
	1 11/16"	1 7/8"	187*		
1"	1 15/16"	2 1/8"	B-15		
	1 7/8"	2 1/16"	206*		
	2"	2 1/8"	212*		
1 1/4"	2 1/8"	2 3/8"	B-19	BB-19	RB-19
	2 1/16"	2 1/4"	225*		
1 1/2"	2 3/16"	2 3/8"	BU-24	BBU-24	RBU-24
1 1/2"	2 3/8"	2 9/16"	B-24	BB-24	RB-24
	2 1/4"	2 1/2"	250*		
1 1/2"	2 9/16"	2 3/4"	B-25		
2"	2 1/2"	2 25/32"	BU-29	BBU-29	RBU-29
	2 1/2"	2 3/4"	275*		
2"	2 3/4"	3 1/16"	B-29	BB-29	RB-29
	2 3/4"	3 1/16"	306*		
	3 1/16"	3 1/2"	350*		
2"	3 3/32"	3 7/16"	B-30		
	3 1/2"	3 3/4"	375*		
2 1/2"	3 1/2"	3 15/16"	B-34		
	3 3/4"	4"	401*		
3"	3 13/16"	4 1/16"	B-35		
	4"	4 3/16"	418*		
3"	4 1/16"	4 7/16"	B-39		
	4 3/16"	4 1/2"	450*		

4"	4 1/4"	4 13/16"	BS-39
4"	4 7/8"	5 1/4"	BS-49
4"	5 1/4"	5 19/32"	BU-49
4"	5 17/32"	5 15/16"	B-49
6"	6 7/8"	7 3/8"	750
6"	7 1/2"	8"	850

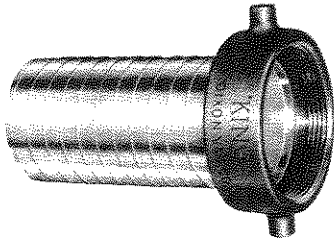
"BOSS"
MALE STEMS

1/4"-1"

Steel Bar Stock
1 1/4" and above
Malleable Iron

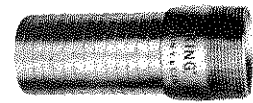
Size	Part
1/4x1/8	MS4X2
1/4x1/4	MSA
1/4x3/8	MSB
3/8x1/4	MS6X4
3/8x3/8	MSC
3/8x1/2	MS6X8
1/2x1/4	MS8X4
1/2x3/8	MS8X6
1/2x1/2	MS-1
1/2x3/4	MS8X12
3/4x1/2	MS12X8
3/4x3/4	MS-6

Size	Part
3/4x1	MS12X16
1x3/4	MS16X12
1	MS-11
1 1/4	MS-16
1 1/2	MS-21
2	MS-26
2 1/2	MS-31
3	MS-36
4	MS-46
5	MS-51
6	MS-66



SHANK TYPE FITTINGS LONG SHANK COUPLINGS for Bulk Handling

COMPLETE FEMALE COUPLING



Male

PLATED
STEEL
OR
STAINLESS
STEEL
HOSE SHANK

*Teflon Gaskets
Standard

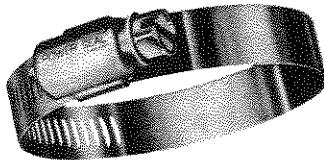
SIZE	Brass Nut Plated Steel Shank	Malleable Nut Steel Shank	Malleable Nut* Stain. Steel Shank	All Stainless* Steel	Stainless Steel	Plated Steel
	Part #	Part #	Part #	Part #	Part #	Part #
1 1/4"	SD-15	SDMP-15				SK-16
1 1/2"	SD-20	SDMP-20				SK-21
2"	SD-25	SDMP-25	RSDM-25	RSDR-25	RSK-26	SK-26
2 1/2"	SD-30	SDMP-30				SK-31
3"	SD-35	SDMP-35	RSDM-35	RSDR-35	RSK-36	SK-36
4"	SD-40	SDMP-40				SK-46

DIXON WORM GEAR CLAMPS

CLAMPS

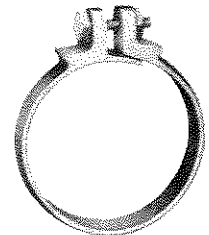
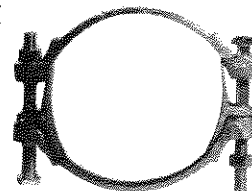
SINGLE BOLT CLAMPS

STYLE HS CLAMPS



HS TYPE

DOUBLE BOLT CLAMPS



Combination 1/4" Hexagon and Screwdriver Slotted Screw
SAE 300 series stainless band
SAE 4018 steel case hardened zinc plated and chrome
plate bolt screw

DIAM. RANGE

From:	To:	Part #	Master*
7/16"	25/32"	HS-6	200
1/2"	29/32"	HS-8	200
9/16"	11/16"	HS-10	500
11/16"	1 1/4"	HS-12	500
13/16"	1 1/2"	HS-16	500
13/16"	1 3/4"	HS-20	500
1 1/16"	2"	HS-24	500
1 5/16"	2 1/4"	HS-28	500
1 9/16"	2 1/2"	HS-32	500
1 13/16"	2 3/4"	HS-36	500
2 1/16"	3"	HS-40	200
2 5/16"	3 1/4"	HS-44	200
2 9/16"	3 1/2"	HS-48	200
2 13/16"	3 3/4"	HS-52	200
3 1/16"	4"	HS-56	200
3 5/16"	4 1/4"	HS-60	200
3 9/16"	4 1/2"	HS-64	200
4 1/8"	5"	HS-72	100
4 5/8"	5 1/2"	HS-80	100
5 1/8"	6"	HS-88	100
5 5/8"	6 1/2"	HS-96	100
6 1/8"	7"	HS-104	100
5 5/8"	8 1/2"	HS-128	100
7 1/8"	10"	HS-152	100
9 3/8"	12 1/4"	HS-188	100
10 1/8"	13"	HS-200	100
10 7/8"	13 3/4"	HS-212	100
11 5/8"	14 1/2"	HS-224	100
12 3/8"	15 1/4"	HS-236	100
13 1/8"	16"	HS-248	100
17 1/8"	20"	HS-312	100

* Master
Quantities
"Available in
package of 10."

For Hose O.D. From	To	Iron Part #	BRASS Part #
1 1/8"	1 3/16"	J-48	
1 3/16"	1 3/8"	J-49	
1 7/16"	1 17/32"	JX-49	
1 5/8"	1 13/16"	DL-14	
1 3/4"	2 3/64"	DL-20	
2 7/64"	2 19/64"	DL-24	
2 5/16"	2 5/8"	DL-32	
3 1/2"	3 13/16"	400	B400
4 1/32"	4 9/32"	463	B463
4 1/4"	4 15/16"	525	B525
4 1/2"	5 1/32"	550	B550
5 1/8"	5 11/16"	600	B600
5 15/16"	6 1/2"	675	B675
6 1/2"	7 9/16"	769	B769
7 11/16"	8 3/16"	818	B818
8 1/4"	8 7/8"	875	B875
8 15/16"	9 7/8"	988	B988
9 15/16"	11 3/8"	1125	B1125
11 3/16"	13"	1275	B1275
13 3/16"	15"	1450	B1450
15 1/16"	17 1/2"	1700	B1700

For Hose O.D. From	To	Part #
7/8"	1"	2
31/32"	1 1/8"	3
1 1/16"	1 3/16"	4
1 5/32"	1 1/4"	5
1 1/4"	1 3/8"	6
1 11/32"	1 7/16"	7
1 7/16"	1 9/16"	8
1 17/32"	1 11/16"	9
1 21/32"	1 3/4"	10
1 3/4"	1 7/8"	11
1 7/8"	2 1/32"	12
2"	2 1/8"	13
2 1/8"	2 9/32"	14
2 1/4"	2 13/32"	15
2 3/8"	2 1/2"	16
2 1/2"	2 5/8"	17
2 5/8"	2 7/8"	18
2 7/8"	3 1/16"	19
3 1/16"	3 1/4"	20
3 1/4"	3 7/16"	21
3 7/16"	3 5/8"	22
3 5/8"	3 13/32"	23
3 13/16"	4 1/8"	24
4 1/8"	4 5/16"	25
4 1/4"	4 1/2"	26
4 7/16"	4 5/8"	27
4 5/8"	4 7/8"	X-27
4 7/8"	5 1/4"	28

TWO-BOLT TYPE WITH INNER GRIPPING RIDGES

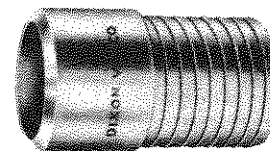
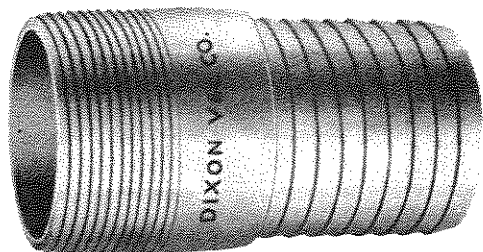
A rugged, plated malleable iron two-bolt clamp with machine bolts and hex nuts. Inner surface has dual gripping ridges. Bolt lugs are reinforced to prevent bending out of alignment.

NOTE: Measure Hose O.D.
accurately before ordering Clamp.



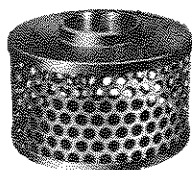
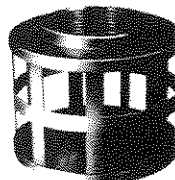
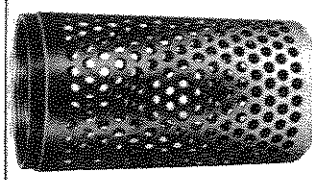
SHANK TYPE FITTING

"KING" Combination Nipples



All-purpose nipples, made from tubular stock to fit straight end hose. Threaded end, in all styles, has standard iron pipe thread same size as hose; i.e.: 2" Nipple has 2" thread and fits 2" I.D. hose.

Sizes:	No./ carton	UNPLATED			GROOVED ENDS (Victaulic)		ALUMINUM N.P.T. Ends		PLAIN ENDS (No Threads- 37 1/2° Bevel Angle)	
		STEEL N.P.T. Ends	STEEL N.P.T. Ends	STAINLESS STEEL N.P.T. Ends	UNPLATED STEEL	Part No.:	Part No.:	Part No.:	UNPLATED STEEL Beveled Ends	Part No.:
1/2"	50	ST-1	STC-1	RST-1			1/2" AST-1	STB-1		
3/4"	50	ST-5	STC-5	RST-5	STV-5		3/4" AST-5	STB-5		
1"	50	ST-10	STC-10	RST-10	STV-10		1" AST-10	STB-10		
1 1/4"	50	ST-15	STC-15	RST-15	STV-15		1 1/4" AST-15	STB-15		
1 1/2"	50	ST-20	STC-20	RST-20	STV-20		1 1/2" AST-20	STB-20		
2"	50	ST-25	STC-25	RST-25	STV-25		2" AST-25	STB-25		
2 1/2"	25	ST-30	STC-30	RST-30	STV-30		2 1/2" AST-30	STB-30		
3"	25	ST-35	STC-35	RST-35	STV-35		3" AST-35	STB-35		
4"	25	ST-40	STC-40	RST-40	STV-40		4" AST-40	STB-40		
5"	8	ST-50	STC-50	RST-50	STV-50		5" AST-50	STB-50		
6"	8	ST-60	STC-60	RST-60	STV-60		6" AST-60	STB-60		
8"	4	ST-80	STC-80	RST-80	STV-80			STB-80		
10"	1	ST-100	STC-100		STV-100		10"	STB-100		† Size 2"
12"	1	ST-120	STC-120		STV-120		12"	STB-120		

STRAINERS,
Square,
Round Hole and
Long Thin TypeStandard
Threaded
Round Hole TypeHose
Shank
Round Hole TypeStandard
Threaded
Square Hole TypeHose
Shank
Square Hole
TypeLong Thin
Round Hole
Type

Size:	Threaded Part No.:	Hose Shank Part No.:	Size:	Threaded Part No.:	Hose Shank Part No.:	Size:	Threaded Long Thin Part No.:
1 1/2"	RHS-20	RHS-20S	1 1/2"	SHS-20	SHS-20S	1 1/2"	RSS-20
2"	RHS-25	RHS-25S	2"	SHS-25	SHS-25S	2"	RSS-25
2 1/2"	RHS-30		2 1/2"	SHS-30		2 1/2"	RSS-30
3"	RHS-35	RHS-35S	3"	SHS-35	SHS-35S	3"	RSS-35
4"	RHS-40	RHS-40S	4"	SHS-40	SHS-40S	4"	RSS-40
5"	RHS-50		5"			5"	
6"	RHS-60		6"	SHS-60		6"	
8"	RHS-80		8"			8"	
10"	RHS-100		10"			10"	
12"	RHS-120		12"			12"	

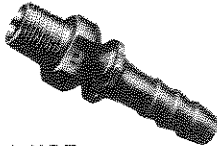
*also available N.S.T. Round
Hole Type RHS 3075

All strainers Are Zinc Plated or
Chromate Finished Steel.
Also available Chrome Plated.



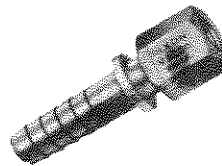
SHANK TYPE FITTING

"3500" STEEL NIPPLES



Male N.P.T.
x Hose Shank

Hose Size:	N.P.T. Size:	No. Per Carton	Part No.:
1/4"	1/8"	100	3501
1/4"	1/4"	100	3502
1/4"	3/8"	100	3504
3/8"	1/4"	100	3505
3/8"	3/8"	100	3506
3/8"	1/2"	100	3508
1/2"	1/4"	100	3509
1/2"	3/8"	100	3510
1/2"	1/2"	100	3512
1/2"	3/4"	50	3511
3/4"	1/2"	50	3513
3/4"	3/4"	50	3514
3/4"	1"	50	3515
1"	3/4"	50	3516
1"	1"	50	3518

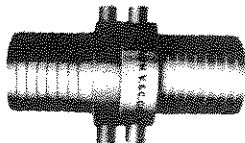


Female N.P.T.
x Hose Shank

Hose Size:	N.P.T. Size:	No. Per Carton	Part No.:
1/4"	1/4"	100	3542
3/8"	1/4"	100	3545
3/8"	3/8"	100	3546
1/2"	3/8"	100	3550
1/2"	1/2"	100	3552
3/4"	3/4"	50	3554

THE IMPORTANCE OF WHIP HOSE: Constant vibration created by air drills, pavement breakers, etc. is destructive to air hose couplings especially the quick-acting type. To provide protection connect one end of a 3' to 10' length of air hose to the tool using the heat-treated "No.3500" Steel Nipple which withstands vibration for a long period. Connect the other end of "whip" hose to the air supply with the more expensive and vulnerable air hose coupling. "Whip hose" should remain permanently connected to the tool and should be the same diam. as the supply line hose "King" Steel Nipples. May also be used.

"KING" Shank Couplings



COMPLETE COUPLING SETS

Hose I.D. /Thread Size:	ALUMINUM with BRASS SWIVEL NUT	ALUMINUM with MALL. IRON SWIVEL NUT	ALL BRASS INCLUDING SWIVEL NUT
	Part Number:	Part Number:	Part Number:
1 1/4"			CBB-125
1 1/2"	CAB-150	CAI-150	CBB-150
2"	CAB-200	CAI-200	CBB-200
2 1/2"	CAB-250	CAI-250	CBB-250
3"	CAB-300	CAI-300	CBB-300
4"	CAB-400	CAI-400	CBB-400
6"	CAB-600	CAI-600	CBB-600

Hose I.D. /Thread Size:	PLATED MALLEABLE IRON INCLUDING SWIVEL NUT	PLATED MALLEABLE IRON with BRASS SWIVEL NUT	ALL REINFORCED NYLON INCLUDING SWIVEL NUT
	Part Number:	Part Number:	Part Number:
1"	S-33	SB-33	
1 1/4"	S-48	SB-48	TCS-48
1 1/2"	S-63	SB-63	TCS-63
2"	S-78	SB-78	TCS-78
2 1/2"	S-93	SB-93	
3"	S-111	SB-111	TCS-111
4"	S-123	SB-123	
5"	S-168	SB-168	
6"	S-183	SB-183	
8"	S-243	SB-243	

WASHERS for Suction, Long and Short Shank Couplings



Size:	RUBBER Part Number:	LEATHER Part Number:	NEOPRENE Part Number:
3/4"	KRW-5	KLW-5	KNW-5
1"	KRW-10	KLW-10	KNW-10
1 1/4"	KRW-15	KLW-15	KNW-15
1 1/2"	KRW-20	KLW-20	KNW-20
2"	KRW-25	KLW-25	KNW-25
2 1/2"	KRW-30	KLW-30	KNW-30
3"	KRW-35	KLW-35	KNW-35
4"	KRW-40	KLW-40	KNW-40
5"	KRW-50		KNW-50
6"	KRW-60		KNW-60
8"	KRW-80		KNW-80

NST WASHERS

SIZE	PART #
1 1/2"	KRW2075
2 1/2"	KRW3075

"DIXON" Steel Hose Mender

Mender Tubes - Steel and Stainless Steel



Size	Steel Part No.:
1/4"	DMA
3/8"	DMB
1/2"	DM-1
3/4"	DM-5
1"	DM-6
1 1/4"	DM-11
1 1/2"	DM-16
1 3/4"	DM-18
2"	DM-21
2 1/2"	DM-26
3"	DM-31
4"	DM-36
5"	DM-46
6"	DM-51
8"	DM-66
10"	DM-86
12"	DM-100
14"	DM-120

For Air Hose up to 1" Size

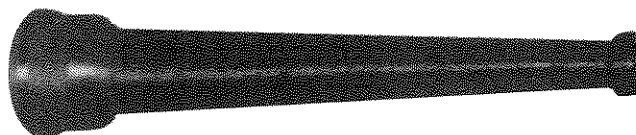


FIRE HOSE COUPLINGS/NOZZLES

HOSE NOZZLES

SOLID BRASS

Thread Size	Description	Discharge	Part #
3/4"	GHT X 6" long	1/4"	BN-6
3/4"	NPSM X 6" long	1/4"	BN-7
1"	NPSM X 8" long	5/16"	BN-10
1 1/4"	NPSM X 10" long	3/8"	BN-12
1 1/2"	NPSM X 12" long	1/2"	BN-15
2"	NPSM X 12" long	9/16"	BN-20
2 1/2"	NPSM X 12" long	1"	BN-25

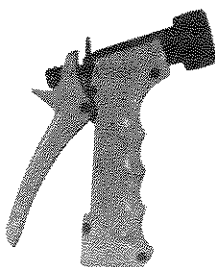


WATER NOZZLES

INSULATED WATER NOZZLE

Part #: SN-75

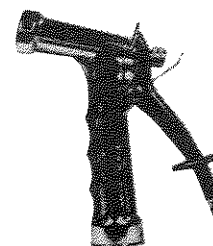
- Heavy duty brass valve and adjusting nut
- Hold open clip locks any spray pattern
- Chrome plated all zinc body
- Industrial strength nylon handle
- Rubber head guard on threaded GHT front version
- Handle GHT threads



PISTOL-GRIP WATER NOZZLE

PART #:CSN-75

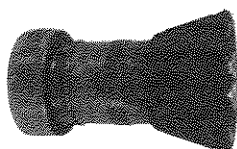
- Heavy duty all zinc metallized body
- Clip locks any spray pattern
- Easy squeeze on/off lever
- All brass valve stem and adjusting nut
- Stainless steel spring with lifetime packing
- Handle GHT threads



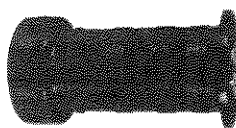
BRASS & LEXAN — FIRE HOSE NOZZLES

Adjustable from straight stream to fog. Factory Mutual approved up to 100 PSI (WATER ONLY) Lexan Fog Nozzle

LEXAN



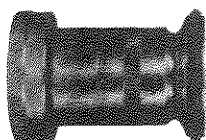
WITH BUMPER



WITHOUT BUMPER

Size	Thread	Part #	Part #
3/4"	GHT	FNB75GHT	
1"	IPT	FNB100S	FN100S
1"	NST	FNB100NST	FN100NST
1 1/2"	IPT	FNB150S	FN150S
1 1/2"	NST	FNB150NST	FN150NST

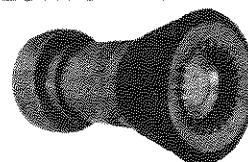
BRASS INDUSTRIAL FOG NOZZLES



Shut-off - straight stream - fog. Listed by Underwriter's Laboratories for class A and B fires. Delivers a 30° - 60° - 90° fog pattern and protective water screen for the user. Brass only.

Size	Thread	Part #
1 1/2"	NST	BFN150NST
1 1/2"	NPSH	BFN150

ELECTRICAL SERVICE

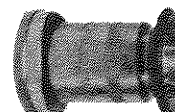


LEXAN

Size	Threa	Part #
1 1/2"	IPT	FNBE150S
1 1/2"	NST	FNBE150NST

Fog Only: for electrical fires. Opens and closes in a 30° fog pattern - up to 120°

BRASS "ALL FOG" NOZZLES WITH BUMPER



No straight stream. From shut-off directly to 30 degrees fog, adjustable thru 90 degrees fog. For use with 1 1/2" hose, in applying water to class A, B and C fires. Use of this nozzle is not likely to prove hazardous when nozzle is held at distances in excess of 10 feet from live electrical apparatus and circuits involving voltages not in excess of 250,000.

Size	Thread	Part #
1 1/2"	NPSH	BFNE150



QUICK DISCONNECT AIR FITTINGS & ACCESSORIES "AIR CHIEF" INDUSTRIAL QUICK-CONNECT FITTINGS

INDUSTRIAL INTERCHANGE




"Air Chief" Industrial Quick-Connect Fittings are of the popular Industrial Interchange design and will interchange with many other makes. For Interchange data and more details, refer to the latest "Air Chief" bulletin. Rated 300 PSI. Packed 25 to a box.






SEMI-AUTOMATIC

COUPLERS AUTOMATICALLY SHUT-OFF WHEN UNCOUPLED




1/4" PLUGS...

Illustrations	Size & Type	Part No.
MALE THREADED END		
	1/4" N.P.T.- M.	DCP-21
	3/8" N.P.T.- M.	DCP-2103
FEMALE THREADED END		
	1/4" N.P.T.- F.	DCP-20
	3/8" N.P.T.- F.	DCP-2023
HOSE SHANK END		
	1/4" Hose Shank	DCP-2142
	5/16" Hose Shank	DCP-2143
	3/8" Hose Shank	DCP-2144

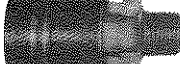

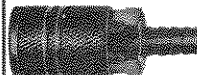
1/4" COUPLERS...

Illustrations	Size & Type	Part No.
MALE THREADED END		
	1/4" N.P.T.- M.	DC-21
	3/8" N.P.T.- M.	DC-2103
FEMALE THREADED END		
	1/4" N.P.T.- F.	DC-20
	3/8" N.P.T.- F.	DC-2023
HOSE SHANK END		
	1/4" Hose Shank	DC-2042
	5/16" Hose Shank	DC-2043
	3/8" Hose Shank	DC-2044




3/8" PLUGS...

MALE THREADED END		
	1/4" N.P.T.- M.	DCP-2502
	3/8" N.P.T.- M.	DCP-25
	1/2" N.P.T.- M.	DCP-2504
FEMALE THREADED END		
	1/4" N.P.T.- F.	DCP-2622
	3/8" N.P.T.- F.	DCP-26
	1/2" N.P.T.- F.	DCP-2624
HOSE SHANK END		
	1/4" Hose Shank	DCP-2542
	3/8" Hose Shank	DCP-2544
	1/2" Hose Shank	DCP-2545


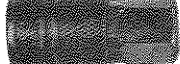
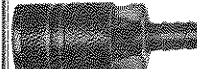
3/8" COUPLERS...

MALE THREADED END		
	1/4" N.P.T.- M.	DC-2502
	3/8" N.P.T.- M.	DC-25
	1/2" N.P.T.- M.	DC-2504
FEMALE THREADED END		
	1/4" N.P.T.- F.	DC-2622
	3/8" N.P.T.- F.	DC-26
	1/2" N.P.T.- F.	DC-2624
HOSE SHANK END		
	1/4" Hose Shank	DC-2642
	3/8" Hose Shank	DC-2644
	1/2" Hose Shank	DC-2645

1/2" PLUGS...

MALE THREADED END		
	3/8" N.P.T.- M.	DCP-1703
	1/2" N.P.T.- M.	DCP-17
	3/4" N.P.T.- M.	DCP-1706
FEMALE THREADED END		
	3/8" N.P.T.- F.	DCP-1823
	1/2" N.P.T.- F.	DCP-18
	3/4" N.P.T.- F.	DCP-1826
HOSE SHANK END		
	3/8" Hose Shank	DCP-1744
	1/2" Hose Shank	DCP-1745
	3/4" Hose Shank	DCP-1746

1/2" COUPLERS...

MALE THREADED END		
	3/8" N.P.T.- M.	DC-903
	1/2" N.P.T.- M.	DC-9
	3/4" N.P.T.- M.	DC-906
FEMALE THREADED END		
	3/8" N.P.T.- F.	DC-1023
	1/2" N.P.T.- F.	DC-10
	3/4" N.P.T.- F.	DC-1026
HOSE SHANK END		
	3/8" Hose Shank	DC-1044
	1/2" Hose Shank	DC-1045
	3/4" Hose Shank	DC-1046

THE IMPORTANCE OF WHIP HOSE: Constant vibration created by air drills, pavement breakers, etc. is destructive to air hose couplings, especially the quick-acting type. To provide protection connect one end of a 3' to 10' length of air hose to the foot, using the heat-treated "No. 3500" Steel Nipple which withstands vibration for a long period. Connect the other end of "Whip" hose to the air supply with the more expensive and vulnerable air hose coupling. "Whip hose" should remain permanently connected to the tool and should be the same diam. as the supply line hose. "King" Steel Nipples may also be used.

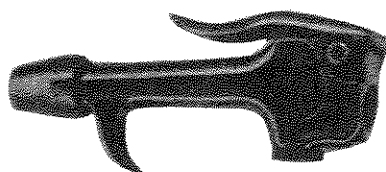


QUICK DISCONNECT AIR FITTINGS & ACCESSORIES

"AIR CHIEF" Safety Blow Guns

Basic safety blow gun for general purpose use. Tip swivels freely to discourage tampering. Tip pressure will not exceed 30 psi, yet gives a good blast of air for cleaning.

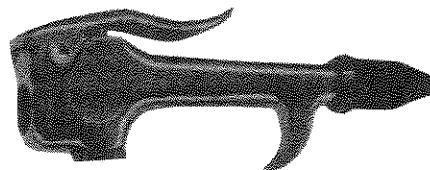
Part No.: D204-30



Safety glasses or shield must be worn when using any blow gun.

Rubber Tipped Blow Gun. Provides leakproof seal between gun and fluid line or other opening. Also excellent for cleaning molds or delicate surfaces where a metal tip might scratch or otherwise harm critical areas.

Part No.: D201



CAUTION: This blow gun does not have a safety by-pass to prevent buildup of tip pressure in the event of tip blockage. It may be used for cleaning purposes only if the air supply (inlet pressure) has been reduced to 30 psi or less.

STRATA-FLO AIR NOZZLE

PERFORMANCE

Compressed air moving over the STRATA-FLO nozzle cone "captures" free air and concentrates it into a powerful stream.

SAFETY

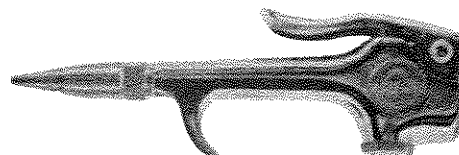
There is no hole through the STRATA-FLO nozzle, so dead-ending it can not cause a dangerous pressure buildup.

ECONOMY

The STRATA-FLO consumes only 6 cfm of air at 100 psi. It should repay its cost in only a few months based on compressed air cost.

NOISE REDUCTION

Because the high velocity air stream is less turbulent, the STRATA-FLO is much quieter than ordinary blow guns - far below any existing noise level standards.



Part No.: D212

NOTE: The Dixon Air Chief and Strata-Flo blow guns have safety tips which prevent buildup of tip pressure in the event the outlet is obstructed or "dead ended". They comply with the requirements of OSHA 1910.242(b) and 1910.95 when used on air lines of 150 psi or less.

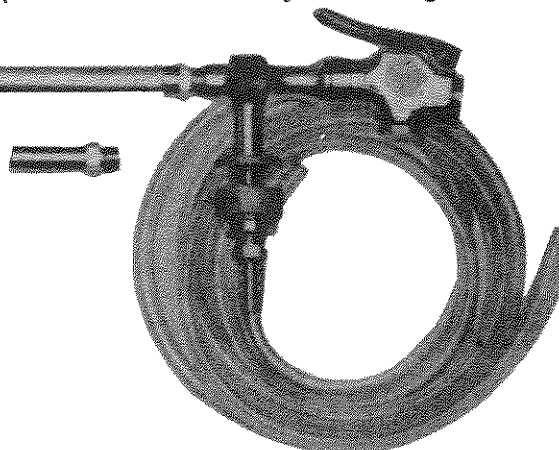
HYDRO-BLAST CLEANING TOOL & SIPHON

Hydro-Blast Cleaning Tool & Siphon
combines compressed air and water pressure to blast away dirt and grime.

Part No.: D230

This powerful and versatile cleaning tool:

- Uses siphon to spray solvents or detergent solutions.
- Uses regular garden hose plus compressed air to blast off dirt and residue.
- Can be used with hot or cold water. Valve body stays cool even when used with hot water.
- Used in garages and factories to blast caked-on dirt from vehicles and equipment.
- Complete, ready to use. D230 includes: Valve body, 2" and 15" extensions, Six foot siphon tubing and adapter for garden hose.



The tubing supplied is vinyl and the internal seals in the valve body are Buna-N. Consult chemical resistance charts for compatibility of solvents before putting gun into solvent service.

QUICK DISCONNECT AIR FITTINGS & ACCESSORIES

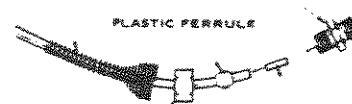
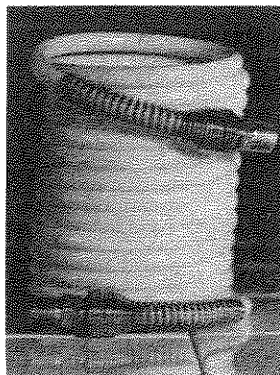


"COIL-CHIEF" Self-Storing Air Hose

Male N.P.T. Size:	Hose I.D. X Length:	Part No.:
1/4"	1/4" x 12'	CC - 1412
1/4"	1/4" x 25'	CC - 1425
1/4"	1/4" x 50'	CC - 1450
3/8"	3/8" x 25'	CC - 3825
3/8"	3/8" x 50'	CC - 3850
1/2"	1/2" x 25'	CC - 1225
1/2"	1/2" x 50'	CC - 1250
Bulk Hose - No Fittings*		
1/4"	1/4" x 100'	CC - 14100B*
3/8"	3/8" x 100'	CC - 38100B*
1/2"	1/2" x 100'	CC - 12100B*

Coil-Chief comes standard with swivel on one end.

*Bulk hose needs assembly kits for ends.



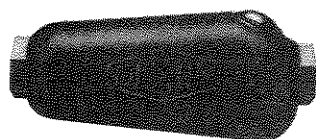
Repair/Assembly kits include rigid or swivel male, fittings, nut, insert, ferrule & spring guard.

Part #	Size / Type
RK090	1/4" Rigid Male
RK092	1/4" Swivel Male
RK110	3/8" Rigid Male
RK112	3/8" Swivel Male
RK118	1/2" Rigid Male
RK119	1/2" Swivel Male

IN-LINE LUBRICATORS

Designed to protect portable or stationary air tools by efficiently oiling the tool mechanisms. Each time an air tool is operated, a fine mist of oil is injected into it along with the air from the compressor.

Installation is recommended within 25 feet of the tool to be lubricated. Transparent sight disc allows visual inspection of oil level. Oil flow regulated by screw driver screw adjustment.



IN-LINE LUBRICATOR

N.P.T. Sizes:	Oil Capacity:	Maximum Working Pressure:	Air Flow at 70 p.s.i.:	Part Number:
1/2"	1.4 Fluid ozs.	500 p.s.i.g.	30 s.c.f.m.	PL-300
3/4"	3.7 Fluid ozs.	200 p.s.i.g.	70 s.c.f.m.	PL-400
3/4"	11.0 Fluid ozs.	300 p.s.i.g.	70 s.c.f.m.	PL-400L
1"	16.0 Fluid ozs.	250 p.s.i.g.	100 s.c.f.m.	PL-500

AIR TOOL LUBRICANT

Use with the In-Line Lubricators.

A specially formulated High Grade Lubricant that prolongs the service life of Air Tools, Cylinders and Accessories while permitting maximum performance. Prohibits rust and removes moisture as it lubricates. It is non-corrosive, non-reactive and doesn't decompose. This compound is superior in performance to ordinary lubricants. The "Easy Pour" spout helps prevent costly spills.

1 pint
Part No.:
ATL-016



1 gallon
Part No.:
ATL-128



ANTI-FREEZE ADDITIVE

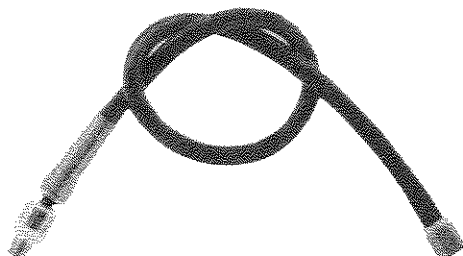
Prevents Air Line and Air Tool freeze-up at below freezing temperatures. Used in In-Line Lubricator. Directions on container.

1 gallon, Part No.: AF-1

5 gallon, Part No.: AF-5



WHIP HOSE



The importance of WHIP HOSE: Vibration from air drills, pavement breakers etc., is destructive to hose couplings. Use "Whip Hose" to protect air hose couplings from unnecessary wear.

LEAD-IN HOSE ASSEMBLIES

Highly flexible neoprene hose, coupled 1/4" Ball Swivel x 1/4" female npt. Used between the air tool and quick coupler to protect the coupler from harmful impact forces while reducing twisting and kinking of the air hose.

Part No.:	Size:
D25L-24	1/4" Lead-in hose, 24" long
D25L-60	1/4" Lead-in hose, 60" Long
D37L-30	3/8" Lead-in hose, 30" Long
D37L-72	3/8" Lead-in hose, 72" Long

Working pressure 200 PSI - For air only.

BOSTON HOSE

NYALL 3/8 IN. (9.5MM) I.D. 1 BR. 500 P.S.I. W.P.

Benefits

- Abrasion, oil, and weather resistant
- Compatible with many fluids (See chemical resistance chart)
- Excellent flow rate
- No swelling
- Easy to clean
- Easy identification
- Wide variety of applications

TUBE
REINFORCEMENT
COVER

COLOR
TEMPERATURE RANGE
TYPE OF BRANDING

Nylon
1 or 2 textile braids.
Neoprene
Red
~ 30°F to +160°F
Ink Print

WORKING PRESSURE
TYPE OF COUPLING

500-750 PSI
Barbed Inserts, Quick Acting, Standard Serrated Nipple, or Long Shank, Clamps—Interlocking, Single Bolt, Band, or Wire.

- Continuous permanent brand
- High working pressure
- Multi-purpose hose

NYALL RED

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD REELS (FEET)
	(IN.)	(MM)		(IN.)	(MM)			
55-1941-04	1/4	6.3	1	1/2	12.7	10	500	650
55-1941-16	3/8	9.5	1	1 1/8	17.5	15	500	650
55-1941-22	1/2	12.7	1	2 3/32	19.8	19	500	650
55-1941-25	1/2	12.7	2	2 1/8	22.2	26	750	650
55-1941-37	3/4	19.1	2	2 1/2	30.2	40	750	550
55-1941-43	1	25.4	2	3 1/2	38.1	56	500	300

NYALL BLACK

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD REELS (FEET)
	(IN.)	(MM)		(IN.)	(MM)			
55-1942-04	1/4	6.3	1	1/2	12.7	10	500	650
55-1942-10	3/8	7.9	1	1 1/8	14.3	13	500	650
55-1942-16	1/2	9.5	1	1 1/8	17.5	15	500	650
55-1942-25	1/2	12.7	2	2 1/8	22.2	19	750	650

BOSFLEX 3/8 IN. (9.5 MM) I.D. 2SP 200 P.S.I. W.P.

Markets

Agriculture _____ Fertilizer and pesticide spray
Equipment Rental _____
Assembly/Manufacturers _____ General service application—convey air, water, oils, paints, etc.
Chemical/Petroleum Industry _____ Transfer of acids, chemicals, solvents, paints, glues, and petroleum products (See chemical resistance chart).
Lumber/Paper/Pulp Industry _____
Construction _____ Paint spray.
Ship Building _____ Convey air, water, and fuels. Hose for paint spray equipment.

Applications

Markets

Agriculture _____ Spraying and conveying water based liquid fertilizers and pesticides.
Assembly/Manufacturers _____ Transfer air and water.
Construction, Food Industry, Metal Working, Mining, Oil Industry, Paper/Pulp Industry, Ship Building

Applications

Features

- EPDM cover
- EPDM tube
- Continuous permanent brand
- Longer lengths

Benefits

- Abrasion, age, and ozone resistant
- Heat resistant
- Easy identification
- Economical—less waste

BOSFLEX A/W (RED)

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD REELS (FEET)
	(IN.)	(MM)		(IN.)	(MM)			
55-1985-07	1/4	6.3	2	1/2	12.7	10	200	650
55-1985-08	1/4	6.3	4	1/2	15.9	14	300	650
55-1985-63	3/8	7.9	4	1/2	15.9	14	300	650
55-1985-19	1/2	9.5	2	1 1/8	17.5	15	200	650
55-1985-86	3/8	9.5	4	2 3/32	18.3	18	300	650
55-1985-25	1/2	12.7	2	1 3/8	20.6	19	200	650
55-1985-89	1/2	12.7	4	2 1/8	22.2	23	300	650
55-1985-92	3/4	15.9	4	2 1/2	25.4	30	300	600
55-1985-37	1/2	19.1	4	2 1/2	29.4	37	225	600
55-1985-38	1	19.1	4	2 1/2	29.4	37	225	5-50 s
55-1985-96	3/4	19.1	4	2 1/2	30.2	40	300	600
55-1985-43	1	25.4	2 Br	3 1/2	36.5	60	200	300

BOSFLEX A/W (BLACK)

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD REELS (FEET)
	(IN.)	(MM)		(IN.)	(MM)			
55-1986-07	1/4	6.3	2	1/2	12.7	10	200	650
55-1986-13	3/8	7.9	2	1 3/32	15.1	13	200	650
55-1986-19	3/8	9.5	2	1 1/8	17.5	15	200	650
55-1986-25	1/2	12.7	2	1 3/8	20.6	19	200	650
55-1986-31	3/8	15.9	2	1 3/8	24.6	28	200	650
55-1986-37	1/2	19.1	4	1 3/8	29.4	37	200	600
55-1986-38	3/4	19.1	4	1 3/8	29.4	37	200	5-50 s
55-1986-43	1	25.4	2 Br	2 1/8	36.5	60	200	300
55-1986-46	1 1/4	31.8	2 Br	2 1/2	44.5	101	200	300
55-1986-49	1 1/2	38.1	2 Br	3 1/2	50.0	106	200	300

TUBE
REINFORCEMENT
COVER

COLOR
TEMPERATURE RANGE
TYPE OF BRANDING

EPDM
2 or 4 textile spirals
EPDM
Red
-40°F to +180°F
Ink Print.

WORKING PRESSURE
TYPE OF COUPLING

200-300 PSI
Barbed Inserts, Quick Acting, Short Shank, or Long Shank, Clamps—Single Bolt, Band, or Wire

MARATHONER

BOSTON HOSE

MARATHONER 3/8 IN. (9.5MM) I.D. 4SP 300 P.S.I. W.P.

TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
TYPE OF BRANDING
WORKING PRESSURE
TYPE OF COUPLING

Nitrile.
2 or 4 spirals.
Neoprene.
Red, Green, Yellow, Black.
-40°F to +180°F
Ink Print.
200-300 PSI.
Barbed Inserts, Quick Acting, or
Long Shank. Clamps—Single
Bolt, Band, or Wire.

Features

- Neoprene cover
- Nitrile tube
- Continuous permanent brand
- Available in long lengths

Markets

Assembly/Manufacturers _____
Lumber/Woodworking _____
Plywood Mfg.
Paper/Pulp Processing
Metal Working
Construction
Mining
Plastic Molding Industry
Ship Building

Benefits

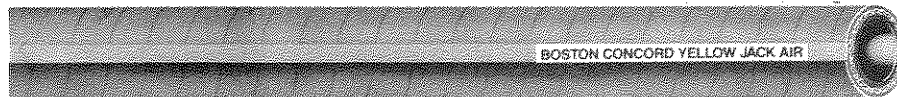
- Abrasion, oil, and weather resistant
- Medium oil resistance
- Easy identification
- Economical—less waste

Applications

Pneumatic tools on production line
Transfer air and water.

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD REELS (FEET)
	(IN.)	(MM)		(IN.)	(MM)			
55-1982-04	1/2	6.3	2	1 1/2	12.7	10	200	650
55-1982-80	1/2	6.3	4	1 1/2	15.1	13	300	650
55-1982-83	3/4	7.9	4	2 1/2	15.9	13	300	650
55-1982-16	3/4	9.5	2	2 1/2	16.7	15	200	650
55-1982-86	3/4	9.5	4	2 1/2	18.3	18	300	650
55-1982-22	1	12.7	2	1 3/4	20.6	19	200	650
55-1982-89	1	12.7	4	1 3/4	22.2	23	300	650
55-1982-92	1	15.9	4	1	25.4	25	300	600
55-1982-36	3/4	19.1	2	1 1/4	28.6	33	225	600
55-1982-96	3/4	19.1	4	1 3/4	29.4	37	300	600
55-1982-97	3/4	19.1	4	1 3/4	29.4	37	300	5-50s
55-1982-43	1	25.4	2 Br	1 1/4	36.5	64	200	300

CONCORD YELLOW JACK



BOSTON CONCORD YELLOW JACK AIR

TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
TYPE OF BRANDING

Neoprene.
1, 2, or 4 wire braids.
Neoprene.
Yellow
-40°F to +200°F
Impression

WORKING PRESSURE
TYPE OF COUPLING

400-1500 PSI.
Interlocking, Non-Reattachable (Swaged), Standard Serrated Nipple, or Steel Nipple.
Clamps—Interlocking

Features

- Neoprene cover
- Neoprene tube
- Continuous permanent brand/ yellow color
- Wide range of sizes

Markets

Construction Industry _____
Oil Field Equipment
Drilling Equipment
Mining _____

Benefits

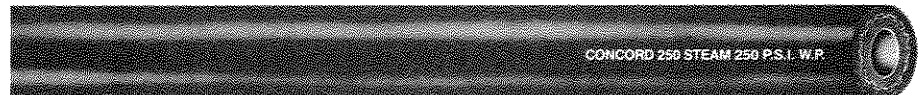
- Abrasion, oil, and weather resistant
- Good oil resistance
- Easy identification
- For many applications

Applications

Provide power to air operated construction equipment. (Bull lines, jackhammer, etc.)
Power air operated drills, boring, and mining equipment.

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			
87-6008-01	1/2	12.7	1	1	25.4	40	1500	50
87-6008-02	3/4	19.1	1	1 1/4	31.8	67	1200	50
87-6008-04	1	25.4	1	1 1/2	38.1	85	1000	50
87-6008-06	1 1/4	31.8	1	1 3/4	46.0	114	650	50
87-6008-05	1 1/2	38.1	2	2 3/8	55.6	146	600	50
87-6008-07	2	50.8	2	2 3/4	69.1	210	600	50
87-6008-08	2 1/2	63.5	2	3 3/4	81.8	250	400	50
87-6008-09	3	76.2	2	3 3/4	96.0	317	400	50
87-6008-21	4	101.6	4	5	127.0	606	400	50

CONCORD 250 STEAM



CONCORD 250 STEAM 250 P.S.I. W.P.

Features

- EPDM cover
- Patrex tube (Chlorobutyl)
- Continuous impression brand
- 10 to 1 safety factor
- Available with red cover (on special order)

Benefits

- Heat, age, ozone, and weather resistant
- Excellent heat resistance
- Handles most steam cleaning detergents
- Easy identification
- Meets safety standards of RMA
- Color coding

Markets

Chemical/Petroleum Industry _____
Industrial Cleaning Markets _____
Ship Building
Food Industry
Lumber/Woodworking _____
Plywood Mfg./Cardboard
Pulp Processing

Applications

Transfer of steam for processing products and cleaning equipment.
Transfer of steam or hot 200°F detergent type solutions for cleaning of equipment, tanks, buildings, etc.
Transfer steam to melt glues, waxes, etc.

TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
TYPE OF BRANDING
WORKING PRESSURE
TYPE OF COUPLING

Patrex (Chlorobutyl)
2 wire braids.
EPDM/Pin pricked
Black—available in red
+ 450°F
Impression.
250 PSI
Interlocking. Clamps—
Interlocking (four bolt).

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD REELS (FEET)
	(IN.)	(MM)		(IN.)	(MM)			
87-9569-01	1/2	12.7	2	1 1/2	26.2	48	250	50
87-9569-02	3/4	19.1	2	1 1/2	34.1	66	250	50
87-9569-03	1	25.4	2	1 3/4	42.1	96	250	50

CONCORD STANDARD STEAM



Features

- EPDM cover
- Patrex tube (Chlorobutyl)
- Continuous impression brand
- 10 to 1 safety factor
- Built in separate static wire
- Assures safe grounding

TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
TYPE OF BRANDING

Patrex (Chlorobutyl)
2 wire braids.
EPDM/Pin pricked
Black.
+ 450°F
Impression.

WORKING PRESSURE
TYPE OF COUPLING

250 PSI
Interlocking. Clamps—
Interlocking (four bolt)

BOSTON HOSE

Markets

Chemical/Petroleum Industry — Transfer of steam for processing products and cleaning equipment.

Industrial Cleaning Markets — Transfer of steam or hot detergent type solutions for cleaning of equipment, tanks, buildings, etc.

Ship Building — Transfer steam to melt glues, waxes, etc.

Lumber/Woodworking — Plywood Mfg./Cardboard Pulp Processing

Applications

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			
87-0084-40	1/2	12.7	2	1 1/8	30.2	55	250	50
87-0084-41	3/4	19.1	2	1 1/8	36.5	78	250	50
87-0084-36	1	25.4	2	1 1/8	42.9	100	250	50
87-0084-42	1 1/4	31.8	2	2 1/2	51.6	135	250	50
87-0084-43	1 1/2	38.1	2	2 3/4	57.9	155	250	50
87-0084-38	2	50.8	2	2 3/4	70.6	194	250	50

CREAMERY/ PACKING HOUSE

TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
TYPE OF BRANDING
WORKING PRESSURE
TYPE OF COUPLING

SBR.
2 textile braids.
Vinyl Nitrile.
White.
- 40°F to +180°F
Ink Print.
150 PSI
Barbed Inserts, Quick Acting, Short Shank, or Long Shank. Clamps—Single Bolt, Band, or Wire.

Features

- Vinyl Nitrile cover
- SBR tube
- Continuous permanent brand
- White color
- Pin pricked

Benefits

- Abrasion, animal fat, oil, and weather resistant
- Heat resistant
- Easy identification
- Convey hot water to 180°F

Markets

Food Industry — Wash down of food processing facilities and equipment.

Meat Packing & Rendering
Chicken Processing
Dairies
Canneries
Syrup Manufacturing

Applications

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD REELS (FEET)
	(IN.)	(MM)		(IN.)	(MM)			
55-1066-37	3/4	19.1	2	1 1/4	31.8	52	150	550

*Molded nozzle available on request.

WASHDOWN 1000



TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
TYPE OF BRANDING
WORKING PRESSURE
TYPE OF COUPLING

SBR
1 wire braid
Vinyl Nitrile.
Yellow.
- 40°F to +180°F
Ink Print.
1000 PSI
Standard Serrated Nipple, or Interlocking. Clamps—Interlocking or Wire.

Features

- Vinyl Nitrile cover
- SBR tube
- Continuous permanent brand
- Yellow cover

- Pin pricked cover
- Longer lengths

Benefits

- Abrasion, animal fat, vegetable oil, and weather resistant
- Heat resistant
- Detergent resistant
- Easy identification
- Economical—less waste

Markets

Food Industry — Wash down of food processing facilities and equipment.

Poultry Processing — Transfer of hot detergent type solutions for cleaning equipment, tanks, buildings, etc. +180°F

Industrial Cleaning Markets —

Construction Industry — Convey air and water

Applications

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	STANDARD REELS (FEET)
	(IN.)	(MM)		(IN.)	(MM)			
87-9610-12	3/8	9.5	1	1 1/8	17.5	25	1000	350 Reels
87-9610-11	1/2	12.7	1	1 3/8	20.6	32	1000	350 Reels
87-9610-06	3/4	19.1	1	1 1/2	28.6	46	1000	350 Reels

Reels will vary from 300 to 400 feet, with maximum of 3 pieces per reel, no piece less than 50 ft.

LION FOOD TRANSFER



TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
TYPE OF BRANDING

Vinyl Nitrile.
2 textile braids—helical wire.
Vinyl Nitrile.
White.
- 40°F to +180°F
Patch

Features

- Vinyl Nitrile cover
- Vinyl Nitrile tube
- Patch brand every ten feet
- White tube and cover
- Smooth bore

Benefits

- Abrasion, animal fat, oil, and weather resistant
- Animal and vegetable oil resistant
- Easy identification
- Meets FDA requirements
- Rapid fluid flow
- Easy to clean

Markets

Food Industry — Transfer by pumping, suction, and discharge of non-dairy food products.

Tank Truck
Rail Car
In Plant

Transfer of bulk liquid sugar, syrups, and vegetable oils from tank trucks to candy manufacturers, bottling plants, processors, etc.

Applications

WORKING PRESSURE
TYPE OF COUPLING

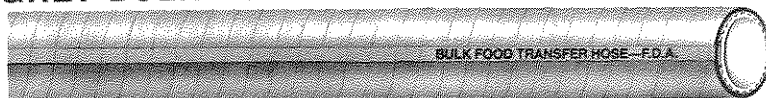
100-150 PSI.
Cam and Groove or Combination Nipple. Clamps—Single Bolt, Double Bolt, Band, or Wire.

SUCTION

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0350-41	1 1/2	38.1	2	2 3/4	57.9	130	150	4	101.6	60
43-0350-42	2	50.8	2	3 1/4	69.9	160	150	5	127.0	60
43-0350-43	3	76.2	2	3 3/4	95.6	243	150	9	228.6	60
43-0350-44	4	101.6	2	4 1/4	122.2	352	100	11	279.4	60

BOSTON HOSE

GREY BULK FOOD TRANSFER HOSE



TUBE Vinyl Nitrile.
REINFORCEMENT 4 textile spirals—helical wire.
COVER Vinyl Nitrile.
COLOR Light grey.
TEMPERATURE RANGE -40°F to +180°F
TYPE OF BRANDING Impression
WORKING PRESSURE 150 PSI
TYPE OF COUPLING Cam and Groove or Combination Nipple, Clamps—Single Bolt, Double Bolt, Band, or Wire.
SUCTION Full vacuum.

Features

- Vinyl Nitrile cover
- Vinyl Nitrile tube
- Continuous permanent brand
- Grey cover
- Smooth bore
- 100' lengths

Benefits

- Abrasion, animal fat, oil, and weather resistant
- Animal and vegetable oil resistant
- Easy identification
- Meets FDA requirements
- Rapid fluid flow
- Easy to clean
- Economical—less waste

Markets

Food Industry
 Tank Truck
 Rail Car
 In Plant

Applications

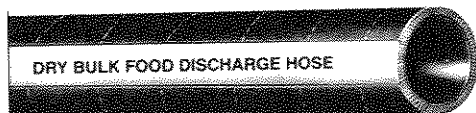
Transfer by pumping, suction, and discharge of non-dairy food products
 Transfer of bulk liquid sugar, syrups, and vegetable oils from tank trucks to candy manufacturers, bottling plants, processors, etc.

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0384-40	1½	38.1	4	2½	57.9	130	150	4	101.6	100
43-0384-42	2	50.8	4	2½	63.9	160	150	5	127.0	100
43-0384-43	3	76.2	4	3¾	95.6	243	150	9	228.6	100
43-0384-44	4	101.6	4	4¾	122.2	352	150	11	279.4	100

DRY BULK FOOD DISCHARGE HOSE

TUBE REINFORCEMENT Natural Rubber Braided Synthetic Yarn with Dual Static Wire.
COVER Natural Rubber/SBR Blend.
COLOR Gray.
TEMPERATURE RANGE -20°F to +160°F.

WORKING PRESSURE Note Below.
TYPE OF COUPLING Cam and Groove.
DISCHARGE Dry Bulk Food Discharge.



Features

- Gray SBR/Natural Rubber Cover
- Natural Rubber/FDA-accepted Tube
- Continuous printed brand
- 60' lengths
- Constant 4 to 1 Safety Factor
- Dual Static Wire

Benefits

- Abrasion and weather resistant
- Abrasion Resistant for Dry Bulk Food
- Easy identification
- Economical—less waste
- Meets Industry Standards
- Ground to Coupling for Increase Static Dissipation.

Markets

Food Industry
 Tank Truck Industry

Applications

Transfer of dry bulk food products.
 Transfer of bulk sugar and flour.

CODE	NOMINAL I.D.	BRAID	NOMINAL O.D.	APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS (PSI)	STANDARD FEET
	(IN.)		(IN.)			
43-0413-44	4	1	4¾	225	50	60

SABERTOOTH DRY MATERIAL



WORKING PRESSURE 100 PSI
TYPE OF COUPLING Cam and Groove, Water Suction, or Combination Nipple, Clamps—Single Bolt, Double Bolt, Band, or Wire.
SUCTION Full vacuum.
TUBE REINFORCEMENT Natural Rubber—SBR Blend.
COVER 4 textile spirals—helical wire.
COLOR SBR.
TEMPERATURE RANGE -10°F to +160°F
TYPE OF BRANDING Printed Strip.

Features

- SBR cover
- Natural Rubber—SBR blend tube
- Continuous printed brand
- 100' lengths

Benefits

- Abrasion, age, and weather resistant
- Abrasion resistant
- Static dissipating
- Easy identification
- Economical—less waste

Markets

Tank Truck
 In Plant

Applications

Transfer dry bulk (cement, sand, lime, plastics, etc.) Suction/discharge of abrasive material

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0347-63	3	76.2	4	4	101.6	320	100	9	228.6	100
43-0347-64	4	101.6	4	5½	128.6	450	100	11	279.4	100

LYNX SOFTWARE DRY MATERIAL



TUBE REINFORCEMENT Natural Rubber—SBR Blend.
COVER 2 textile spirals
COLOR SBR.
TEMPERATURE RANGE -10°F to +150°F
TYPE OF BRANDING Printed Strip

Features

- SBR cover
- Natural Rubber—SBR blend tube
- Continuous printed brand
- 100' lengths
- Soft wall hose

Benefits

- Abrasion, age, and weather resistant
- Abrasion resistant
- Static dissipating
- Easy identification
- Economical—less waste
- Fold flat for easy storage

Markets

Tank Truck
 In Plant

Applications

Transfer dry bulk (cement, sand, lime, etc.) Discharge of abrasive materials.

WORKING PRESSURE 50 PSI.
TYPE OF COUPLING Cam and Groove, Water Suction, or Combination Nipple, Clamps—Single Bolt, Double Bolt, Band, or Wire.

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS (PSI)	STANDARD FEET	
	(IN.)	(MM)		(IN.)	(MM)				
43-0319-44	4	101.6	2	4¾	117.5	225	50	100	

BOSTON HOSE

WILDCAT—HOT AIR

WILDCAT HOT AIR 150 PSI WP

BOSTON INDUSTRIAL PRODUCTS
RENEWABLE TUBE DIVISION OF BAK

TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
TYPE OF BRANDING
WORKING PRESSURE
TYPE OF COUPLING
SUCTION

EPDM
4 textile spirals—helical wire.
EPDM.
Brown
+ 300°F.
Printed Strip.
150 PSI.
Cam and Groove or Combination Nipple. Clamps—Single Bolt, Double Bolt, Band, or Wire.
Full vacuum

Features

- EPDM cover
- EPDM tube
- Continuous printed brand/brown color
- 100' lengths
- Pin pricked

Benefits

- Age, heat, and weather resistant
- Heat resistant (intermittent service to 350°F)
- Easy identification
- Economical—less waste
- Hot air permeation

Markets

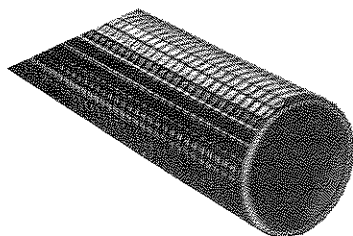
Tank Trucks
In Plant
Construction
Drilling Equipment

Applications

Hot air blower hose.
Hot, dry non-oily air applications.

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0349-43	3	76.2	4	3 1/4	94.9	230	150	9	228.6	100

1196 ROYAL FLEX HEAVY DUTY MULTIPURPOSE SUCTION & DISCHARGE



TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
WORKING PRESSURE
TYPE OF COUPLING
SUCTION

Thermoplastic Nitrile
100% polyester—helical wire.
Thermoplastic Nitrile Blue.
- 20°F to +180°F
200-300 PSI.
Long Shank, Cam and Groove, Interlocking, or Combination Nipple. Clamps—Interlocking, Band, or Wire.
Full vacuum

Features

- Thermoplastic Nitrile cover
- Thermoplastic Nitrile tube
- Integral tube—carcass cover
- Ribbed cover
- More turns of helical wire per inch
- Higher working pressures
- Lightweight
- Flexible
- Longer lengths

Benefits

- Abrasion and weather resistant
- Abrasion, some chemical and heat resistant
- No layer separation
- Sure grip
- More crush and kink resistant
- 300 PSI applications
- Easy to handle
- Economical—less waste

Markets

Agriculture
Construction
Foundries
Mining
Oil Exploration/Drilling
Paper Industry
Petroleum/Petrochemical
Tank Truck
Waste Hauling

Applications

Transfer water, liquid fertilizers and pesticides.
Pumping, suction, and discharge of water and slurries.
See chemical resistance table for Royalflex hose.

STANDARD LENGTH

*See below.

NOMINAL INSIDE DIAMETER		NOMINAL OUTSIDE DIAMETER		MAXIMUM WORKING PRESSURE		APPROX. WEIGHT W/O FITTINGS		MINIMUM BEND RADIUS	
(IN.)	(MM)	(IN.)	(MM)	(PSI)	(MPa)	(LBS/FT)	(KG/M)	(IN.)	(MM)
1 1/2	38.1	2	50.8	300	2.07	61	1.206	6	152
2	50.8	2 1/2	63.5	300	2.07	1.09	1.622	8	203
2 1/2	63.5	3	76.2	300	2.07	1.32	1.965	10	254
3	76.2	3 1/2	88.9	250	1.72	1.94	2.887	12	305
4	102	4 1/2	114.3	200	1.38	2.72	4.048	16	406

*Package for 1 1/2 to 4 inch I.D. is one 50', 60', 100', or 120' lengths per box.

*Longer lengths available on special order.

1193 ROYALFLEX HARDWALL PETROLEUM



TUBE
REINFORCEMENT
COVER
COLOR
TEMPERATURE RANGE
WORKING PRESSURE
TYPE OF COUPLING
SUCTION

Nitrile
100% polyester—helical wire.
Nitrile
Black.
- 20°F to +180°F
200-300 PSI.
Long Shank, Cam and Groove, Interlocking, or Combination Nipple. Clamps—Interlocking, Band, or Wire.
Full vacuum

Features

- Nitrile cover
- Nitrile tube
- Integral tube—carcass cover
- More turns of helical wire per inch
- Higher working pressure
- Lightweight
- Flexible
- Longer lengths

Benefits

- Abrasion, oil, and weather resistant
- Excellent oil resistance
- No layer separation
- More crush and kink resistant
- 300 PSI applications
- Easy to handle
- Economical—less waste

Markets

Tank Truck
Industrial Cleaning
Petroleum/Petrochemical Refineries
Tank Car
Storage Tanks
Oil Exploration/Drilling
Waste Hauling

Applications

Transfer of petroleum and chemicals.
See chemical resistance table for Royalflex hose.

STANDARD LENGTH

*See below.

NOMINAL INSIDE DIAMETER		NOMINAL OUTSIDE DIAMETER		MAXIMUM WORKING PRESSURE		APPROX. WEIGHT W/O FITTINGS		MINIMUM BEND RADIUS	
(IN.)	(MM)	(IN.)	(MM)	(PSI)	(MPa)	(LBS/FT)	(KG/M)	(IN.)	(MM)
1 1/2	38.1	2	50.8	300	2.07	80	1.191	6	152
2	50.8	2 1/2	63.5	300	2.07	1.10	1.652	8	203
2 1/2	63.5	3	76.2	300	2.07	1.34	1.994	10	254
3	76.2	3 1/2	88.9	250	1.72	2.00	2.992	12	305
4	102	4 1/2	114.3	200	1.38	2.72	4.064	16	406

*Package for 1 1/2 to 4 inch I.D. is one 50', 60', 100', or 120' lengths per box.

*Longer lengths available on special order.

PUMA TANK TRUCK

BOSTON HOSE



TUBE REINFORCEMENT Nitrile.
2 braid and 4 textile spirals—helical wire.

COVER COLOR Vinyl Nitrile.
Black.

TEMPERATURE RANGE -40°F to +180°F

TYPE OF BRANDING Printed Strip

WORKING PRESSURE 150 PSI

TYPE OF COUPLING Cam and Groove or Combination Nipple. Clamps—Single Bolt, Double Bolt, Band, or Wire.

SUCTION Full vacuum.

Features

- Vinyl Nitrile cover
- Nitrile tube
- Continuous printed brand
- 100' lengths
- Constant pressure of 150 PSI

Benefits

- Abrasion, animal fat, oil, and weather resistant
- Oil resistant
- Easy identification
- Economical—less waste
- Handles pressure applications and impulses, which means longer hose life

Markets

Petrochemical/Petroleum Industry
Paper/Pulp Industry
Oil Exploration and Drilling
Ship Building

Applications

Transfer of petroleum products
Transfer of crude, salt water, fresh water, and slurries.
Loading and unloading—pumping, suction, or gravity flow discharge
See application chart for chemical resistance

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0363-13	1	25.4	2 Br	1 1/2	38.1	75	150	6	152.4	60
43-0363-14	1 1/4	31.8	2 Br	1 3/4	44.5	85	150	6	152.4	60
43-0363-40	1 1/2	38.1	4	2 1/8	52.4	98	150	5	127.0	100
43-0363-42	2	50.8	4	2 3/8	65.1	124	150	6	152.4	100
43-0363-32	2 1/2	63.5	2 Br	3 1/8	79.4	180	125	12	304.8	80
43-0363-43	3	76.2	4	3 3/8	90.5	195	150	12	304.8	100
43-0363-44	4	101.6	4	4 1/2	115.9	271	150	14	355.6	100

JAGUAR EXTRA HEAVY DUTY TANK TRUCK



WORKING PRESSURE 150 PSI

TYPE OF COUPLING Cam and Groove, Water Suction, or Combination Nipple. Clamps—Single Bolt, Double Bolt, Band, or Wire.

SUCTION Full vacuum

TUBE REINFORCEMENT Nitrile.
2 textile braids—helical wire.

COVER COLOR Vinyl Nitrile.
Orange.

TEMPERATURE RANGE -40°F to +180°F

TYPE OF BRANDING Patch

Features

- Vinyl Nitrile cover
- Nitrile tube
- Patch brand and caution label every ten feet
- Orange cover
- Constant pressure to 150 PSI
- Braided construction

Benefits

- Abrasion, animal fat, oil, and weather resistant
- Oil resistance
- Easy identification
- Meets OSHA color requirements for flexible pipe systems
- Better coupling retention for impulse applications

Markets

Tank Trucks
Petrochemical/Petroleum Industry

Applications

Loading and unloading—pumping, suction, or gravity flow discharge.
Transfer of petroleum products.
See application chart for chemical resistance.

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0327-48	1 1/2	38.1	2	2 1/8	54.6	117	150	4	101.6	60
43-0327-02 or 42	2	50.8	2	2 1/2	67.5	145	150	5	127.0	50 or 60
43-0327-49	2 1/2	63.5	2	3 1/8	80.9	181	150	7	177.8	60
43-0327-04 or 43	3	76.2	2	3 1/2	92.9	237	150	9	228.6	50 or 60
43-0327-05 or 44	4	101.6	2	4 1/4	119.9	324	150	11	279.4	50 or 60

BLACKCAT HOT TAR & ASPHALT



TUBE REINFORCEMENT Nitrile.
2 fiberglass braids—helical wire.

COVER COLOR Neoprene.
Black.

TEMPERATURE RANGE +350°F

TYPE OF BRANDING Patch.

WORKING PRESSURE 200 PSI.

TYPE OF COUPLING Cam and Groove or Combination Nipple. Clamps—Interlocking, Single Bolt, Double Bolt, Band, or Wire.

SUCTION Full vacuum

Features

- Neoprene cover
- Nitrile tube
- Fiberglass braid
- Patch brand and caution label every ten feet
- Smooth bore

Benefits

- Abrasion, oil, and weather resistant
- Heat and oil resistant
- Handles intermittent temperatures of hot tar up to +400°F
- Easy identification
- Assures proper use

Markets

Tank Truck
Construction
Oil Field
Manufacturing Plants

Applications

Loading and unloading—pumping, suction, or gravity flow discharge.
Transfer of hot tar.
Transfer of asphalt in roofing shingle plant.

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0372-07	2	50.8	2	2 3/8	74.6	234	200	7	177.8	60
43-0372-06	3	76.2	2	3 1/2	97.6	333	200	10	254.0	60
43-0372-05	4	101.6	2	4 1/2	126.2	453	200	12	304.8	60

**BOSTON HOT TAR
PUMPING****Features**

- Neoprene cover
- Nitrile tube
- Continuous permanent brand/black cover. Also available in yellow.

Benefits

- Abrasion, oil, heat, and weather resistant
- Oil and heat resistant—handles intermittent temperatures of hot tar up to 400°F
- Easy identification
- Assures proper use

**Markets**

Road Construction

Applications

Convey hot tar/asphalt in road projects.

TUBE**REINFORCEMENT****COVER****COLOR****TEMPERATURE RANGE****TYPE OF BRANDING**

Nitrile.

2 wire braids.

Neoprene.

Black or Yellow.

+ 350°F.

Impression.

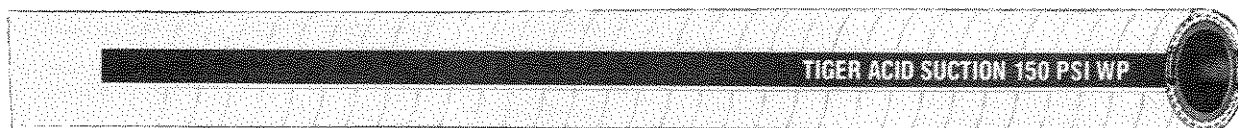
WORKING PRESSURE

200 PSI.

TYPE OF COUPLING

Interlocking, Standard Serrated Nipple, or Steel Nipple. Clamps—Interlocking.

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
87-9601-02	1	25.4	2	1½	38.1	80	200	12	304.8	50

TIGER**Features**

- EPDM cover
- EPDM tube
- Continuous printed brand
- Yellow cover
- 100' lengths
- Low bend radius

Benefits

- Chemical and ozone resistant—longer hose life
- Acid and chemical resistant
- Easy identification
- Meets OSHA color requirements for flexible pipe systems
- Economical—less waste
- Flexible

MarketsChemical Industry
Phosphate MiningLumber/Woodworking
Plywood Mfg.
Pulp Processing

Tank Truck

Applications

Transfer of acids and chemicals through pumping, suction, and discharge.

Transfer chemicals and acids for processing products.

Loading and unloading—pumping, suction or gravity flow discharge. See applications chart for chemical resistance.

TUBE**REINFORCEMENT****COVER****COLOR****TEMPERATURE RANGE****TYPE OF BRANDING**

EPDM.

4 textile spirals—helical wire.

EPDM.

Yellow.

- 45°F to + 180°F.

Printed Strip.

WORKING PRESSURE

150 PSI.

TYPE OF COUPLING

Cam and Groove or Combination Nipple. Clamps—Interlocking, Single Bolt, Double Bolt, Band, or Wire. Full vacuum.

SUCTION

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT.	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0345-40	1½	38.1	4	2½	60.3	155	150	4	101.6	100
43-0345-42	2	50.8	4	2½	73.0	192	150	5	127.0	100
43-0345-43	3	76.2	4	3½	100.0	286	150	9	228.6	100
43-0345-44	4	101.6	4	4½	125.4	369	150	11	279.4	100

BOSTON HOSE

CHEETAH ACID SUCTION



TUBE Hypalon.
REINFORCEMENT 4 textile spirals—helical wire.
COVER Neoprene.
COLOR Yellow.
TEMPERATURE RANGE -40°F to +200°F
TYPE OF BRANDING Printed Strp.

WORKING PRESSURE 150 PSI.
TYPE OF COUPLING Cam and Groove or Combination Nipple. Clamps—Interlocking. Single Bolt, Double Bolt, Band, or Wire

Features

- Neoprene cover
- Hypalon tube
- Continuous printed brand
- Yellow cover
- 100' lengths
- Low bend radius
- Transfer acids and chemicals

Benefits

- Age, chemical, and ozone resistant—longer hose life
- Acid and chemical resistant
- Easy identification
- Safety
- Meets OSHA color requirements for flexible pipe systems
- Economical—less waste
- Flexible
- Flexibility of applications

Markets

Chemical Industry
 Lumber/Woodworking
 Plywood Mfg.
 Pulp Processing
 Tank Truck

Applications

Transfer of acids and chemicals through pumping, suction and discharge.
 Transfer chemicals for processing products.
 Loading and unloading—pumping or gravity flow discharge.
 See applications chart for chemical resistance.

CODE	NOMINAL I.D.		SPIRAL	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0423-40	1 1/8	38.1	4	2 1/8	57.5	120	150	8	152.4	100
43-0423-42	2	50.8	4	2 3/4	69.9	150	150	9	228.6	100
43-0423-43	3	76.2	4	3 3/4	95.3	210	150	20	508.0	100
43-0423-44	4	101.6	4	4 3/4	123.4	260	150	30	762.0	100

*Available made to order only.

PANTHER CHEMICAL TRANSFER



TUBE Cross Linked Polyethylene—Clear.
REINFORCEMENT 2 textile braids—helical wire
COVER EPDM.
COLOR Yellow.
TEMPERATURE RANGE -45°F to +150°F
TYPE OF BRANDING Patch.

WORKING PRESSURE 100-200 PSI
TYPE OF COUPLING Non-Reusable (Swaged), Cam and Groove, or Combination Nipple. Clamps—Interlocking, Single Bolt, Double Bolt, Band, or Wire
SUCTION Full vacuum

Features

- EPDM cover
- Clear cross linked polyethylene tube
- Patch brand and caution label every ten feet
- Smooth bore
- Every length serialized

Benefits

- Chemical and ozone resistant—longer hose life
- Chemical, petroleum, and solvent resistant
- Won't contaminate or discolor fluid
- Easy identification
- Safety
- High visibility
- Rapid fluid flow
- Easy to clean
- Safety and maintenance records

Markets

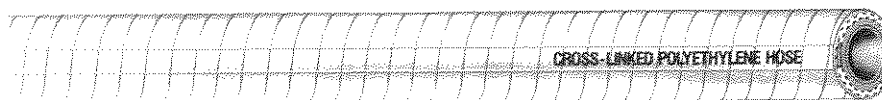
Chemical/Petroleum Industry
 Lumber/Woodworking
 Plywood Mfg.
 Pulp Processing
 Tank Truck

Applications

Transfer of acids, chemicals, solvents, and petroleum products.
 Transfer chemicals and solvents for processing products.
 Loading or unloading—pumping, suction, or gravity flow discharge
 See application chart for chemical resistance.

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-8359-36	1	25.4	2	1 1/8	42.9	72	200	5	127.0	60
43-8359-32	1 1/4	31.8	2	1 7/8	48.4	86	200	8	203.2	50
43-8359-40	1 1/2	38.1	2	2 1/8	58.7	121	200	8	203.2	50
43-8359-42	2	50.8	2	2 3/4	70.5	146	200	9	228.6	60
43-8359-46	2 1/4	63.5	2	3 1/8	83.7	188	150	12	304.8	60
43-8359-43	3	76.2	2	3 3/4	97.6	252	150	16	406.4	60
43-8359-44	4	101.6	2	4 1/8	122.2	348	100	21	533.4	60

GREEN CROSS LINKED



WORKING PRESSURE 100-150 PSI.
TYPE OF COUPLING Non-Reusable (Swaged), Cam and Groove, or Combination Nipple. Clamps—Interlocking, Single Bolt, Double Bolt, Band, or Wire
SUCTION Full vacuum.

TUBE Cross Linked Polyethylene
REINFORCEMENT 2 textile braids—helical wire
COVER EPDM.
COLOR Green
TEMPERATURE RANGE -45°F to +150°F
TYPE OF BRANDING Impression.

Features

- EPDM cover
- Clear cross linked polyethylene tube
- Continuous printed brand—green cover
- Smooth bore

Benefits

- Chemical and ozone resistant—longer hose life
- Chemical, petroleum, and solvent resistant. Won't contaminate or discolor fluids.
- Easy identification
- Rapid fluid flow
- Easy to clean

Markets

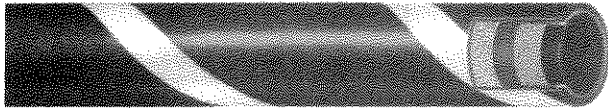
Chemical/Petroleum Industry
 Lumber/Woodworking
 Plywood Mfg.
 Pulp Processing
 Tank Truck

Applications

Transfer of acids, chemicals, solvents, and petroleum products.
 Transfer chemicals and solvents for processing products.
 Loading or unloading—pumping, suction, or gravity flow discharge.
 See application chart for chemical resistance.

CODE	NOMINAL I.D.		BRAID	NOMINAL O.D.		APPROXIMATE WEIGHT POUNDS PER 100 FT	MAXIMUM RECOMMENDED WORKING PRESS. (PSI)	MINIMUM RECOMMENDED BEND RADIUS		STANDARD FEET
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)	
43-0378-36	1	25.4	2	1 1/8	42.9	72	150	5	127.0	60
43-0378-34	1 1/4	31.8	2	1 7/8	48.4	86	150	8	203.2	50
43-0378-40	1 1/2	38.1	2	2 1/8	58.7	121	150	8	203.2	60
43-0378-42	2	50.8	2	2 3/4	70.5	146	150	9	228.6	60
43-0378-43	3	76.2	2	3 3/4	97.6	252	150	16	406.4	60
43-0378-44	4	101.6	2	4 1/8	122.2	348	100	21	533.4	60

Black Softwall



Black Softwall hose is designed for the discharge of dry bulk cement in tank truck and in-plant service.

LIGHTWEIGHT, FLEXIBLE. A light, easy-to-handle hose with strong reinforcement to resist crushing and kinking. Coils flat for convenient storage.

LONG LASTING TUBE. Black Softwall hose is made with a special abrasion resistant synthetic rubber tube for a long useful service life.

STATIC CONDUCTIVE FOR SAFETY. The tube in Black Softwall hose is made with static conductive Plioflex synthetic rubber to reduce the possibility of static charge build-up when hose is properly grounded.

LONG LENGTHS. Available in standard 50 ft. and 57 ft. unit lengths. Also available in longer lengths up to 400 ft.

CONSTRUCTIONS:

Tube: Static conductive Black Plioflex synthetic rubber

Reinforcement: Synthetic fabric

Cover: Black Plioflex synthetic rubber with white spiral stripe

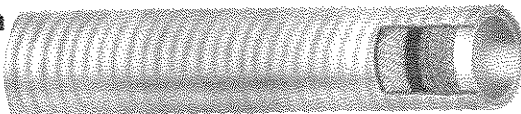
LENGTHS: 57 ft. in 4 in. I.D., 50 ft. in 5 in. and 6 in. I.D. sizes. Contact Goodyear for longer lengths up to 400 ft.

FITTINGS: Reattachable quick disconnect coupler and adapter, combination nipple, one-time fittings

SPECIFICATIONS

I.D. x O.D.		MAX. WP		WEIGHT	
in.	mm	psi	MPa	lb./ft.	kg./m.
4 x 4½	101.6 x 114.3	50	.34	1.47	2.19
5 x 5½	127.0 x 139.7	50	.34	1.92	2.86
6 x 6½	152.4 x 168.2	50	.34	3.32	4.98

Tan Flextra



For tank truck and in-plant service. Used to convey non-oily abrasive materials such as sand, limestone, plastic pellets and dry abrasive food products. Not to be recommended where static electricity is a problem.

LIGHTWEIGHT, FLEXIBLE. Tan Flextra hose is ideal for abrasive service where light weight and flexibility are required. It maintains full suction even on tight bends, resists fatigue failure under repeated bending.

STRONG, ABRASION-RESISTANT. Tan Flextra has a 1/4" Pureten gum rubber tube to resist the cutting, tearing and wearing action of sharp abrasive materials. A spiral wire helix reinforcement adds strength and resistance to crushing and kinking.

TOUGH PLIOFLEX SYNTHETIC RUBBER COVER. The cover on Tan Flextra hose is a tough abrasion-resistant Plioflex synthetic rubber compound that withstands constant dragging over hard, sharp terrain. The corrugated construction makes handling easier than with smooth designs.

CONSTRUCTION:

Tube: Pureten gum rubber (meets F.D.A. requirements)

Reinforcement: Synthetic fabric with wire helix

Cover: Tan Plioflex gum rubber (Corrugated) with yellow spiral stripe

LENGTHS: 50 ft. and 100 ft. lengths

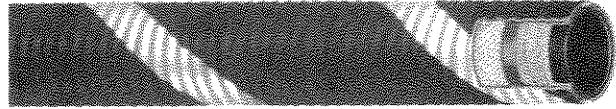
FITTINGS: Quick acting or reattachable

SPECIFICATIONS

I.D. x O.D.		MAX. WP		BEND RADIUS		WEIGHT	
in.	mm	psi	MPa	in.	mm	lb./ft.	kg./m.
1½ x 2½	38.1 x 54.0	75	.50	3	76	.89	1.33
2 x 2½½	50.8 x 69.0	75	.50	4	101	1.28	1.91
2½ x 3½	63.5 x 80.9	75	.50	5	127	1.64	2.44
3 x 3½½	76.2 x 94.4	75	.50	6	152	1.97	2.94
4 x 4½	101.6 x 120.6	75	.50	9	228	2.98	4.44
5 x 5½½	127.0 x 146.8	75	.50	12	305	4.16	6.20
6 x 6½½	152.4 x 172.2	75	.50	15	381	4.97	7.41

GOODYEAR

Flextra Dry Material



A static-conductive hose for tank truck and in-plant service. Used to convey non-oily abrasive materials such as sand, limestone and plastic pellets. Recommended where static buildup can be a problem.

FLEXIBLE, LIGHTWEIGHT. Flextra Dry Material hose maintains full suction even on tight bends, resists fatigue failure under repeated bending. Light in weight for easy handling.

ABRASION-RESISTANT TUBE. Flextra Dry Material has a strong 3/16" synthetic rubber tube that resists the cutting, tearing, and wearing action of abrasive materials. Meets F.D.A. requirements. A spiral wire helix reinforcement adds strength and resistance to crushing and kinking.

RUGGED PLIOFLEX COVER. The cover on Flextra Dry Material hose is a tough, abrasion-resistant synthetic rubber compound that withstands constant dragging over hard, sharp surfaces. The corrugated cover makes the hose easier to handle than smooth designs.

CONSTRUCTION:

Tube: Black synthetic rubber blend (static conductive)

Reinforcement: Synthetic fabric with wire helix

Cover: Black Plioflex rubber (Corrugated) with yellow spiral brand

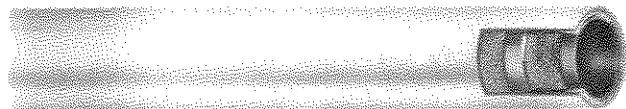
LENGTHS: 50 ft. and 100 ft. lengths

FITTINGS: Reattachable, quick disconnect, combination nipple, or one-time

SPECIFICATIONS

I.D. x O.D.		MAX. WP		BEND RADIUS		WEIGHT	
in.	mm	psi	MPa	in.	mm	lb./ft.	kg./m.
1 x 1½	25.4 x 38.1	75	.50	3	76	.68	1.01
1½ x 2	38.1 x 50.8	75	.50	3½	89	1.03	1.54
2 x 2½½	50.8 x 69.0	75	.50	4	101	1.35	2.01
2½ x 3½½	63.5 x 81.0	75	.50	5	127	1.63	2.43
3 x 3½½	76.2 x 94.4	75	.50	6	152	2.12	3.29
4 x 4½	101.6 x 120.0	75	.50	9	228	3.26	4.86

Pyroflex Hot Air



For conveying hot air from compressors to tanks on bulk dry material carriers.

LONG HOSE LIFE. Pyroflex Hot Air hose is made with a heat-resistant tube and cover capable of withstanding temperatures up to 350°F for long service life.

FLEXIBLE, EASY TO HANDLE. The spiral wire helix in Pyroflex Hot Air hose provides strong reinforcement to resist collapse or air slowdown in tight-bend radius situations. This design also keeps hose from kinking for easy handling.

AVAILABLE FROM STOCK. The popular 3" size of Pyroflex Air hose is easy to obtain in an emergency. It is readily available from stock to reduce costly downtime.

CONSTRUCTION:

Tube: Red heat-resistant Versigard synthetic rubber

Reinforcement: Synthetic fabric with wire helix

Cover: Heat-resistant Brown Versigard synthetic rubber with yellow spiral stripe

LENGTHS: 100 ft. lengths

FITTINGS: Quick acting

SPECIFICATIONS

I.D. x O.D.		MAX. WP		BEND RADIUS		WEIGHT	
in.	mm	psi	MPa	in.	mm	lb./ft.	kg./m.
3 x 3½½	76.2 x 90.4	50	.34	7	177	1.95	2.95

Red Flexwing

Red Flexwing is an economical hose for tank trucks, bulk petroleum stations and other operations involving the transfer of petroleum products.

ECONOMICAL AND RELIABLE. Red Flexwing is designed for rugged service conditions. Its low initial cost is combined with long term reliability.

PREMIUM CONSTRUCTION FOR GOOD VALUE. The high quality compounds and reinforcement used for Red Flexwing are similar to those in Flexwing Petroleum (described above). All components are designed to withstand oil, gasoline, abrasion, sun and weather.

EASY TO MANEUVER. Red Flexwing is highly flexible and maintains full flow on tight bends. It is easy to rack and unrack so it speeds operator handling to maintain top efficiency and minimize fatigue.

CONSTRUCTION:

Tube: Chemigum synthetic rubber (ORS)

Reinforcement: Synthetic fabric with wire helix

Cover: Red Wingprene synthetic rubber (ORS) with white spiral stripe

LENGTHS: 100 ft.

FITTINGS: Quick acting, reattachable, or one-time

SPECIFICATIONS							
I.D. x O.D.		MAX. WP		BEND RADIUS		WEIGHT	
in.	mm	psi	MPa	in.	mm	lb./ft.	kg./m.
1½ x 2	38.1 x 50.8	150	1.0	4	102	.98	1.04
2 x 2½	50.8 x 65.0	150	1.0	4½	114	1.47	1.95
2½ x 3½	63.5 x 78.0	150	1.0	5½	146	1.76	2.44
3 x 3½	76.2 x 92.0	150	1.0	7	178	1.95	2.86
4 x 4½	101.6 x 119.0	150	1.0	10	254	3.15	4.56

Redwing Fuel Oil

Redwing Fuel Oil hose is designed for the transfer and delivery of fuel oil and petroleum products in home delivery, commercial, marine, and industrial service.

LIGHTWEIGHT AND FLEXIBLE FOR EASY HANDLING.

Redwing Fuel Oil hose is lightweight and flexible. It's made with special synthetic rubber compounds to resist stiffening even in sub-zero temperatures. It reels on and off trucks with ease and its exclusive Chemivic cover slides smoothly over the ground with minimum drag so operators can achieve top production.

LOW OVERALL COST. Redwing Fuel Oil hose lasts long for a high return on investment. It's made to take rough handling, and is highly resistant to oil, scuffing and abrasion.

MAXIMUM HOSE LIFE. The materials used in Redwing Fuel Oil hose withstand all petroleum based products for long hose service life at low cost.

CONSTRUCTION:

Tube: Chemigum synthetic rubber (ORS)

Reinforcement: Synthetic cord

Cover: Red Chemivic synthetic rubber (Smooth Finish) (ORS)

LENGTHS: Stocked in 100 ft., 125 ft., 135 ft., 150 ft., and 175 ft. lengths. Available in special cut lengths and on reels (with a minimum length of 125 ft.)

FITTINGS: Reattachable or one-time petroleum hose fittings

SPECIFICATIONS							
I.D. x O.D.		MAX. WP		WEIGHT			
in.	mm	psi	MPa	lb./ft.	kg./m.		
1 x 1.500	25.4 x 38.1	300	2.1	.54	.80		
1½ x 1.795	31.8 x 45.6	250	1.7	.68	1.01		
1¾ x 1.860	34.9 x 47.2	250	1.7	.68	1.01		
1½ x 2.095	38.1 x 53.2	250	1.7	.92	1.37		

Pyroflex Hot Tar & Asphalt

Recommended for the transfer of high temperature petroleum based materials such as tar, asphalt, and hot oils. It is suitable for suction and discharge service on tank trucks, tank cars, or at bulk stations.

SPECIAL REINFORCEMENT EXTENDS LIFE. A special heat resistant tube and Flexten reinforcement withstand temperatures up to 350°F (210°C) in continuous service.

HIGH FLEXIBILITY AND HANDLING USE. Assures operator productivity by minimizing fatigue.

COMPOUNDED FOR A WIDE RANGE OF USES. An exclusive Chemigum synthetic rubber tube compound makes it possible to handle a wide range of petroleum based products at ambient or elevated temperatures.

CONSTRUCTION:

Tube: Chemigum (special heat resistant) synthetic rubber (ORS)

Reinforcement: Spiral Flexten fabric with wire helix

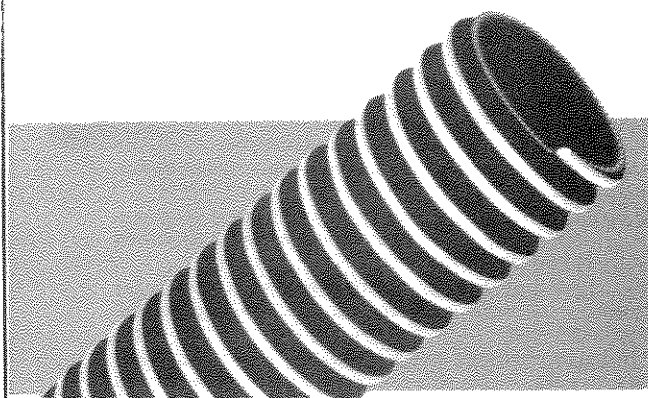
Cover: Black Wingprene synthetic rubber (ORS) with spiral red stripe **LENGTHS:** 100 ft.

FITTINGS: Quick-acting, reattachable, or one-time

SPECIFICATIONS							
I.D. x O.D.		MAX. WP		WEIGHT			
in.	mm	psi	MPa	lb./ft.	kg./m.		
1½ x 2½	38.1 x 67.9	150	1.0	1.40	2.09		
2 x 2¾	50.8 x 71.0	150	1.0	1.78	2.82		
2½ x 3½	63.5 x 84.0	150	1.0	2.35	3.59		
3 x 3¾	76.2 x 97.0	150	1.0	2.94	4.38		
4 x 4¾	101.6 x 123.0	150	1.0	3.75	5.59		

GOODYEAR

REBOUND® Drop Hose



FEATURE

Lighter than comparable plastic drop hoses, up to 20% on 3" and 10% on 4"

More flexible—up to 20% more flexibility on bend radius

Specially compounded white Pliovic helix

Continuous spiral branding

Goodyear ORS tube

Built-in anti-static wire

No banding sleeves required

Higher temperature ranges

Higher working pressure—66% higher than other plastic drop hoses.

BENEFIT

Easier handling—Slides easily along the ground or into storage tubes.

Allows tighter bends without collapsing.

Rebounds at ambient temperatures even when crushed or kinked beyond bend radius.

Easily identified—the white helix is distinctive and exclusive to Goodyear—no confusion.

Goodyear name readily identified.

Will handle up to 50% aromatics.

Worry-free static conductivity when bonded to the couplings. No premium charged.

Reduced cost per coupled length.

Flexible to -40°F/°C with a maximum temperature of +200°F or 93°C.

100 PSI/6.9 MPa—added safety without sacrificing flexibility and weight.

Safety factor—4:1 burst.

Recommended for transferring gasoline and other petroleum base products under pressure, gravity flow, or suction. Maximum aromatic content—50%.

REBOUND DROP HOSE SPECIFICATIONS

I.D.		O.D.*		MAX. WP		BEND RADIUS	STANDARD PACKAGE LENGTH		WEIGHT		
in.	mm	in.	mm	psi	MPa	in.	mm	ft.	m	LB/Ft.	kg/m
3	76.1	3 ²³ / ₁₆	93	100	6.9	5	127	100	30.5	1.24	1.84
4	102.6	4 ⁷ / ₁₆	124	100	6.9	7	178	100	30.5	1.82	2.70

*Over Helix

LIGHT IN WEIGHT FOR EASY HANDLING—Rebound Drop Hose weighs less than comparable rubber hose. A 20' length of 3" ID weighs only 25 pounds—making it easier to handle.

FLEXIBLE AT LOW TEMPERATURES—Rebound Drop Hose is compounded to remain flexible at temperatures as low as -40°F or °C. Maximum temperature 200°F or 93°C.

TOUGH, EFFICIENT, ECONOMICAL—Rebound Drop Hose is manufactured with a tough ORS rubber tube and Pliovic helix. This specially compounded helix will rebound back (under ambient temperature) to its original shape even after being crushed or kinked through bending beyond the listed bend radius. Rebound Drop Hose is high in resistance to gasoline, weathering, ozone and abrasion. A unique design and low cost make Rebound one of the best values available in gasoline drop hose.



White Flexwing



Highly flexible hose for gravity flow, pressure or suction service transferring edibles from tank truck and in-plant service.

COMBINES DURABILITY WITH FLEXIBILITY. Strong construction allows maximum flexibility with minimum effort even in hard-to-handle applications.

PROTECTS AGAINST CONTAMINATION. White, oil-resistant Chemigum synthetic rubber tube meets all F.D.A. requirements, eliminates chance of taste or odor transfer.

TOP-VALUE PRODUCT. Excellent reliability, widely versatile and easy handling. Highly abrasion and oil resistant cover of white Chemigum synthetic rubber.

CONSTRUCTION:

Tube: White Chemigum synthetic rubber meets F.D.A., U.S.D.A., N.D.A. and 3-A sanitary standards

Reinforcement: Stainless steel wire helix between plies of synthetic fabric

Cover: White Chemigum synthetic rubber (Wrapped Finish)

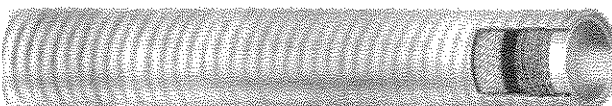
LENGTHS: 100 ft.

FITTINGS: Quick acting, reattachable or one-time

SPECIFICATIONS

I.D. x O.D.		MAX. WP		BEND RADIUS		WEIGHT	
in.	mm	psi	MPa	in.	mm	lb./ft.	kg./m.
1½ x 1¾ ₃₂	38.1 x 50.0	150	1.0	4	102	.87	1.30
2 x 2¼ ₃₂	50.8 x 64.0	150	1.0	4½	114	1.29	1.67
2½ x 3¼ ₃₂	63.5 x 78.0	150	1.0	5¼	146	1.72	2.23
3 x 3½ ₃₂	76.2 x 91.0	150	1.0	7	178	2.11	2.74
4 x 4¾	101.6 x 118.0	150	1.0	10	254	2.80	3.63

White Flextra



Lightweight, highly flexible hose for transferring edibles under suction or pressure on tank truck or in-plant service.

FLEXIBLE CONSTRUCTION FOR EASY HANDLING. Unique corrugated wall with wire helix makes this hose a natural where flexibility and weight are of prime importance.

PROTECTS AGAINST CONTAMINATION. White, oil-resistant Chemigum tube meets all F.D.A. requirements, eliminates chance of taste or odor transfer. Ends are capped and sealed with plastic covering to maintain cleanliness in shipment and storage.

MULTI-USE VERSATILITY. Strong construction and extreme oil resistance combine to make this rugged hose suitable for hard-to-handle food products such as milk, vinegar, wine and distilled liquor.

CONSTRUCTION:

Tube: White Chemigum synthetic rubber (ORS) (meets F.D.A., U.S.D.A., N.D.A. and 3-A sanitary standards)

Reinforcement: Stainless steel wire helix between plies of synthetic fabric

Cover: White Chemigum synthetic rubber (ORS) (meets F.D.A. requirements)

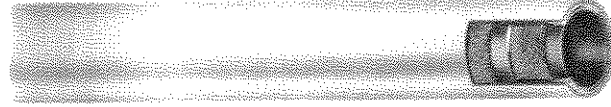
LENGTHS: 100 ft. thru 4", 50 ft. in sizes 5" and 6"

FITTINGS: Quick acting, reattachable or one-time

SPECIFICATIONS

I.D. x O.D.		MAX. WP		BEND RADIUS		WEIGHT	
in.	mm	psi	MPa	in.	mm	lb./ft.	kg./m.
1½ x 1¾ ₃₂	38.1 x 50.0	75	.50	4	101.6	.87	1.30
2 x 2¼ ₃₂	50.8 x 62.7	75	.50	5	127.0	1.16	1.73
2½ x 2¾ ₃₂	63.5 x 75.4	75	.50	6	152.4	1.41	2.10
3 x 3½ ₃₂	76.2 x 88.1	75	.50	7	177.8	1.71	2.55
4 x 4¾ ₃₂	101.6 x 115.0	75	.50	10	254.0	2.42	3.61
5 x 5¾ ₃₂	127.0 x 147.0	75	.50	15	381.0	3.70	5.50
6 x 6¾ ₃₂	152.4 x 173.0	75	.50	20	508.0	4.59	6.84

Blue Flexwing



Handles 90% of today's chemicals in pressure, gravity flow, or suction service.

VERSATILE, LONG LASTING. Blue Flexwing hose is a rugged, long-lasting hose with spiral wire reinforcement for added strength and stability. The Spectar polyethylene tube is resistant to a wide range of chemicals.

SAVES ON INVENTORY COSTS. Because of its versatility, Blue Flexwing hose can be used to handle a variety of chemicals in a variety of applications. There is no need to stock several different types of hose for different chemicals. As a result, inventory costs are reduced and can amount to major savings.

COLOR CODED FOR SAFETY. The blue cover shows at a glance whether it is the proper hose for the chemical being handled. This color coding reduces the risk of improper application and possible accidents from the use of the wrong hose.

CONSTRUCTION:

Tube: Clear Spectar (XLPE) (ORS)

Reinforcement: Synthetic fabric with wire helix

Cover: Blue Versigard synthetic rubber with spiral white stripe

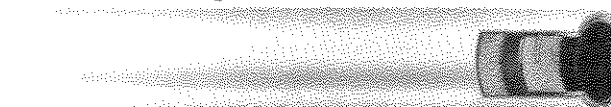
LENGTHS: 100 ft. lengths

FITTINGS: Quick acting, reattachable, or one-time

SPECIFICATIONS

I.D. x O.D.		MAX. WP		BEND RADIUS		WEIGHT	
in.	mm	psi	MPa	in.	mm	lb./ft.	kg./m.
1 x 1½	25.0 x 38.1	150	1.04	8	203	.55	.82
1¼ x 1¾ ₃₂	31.8 x 45.0	150	1.04	9	228	.70	1.04
1½ x 2¼ ₃₂	38.1 x 51.9	150	1.04	10	254	.98	1.46
2 x 2¾ ₃₂	51.0 x 68.0	150	1.04	12	305	1.28	1.91
2½ x 3¾ ₃₂	63.0 x 80.1	150	1.04	15	381	1.54	2.29
3 x 3¾ ₃₂	76.0 x 94.0	150	1.04	18	457	2.05	3.05
4 x 4¾	102.0 x 121.0	100	1.04	24	609	3.08	4.59

Brown Flexwing



A versatile chemical hose capable of handling a wide variety of acids, alcohols, salt solutions, and petroleum base products.

VERSATILE, ECONOMICAL. Brown Flexwing handles a multitude of chemicals yet is considerably less expensive than other chemical hoses with similar capabilities.

COLOR CODED FOR SAFETY. The brown cover shows at a glance whether it is the proper hose for the chemical being handled.

FLEXIBLE, EASY TO HANDLE. The soft tube and cover contribute to the flexibility of its spiral construction making Brown Flexwing exceptionally easy to handle.

CONSTRUCTION:

Tube: Black Chemrin

Reinforcement: Synthetic fabric with wire helix

Cover: Brown Versigard synthetic rubber with white spiral brand

LENGTHS: 100 ft. lengths

FITTINGS: Quick acting, reattachable, or one-time

SPECIFICATIONS

I.D. x O.D.		MAX. WP		BEND RADIUS		WEIGHT	
in.	mm	psi	MPa	in.	mm	lb./ft.	kg./m.
1 x 1½	25.4 x 38.1	150	1.0	3½	89	.60	.90
1¼ x 1¾	31.8 x 44.4	150	1.0	4	101	.74	1.11
1½ x 2	38.1 x 50.8	150	1.0	4	101	.93	1.39
2 x 2¾	50.8 x 65.1	150	1.0	5	127	1.20	1.79
2½ x 3¼	63.5 x 79.4	150	1.0	6	152	1.58	2.35
3 x 3¾	76.2 x 92.1	150	1.0	7	178	1.98	2.45
4 x 4¾	101.6 x 120.6	150	1.0	10	254	3.09	4.63
6 x 6¾ ₃₂	152.0 x 172.0	150	1.0	30	762	5.43	8.09

GOODYEAR

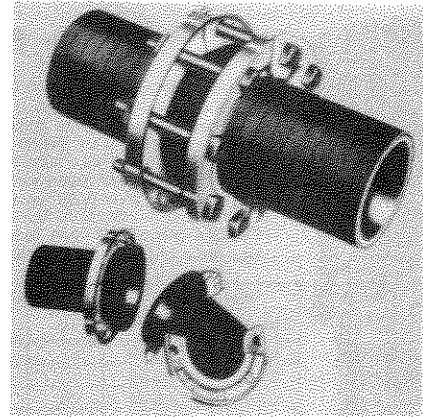
Beaded Ends

SERVICE—Used on hand-built hose for handling abrasive, corrosives, or caustic materials. Splits rings allow for easy installation and easy rotation of hose to distribute abrasive wear.

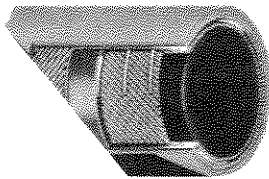
SIZE RANGE—1" through 12".

DESCRIPTION—Beaded ends are built over rigid steel rings and supported further by malleable iron, split retaining rings, having 125 pounds standard drilling. No metal is exposed to corrosives, maximum free length is assured, and more allowable bend radius is attained with beaded ends.

HOW APPLIED—Split retaining rings having 125 pounds standard drilling.



YELLOW FLEXWING



SPECIFICATIONS							
I.D. x O.D.		MAX. WP		BEND RADIUS		WEIGHT	
In.	mm	psi	MPa	in.	mm	lb./ft.	kg./m.
1 x 1½	25.4 x 38.1	150	1.0	3½	89	.77	1.15
1¼ x 1¾	31.8 x 44.4	150	1.0	4	101	.94	1.41
1½ x 2	38.1 x 50.8	150	1.0	4	101	1.08	1.62
2 x 2½	50.8 x 65.1	150	1.0	5	127	1.68	2.50
2½ x 3½	63.5 x 79.4	150	1.0	6	152	2.00	3.00
3 x 3¾	76.2 x 92.1	150	1.0	7	178	2.32	3.48
4 x 4¾	101.6 x 120.6	150	1.0	10	254	3.47	5.20
6 x 6¾	152.0 x 174.0	150	1.0	30	762	6.27	7.75

Yellow Flexwing is an all around chemical hose designed for handling organic and inorganic acids, alcohols and many chemicals.

MADE FOR LONG SERVICE. Built for rugged service with tough, abrasion resistant Hysunite synthetic rubber cover. Used in pressure, gravity flow or suction applications.

HANDLES A WIDE RANGE OF CHEMICAL SOLUTIONS. Yellow Flexwing chemical hose is rated "excellent" for handling more than 190 different chemicals. Its versatility makes it an excellent and economical solution for handling a wide range of corrosives with a minimum of inventory.

YELLOW COLOR FOR COLOR CODING. The bright yellow cover means you can color key your chemical lines for added safety and help reduce the risk of improper application. Proper color coding with Yellow Flexwing chemical hose aids in reducing wrong hose applications.

CONSTRUCTION:

Tube: Black Hysunite synthetic rubber

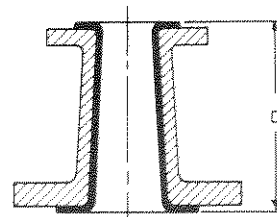
Reinforcement: Synthetic fabric with wire helix

Cover: Yellow Hysunite synthetic rubber with black spiral band

LENGTHS: 100 ft. lengths

FITTINGS: Quick acting, reattachable, or one-time. Also available with rubber flanged, beaded, and built-in nipples

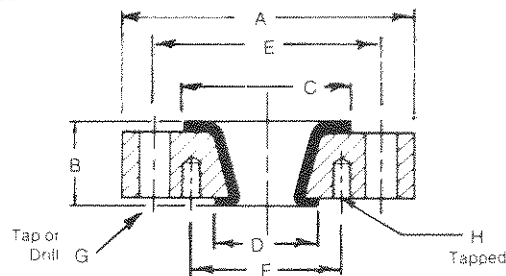
FUSIBOND PIPING SYSTEMS RUBBER LINED FLANGED FITTINGS



CONCENTRIC REDUCER

PLASTIC LINED REDUCING FLANGES

Steel with 150 lb. Drilling is standard
Other sizes and thicknesses also available
including 300#



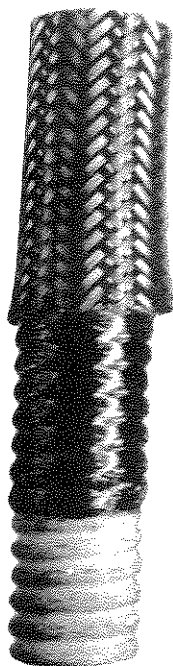
REDUCING FLANGE FIG. 340

SIZES	Dimensions		G Bolt Holes		H Bolt Holes		Dia. Bolt Circle		Plastic Face Dia. (Min.)	
	A	B	#	Size	#	Size	E	F	C	D
★ 3 x 2	7½	1¾	4	5/8-11	4	5/8-11	6	4¾	4⅝	3⅞

★ Note on this size one set of bolt holes is on the vertical center line. The other set straddles the center line. Dimensions are in inches.



EVERFLEX CONVOLUTED HOSE OF TEFLON™



Everflex Convoluted Hose of Teflon® is designed specifically for those applications where the chemical and/or temperature resistance of Teflon are required along with maximum flexibility. Everflex convoluted takes over where smooth bore Teflon hose leaves off. In sizes from one inch I.D. to four inch I.D., Everflex convoluted hose requires far less force to bend and affords a much

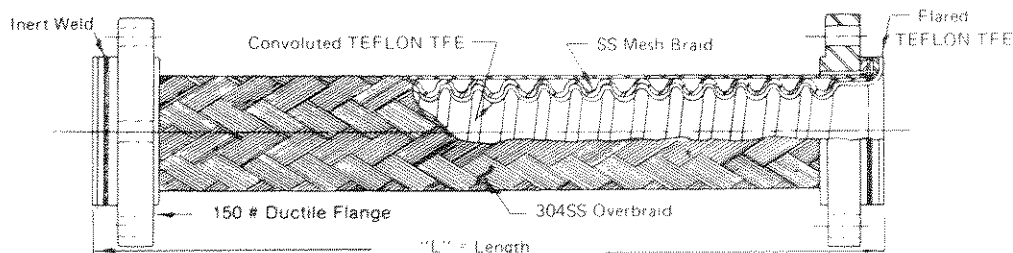
tighter bend radius than smooth bore Teflon and many rubber hose types of the same size. Coupled with this is the inertness to almost all industrial acids, coolants, fuels, lubricants, and solvents. The multiple braid construction offers superior crush and kink resistance. The spiral convoluted form provides for easy cleaning allowing the handling of different fluids through the

same hose. Everflex standard innercore is virgin white Teflon (also available with conductive innercore).

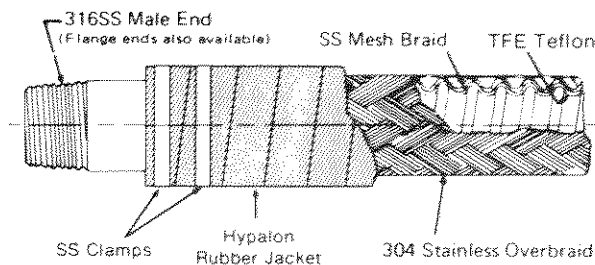
Other features include long flex life and unlimited shelf and service life. Operating pressures can be selected from the chart below. Operating temperature -65°F to 400°F (-54°C to 200°C). Maximum length is 25 ft. (up to 2").

(Other sizes under development)

Part Number		Hose Size		End Size	Max. Working Press. PSI	Min. Burst Press. PSI	Min. Bend Radius	Vacuum at R.T.	Approx. Wt. (lbs) Per Ft.
Standard	Conductive	I.D.	O.D.						
CS-16	CCS-16	1"	1-1/2"	1"	500	2000	6"	26"	.87
CS-20	CCS-20	1 1/4"	1-13/16"	1 1/4"	400	1700	7"	26"	1.10
CS-24	CCS-24	1 1/2"	2-1/16"	1 1/2"	400	1600	8"	26"	1.24
CS-32	CCS-32	2"	2-9/16"	2"	300	1400	9"	24"	1.48
CS-48	CCS-48	3"	3-9/16"	3"	200	900	14"	24"	2.50
CS-64	CCS-64	4"	4-9/16"	4"	150	600	18"	20"	3.08



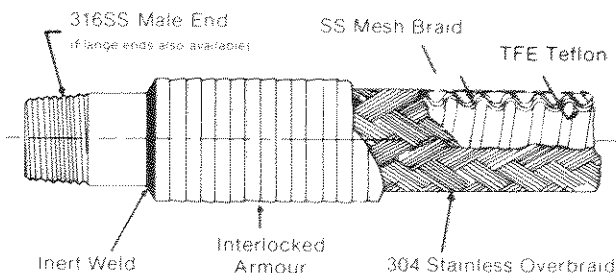
PROTECTIVE OUTER JACKETS FOR EVERFLEX CONVOLUTED HOSE



HYPALON RUBBER COVERING

HYPALON Rubber COVERING is available for all Everflex convoluted hose assemblies. A 3/16" thick, pin-pricked, Hypalon jacket covering all the braids, is an ideal addition when the hose is manually handled by personnel. Hypalon has excellent ozone, weathering and acid resistance with good abrasion and heat resistance.

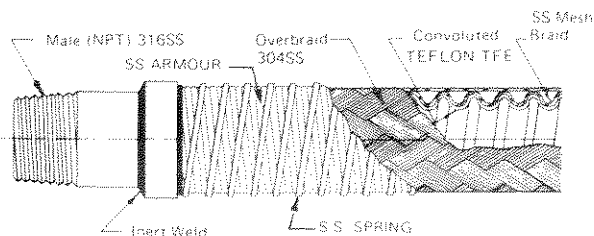
No compromise is made in the basic hose construction when the Hypalon jacket is used. The covering is installed over the normal external braid and is held firmly in place by stainless clamps. It has no contact with the fluid or material conducted.



ARMOUR CASING PROTECTION

ARMOUR Casing PROTECTION is an option for all Everflex convoluted hose assemblies. Highly flexible stainless steel interlock metal hose, weld attached to end fitting or flanges, affords protection to the hose for its full length — or for those portions of hose subject to external abuse or over bending.

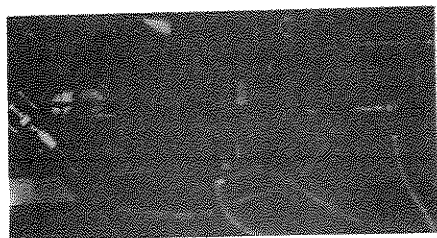
When safety is paramount, a full armour casing has the added feature of putting an additional barrier between personnel and the fluid or material conducted.



EVERFLEX "SST"

EVERFLEX SST offers the reliability and chemical inertness of our large bore hose of Teflon plus the added safety afforded by the heavy duty armour jacketing and spring guard. This combination effectively resists the severe twisting and over bending conditions encountered in the most demanding transfer applications. SST has already been proven in oleum and other critical chemical handling service.

GGP/AAP FOR HYDROCARBONS



Peraflex Type GGP and Type AAP are two Peraflex composite hoses specifically constructed for the transfer of hydrocarbon products. Based on the proven safety of seamless polypropylene tubes used in the body of the hose in conjunction with economical galvanized steel or light weight aluminium internal and external wires, Peraflex hoses equal or surpass the strict requirements necessary for the transfer of hydrocarbon products.

TYPICAL APPLICATIONS:

Petroleum
Diesel
Kerosenes

PERAFLEX TYPE GGP (Black Cover)

G — Galvanized Internal Wire
G — Galvanized External Wire
P — Polypropylene Tubes

PERAFLEX TYPE AAP (Orange Cover)

A — Aluminium Internal Wire
A — Aluminium External Wire
P — Polypropylene Tubes

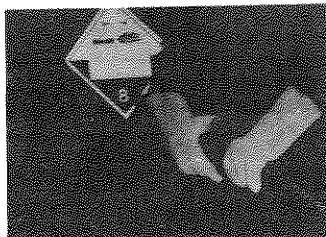
AAP available only in 4"
GAP or PAP available in 2", 3" or 4"

CONSTRUCTION

Cover — Vinyl Coated Polyester
— Abrasion, Ozone & Fire Resistant
Reinforcement — Hi-Strength, Hi-Density
Polyethylene Woven Fabric
Liquid Barrier — Seamless Polypropylene tubes &
Polypropylene film



SST/SGT FOR AGGRESSIVE CHEMICALS



Peraflex Teflon hose is constructed around a Teflon® (PTFE) inner liner, backed up by solid polypropylene tubes, and reinforced with high-strength, high-density polyethylene fabric. The unique chemically inert qualities of Teflon make this an ideal hose for transfer of particularly aggressive chemicals and solvents.

TYPICAL APPLICATIONS

Oilium
Ketones
Ester Solvents
Chlorinated Solvents

PERAFLEX TYPE SST (Red Cover)

S — (316) Stainless Steel Internal Wire
S — (316) Stainless Steel External Wire
T — Teflon® (PTFE) Liner

PERAFLEX TYPE SGT (Red Cover)

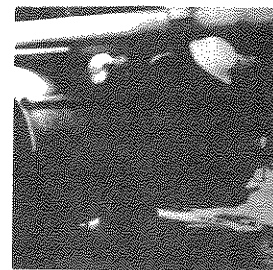
S — (316) Stainless Steel Internal Wire
G — Galvanized External Wire
T — Teflon (PTFE) Liner

CONSTRUCTION

Cover — Vinyl Coated Polyester
— Abrasion, Ozone, & Fire Resistant
Reinforcement — Hi-Strength, Hi-Density
Polyethylene Woven Fabric
Liquid Barrier — PTFE Teflon liner supported by
Seamless Polypropylene tubes and
Polypropylene film

PGP/SSP

FOR STANDARD CHEMICALS



Peraflex Type PGP and Type SSP are two styles of Peraflex composite hose designed for service with a large variety of industrial chemicals in use today.

Chemical resistance is achieved in Peraflex Type PGP and Type SSP by the use of 6 seamless polypropylene tubes incorporated in the body of each hose. The use of seamless tubes eliminates any potential leak paths but does not sacrifice flexibility, durability or safety in any way.

TYPICAL APPLICATIONS

Chemical Carriers
In Plant Service
Ship To Shore Transfer
Rail Tankers

PERAFLEX TYPE PGP (Blue Cover)

P — Polypropylene Coated Galvanized Internal Wire
G — Galvanized External Wire
P — Polypropylene Tubes

PERAFLEX TYPE SSP (Red Cover)

S — Stainless Steel (316) External Wire
S — Stainless Steel (316) Internal Wire
P — Polypropylene Tubes

CONSTRUCTION

Cover — Vinyl Coated Polyester
— Abrasion, Ozone & Fire Resistant
Reinforcement — Hi-Strength, Hi-Density
Polyethylene Woven Fabric
Liquid Barrier — Seamless Polypropylene tubes &
Polypropylene film

EXTREME FLEXIBILITY

LIGHT WEIGHT, LOW SPARKING ALUMINIUM WIRE

FULL ELECTRICAL CONTINUITY

200 PSI WORKING PRESSURE

"SAFETY 4" END FITTING SPECIFICATIONS

— Temperature Range -40°F to +212°F
— Full Vacuum Rated
— Electrically Continuous
— 5 to 1 Safety Factor
— U.S. Coast Guard

SIZE ID (inches)	MAX W.P. (psi)	WT. FT. (lbs)	BEND RADIUS (inches)	STD. MFCTD LENGTHS (feet)
1"	200	.65	2"	20, 30, 50
1½"	200	1.0	3"	20, 30, 50
2"	200	1.2	3.5"	20, 30, 50
2½"	200	2.0	4"	20, 30, 50
3"	200	2.4	5.5"	20, 30, 50
4"	200	3.5	6.5"	20, 30, 50

END FITTINGS

NPT Nipples of: — Aluminium
— Bronze
— Carbon Steel
— Polypropylene
— Stainless Steel

Quick Disconnects in All Standard Mtgs

Flanged Ends — Stainless Steel or Carbon Steel
Floating and Fixed

Large Bore Marine Hose Peraflex Hose complies with the requirements of the U.S. Coast Guard Regulations.

PETROLEUM SERVICE

TYPE GGP

Internal Wire — (G) Galvanized Wire
External Wire — (G) Galvanized Wire
Tube — (P) Polypropylene Tubes
Reinforcement — Hi-Strength, Hi-Density
Polyethylene
Liquid Barrier — Seamless Polypropylene
Tubes & Polypropylene Films
Color — Green

Cover — Ballistic Nylon

SIZE ID (inches)	MAX W.P. (psi)	WT. FT. (lbs)	BEND RADIUS (inches)	STD. MFCTD LENGTHS (feet)
4"	200	3.5	13.0"	30, 40, 50
6"	200	7.4	22.0"	30, 40, 50
8"	200	12.5	29.0"	30, 40, 50

Temperature — -40°F to 212°F
Vacuum — Full
Continuity — Double end to end
electrical continuity
Safety Ratio — 4 to 1

CHEMICAL SERVICE

TYPE PGP/SGP

Internal Wire — (P) Polypropylene Coated
Galvanized Wire
— (S) 316 Stainless Steel Wire
External Wire — (G) Galvanized Wire
— (S) 316 Stainless Steel Wire
Tube — (P) Polypropylene Tubes
Reinforcement — Hi-Strength, Hi-Density
Polyethylene
Liquid Barrier — Seamless Polypropylene
Tubes & Polypropylene Films
Cover — Ballistic Nylon
Color — Blue

SIZE ID (inches)	MAX W.P. (psi)	WT. FT. (lbs)	BEND RADIUS (inches)	STD. MFCTD LENGTHS (feet)
4"	200	3.5	13.0"	30, 40, 50
6"	200	7.4	22.0"	30, 40, 50
8"	200	12.5	29.0"	30, 40, 50

Temperature — -40°F to 212°F
Vacuum — Full
Continuity — Double end to end
electrical continuity
Safety Ratio — 4 to 1

FITTINGS — Nipples or flanges of carbon steel, stainless steel, or aluminum; externally swaged.

ALSO AVAILABLE: SGP/SSP/PSF

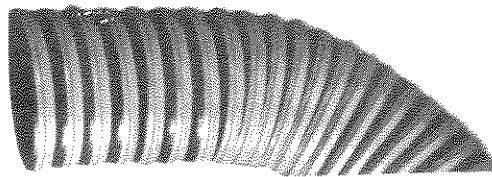
DUCTING

SPIRATUBE® TD-HS

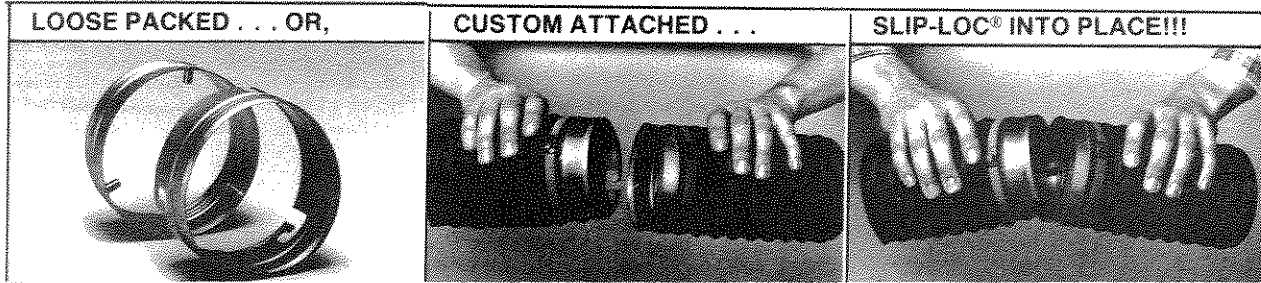
Typical applications: Spray paint fume venting; car wash facilities.

Same as Spiratube TD-S above except two-ply, heavy duty construction for good internal and external abrasion resistance. Recognized under the component program of Underwriters Laboratories, Inc. Meets UL 94V-0 flammability rating.

DIAMETER: 3-12 in. | LENGTH: 25 ft. | TEMP., °F: -40 to +200



SLIP-LOC COUPLERS



SLIP INTO TIME . . .

with the newest innovation from Dura-Vent. At last, a quick, convenient and easy means of coupling long extensions of duct hose is here! No longer is there a risk from using cumbersome, flammable duct tape when splicing duct hose.

Save on time and labor for applications of shipyard duct, portable furnace cleaning units, power plant venting, temporary air-conditioning units

and construction site dust removal.

SLIP INTO DURA-VENT . . .

when you want it done right. SLIP-LOC® Couplers are manufactured 4" through 12" id. Optional order screw clamps are also available. from 304 stainless steel. The male/female coupler sets are available in sizes

Federal Flexible Metal Hose for Material Handling

SUPERFLEX™: Interlocked stainless steel armor (outside) and stainless steel extra smooth liner (inside) assures highest flow rates. Standard construction is cotton packed. Other packings are available on special order.

Applications: Pneumatic conveying of grains, powder, pellets, clay, ash, fertilizers, wood chips, drugs, chemicals, corrosive, hot or abrasive materials and a variety of other dry products.

Characteristics: Temperature range -60 degrees F to +1600 degrees F depending on packing used. Metallic silver. Standard length 25'.

SUPERFLEX HEAVY DUTY STAINLESS STEEL.
Armor Thickness .018"
Liner Thickness .018"
I.D. Sizes: 1-1/2" to 14"

SUPERFLEX MEDIUM STAINLESS STEEL.
Armor Thickness .018"
Liner Thickness .015"
I.D. Sizes: 1-1/2" to 14"

SUPERFLEX LIGHT STAINLESS STEEL.
Armor Thickness .015"
Liner Thickness .015"
I.D. Sizes: 1-1/2" to 6"

GALVAFLEX™: Interlocked galvanized steel armor with a choice of stainless steel or high carbon steel liner. Standard construction is not packed.

Applications: For the transfer of a wide variety of dry bulk, corrosive, hot or abrasive materials.

Characteristics: Temperature range -60 degrees F to +500 degrees F. Metallic silver. Standard length 25'.

GALVAFLEX 350S.
Heavy Duty Galvanized Steel with .018" Stainless Steel Liner
I.D. Sizes: 1-1/2" to 14"

GALVAFLEX 350C.
Heavy Duty Galvanized Steel with .018" Carbon Steel Liner
I.D. Sizes: 1-1/2" to 14"

GALVAFLEX 250S.
Medium Duty Galvanized Steel with .015" Stainless Steel Liner
I.D. Sizes: 1-1/2" to 14"

GALVAFLEX 250C.
Medium Duty Galvanized Steel with .015" Carbon Steel Liner
I.D. Sizes: 1-1/2" to 12"

GALVAFLEX 150S.
Light Duty Galvanized Steel with .013" Stainless Steel Liner
I.D. Sizes: 1-1/2" to 8"

GALVAFLEX 150C.
Light Duty Galvanized Steel with .013" Carbon Steel Liner
I.D. Sizes: 1-1/2" to 8"

UNLINED METAL HOSE: Interlocked general purpose metal hose. Stainless steel or galvanized.

Applications: For engine intake and exhaust systems, conduit, granular materials movement, spouts, casings and chimney liners.

Characteristics: Temperature range -60 degrees F to +1600 degrees F depending on material specified. Metallic silver. Standard length 25'.

UNLINED R-600-S.
Extra Heavy Duty Stainless Steel. Strip Thickness .030"
I.D. Sizes: 2" to 16"

UNLINED R-600-G.
Extra Heavy Duty Galvanized Steel. Strip Thickness .030"
I.D. Sizes: 2" to 16"

UNLINED R-500-S.
Heavy Duty Stainless Steel. Strip Thickness .025"
I.D. Sizes: 1" to 16"

UNLINED R-500-G.
Heavy Duty Galvanized Steel. Strip Thickness .025"
I.D. Sizes: 1" to 16"

UNLINED R-360-S.
Medium/Heavy Duty Stainless Steel. Strip Thickness .018"
I.D. Sizes: 3/4" to 16"

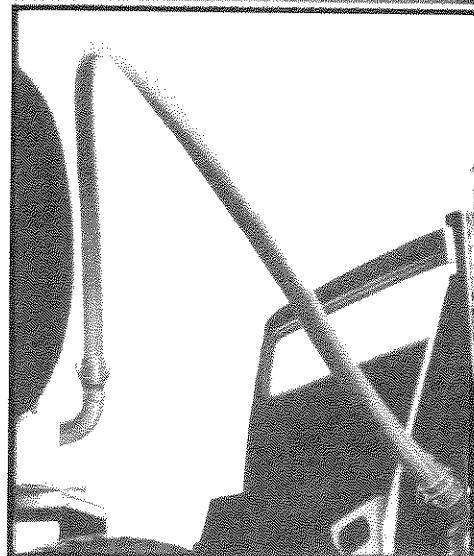
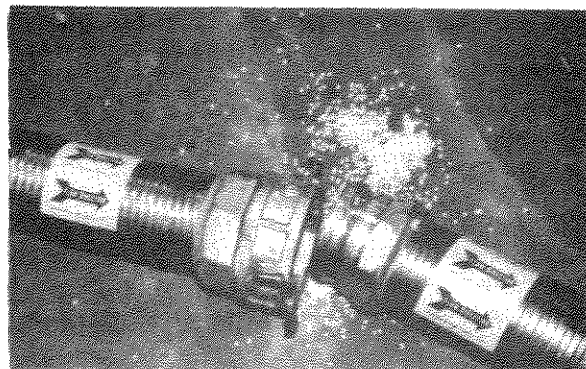
UNLINED R-360-G.
Medium/Heavy Duty Galvanized Steel. Strip Thickness .018"
I.D. Sizes: 3/4" to 16"

UNLINED R-300-S.
Medium Duty Stainless Steel. Strip Thickness .015"
I.D. Sizes: 3/4" to 16"

UNLINED R-300-G.
Medium Duty Galvanized Steel. Strip Thickness .015"
I.D. Sizes: 3/4" to 16"

UNLINED R-200-S.
Light Duty Stainless Steel. Strip Thickness .010"
I.D. Sizes: 3/4" to 8"

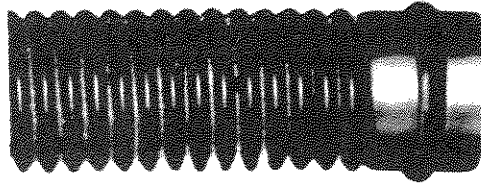
UNLINED R-250-G.
Light Duty Galvanized Steel. Strip Thickness .013"
I.D. Sizes: 3/4" to 8"



EXHAUST HOSE

FOR:

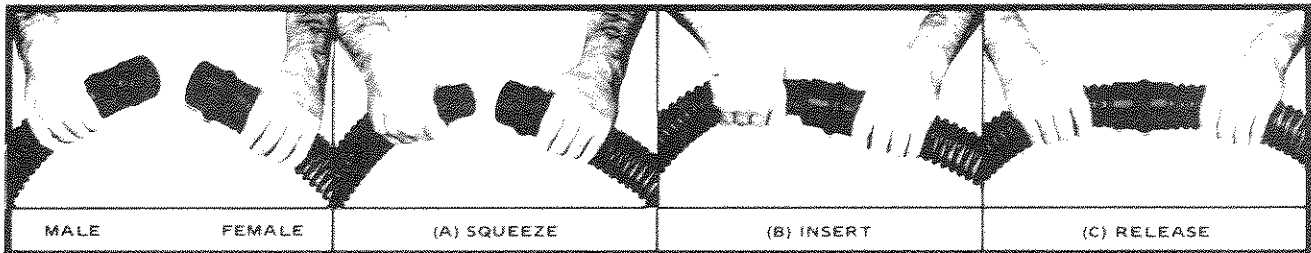
- COMMERCIAL GARAGES
- CAR DEALERS
- FLEET MAINTENANCE
- SHOPS
- SERVICE STATIONS
- HOME GARAGES
- SPECIAL APPLICATIONS



EXHAUST HOSE SPECIFICATION CHART

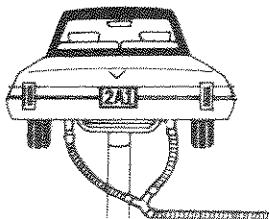
I. D.	Length
2 inches	10 feet
2½ inches	10 feet
3 inches	10 feet
4 inches	10 feet
5 inches	10 feet

Coupling easy as "A, B, C" with WAGNER Press-Loc®



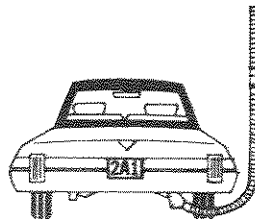
To assemble the Press-Loc® Coupling, all you have to do is . . . (a) "squeeze", (b) "insert" and (c) "release" and you have a superior strength leakproof connection. Simply reverse this process to take apart. There is no loss of interior dimension with this coupling design. Any type of hook-up can be easily put together in minutes. When apart, the 10-foot sections also allow for more convenient storage. When using original Press-Loc® connectors on each end of the hose you provide a simple-to-assemble and leak-proof fit, thus eliminating extra couplers and glue applications.

ACCESSORIES



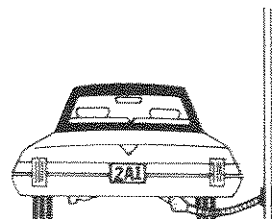
Underground

Versatile adapters will permit exhaust assemblies for underground systems.



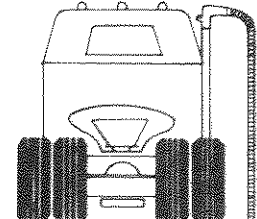
Overhead

The super-strength Press-Loc® couplings on WAGNER Hoses permit assemblies for overhead systems.



Through Door

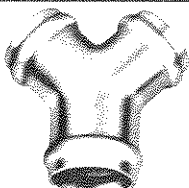
Easy to install special door ports are ideal for service stations and home garage installations.



Diesel

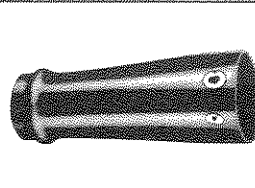
4 inch hose plus special elbow adapter available for Diesel trucks. Adaptable to overhead or underground exhaust systems.

Note: This hose to be used only when there is no load on engine.



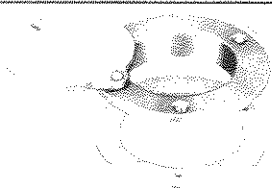
"Y" ADAPTER
Part No. 92-263

Heavy-duty cast aluminum "Y" adapter can be used with 2" or 2½" hose from two exhausts and 2½" or 3" hose exhaust system outlet. Each adapter opening equipped with female coupler.



UNIVERSAL ADAPTER
Part No. 92-264

Special compounded rubber adapter will fit domestic automobiles from 1954 and later. Easily adjusts with special fasteners to fit tailpipes. Designed with Press-Loc coupling.

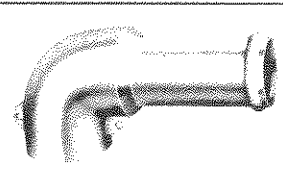


DOOR PORT

Rugged aluminum door port is easy to install and has gravity door that automatically shuts when unit is not in use. Two models available.

Part No. 92-260 for doors up to 1" thick

Part No. 92-261 for doors up to 1½" thick



DIESEL ELBOW ADAPTER
Part No. 92-262

For Diesel Trucks: Heavy aluminum elbow adjusts to either overhead or underground exhaust systems. Designed with air-draft space to reduce heat. Chain-Loc arrangement holds adapter securely to stack.

Kuri Tec®

SERIES K010 VINYL TUBING

NON REINFORCED CLEAR VINYL TUBING NON-TOXIC FOOD & BEVERAGE GRADE

Features:

- High quality flexible PVC compound made with KURI TEC formulation.
- High gloss crystal clear appearance with glass smooth interior to reduce sediment buildup.
- Non-toxic blue tint in compliance with FDA requirements to enhance clarity.

Applications:

- Tubing for laboratories
- Water distillation lines
- Deionized water systems
- Air conditioning drainage
- Refrigeration drainage
- Air lines
- Bottling plants

- Beverage dispenser units
- Ice making machines
- Printing press equipment
- High energy efficient furnace drainage
- Transfer of weak chemicals & acids

Hardness Shore "A" 72-75

Item Code	Nominal I.D.	Nominal O.D.	Nominal Wall	Working Pressure PSI* @ 68°F (20°C)	Standard Footage Per Ctn/Coil	Approx Weight Per Ctn/Coil
K010-0204X100	1/8"	1/4"	1/8"	65	100' Ctn	2.0 lbs.
K010-0304X100	3/16"	1/4"	1/32"	50	100' Ctn	1.2 lbs.
K010-0305X100	3/16"	3/8"	1/16"	55	100' Ctn	2.7 lbs.
K010-0306X100	3/16"	3/8"	3/32"	50	100' Ctn	3.8 lbs.
K010-0406X100	1/4"	3/8"	1/8"	55	100' Ctn	3.4 lbs.
K010-0407X100	1/4"	1/2"	1/16"	58	100' Ctn	5.5 lbs.
K010-0408X100	1/4"	1/2"	1/8"	60	100' Ctn	8.0 lbs.
K010-0507X100	3/8"	1/2"	1/16"	50	100' Ctn	4.0 lbs.
K010-0508X100	3/8"	1/2"	3/32"	55	100' Ctn	6.5 lbs.
K010-0509X100	3/8"	3/4"	1/8"	60	100' Ctn	9.4 lbs.
K010-0608X100	3/4"	1 1/8"	1/8"	45	100' Ctn	4.7 lbs.
K010-0609X100	3/4"	1 1/8"	3/32"	50	100' Ctn	7.5 lbs.
K010-0610X100	3/4"	1 1/8"	1/4"	55	100' Ctn	10.7 lbs.
K010-0810X100	1"	1 1/4"	1/8"	30	100' Ctn	6.0 lbs.
K010-0811X100	1"	1 1/4"	3/16"	40	100' Ctn	9.5 lbs.
K010-0812X100	1"	1 1/4"	1/4"	45	100' Ctn	13.4 lbs.

Item Code	Nominal I.D.	Nominal O.D.	Nominal Wall	Working Pressure PSI* @ 68°F (20°C)	Standard Footage Per Ctn/Coil	Approx Weight Per Ctn/Coil
K010-1013X100	3/4"	1 1/8"	3/32"	35	100' Ctn	11.6 lbs.
K010-1014X100	3/4"	1 1/8"	1/8"	40	100' Ctn	16.1 lbs.
K010-1216X100	1"	1 1/4"	1/8"	35	100' Ctn	18.8 lbs.
K010-1218X100	1"	1 1/4"	3/16"	45	100' Ctn	24.1 lbs.
K010-1220X100	1"	1 1/4"	1/4"	40	100' Ctn	42.9 lbs.
K010-1418X100	1 1/4"	1 7/8"	1/8"	30	100' Ctn	21.4 lbs.
K010-1420X100	1 1/4"	1 7/8"	3/16"	35	100' Ctn	34.1 lbs.
K010-1620X100	1 1/2"	1 7/8"	1/8"	25	100' Coil	24.1 lbs.
K010-1622X100	1 1/2"	1 7/8"	3/16"	30	100' Coil	38.2 lbs.
K010-1624X100	1 1/2"	1 7/8"	1/4"	35	100' Coil	53.6 lbs.
K010-2024X050	1 1/4"	1 7/8"	1/8"	20	50' Coil	14.8 lbs.
K010-2026X050	1 1/4"	1 7/8"	3/16"	30	50' Coil	23.1 lbs.
K010-2028X050	1 1/4"	1 7/8"	1/4"	40	50' Coil	32.2 lbs.
K010-2430X050	1 1/2"	1 7/8"	3/16"	30	50' Coil	27.1 lbs.
K010-2432X050	1 1/2"	2"	1/4"	35	50' Coil	37.5 lbs.
K010-3240X050	2"	2 1/8"	1/4"	35	50' Coil	48.2 lbs.

Kuri Tec® K3150 "RF" SERIES

Food and Beverage Grade — Standard Wall

CONSTRUCTION:
Crystal clear polyvinyl chloride reinforced with spiraled polyester cords.

Also reinforced with multiple longitudinal polyester cords to reduce elongation under pressure. Cover and tube is compounded from Non-Toxic PVC ingredients in compliance with applicable FDA** requirements.

**FDA - CFR Title 21 parts 170 to 199

FEATURES:

- Longitudinally reinforced to reduce elongation under pressure
- Non-Toxic Compounds
- Glass Smooth Interior
- Crystal Clear
- Chemical Resistant (see chart)
- Non Marking
- Lightweight
- Ozone & Atmospheric Resistant
- Self Extinguishing (UL94 Flame Class Recognized for Specific Requirements)
- Pneumatic Lines
- Air & Water Lines
- Glue Lines
- Vacuum Lines (Call factory for rating)
- Lubrication Lines
- Packaging Machines (see chemical resistant guide)

INDUSTRIAL APPLICATIONS:

- Potable Water Transfer Lines
- Transfer of Powdered Foods
- Food & Beverage Dispensing
- Applications where Poly-Vinyl Chloride is compatible with the media to be conveyed.

FOOD & BEVERAGE APPLICATIONS:

- Potable Water Transfer Lines
- Transfer of Powdered Foods
- Food & Beverage Dispensing
- Applications where Poly-Vinyl Chloride is compatible with the media to be conveyed.

TEMPERATURE RANGE:

- 25°F (-4°C) to 150°F (65°C)

K3150 "RF" SERIES SIZE CODE	NOMINAL I.D.	NOMINAL O.D.	MAXIMUM WORKING PRESSURE @ 68°F (20°C) PSI (MPa)	MAXIMUM WORKING PRESSURE @ 122°F (50°C) PSI (MPa)	STANDARD FOOTAGE PER COIL	APPROX. WEIGHT PER COIL
025	1/4"	3/8"	250 (1.72)	150 (1.03)	300 ft.	17 lbs.
031	3/8"	1/2"	250 (1.72)	135 (0.93)	300 ft.	24 lbs.
038	1/2"	5/8"	225 (1.55)	125 (0.86)	300 ft.	29 lbs.
050	3/4"	1"	200 (1.38)	100 (0.69)	300 ft.	42 lbs.
062	1"	1 1/8"	200 (1.38)	100 (0.69)	200 ft.	36 lbs.
075	1 1/4"	1 7/8"	150 (1.03)	85 (0.58)	200 ft.	44 lbs.
100	1 1/2"	2"	125 (0.86)	75 (0.52)	200 ft.	62 lbs.
125	1 3/4"	2 1/8"	100 (0.69)	55 (0.38)	100 ft.	52 lbs.
150	1 7/8"	2 3/8"	100 (0.69)	50 (0.34)	100 ft.	67 lbs.
200	2"	2 1/2"	75 (0.51)	35 (0.24)	100 ft.	99 lbs.

*Working Pressure Decreases as Temperature Increases

poly-wire®



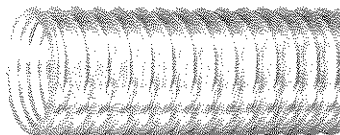
FOOD AND BEVERAGE GRADE / Crystal Clear PVC Reinforced with a Spring Wire

- FEATURES:**
- Full Vacuum Rating
 - Anti Kinking
 - Anti Collapsible
 - Non Toxic
 - Light Weight
 - Bend Radius 4 times ID
 - Chemical resistant (see guide)
 - Ozone and Atmospheric Resistant

- Applications:**
- Full Vacuum Lines
 - Food and Beverage Dispensing
 - Coolant Lines
 - Car Wash Applications

Temperature Range: 25°F (-4°C) to 150°F (65°C)

Series No.	Nominal I.D.	Nominal O.D.	Maximum W.P. PSI @ 70°F	Standard Length Per Carton	Approx. Weight Per Carton
PVTWF 025	1/4	1/2	130 PSI	100 ft.	10 lbs.
PVTWF 038	3/8	5/8	130 PSI	100 ft.	14 lbs.
PVTWF 050	1/2	13/16	130 PSI	100 ft.	18 lbs.
PVTWF 062	5/8	1	100 PSI	100 ft.	29 lbs.
PVTWF 075	3/4	1-1/8	100 PSI	100 ft.	34 lbs.
PVTWF 100	1	1-3/8	70 PSI	100 ft.	49 lbs.
PVTWF 125	1-1/4	1-3/4	70 PSI	50 ft.	41 lbs.
PVTWF 150	1-1/2	2	50 PSI	50 ft.	49 lbs.
PVTWF 200	2	2-1/2	50 PSI	50 ft.	61 lbs.



TIGERFLEX SERIES "WE"

PVC food grade material handling, vacuum and transfer hose with static wire.

FEATURES:

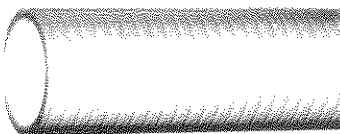
PVC, food grade, crystal clear material handling hose with embedded static wire. Designed with a convoluted cover for increased flexibility and a smooth bore to eliminate material build-up. PVC compound complies with applicable FDA† requirements.

GENERAL APPLICATIONS:

Pneumatic conveying system for powder, pellets or granular materials. Static wire for grounding. Paper mill vacuum lines. (For pneumatic system dry material transfer only)

SERVICE TEMP:

Static condition -4°F to 150°F Dynamic condition 14°F to 104°F



TIGERFLEX SERIES "FT"

PVC food grade suction and transfer hose.

FEATURES:

PVC, heavy duty, food grade, crystal clear suction and transfer hose. Designed with a smooth cover and bore to eliminate material buildup. PVC compound complies with applicable FDA† and USDA† requirements and 3-A Sanitary Standards.†

TIGERFLEX SERIES "WT"

PVC food grade material handling, vacuum and transfer hose, without static wire.

FEATURES:

PVC, food grade, crystal clear material handling hose. Designed with a convoluted cover for increased flexibility and a smooth bore to eliminate material build-up. PVC compound complies with applicable FDA† and USDA† requirements and 3-A Sanitary Standards.†

GENERAL APPLICATIONS:

Pneumatic conveying system for powder, pellets or granular materials. Food transfer systems. Poultry cleaning. (For pneumatic system dry material transfer only)

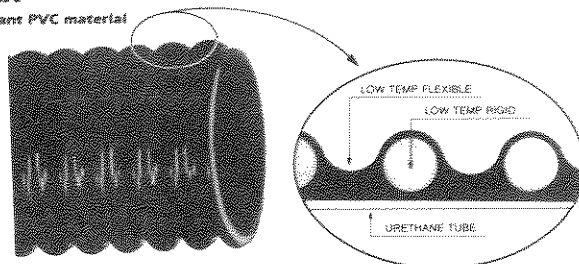
SERVICE TEMP:

Static condition -4°F to 150°F Dynamic condition 14°F to 104°F

MEETS THE CRITERIA IN 3-A SANITARY STANDARDS

TIGERFLEX "UREFLEX"

Polyurethane lined abrasion resistant PVC material



FEATURES:

Polyurethane lined, abrasion resistant PVC material handling hose. Black convoluted cover is made with low temperature HMW PVC compounds for sub-zero flexibility. Smooth urethane liner eliminates material build-up. Ideal hose for industrial vacuum machines and municipal vacuum inductors.

GENERAL APPLICATIONS:

Abrasive material transfer hose.
Grain handling.
Sand-Shot blast recovery line.
Roof rock cleaning.
Fly ash collecting.
(For pneumatic system dry material transfer only)

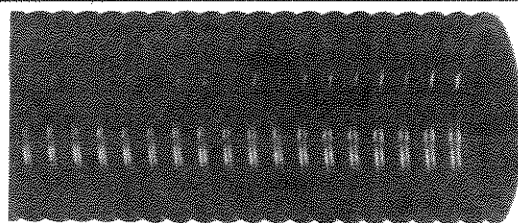
SERVICE TEMP:

Static condition -40°F to 150°F Dynamic condition -22°F to 104°F

TIGERFLEX "COLD FLEX"

Low temperature, heavy duty.

PVC suction and transfer hose.



FEATURES:

Low temperature, PVC suction and transfer hose. Black convoluted cover is made with low temperature HMW PVC compounds for greater flexibility in sub-zero temperatures. Smooth bore allows unrestricted flow.

GENERAL APPLICATIONS:

Low temp suction.
Liquid manure handling.
Septic tank cleaning.
Dry fertilizer broadcasting.

SERVICE TEMP:

Static condition -40°F to 150°F Dynamic condition -22°F to 104°F

TIGERFLEX SERIES "J"

PVC suction and transfer hose.

FEATURES:

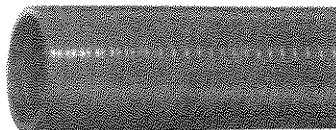
SERIES "J" Solid Dark Green Color
PVC suction and transfer hose. Smooth bore which allows full flow. Smooth cover on sizes 3/4" thru 4" ID, slightly convoluted cover on 6" ID size for greater flexibility.

GENERAL APPLICATIONS:

General purpose suction.
Construction and mining.
Irrigation lines.
Rock dust hose.
Wellpoint systems.
Agri-Foam application.
Agriculture applications.
Liquid fertilizer transfer.

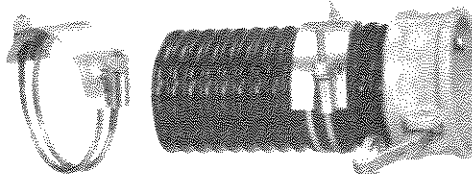
SERVICE TEMP:

Static condition -4°F to 150°F Dynamic condition 14°F to 104°F



Spiral Double Bolt Clamps

are recommended to be used on the following Tigerflex convoluted type hoses of 4" thru 12" sizes (counter clockwise spiral)



SERIES SDBC

SERIES WT, WE, UREFLEX, W, WG, COLD FLEX, S, G/F, WOR, WH, and WAND FLEX.

For adequate holding power, a single clamp may be used on each end of 4" size.

Two clamps are recommended for each end on sizes 6" ID hose and above.

CAUTION: Proper evaluation of holding power for clamp must be determined for each individual installation.

TIGERFLEX SERIES "WOR"

PVC vapor recovery hose.

FEATURES:

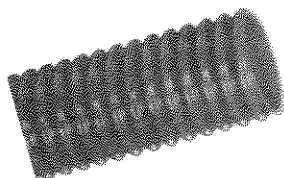
Vapor recovery hose. Designed specially to meet controlled collection, recovery and transfer of hydrocarbon emissions. Convoluted cover offers greater flexibility. Brick orange color.

GENERAL APPLICATIONS:

Recovery and transfer of hydrocarbon emissions.

SERVICE TEMP:

Static condition 5°F to 150°F
Dynamic condition 14°F to 104°F



ASK ABOUT NEW
"GVR"
VAPOR HOSE

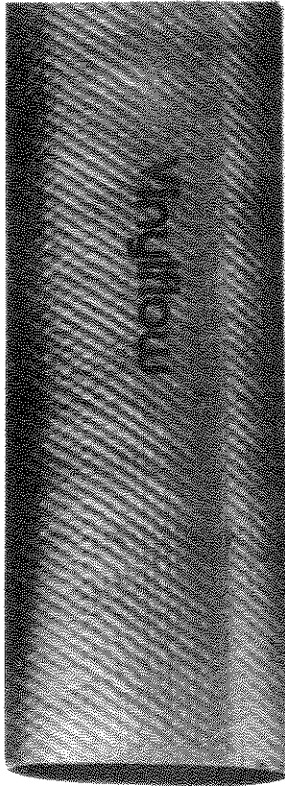
Series	ID Inch	OD Inch	Working Pressure (PSI)		Vacuum Rating Inch HG		Min. Bend Rad. Inch @68°F	Max. Lgth. FT.	Approx. Wt. Lbs./100 Ft.
			68°F	104°F	68°F	104°F			
WOR150	1 1/2"	1.92	50	25	28	24	3	100	31
WOR200	2"	2.40	40	20	28	24	4	100	50
WOR300	3"	3.64	40	20	28	24	6	100	117
WOR400	4"	4.72	35	18	26	22	10	100	174

Petroleum Resistance Guide for "WOR" are as follows:

	70°F	125°F	150°F		70°F	125°F	150°F		70°F	125°F	150°F
Gasoline, unleaded	A	X	X	Transmission fluid	A	B	X	Gas oil	A	A	X
Kerosene	A	B	X	Lubricating oil	A	B	X	Fuel oil	A	A	X
Tram oil	A	X	X	Turbine oil	A	B	X	Dynamo oil	A	A	B
Soy Bean oil	A	X	X	Diesel oil	A	B	X	Machine oil	A	A	B
Caster oil	A	X	X	Spindle oil	A	B	X	ASTM #3 oil	A	A	B

KEY: A — Recommended for the service and conditions shown "B" — Limited service "X" — Not recommended.

Vinylflow



GENERAL PURPOSE WATER DISCHARGE HOSE

APPLICATIONS:

- General purpose water discharge hose.
- Drip Irrigation – supply line.

FEATURES:

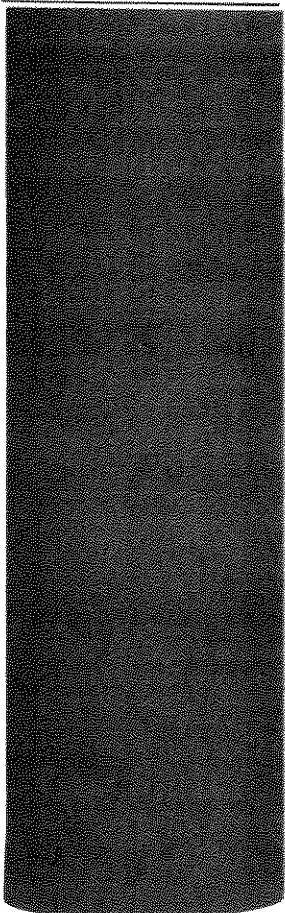
- Smooth tube for low friction loss. *Note chart on opposite side.
- Lays straight with minimal elongation under pressure.
- Easy hole punching without tearing, for drip irrigation.
- Homogeneous construction of tube and cover to eliminate separation.
- Ultraviolet inhibitors to reduce aging and weather checking.
- Coils flat for easy storage.
- Temperature Range 5°F to 170°F.

CONSTRUCTION:

- Balanced polyester yarn spiral wrap, plus longitudinal strength member. PVC homogeneous tube and cover.

Series No.	Hose ID. Inch	Working Pressure p.s.i.	Approx. Wall Thickness	Standard Package	Approx. Wt. Lbs./C. ft.
VF 150	1.673	80	.0669	300 Ft.	16
VF 200	2.165	80	.0669	300 Ft.	23
VF 250	2.598	80	.0787	300 Ft.	29
VF 300	3.130	70	.0787	300 Ft.	39
VF 400	4.134	70	.0827	300 Ft.	52
VF 500	5.039	40	.0866	300 Ft.	68
VF 600	6.181	50	.0866	300 Ft.	86
VF 800	8.169	45	.1063	300 Ft.	130
VF 1000	10.118	50	.1181	100 Ft.	181
VF 1200	12.126	30	.1181	100 Ft.	195
VF 1400	14.134	30	.1181	100 Ft.	262
VF 1600	16.142	30	.1181	100 Ft.	310

Ironsides



"IRONSIDES" HEAVY DUTY WATER DISCHARGE HOSE

APPLICATIONS:

- Agricultural, quarries, irrigation, mining, construction, and general water cleanup in and around industrial plants.
 - A light weight fire hose for municipal, industrial, and underground fire fighting service.
- Excellent as a portable hydrant or relay supply line hose.

FEATURES:

- High working pressure
- Long lengths (300 Ft.)
- Resists kinking and twisting.
- May be coiled or racked when wet.
- High ozone resistance.
- Temperature range: 5° F to 170° F.

CONSTRUCTION:

- Premium quality PVC tube and cover reinforced with two spiral plies and longitudinal synthetic cords.

FITTINGS:

- Standard short shank aluminum, malleable or brass couplings, or expansion ring fire hose couplings.

Series No.	Hose I.D. Inch	Approx. Wall Thickness	Working Pressure p.s.i.	Standard Package	Approx. Weight lbs./C. ft.
IS 150	1.50	.0866	200	300 Ft.	23
IS 200	2.00	.0906	175	300 Ft.	32
IS 250	2.50	.0945	150	300 Ft.	41
IS 300	3.00	.0984	125	300 Ft.	52
IS 400	4.00	.1102	125	300 Ft.	76
IS 600	6.00	.1181	100	300 Ft.	121

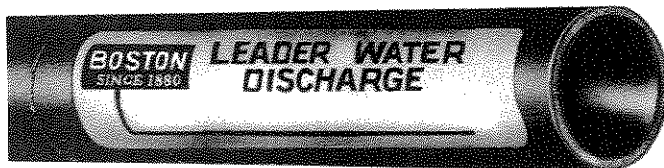
BOSTON™

OTTER WATER SUCTION and DISCHARGE HOSE



- A light weight yet high strength water suction and discharge hose for construction & industrial service.
- Helical wire between two braids of high strength synthetic cord gives full vacuum yet ease of handling and excellent flexibility.
- Tube and cover constructed of S.B.R. rubber for abrasion and weathering resistance.
- Reinforced, 2 braid synthetic with wire helix.
- Available in 60 foot lengths .

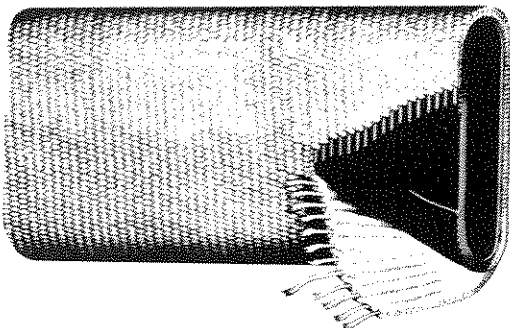
CODE	SIZE ID		NO. BRAIDS	SIZE NOMINAL OD		APPROX. WT. POUNDS PER. 100 FT.	MAX. REC. WORKING PRESS. (PSI)	MINIMUM BEND RADIUS	
	(IN.)	(MM)		(IN.)	(MM)			(IN.)	(MM)
43-0364-09	1-1/2	38.1	2	2-1/16	52.4	98	125	5	127.0
43-0364-10	2	50.8	2	2-1/2	63.5	123	125	6	152.4
43-0364-11	3	76.2	2	3-19/32	91.3	194	100	12	304.8
43-0364-12	4	101.6	2	4-9/16	115.9	247	100	14	355.6



LEADER WATER DISCHARGE

- A heavy duty water discharge hose for the most demanding construction and industrial applications.
- Extra tough black rubber tube and cover for abrasion and weathering resistance.
- High strength synthetic cord braid for strength and pressure. Will not rot or mildew.
- Maximum length 50 feet.

CODE	SIZE ID		NO. BRAIDS	SIZE NOMINAL OD		APPROX. WT. POUNDS PER. 100 FT.	MAX. REC. WORKING PRESS. (PSI)
	(IN.)	(MM)		(IN.)	(MM)		
43-0307-01	1-1/2	38.1	1	1-7/8	47.6	53	115
43-0307-02	2	50.8	1	2-29/64	62.3	82	100
43-0307-03	3	76.2	2	3-1/2	88.9	130	75
43-0307-04	4	101.6	2	4-1/2	114.3	172	60



POINTER MILL

APPLICATION — Ideal for open end pump discharge — used by contractors at construction sites. Light duty wash down, clean up hose where conditions are not extremely severe.

NOT DESIGNED FOR FIRE PROTECTION SERVICE.

JACKET — Circular woven. All/Synthetic. Single Jacket.

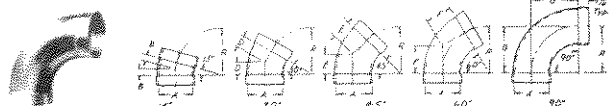
TUBE — Black extruded age and ozone resistant synthetic rubber.

SPECIFICATION 86-603

SIZE ID		COUPLING TAIL PIECE ID		WEIGHT LBS. PER. 50 FEET UNCOUPLED	LENGTH
(IN.)	(MM)	(IN.)	(MM)		
1-1/2	38.1	1-3/4	44.5	12	50'—100'
2	50.8	2-5/16	58.7	16	50'—100'
2-1/2	63.5	2-13/16	71.4	20	50'—100' *
3	76.2	3-5/16	84.1	24	50'
4	101.6	4-5/16	109.5	33	50'

*Special order 1000 ft. minimum.

LONG RADIUS BELLED BENDS



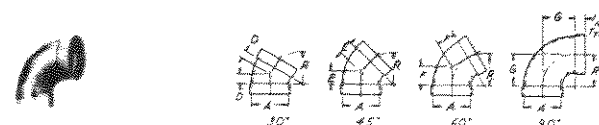
Pipe or Tubing	Nom. O.D.	Material	Thick. In.	Size, Mat'l., Part No. and Wt.											
				15°			30°			45°			60°		
				Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.
1/2"	1 1/8"	Steel 0598		40622-D	4	40622-C	4	40622-B	4	40622-A	4	40622-A	4	40622-A	4
		304 St. 0598		40622-D	4	40622-C	4	40622-B	4	40622-A	4	40622-A	4	40622-A	4
		316 St. 0598		40622-D	4	40622-C	4	40622-B	4	40622-A	4	40622-A	4	40622-A	4
2"	2 1/2"	Steel 0598		40626-D	4	40626-C	4	40626-B	4	40626-A	4	40626-A	4	40626-A	4
		304 St. 0598		40626-D	4	40626-C	4	40626-B	4	40626-A	4	40626-A	4	40626-A	4
		316 St. 0598		40626-D	4	40626-C	4	40626-B	4	40626-A	4	40626-A	4	40626-A	4
2 1/2"	3"	Steel 0598		40630-D	4	40630-C	4	40630-B	4	40630-A	4	40630-A	4	40630-A	4
		304 St. 0598		40630-D	4	40630-C	4	40630-B	4	40630-A	4	40630-A	4	40630-A	4
		316 St. 0598		40630-D	4	40630-C	4	40630-B	4	40630-A	4	40630-A	4	40630-A	4
3"	3 1/2"	Steel 0598		40634-D	4	40634-C	4	40634-B	4	40634-A	4	40634-A	4	40634-A	4
		304 St. 0598		40634-D	4	40634-C	4	40634-B	4	40634-A	4	40634-A	4	40634-A	4
		316 St. 0598		40634-D	4	40634-C	4	40634-B	4	40634-A	4	40634-A	4	40634-A	4
4"	4 1/2"	Steel 0598		40638-D	4	40638-C	4	40638-B	4	40638-A	4	40638-A	4	40638-A	4
		304 St. 0598		40638-D	4	40638-C	4	40638-B	4	40638-A	4	40638-A	4	40638-A	4
		316 St. 0598		40638-D	4	40638-C	4	40638-B	4	40638-A	4	40638-A	4	40638-A	4
6"	6 1/2"	Steel 0598		40642-D	4	40642-C	4	40642-B	4	40642-A	4	40642-A	4	40642-A	4
		304 St. 0598		40642-D	4	40642-C	4	40642-B	4	40642-A	4	40642-A	4	40642-A	4
		316 St. 0598		40642-D	4	40642-C	4	40642-B	4	40642-A	4	40642-A	4	40642-A	4

Size	R	A (in.)	B	D	E	F	G
1/2"	2 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
2 1/2"	3"	3"	3"	3"	3"	3"	3"
3"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"
4"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"
6"	6 1/2"	6 1/2"	6 1/2"	6 1/2"	6 1/2"	6 1/2"	6 1/2"

REMARKS:

- Long radius and greater flow area insure faster delivery.
- Belled ends permit faster fitting and welding.
- Light weight metal halves are longitudinally butt welded (not edge-welded) for greater strength.
- Where space prohibits use of long radius BELLED BENDS use short radius.
- Since the low cost of Allegheny Fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

SHORT RADIUS BELLED BENDS



Pipe or Tubing	Nom. O.D.	Material	Thick. In.	Size, Mat'l., Part No. and Wt.											
				15°			30°			45°			60°		
				Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.
1/2"	1 1/8"	Steel 0598		40622-D	4	40622-C	4	40622-B	4	40622-A	4	40622-A	4	40622-A	4
		304 St. 0598		40622-D	4	40622-C	4	40622-B	4	40622-A	4	40622-A	4	40622-A	4
		316 St. 0598		40622-D	4	40622-C	4	40622-B	4	40622-A	4	40622-A	4	40622-A	4
2"	2 1/2"	Steel 0598		40626-D	4	40626-C	4	40626-B	4	40626-A	4	40626-A	4	40626-A	4
		304 St. 0598		40626-D	4	40626-C	4	40626-B	4	40626-A	4	40626-A	4	40626-A	4
		316 St. 0598		40626-D	4	40626-C	4	40626-B	4	40626-A	4	40626-A	4	40626-A	4
2 1/2"	3"	Steel 0598		40630-D	4	40630-C	4	40630-B	4	40630-A	4	40630-A	4	40630-A	4
		304 St. 0598		40630-D	4	40630-C	4	40630-B	4	40630-A	4	40630-A	4	40630-A	4
		316 St. 0598		40630-D	4	40630-C	4	40630-B	4	40630-A	4	40630-A	4	40630-A	4
3"	3 1/2"	Steel 0598		40634-D	4	40634-C	4	40634-B	4	40634-A	4	40634-A	4	40634-A	4
		304 St. 0598		40634-D	4	40634-C	4	40634-B	4	40634-A	4	40634-A	4	40634-A	4
		316 St. 0598		40634-D	4	40634-C	4	40634-B	4	40634-A	4	40634-A	4	40634-A	4
4"	4 1/2"	Steel 0598		40638-D	4	40638-C	4	40638-B	4	40638-A	4	40638-A	4	40638-A	4
		304 St. 0598		40638-D	4	40638-C	4	40638-B	4	40638-A	4	40638-A	4	40638-A	4
		316 St. 0598		40638-D	4	40638-C	4	40638-B	4	40638-A	4	40638-A	4	40638-A	4
6"	6 1/2"	Steel 0598		40642-D	4	40642-C	4	40642-B	4	40642-A	4	40642-A	4	40642-A	4
		304 St. 0598		40642-D	4	40642-C	4	40642-B	4	40642-A	4	40642-A	4	40642-A	4
		316 St. 0598		40642-D	4	40642-C	4	40642-B	4	40642-A	4	40642-A	4	40642-A	4

Since the low cost of Allegheny Fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

Size	R	A (in.)	B	D	E	F	G
1/2"	2 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
2 1/2"	3"	3"	3"	3"	3"	3"	3"
3"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"
4"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"
6"	6 1/2"	6 1/2"	6 1/2"	6 1/2"	6 1/2"	6 1/2"	6 1/2"

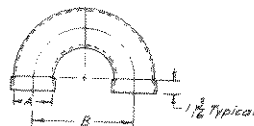
REMARKS:

- For use where space prohibits use of long radius BELLED BENDS.
- Belled ends permit faster fitting and welding.
- Lightweight metal halves are longitudinally butt-welded (not edge-welded) for greater strength.

ALLEGHENY

BELLED 180° RETURN BENDS

Long and Short Radius



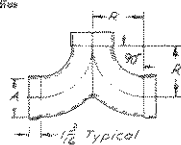
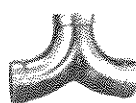
Pipe or Tubing	Nom. O.D.	Material	Thick. In.	Size, Mat'l., Part No. and Wt.											
				15°			30°			45°			60°		
				Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.	Part Number	Wt. lb.
1/2"	1 1/8"	Steel 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		304 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		316 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
2"	2 1/2"	Steel 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		304 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		316 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
2 1/2"	3"	Steel 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		304 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		316 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
3"	3 1/2"	Steel 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		304 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		316 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
4"	4 1/2"	Steel 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		304 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1
		316 St. 0598		40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1	40683	1.1

- Belled Ends provide better piping alignment, faster installation.
- Lightweight and strong; made from metal stampings.
- May be used with pipe or thin-wall tubing.
- Large i.d. for greater flow.
- Necessity of cutting tubing square or to exact length eliminated.
- Excellent fit permits arc welding instead of more costly gas welding.
- Piping may be fabricated and installed by one man.

Since the low cost of Allegheny Fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

BELLED DOUBLE BRANCH BENDS

Long and Short Radius

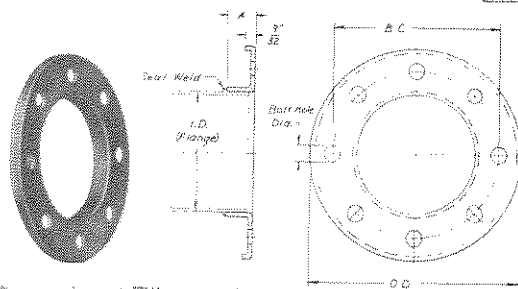


Size, Mat'l., Part No. and Wt.													
Pipe, Tubing	O.D.	Material	Thick-ness	A-1000	Part Number	R	Wt. lb.						
1/2"	1 1/8"	Steel	0598	1 1/2"	40757	2 1/4"	9						
		304 St. St.	0598		340757		9						
		316 St. St.	0598		3540757		9						
2"	2 3/8"	Steel		2 1/2"	40599		1 1/2						
		304 St. St.	0598		40679		2 10						
		316 St. St.			40599		3 1 1/2						
2 1/2"	2 7/8"	Steel		2 3/4"	40679		3 1 1/2						
		304 St. St.	0598		40599		3 1 1/2						
		316 St. St.			40599		3 1 1/2						
3"	3 1/2"	Steel		3 1/2"	40679		2 10						
		304 St. St.	0598		40679		3 1 1/2						
		316 St. St.			40679		3 1 1/2						
4"	4 1/2"	Steel		4 1/2"	40679		3 1 1/2						
		304 St. St.	0598		40679		3 1 1/2						
		316 St. St.			40679		3 1 1/2						
6"	6 3/8"	Steel		6 3/4"	40679		3 1 1/2						
		304 St. St.	0598		40679		3 1 1/2						
		316 St. St.			40679		3 1 1/2						

1. Beveled Ends provide better piping alignment, faster installation.
2. Lightweight and strong made from metal stamping.
3. May be used with pipe or thin-wall tubing.
4. Large I.D. for greater flow.
5. Necessity of cutting tubing square or to exact length eliminated.
6. Excellent fit permits arc welding instead of more costly gas welding.
7. Piping may be fabricated and installed by one man.

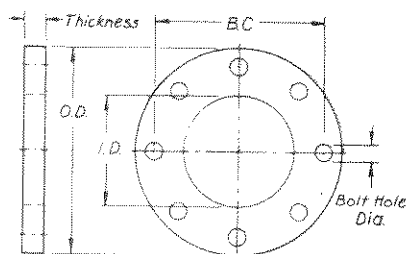
Since the low cost of Allegheny fittings does not permit testing at the factory, it is the obligation of the manufacturer to perform this operation.

FLUED FLANGES



Size, Mat'l., Part No. and Wt.				Dimensions						
Pipe Size	Material	Thickness	Part Number	Wt. Lb.	I.D.	O.D.	B.C.	A	No. of Holes	Bolt Holes
1	Steel	.1345	11283	.46						
	304 St. St.	.1345	SS11283	.46	1 1/2	3 29/32	2 21/32	1 1/2	4	7/16
1 1/2	Steel	.1345	20706-A	.4						
	304 St. St.	.1345	SS20706-A	.4	1 1/2	4 1/2	3 1/2	1 1/2	4	7/16
2	Steel	.1345	20079-A	.7						
	304 St. St.	.1345	SS20079-A	.7	2 1/2	5	3 3/4	2 1/2	6	7/16
2 1/2	Steel	.1345	20174-A	.81						
	304 St. St.	.1345	SS20174-A	.81	2 5/8	5 1/2	4 1/4	2 5/8	6	7/16
3	Steel	.1345	20056-A	1.						
	304 St. St.	.1345	SS20056-A	1.	3 1/2	6 1/8	4 7/8	3 1/2	8	7/16
4	Steel	.1345	20080-A	1.25						
	304 St. St.	.1345	SS20080-A	1.25	4 3/2	7 5/8	5 5/8	4 1/2	8	7/16
5	Steel	.1345	20290-A	1.4						
	304 St. St.	.1345	SS20290-A	1.4	5 5/8	8 1/4	7	5 1/2	12	7/16
6	Steel	.1345	20167-A	1.7						
	304 St. St.	.1345	SS20167-A	1.7	6 11/16	9 5/8	8 1/2	6 1/2	12	7/16

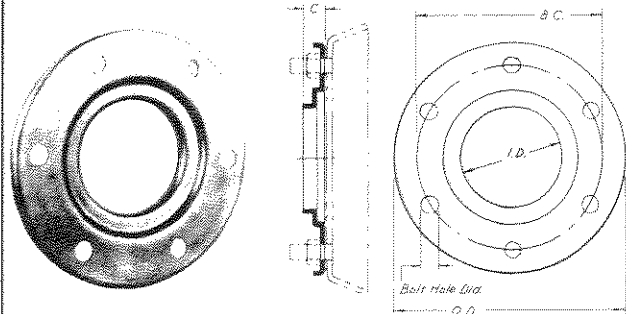
ALUMINUM FLANGES



Pipe Size	Material	Part Number	Wt. Lb.	Thickness	I.D.	O.D.	B.C.	No. of Holes	Bolt Holes
2	Alum. 6061	20189-A	.38	3/16	2 7/16	4 1/2	3 3/4	6	7/16
3	Alum. 6061	20189-C	.6	3/8	3 9/16	5 5/8	4 7/8	8	7/16
4	Alum. 6061	20189-D	.8	3/4	4 9/16	6 5/8	5 7/8	8	7/16
6	Alum. 6061	20189-E	1.1	3/4	6 11/16	9	8 1/2	12	7/16

Drilling in accordance with TTMA recommended practice.

DRAIN POCKET ADAPTER FLANGES



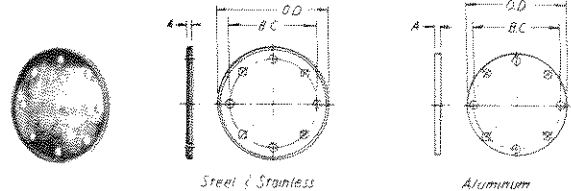
Size, Mat'l., Part No. and Wt.				Dimensions						
Pipe Size	Material	Thickness	Part Number	Wt. Lb.	I.D.	O.D.	B.C.	C	No. of Holes	Bolt Holes
2	Steel	.1345	10096-A	1.6						
2 1/2	316 St. St.	.1345	SS10096-B	1.6	3 3/8	7 3/4	6 1/2	3/4	6	9/16
	Aluminum	.916	A20516	1.2				9/16		
4	Steel	.1345	10491-A	2.						
	316 St. St.	.1345	SS10491-B	2.	4 3/8	8 3/4	7 1/2	3/4	8	9/16
6	Aluminum	.916	A10548-A	1.4				9/16		
6	Steel	.1345	11242-A	2.7						
	316 St. St.	.1345	SS11242-A	2.7	6	10 5/4		3/4	12	
6	Aluminum	1/2	11240	2.5				10 1/4		

Note 1: A20516 is Hexagon, 60° across flats.

Fit standard drain pockets made to TTMA Recommendations.

BLIND FLANGES

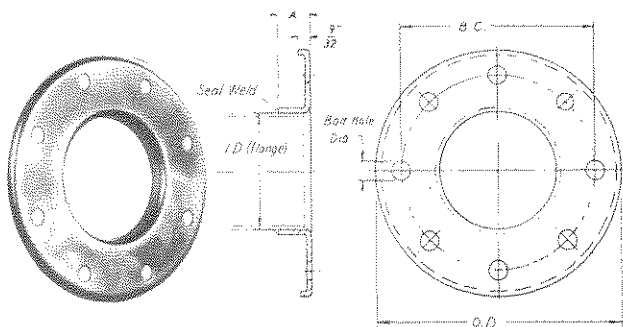
(use also for making Flanged Adapters)



Size, Mat'l., Part No. and Wt.				Dimensions					
Pipe Size	Material	Thickness	Part Number	Wt. Lb.	O.D.	A	B.C.	No. of Holes	Dist of Holes
2	Steel	.1345	20518	.9					
	304 St.St.	.1345	SS20518	.9	5	9 3/2	5 3/4	6	7 1/16
	316 St.St.	.1345	SS20518	.9					
	Aluminum 6061	.375	20661-A	.5	4 1/2	9 3/8			
2 1/2	Steel	.1345	20519	1.0					
	304 St.St.	.1345	SS20519	1.0	5 1/2	9 3/2	4 1/4	6	7 1/16
	316 St.St.	.1345	SS20519	1.0					
3	Steel	.1345	20520	1.3					
	304 St.St.	.1345	SS20520	1.3	6 1/8	9 3/2	4 7/8	8	7 1/16
	316 St.St.	.1345	SS20520	1.3					
	Aluminum 6061	.375	20661-C	.8	5 5/8	9 3/8			
4	Steel	.1345	20521	1.5					
	304 St.St.	.1345	SS20521	1.5	7 1/8	9 3/2	5 7/8	8	7 1/16
	316 St.St.	.1345	SS20521	1.5					
	Aluminum 6061	.375	20661-D	1.25	6 5/8	9 3/8			
5	Steel	.1345	20522	1.7					
	304 St.St.	.1345	SS20522	1.7	8 1/4	9 3/2	7	12	7 1/16
	316 St.St.	.1345	SS20522	1.7					
6	Steel	.1345	20553	2.7					
	304 St.St.	.1345	SS20553	2.7	9 3/8	9 3/2	8 1/8	12	7 1/16
	316 St.St.	.1345	SS20553	2.7					
	Aluminum 6061	.375	20661-E	2.4	9	9 3/8			

Drilling in accordance with TTMA recommended practice.

CONCENTRIC REDUCING FLUED FLANGES

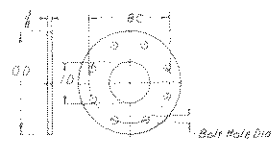


Size, Mat'l, Part No. and Wt.					Dimensions					
Pipe Size	Material	Thickness	Part Number	Wt. lb.	I.D.	O.D.	B.C.	A	No. of Holes	Dia. of Holes
2 1/2	Steel	.1345	40984-A	.73	2 1/2	5 1/2	4 1/4	9/16	6	7/16
	304 St. St.	.1345	SS40984-A	.73	2 1/2	5 1/2	4 1/4	9/16	6	7/16
	316 St. St.	.1345	SS40984-A	.73	2 1/2	5 1/2	4 1/4	9/16	6	7/16
3	Steel	.1345	40984-B	.85	3	6 1/8	4 3/4	5/8	8	7/16
	304 St. St.	.1345	SS40984-B	.85	3	6 1/8	4 3/4	5/8	8	7/16
	316 St. St.	.1345	SS40984-B	.85	3	6 1/8	4 3/4	5/8	8	7/16
3 1/2	Steel	.1345	40984-C	1.15	3 1/2	6 3/4	4 7/8	5/8	8	7/16
	304 St. St.	.1345	SS40984-C	1.15	3 1/2	6 3/4	4 7/8	5/8	8	7/16
	316 St. St.	.1345	SS40984-C	1.15	3 1/2	6 3/4	4 7/8	5/8	8	7/16
4	Steel	.1345	40984-D	1.3	4	7 1/2	5 3/8	3/4	8	7/16
	304 St. St.	.1345	SS40984-D	1.3	4	7 1/2	5 3/8	3/4	8	7/16
	316 St. St.	.1345	SS40984-D	1.3	4	7 1/2	5 3/8	3/4	8	7/16
5	Steel	.1345	40984-E	1.5	5	8 1/4	6 1/4	3/4	12	7/16
	304 St. St.	.1345	SS40984-E	1.5	5	8 1/4	6 1/4	3/4	12	7/16
	316 St. St.	.1345	SS40984-E	1.5	5	8 1/4	6 1/4	3/4	12	7/16
6	Steel	.1345	40984-F	1.75	6	9 3/8	6 5/8	3/4	12	7/16
	304 St. St.	.1345	SS40984-F	1.75	6	9 3/8	6 5/8	3/4	12	7/16
	316 St. St.	.1345	SS40984-F	1.75	6	9 3/8	6 5/8	3/4	12	7/16

1. Drilling in accordance with TMA Recommended Practice.
2. Higher rates of flow result from using Reducers

ALUMINUM REDUCING FLANGES

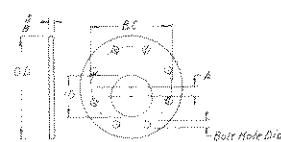
CONCENTRIC



Material: Aluminum 6061

Size, Mat'l, Part No. and Wt.				Dimensions					
Pipe Size	Part Number	Wt. lb.	I.D.	O.D.	B.C.	No. of Holes	Dia. of Holes		
3 x 2	41002-B	.7	2 1/2	5 1/2	4 1/4	6	7/16		
3 x 2 1/2	41002-C	.8	3 1/2	6 1/8	4 3/4	8	7/16		
4 x 3	41002-D	1.3	4	7 1/2	5 3/8	8	7/16		
6 x 4	41002-F	1.75	6	9 3/8	6 5/8	12	7/16		

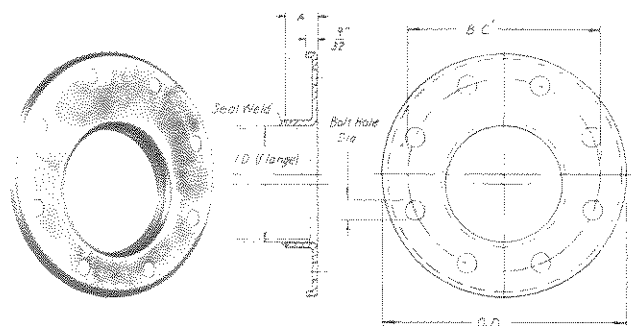
ECCENTRIC



Material: Aluminum 6061

Size, Mat'l, Part No. and Wt.				Dimensions					
Pipe Size	Part Number	Wt. lb.	I.D.	O.D.	A	B.C.	No. of Holes	Dia. of Holes	
3 x 2	41001-B	.7	2 1/2	5 1/2	4 1/4	4 1/4	6	7/16	
4 x 3	41001-D	1.3	4	7 1/2	5 3/8	5 3/8	8	7/16	
6 x 4	41001-F	1.75	6	9 3/8	6 5/8	6 5/8	12	7/16	

1. Drilling in accordance with TMA recommended practice.
2. Higher rates of flow result from using Reducers



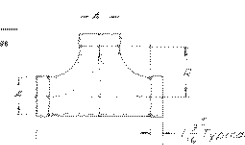
Size, Mat'l, Part No. and Wt.					Dimensions					
Pipe Size	Material	Thickness	Part Number	Wt. lb.	I.D.	O.D.	B.C.	A	No. of Holes	Dia. of Holes
2 1/2	Steel	.1345	40983-A	.73	2 1/2	5 1/2	4 1/4	9/16	6	7/16
	304 St. St.	.1345	SS40983-A	.73	2 1/2	5 1/2	4 1/4	9/16	6	7/16
	316 St. St.	.1345	SS40983-A	.73	2 1/2	5 1/2	4 1/4	9/16	6	7/16
3	Steel	.1345	40983-B	.85	3	6 1/8	4 3/4	5/8	8	7/16
	304 St. St.	.1345	SS40983-B	.85	3	6 1/8	4 3/4	5/8	8	7/16
	316 St. St.	.1345	SS40983-B	.85	3	6 1/8	4 3/4	5/8	8	7/16
3 1/2	Steel	.1345	40983-C	1.15	3 1/2	6 3/4	4 7/8	5/8	8	7/16
	304 St. St.	.1345	SS40983-C	1.15	3 1/2	6 3/4	4 7/8	5/8	8	7/16
	316 St. St.	.1345	SS40983-C	1.15	3 1/2	6 3/4	4 7/8	5/8	8	7/16
4	Steel	.1345	40983-D	1.3	4	7 1/2	5 3/8	3/4	8	7/16
	304 St. St.	.1345	SS40983-D	1.3	4	7 1/2	5 3/8	3/4	8	7/16
	316 St. St.	.1345	SS40983-D	1.3	4	7 1/2	5 3/8	3/4	8	7/16
5	Steel	.1345	40983-E	1.5	5	8 1/4	6 1/4	3/4	12	7/16
	304 St. St.	.1345	SS40983-E	1.5	5	8 1/4	6 1/4	3/4	12	7/16
	316 St. St.	.1345	SS40983-E	1.5	5	8 1/4	6 1/4	3/4	12	7/16
6	Steel	.1345	40983-F	1.75	6	9 3/8	6 5/8	3/4	12	7/16
	304 St. St.	.1345	SS40983-F	1.75	6	9 3/8	6 5/8	3/4	12	7/16
	316 St. St.	.1345	SS40983-F	1.75	6	9 3/8	6 5/8	3/4	12	7/16

1. Drilling in accordance with TMA Recommended Practice.
2. Higher rates of flow result from using Reducers



BELLED TEES

Long and Short Radius



Size, Mat'l, Part No. and Wt.					Dimensions					
Pipe Tub. Nom. (in.)	O.D.	A	I.D. Bell	Material	Thick. (in.)	Part Number	Wt. lb.	R	D	Remarks
2	2 1/2	2 1/2	2 1/2	Steel	.0598	40158-A	1.5			1. Belled ends provide better piping alignment, faster installation.
				304 St. St.	.0598	SS40158-A	1.5			
				316 St. St.	.0598	SS40158-A	1.5			
2 1/2	2 1/2	2 1/2	2 1/2	Steel	.0598	40158-B	1.2			2. Necessity of cutting tubing square or to exact length eliminated.
				304 St. St.	.0598	SS40158-B	1.2			
				316 St. St.	.0598	SS40158-B	1.2			
3	3 1/2	3 1/2	3 1/2	Steel	.0598	40158-C	2.0			3. Piping may be fabricated and installed by one man.
				304 St. St.	.0598	SS40158-C	2.0			
				316 St. St.	.0598	SS40158-C	2.0			
4	4 1/2	4 1/2	4 1/2	Steel	.0598	40158-D	2.8			4. Sweeping lines and large I.D. for greater flow.
				304 St. St.	.0598	SS40158-D	2.8			
				316 St. St.	.0598	SS40158-D	2.8			
6	6 1/2	6 1/2	6 1/2	Steel	.0598	40158-E	4.6			5. Light weight and strong, made from metal stampings, longitudinally butt-welded (not edge-welded) for greater strength.
				304 St. St.	.0598	SS40158-E	4.6			
				316 St. St.	.0598	SS40158-E	4.6			
6	6 1/2	6 1/2	6 1/2	Alum. 5052	.125	40158-F	2.25			6. May be used with pipe or thin-wall tubing.
				Steel	.0747	40158-F	2.25			
				Alum. 5052	.125	40158-F	2.25			

Since the low cost of Atlaghny Fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

LONG RADIUS BELLED LATERALS Style A



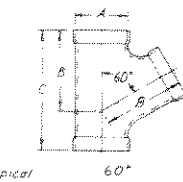
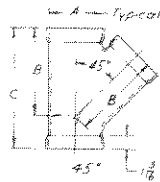
30° Lateral 45° Lateral 60° Lateral

Pipe or Tubing		Material	Thick-ness	Size, Mat'l. Part No. and Wt.			Dimensions		
				Part Number	Wt. lb.	Part Number	Part Number	Wt. lb.	Part Number
2 in.	2.375	Steel	0.598	40328-A	1.8	40328-B	1.8	40328-C	1.8
		304 St. St.	0.598	540328-A	1.8	540328-B	1.8	540328-C	1.8
		316 St. St.	0.598	5540328-A	1.8	5540328-B	1.8	5540328-C	1.8
		Alum. 5052	0.598	40343-A	1.4	40343-B	1.4	40343-C	1.4
2 1/2 in.	2.875	Steel	0.598	40520-A	2.5	40520-B	2.5	40520-C	2.5
		304 St. St.	0.598	540520-A	2.5	540520-B	2.5	540520-C	2.5
		316 St. St.	0.598	5540520-A	2.5	5540520-B	2.5	5540520-C	2.5
		Alum. 5052	0.598	41169-A	1.9	41169-B	1.9	41169-C	1.9
3 in.	3.500	Steel	0.598	40338-A	3.2	40338-B	3.2	40338-C	3.2
		304 St. St.	0.598	540338-A	3.2	540338-B	3.2	540338-C	3.2
		316 St. St.	0.598	5540338-A	3.2	5540338-B	3.2	5540338-C	3.2
		Alum. 5052	0.598	40344-A	2.5	40344-B	2.5	40344-C	2.5
4 in.	4.500	Steel	0.598	40335-A	5.4	40335-B	5.4	40335-C	5.4
		304 St. St.	0.598	540335-A	5.4	540335-B	5.4	540335-C	5.4
		316 St. St.	0.598	5540335-A	5.4	5540335-B	5.4	5540335-C	5.4
		Alum. 5052	0.598	40345-A	4.2	40345-B	4.2	40345-C	4.2

Dimensions		REMARKS	
Size	A	B	C
2	2 1/2	6 1/2	5 1/2
2 1/2	2 3/4	7 1/2	6 1/2
3	3 1/2	8 1/2	7 1/2
4	4 1/2	10 1/2	9 1/2

- For high strength, high efficiency piping systems.
- Streamlined Belled Laterals provide greater flow and greater strength as compared with mitered joint.
- Slip end joint affords easier installation and welding.
- Large flow areas.
- Long radii.
- Smooth interiors (no projections into flow area).
- Since the low cost of Allegheny Fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

SHORT RADIUS BELLED LATERALS



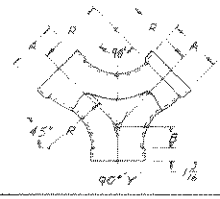
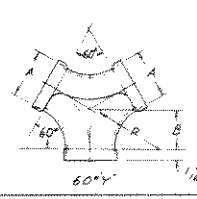
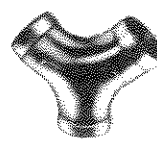
45° Typical 60° Typical

Pipe or Tubing		Material	Thick-ness	Size, Mat'l. Part No. and Wt.			Dimensions		
				Part Number	Wt. lb.	Part Number	Part Number	Wt. lb.	Part Number
3 in.	3.500	Steel	0.598	40637-A	2.8	40637-B	2.8	40637-C	2.8
		304 St. St.	0.598	540637-A	2.8	540637-B	2.8	540637-C	2.8
		316 St. St.	0.598	5540637-A	2.8	5540637-B	2.8	5540637-C	2.8
		Alum. 5052	0.598	40798-A	2.2	40798-B	2.2	40798-C	2.2
4 in.	4.500	Steel	0.598	40610-A	4.6	40610-B	4.6	40610-C	4.6
		304 St. St.	0.598	540610-A	4.6	540610-B	4.6	540610-C	4.6
		316 St. St.	0.598	5540610-A	4.6	5540610-B	4.6	5540610-C	4.6
		Alum. 5052	0.598	40743-A	3.6	40743-B	3.6	40743-C	3.6
6 in.	6.625	Steel	0.747	40876-A	10.3	40876-B	10.3	40876-C	10.3
		304 St. St.	0.747	540876-A	10.3	540876-B	10.3	540876-C	10.3
		316 St. St.	0.747	5540876-A	10.3	5540876-B	10.3	5540876-C	10.3
		Alum. 5052	0.747	41391-A	5.9	41391-B	5.9	41391-C	5.9

REMARKS

- For use where space prohibits use of Long radius Belled Laterals
- Streamlined design provides greater flow and greater strength as compared with mitered joint.
- Slip end joint affords easier installation and welding.
- Large flow areas.
- Smooth interiors (no projections into flow area).
- Since the low cost of Allegheny Fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

LONG RADIUS BELLED 60° AND 90° 'Y's



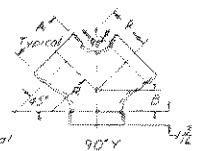
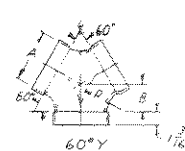
60° Y Typical 90° Y Typical

Pipe or Tubing		Material	Thick-ness	Size, Mat'l. Part No. and Wt.			Dimensions		
				Part Number	Wt. lb.	Part Number	Part Number	Wt. lb.	Part Number
2 in.	2.375	Steel	0.598	40529-A	1.0	40529-B	1.0	40529-C	1.0
		304 St. St.	0.598	540529-A	1.0	540529-B	1.0	540529-C	1.0
		316 St. St.	0.598	5540529-A	1.0	5540529-B	1.0	5540529-C	1.0
		Alum. 5052	0.598	40532-A	0.75	40532-B	0.75	40532-C	0.75
2 1/2 in.	2.875	Steel	0.598	40521-A	1.5	40521-B	1.5	40521-C	1.5
		304 St. St.	0.598	540521-A	1.5	540521-B	1.5	540521-C	1.5
		316 St. St.	0.598	5540521-A	1.5	5540521-B	1.5	5540521-C	1.5
		Alum. 5052	0.598	40533-A	1.2	40533-B	1.2	40533-C	1.2
3 in.	3.500	Steel	0.598	40530-A	2.0	40530-B	2.0	40530-C	2.0
		304 St. St.	0.598	540530-A	2.0	540530-B	2.0	540530-C	2.0
		316 St. St.	0.598	5540530-A	2.0	5540530-B	2.0	5540530-C	2.0
		Alum. 5052	0.598	40531-A	1.5	40531-B	1.5	40531-C	1.5
4 in.	4.500	Steel	0.598	40531-A	3.5	40531-B	3.5	40531-C	3.5
		304 St. St.	0.598	540531-A	3.5	540531-B	3.5	540531-C	3.5
		316 St. St.	0.598	5540531-A	3.5	5540531-B	3.5	5540531-C	3.5
		Alum. 5052	0.598	40534-A	2.5	40534-B	2.5	40534-C	2.5

Dimensions		NOTES	
Size	A	B	R
2 in.	2 1/2	1 1/2	3
2 1/2 in.	2 3/4	2 1/2	3 1/2
3 in.	3 1/2	2 3/4	4 1/2
4 in.	4 1/2	3 1/2	6

Low initial cost and fast installation save you money. Belled end fittings provide better piping alignment. Fabricated for stronger, lighter, safer piping systems. CAUTION: Since the low cost of Allegheny fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

SHORT RADIUS BELLED 60° AND 90° 'Y's



60° Y Typical 90° Y Typical

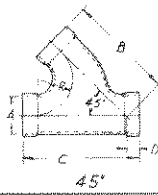
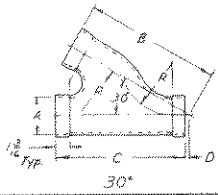
Pipe or Tubing		Material	Thick-ness	Size, Mat'l. Part No. and Wt.			Dimensions		
				Part Number	Wt. lb.	Part Number	Part Number	Wt. lb.	Part Number
3 in.	3.500	Steel	0.598	40638-A	2.2	40638-B	2.2	40638-C	2.2
		304 St. St.	0.598	540638-A	2.2	540638-B	2.2	540638-C	2.2
		316 St. St.	0.598	5540638-A	2.2	5540638-B	2.2	5540638-C	2.2
		Alum. 5052	0.598	40799-A	2.1	40799-B	2.1	40799-C	2.1
4 in.	4.500	Steel	0.598	40612-A	3.0	40612-B	3.0	40612-C	3.0
		304 St. St.	0.598	540612-A	3.0	540612-B	3.0	540612-C	3.0
		316 St. St.	0.598	5540612-A	3.0	5540612-B	3.0	5540612-C	3.0
		Alum. 5052	0.598	40742-A	2.5	40742-B	2.5	40742-C	2.5
6 in.	6.625	Steel	0.747	40879-A	4.8	40879-B	4.8	40879-C	4.8
		304 St. St.	0.747	540879-A	4.8	540879-B	4.8	540879-C	4.8
		316 St. St.	0.747	5540879-A	4.8	5540879-B	4.8	5540879-C	4.8
		Alum. 5052	0.747	41386-A	2.7	41386-B	2.7	41386-C	2.7

Dimensions		NOTES	
Size	A	B	R
3 in.	3 1/2	1 1/2	3
4 in.	4 1/2	2 1/2	4
6 in.	6 1/2	3 1/2	6

For use where space prohibits use of long radius Belled Y's. Low initial cost and fast installation cut costs. Belled end fittings provide better piping alignment. Fabricated for stronger, lighter, safer piping systems.



BELLED LATERALS Style B



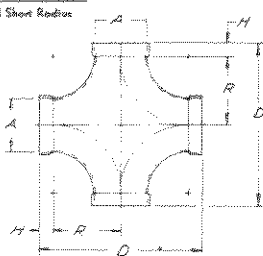
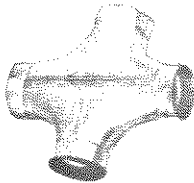
Pipe or Tubing		Size, Mat'l, Part No. and Wt.		30°		45°	
Nom. Size	O.D.	Material	Thick-ness	Part Number	Wt. lb.	Part Number	Wt. lb.
3 in.	3.500	Steel	.0598	40749-A	3.5		
		304 St. St.	.0598	540749-A	3.5		
		316 St. St.	.0598	5540749-A	3.5		
4 in.	4.500	Steel	.0598	40750-A	5.7	41124-B	3.7
		304 St. St.	.0598	540750-A	5.7	541124-B	3.7
		316 St. St.	.0598	5540750-A	5.7	5541124-B	3.7
		Alum. 5052	.125			41122-B	2.73

Dimensions		A		B		C		D		R	
Size	Mat'l	30°	45°	30°	45°	30°	45°	30°	45°	30°	45°
3	3 1/2	12	11 1/2	11 1/2	10 1/2	10 1/2	9 1/2	6	5 1/2	4 1/2	4 1/2
4	4 1/2	14	13 1/2	13 1/2	12 1/2	12 1/2	11 1/2	8	7 1/2	6	5 1/2

Streamlined design provides greater flow and greater strength. Slip end joint affords easier installation and welding. Large flow areas. Since the low cost of Allegheny fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

BELLED CROSSES

Long and Short Radius



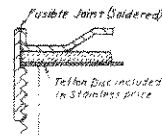
Pipe or Tubing		Size, Mat'l, Part No. and Wt.		Dimensions	
Nom. Size	O.D.	Material	Thick-ness	Part Number	Wt. lb.
2 in.	2.375	Steel	.0598	40201	2.1
		304 St. St.	.0598	540201	2.1
		316 St. St.	.0598	5540201	2.1
		Alum. 5052	.125	40481	1.7
2 1/2 in.	2.875	Steel	.0589	40548	2.9
		304 St. St.	.0589	540548	2.9
		316 St. St.	.0589	5540548	2.9
		Alum. 5052	.125	40675	2.3
3 in.	3.500	Steel	.0589	40202	3.75
		304 St. St.	.0589	540202	3.75
		316 St. St.	.0589	5540202	3.75
		Alum. 5052	.125	40482	2.9
4 in.	4.500	Steel	.0589	40740	3.3
		304 St. St.	.0589	540740	3.3
		316 St. St.	.0589	5540740	3.3
		Alum. 5052	.125	40805	2.7
6 in.	6.625	Steel	.0747	40892	13.4
		306 St. St.	.0747	540892	13.4
		316 St. St.	.0747	5540892	13.4
		Alum. 5052	.125	41983	7.6

CAPS

Fusible Pipe Caps & Pipe Caps



Type A
Fusible Cap



Type B
Fusible Cap



Type C
Pipe Cap

Full TEFLON disc gasket with resilient back-up disc gasket prevents contact of fusible material with lading and possible contamination. Although each cap has been tested to 100 psig, wrenching and vibration may cause the soldered joint to fail to avoid injury, it is recommended that operator stay clear of the fusible caps, no matter whose make, in case the pressure in the tank should cause the fusible joint to separate. Tightening should be limited to hand tight or with use of special wrench #10408.

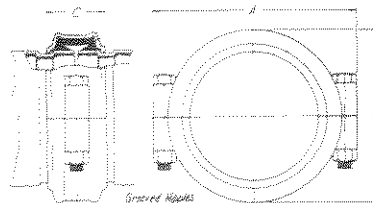
Modification of Type A to prevent fusible joint from failure due to excessive wrenching. This design does not permit use of full disc gasket. Lading is in contact with fusible material.

Full TEFLON disc gasket with resilient back-up disc provides ideal sealing combination. Fabricated construction - No castings.

Note: Caps shall be used with nipples made according to TMA RP 33.

Fusible joints are SOLDERED which insures bubble-tight joint. Each fusible cap is tested to insure tightness and structural strength. Tested and marked per NFPA 385, NFPA 407. DOT MC306 and MC307. Critical Temp. 250°F. Quick Chain Attach Fitting, no screw to loosen or lose.

MARK I COUPLINGS



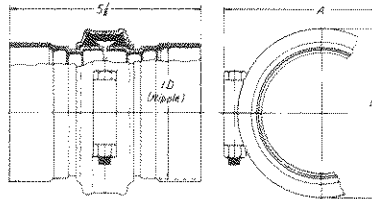
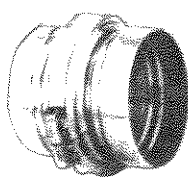
Pipe or Tubing		Size, Mat'l, Part No. and Wt.		Dimensions	
Nom. Size	O.D.	Material	Part Number	Wt. lb.	A B C
2 in.	2.375	Steel	20352	1.0	4 1/4 3 3/8 1 1/2
		Aluminum	20358	.55	
2 1/2 in.	2.875	Steel	20355	1.1	4 1/2 3 1/2 1 1/2
		Aluminum	20359	.6	
3 in.	3.500	Steel	20330	1.25	5 1/6 4 1/2 1 1/2
		Aluminum	20360	.7	
4 in.	4.500	Steel	20334	1.8	6 1/6 5 5/8 1 23/32
		Aluminum	20361	1.2	
6 in.	6.625	Steel	21116	2.75	8 1/2 7 3/4 1 7/8
		Aluminum	21132	1.62	

Nominal Size	Material	Part No.
2 in.	Buna-N	10137
2 1/2 in.	Buna-N	10403
3 in.	Buna-N	10140
4 in.	Buna-N	10139
6 in.	Buna-N	21115

Couplings are lightweight and strong; made from metal stampings. Gasket of Buna-N. Grooving & Gaskets are interchangeable with other makes of couplings having standard dimensions. All Couplings meet API RP 1004 except 6" Aluminum which has a Bursting Pressure of 200 psig.



MARK I COUPLINGS with Belled Grooved Nipples



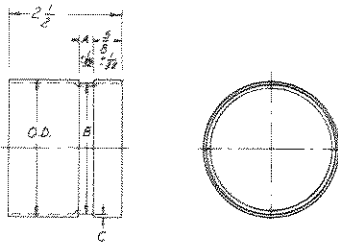
Size, Mat'l., Part No. and Wt.				Dimensions		
Pipe or Tubing Nom. Size	O.D.	Material	Part Number	Wt. lb.	A	B
2 IN.	2.375	Steel	20365-A	1.4	4 1/4	3 3/8
		Steel	20365-B	1.8		
		Aluminum	20882-A	.75		
		Aluminum	20882-B	.95		
2 1/2 IN.	2.875	Steel	20367-A	1.55	4 17/32	3 3/4
		Steel	20367-B	2.0		
		Aluminum	20881-A	.85		
		Aluminum	20881-B	1.1		
3 IN.	3.500	Steel	20363-A	1.75	5 5/16	4 1/2
		Steel	20363-B	2.25		
		Aluminum	20883-A	1.0		
		Aluminum	20883-B	1.3		
4 IN.	4.500	Steel	20364-A	2.4	6 7/16	5 5/8
		Steel	20364-B	3.0		
		Aluminum	20884-A	1.4		
		Aluminum	20884-B	1.8		

Lower in-place cost, faster fitting and welding.
Easier installation, coupling need not be disassembled during welding.
Designed especially for Highway Transportation Tanks.
Easily taken apart for line cleaning.

Couplings meet API RP 1004 pressure requirements and Canadian Standards B242.

Since the low cost of Allegheny Fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

GROOVED NIPPLES

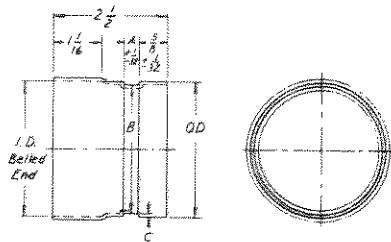


Size, Mat'l., Part No. and Wt.				Dimensions		
Pipe Size	O.D.	Material	Part Number	Wt. lb.	A	B
2 IN.	2.375	Steel	40306-A	.4	5 7/16	2.250
		304 St. St.	540306-A	.4		
		Alum.	41313-A	.2		
2 1/2 IN.	2.875	Steel	40306-B	.45	5 1/16	2.720
		Alum.	41313-B	.25		
		Steel	40306-C	.5		
3 IN.	3.500	304 St. St.	540306-C	.5	5 1/8	3.344
		Alum.	41313-C	.31		
		Steel	40306-D	.7		
4 IN.	4.500	304 St. St.	540306-D	.7	5 1/8	4.344
		Alum.	41313-D	.4		
		Steel	40306-E	1.1		
6 IN.	6.625	304 St. St.	540306-E	1.1	5 1/8	6.455
		Alum.	41313-E	.7		
		Steel	40306-F	1.1		

Made from thin-wall tubing. Larger inside diameter assures better flow.
Lightweight, Low Cost.
For use with most makes of couplings having standard dimensions and tolerances.

Manufacturer's Catalog and Other Available Publications and Data Can Be Furnished On Request.

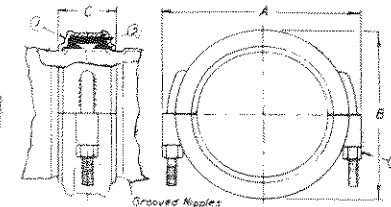
BELLED GROOVED NIPPLES



Size, Mat'l., Part No. and Wt.				Dimensions			
Pipe Size	O.D.	Material	Part Number	Wt. lb.	A	B	C
2 IN.	2.375	Steel	40305-A	.4	5 1/16	2.250	16ga (.0598)
		304 St. St.	540305-A	.4			109
		Alum.	41318-A	.2			120
2 1/2 IN.	2.875	Steel	40305-B	.45	5 1/16	2.720	16ga (.0598)
		Alum.	41318-B	.25			120
		Steel	40305-C	.5			120
3 IN.	3.500	304 St. St.	540305-C	.5	5 1/16	3.344	16ga (.0598)
		Alum.	41318-C	.3			120
		Steel	40305-D	.7			120
4 IN.	4.500	304 St. St.	540305-D	.7	5 1/16	4.344	16ga (.0598)
		Alum.	41318-D	.4			120
		Steel	40305-E	.7			120

Made from thin-wall tubing. Larger inside diameter assures better flow.
Belled Ends provide longitudinal and angular adjustment for faster fitting and faster welding.
Can be used with pipe or tubing.
Lightweight.
For use with most makes of couplings having standard dimensions and tolerances.

MARK II COUPLINGS

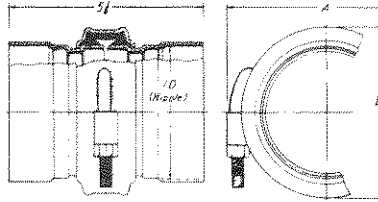
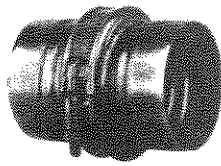


Size, Mat'l., Part No. and Wt.				Dimensions		
Pipe or Tubing Nom. Size	O.D.	Material	Part Number	Wt. lb.	A	B
2 IN.	2.375	Steel	20865	.8	4 3/16	3 3/4
		Steel, Zinc Plated	20865-P	.8		
		Alum.	20864	.10		
2 1/2 IN.	2.875	Steel	20864	1.0	4 17/32	3 3/4
		Steel, Zinc Plated	20864-P	1.0		
		Alum.	20863	.12		
3 IN.	3.500	Steel	20863	1.2	5 5/16	4 1/2
		Steel, Zinc Plated	20863-P	1.2		
		Alum.	20838	.16		
4 IN.	4.500	Steel	20838	1.6	6 3/16	5 5/8
		Steel, Zinc Plated	20838-P	1.6		
		Alum.	21134	2.6		
6 IN.	6.625	Steel	21134	2.6	8 1/2	7 1/2
		Steel, Zinc Plated	21134-P	2.6		
		Alum.	21134	2.6		

Nominal Size	Material	Gasket Part No.
2 IN.	Buna N	10137
2 1/2 IN.	Buna N	10403
3 IN.	Buna N	10140
4 IN.	Buna N	10139
6 IN.	Buna N	21115

COMPARE SIZE! COMPARE WEIGHT! COMPARE COSTS!
FABRICATED DESIGN provides more than adequate strength. Saves weight. Saves costs.
COUPLINGS MEET A.P.I. RP1004 Pressure Requirements and Canadian Standards Association B242 except 6" Aluminum which has a bursting Pressure of 200psig.
FEWER PARTS TO HANDLE OR INVENTORY. Bolts are an integral part of the Coupling.

MARK II COUPLINGS with Belled Grooved Nipples



Pipe or Tubing		Size, Mat'l., Part No. and Wt.				Dimensions			
Nom. Size	O.D.	Material	Part Number	Wt. lb.		A	B	I.D. (Nipple)	
2 IN.	2.375	Steel	20866-A	1.2	Belled one side	4 1/2	3 1/8	2 13/32	
		Steel	20866-B	1.6	Belled two sides				
2 1/2 IN.	2.875	Steel	20867-A	1.45	Belled one side	4 17/32	3 3/4	2 29/32	
		Steel	20867-B	1.9	Belled two sides				
3 IN.	3.500	Steel	20868-A	1.7	Belled one side	5 5/16	4 1/2	3 17/32	
		Steel	20868-B	2.2	Belled two sides				
4 IN.	4.500	Steel	20869-A	2.2	Belled one side	6 7/16	5 5/8	4 1/2	
		Steel	20869-B	2.8	Belled two sides				

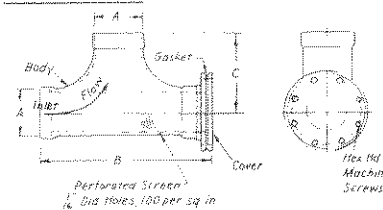
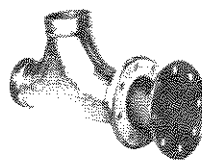
REMARKS:

- Lower in place cost.
- Easier installation. Less parts to handle.
- Fewer parts. Special bolts are welded to coupling to prevent turning or becoming lost.
- Easily taken apart for line cleaning.

Couplings meet A.P.I. RP1004 Pressure Requirements and Canadian Standards Association B242 1971 (Ontario Energy Branch Standard GN 6/73).

Since the low cost of Allegheny Fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

LINE STRAINERS



Pipe Size		Size, Mat'l., Part No. and Wt.				Dimensions			
		Material	Part Number	Wt. lb.		A (I.D.)	B	C	
2 IN.	2.375	Steel	40273	3.1	Steel/Cad Plated	2 13/32	9 5/16	4 3/16	
		Stainless	SS40273	3.1					
		316 Stainless	SS40273	3.1					
		Aluminum	40341	2.5					
2 1/2 IN.	2.875	Steel	40551	4.1	Steel/Cad Plated	2 29/32	10 13/32	4 13/16	
		Stainless	SS40551	4.1					
		316 Stainless	SS40551	4.1					
		Aluminum	40328	4.4					
3 IN.	3.500	Steel	40266	5.5	Steel/Cad Plated	3 17/32	12 9/32	5 1/4	
		Stainless	SS40266	5.5					
		316 Stainless	SS40266	5.5					
		Aluminum	40328	4.4					
4 IN.	4.500	Steel	40274	9.0	Steel/Cad Plated	4 17/32	15 13/32	7 1/4	
		Stainless	SS40274	9.0					
		316 Stainless	SS40274	9.0					
		Aluminum	40342	6.9					
6 IN.	6.625	Steel	41390	18.0	Steel/Cad Plated	6 21/32	14 2/8	7 1/4	
		Stainless	SS41390	18.0					
		316 Stainless	SS41390	18.0					
		Aluminum	41394	12.4					

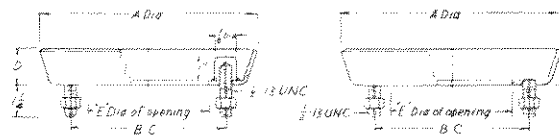
* 6 inch Strainers are made exclusively for gravity operation.

Belled Inlet and Outlet Ends simplify fit-up and welding.
Screens with 1/2" dia. Holes, 9 per sq. in. furnished as an alternate.
Exceptionally large screen basket area.

Stamped Metal Halves are longitudinally Butt-Welded for greater strength.
Faster flow, greater strength and lighter weight through fabrication.

Since the low cost of Allegheny Fittings does not permit testing at the factory, it is the obligation of the tank manufacturer to perform this operation.

DRAIN POCKETS



STYLE A
DRAIN POCKETS WITH
SOCKETS & STUDS

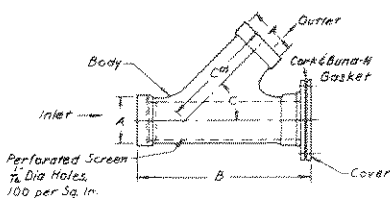
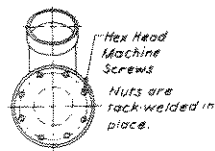
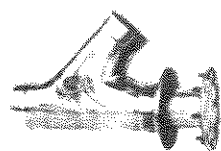
STYLE B
DRAIN POCKETS WITH
WELDED STUDS

SPECIFICATIONS

- Full tooling assures accuracy of dimensions and flatness of surfaces
- Stainless steel Drain Pockets are furnished with stainless steel studs and hex nuts.
- Location of studs is in accordance with TTMA Recommended Practice.

Pipe Size	Material	Thick-ness	Part Number	Wt. lb.	Style	A Dia	B.C.	D'E Dia	No. of Studs
2 1/2	Steel	1/16	40043-A	5.2	A	9 1/8	6 1/4	1 1/2	5
	Aluminum		A40043-A	2.4	A				
	304 StSt		S40043-A	5.2	A				
	316 StSt		SS40043-A	5.2	A				
3	Steel	1/16	40122-A	4.3	B	10 1/16	7 1/4	1 9/16	6
	304 StSt		S40122-A	4.3	B				
	316 StSt		SS40122-A	4.3	B				
	Aluminum		A40043-B	2.8	A				
4	Steel	1/16	40043-B	6.5	A	10 1/16	7 1/4	1 9/16	6
	304 StSt		S40043-B	6.5	A				
	316 StSt		SS40043-B	6.5	A				
	Aluminum		A40122-B	5.2	B				
6	Steel	3/16	40214-A	7.8	A	12 5/8	9 1/4	1 5/8	12
	Aluminum		A40214-A	3.5	A				
	316 StSt		SS40214-A	7.8	A				
	Aluminum		A40215-A	6.0	B				

45° AND 60° LATERAL LINE STRAINERS

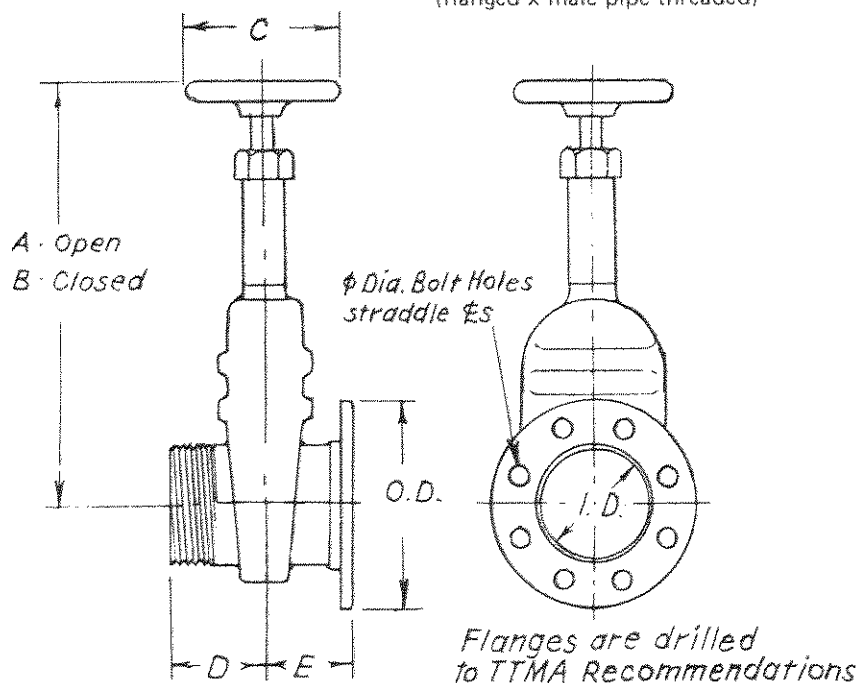


Pipe Size		Size, Mat'l., Part No. and Wt.				Dimensions			
		Material	Part Number	Wt. lb.		A (I.D.)	B	C	
2 IN.	2.375	Steel	40347-A	3.4	Steel/Cad Pl.	2 13/32	9 5/32	5 15/16	5 7/16
		Stainless	SS40347-A	3.4					
		316 StSt	SS40347-A	3.4					
		Aluminum	40381-A	2.7					
2 1/2 IN.	2.875	Steel	40522-A	4.7	Steel/Cad Pl.	2 19/32	10 13/16	7 5/32	6 17/32
		Stainless	SS40522-A	4.7					
		316 StSt	SS40522-A	4.7					
		Aluminum	40382-A	4.7					
3 IN.	3.500	Steel	40348-A	6.0	Steel/Cad Pl.	3 17/32	12 9/32	8 5/16	7 19/32
		Stainless	SS40348-A	6.0					
		316 StSt	SS40348-A	6.0					
		Aluminum	40382-A	4.7					
4 IN.	4.500	Steel	40349-A	9.75	Steel/Cad Pl.	4 17/32	15 13/16	10 1/16	9 5/8
		Stainless	SS40349-A	9.75					
		316 StSt	SS40349-A	9.75					
		Aluminum	40383-A	7.6					
6 IN.	6.625	Steel	41392-A	19.1	Steel/Cad Pl.	6 21/32	14 2/8	10 1/16	9 5/8
		Stainless	SS41392-A	19.1					
		316 StSt	SS41392-A	19.1					
		Aluminum	41395-A	13.0					



HOSE GATE VALVE ~ Fabricated ~ Double Acting

(flanged x male pipe threaded)



DIMENSIONS

Pipe Size	Body					Pipe Thread	I.D.	Flange			
	A	B	C	D	E			O.D.	B.C.	No.	φ Dia.
3	12 $\frac{5}{8}$	11	4 $\frac{1}{2}$	3 $\frac{3}{16}$	2 $\frac{1}{4}$	3" Amer. Std	3 $\frac{1}{16}$	Steel & Stain. 6 $\frac{1}{8}$ Aluminum 5 $\frac{5}{8}$	4 $\frac{7}{8}$	8 straddle E's	7 $\frac{7}{16}$
4	15 $\frac{1}{4}$	13 $\frac{1}{8}$	6	3 $\frac{5}{16}$	2 $\frac{5}{8}$	4" Amer. Std.	4 $\frac{1}{32}$	Steel & Stain. 7 $\frac{1}{8}$ Aluminum 6 $\frac{5}{8}$	5 $\frac{7}{8}$	8 straddle E's	7 $\frac{7}{16}$

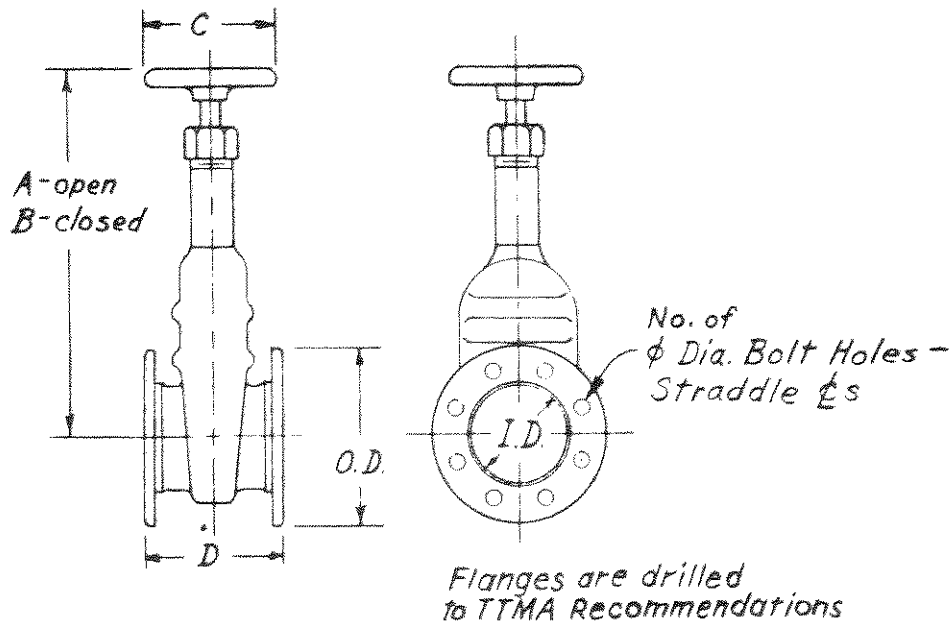
DESCRIPTION, PART NUMBERS AND WEIGHT

Pipe Size	Material				Part Numbers	Wt. lb.
	Body	Stem	Discs	Packing		
3	Steel	Brass	Stainless Steel	3 Graphited Asbestos Rings	G-1003	9.4
	Steel	Steel	Stainless Steel		FG-1003	9.3
	Aluminum	Aluminum	Stainless Steel		AAG-1003	4.5
	Aluminum	Stainless Steel	Stainless Steel	1 Teflon Suspensoid 2 Graphited Asb.	ASG-1003	5.0
	Stainless Steel	Stainless Steel	Stainless Steel		SG-1003	9.3
	#316 Stainless	#316 Stainless	#316 Stainless		SSG-1003	9.3
4	Steel	Brass	Stainless Steel	3 Graphited Asbestos Rings	G-1004	12.5
	Steel	Steel	Stainless Steel		FG-1004	12.3
	Aluminum	Aluminum	Stainless Steel		AAG-1004	6.3
	Aluminum	Stainless Steel	Stainless Steel	1 Teflon Suspensoid 2 Graphited Asb. 4 G.	ASG-1004	6.9
	Stainless Steel	Stainless Steel	Stainless Steel		SG-1004	12.3
	#316 Stainless	#316 Stainless	#316 Stainless		SSG-1004	12.3



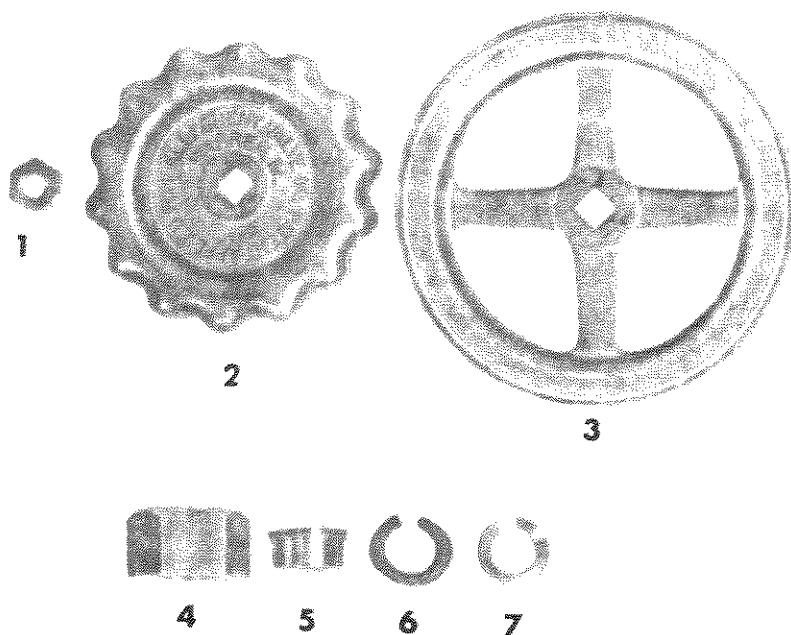
FLANGED GATE VALVE - Fabricated - Double Acting

Round Flanged (flanged x flanged)



DIMENSIONS										
Pipe Size	Body				Pipe Size	I.D.	Flange			
	A	B	C	D			O.D.	B.C.	No.	φ Dia.
3	12 $\frac{5}{8}$	11	4 $\frac{1}{2}$	4 $\frac{1}{2}$	3" Amer. Std	3 $\frac{1}{16}$	Steel & Stain. 6 $\frac{1}{8}$ Aluminum 5 $\frac{5}{8}$	4 $\frac{7}{8}$	8 Straddle Es	7 16
4	15 $\frac{1}{4}$	13 $\frac{1}{8}$	6	5 $\frac{1}{4}$	4" Amer. Std.	4 $\frac{1}{32}$	Steel & Stain. 7 $\frac{1}{8}$ Aluminum 6 $\frac{5}{8}$	5 $\frac{7}{8}$	8 Straddle Es	7 16

DESCRIPTION, PART NUMBERS AND WEIGHT						
Pipe Size	Material				Part Numbers	Wt. lb.
	Body	Stem	Discs	Packing		
3	Steel	Brass	Stainless Steel	3 Graphited Asbestos Rings	G-1013	9.9
	Steel	Steel	Stainless Steel		FG-1013	9.8
	Aluminum	Aluminum	Stainless Steel		AAG-1013	4.7
	Aluminum	Stainless Steel	Stainless Steel	1 Teflon Suspensoid 2 Graphited Asb.	ASG-1013	5.2
	Stainless Steel	Stainless Steel	Stainless Steel		SG-1013	9.8
	*316 Stainless	*316 Stainless	*316 Stainless		SSG-1013	9.8
4	Steel	Brass	Stainless Steel	3 Graphited Asbestos Rings	G-1014	13.25
	Steel	Steel	Stainless Steel		FG-1014	13.1
	Aluminum	Aluminum	Stainless Steel		AAG-1014	6.6
	Aluminum	Stainless Steel	Stainless Steel	1 Teflon Suspensoid 2 Graphited Asb.	ASG-1014	7.2
	Stainless Steel	Stainless Steel	Stainless Steel		SG-1014	13.1
	*316 Stainless	*316 Stainless	*316 Stainless		SSG-1014	13.1

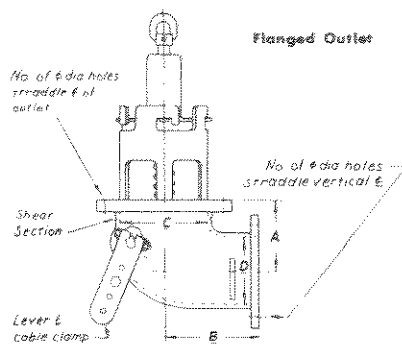


ITEM NO.	DESCRIPTION	MATERIAL	PART NUMBER
1	7/16 Hex Nut	Steel	15160-CP
2	3" Hand Wheel	Aluminum	25186-AL
3	4" Hand Wheel	Aluminum	25245-AL
4	Stuffing Box Nut	Anodized Aluminum	15026-AL
		Stainless Steel	15026-SS
5	Gland Follower	Stainless Steel	15202-SS
6	Packing Set (3 rings per set)	NON-Asbestos/TEFLON	15227-NT
7	Gland Washer	Stainless Steel	15076-SS



ALLEGHEENY VALVE COMPANY

DELMAR Aluminum Mechanical Emergency Valves



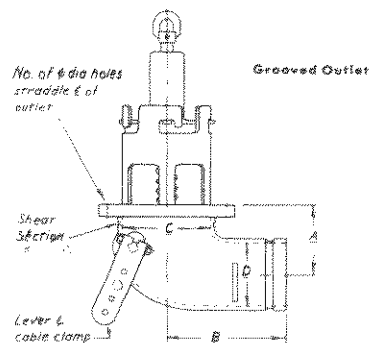
SPECIFICATIONS

1. LARGE FLOW AREAS - see Dimensions C & D in Table below.
2. FULLY MEETS D.G.T. Specifications and TMA Recommended Practice.
3. GREATER SAFETY - Shear Section has been laboratory tested.
4. STRONGER WROUGHT INLET AND OUTLET FLANGES.
5. QUICK REMOVABLE BONNET.
6. EASE OF OPERATION - Long Valve Spring has a low rate.
7. LESS MAINTENANCE - Spring Loaded Stuffing Box.
8. FABRICATED LEVER ARM provides ease of adjustment and positive attachment.
9. COMPLETE DRAINAGE.

Pipe Size	DIMENSIONS											
	A	B	C	D	Inlet Flange				Outlet			
					I.D.	O.D.	B.C.	No.	I.D.	O.D.	B.C.	No.
3	3 1/2	4 1/2	4 1/16	3 1/4	3 3/8	Hex	6 1/4	6	3 1/8	5 1/8	4 7/8	8
4	4 3/8	5	4 1/8	4 1/4	4 3/8	Hex	7 1/4	8	4 1/8	6 3/8	5 7/8	8

DESCRIPTION, PART NUMBERS & WEIGHT

Pipe Size	Material				Part Numbers	Wt. lb.
	Body	Trim	Disc	Packing		
3	Aluminum	Brass-Alum-Stl.	Buna-N	Asbestos	A41031-F	8.3
	Aluminum	Alum-Stainless	Teflon	Teflon	AS41031-F	8.3
4	Aluminum	Brass-Alum-Stl.	Buna-N	Asbestos	A41029-F	10.6
	Aluminum	Alum-Stainless	Teflon	Teflon	AS41029-F	10.6



SPECIFICATIONS

1. LARGE FLOW AREAS - see Dimensions C & D in Table below.
2. FULLY MEETS D.G.T. Specifications and TMA Recommended Practice.
3. GREATER SAFETY - Shear Section has been laboratory tested.
4. STRONGER WROUGHT INLET FLANGE.
5. QUICK REMOVABLE BONNET.
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7. LESS MAINTENANCE - Spring Loaded Stuffing Box.
8. FABRICATED LEVER ARM provides ease of adjustment and positive attachment.
9. COMPLETE DRAINAGE.

Pipe Size	DIMENSIONS											
	A	B	C	D	Inlet Flange				Outlet			
					I.D.	O.D.	B.C.	No.	I.D.	O.D.	B.C.	No.
3	3 1/2	6 1/16	4 1/16	3 1/4	3 3/8	Hex	6 1/4	6	3 1/8	3 1/2		
4	4 3/8	6 5/8	4 1/8	4 1/4	4 3/8	Hex	7 1/4	8	4 1/8	4 1/2		

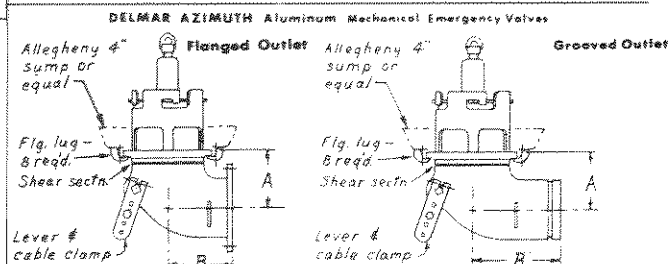
DESCRIPTION, PART NUMBERS & WEIGHT

Pipe Size	Material				Part Numbers	Wt. lb.
	Body	Trim	Disc	Packing		
3	Aluminum	Brass-Alum-Stl.	Buna-N	Asbestos	A41031-G	8.2
	Aluminum	Alum-Stainless	Teflon	Teflon	AS41031-GT	8.2
4	Aluminum	Brass-Alum-Stl.	Buna-N	Asbestos	A41029-G	10.4
	Aluminum	Alum-Stainless	Teflon	Teflon	AS41029-GT	10.4

DELMAR Straight and Tee Types Aluminum Mechanical Emergency Valves

Pipe Size	DIMENSIONS											
	A	B	C	D	Inlet Flange				Outlet			
					I.D.	O.D.	B.C.	No.	I.D.	O.D.	B.C.	No.
3	3 1/2	4 1/2	4 1/16	3 1/4	3 3/8	Hex	6 1/4	6	3 1/8	5 1/8	4 7/8	8
	4	5	4 1/8	4 1/4	4 3/8	Hex	7 1/4	8	4 1/8	6 3/8	5 7/8	8

Pipe Size	DIMENSIONS											
	A	B	C	D	Inlet Flange				Outlet			
					I.D.	O.D.	B.C.	No.	I.D.	O.D.	B.C.	No.
3	3 1/2	4 1/2	4 1/16	3 1/4	3 3/8	Hex	6 1/4	6	3 1/8	5 1/8	4 7/8	8
	4	5	4 1/8	4 1/4	4 3/8	Hex	7 1/4	8	4 1/8	6 3/8	5 7/8	8



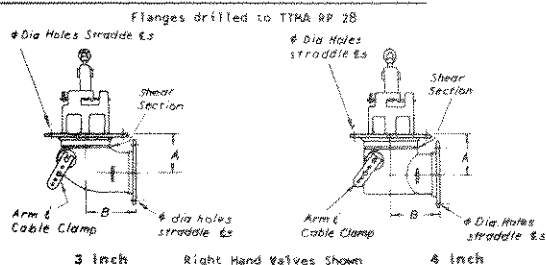
LAP JOINT OF INLET FLANGE PERMITS 360° ADJUSTMENT - easier to align piping. FLOW AREAS ARE LARGE in the throat region to offset loss due to stem and cam. THICKER INLET FLANGE avoids breakage and furnishes leak-proof joints over longer periods of time. WROUGHT OUTLET FLANGE and WROUGHT GROOVED NIPPLE decrease breakage and make stronger joints. LONGER VALVE SPRING provides easier operation and longer life. SPRING LOADED STUFFING BOX - compatible with a wide range of packing material. 4" DRAIN POCKET GASKETS: #10486 Cork; #10478 Cork and Buna-N; #110479-A Teflon Envelope. FLANGE LUGS are included in valve's prices. Part No. #10339A Valves with part numbers having "AS" prefix include Teflon disc and packing.

Pipe Size	Material				Part Numbers	Outlet	Wt. lb.
	Body	Trim	Disc	Packing			
4x3	Aluminum	Brass-Al-Stl.	Buna-N	Asbestos	A41055-F	Flanged	9.0
	Aluminum	Al-Stl.	Teflon	Teflon	AS41055-F	Flanged	9.0
4	Aluminum	Brass-Al-Stl.	Buna-N	Asbestos	A41054-F	Flanged	10.4
	Aluminum	Al-Stl.	Teflon	Teflon	AS41054-F	Flanged	10.4
4x3	Aluminum	Brass-Al-Stl.	Buna-N	Asbestos	A41055-G	Grooved	8.9
	Aluminum	Al-Stl.	Teflon	Teflon	AS41055-GT	Grooved	8.9
4	Aluminum	Brass-Al-Stl.	Buna-N	Asbestos	A41054-G	Grooved	10.2
	Aluminum	Al-Stl.	Teflon	Teflon	AS41054-GT	Grooved	10.2

Pipe Size	DIMENSIONS											
	A	B	Inlet Flange				Outlets					
			I.D.	O.D.	B.C.	No.	I.D.	O.D.	B.C.	No.		
4x3	3 1/2	4 1/2	3 3/8	6 1/16	4 1/16	3 1/4	3 1/8	5 1/8	4 7/8	8		
4	4 3/8	5	4 3/8	6 5/8	4 1/8	4 1/4	4 1/8	6 3/8	5 7/8	8		
4x3	3 1/2	6 1/16	3 3/8	6 1/16	4 1/16	3 1/4	3 1/8	5 1/8	4 7/8	8		
4	4 3/8	6 5/8	4 3/8	6 5/8	4 1/8	4 1/4	4 1/8	6 3/8	5 7/8	8		



MECHANICAL EMERGENCY VALVES, FLANGED



SPECIFICATIONS

1. Large Areas provide Greater Flow.
2. Quick Removable Bonnet.
3. Spring Loaded Stuffing Box - Less Maintenance.
4. Fabricated Construction for Lighter Weight and Greater Strength.
5. Buna-N Disc and Graphited Asbestos Packing is standard.
6. Fabricated Lever Arm provides ease of adjustment and positive attachment.

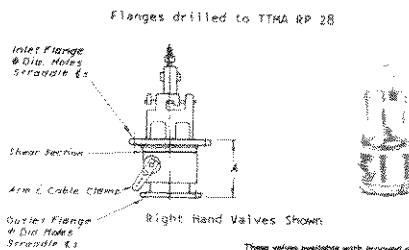
DEFINITIONS

Pipe Size	A	B	Inter Flange					Outer Flange				
			I.D.	O.D.	B.C.	No.	Ø	I.D.	O.D.	B.C.	No.	Ø
3	3 $\frac{1}{2}$	4 $\frac{1}{2}$	3 $\frac{3}{8}$	7 $\frac{1}{8}$	6 $\frac{1}{2}$	6	Ø $\frac{11}{16}$	3 $\frac{1}{2}$	6 $\frac{1}{2}$	4 $\frac{1}{2}$	8	7 $\frac{1}{16}$
4	4 $\frac{3}{8}$	5	4 $\frac{3}{8}$	8 $\frac{3}{8}$	7 $\frac{1}{2}$	8	Ø $\frac{9}{16}$	4 $\frac{3}{8}$	7 $\frac{1}{2}$	5 $\frac{3}{8}$	8	7 $\frac{1}{16}$

DESCRIPTION, PART NUMBERS AND WEIGHT

Pipe Size	Material		Part Numbers		Wt. lb
	Body	Trim	Right Hand	Left Hand	
3	Steel	Brass, Alum., Steel	E-1103	E-1103L	10.5
	Steel	Iron, Steel	FE-1103	FE-1103L	12.5
	Stainless	Stainless	SE-1103	SE-1103L	12.5
	*316 Stainless	*316 Stainless	SSE-1103	SSE-1103L	12.5
4	Steel	Brass, Alum., Steel	E-1104	E-1104L	14.5
	Steel	Iron, Steel	FE-1104	FE-1104L	15.5
	Stainless	Stainless	SE-1104	SE-1104L	15.3
	*316 Stainless	*316 Stainless	SSE-1104	SSE-1104L	15.3

MECHANICAL EMERGENCY VALVES, STRAIGHT



SPECIFICATIONS

1. Large Areas provide Greater Flow.
2. Quick Removable Bonnet.
3. Spring Loaded Stuffing Box - Less Maintenance.
4. Fabricated Construction for Lighter Weight and Greater Strength.
5. Buna-N Disc and Graphited Asbestos Packing is standard.
6. Fabricated Lever Arm provides ease of adjustment and positive attachment.

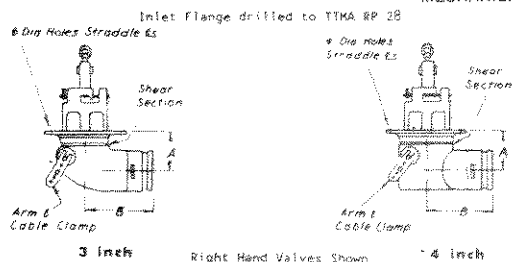
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Pipe Size	A	Inlet Flange					Outlet Flange				
		I.D.	O.D.	B.C.	N ₂	#	I.D.	O.D.	B.C.	N ₂	#
3	4 $\frac{1}{2}$	3 $\frac{3}{8}$	7 $\frac{1}{4}$	6 $\frac{1}{4}$	6	9 $\frac{1}{8}$	3 $\frac{3}{8}$	6 $\frac{1}{4}$	4 $\frac{7}{8}$	8	7 $\frac{1}{8}$
4	5 $\frac{1}{4}$	4 $\frac{1}{8}$	8 $\frac{3}{4}$	7 $\frac{1}{4}$	8	9 $\frac{1}{4}$	4 $\frac{3}{8}$	7 $\frac{1}{8}$	5 $\frac{7}{8}$	8	7 $\frac{1}{4}$

DESCRIPTION, PART NUMBERS, WEIGHT AND SIZE

Pipe Size	Material		Port Numbers		Wt. lb.
	Body	Trim	Right Hand	Left Hand	
3	Steel	Brass, Alum, Steel	E-1123	E-1123L	9.5
	Steel	Iron, Steel	FE-1123	FE-1123L	10.5
	Stainless	Stainless	SE-1123	SE-1123L	9.5
	*316 Stainless	*316 Stainless	SSE-1123	SSE-1123L	9.5
	Steel	Brass, Alum, Steel	E-1124	E-1124L	11.5
4	Steel	Iron, Steel	FE-1124	FE-1124L	12.5
	Stainless	Stainless	SE-1124	SE-1124L	11.5
	*316 Stainless	*316 Stainless	SSE-1124	SSE-1124L	11.5

MECHANICAL EMERGENCY VALVES, GROOVED



S P E C I F I C A T I O N S

1. Large Areas provide Greater Film.
2. Quick Removable Bonnet.
3. Spring Loaded Stuffing Box - Less Maintenance.
4. Fabricated Construction for Lighter Weight and Greater Strength.
5. Buna-N Disc and Graphited Asbestos Packing is standard.
6. Fabricated Lever Arm provides ease of adjustment and positive attachment.

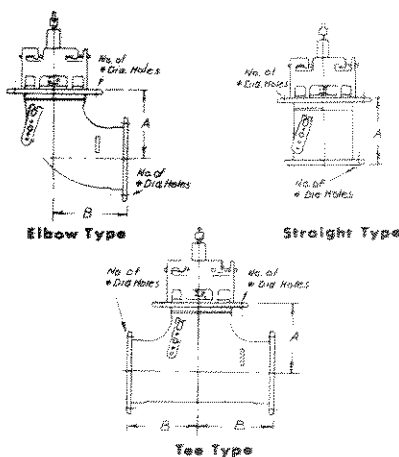
DIMENSIONS

Pipe Size	A	B	Inlet Flange				Outlet		
			ID	OD	BC	No.	#	ID	OD
3	3 $\frac{1}{2}$	5 $\frac{1}{4}$	3 $\frac{3}{8}$	7 $\frac{1}{4}$	6 $\frac{1}{2}$	6	7 $\frac{1}{4}$	3 $\frac{1}{8}$	3 $\frac{1}{2}$
4	4 $\frac{3}{8}$	6 $\frac{1}{4}$	4 $\frac{3}{8}$	8 $\frac{1}{4}$	7 $\frac{1}{4}$	8	9 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{1}{2}$

DESCRIPTION, PART NUMBERS AND WEIGHT

Pipe Size	Material		Port Numbers		Wt. lb.
	Body	Trim	Right Hand	Left Hand	
3	Steel	Brass, Alum. Steel	E-1113	E-1113L	11.3
	Steel	Iron, Steel	FE-1113	FE-1113L	13.0
	Stainless	Stainless	SE-1113	SE-1113L	13.0
	*316 Stainless	*316 Stainless	SSE-1113	SSE-1113L	13.0
4	Steel	Brass, Alum. Steel	E-1114	E-1114L	13.5
	Steel	Iron, Steel	FE-1114	FE-1114L	15.0
	Stainless	Stainless	SE-1114	SE-1114L	15.0
	*316 Stainless	*316 Stainless	SSE-1114	SSE-1114L	15.0

6 inch Mechanical Emergency Valve Flanged Outlet



Flanges are drilled to TMA Recommended Practice. Bolt Holes Straddle $\frac{1}{8}$ "

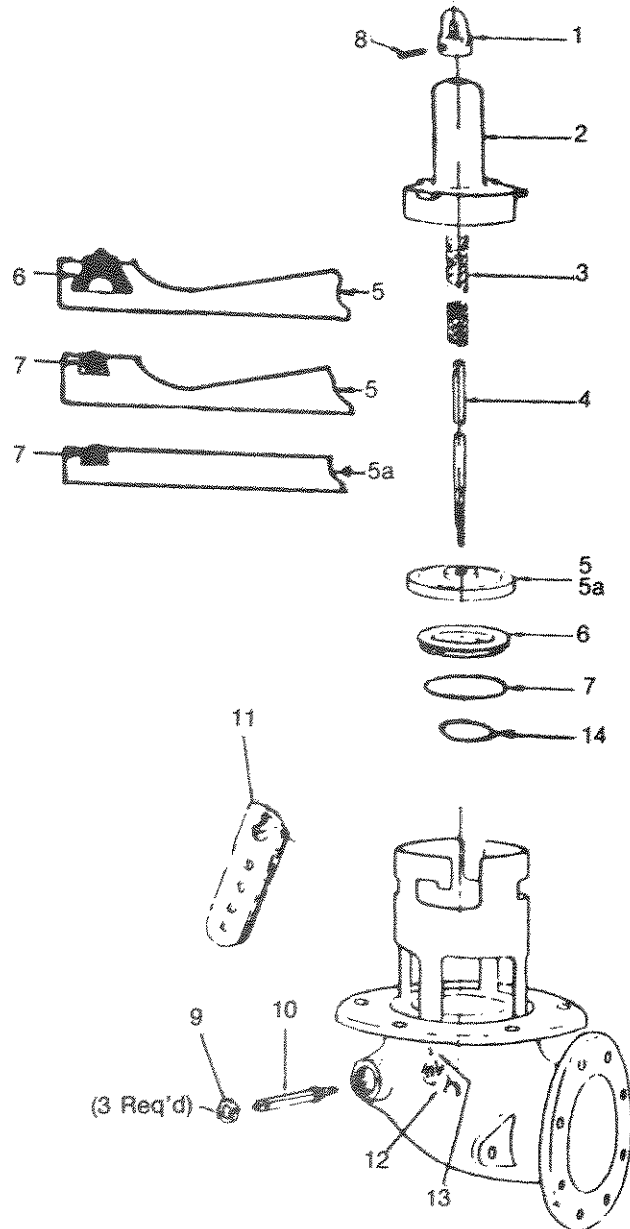
For replacement, on special orders, valves are available which will interchange physically.

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6 inch Mechanical Emergency Valves

1	Ball Ball	Stainless Aluminum	SS11129 A11129
2	Bonnet Bonnet Bonnet	Steel Stainless Aluminum	21006 SS21006 A21006
3	Valve Spring Valve Spring	Steel Stainless	11288 SS11288
4	Stem Stem Stem	Steel Plated Steel Stainless	21005P 21005 SS21005
5	Disc Holder for Buna-N Seal	Aluminum	21007
5a	Disc Holder for O-Ring	Steel Stainless Aluminum	21112 SS21112 21007A
6	Seal (FOR ALUMINUM VALVES)	Buna-N	21007BN
7	O-Ring (FOR STEEL OR SS VALVES)	Buna-N	11277
	O-Ring (FOR STEEL OR SS VALVES)	Viton	11276
	O-Ring (FOR STEEL OR SS VALVES)	TFE-O-SIL	11278
8	Ball Pin	Stainless	11274
9	O-Ring for Stuffing Box	Buna-N Viton	2-206 N 2-208 V
10	Cam Shaft Cam Shaft Cam Shaft	Steel Stainless Aluminum	11266 SS11266 A11266
11	Lever Arm and Clamp	Steel	11109
12	Cam Cam	Steel Stainless	11264 SS11264
13	5/16-18 Full Dog Set Screws	Stainless	11315
14	Retaining Ring	Stainless	5160-50H



It is recommended that the Disc Holder (5 or 5a) and Stem (4) be purchased as an assembly
(No Seal or O-Ring included).



ALLEGHENY VALVE COMPANY.

PARTS LIST Mechanical Emergency Valves

NO.	ITEM	MAT'L.	PART #
1	Bail	Steel	25000-C
	Bail	316SS	SS25000-C
	Bail	Aluminum	A25000-C
2	3" Bonnet	Steel	25344-B
	3" Bonnet	316SS	SS25344-A
	3" Bonnet	Aluminum	25074
	4" Bonnet	Steel	25382
	4" Bonnet	316SS	SS25382
	4" Bonnet	Aluminum	A25382-A
3	Valve Spring	Steel	11288
	Valve Spring	316SS	SS11288
4	3" Stem	Steel	25464
	3" Stem	316SS	SS25464
	4" Stem	Steel	25465
	4" Stem	316SS	SS25465
5	3" Disc Holder	Steel	15304-A
	3" Disc Holder	316SS	SS15304-A
	3" Disc Holder	Aluminum	A25000-D
	4" Disc Holder	Steel	15471-A
	4" Disc Holder	316SS	SS15471-R
	4" Disc Holder	Aluminum	15549AL
6	3" Disc	Buna-N	15000
	3" Disc	Neoprene	N15000
	3" Disc	Viton	V15000
	3" Disc	Teflon	T10465-A
	4" Disc	Buna-N	15071-A
	4" Disc	Neoprene	N15071-A
	4" Disc	Viton	V15071-A
	4" Disc	Teflon	T10476-A
7	3" Disc Nut	Steel	15301-A
	3" Disc Nut	316SS	SS15301-B
	3" Disc Nut	Aluminum	A15089
	4" Disc Nut	Steel	T5397
	4" Disc Nut	316SS	SS15397
	4" Disc Nut	Aluminum	A10469-A
8	Bail Pin	Steel	10067-A
	Bail Pin	316SS	SS10067-A
9	Packing, Set	Asbestos (1)	25145-F
	Packing, Set	Teflon (2)	T25145-F

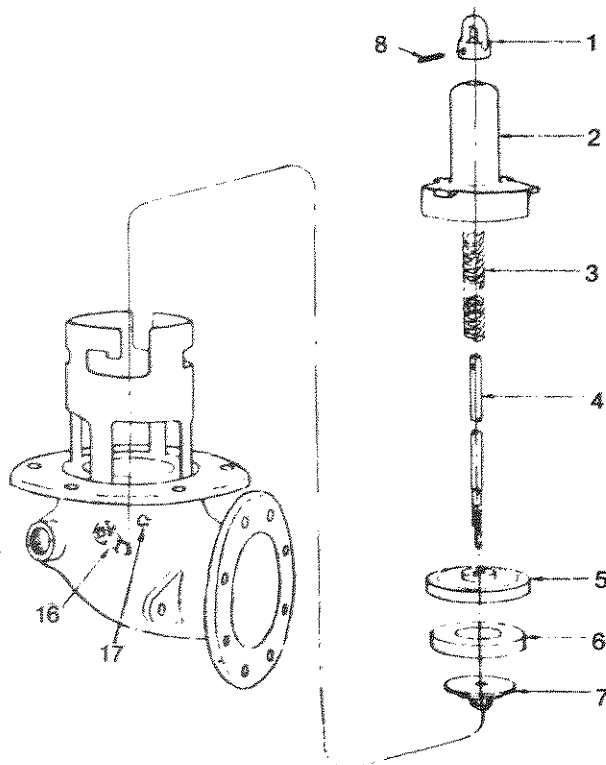
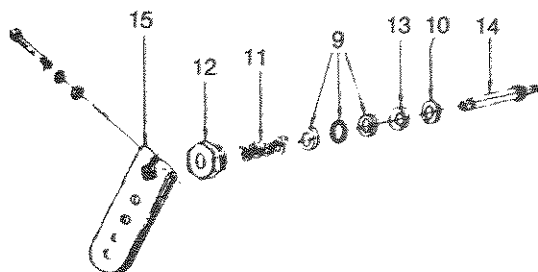
NO.	ITEM	MAT'L.	PART #
10	Washer	Leather	25145-C
	Washer	Teflon	T25145-C
11	Stuff. Box Spring	Steel	17409MS
	Stuff. Box Spring	17-7PH	17409SS
12	Stuffing Box Nut	316SS	15431SL
	Stuffing Box Nut	Brass	15431BR
13	Gland Washer	316SS	SS15076
14	3" Cam Shaft	Steel	F15130
	3" Cam Shaft	316SS	SS15130
	3" Cam Shaft	Brass	15130
	4" Cam Shaft	Steel	F15333
	4" Cam Shaft	316SS	SS15333
	4" Cam Shaft	Brass	15333
15	Lever Arm and Clamp w/Bolts	Steel	10587-A
16	Cam - All Except 4" Delmar	Mall Iron	15086
	Cam - All Except 4" Delmar	316SS	SS15086
	Cam - 4" Delmar	Mall Iron	10474-A
	Cam - 4" Delmar	316SS	SS10474-A
	Flange Lug - Delmar Only	Mall Iron	10339-A
	Flange Lug - Delmar Only	316SS	SS10339-A
17	Snap Ring, Cam	316SS	11256

NOTE:

Replacement of old Cam Shaft with tapered end requires new Cam and Snap Ring as new Shaft will not fit old Cam.

(1) 25145-F Set Includes:
1 Graphited Asbestos Packing Ring,
1 Buna-N O-Ring #2-312,
1 Graphited Asbestos Packing Ring.

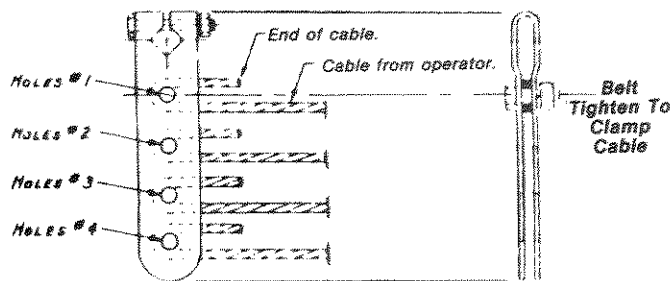
(2) T25145-F Set Includes:
1 Teflon Suspensoid Packing Ring,
1 Buna-N O-Ring #2-312,
1 Graphited Asbestos Packing Ring.



ALLEGHENY VALVE COMPANY

NET ASSEMBLIES FOR 3" & 4" MECHANICAL EMERGENCY VALVES								
SIZE	ASSEMBLY PART NO.	BAIL	BONNET	VALVE SPRING	STEM	DISC HOLDER	DISC NUT	BAIL PIN
3"	A25074001	ALUMINUM A25000C	ALUMINUM A25074	STEEL 11288	STEEL 25464	ALUMINUM A25000D	ALUMINUM A15089	STEEL 10067A
3"	AS25344B001	ALUMINUM A25000C	ALUMINUM A25074	STAINLESS SS11288	STAINLESS SS25464	ALUMINUM A25000D	ALUMINUM A15089	STAINLESS SS10067A
3"	25344B001	STEEL 25000C	STEEL 25344B	STEEL 11288	STEEL 25464	STEEL 15304A	STEEL 15301A	STEEL 10067A
3"	SS25344B001	STAINLESS SS25000C	STAINLESS SS25344B	STAINLESS SS11288	STAINLESS SS25464	STAINLESS SS15304A	STAINLESS SS15301B	STAINLESS SS10067A
4"	A2538A001	ALUMINUM A25000C	ALUMINUM A25382A	STEEL 11288	STEEL 25465	ALUMINUM 15549AL	ALUMINUM A10469A	STEEL 10067A
4"	AS25382A001	ALUMINUM A25000C	ALUMINUM A25382A	STAINLESS SS11288	STAINLESS SS25465	ALUMINUM 15549AL	ALUMINUM A10469A	STAINLESS SS10067A
4"	25382001	STEEL 25000C	STEEL 25382	STEEL 11288	STEEL 25465	STEEL 15471A	STEEL 15397	STEEL 10067A
4"	SS25382001	STAINLESS SS25000C	STAINLESS SS25382	STAINLESS SS11288	STAINLESS SS25465	STAINLESS SS15471B	STAINLESS SS15397	STAINLESS SS10067A

UNIVERSAL LEVER ARM for Allegheny Emergency Valves



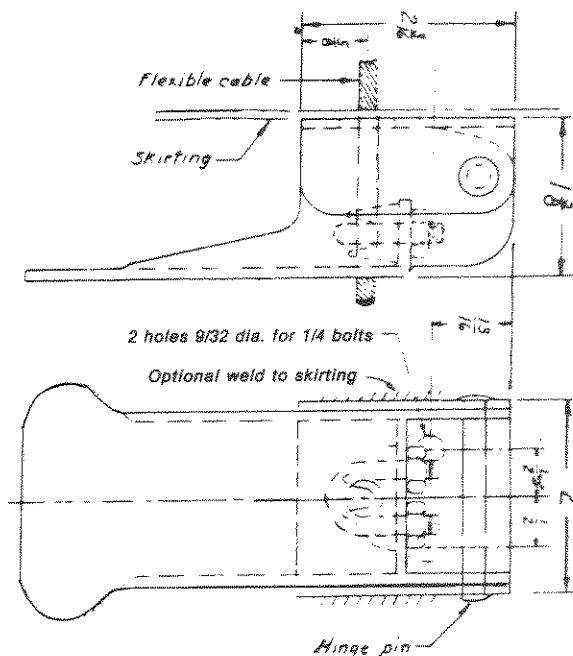
Part Number: 10587-A

NOTES:
Tighten belt on both loose end and cable as shown to securely clamp cable.

Placing cable in 4 positions shown or with cable reversed gives a choice of 8 cable travels to match with most operators.

For Cable 3/16" Diameter and Smaller, and for Fusible Link.

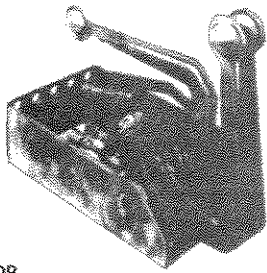
REMOTE CONTROL



Part Number	Wt	Material	Remarks
20032-A	11oz.	12 ga STEEL stampings Malleable iron clamp.	Provides a mechanical advantage of 3 1/2 to 1 which insures more positive action 1 1/2 inch max cable travel

Money Saving Installation Instructions

1 Burn or drill holes. 2 Bolt or arc weld Remote Control in place
3 Insert flexible cable thru clamp 4 Tighten two nuts with box wrench. 5 Remove excess cable by melting it apart, instead of burning — fused strands make safer cable end.



**UNIVERSAL
MECHANICAL OPERATOR**

SPECIFICATIONS

- Design permits choice 1 1/2" or 2 1/8" cable travel
- Improved, non-slip cable connectors reduce installation time. Cables may be cut to length after securing.
- At no extra cost, choice of three types of lever for most convenient operation, regardless of operation location.
- Two trip levers provide:
 - optional location of remote control cable and
 - two convenient attaching points if multiple remote controls are required.
- Separate, double-acting, fusible joint for each compartment assures positive action and greater fire protection.
- Over-center action (toggle action) of lever in "open position" eliminates all springs and latches.
- Tubular brass shaft provides excellent bearing surface for levers.
- Fabricated construction throughout for lighter weight and greater strength.
- Mounting may be made by welding instead of bolts.

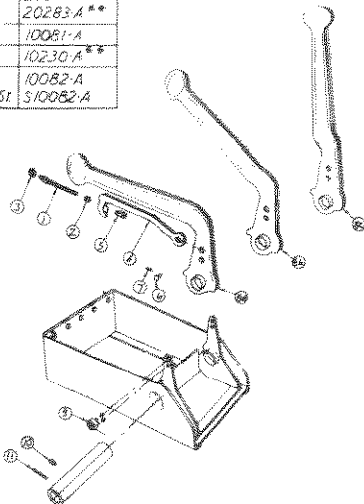
No. Of Comp'ts	Part Number	Wt. Lbs	No. Of Comp'ts	Part Number	Wt. Lbs
1	40397-A	8.0	6	40397-F	19.25
2	40397-B	10.25	7	40397-G	21.5
3	40397-C	12.5	8	40397-H	23.75
4	40397-D	14.75	9	40397-J	26.0
5	40397-E	17.0	10	40397-K	28.25

Mechanical Emergency Valve Operators PARTS LIST

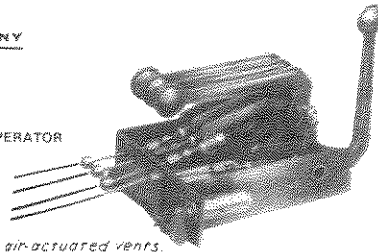
No.	DESCRIPTION	MATL	PART No.
1	ADJUSTING BOLT	Steel 304 S/S	20040 A 520040A
2	LOCK NUT	Steel 304 S/S	20040 F 520040 F
3	CLAMPING NUT	Steel 304 S/S	10268 A 510248 A
4	OFFSET LINK	Steel	10083 A
5	FUSIBLE BUSHING NUT	Brass	10863 A
* 6	ADJUSTING BOLT ASSEM		20040A001
6	OFFSET LINK RIVET	Steel	10080 A
7	OFFSET LINK COTTER	Steel	10080 B
8a	LEVER, Type A	Steel	20258 A
8b	LEVER, Type B	Steel	20261 A**
8c	LEVER, Type C	Steel	20270 A
9	CABLE CLAMP NUTS	Steel	20283 A**
10	GREASE FITTING	Steel	10081 A
11	ROLL PIN	Steel 304 S/S	10082 A 510082 A

* Includes Nos 1, 2, 3 & 5

** For Pressure Lubricated Operators Only



**DELTA I
MECHANICAL OPERATOR**



For use with air-actuated vents.

SPECIFICATIONS

- Opening one or more levers automatically actuates air valve. Three-way air valve, part #20761, is HQT included and must be ordered separately.
- Design permits choice of 1 1/2" or 2 1/8" travel.
- Improved, non-slip cable connectors reduce installation time. Cables may be "cut" to length after securing.
- At no extra cost, choice of three lever types for most convenient operation, regardless of operator location.
- Two trip levers provide:
 - optional location of remote control cable
 - two convenient attaching points if multiple remote controls are reqd.
- Separate, double-acting, fusible joint for each compartment assures positive action and greater fire protection.
- Over-center action (toggle-action) of lever in "open position" eliminates all springs and latches.
- Tubular brass shaft provides excellent bearing surface for levers.

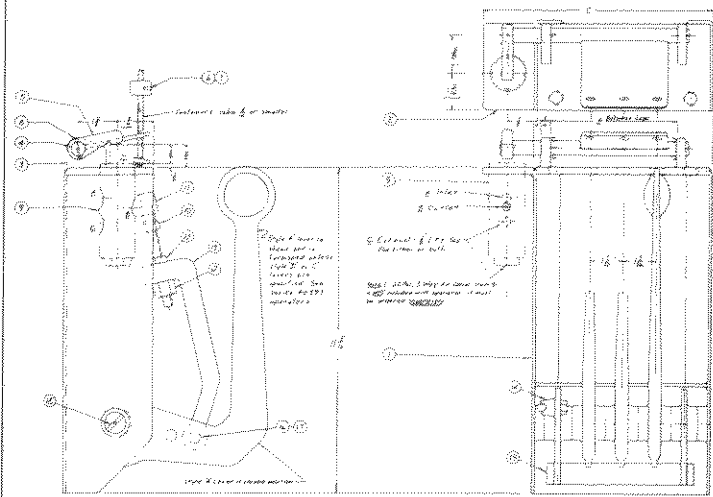
DELTA I MECHANICAL OPERATOR

3WAY AIR VALVE

No. of Comp'ts	Part Number	Wt. lb	Part Number	Wt. lb.
1	41158-A	9.75		
2	41158-B	12.0		
3	41158-C	14.25		
4	41158-D	16.5		
5	41158-E	18.75		
6	41158-F	21.0		

Note:
Order DELTA I
Operator and
3 Way Air Valve
as separate
items.

DELTA I MECHANICAL OPERATOR Parts List and Dimensional Drawing



No.	Description	Material	Part No.
1	Shaft - 1 Compartment	Steel	20040 A
2	Shaft - 2 Compartments	Steel	20040 F
3	Shaft - 3 Compartments	Steel	20040 H
4	Shaft - 4 Compartments	Steel	20040 J
5	Shaft - 5 Compartments	Steel	20040 L
6	Shaft - 6 Compartments	Steel	20040 N
7	Shaft - 7 Compartments	Steel	20040 P
8	Shaft - 8 Compartments	Steel	20040 R
9	Shaft - 9 Compartments	Steel	20040 T
10	Shaft - 10 Compartments	Steel	20040 V
11	Shaft - 11 Compartments	Steel	20040 X
12	Shaft - 12 Compartments	Steel	20040 Z
13	Shaft - 13 Compartments	Steel	20040 AA
14	Shaft - 14 Compartments	Steel	20040 AB
15	Shaft - 15 Compartments	Steel	20040 AC
16	Shaft - 16 Compartments	Steel	20040 AD
17	Shaft - 17 Compartments	Steel	20040 AE
18	Shaft - 18 Compartments	Steel	20040 AF
19	Shaft - 19 Compartments	Steel	20040 AG
20	Shaft - 20 Compartments	Steel	20040 AH

Note: See also 40397 Series for parts not covered here

Part No. 40397

Part No. 40397

Part No. 40397

Part No. 40397

Part No. 40397

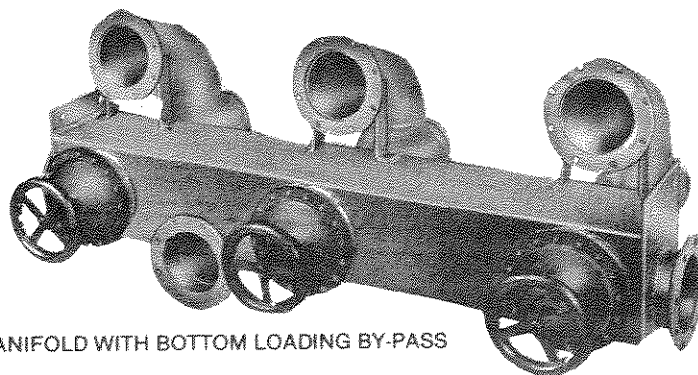
Part No. 40397

Part No. 40397

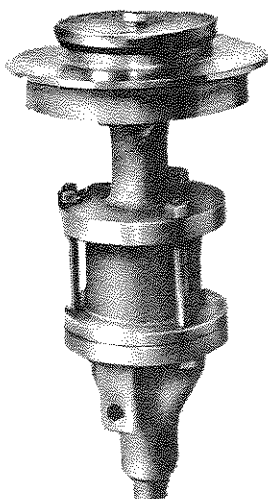
Part No. 40397

Part No. 40397

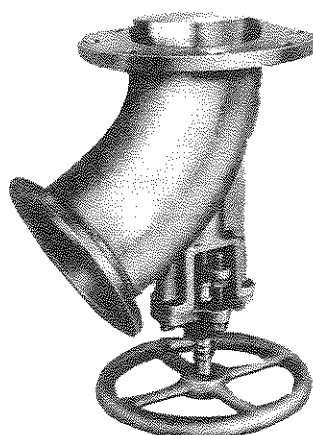
BETTS COMPLETE LINE of transport tank valves



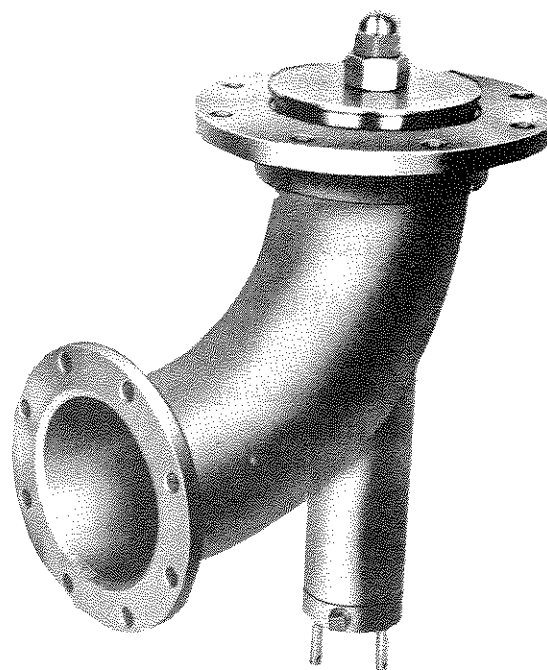
MANIFOLD WITH BOTTOM LOADING BY-PASS



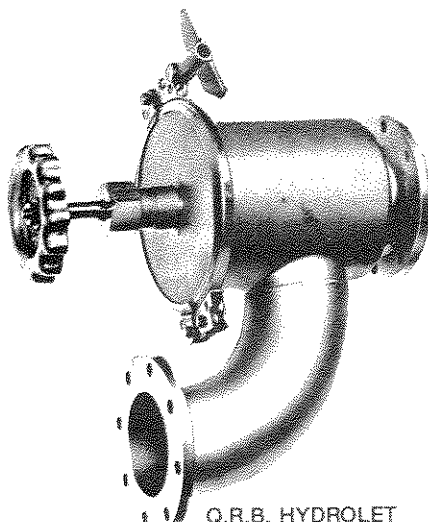
AIR OPERATED VENT



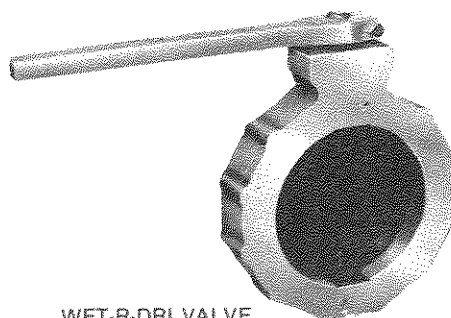
FLUSH VALVE



CHEMICAL EMERGENCY VALVE



Q.R.B. HYDROLET



WET-R-DRI VALVE

Betts INDUSTRIES, INC.**FABRICATED CONSTRUCTION
WROUGHT MATERIAL
LIGHTWEIGHT
GREATER VERSATILITY**

The square manifold valves with flanged or grooved inlets are available in steel or aluminum in any number of compartments.

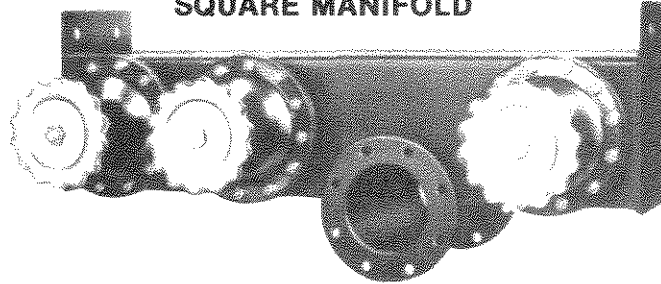
All manifold bodies are so designed to accommodate either fixed or swing disc parts which can easily be interchanged in the field.

Valves used for suction should be of the fixed disc type.

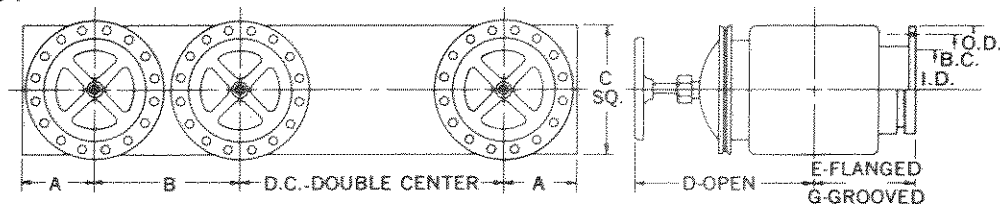
Manifold valve assemblies are completely welded, tested, and ready for installation.

**PRESSURE & TEMPERATURE
RATING:**

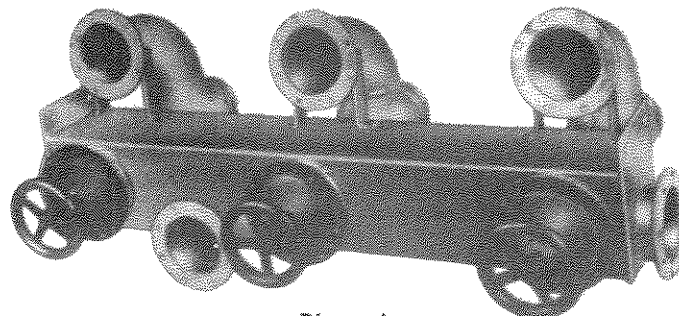
5 PSI maximum working pressure at ambient temperature.

Manifold Valve
SQUARE MANIFOLD**Dimensions** * 3" Aluminum B = 5 1/4

Size	A	B	C	D	E	F	D.C.	Flanged Inlet				Grv. Inlet Pipe Size
								I.D.	O.D.	B.C.	Holes	
2"	2 3/8	5 3/8	4 3/8	9	3 3/8	4	10 1/4	2 3/8	4 1/2	3 3/4	6 - 3/16	2"
3"	3 3/8	6 3/4	5 3/4	11 3/4	4 1/2 *	4 7/8	12 1/2	3 3/8	5 3/8	4 7/8	8 - 3/16	3"
4"	3 3/4	7 1/2	6 3/4	12	5	5 1/4	15	4 3/8	6 3/8	5 3/8	8 - 3/16	4"

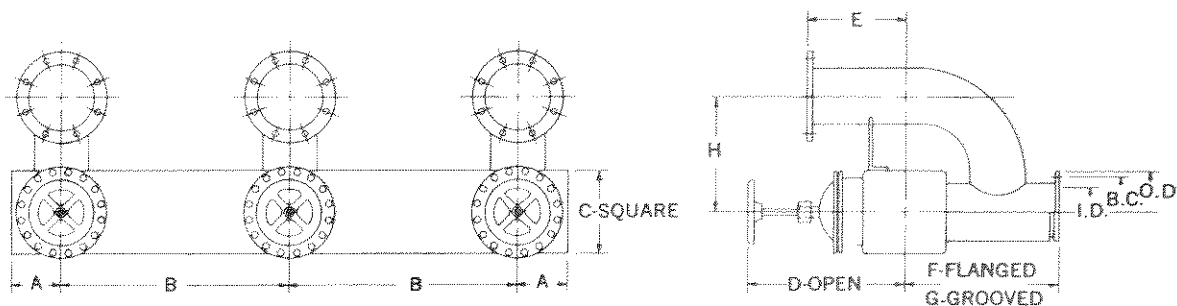
**PRACTICAL****BOTTOM LOADING STYLE****WROUGHT MATERIAL****FABRICATED CONSTRUCTION****GREATER VERSATILITY****LOADING THRU
PRESSURE MANIFOLD ALSO
AVAILABLE.**

NOTE: Manifold not recommended for use with balanced type, automatic closing internal valves or in line valve that may close quickly causing extreme hydraulic shock pressures.

**Dimensions**

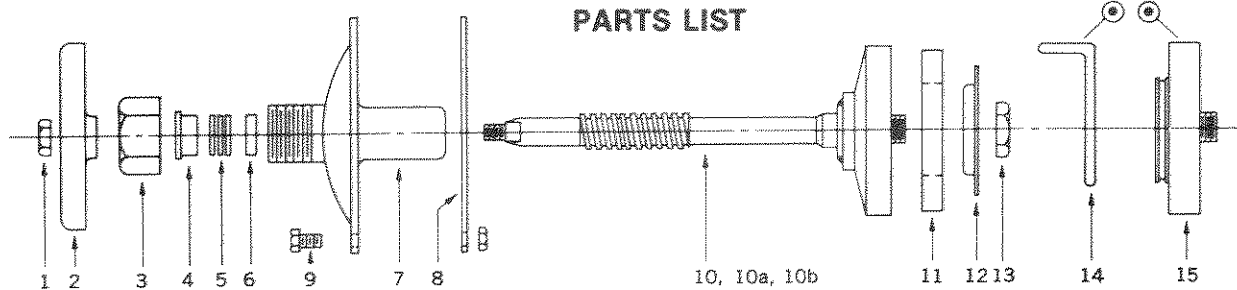
Size	A	B	C	D	E	F	G	H	Flanged Inlets				Grv. Inlets Pipe Size
									I.D.	O.D.	B.C.	N.H.	
3"	3 3/8	12 1/2	5 3/4	11 3/4	5 1/8	9 3/8	10 3/8	8	3 3/8	5 3/8	4 7/8	8 - 3/16	3"
4"	3 3/4	15	6 3/4	12	6 3/8	11	12 1/4	8	4 3/8	6 3/8	5 3/8	8 - 3/16	4"

NOTE: 3" Manifolds have 4" By-Pass flanges for mounting API Adapters.



Betts INDUSTRIES, INC.

Manifold Valve



PARTS LIST

④ TO CONVERT FROM FIXED DISC TO SWING DISC ORDER PARTS 10a, 14 & 15.

No.	Description	Size	Material	Part No.	No.	Description	Size	Material	Part No.	
1	Hex Half Nut	2"-4"	Cd. Plt. Steel	WV15160CP	10a	Stem	2"	Aluminum	WV25210AL	
2	Handwheel	2"	Aluminum	WV25047AL			3"	Steel	WV25039MS	
		3"	Aluminum	WV25186AL			Aluminum	WV25039AL		
		4"	Aluminum	WV25245AL			Steel	WV15016MS		
3	Stuffing Box Nut	2"-4"	Aluminum	WV15026AL			Aluminum	WV15016AL		
4	Top Gland	2"-4"	Stnls. 316	WV15220SS	10b	Stem Lock Nut	2"-4"	Brass	WV16417BR	
5	Packing (Set)	2"-4"	Non-Asbestos	WV15227NA				Stnls. 316	WV16417SS	
			Non-Asb/Tef.	WV15227NT						
6	Bottom Gland	2"-4"	Stnls. 316	WV15076SS	11	Disc	2"	Buna-N	WV15156BN	
7	Tophead & Bonnet	2"	Steel	WV25305MS				Buna-N	WV15202BN	
			Aluminum	WV25305AL			Non-Asbestos	WV15202NA		
		3"	Steel	WV15382MS			Viton	WV15202VT		
			Aluminum	WV15382AL			Teflon	WV15202TF		
		4"	Steel	WV25365MS			Buna-N	WV15024BN		
			Aluminum	WV25365AL			Non-Asbestos	WV15024NA		
		8	Tophead Gasket	2"			Cork-Buna-N	WV15208CB	Viton	WV15024VT
							Non-Asbestos	WV15208NA	Teflon	WV15024TF
Teflon-Env.	WV15208TF									
Cork-Buna-N	WV15022CB									
3"	Non-Asbestos			WV15022NA						
	Teflon-Env.			WV15022TF						
4"	Cork-Buna-N			WV15265CB						
	Non-Asbestos			WV15265NA						
	Teflon-Env.	WV15265TF								
9	Bolts & Nuts (Set)	2"	Cd. Plt. Steel	WV16807CP	12	Disc Ret. Plate	2"	Steel	WV15215MS	
		3"	Cd. Plt. Steel	WV15023CP			Steel	WV15006MS		
		4"	Cd. Plt. Steel	WV16549CP			Aluminum	WV15006AL		
10	Disc Holder & Stem Assembly	2"	Aluminum	WV17682AL			Steel	WV15051MS		
		3"	Aluminum	WV17683AL	4"	Aluminum	WV15051AL			
		4"	Aluminum	WV17684AL	13	Disc Plate Nut	2"-4"	Brass	WV15204BR	
				Stnls. 316				WV15204SS		
					14	Swing Arms	2"	Stnls. 18-8	WV15034SL	
							3"	Stnls. 18-8	WV15179SL	
							4"	Stnls. 18-8	WV15289SL	
					15	Swing Disc Holder	2"	Aluminum	WV15155AL	
							3"	Aluminum	WV25189AL	
							4"	Aluminum	WV15152AL	

MANIFOLD SUB-ASSEMBLIES

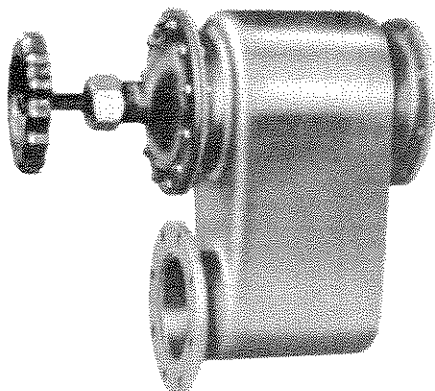
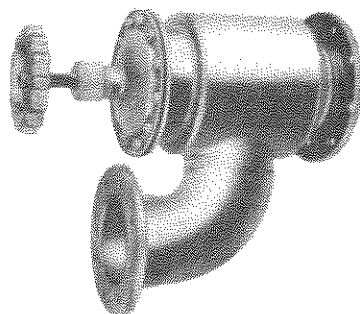
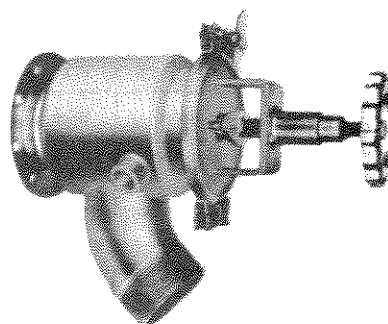
Size	Manifold Material	Standard & Bottom Loading Style		Pressure Style
		Fixed Disc (Parts 1-15)	Swing Disc (Parts 1-9, 10a & 11-15)	Fixed Disc
		Assembly No.	Assembly No.	Assembly No.
2"	Steel	WV17592MSB	WV17602MSB	N/A
	Alum.	WV17592ALB	WV17602ALB	N/A
3"	Steel	WV17593MSB	WV17603MSB	WV17613MSB
	Alum.	WV17593ALB	WV17603ALB	WV17613ALB
4"	Steel	WV17594MSB	WV17604MSB	WV17614MSB
	Alum.	WV17594ALB	WV17604ALB	WV17614ALB

NOTES: Manifold sub-assemblies as listed above are standard with Buna-N disc, non-asbestos packing and cork Buna-N gasket. (Suffix "B")

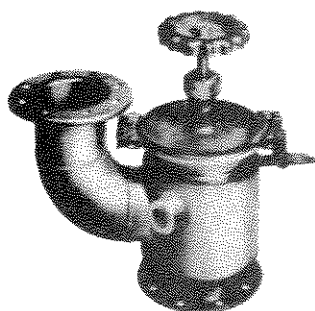
VARIATIONS: (Suffix "A") when used would include non-asbestos disc, packing and gasket.
 (Suffix "T") when used would include teflon disc, packing and gasket.
 (Suffix "V") when used would include viton disc, teflon packing and gasket.

Betts INDUSTRIES, INC.

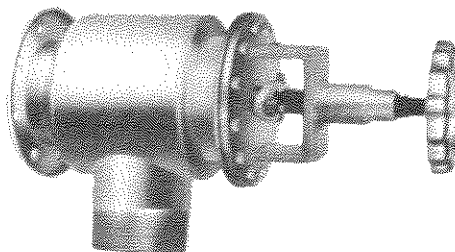
Hydrolet Valves

BOLTED "T" STYLE**BOLTED BONNET****STEAM JACKETED
QRB-OS & Y**Quick Removable Bonnet
Outside Screw and Yoke**STEAM JACKETED**

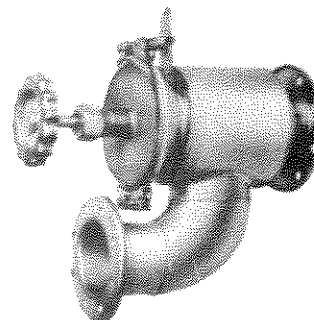
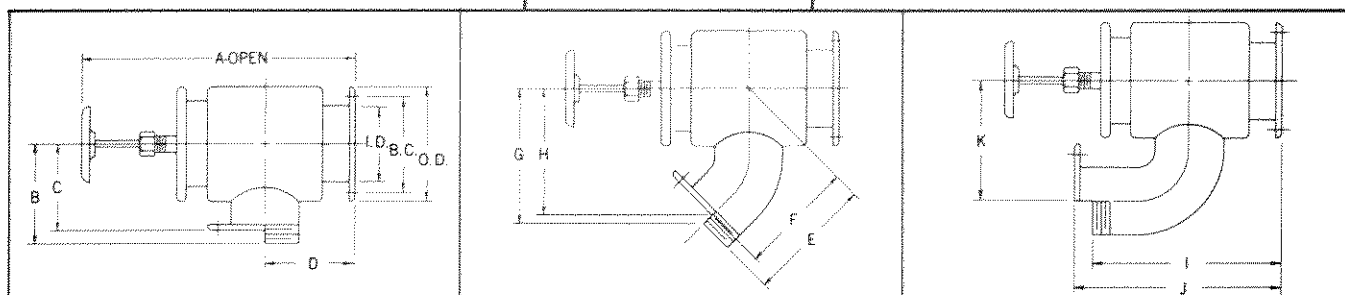
Quick Removable Bonnet

**BOLTED BONNET
OS & Y**

Outside Screw and Yoke

**Q.R.B. HYDROLET**

Quick Removable Bonnet

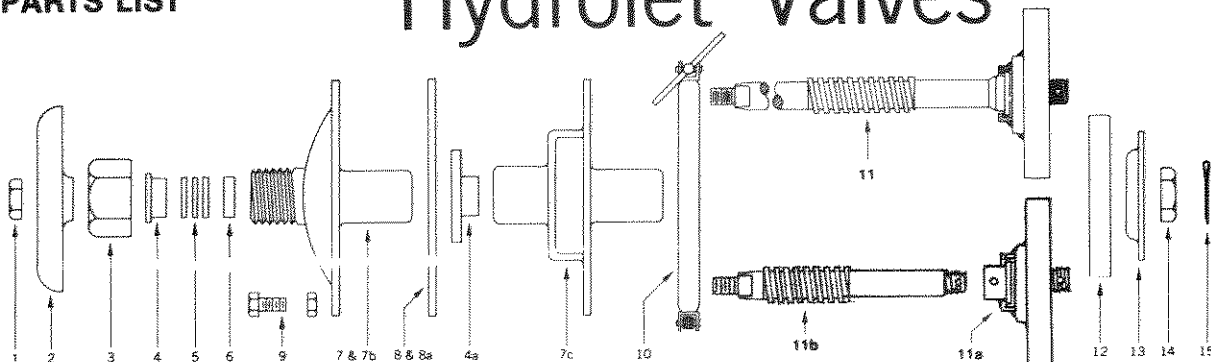
**DIMENSIONS****Dimensions**

Size	A	B	C	D	E	F	G	H	I	J	K	Flange-Inlet & Outlet				Thrd. Outlet
												I.D.	O.D.	B.C.	Holes	Pipe Size
3"	15	5 $\frac{1}{16}$	5 $\frac{1}{8}$	4	6 $\frac{1}{16}$	6 $\frac{1}{8}$	6 $\frac{3}{4}$	7	8 $\frac{1}{16}$	9 $\frac{1}{8}$	6 $\frac{1}{2}$	3 $\frac{3}{8}$	5 $\frac{1}{8}$	4 $\frac{7}{8}$	8 - $\frac{1}{16}$	3"
4"	16 $\frac{3}{16}$	6 $\frac{1}{16}$	5	4 $\frac{1}{8}$	8 $\frac{1}{8}$	7 $\frac{1}{8}$	8 $\frac{3}{8}$	8 $\frac{1}{2}$	10 $\frac{1}{4}$	10 $\frac{1}{8}$	8	4 $\frac{3}{8}$	6 $\frac{1}{8}$	5 $\frac{1}{8}$	8 - $\frac{1}{16}$	4"

Betts INDUSTRIES, INC.

Hydrolet Valves

PARTS LIST



Parts List

No.	Description	Size	Mat'l.	Part No.
1	Hex Nut	3" & 4"	Steel	WV15160 CP
2	Handwheel	3"	Alum.	WV25186 AL
		4"		WV25245 AL
3	Stuffing Box Nut	3" & 4"	Alum.	WV15026 AL
			Stnls. 304	WV15026 SL
4	Top Gland	3" & 4"	Stnls. 316	WV15220 SS
4a	Top Gland OS&Y Style	3" & 4"	Stnls. 304	WV16758 SL
5	Packing	3" & 4"	Non-Asb.	WV15227 NA
			Non-Asb/Tef.	WV15227 NT
6	Bottom Gland	3" & 4"	Stnls. 316	WV15076 SS
7	Tophead & Bonnet Bolted Style	3"	Steel	WV15227 NA
			Alum.	WV15382 MS
		4"	Steel	WV15382 AL
			Alum.	WV25365 MS
				WV25365 AL
7a	Tophead & Bonnet QRB Style	3"	Alum.	WV15573 AL
			Stnls. 316	WV15573 SS
		4"	Alum.	WV16126 AL
			Stnls. 316	WV16126 SS
7b	Tophead & Bonnet QRB OS&Y	3"	Alum.	WV26133 AL
			Stnls. 316	WV26133 SS
		4"	Alum.	WV26138 AL
			Stnls. 316	WV26138 SS
7c	Tophead & Bonnet Bolted-OS&Y	3"	Steel	WV26145 MS
			Alum.	WV26145 AL
		4"	Steel	WV26150 MS
			Alum.	WV26150 AL
8	Tophead Gasket Bolted Style	3"	Ck. Buna	WV15022 CB
			Tef. Env.	WV15022 TF
			Non-Asb.	WV15022 NA
		4"	Ck. Buna	WV15265 CB
			Tef. Env.	WV15265 TF
			Non-Asb.	WV15265 NA

No.	Description	Size	Mat'l.	Part No.
8a	Tophead Gasket QRB Style	3"	Ck. Buna	WV15905 CB
			Tef. Env.	WV15905 TF
		4"	Ck. Buna	WV15977 CB
			Tef. Env.	WV15977 TF
9	Bolts & Nuts (Set)	3"	Steel	WV15023 CP
			Stnls. 18-8	WV15023 SL
		4"	Steel	WV16549 CP
			Stnls. 18-8	WV16549 SL
10	QRB Clamp	3"	Stnls. 304	WV25641 SL
		4"	Stnls. 304	WV25683 SL
11	Disc Holder & Stem Assy. Bolted & QRB Style	3"	All Alum	WV17008 AL
			All Steel	WV17008 MS
			All Stnls	WV17008 SS
		4"	All Alum	WV17023 AL
			All Steel	WV17023 MS
			All Stnls	WV17023 SS
11a	Disc Holder & Button OS&Y Style	3"	Steel	WV17167 MS
			Stnls 316	WV17167 SS
		4"	Steel	WV17168 MS
			Stnls 316	WV17168 SS
11b	Stem OS&Y Style	3"	Alum	WV25857 AL
			Steel	WV25857 MS
			Stnls 316	WV25857 SS
		4"	Alum	WV25724 AL
			Steel	WV25724 MS
			Stnls 316	WV25724 SS
12	Disc	3"	Buna-N	WV15202 BN
			Non-Asb.	WV15202 NA
			Teflon	WV15202 TF
			Viton	WV15202 VT
		4"	Buna-N	WV15024 BN
			Non-Asb.	WV15024 NA
			Teflon	WV15024 TF
			Viton	WV15024 VT
13	Disc Ret. Plate	3"	Steel	WV15006 MS
			Alum.	WV15006 AL
			Stnls. 316	WV15006 SS
		4"	Steel	WV15051 MS
			Alum.	WV15051 AL
			Stnls. 316	WV15051 SS
14	Disc Plate Nut	3" & 4"	Stnls. 316	WV15204 SS
15	Cotter Pin	3" & 4"	Stnls. 316	WV17598 SS

HYDROLET SUB-ASSEMBLIES

Size	Hydrolet Material	Bolted Style	Bolted OS&Y Style	QRB Style	QRB OS&Y Style
3"	Steel	WV17605 MSB	WV17607 MSB	WV17609 MSB	WV17611 MSB
	Alum.	WV17605 SAB	WV17607 SAB	WV17609 SAB	WV17611 SAB
	Stnls. 316	WV17605 SST	WV17607 SST	WV17609 SST	WV17611 SST
4"	Steel	WV17606 MSB	WV17608 MSB	WV17610 MSB	WV17612 MSB
	Alum.	WV17606 SAB	WV17608 SAB	WV17610 SAB	WV17612 SAB
	Stnls. 316	WV17606 SST	WV17608 SST	WV17610 SST	WV17612 SST

NOTES: Cotter pins only provided on sub-assemblies ordered with either Teflon or Non-Asbestos disc.

Bolted sub-assemblies do not include QRB clamp (Item #10).

QRB sub-assemblies do not include Bolts & Nuts (Item #9).

Steel and Aluminum sub-assemblies are standard with Buna-N disc, Cork-Buna-N gasket and non-asbestos packing (Suffix "B").

Stainless sub-assemblies are standard with Teflon disc, packing and gasket (Suffix "T").

VARIATIONS: (Suffix "A"-Bolted Style) when used would include non-asbestos disc, gasket and packing.

(Suffix "A"-QRB Style) when used would include non-asbestos disc, packing and teflon gasket.

(Suffix "V"-Bolted or QRB Style) when used would include viton disc, teflon packing and gasket.

Betts INDUSTRIES, INC.

Hydrolet Valve

EXCLUSIVE QUICK CLAMP

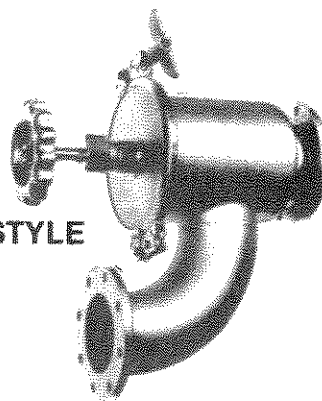
SEAMLESS CONSTRUCTION

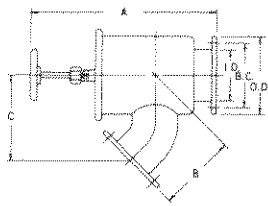
EASILY CLEANED

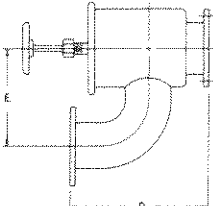
The BETTS Q.R.B. QUICK CLEAN HYDROLET VALVE with the QUICK-REMOVABLE BONNET and seamless construction is a valve designed for quick dismantling and easy cleaning. Valve is available in the two styles shown below. Valve comes standard with teflon disc, packing and gasket.

PRESSURE & TEMPERATURE RATING: 35 PSI and 250°F, maximum working pressure and temperature.

QUICK CLEAN STYLE



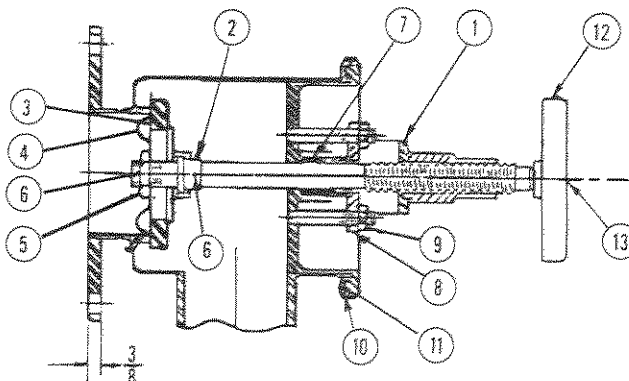
Dimensions			
	Size	Assembly No.	Wt. Material
	3"	QC763SST	16.0 Stnls. 316

		
Assembly No.	Wt.	Material
QC703SST	17.5	Stnls. 316

Dimensions

Size	A	B	C	D	E	Flanged Inlet & Outlet			
						I.D.	O.D.	B.C.	Holes
3"	12 $\frac{3}{8}$	5 $\frac{3}{8}$	6 $\frac{3}{8}$	10 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{3}{8}$	5 $\frac{3}{8}$	4 $\frac{7}{8}$	8 - $\frac{1}{8}$

DEEP DISH BONNET OS & Y HYDROLET VALVE

PARTS LIST
(Sump Mount Shown)

NO.	DESCRIPTION	NO	REC MATERIAL	PART NO.
1	TOPHEAD AND BONNET	1	316 STAINLESS	WV26876-SS
2	STEM & DISC HOLDER ASSEMBLY	1	316 STAINLESS	WV17167-SS
3	DISC	1	TEFLON	WV15202-TF
4	DISC RETAINER PLATE	1	316 STAINLESS	WV17028-SS
5	DISC PLATE NUT	1	316 STAINLESS	WV15204-SS
6	COTTER PIN	2	316 STAINLESS	WV17598-SS
7	PACKING SET	1	TEFLON ASBESTOS	WV15227-AT
8	PACKING GLAND	1	304 STAINLESS	WV16758-SL
9	HEX NUTS	2	316 STAINLESS	WV17599-SS
10	TOP HEAD GASKET	1	TEFLON ENVELOPE	WV15977-TF
11	CLAMP RING ASSEMBLY	1	304 STAINLESS	WV25683-SL
12	HANDWHEEL	1	ALUMINUM	WV25186-AL
13	HEX HALF NUT	1	CAD. PLT. STEEL	WV15160-CP

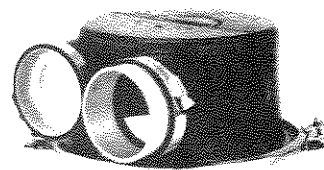
Betts INDUSTRIES, INC.

Vent Accessories

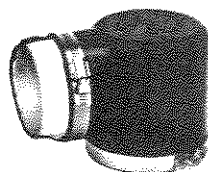
EMISSION COLLECTION HOOD

Use with Betts Push Type
or Air Operated Vents

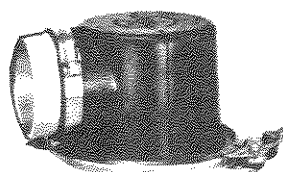
- ATTACHES TO POSITIVE VENT
- MOLDED URETHANE
- VERSATILE
- QUICKLY REMOVABLE



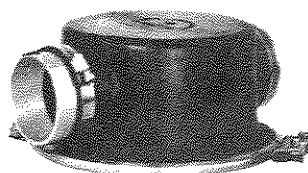
VR45742BU



VR45962BU



VR45784BU



VR45725BU

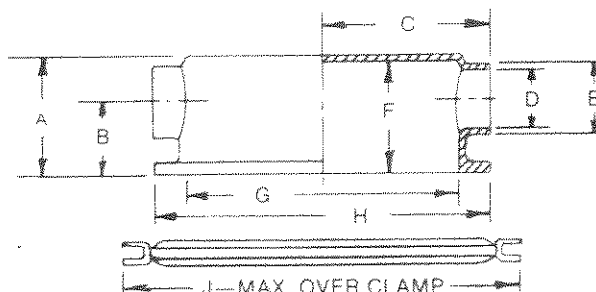
The Betts emission collection hood provides an economical means of collecting the vapors generated while filling the tank. The hood is designed to collapse in case of rollover without adversely affecting the product retention of the cargo tank.

Large hoods with two outlets are provided with end cap for plugging one outlet, if necessary.

NOTE: Effective protection against overfilling should be provided.

DIMENSIONS

MODEL	A	B	C	D	E	F	G	H	J
45742	4 $\frac{7}{8}$	2 $\frac{5}{8}$	5	3 $\frac{1}{2}$	3 $\frac{1}{2}$ $\frac{1}{16}$	4 $\frac{1}{16}$ $\frac{1}{16}$	7 $\frac{3}{4}$	10	12 $\frac{1}{4}$
45725	4 $\frac{7}{8}$	2 $\frac{5}{8}$	5	3 $\frac{1}{2}$	3 $\frac{1}{2}$ $\frac{1}{16}$	4 $\frac{1}{16}$ $\frac{1}{16}$	7 $\frac{3}{4}$	10	12 $\frac{1}{4}$
45784	4 $\frac{7}{8}$	2 $\frac{5}{16}$	3 $\frac{5}{16}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$ $\frac{1}{16}$	4 $\frac{9}{16}$	4 $\frac{1}{16}$ $\frac{1}{16}$	6 $\frac{9}{16}$	8 $\frac{3}{4}$
45962	4 $\frac{7}{8}$	2 $\frac{3}{4}$	3 $\frac{5}{16}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4 $\frac{1}{2}$	4	4 $\frac{1}{4}$	—



Description	Material	Wt.	Assembly No.
Two Outlets—180° Apart	Urethane	3.5	VR45725BU
Two Outlets—same side			VR45742BU
Includes mounting clamp VR26235 SL, two outlet clamps VR17191 SL, one end cap VR16968 AL, and one coupling VR16451 AL.			

These hoods designed for 5" vents.

NOTE: Mounting flange may be drilled to fit the bolt circle of other vents.

One Outlet (small size)	Urethane	2.1	VR45784BU
Includes mounting clamp VR25683 SL, outlet clamp VR17191 SL, and coupling VR16451 AL.			

This hood designed for 3 $\frac{1}{2}$ " bolted style vents.

One Outlet (small size)	Urethane	1	VR45962BU
Includes mounting clamp VR17360 SL, outlet clamp VR17191 SL, and coupling VR16451 AL.			

This hood designed for 3 $\frac{1}{4}$ " threaded style vents.

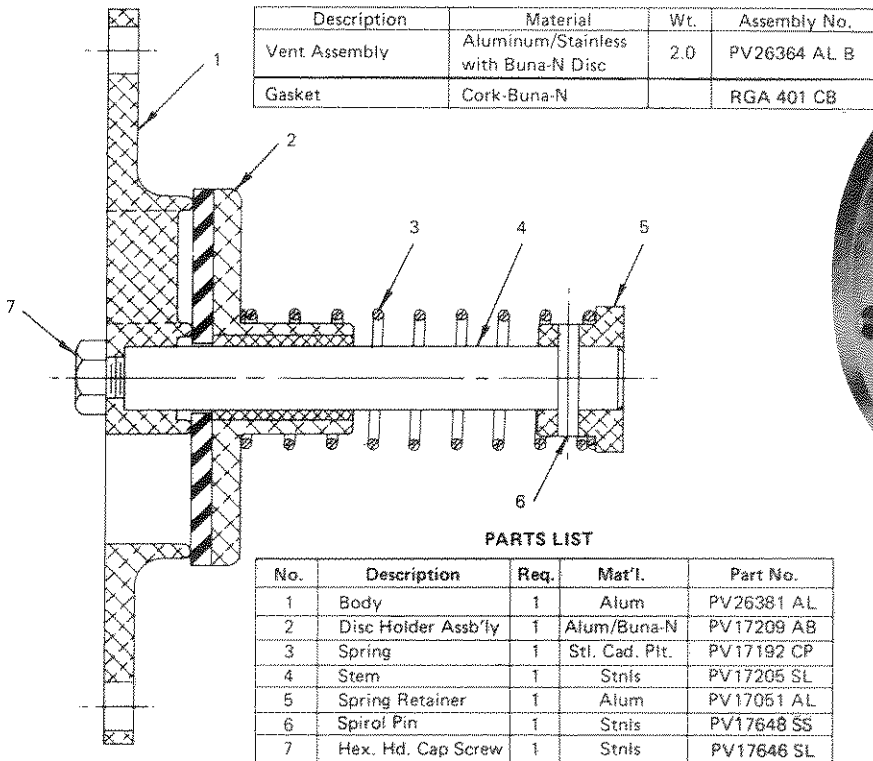
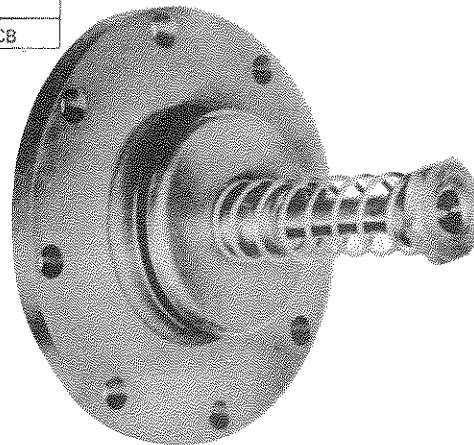
Vents

Betts INDUSTRIES, INC.

PARTS LIST

VAPOR SYSTEM VENT

Inbreathing Vent



PARTS LIST

No.	Description	Req.	Mat'l.	Part No.
1	Body	1	Alum	PV26381 AL
2	Disc Holder Assb'ly	1	Alum/Buna-N	PV17209 AB
3	Spring	1	Stl. Cad. Plt.	PV17192 CP
4	Stem	1	Stnl's	PV17205 SL
5	Spring Retainer	1	Alum	PV17051 AL
6	Spirol Pin	1	Stnl's	PV17648 SS
7	Hex. Hd. Cap Screw	1	Stnl's	PV17646 SL

Opening Pressure: 6 oz. per sq. in.

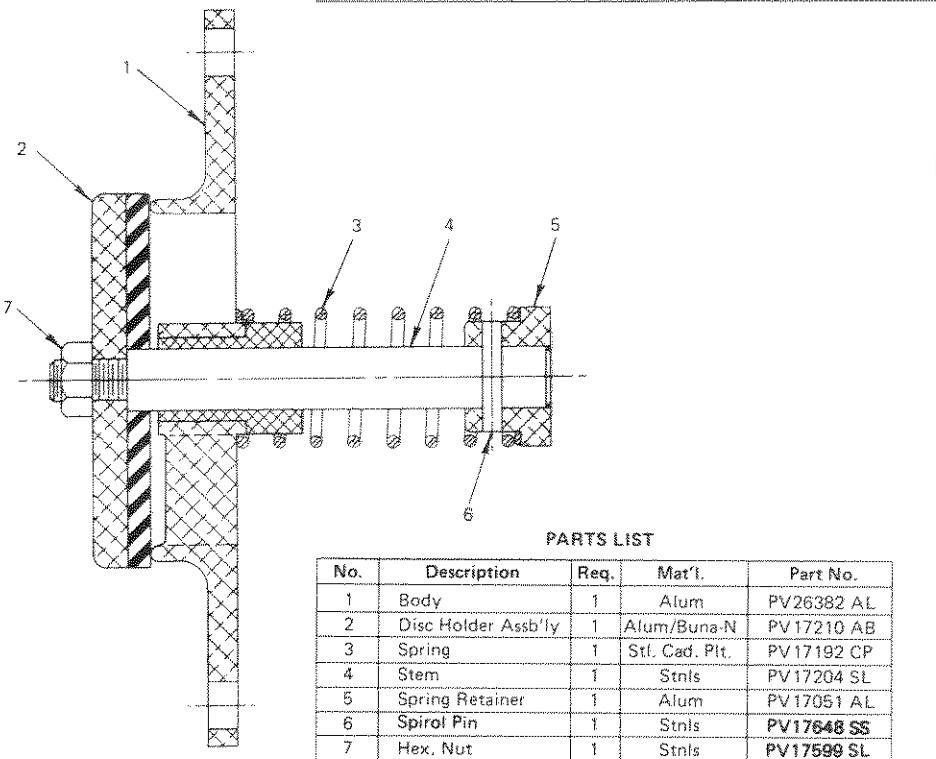
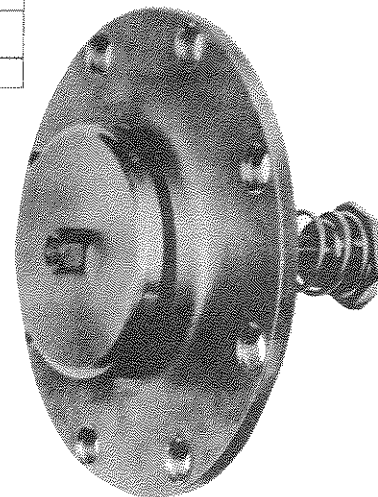
Venting Capacity Air:
12,000 cu. ft. hr. / 1 psig

Vents

PARTS LIST

VAPOR SYSTEM VENT

Outbreathing Vent



PARTS LIST

No.	Description	Req.	Mat'l.	Part No.
1	Body	1	Alum	PV26382 AL
2	Disc Holder Assb'ly	1	Alum/Buna-N	PV17210 AB
3	Spring	1	Stl. Cad. Plt.	PV17192 CP
4	Stem	1	Stnl's	PV17204 SL
5	Spring Retainer	1	Alum	PV17051 AL
6	Spirol Pin	1	Stnl's	PV17648 SS
7	Hex. Nut	1	Stnl's	PV17599 SL

Opening Pressure: 1 psig

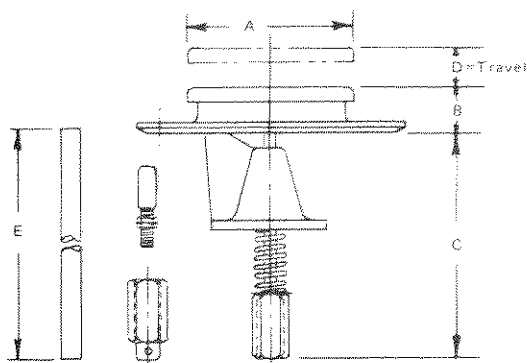
Venting Capacity Air:
51,000 cu. ft. hr. / 3 psig

Betts INDUSTRIES, INC. Vents

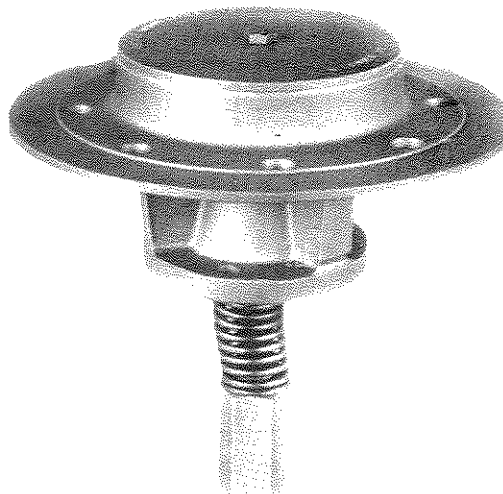
DIMENSIONS

A	B	C	D	E	Mounting Flange				Adapter Hole Size
					O.D.	B.C.	N.H.	S.H.	
6 1/8	2 1/8	8	1 1/2	60	10	7 1/2	8	5/16	5/16

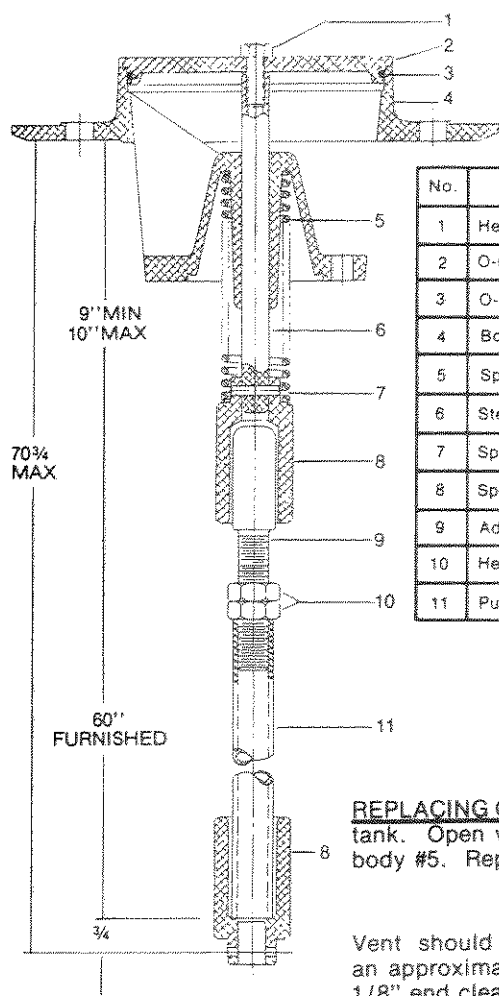
Note: Vent mounts to standard 4" size sumps. See Section 24, Page 1A.



5" Push Vent



Description	Material	Wt.	Assembly No.
Vent Assembly	Aluminum/Stainless with VITON SEAT	6.6	PV46186ALV
Includes: 1 - Push Rod with Adjusting End 1 - Adapter to fit emergency valve			



PARTS LIST

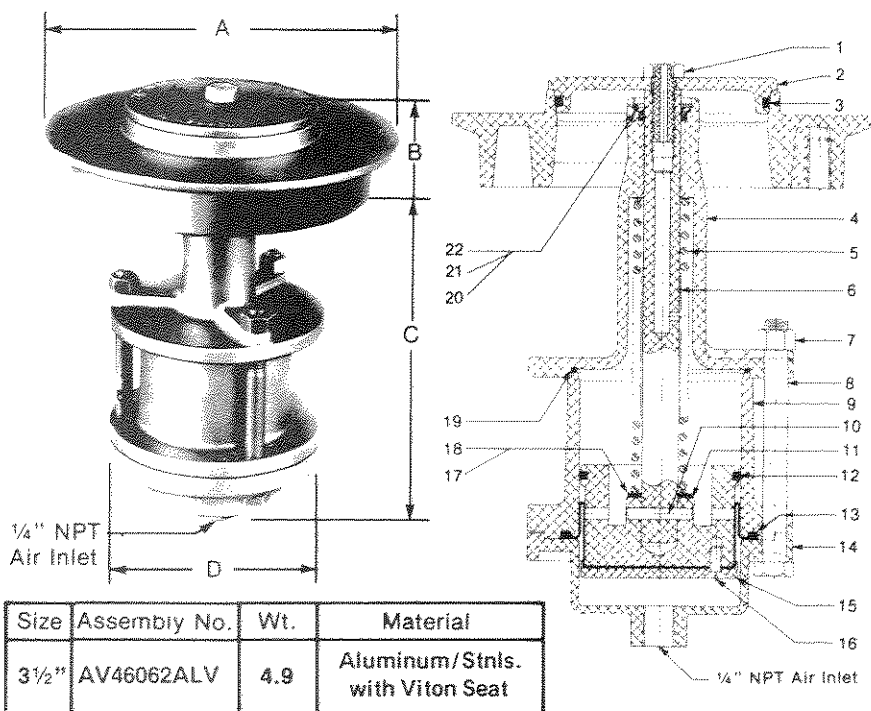
No.	Description	Req.	Material	Part No.
1	Hex Hd Cap Screw	1	Stnl's	PV1764E SL
2	O-ring Holder	1	Alum	PV26909AL
3	O-ring	1	Viton	PV18250VT
4	Body	1	Alum	PV45736AL
5	Spring	1	Stnl's	PV17052 SL
6	Stem	1	Alum	PV16971 AL
7	Spiral Pin	1	Stnl's	PV17648 SL
8	Spring Retainer	2	Alum	PV16974 AL
9	Adjusting Bar	1	Alum	PV16554 AL
10	Hex Jam Nuts	2	Stnl's	PV16858 SL
11	Push Rod	1	Alum	PV17074 AL

MAINTENANCE INSTRUCTIONS

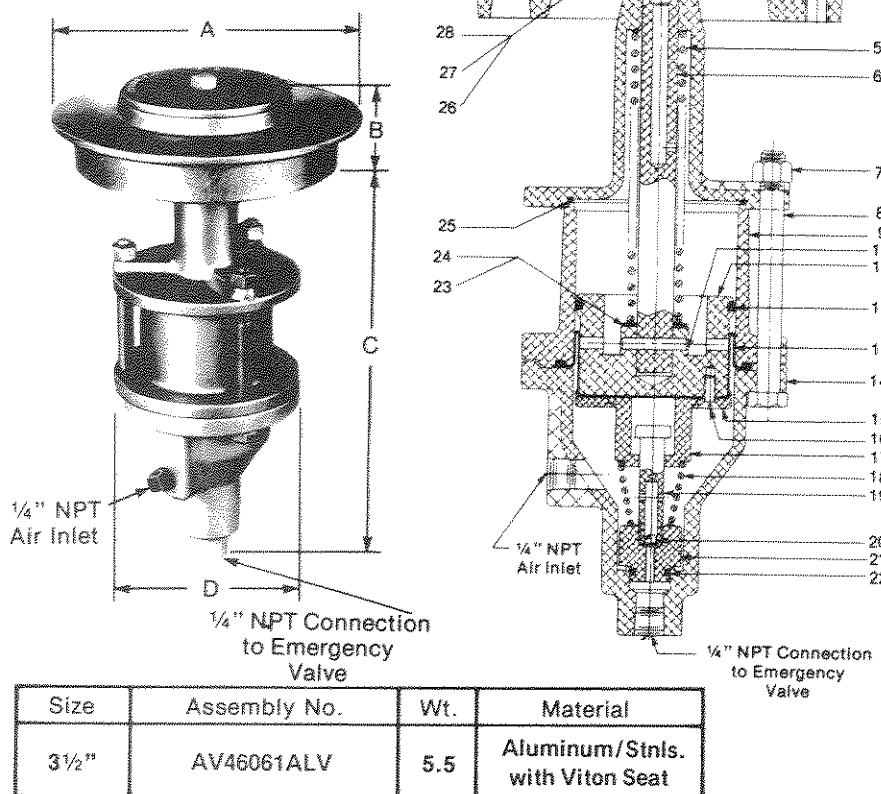
REPLACING O-RING SEAT: The o-ring can be replaced without removing the vent from tank. Open vent. For safety, insert a wood stick between the o-ring holder #2 and body #5. Replace o-ring #3, then remove wood stick.

INSTALLATION INSTRUCTIONS

Vent should be mounted directly over emergency valve. Cut push rod #11 to an approximate length. Install push rod and adjust item #9 allowing approximately 1/8" end clearance to ensure that vent will close.

Betts INDUSTRIES, INC.**3 1/2" AIR OPERATED Vents****PARTS LIST**

No.	Description	Req	Mat'l	Part No.
1	Hex Hd Cap Screw	1	Alum	AV18088AL
2	O-ring Holder	1	Alum	AV17841AL
3	O-ring	1	TFE/SIL	AV18106TS
4	Body	1	Alum	AV26818AL
5	Spring	1	Stl Cd Plt	AV15956CP
6	Stem	1	Alum	AV16971AL
7	Hex Nut	3	Stnls	AV17599SL
8	Hex Hd Cap Screw	3	Stnls	AV17633SL
9	Cylinder	1	Alum	AV26368AL
10	Spirol Pin	1	Stnls	AV17648SL
11	Piston	1	Alum	AV26376AL
12	Wear Ring	1	Teflon	AV17213TF
13	Diaphragm	1	Hydrin Viton	AV17212HD AV17212VT
14	End Cap	1	Alum	AV26369AL
15	Retainer Plate	1	Alum	AV17196AL
16	Machine Screw	3	Stl Cd Plt	AV17634CP
17	Washer	1	Alum	AV17419AL
18	Washer	1	Teflon	AV17419TF
19	O-ring	1	TFE/SIL	AV18108VT
20	O-ring	1	Viton	AV17889TS
21	Washer	1	Alum	AV17928AL
22	Lock Ring	1	Stnls	AV18107SL

3 1/2" AIR OPERATED
with Interlock**PARTS LIST**

No.	Description	Req	Mat'l	Part No.
1	Hex Hd Cap Scr	1	Alum	AV18088AL
2	O-ring Holder	1	Alum	AV17841AL
3	O-ring	1	TFE/SIL	AV18106TS
4	Body	1	Alum	AV26818AL
5	Spring	1	Stl Cd Plt	AV15956CP
6	Stem	1	Alum	AV16971AL
7	Hex Nut	3	Stnls	AV17599SL
8	Hex Hd Cap Scr	3	Stnls	AV17633SL
9	Cylinder	1	Alum	AV26368AL
10	Spirol Pin	1	Stnls	AV17648SL
11	Piston	1	Alum	AV26376AL
12	Wear Ring	1	Teflon	AV17213TF
13	Diaphragm	1	Hydrin Viton	AV17212HD AV17212VT
14	End Cap	1	Alum	AV26370AL
15	Retainer Plate	1	Alum	AV17196AL
16	Machine Screw	3	Stl Cd Plt	AV17634CP
17	Hub	1	Alum	AV17053AL
18	Spring	1	Stnls	AV16041SL
19	Stem	1	Alum	AV15948AL
20	Ball	1	Stnls	AV15963SS
21	O-ring Holder	1	Alum	AV18140AL
22	O-ring	1	Buna-N	AV18141BN
23	Washer	1	Alum	AV17419AL
24	Washer	1	Teflon	AV17419TF
25	O-ring	1	Viton	AV18108VT
26	O-ring	1	TFE/SIL	AV17889TS
27	Washer	1	Alum	AV17928AL
28	Lock Ring	1	Stnls	AV18107SL

Old Style Valves with Flat Seat Parts Available Upon Request.

AIR-OPERATED VENTS

Betts INDUSTRIES, INC.

VENTS

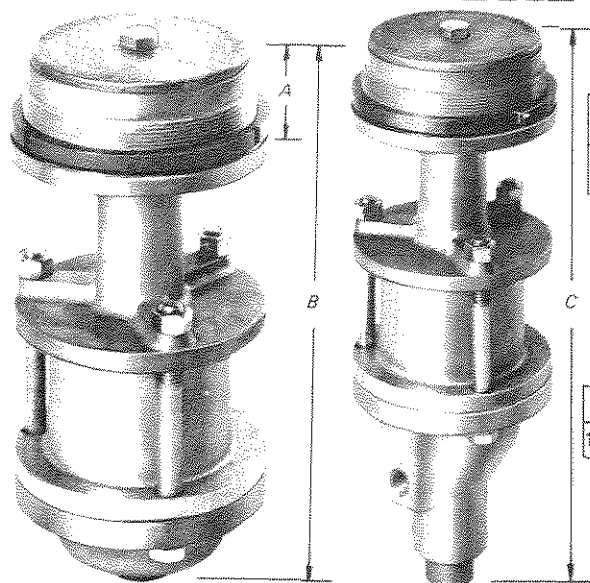
- ALUMINUM WITH STAINLESS TRIM
- PROVIDES POSITIVE VENTING

SIZE	STANDARD MODEL ASSEMBLY NO.	WT.	INTERLOCK MODEL ASSEMBLY NO.	WT.	MATERIAL	CONNECTIONS
3½	AV46065ALV	3.8	AV46064ALV	4.4	Aluminum Stls. Viton Seat	¾ NPT

Vent is designed to be mounted in a 16" offset manhole assembly.

The Interlock Valve insures the vent being opened before the emergency valve.

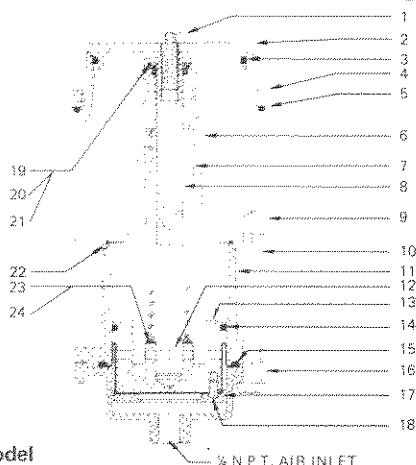
A	B	C	DISC TRAVEL	HOLE SIZE REQUIRED FOR MOUNTING
1-5/8	8-3/4	11-1/4	1"	3.844 Diameter



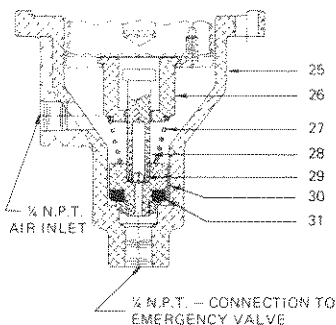
Standard Model

Interlock Model

PARTS LIST



Standard Model



Interlock Model

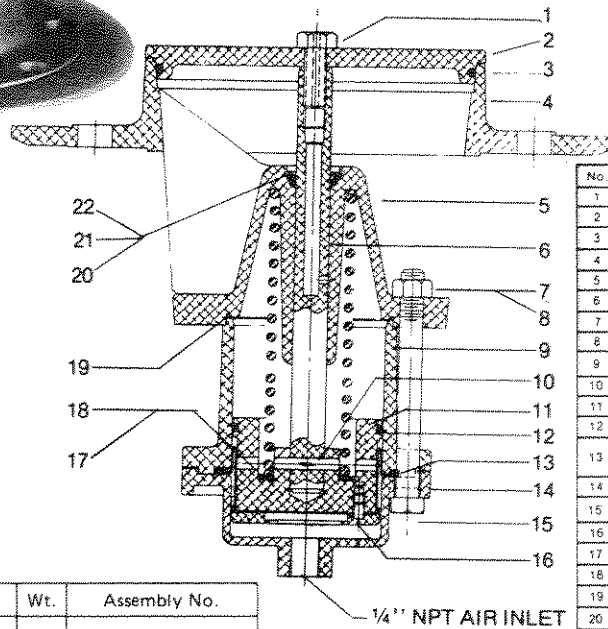
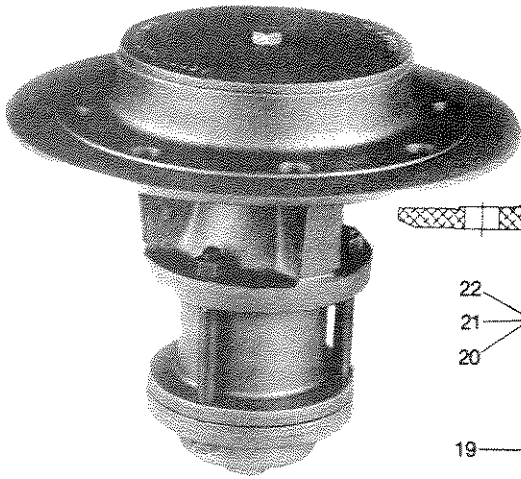
No.	Description	Req.	Material	Part No.
1	Hex Hd. Cap Screw	1	Aluminum	AV18088 AL
2	Disc Holder	1	Aluminum	AV17841 AL
3	O-Ring	1	TFE/SIL	AV18106TS
4	Mounting Ring	1	Aluminum	AV17567 AL
5	O-Ring	1	Viton	AV17657 VT
6	Body	1	Aluminum	AV26816 AL
7	Spring	1	Cd. Plt. Steel	AV15956 CP
8	Stem	1	Aluminum	AV16971 AL
9	Hex Nut	3	Stainless	AV17599 SL
10	Hex Hd. Cap Screw	3	Stainless	AV17633 SL
11	Cylinder	1	Aluminum	AV26368 AL
12	Spiral Pin	1	Stainless	AV17648 SL
13	Piston	1	Aluminum	AV26376 AL
14	Wear Ring	1	Teflon	AV17213 TF
15	Diaphragm	1	Hydrin	AV17212 HD
16	End Cap	1	Aluminum	AV26369 AL

No.	Description	Req.	Material	Part No.
17	Retainer Plate	1	Aluminum	AV17196 AL
18	Machine Screw	3	Steel	AV17634 CP
19	Lock-Ring	1	Stainless	AV18107 SL
20	Washer	1	Aluminum	AV17928 AL
21	Seal-Stem	1	TFE/SIL	AV17889TS
22	O-Ring	1	Viton	AV18108 VT
23	Washer	1	Aluminum	AV17419 AL
24	Washer	1	Teflon	AV17419 TF
25	End Cap	1	Aluminum	AV26370 AL
26	Hub	1	Aluminum	AV17053 AL
27	Spring	1	Stainless	AV16041 SL
28	Stem	1	Aluminum	AV15948 AL
29	Ball	1	Stainless	AV15963 SL
30	Disc Holder	1	Aluminum	AV18140 AL
31	O-Ring	1	Buna-N	AV18141 BN

Old Style Valves with Flat Seat Parts Available Upon Request.

5" Air-Operated Vent

Betts INDUSTRIES, INC. Vents



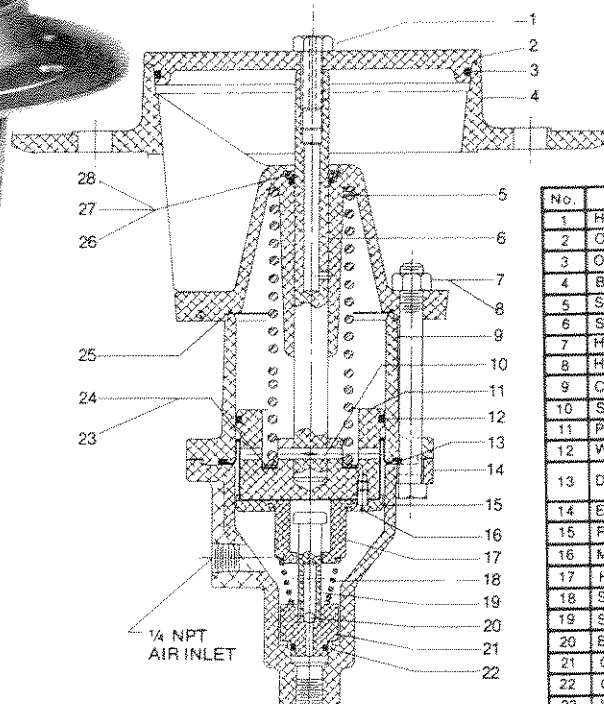
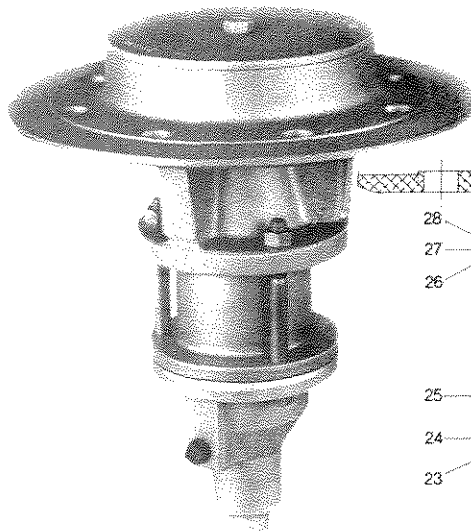
PARTS LIST

No.	Description	Req.	Mat'l	Part No.
1	Hex Hd Cap Screw	1	Alum	AV18088AL
2	O-ring Holder	1	Alum	AV26909AL
3	O-ring	1	TFE/SIL	AV18250 TS
4	Body	1	Alum	AV45736AL
5	Spring	1	Stnl's	AV17062SL
6	Stem	1	Alum	AV16971AL
7	Hex Nut	3	Stnl's	AV17599SL
8	Hex Hd Cap Screw	3	Stnl's	AV17633SL
9	Cylinder	1	Alum	AV26368AL
10	Spiral Pin	1	Stnl's	AV17648SL
11	Piston	1	Alum	AV26376AL
12	Wear Ring	1	Teflon	AV17213TF
13	Diaphragm	1	Hydrin	AV17212HD
			Viton	AV17212VT
14	End Cap	1	Alum	AV26369AL
15	Retainer Plate	1	Alum	AV17196AL
16	Machine Screw	3	Stl Cd Plt	AV17634CP
17	Washer	1	Alum	AV17418AL
18	Washer	1	Teflon	AV17418TF
19	O-ring	1	Viton	AV18108VT
20	O-ring	1	TFE/SIL	AV17889TS
21	Washer	1	Alum	AV17928AL
22	Lock Ring	1	Stnl's	AV18107SL

Description	Material	Wt.	Assembly No.
Vent Assembly	Aluminum/Stainless with VITON SEAT	7.5	AV46184ALV

5" Air-Operated Vent

with Interlock Valve



PARTS LIST

No.	Description	Req.	Mat'l	Part No.
1	Hex Hd Cap Scr	1	Alum	AV18088AL
2	O-ring Holder	1	Alum	AV26909AL
3	O-ring	1	TFE/SIL	AV18250TS
4	Body	1	Alum	AV45736AL
5	Spring	1	Stnl's	AV17062SL
6	Stem	1	Alum	AV16971AL
7	Hex Nut	3	Stnl's	AV17599SL
8	Hex Hd Cap Scr	3	Stnl's	AV17633SL
9	Cylinder	1	Alum	AV26368AL
10	Spiral Pin	1	Stnl's	AV17648SL
11	Piston	1	Alum	AV26376AL
12	Wear Ring	1	Teflon	AV17213TF
13	Diaphragm	1	Hydrin	AV17212HD
			Viton	AV17212VT
14	End Cap	1	Alum	AV26370AL
15	Retainer Plate	1	Alum	AV17196AL
16	Machine Screw	3	Stl Cd Plt	AV17634CP
17	Hub	1	Alum	AV17053AL
18	Spring	1	Stnl's	AV16041SL
19	Stem	1	Alum	AV15948AL
20	Ball	1	Stnl's	AV15963SS
21	O-ring Holder	1	Alum	AV18140AL
22	O-ring	1	Buna-N	AV18141BN
23	Washer	1	Alum	AV17418AL
24	Washer	1	Teflon	AV17418TF
25	O-ring	1	Viton	AV18108VT
26	O-ring	1	TFE/SIL	AV17889TS
27	Washer	1	Alum	AV17928AL
28	Lock Ring	1	Stnl's	AV18107SL

Description	Material	Wt.	Assembly No.
Vent Assembly	Aluminum/Stainless with VITON SEAT	8.0	AV46185ALV

Old Style Valves with Flat Seat Parts Available Upon Request.

Betts INDUSTRIES, INC.**MAINTENANCE INSTRUCTIONS FOR AIR OPERATED VENTS****FOR IDENTIFICATION OF PARTS REFERRED TO SEE RESPECTIVE PARTS LIST
INSTRUCTIONS FOR REPLACING MAIN VALVE SEALS****VENTS WITH FLAT DISC SEAL**

1. Disassemble disc holder assembly by removing cap screw from stem. Replace rubber disc and re-assemble. Torque hex HD. cap screw to 125 in. lbs.

VENTS WITH O-RING SEAL

2. Apply air pressure to open vent. Place wood block approx. 1/2" thick between disc holder & body to prevent accidental closing. Replace O-Ring, then remove wood block and air pressure.

INSTRUCTIONS FOR REPLACING WEAR RING AND DIAPHRAGM

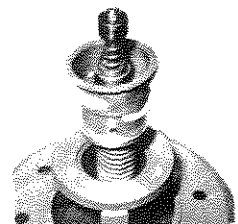
3. The wear ring and diaphragm are to be replaced with the vent valve removed from tank.
Remove end cap by removing (3) nuts and cap screws. Remove cylinder by lifting diaphragm bead from groove.
4. Remove and replace split wear ring.
5. Dis-assemble retainer plate from piston by removing three (3) screws with a screwdriver.
6. Replace diaphragm with the fabric side next to piston (rubber-coated side out). Roll diaphragm down over piston as far as possible toward body. Re-assemble retainer plate using three (3) screws. It is important for screws to be evenly torqued.
7. Pull diaphragm up away from piston as far as possible.
8. Re-install cylinder by squeezing diaphragm O.D. to permit diaphragm to slide through cylinder bore.
9. To properly position diaphragm in cylinder, lift cylinder until bead of diaphragm engages groove in cylinder, making certain that holes in cylinder flange line up with screw holes in body flange.
10. Hold diaphragm bead in cylinder groove by placing both thumbs and index fingers on diaphragm flange and gripping flange of cylinder firmly with remaining fingers. Gently push cylinder toward valve body to form the convolution in the diaphragm. Check to assure that the O-ring is in place and that the end of the cylinder is engaged in the c'bore of the body flange.
11. Re-assemble end cap by re-installing (3) cap screws and nuts with proper torque to prevent leakage at diaphragm bead.

LEAKAGE TEST PRIOR TO INSTALLING VENT IN TANK

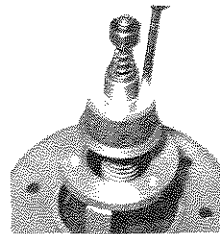
12. Apply air pressure to "air inlet" port and check for leakage from diaphragm bead flange and from the vent hole in the disc holder cap screw. The interlock vent must have the 1/4N.P.T. outlet plugged.



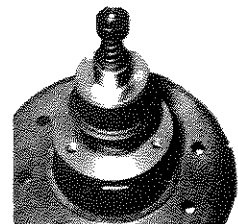
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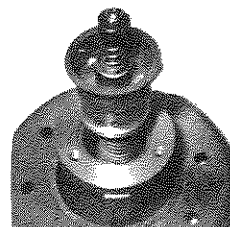
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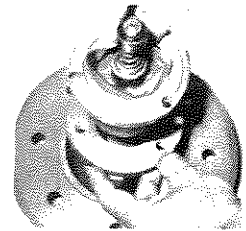
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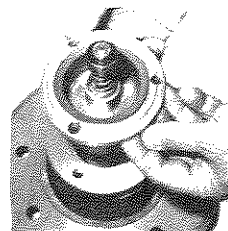
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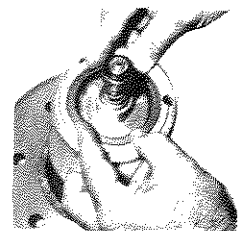
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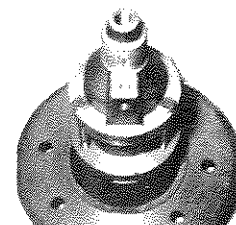
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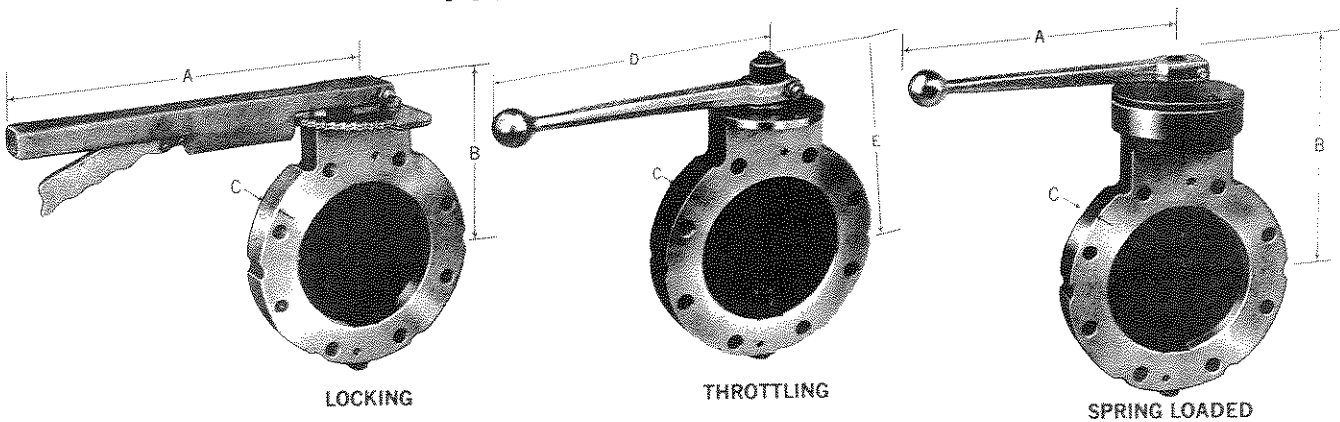


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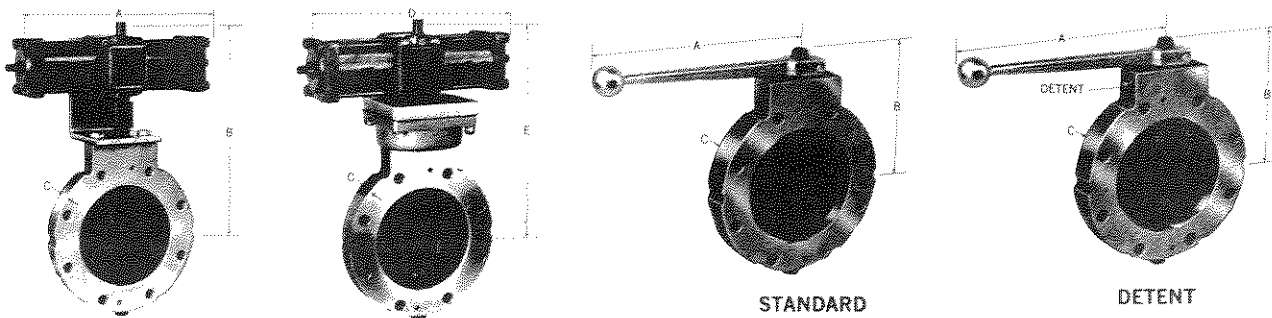
11.

TTMA STYLE

Betts INDUSTRIES, INC.
WET-R-DRI VALVE

The Locking and Throttling model valves enable user to position disc for throttling or metering purposes. The Locking model has a 10 notch indexing plate, while the Throttling model is held in various positions by friction.

The spring loaded valve provides an immediate and positive shut off. Valve can be used for remote operation or as a dead man valve.

**AIR OPERATED****AIR-SPRING OPERATED**

The air operated valve is opened and closed by air. The air-spring operated valve can be sold as either an air to open, spring return valve or as an air to close spring to open valve. Please specify!

The Betts Wet-R-Dri Valve is designed for handling liquid, gaseous or dry products, and is available in a variety of sizes and models. This space saving valve is lightweight, easily maintained, and has a positive stop in the open and closed position.

The detent model has a detent spring and ball which assist in holding the disc in the open and closed position.

Repair Kit

For Detent model valves a Detent Repair Kit is required in addition to the appropriate size valve repair kit.

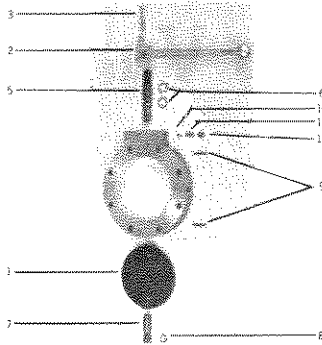
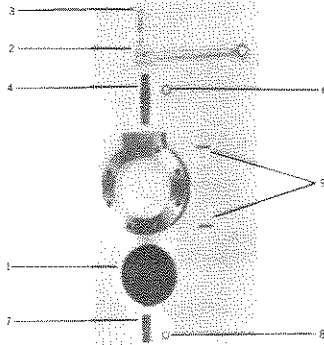
For WD Valve Size	Repair Kit Part No.	Suffix: BN Buna-N Disc PY Urethane Disc VT Viton Disc REPAIR KITS CONSIST OF: 1 Disc 2 Drive Shaft O-Rings 1 Bearing Shaft O-Ring 2 Drive Lock Pins 2 Flange Gaskets
2"	WD18402 BN WD18402 VT	
3"	WD18403 BN WD18403 VT	Detent Repair Kit (For all sizes detent models) Consists Of: 1 Detent Ball WD109 SL 1 Detent Spring WD110 SL 1 Retaining Screw WD111 SL
4"	WD18404 VT	
5"	WD18405 VT	
6"	WD18406 PY WD18406 VT	
8"	WD18408 PY WD18408 VT	
All Detent	WD18400 SL	

Also available in ASA Dimensions - contact our sales office for information.

Betts INDUSTRIES, INC.

WET-R-DRI VALVE

PARTS LIST



STANDARD MODEL

DETENT MODEL

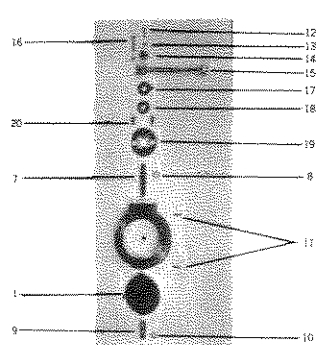
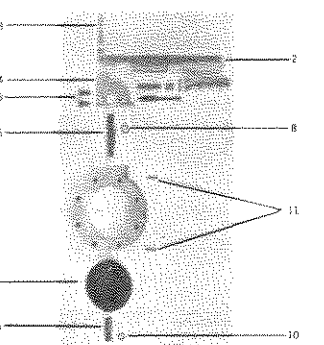
No.	Description	Material	2" Size	3" Size	4" Size	5" Size	6" Size	8" Size
1	Disc	Buna-N	WD101 2 BN	WD101 3 BN	WD101 4 BN	WD101 5 BN	WD101 6 BN	WD101 8 BN
		Viton	WD101 2 VT	WD101 3 VT	WD101 4 VT	WD101 5 VT	WD101 6 VT	WD101 8 VT
		Urethane	WD101 2 PY	WD101 3 PY	WD101 4 PY	WD101 5 PY	WD101 6 PY	WD101 8 PY
		EPDM	WD101 2 EP	WD101 3 EP	WD101 4 EP	WD101 5 EP	WD101 6 EP	WD101 8 EP
2	Handle	Malleable Co. Pk.	WD102 CP	WD102 CP	WD102 CP	WD102 CP	WD102 CP	WD102 CP
3	Bolt & Nut	Steel Co. Pk.	WD103 CP	WD103 CP	WD103 CP	WD103 CP	WD103 CP	WD103 CP
4	Drive Shaft	Steel	WD104 MS	WD104 MS	WD104 MS	WD104 MS	WD104 MS	WD104 MS
5	Drive Shaft	Steel	WD105 MS	WD105 MS	WD105 MS	WD105 MS	WD105 MS	WD105 MS
6	O-Ring	Buna-N	WD106 BN	WD106 BN	WD106 BN	WD106 BN	WD106 BN	WD106 BN
7	Bearing Shaft	Steel	WD107 BN	WD107 BN	WD107 BN	WD107 BN	WD107 BN	WD107 BN
8	O-Ring	Buna-N	WD108 BN	WD108 BN	WD108 BN	WD108 BN	WD108 BN	WD108 BN
9	Drive Lock Pin	Steel Co. Pk.	WD109 CP	WD109 CP	WD109 CP	WD109 CP	WD109 CP	WD109 CP
10	Detent Ball	Stainless 304	WD110 SL	WD110 SL	WD110 SL	WD110 SL	WD110 SL	WD110 SL
11	Detent Spring	Stainless 304	WD111 SL	WD111 SL	WD111 SL	WD111 SL	WD111 SL	WD111 SL
12	Ret. Screw	Stainless 304	WD112 SL	WD112 SL	WD112 SL	WD112 SL	WD112 SL	WD112 SL

*Special Order

SPRING LOADED MODEL

No.	Description	Material	2" Size	3" Size	4" Size	5" Size
1	Disc	Buna-N	WD101 2 BN	WD101 3 BN	WD101 4 BN	WD101 5 BN
		Viton	WD101 2 VT	WD101 3 VT	WD101 4 VT	WD101 5 VT
		Urethane	WD101 2 PY	WD101 3 PY	WD101 4 PY	WD101 5 PY
		EPDM	WD101 2 EP	WD101 3 EP	WD101 4 EP	WD101 5 EP
2	Handle	Steel Co. Pk.	WD102 CP	WD102 CP	WD102 CP	WD102 CP
3	Bolt & Nut	Steel Co. Pk.	WD103 CP	WD103 CP	WD103 CP	WD103 CP
4	Screws	Stainless	WD123 SL	WD123 SL	WD123 SL	WD123 SL
5	Cover Plate	Aluminum	WD122 AL	WD122 AL	WD122 AL	WD122 AL
6	Gasket	Cork-Neoprene	WD124 CN	WD124 CN	WD124 CN	WD124 CN
7	Cap Screw	Stainless	WD125 MS	WD125 MS	WD125 MS	WD125 MS
8	Spring Adapter	Stainless 304	WD126 SL	WD126 SL	WD126 SL	WD126 SL
9	Washer	Teflon	WD127 TF	WD127 TF	WD127 TF	WD127 TF
10	Spring	Steel	WD128 MS	WD128 MS	WD128 MS	WD128 MS
11	O-Ring	Buna-N	WD143 BN	WD143 BN	WD143 BN	WD143 BN
12	Stop Plate	Stainless 304	WD152 SL	WD152 SL	WD152 SL	WD152 SL
13	Housing	Aluminum	WD153 AL	WD153 AL	WD153 AL	WD153 AL
14	Drive Shaft	Steel	WD104 MS	WD104 MS	WD104 MS	WD104 MS
15	O-Ring	Buna-N	WD105 BN	WD105 BN	WD105 BN	WD105 BN
16	Bearing Shaft	Steel	WD106 MS	WD106 MS	WD106 MS	WD106 MS
17	O-Ring	Buna-N	WD107 BN	WD107 BN	WD107 BN	WD107 BN
18	Drive Lock Pin	Steel Co. Pk.	WD108 CP	WD108 CP	WD108 CP	WD108 CP
19	Gasket	Cork-Neoprene	WD187 CN	WD187 CN	WD187 CN	WD187 CN

*Special Order

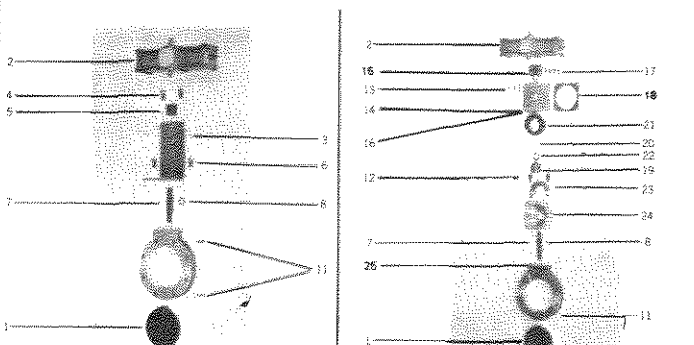


LOCKING MODEL

THROTTLING MODEL

No.	Description	Material	2" Size	3" Size	4" Size	5" Size	6" Size	8" Size
1	Disc	Buna-N	WD101 2 BN	WD101 3 BN	WD101 4 BN	WD101 5 BN	WD101 6 BN	WD101 8 BN
		Viton	WD101 2 VT	WD101 3 VT	WD101 4 VT	WD101 5 VT	WD101 6 VT	WD101 8 VT
		Urethane	WD101 2 PY	WD101 3 PY	WD101 4 PY	WD101 5 PY	WD101 6 PY	WD101 8 PY
		EPDM	WD101 2 EP	WD101 3 EP	WD101 4 EP	WD101 5 EP	WD101 6 EP	WD101 8 EP
2	Handle Assy.	Aluminum	WD112 AL	WD112 AL	WD112 AL	WD112 AL	WD112 AL	WD112 AL
3	Hand Grip	Aluminum	WD113 AL	WD113 AL	WD113 AL	WD113 AL	WD113 AL	WD113 AL
4	Spring	Stainless 302	WD114 SL	WD114 SL	WD114 SL	WD114 SL	WD114 SL	WD114 SL
5	Plunger	Steel	WD115 MS	WD115 MS	WD115 MS	WD115 MS	WD115 MS	WD115 MS
6	Roll Pin	Steel	WD116 MS	WD116 MS	WD116 MS	WD116 MS	WD116 MS	WD116 MS
7	Chain Link	Steel	WD117 MS	WD117 MS	WD117 MS	WD117 MS	WD117 MS	WD117 MS
8	Bolt & Nut	Aluminum	WD118 MS	WD118 MS	WD118 MS	WD118 MS	WD118 MS	WD118 MS
9	Interfacing Plate	Steel Co. Pk.	WD119 CP	WD119 CP	WD119 CP	WD119 CP	WD119 CP	WD119 CP
10	Cap Screw	Stainless	WD120 SL	WD120 SL	WD120 SL	WD120 SL	WD120 SL	WD120 SL
11	Drive Shaft	Steel	WD121 SL	WD121 SL	WD121 SL	WD121 SL	WD121 SL	WD121 SL
12	O-Ring	Buna-N	WD122 BN	WD122 BN	WD122 BN	WD122 BN	WD122 BN	WD122 BN
13	Bearing Shaft	Steel	WD123 MS	WD123 MS	WD123 MS	WD123 MS	WD123 MS	WD123 MS
14	O-Ring	Buna-N	WD124 BN	WD124 BN	WD124 BN	WD124 BN	WD124 BN	WD124 BN
15	Lock Washer	Steel	WD125 MS	WD125 MS	WD125 MS	WD125 MS	WD125 MS	WD125 MS
16	Indicator	Stainless 304	WD126 SL	WD126 SL	WD126 SL	WD126 SL	WD126 SL	WD126 SL
17	Friction Disc	Cork-Buna-N	WD133 CB	WD133 CB	WD133 CB	WD133 CB	WD133 CB	WD133 CB
18	Index Plate	Aluminum	WD134 AL	WD134 AL	WD134 AL	WD134 AL	WD134 AL	WD134 AL
19	Socket Screw	Steel	WD162 MS	WD162 MS	WD162 MS	WD162 MS	WD162 MS	WD162 MS

*Special Order



No.	Description	Material	2" Size	3" Size	4" Size	5" Size	6" Size	8" Size
1	Disc	Buna-N	WD101 2 BN	WD101 3 BN	WD101 4 BN	WD101 5 BN	WD101 6 BN	WD101 8 BN
		Viton	WD101 2 VT	WD101 3 VT	WD101 4 VT	WD101 5 VT	WD101 6 VT	WD101 8 VT
		Urethane	WD101 2 PY	WD101 3 PY	WD101 4 PY	WD101 5 PY	WD101 6 PY	WD101 8 PY
		EPDM	WD101 2 EP	WD101 3 EP	WD101 4 EP	WD101 5 EP	WD101 6 EP	WD101 8 EP
2	Actuator	Aluminum	WD163 AL	WD163 AL	WD163 AL	WD163 AL	WD163 AL	WD163 AL
3	Bracket	Steel	WD164 MS	WD164 MS	WD164 MS	WD164 MS	WD164 MS	WD164 MS
4	Coupling	Steel Co. Pk.	WD165 MS	WD165 MS	WD165 MS	WD165 MS	WD165 MS	WD165 MS
5	Cap Screws	Stainless	WD166 MS	WD166 MS	WD166 MS	WD166 MS	WD166 MS	WD166 MS
6	Drive Shaft	Steel	WD167 MS	WD167 MS	WD167 MS	WD167 MS	WD167 MS	WD167 MS
7	O-Ring	Buna-N	WD168 BN	WD168 BN	WD168 BN	WD168 BN	WD168 BN	WD168 BN
8	Bearing Shaft	Steel	WD169 MS	WD169 MS	WD169 MS	WD169 MS	WD169 MS	WD169 MS
9	O-Ring	Buna-N	WD170 BN	WD170 BN	WD170 BN	WD170 BN	WD170 BN	WD170 BN
10	Drive Lock Pin	Steel Co. Pk.	WD171 CP	WD171 CP	WD171 CP	WD171 CP	WD171 CP	WD171 CP
11	Gasket	Cork-Neoprene	WD172 CN	WD172 CN	WD172 CN	WD172 CN	WD172 CN	WD172 CN
12	Screws	Stainless	WD173 MS	WD173 MS	WD173 MS	WD173 MS	WD173 MS	WD173 MS
13	Lock Washer	Steel	WD174 MS	WD174 MS	WD174 MS	WD174 MS	WD174 MS	WD174 MS
14	Gasket	Cork-Neoprene	WD175 CN	WD175 CN	WD175 CN	WD175 CN	WD175 CN	WD175 CN
15	Cover Plate	Aluminum	WD176 AL	WD176 AL	WD176 AL	WD176 AL	WD176 AL	WD176 AL
16	Screws	Stainless	WD177 MS	WD177 MS	WD177 MS	WD177 MS	WD177 MS	WD177 MS
17	Gasket	Cork-Neoprene	WD178 CN	WD178 CN	WD178 CN	WD178 CN	WD178 CN	WD178 CN
18	Spring Adapter	Stainless	WD179 SL	WD179 SL	WD179 SL	WD179 SL	WD179 SL	WD179 SL
19	Washer	Teflon	WD180 TF	WD180 TF	WD180 TF	WD180 TF	WD180 TF	WD180 TF
20	Spring	Steel	WD181 MS	WD181 MS	WD181 MS	WD181 MS	WD181 MS	WD181 MS
21	O-Ring	Buna-N	WD182 BN	WD182 BN	WD182 BN	WD182 BN	WD182 BN	WD182 BN
22	Stop Plate	Stainless 304	WD183 SL	WD183 SL	WD183 SL	WD183 SL	WD183 SL	WD183 SL
23	Housing	Aluminum	WD184 AL	WD184 AL	WD184 AL	WD184 AL	WD184 AL	WD184 AL
24	Gasket	Cork-Neoprene	WD185 CN	WD185 CN	WD185 CN	WD185 CN	WD185 CN	WD185 CN

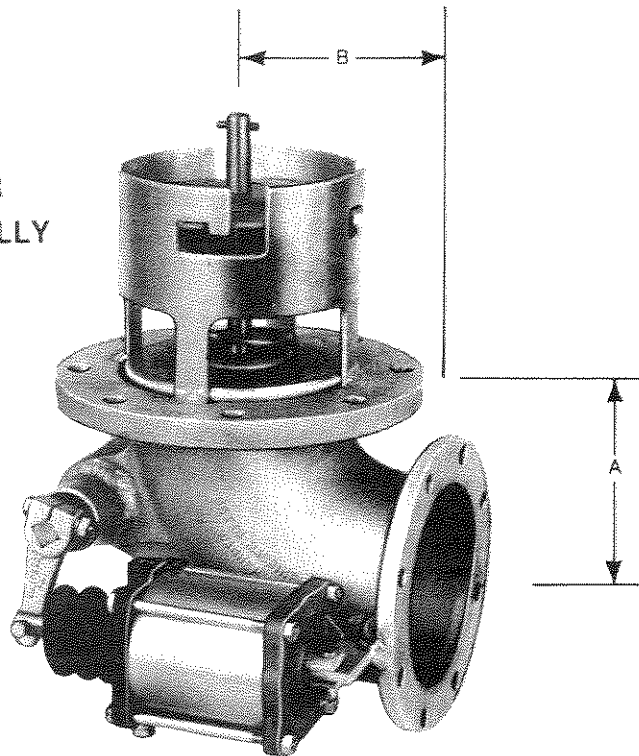
*Special Order

Betts INDUSTRIES, INC.

AIR OPERATED

Emergency Valve

VITON SEATS
EXTERNAL AIR CYLINDER
MAY BE OPENED MANUALLY



Viton seat is standard to provide compatibility with "no lead" gasolines and many chemicals. The actuating cylinder is totally separate from the valve eliminating the possibility of product entering the air system from the emergency valve.

The air cylinder is hard-coated aluminum. A polished stainless steel, shaft is standard. Buna "N" self-sealing "U" cups are used on main seal. Buna "N" O-ring, wiper scraper seal and boot are provided for shaft seal and protection. The breather passage is filtered. All cylinders come with fusible plug installed.

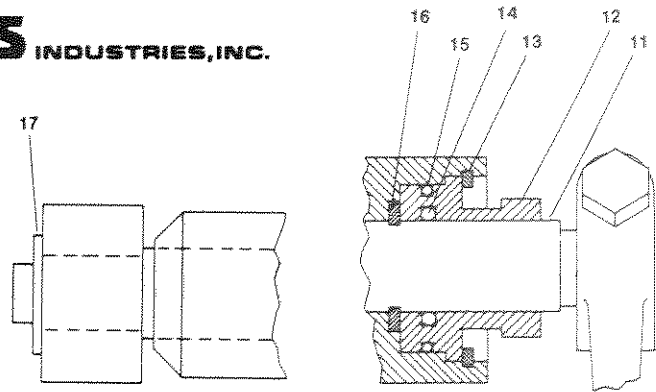
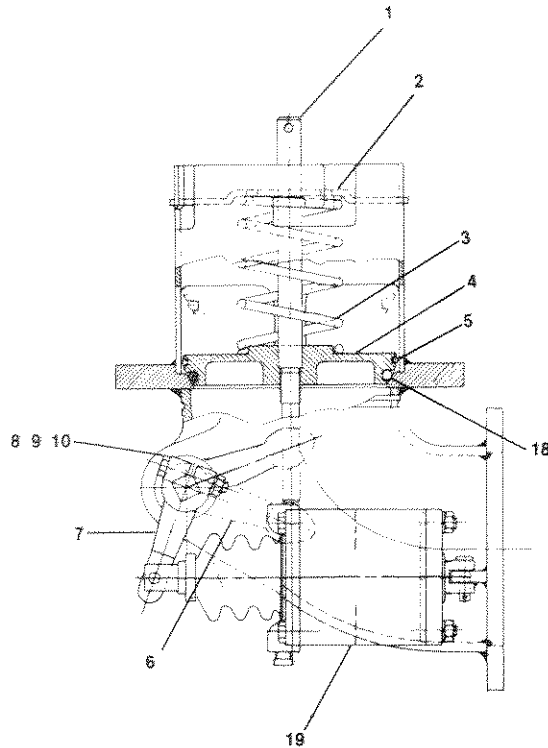
The actuating cylinder is easily removed for servicing or for manual operation of the valve if there is an air system failure. It has a 1/8 pipe thread for air connection.

Size	Assembly No.	Wt.	Outlet	Dimensions		Inlet Flange		Outlet Flange	
				A	B	BC	Holes	BC	Holes
3	EV46152ALV	9.7	Flanged	3½	4½	6¼	6⅞	4⅞	8⅞
	EV46169ALV		Grooved	3½	6⅞	6¼	6⅞		
4	EV46146ALV	12.0	Flanged	4⅞	5	7¼	8⅞	5⅞	8⅞
	EV46168ALV		Grooved	4⅞	6¼	7¼	8⅞		
4½	EV46145ALV	12.2	Grooved	4⅞	6¼	7¼	8⅞		

Betts INDUSTRIES, INC.

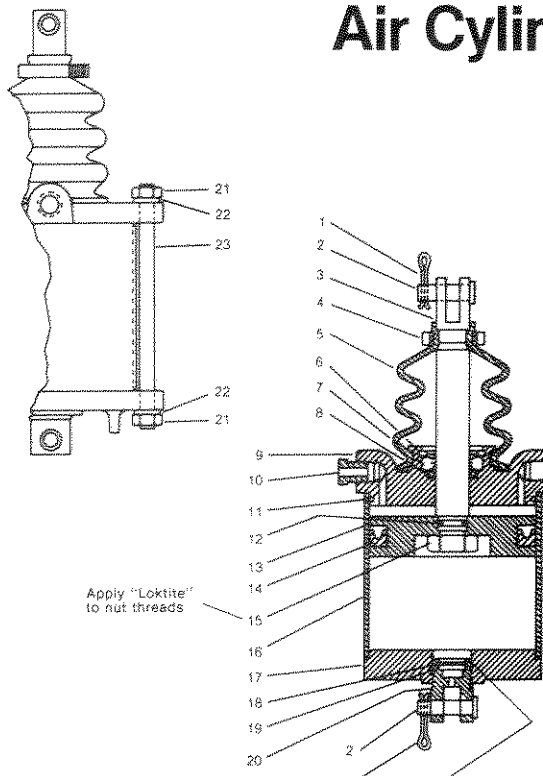
Emergency Valve

PARTS LIST



No.	Description	Material	3" Valve	4" Valve
			Part No.	Part No.
1	Stem	Stnls.	EV26886SS	EV26886SS
2	Bonnet	Stnls.	EV18281SS	EV26870SS
3	Spring	Stnls.	EV18222SS	EV18222SS
4	O-Ring Holder	Aluminum	EV18248AL	EV18216AL
5	O-Ring	Teflon	EV18283TE	EV18255TE
6	Cam Lever	Stnls.	EV15086SS	EV17867SS
7	Cylinder Lever	Malleable Iron	EV18114CP	EV17969MA
8	Bolt	Steel Cd. Plt.	EV18070CP	EV18070CP
9	Nut	Steel Cd. Plt.	EV18071CP	EV18071CP
10	Lock Washer	Steel Cd. Plt.	EV18072CP	EV18072CP
11	Shaft	Stnls.	EV17820SS	EV17820SS
12	Gland	Aluminum	EV17821AL	EV17821AL
13	Gland Retainer	Steel Cd. Plt.	EV17941CP	EV17941CP
14	O-Ring Shaft	Viton	EV17946VT	EV17946VT
15	O-Ring Gland	Viton	EV17945VT	EV17945VT
16	Shaft Retainer	Steel Cd. Plt.	EV17942CP	EV17942CP
17	Retaining Ring Cam	Stnls.	EV17943SS	EV17943SS
18	O-Ring Seat	Viton	EV17890VT	EV18208VT
19	Air Cylinder Assembly	Alum., Stnls.	AC35005AL	AC35005AL

Air Cylinder PARTS LIST



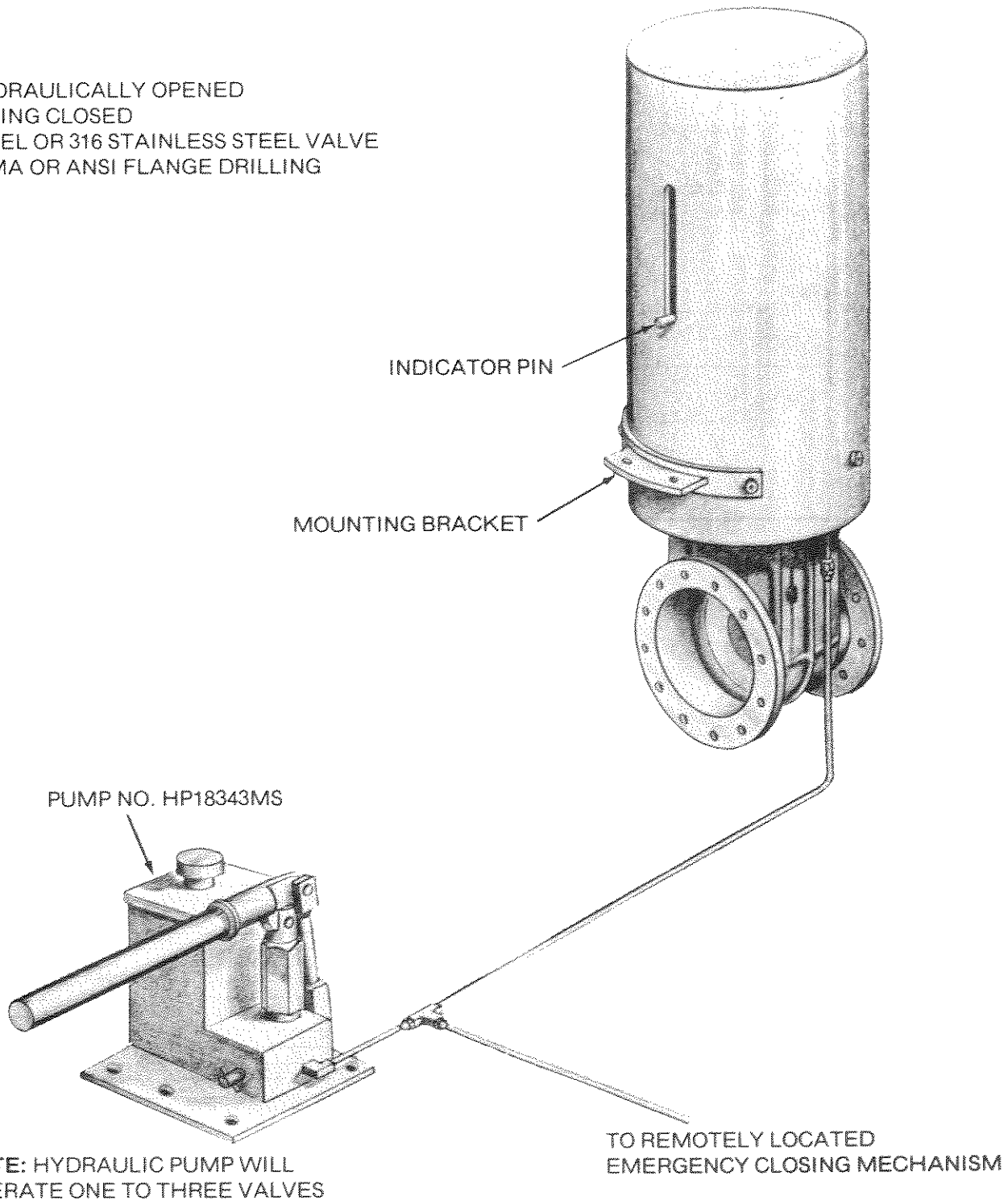
Description		Material	Wt.	Assembly Number
Air Cylinder		Aluminum	2.6	AC35005 ALB
No.	Req.	Description	Material	Part No.
1	2	Cotter Pin	Brass	AC18045 BR
2	2	Clevis Pin	Steel Cd. Plt.	AC16335 CP
3	1	Shaft	Stnls. 304	AC17661 SL
4	1	Boot Retainer	Delrin	AC17952 DL
5	1	Boot	Neoprene	AC17777 NE
6	1	Retaining Ring	Steel-Zinc Plt.	AC18044 ZP
7	1	Wiper Scraper Seal	Steel-Cd. Plt.	AC17657 CP
8	1	Shaft Seal	Buna-N	AC18066 BN
9	1	End Plate	Aluminum	AC17880 AL
10	1	Fusible Plug	Brass	AC15003 BR
11	1	O-Ring — End Plate	Buna-N	AC17666 BN
12	1	O-Ring — Shaft	Buna-N	AC17751 BN
13	1	Piston	Aluminum	AC17660 AL
14	1	Piston Seal	Buna-N	AC17669 BN
15	1	Hex Half Nut	Steel Cd. Plt.	AC18048 CP
16	1	Cylinder	Alum. Hard-coated Id.	AC17658 AL
17	1	Mounting End Plate	Aluminum	AC17881 AL
18	1	Retaining Ring	Steel-Zinc Plt.	AC17670 ZP
19	1	Breather Filter	Wool Felt	AC17796 WF
20	1	Clevis	Steel Cd. Plt.	AC17665 CP
21	8	Nut	Steel Cd. Plt.	AC18047 CP
22	8	Lock Washer	Steel Cd. Plt.	AC18048 CP
23	4	Tie Rod	Steel Cd. Plt.	AC17664 CP

REPAIR KIT NO. AC18674BN (Includes Item No.'s 4, 5, 6, 7, 8, 11, 12, 14, 18, 19)

When assembling:
Apply "Lubriplate" grease to these threads.

Betts INDUSTRIES, INC.**SCHEMATIC****HYDRAULIC SLIDING VALVE**

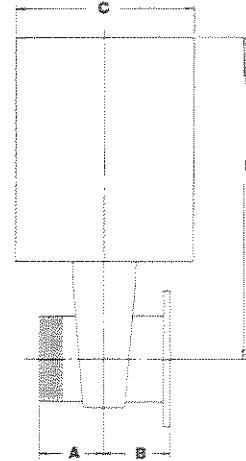
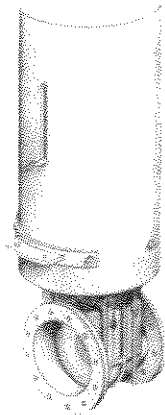
HYDRAULICALLY OPENED
SPRING CLOSED
STEEL OR 316 STAINLESS STEEL VALVE
TTMA OR ANSI FLANGE DRILLING



Betts INDUSTRIES, INC.

Sliding Valve

HYDRAULIC
OPERATED



TTMA DRILLING

ANSI DRILLING

Size	Material	Flange x Flange		Flange x Thread		Flange x Flange		Flange x Thread	
		Wt.	Assembly No.	Wt.	Assembly No.	Wt.	Assembly No.	Wt.	Assembly No.
4"	Steel	73#	SV46206MSM	72.5#	SV46214MSM	75#	SV46235MSM	74.5#	SV46219MSM
	Stnls 316		SV46206SSM		SV46214SSM		SV46235SSM		SV46219SSM
6"	Steel	91#	SV46207MSM	88.5#	SV46215MSM	92.5#	SV46233MSM	90#	SV46220MSM
	Stnls 316		SV46207SSM		SV46215SSM		SV46233SSM		SV46220SSM

Also Available: Sump X Flange

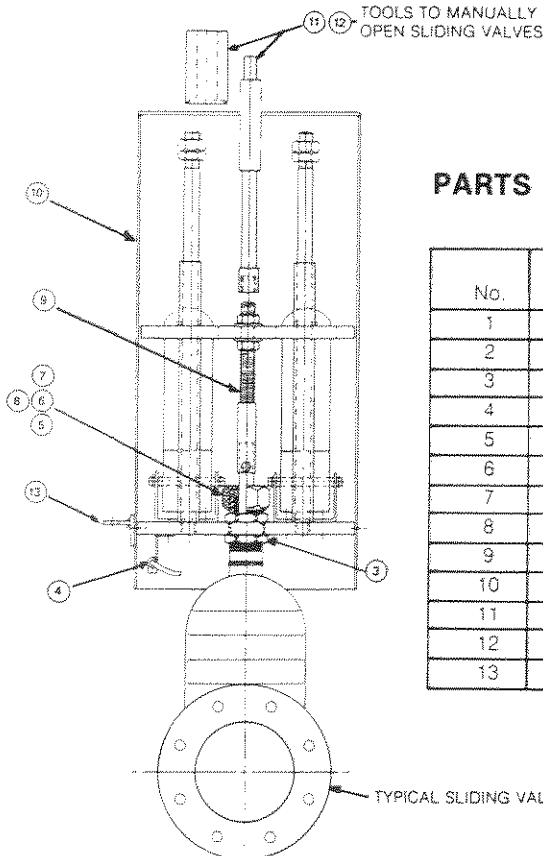
Hydraulic Pump - Operates One to Three Valves	19#	HP18343MS
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DIMENSIONS

Size	A	B	C	D	TTMA FLANGE				ANSI FLANGE*				Maximum Working Pressure
					OD	BC	Holes	Thick	OD	BC	Holes	Thick	
4"	3 $\frac{5}{16}$	2 $\frac{5}{8}$ *	9 $\frac{3}{8}$	24 $\frac{5}{8}$	7 $\frac{1}{8}$	5 $\frac{7}{8}$	8-7/16	3/8	9	7 $\frac{1}{2}$	8-3/4	1/2	75 PSI
6"	6 $\frac{1}{8}$	4	9 $\frac{3}{8}$	27 $\frac{7}{8}$	9 $\frac{3}{8}$	8 $\frac{1}{8}$	12-7/16	3/8	11	9 $\frac{1}{2}$	8-7/8	1/2	50 PSI

* ANSI DIMENSION 3 $\frac{1}{2}$ "

* Drilling Dimensions Only



PARTS LIST

No.	Description	Req.	Material	3 & 4" Valve	
				Part No.	Part No.
1	Cylinder Assembly	2	Steel	SV18668MS	SV18656MS
2	Cylinder Support Asmb	2	Steel	SV18398MS	SV18418MS
3	Jam Nut - Stuff Box	2	Stnls 304	SV18384SL	SV18384SL
4	Bracket & "T" Asmb	1	Steel	SV18628MS	SV18628MS
5	Bottom Gland	1	Stnls 316	SV15076SS	SV15076SS
6	Packing	Set	Non-Asb/Tef	SV15227NT	SV15227NT
7	Top Gland	1	Stnls 316	SV15220SS	SV15220SS
8	Stuffing Box Nut	1	Stnls 304	SV15026SL	SV15026SL
9	Shaft Connector	1	Steel	SV18633MS	SV18633MS
10	Can Assembly	1	Steel	SV35081MS	SV35078MS
11	Nut-Manual Open Tool	1	Aluminum	SV18638AL	SV18638AL
12	Shaft-Manual Open Tool	1	Brass	SV27085BR	SV27085BR
13	Mounting Bracket	1	Steel	SV26995MS	SV26995MS

COMPLETE DRAINAGE
OPENS INTO TANK
SIMPLIFIED DESIGN
OUTSIDE SCREW & YOKE

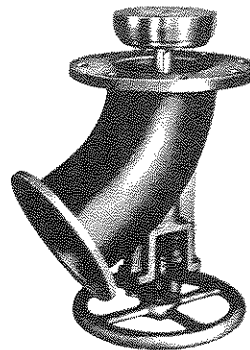
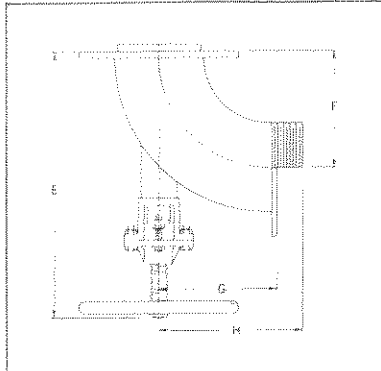
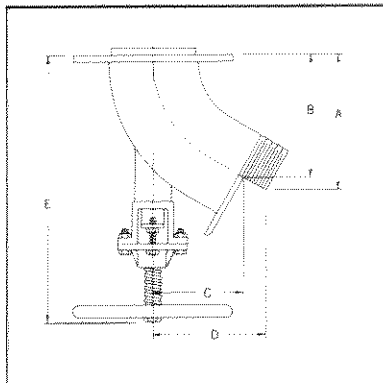
Betts INDUSTRIES, INC. Flush Valve

NOTE:

This valve must be mounted in a vertical position. If mounted in a horizontal position, valve may not seat properly!

The Betts FLUSH VALVE is designed to handle heavy, viscous material. Fabricated design provides greater strength with less weight, full direct flow, complete drainage and replaceable parts. The outside screw and yoke keeps threads free of product, maintaining smooth operation.

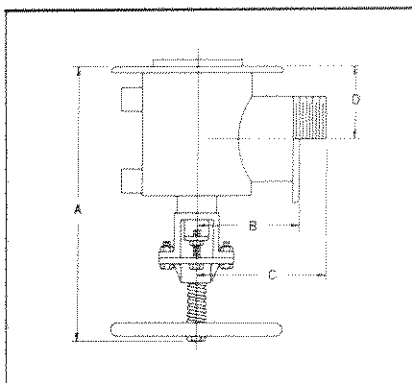
TEMPERATURE RATING: Aluminum valve 375° F. max., Steel or Stainless 500° F. max.



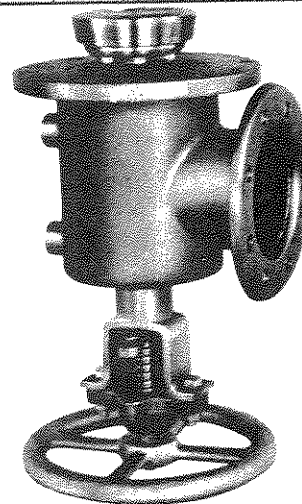
STANDARD VALVE

Dimensions

Size	A	B	C	D	E	F	G	H	Flange-Inlet				Flange-Outlet				Thrd.-Outlet
									I.D.	O.D.	B.C.	Holes	I.D.	O.D.	B.C.	Holes	Pipe Size
3"	6 1/4	5 3/8	4	5 1/8	11 1/2	5	4 1/8	6 1/8	3 3/8	7 1/4	6 1/4	6 - 3/16	3 17/32	6 1/8	4 7/8	8 - 3/16	3"
4"	8	6 1/8	5 3/8	7 1/8	13	6 1/2	6 1/8	8 1/8	4 3/8	8 1/4	7 1/4	8 - 3/16	4 17/32	7 1/8	5 7/8	8 - 3/16	4"
6"	—	9 3/8	6 3/4	—	18 1/4	9 1/2	9 1/8	—	6 1/8	10 1/4	9 1/4	12 - 3/16	6 1/8	9	8 1/8	12 - 3/16	—



OUTSIDE SCREW & YOKE
OPENS INTO TANK
VERSATILE



STEAM JACKETED VALVE

Dimensions

Size	A	B	C	D	Flange-Inlet				Flange-Outlet				Thrd.-Outlet
					I.D.	O.D.	B.C.	Holes	I.D.	O.D.	B.C.	Holes	Pipe Size
3"	13 3/4	4 1/2	5 3/4	3 1/2	3 3/8	7 1/4	6 1/4	6 - 3/16	3 17/32	6 1/8	4 7/8	8 - 3/16	3"
4"	13 3/4	5	6 1/2	4 3/8	4 3/8	8 1/4	7 1/4	8 - 3/16	4 17/32	7 1/8	5 7/8	8 - 3/16	4"

ASA STYLE

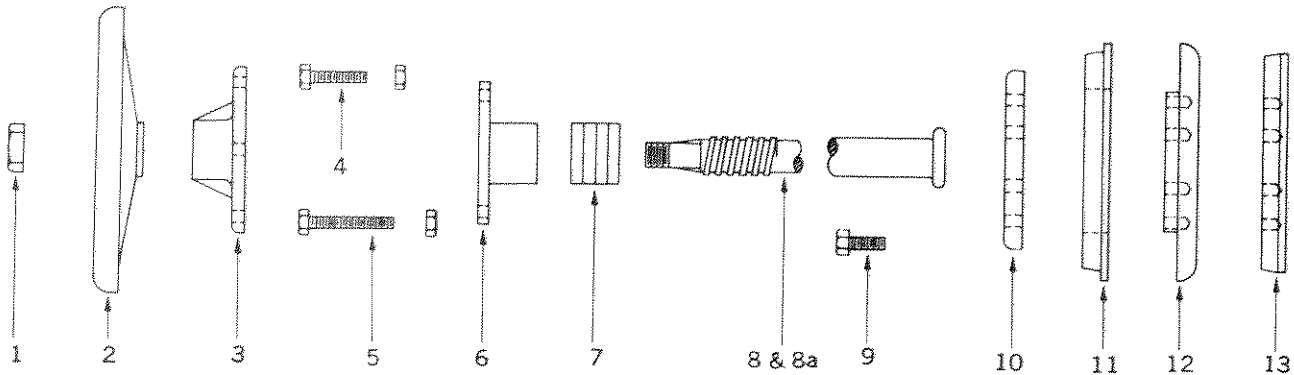
Dimensions

Size	A	B	C	D	E	F	G	H	Flange-Inlet				Flange-Outlet				Thrd.-Outlet
									I.D.	O.D.	B.C.	Holes	I.D.	O.D.	B.C.	Holes	Pipe Size
3"	6 1/2	5 1/8	4 1/8	6"	11 1/2	5	5	6 1/2	3 3/8	9	7 1/2	8 - 3/4	3 17/32	7 1/2	6	4 - 3/4	3"
4"	8	8 1/2	7 1/4	7 1/8	14	6 1/8	6 1/8	8 1/8	4 3/8	11	9 1/2	8 - 7/8	4 17/32	9	7 1/2	8 - 3/4	4"
6"	—	10 7/8	8 3/8	—	18 1/4	9 1/2	9 1/4	—	6 1/8	13 1/2	11 1/4	8 - 7/8	6 1/8	11	9 1/2	8 - 7/8	—

Betts INDUSTRIES, INC.

Flush Valve

PARTS LIST



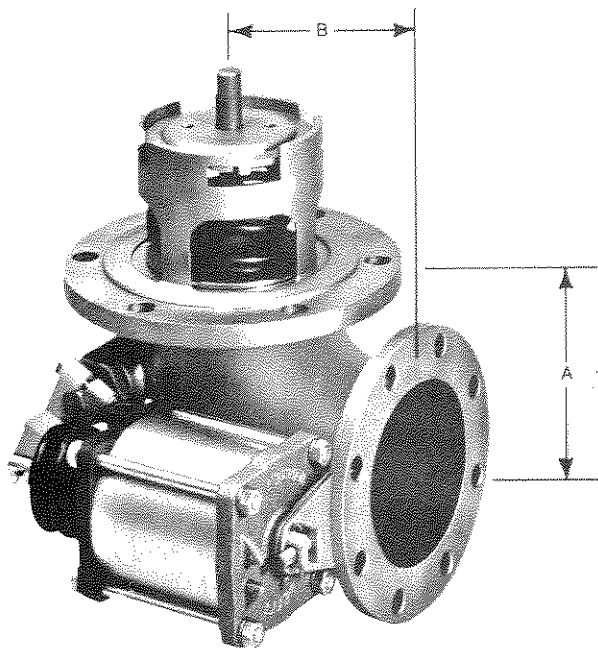
Parts List

No.	Description	Size	Material	Part No.
1	Hex Half Nut	3" & 4"	Cd. Plt. Steel	FV15160 CP
		6"	Cd. Plt. Steel	FV16771 CP
2	Handwheel	3" & 4"	Alum.	FV26604 AL
		6"	Alum.	FV26605 AL
3	Nut	3" & 4"	Cast Iron	FV25468 CI
		6"	Bronze	FV25669 BR
4	Cap Screw, Nut & Washer (Set of 2)	3" & 4"	Cd. Plt. Steel	FV15657 CP
		6"	Stnls. 304	FV15657 SL
			Cd. Plt. Steel	FV16768 CP
			Stnls. 304	FV16768 SL
5	Adjusting Screw & Nut (Set of 2)	3" & 4"	Steel	FV15658 MS
			Stnls. 304	FV15658 SL
		6"	Steel	FV16756 MS
			Stnls. 304	FV16756 SL
6	Packing Gland	3" & 4"	Stnls. 304	FV15503 SL
		6"	Steel	FV16754 MS
			Stnls. 316	FV16754 SS
7	Packing	3" & 4"	Asbestos	FV15655 AS
			Teflon/Asb.	FV15655 AT
		6"	Asbestos	FV16769 AS
			Teflon/Asb.	FV16769 AT
8	Stem Standard and ASA style	3"	Steel	FV25469 MS
			Stnls. 316	FV25469 SS
		4"	Steel	FV25470 MS
			Stnls. 316	FV25470 SS
		6"	Steel	FV26121 MS
			Stnls. 316	FV26121 SS
8a	Stem Steam Jacketed style	3"	Steel	FV25470 MS
			Stnls. 316	FV25470 SS
		4"	Steel	FV25732 MS
			Stnls. 316	FV25732 SS

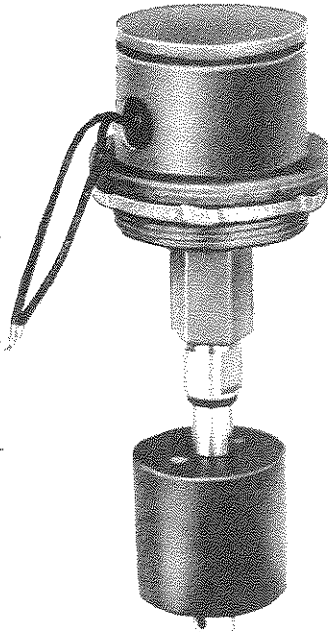
No.	Description	Size	Material	Part No.
9	Cap Screw (Set of 6)	3", 4" & 6"	Cd. Plt. Steel	FV15659 CP
			Stnls. 316	FV15659 SS
10	Retainer Plate	3"	Steel	FV15605 MS
			Stnls. 316	FV15605 SS
		4"	Steel	FV15626 MS
			Stnls. 316	FV15626 SS
		6"	Steel	FV16755 MS
			Stnls. 316	FV16755 SS
11	Disc	3"	Buna-N	FV16657 BN
			Non-Asbestos	FV16657 NA
			Viton	FV16657 VT
			Teflon	FV16657 TF
		4"	Buna-N	FV16583 BN
			Non-Asbestos	FV16583 NA
			Viton	FV16583 VT
			Teflon	FV16583 TF
		6"	Buna-N	FV16752 BN
			Asbestos	FV16752 AS
			Viton	FV16752 VT
			Teflon	FV16752 TF
12	Disc Holder	3"	Steel	FV15604 MS
			Stnls. 316	FV15604 SS
		4"	Steel	FV15625 MS
			Stnls. 316	FV15625 SS
		6"	Steel	FV26120 MS
			Stnls. 316	FV26120 SS
13	Metal Disc	3"	Steel	FV16612 MS
			Stnls. 316	FV16612 SS
		4"	Steel	FV16613 MS
			Stnls. 316	FV16613 SS
		6"	Steel	FV16670 MS
			Stnls. 316	FV16670 SS

Betts INDUSTRIES, INC.

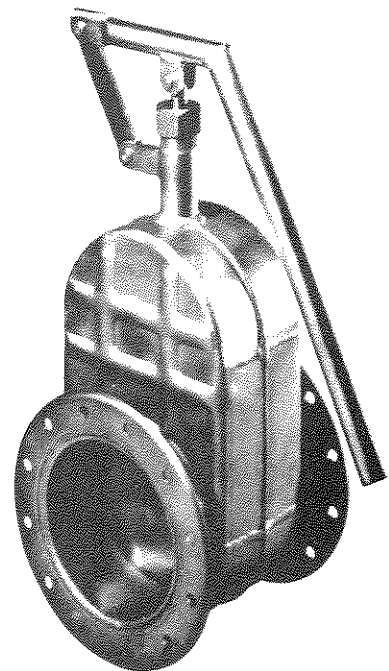
**Stainless Steel
Emergency Valve**



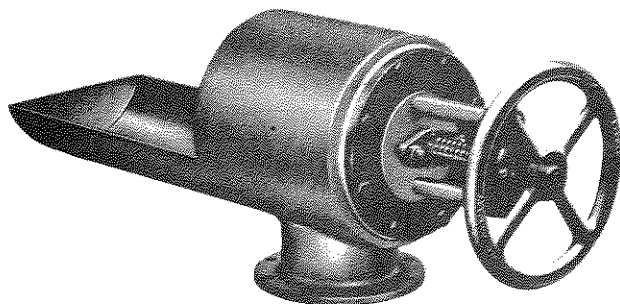
**Liquid
Level
Switch**



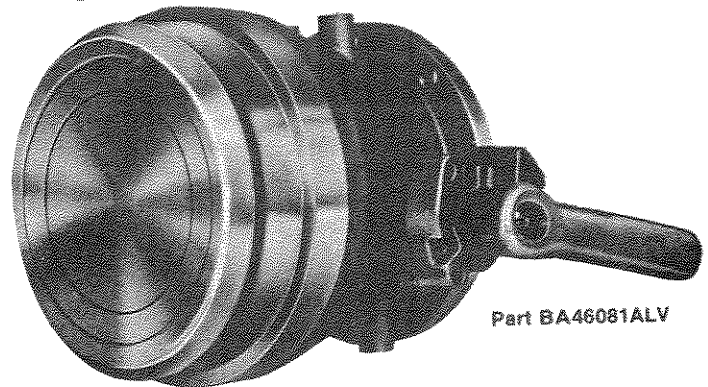
**Sliding
Valve**
3", 4", & 6" VALVE



Rear Head Valve

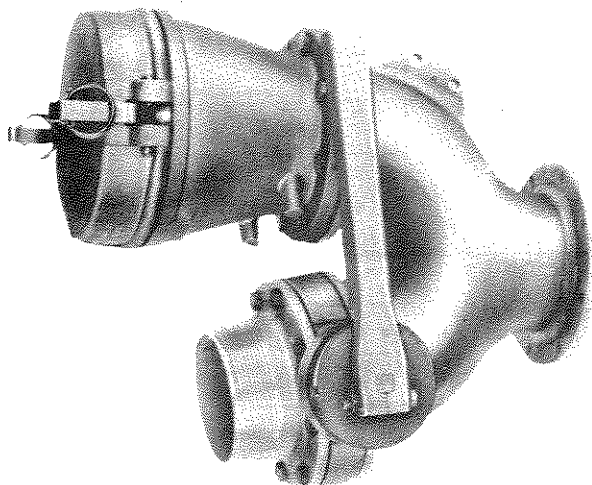


Openable Adapter

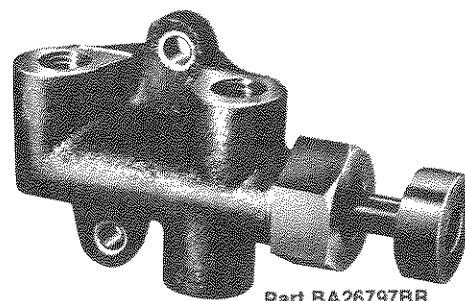


Part BA46081ALV

Y Adapter Valve



Air Valve

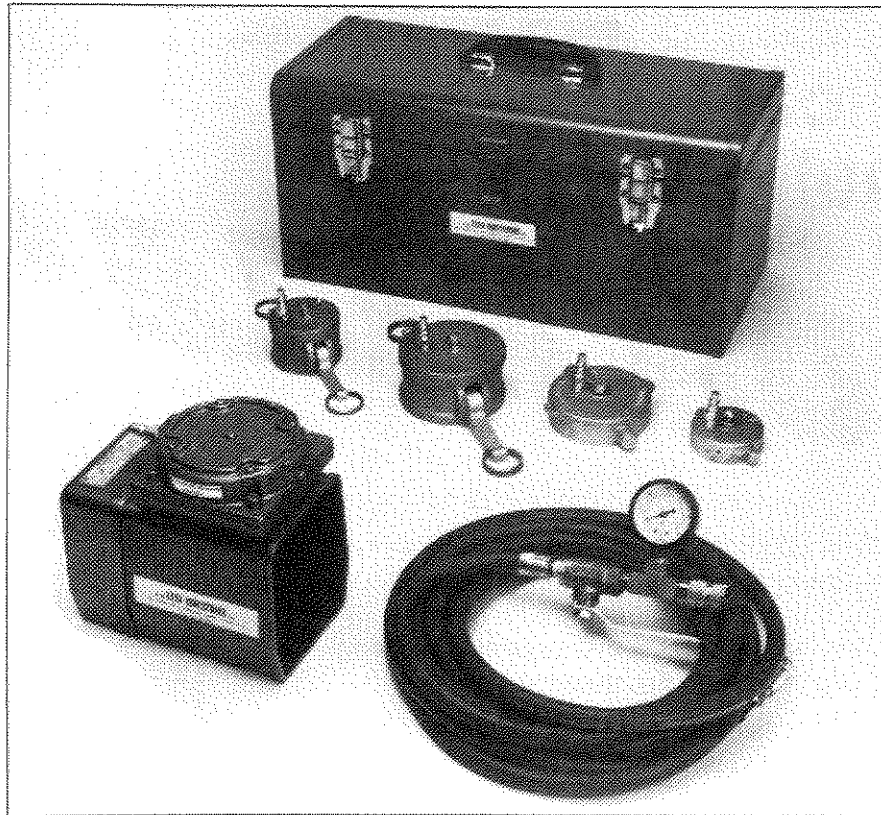


Part BA26797BR

For Further Information, Please Call.

E. H. LYNN INDUSTRIES Inc.

LN-100 VACUUM TEST KIT

**Internal/External Valve Vacuum Test Kit**

Low Cost - Vacuum test for mechanical emergency and hydraulic internal valves, also external outlet valves.

Prevent - "Refusal to Load" situations.

Inspect - Test - Correct - your units before they leave the terminal.

Remember - "No Loads" are Costly.

The testing of Internal and External Valving has become more prevalent as loading facilities realize their liability regarding D O T Regulations. Now, an economical way of assuring your Tank Trailer will pass valve inspection prior to loading, thus eliminating needless costs and embarrassment. Combine the LN-100 VACUUM TEST KIT with new Teflon®/Kalrez® - Internal Valve Discs, also available through E. H. Lynn Industries, and reduce yearly maintenance costs.

LN100-C VACUUM TEST KIT COMPLETE W/Compressor, Hose Assy's, Vlv's Test Caps, Wrench, Case.

Note: Reduce list price by customizing kits. Use only all test caps, spanner wrench and case if required.

LN-201	Diaphragm Vacuum Pump, 1/8 HP, 115 Volts, 60HZ, 1-Phase.
LN-202	Coupler Plug - 1/4" MPT.
LN-203	Hose Assembly - 15 ft. - 1/4" MPT X Coupler Body.
LN-204	Brass Ball Valve - 1/4" MPT.
LN-205	Brass Hex Nipple - 1/4" MPT
LN-206	Brass Tee - 1/4" FPT.
LN-207	Vacuum Gauge, 2 1/4" Dia., 0-30hg, 1/4" BM.
LN-208	Sub P/N LN-209*
LN-209	Vacuum Whip Hose, 18" x 1/4 MPT.
LN-210	Test Cap 3" Coupler Cap w/plug.
LN-211	Test Cap 2" Coupler Cap w/plug.
LN-212	Test Cap 3" Pin Lug, FPT w/plug.
LN-213	Test Cap 2" Pin Lug, FPT w/plug.
LN-214	Universal Spanner Wrench.
LN-215	Carry Case

*Early 1986, item #LN-208 was discontinued and changed to #LN-209. Coupler would leak under vacuum causing false reading. Test caps were also changed to accept LN-209 at same time.

Betts®
BETTS INDUSTRIES, INC.

Chemical Hydraulic Valve

QUICK CLEAN

The new Betts Quick Clean Chemical Hydraulic Valve has been designed to provide positive product retention to meet today's exacting requirements for chemical transport. The valve features a quick removable spring housing for inspection and maintenance.

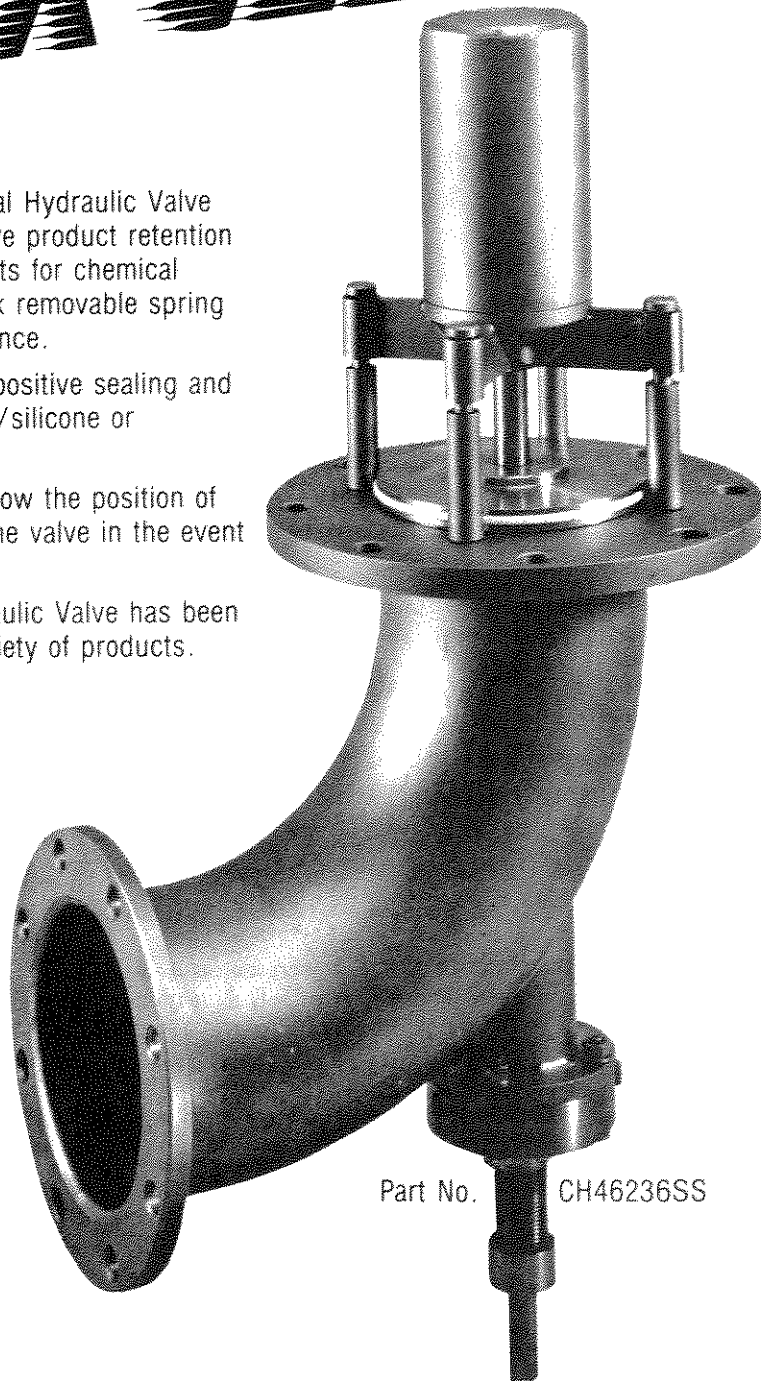
The seat is a resilient O-ring for positive sealing and is easily replaced. Available in PTFE/silicone or perfluoroelastomer.

An indicator pin is provided to show the position of the disc and may be used to open the valve in the event of a hydraulic system failure.

The new Betts Quick Clean Hydraulic Valve has been field tested for over 2 years in a variety of products.

Features

SHEAR SECTION PROVIDED
QUICK CLEANING
QUICK DISASSEMBLY
QUICK INSPECTION
O-RING SEAT
INDICATOR PIN



Part No. CH46236SS

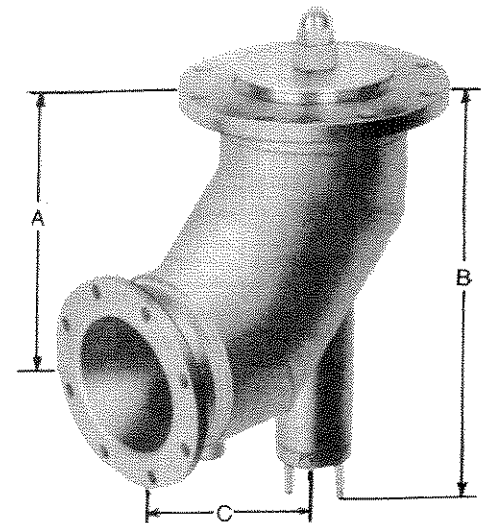
Betts INDUSTRIES, INC.

Chemical Hydraulic Valve

STEAM JACKETED VALVE

Size	Style Description	Material	Wt.	Assembly No.
4x4	90° Elbow	Stnls 304	35#	CH45616SLT
		Stnls 316		CH45616SST
4x4	45° Elbow	Stnls 304	34.5#	CH45633SLT
		Stnls 316		CH45633SST
4x3	90° Elbow	Stnls 304	30.4#	CH45618SLT
		Stnls 316		CH45618SST

NOTE: A flat mounting surface must be provided for valve seat flange. We recommend mounting pad No. MP16590SS. All steam connections: 1/2 I.P.S. No shear section provided—for regulated products, protection should be provided by suitable guards as specified in Dot 178.340-8 (d) (ii).



90° VALVE

Chemical Hydraulic Valve

designed for handling a variety of products

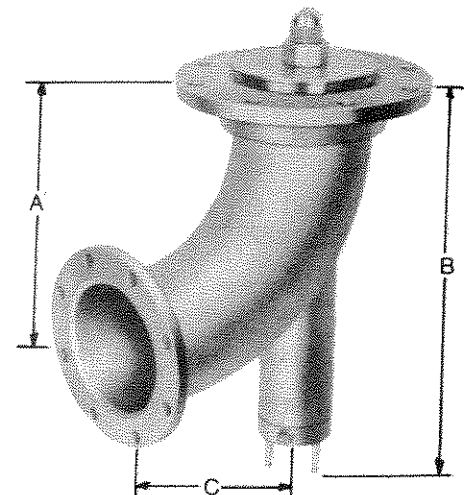
US Pat. No. 3,065,949 Patented 1962

STANDARD VALVE

VALVE DIMENSIONS

Size	A	B	C	D	E	Inlet Flange			Outlet Flange		
						O.D.	B.C.	N.H.	O.D.	B.C.	N.H.
4x4	7 5/8	14 1/2	7 7/8	11	7	8 1/4	7 1/4	8 9/16	6 5/8	5 7/8	8 7/16
4x3	4 3/4	14 1/2	4 1/2	None	None	8 1/4	7 1/4	8 9/16	5 5/8	4 7/8	8 7/16

Size	Style Description	Material	Wt.	Assembly No.
4x4	90° Elbow	Stnls 304	28#	CH45586SLT
		Stnls 316		CH45586SST
4x4	45° Elbow	Stnls 304	27.5#	CH45632SLT
		Stnls 316		CH45632SST
4x3	90° Elbow	Stnls 304	26.5#	CH45613SLT
		Stnls 316		CH45613SST

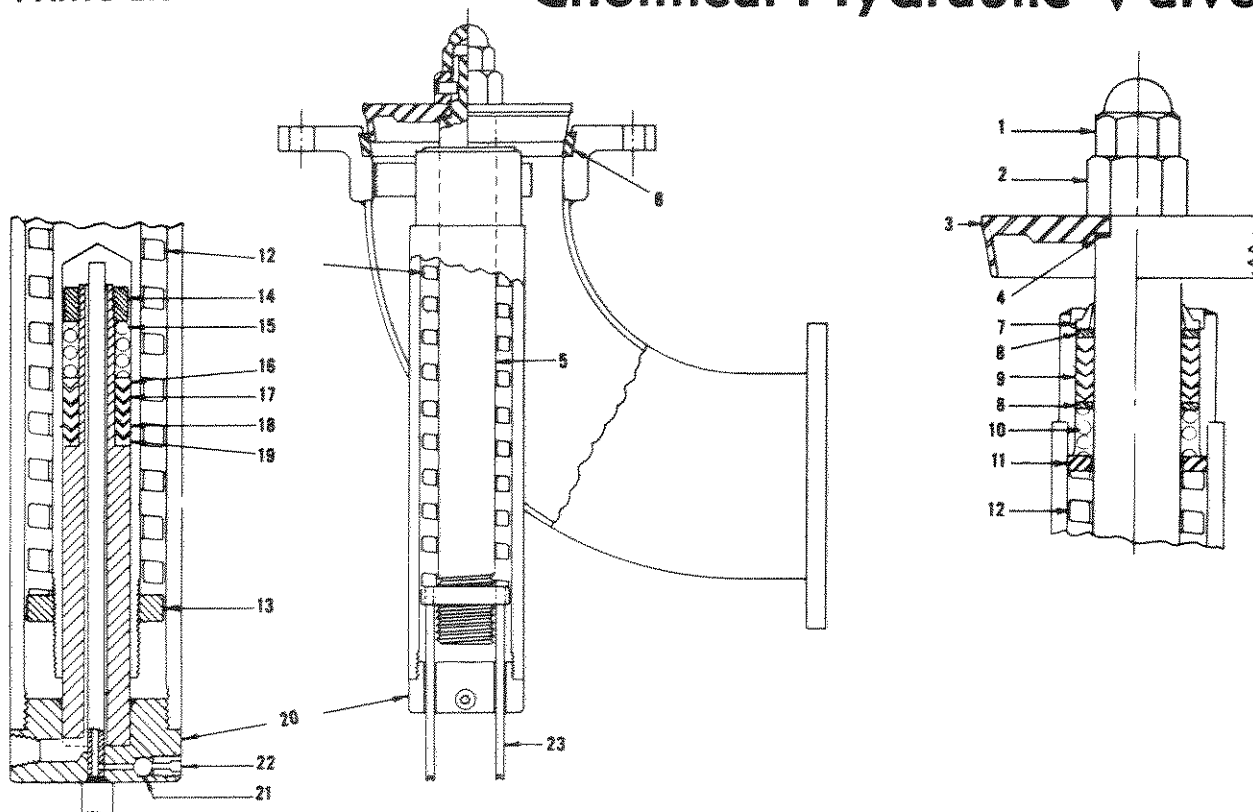


90° VALVE

Betts INDUSTRIES, INC.

PARTS LIST

Chemical Hydraulic Valve



No.	Description	Req.	Material	Part No.
1	Cap Nut	1	Stnls 316	CH16672SS
2	Cap Collar	1	Stnls 316	CH16671SS
3	Disc	1	Stnls 316	CH16743SS
4	Teflon Washer	1	Teflon	CH16690TF
5	Stem	1	Stnls 316	CH26068SS
6	Replaceable Seat *	1	Teflon	CH16644TF
7	Wiper	1	Teflon	CH15862TF
8	Follower Washer-Stuffing Box	2	Stnls 316	CH15685SS
9	Packing Rings-Stuffing Box	Set	Teflon	CH15759TF
10	Spring - Stuffing Box	1	Stnls 316	CH15593SS
11	Washer - Main Spring	1	Stnls 304	CH15684SL
12	Main Spring	1	Chr. Van	CH16273CP

No.	Description	Req.	Material	Part No.
13	Retainer Nut - Main Spring	1	Steel	CH15612MS
14	Retainer Nut - Piston	1	Stnls 304	CH15630SL
15	Spring - Piston	1	Stnls 316	CH15652SS
16	Male Adapter - Piston	1	Brass	CH15629BR
17	Separator Rings - Piston	4	Brass	CH15628BR
18	Packing & Rings - Piston	Set	Teflon	CH15634TF
19	Female Adapter - Piston	1	Brass	CH16732BR
20	Piston	1	Stnls 304	CH25757SL
21	Air Bleed Ball	1	Stnls 316	CH16220SS
22	Air Bleed Plug	1	Steel	CH16221MG
23	Indicator Pins	2	Stnls 304	CH16133SL
*	Complete Teflon Repair Kit			BM17828TF

ADDITIONAL SEATSTeflon w/TFE-SIL O-Ring
Part No. BM18227TFTSTeflon w/Kalrez O-Ring
Part No. LN-307

Solid Kalrez Seat Part No. LN-308

Solid Viton Part No. BM16644VT

MAINTENANCE INSTRUCTIONS

TO REPLACE TEFLON SEAT: See instructions sheet.

TO REPLACE DISC: Hold nut No. 2 and remove nut No. 1. The disc No. 3 can be removed. Care should be taken not to damage or lose teflon washer No. 4.

TO REPLACE STUFFING BOX PACKING: Disconnect hydraulic line. Remove indicator pins No. 23 and piston assembly No. 20. Use spanner wrench and remove nut No. 13. This nut loads the main spring and care should be taken in removing not to allow disc to turn and damage the seat. Hold nut No. 2 to prevent this. Remove main spring, washers, and stuffing box spring. Remove old packing and replace with a full set of new packing. (If packing has become solid due to solidification of product, it may be necessary to remove stem No. 5 to replace packing).

TO REPLACE PISTON PACKING: Disconnect hydraulic line. Remove indicator pins No. 23. The piston assembly No. 20 may then be removed and packing replaced. Use only full sets of packing for best results.

Betts INDUSTRIES, INC.

Instructions for replacing teflon seat in Chemical Hydraulic Valve with valve installed in tank.

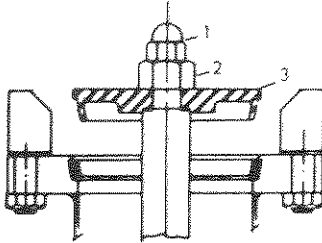


Fig. 1

1. Open valve as shown in Fig. 1. Remove nut #1 while holding nut #2 with wrench. This will prevent stem from turning. Next remove disc #3. A small teflon gasket is used between disc and stem. Do not damage or lose teflon gasket. Care should be taken when removing disc not to damage sealing surface.

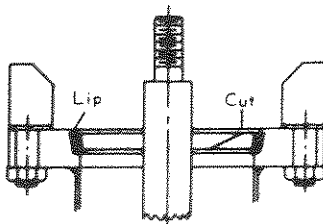


Fig. 2

2. Remove damaged teflon seat by cutting with a sharp knife or blade. Care must be taken not to damage tapered lip on seat flange. Clean groove of all foreign material.

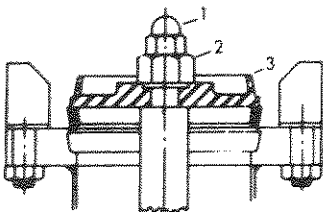


Fig. 3

3. Place new teflon seat in position shown in Fig. 3. (Teflon seat will start in tapered I.D.) Replace disc #3 in reverse position (upside down) and secure with nuts #1 and #2. Close valve to force teflon seat into proper position. The main spring will generally force teflon seat into position, if not, tap lightly on nut #1.

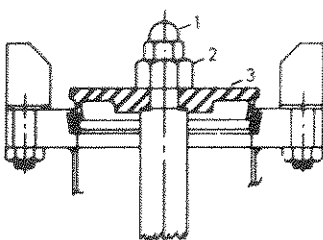
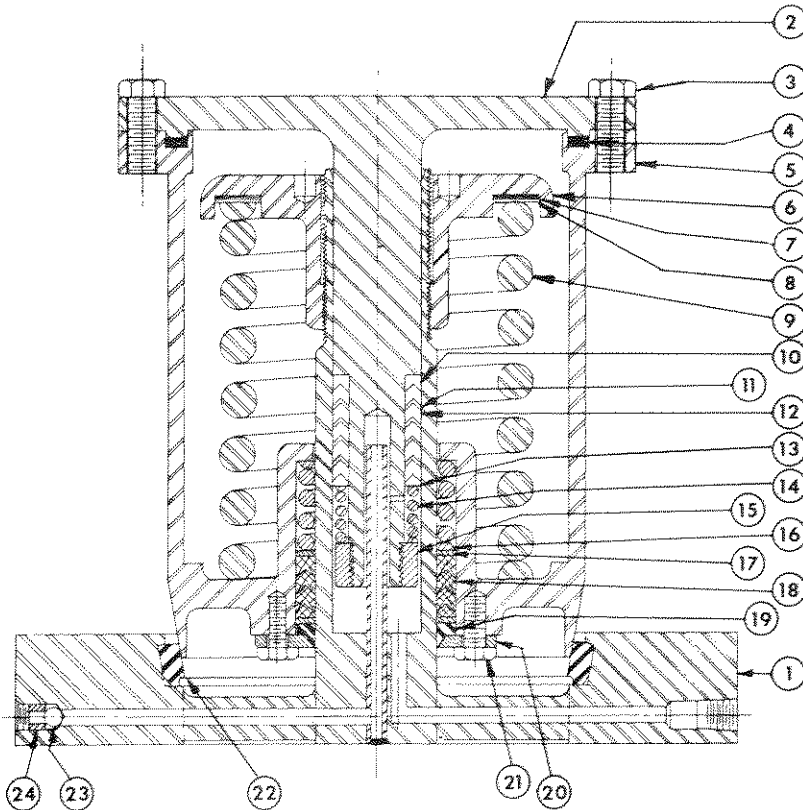


Fig. 4

4. Open valve and reverse disc #3 to its proper position. Be sure to replace teflon washer between stem and disc. Replace nuts #1 and #2. Open and close valve a number of times to insure valve is seating properly.

Betts INDUSTRIES, INC.

Chemical Hydraulic Valve

PARTS LIST**Parts List**

No.	Description	Req.	Material	Part No.
1	Seat Flange Assembly	1	Stnls 316	CH45653SS
2	Cover Assembly	1	Stnls 316	CH17294SS
3	Cap Screw	12	Stnls 316	CH17299SS
4	Gasket	1	Teflon	CH17295TF
5	Disc Assembly	1	Stnls 316	CH26433SS
6	Spring Retainer	1	Stnls 316	CH25887SS
7	Shim - Spring	1	Teflon	CH16867TF
8	Shim - Spring	1	Stnls.	CH16866SL
9	Main Spring	1	Stnls 316	CH16890SS
10	Female Adaptor - Piston	1	Stnls 304	CH16732SL
11	Separator Rings - Piston	4	Stnls 304	CH15628SL
12	Packing - Piston	Set	Teflon	CH15634TF

No.	Description	Req.	Material	Part No.
13	Male Adaptor - Piston	1	Stnls 304	CH15629SL
14	Spring - Piston	1	Stnls 316	CH15652SS
15	Retainer Nut - Piston	1	Stnls 304	CH15630SL
16	Spring - Stuffing Box	1	Stnls 316	CH15593SS
17	Washer - Stuffing Box	2	Stnls 316	CH15685SS
18	Packing - Stuffing Box	Set	Teflon	CH15759TF
19	Wiper - Stuffing Box	1	Teflon	CH15862TF
20	Retainer - Packing	1	Stnls 316	CH16833SS
21	Cap Screws	6	Stnls 316	CH16834SS
22	Teflon Seat *	1	Teflon	CH16644TF
23	Ball - Air Bleed	1	Steel	CH16220MS
24	Plug - Air Bleed	1	Stnls	CH16221SS

Installation Instructions

Install valve to a flat mounting surface. Connect hydraulic line to 1/8 NPT connection on O.D. of seat flange. Loosen bleeder plug # 24. Operate pump until all air is bled from system. Tighten bleeder plug. Check all connections for leaks. Refill pump reservoir.

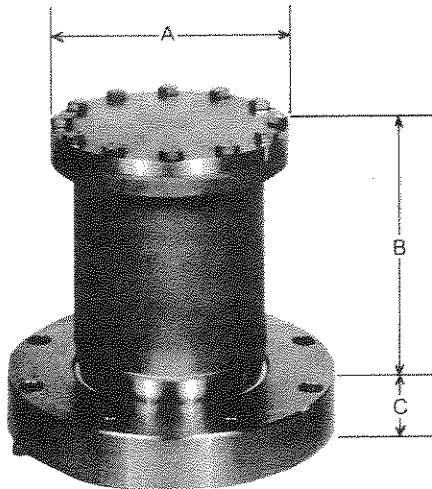
Maintenance Instruction

To Replace Teflon Seat: Loosen cap screws # 3 and remove cover assembly # 2. Spring retainer # 6 can now be unscrewed with spanner wrench to unload spring # 9. Valve is designed so spring will be unloaded before retainer is completely unscrewed from stem. Remove disc assembly # 5. DO NOT pry under sealing edge of disc assembly. It is recommended that a new set of packing # 18 be installed whenever valve is disassembled. If packing is not to be replaced care should be taken when removing disc assembly not to damage packing on threads of stem. If packing is to be replaced, remove cap screws and retainer # 20 and # 21. Install new set of packing and replace retainer and cap screws. Tighten cap screws only finger tight. Final tightening must be done after installing disc assembly onto stem. Use care not to damage packing on threads when replacing disc assembly. With disc assembly removed from stem, remove damaged teflon seat # 22 by cutting with a sharp knife or blade. Do not damage tapered lip on seat flange. Clean groove of all foreign material. Place new teflon seat into groove on one side and carefully force seat into groove using both thumbs. Seat will snap into groove when completely in place. Reassemble valve by reversing the above procedure. Check that valve opens and closes and seats properly before installing in tank.

* Complete Teflon Repair Kit Part No. BM 17827TF

Betts INDUSTRIES, INC.

Chemical Hydraulic Valve



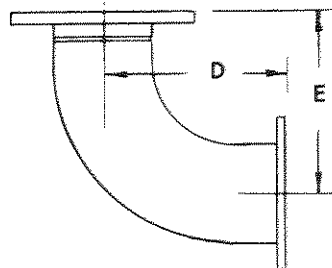
The Chemical Internal Hydraulic Valve is designed to be used for applications where a standard Chemical Hydraulic Valve would prove impracticable. Elbow supplied with shear section. A heavy mounting flange is provided to insure a flat surface for improved gasketing and positive seating of valve. Hydraulic connection (1/8" NPT) and air bleed are conveniently located on outside of mounting flange.

Internal Valve

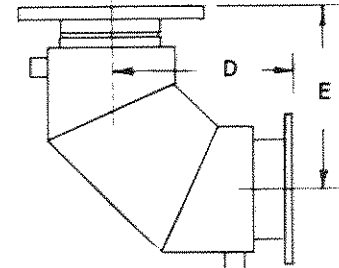
Valve and Elbow Dimensions

Size	A	B	C	D	E	Inlet Flange			Outlet Flange		
						O.D.	B.C.	N.H.	O.D.	B.C.	N.H.
4x4	5 1/2	6 1/4	1 1/4	8 1/4	8 1/4	8 1/4	7 1/4	8 - 9/16	6 1/4	5 1/8	8 - 7/16
4x3				4 1/2	4 3/4				5 1/8	4 1/8	8 - 7/16

Standard Elbow



Steam Jacketed Elbow



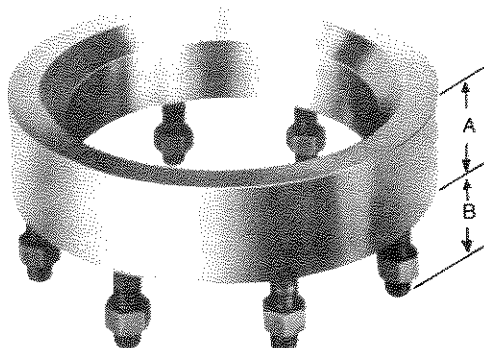
Steam Connections 1/2" NPT

Description	Material	Wt.	Assembly No.
Internal Hydraulic Valve	Stnls 316	31.0	CH45843SS

Size	Style Description	Material	Wt.	Part No.
4x4	90° Standard Elbow Assembly	Stnls 316	11.8	CH16859 SS
4x3		Stnls 316	9.4	CH26165 SS

4x4	90° Steam Jacketed Elbow Assembly	Stnls 316	20.0	CH16826 SS
4x3		Stnls 316	13.7	CH26166 SS

Mounting Pad



GASKET SURFACE HAS PHONOGRAPH FINISH

Mounting Pad

Dimensions

Size	A	B	O. D.	I. D.	B. C.	No. Studs	Size Studs
4"	1 3/4	1 7/16	8 1/4	6	7 1/4	8	1/2 x 13

Size	Description	Material	Wt.	Part No.
4"	Mounting Pad	Stls 316	10.9	16590-SS
		Alum.	4.5	16590-AL

Mounting Pad designed for Internal Hydraulic Valve

4"	Spec. Mtg. Pad	Stls 316	11.2	16914-SS
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Note: "B" dimension - 2%. Use with Valve Ch-45843-SS.

CH-45843-SS INTERNAL HYDRAULIC VALVE DISASSEMBLY AND REPAIR PROCEDURE

CAUTION: This valve could contain hazardous material.
Exercise caution when disassembling.

DISASSEMBLY

1. Remove 12 Cap Screws (Part 3) and remove Cover Assembly (Part 2) from valve. Photos 1 & 2.

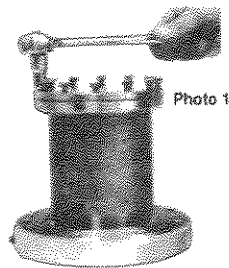
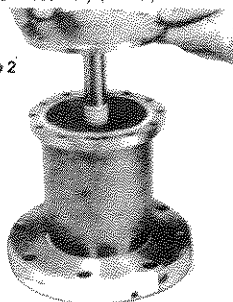


Photo 1

Photo 2



2. Remove Spring Retainer (Part 6) using a spanner type wrench. (BMCH16236MS). Then remove teflon Shim (Part 7), stainless steel Shim (Part 8) and Main Spring (Part 9). Photos 3 & 4.

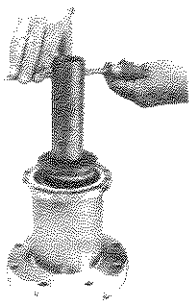


Photo 3

BMCH16236MS



Photo 4

Remove Disc Assembly (Part 5). Photo 5.



Disassemble Stuffing Box Packing by removing 6 Cap Screws (Part 21). Remove Retainer (Part 20), Wiper (Part 19), Washer (Part 17), Packing (Part 18), and stuffing Box Spring (Part 16). Photos 6 & 7.



Photo 6



Photo 7

Remove Gasket (Part 4). CAUTION: Do not use a tool that could damage groove sealing surface. Photo 8.

Disassemble cover and piston assembly by removing Retainer Nut (Part 15) from Cover Assembly (Part 2). Remove Spring (Part 14), Male Adapter (Part 13), Separator Rings and Packing (Parts 11 & 12) and Female Adapter (Part 10). Photos 9 & 10.



Photo 8

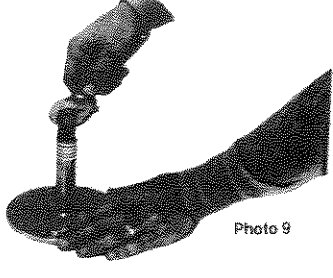


Photo 9

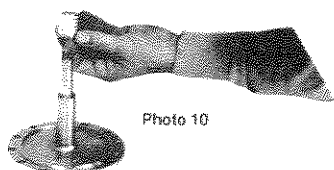


Photo 10

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Remove Teflon Seat (Part 22) by carefully following these instructions. Tap a sharp instrument gently into the teflon seat being certain the instrument is parallel with the cylinder. Pry teflon seat from its groove with caution so as to not score the seating area. Photo 11.

ASSEMBLY

Clean all parts and carefully inspect for damage or corrosion. Replace Disc Assembly (Part 5) if damaged. **Note:** Do not use emery paper or abrasives on parts. Insert new Gasket (Part 4) in Disc Assembly (Part 5). Be certain gasket lies flat in groove. Photo 12.

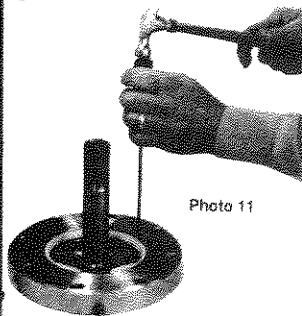


Photo 11



Photo 12

Place Disc Assembly (Part 5) on its flange and replace items in the following order.

1. Washer (Part 17)
2. Packing Set (Part 18)—female grooves facing up
3. Washer (Part 17)
4. Wiper (Part 19)—faces up and engages bevel of retainer
5. Retainer (Part 20)

Photo 13



Photo 13

Insert special alignment fixture into packing cavity to compress packing spring.

Insert (6) Cap Screws (Part 21) in holes in Retainer (Part 20) and screw into tapped holes in Disc Assembly (Part 5).

Remove Alignment fixture.

Tighten all screws. Photos 14 & 15.



Photo 14



Photo 15

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Insert new Teflon Seat (Part 22).

Groove must be clean, unpitted and unscored.

Place teflon seat on flange with the tapered edge down.

Insert teflon seat into groove at one side.

Work the teflon seal into the groove in a circular manner.

A plastic or rubber mallet may be used **with care** if difficulty installing seat is encountered. Photo 16.

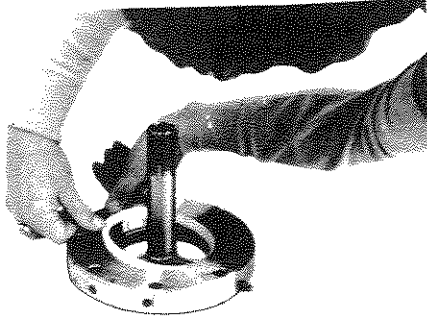


Photo 16

Install Disc Assembly (Part 5) onto Seat Flange Assembly (Part 1).

With a twisting motion push disc assembly down to Teflon Seat (Part 22).
CAUTION: Keep the disc assembly concentric with the piston or the packing could be damaged.

NOTE: Teflon tape may be wrapped around the threads of the seat flange cylinder to protect the packing. Remove all teflon tape after installation. Photo 17



Photo 17

Install Main Spring (Part 9), stainless steel Shim (Part 8), teflon Shim (Part 7).

NOTE: Stainless steel Shim must be against the Main Spring.

Install Spring Retainer (Part 6) after applying anti-seize compound to its threads. Photos 18 & 19.

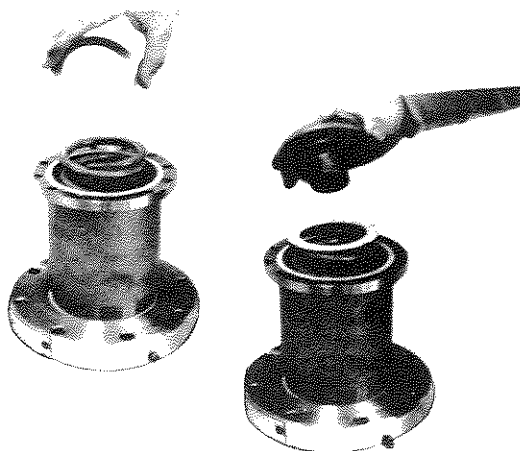


Photo 18

Photo 19

Tighten Spring Retainer (Part 6) using spanner type wrench until it is flush with the top of the Seat Flange Assembly Cylinder (Part 1).

Check concentricity between O.D. of spring retainer and disc assembly. Photos 20 & 21.

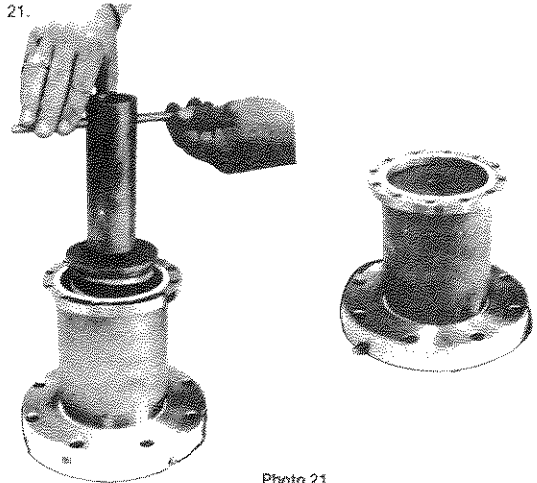


Photo 20

Photo 21

Assemble packing to Cover Assembly (Part 2) in the following order.

Stainless steel Female Adapter (Part 10)

Teflon Packing Set & Separator Rings (Parts 12 & 11)

Stainless steel Male Adapter (Part 13) Spring (Part 14)

Retainer Nut (Part 15)--tighten until it bottoms out

Photos 22 & 23

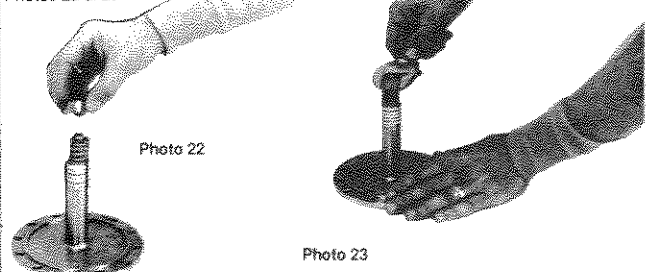


Photo 22

Photo 23

Install Cover Assembly (Part 2) in Seat Flange Assembly (Part 1).

Align bolt holes and install 12 Cap Screws (Part 3). Tighten screws to equal torque.

Photos 24 & 25

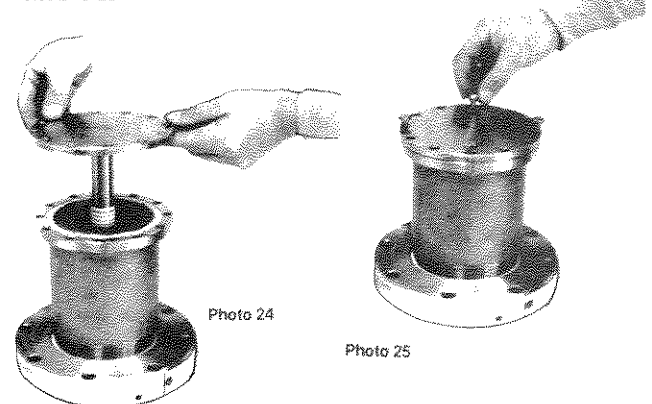


Photo 24

Photo 25

NOTE:

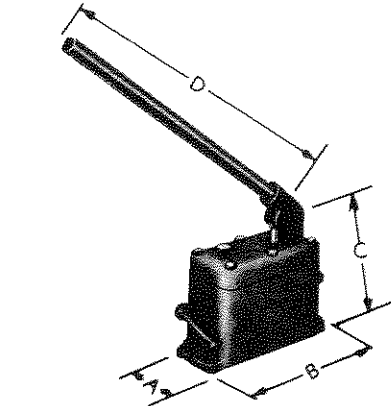
After assembly, strike the valve disc sharply with a plastic or rubber mallet.

This forces the teflon seat to conform to groove and the valve disc.

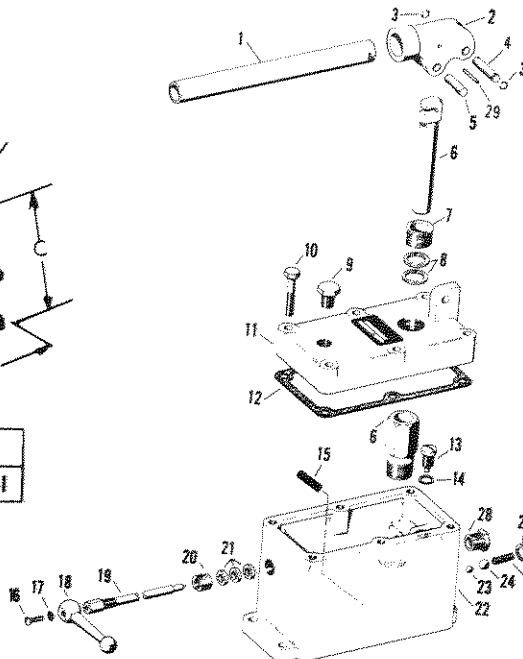
Betts INDUSTRIES, INC.

ACCESSORIES

Hydraulic Pump



Mat.	Wt.	Part No.
Steel	15	HP15864CI



DIMENSIONS

A	B	C	D
$3\frac{1}{16}$	$7\frac{7}{8}$	$6\frac{5}{16}$	$17\frac{3}{4}$

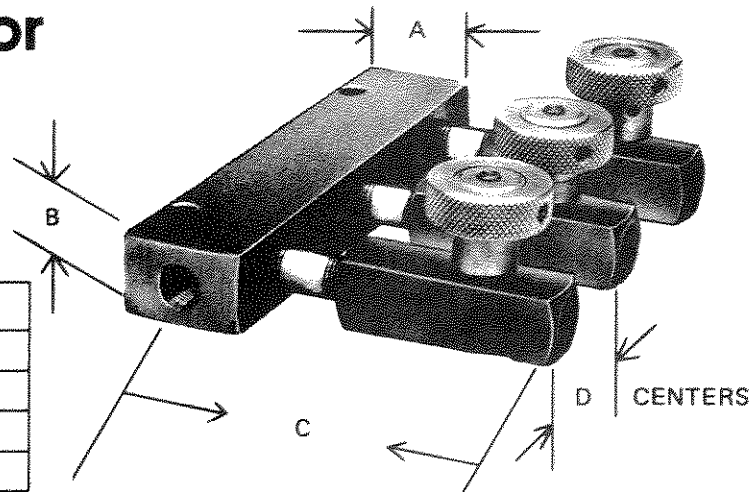
Item	Part No.	Hydraulic Pump Parts
1	HP18001	Handle
2	HP18002	Beam
3	HP18003	Snap Ring Clip
4	HP18004	Beam Pin
5	HP18005	Plunger Cross Pin
6	HP18006	Piston Assembly
7	HP18007	Packing Nut
8	HP18008	Packing
9	HP18009	Plug
10	HP18010	Hex Head Cap Screw
11	HP18011	Base Cover
12	HP18012	Gasket
13	HP18013	Relief Valve
14	HP18014	Gasket
15	HP18015	Screen
16	HP18016	Screw
17	HP18017	Washer
18	HP18018	Release Handle
19	HP18019	Relief Valve Assy.
20	HP18020	Packing Nut
21	HP18021	Packing
22	HP18022	NOT SERVICEABLE
23	HP18023	Ball
24	HP18024	Ball
25	HP18025	Spring
26	HP18026	Gasket
27	HP18027	Plug
28	HP18028	Plug
29	HP18029	Roll Pin
		HP16422 Release Valve Kit (16-21)
		HP16256 Seal & Gasket Kit (7, 8, 12, 14, 21 & 26)
		HP16257 Service Kit (3, 6, 8, 12, 21, 23-26)

Chemical Hydraulic Valve

INSTRUCTIONS FOR FILLING HYDRAULIC SYSTEM

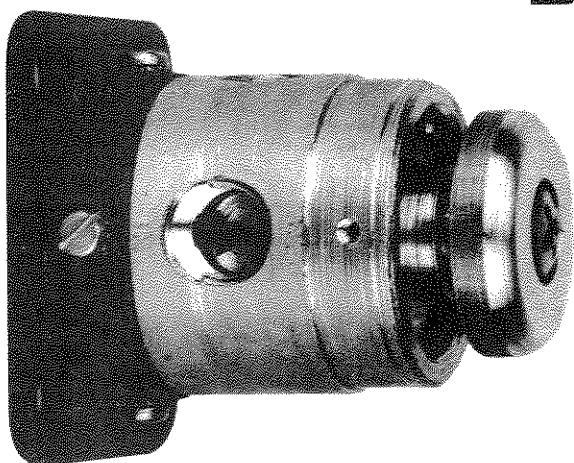
Fill the pump reservoir with hydraulic fluid (type 10W-30 motor oil). Loosen bleeder plug No. 22 (see parts page) and fusible-frangible plugs. Turn relief valve handle on pump clockwise and operate pump until all the air is bled. Tighten bleeder plug and fusible-frangible plugs. Operate pump until indicator pins No. 23 show valve is open. Check all connections for leaks. Refill pump reservoir to replace hydraulic fluid used to prime the system.

Hydraulic Distributor



Description	Wt.	Part No.
2 Compartment	1.8	CH16283 2MS
3 Compartment	2.7	CH16283 3MS
4 Compartment	3.6	CH16283 4MS
5 Compartment	4.5	CH16283 5MS
6 Compartment	5.4	CH16283 6MS

Master Control Valve



The Master Control Valve is a push button type on-off valve, spring loaded to the closed position. It is designed for use when the emergency valve air system is operated with air from the brake system.

Note: All connections 1/4 NPT

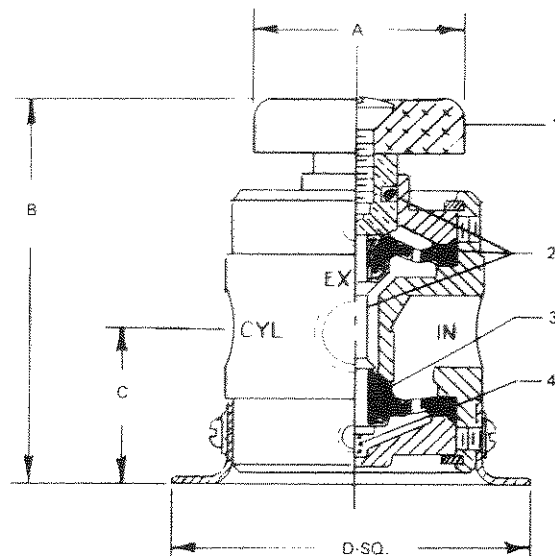
Description	Assembly No.
Master Control Valve	MC 16350 CP B

Parts List

No.	Description	Mat'l.	Part No.
1	Knob	Alum	16917 AL
2	Stem & Diaphragm	Brass	17379 BR
3	Perforated Diaphragm	Buna-N	17379 BN
4	Spring	Steel	17379 MS

Betts INDUSTRIES, INC.

Emergency Valve Accessories



Four 7/32 D. holes on 1-19/32 sq. centers

Pressure Range 0 to 125 PSI
 Temperature Range -20° to 225°F
 Air Flow (CFM to atmos.) Multi PSI by: 0.60

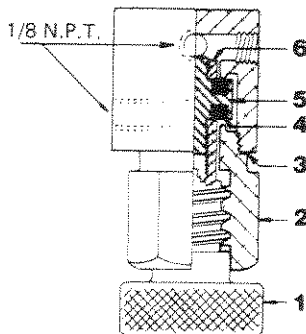
AIR VALVE ACCESSORIES AIR DISTRIBUTOR

QUICK-ACTING ¼ TURN
 EACH VALVE INDEPENDENT
 COMPOSITION DISCS

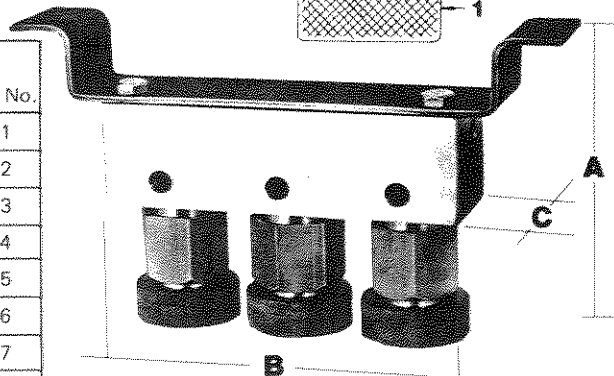
BETTS Air Distributors have quick-acting ¼ turn valves. Each valve operates independently and has long lasting composition discs. Mounting bracket furnished on all distributors.

PARTS LIST

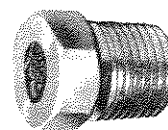
No.	Description	Part No.
1	Stem	AD15008AL
2	Upper Seat	AD15009AL
3	Gasket	AD15518FB
4	Comp Disc, Set of 2	AD15011BN
5	Disc Holder	AD15010AL
6	Nut	AD16868SL



No.	Comp.	Assembly No.
1		AD250111
2		AD250112
3		AD250113
4		AD250114
5		AD250115
6		AD250116
7		AD250117
8		AD250118



FUSIBLE PLUG

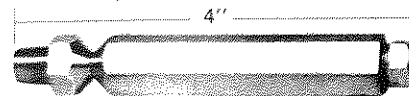


Assy. No. 15003BR
 Thawing 220-225°F

Thawing of a plug dumps air and closes all emergency valves and air operated vents.

FUSIBLE & FRANGIBLE PLUG

Assy. No. 15017BR

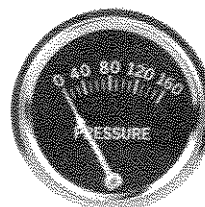


1/8" N.P.T.

Breaking of frangible device or thawing of plug dumps air and closes all emergency valves and air operated vents.

PRESSURE GAUGE

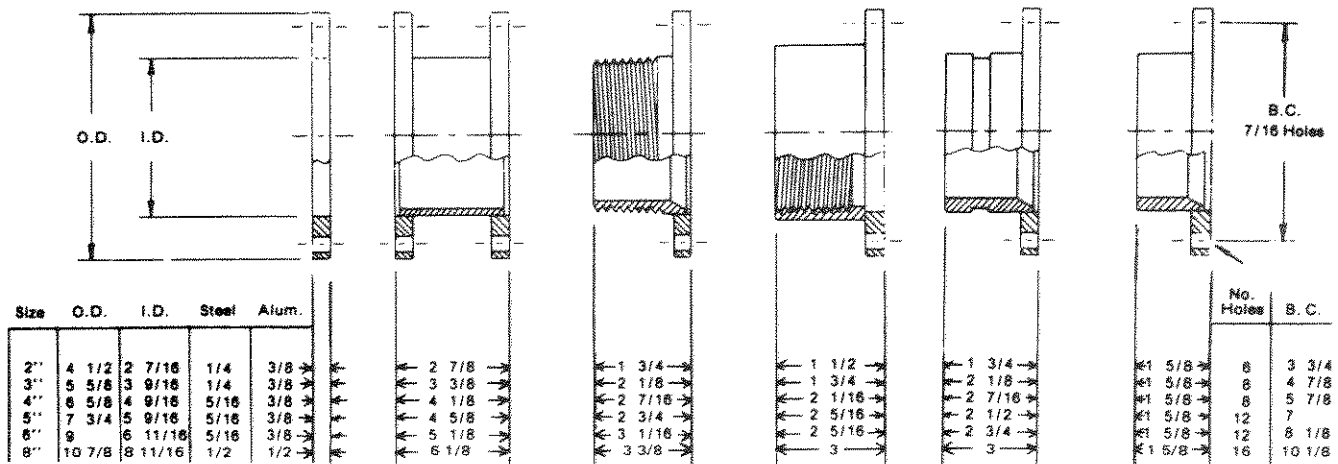
Assy. No. 16349MS



1/8" N.P.T. Fitting

Betts INDUSTRIES, INC.

SPACERS and ADAPTERS



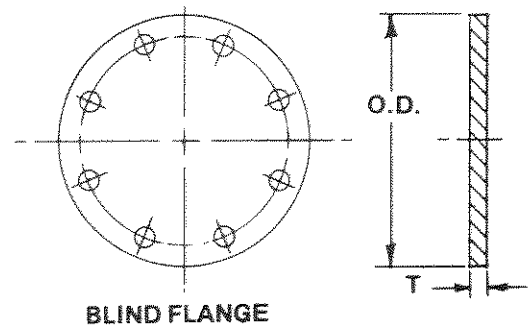
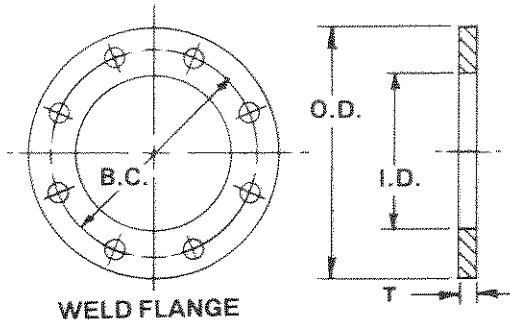
PART NUMBERS

		SINGLE SPACER	DOUBLE FLANGED	FLANGE AND THREADED	FLANGE AND HALF COUPLING	FLANGE AND GROOVED	FLANGE AND WELDING NECK
Size	Material	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
2"	Steel	WF201	DF2	FT2	FH2	FG2	FW2
	Aluminum	WF201A	DF2A	FT2A	FH2A	FG2A	FW2A
3"	Steel	WF301	DF3	FT3	FH3	FG3	FW3
	Aluminum	WF301A	DF3A	FT3A	FH3A	FG3A	FW3A
4"	Steel	WF401	DF4	FT4	FH4	FG4	FW4
	Aluminum	WF401A	DF4A	FT4A	FH4A	FG4A	FW4A
5"	Steel	WF501	DF5	FT5	FH5	FG5	FW5
	Aluminum	WF501A	DF5A	FT5A	FH5A	FG5A	FW5A
6"	Steel	WF601	DF6	FT6	FH6	FG6	FW6
	Aluminum	WF601A	DF6A	FT6A	FH6A	FG6A	FW6A
8"	Steel	WF801	DF8	FT8	FH8	FG8	FW8
	Aluminum	WF801A	DF8A	FT8A	FH8A	FG8A	FW8A

NOTES: All flanges are drilled for TTMA Standard bolt circles. Dimensions shown are standard lengths. Longer lengths available on request. Standard Double Flanged Spacer and Gasket with Wet-R-Dri Valve equals Gate Valve dimensions.

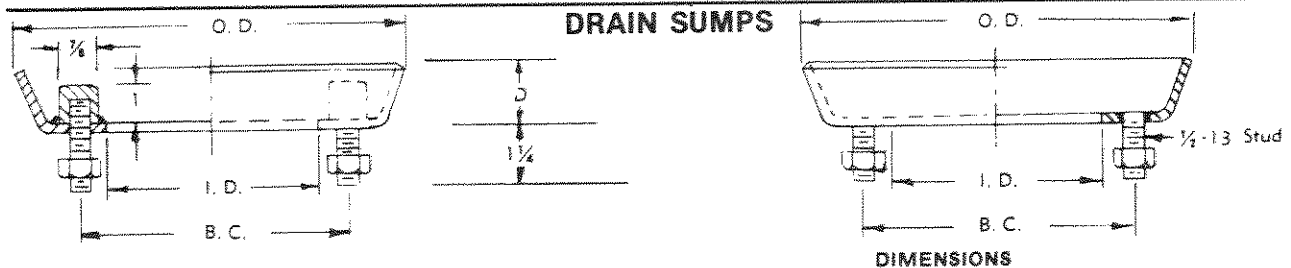
Betts INDUSTRIES, INC.

WELDING FLANGES



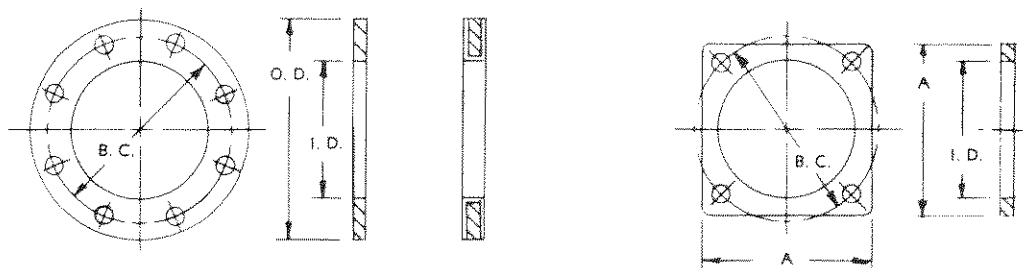
Size	Material	Weld Flange	Blind Flanges	Thickness	OD	ID	BC	No. of Holes	Hole Size
		Part No.	Part No.						
2"	Steel	WF201MS	BWF201MS	1/4	4-1/2	2-7/16	3-3/4	6	7/16
	Aluminum	WF201AL	BWF201AL	3/8					
3"	Steel	WF301MS	BWF301MS	1/4	5-5/8	3-9/16	4-7/8	8	7/16
	Aluminum	WF301AL	BWF301AL	3/8					
4"	Steel	WF401MS	BWF401MS	5/16	6-5/8	4-9/16	5-7/8	8	7/16
	Aluminum	WF401AL	BWF401AL	3/8					
5"	Steel	WF501MS	BWF501MS	5/16	7-3/4	5-9/16	7	12	7/16
	Aluminum	WF501AL	BWF501AL	3/8					
6"	Steel	WF601MS	BWF601MS	5/16	9	6-11/16	8-1/8	12	7/16
	Aluminum	WF601AL	BWF601AL	3/8					
8"	Steel	WF801MS	BWF801MS	1/2	10-7/8	8-11/16	10-1/8	16	7/16
	Aluminum	WF801AL	BWF801AL	1/2					

NOTE: Drilling in accordance with TTMA recommended standards.



Size	Material	Wt.	Part No.	I.D.	O.D.	B.C.	D	No. of Studs
SUMP WITH SOCKETS AND STUDS								
2, 2 1/2, 3"	Steel	5.2	SU25187-MS	5	9-1/8	6-1/4	1-1/2	6
	Aluminum	2.4	SU25187-AL					
	Stls 304	5.2	SU25187-SL					
	Stls 316	5.2	SU25187-SS					
4"	Steel	6.5	SU25188-MS	6	10-5/16	7-1/4	1-9/16	8
	Aluminum	2.8	SU25188-AL					
	Stls 304	6.5	SU25188-SL					
	Stls 316	6.5	SU25188-SS					
6"	Steel	7.8	SU25535-MS	8-3/16	12-5/8	9-1/4	1-5/8	12
	Aluminum	3.5	SU25535-AL					
	Stls 304	7.8	SU25535-SL					
	Stls 316	7.8	SU25535-SS					

NOTE: Sump materials are 3/16 Plate Steel or Stainless and 3/16 Aluminum 5052. Full tooling assures accuracy of dimensions and flatness of surfaces. Bolt Circles in accordance with TTMA recommended standards.

Betts INDUSTRIES, INC.**GASKETS****DIMENSIONS**

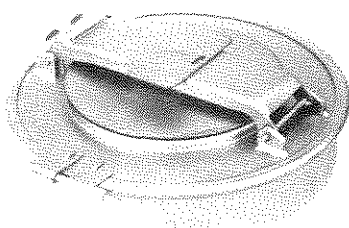
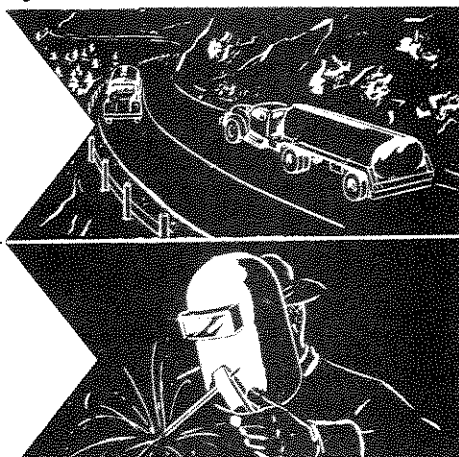
Size	Material	Part No.	O.D.	I.D.	B.C.	No. of Holes	Hole Size	A
ROUND FLANGE GASKETS								
2''	Cork-Buna-N	RGA201CB	4-1/2	2-5/8	3-3/4	6	7/16	
	Non-Asbestos	RGA201NA		2-1/4				
	Teflon Env.	RGA201TF						
3''	Cork-Buna-N	RGA301CB	5-5/8	3-3/4	4-7/8	8	7/16	
	Non-Asbestos	RGA301NA		3-1/4				
	Teflon Env.	RGA301TF						
4''	Cork-Buna-N	RGA401CB	6-5/8	4-3/4	5-7/8	8	7/16	
	Non-Asbestos	RGA401NA		4-5/16				
	Teflon Env.	RGA401TF						
5''	Cork-Buna-N	RGA501CB	7-3/4	5-9/16				
6''	Cork-Buna-N	RGA601CB	9	6-11/16	8-1/8	12	7/16	
	Non-Asbestos	RGA601NA						
	Teflon Env.	RGA601TF		6-1/16				
8''	Cork-Buna-N	RGA801CB	10-7/8	8	10-1/8	16	7/16	
SQUARE FLANGE GASKETS								
2''	Cork-Buna-N	SGA201CB		2-15/16	4-1/2	4	17/32	4-1/4
	Non-Asbestos	SGA201NA						
3''	Cork-Buna-N	SGA301CB		3-9/16	5	4	9/16	4-3/4
	Non-Asbestos	SGA301NA						
DRAIN SUMP GASKETS								
3''	Cork-Buna-N	15181CB	7-1/4	5	6-1/4	6	9/16	
	Non-Asbestos	15181NA		4-3/4				
	Teflon Env.	15181TF						
4''	Cork-Buna-N	15266CB	8-1/4	6-1/8	7-1/4	8	9/16	
	Non-Asbestos	15266NA		5-3/4				
	Teflon Env.	15266TF						
6''	Cork-Buna-N	25507CB	10-1/4	8-1/4	9-1/4	12	9/16	
	Non-Asbestos	25507NA		7-3/4				
	Teflon Env.	25507TF						

NOTE: Drilling in accordance with TTMA recommended standards.

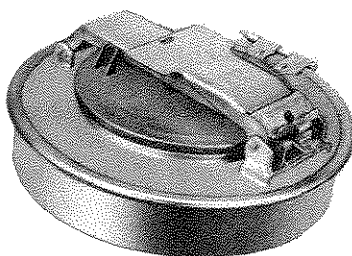
Betts INDUSTRIES, INC.

*COMPLETE LINE
for most tanks*

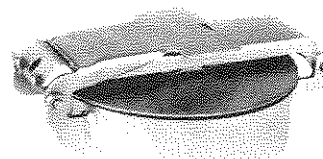
*CUSTOM FABRICATION
for special requirements*



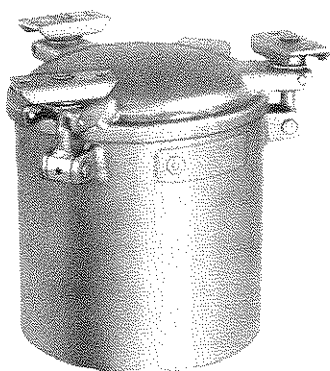
PRESSURE ACTUATED FILL
combination manhole



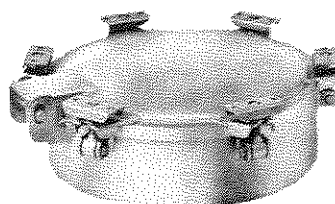
PRESSURE ACTUATED FILL
combination manhole



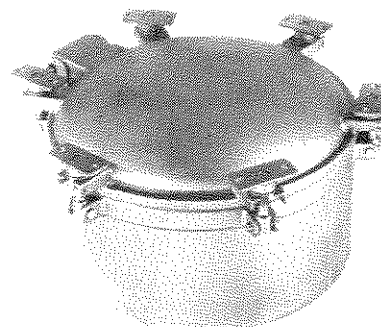
10" FILL CAPS



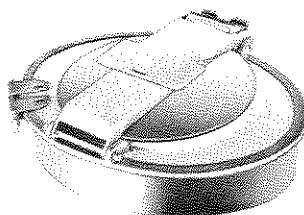
10" PRESSURE FILL



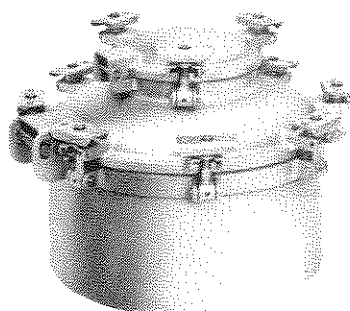
20" FULL OPENING MANHOLES
TANK CONTAINERS



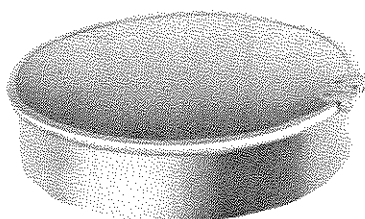
20" FULL OPENING MANHOLES
ASME TYPE



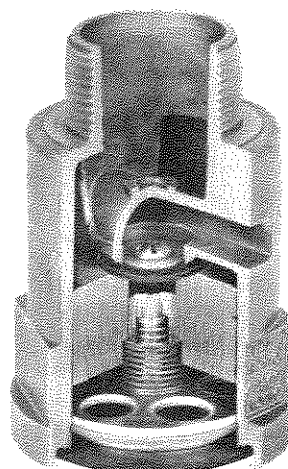
ELLIPTICAL MANHOLES
with FILL



20" FULL OPENING MANHOLES
with 10" FILL



INSPECTION MANHOLES



PPV Positive Protection Vent

Betts INDUSTRIES, INC.

ENGINEERING BULLETIN

SUBJECT: PROPER ADJUSTMENT OF "PAF" MANHOLE FILL COVERS

The fill cover of the "PAF" series manholes is designed to provide pressure-actuated emergency venting at their rated capacities when properly adjusted. The correct load on the fill cover is provided by a special spring located in the center of the cover.

To properly adjust the fill cover, please follow the following procedures:

- (1) Loosen lock nut on underside of fill cover as shown in Fig. 1.
- (2) With the fill cover laying in the closed position, loosen or tighten bolt in center of strongback until latch just clears the secondary latch on the end of strongback. See Fig. 2.
- (3) Tighten lock nut (Fig. 1) making sure bolt does not turn.
- (4) Close cover and recheck clearances of latch and strongback.

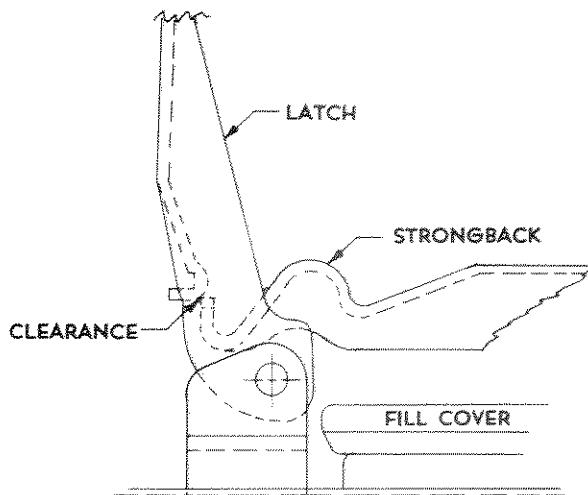


FIG. 2

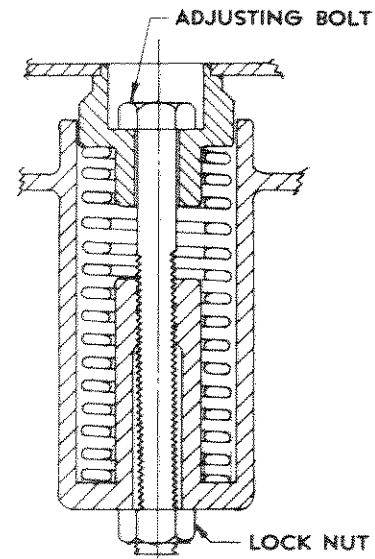
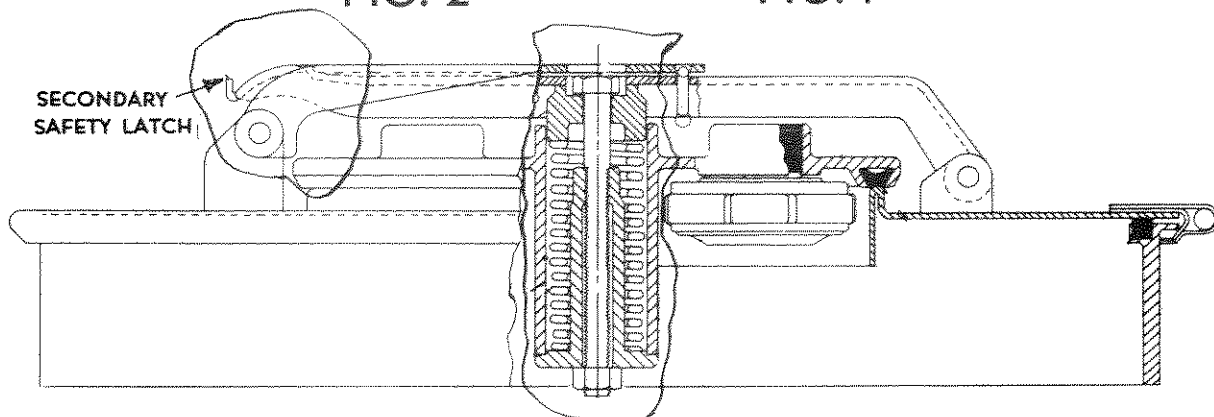


FIG. 1

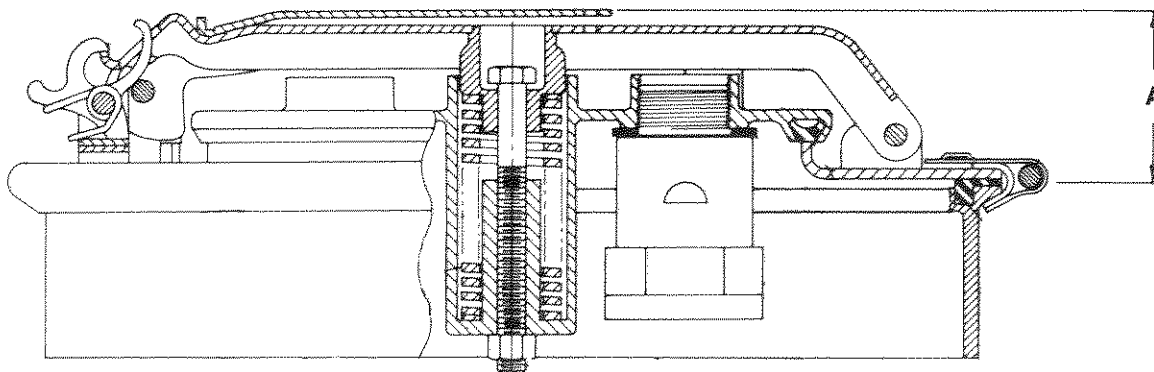


Betts INDUSTRIES, INC.
WARREN, PA

Engineering Bulletin

NO. **1-89**DATE **3-1-89**

Subject: New PAF450 Pressure Relief Valve



The new PAF450 Pressure Relief is designed to provide a greater emergency venting capacity (450,000 cu. ft. per hr.) than our present PAF9000 units (250,000 cu. ft. per hr.). To provide this greater capacity, the "A" dimension on all model PAF450 manholes has been increased by $\frac{1}{2}$ inch to $3\frac{9}{16}$ inches. All other dimensions remain the same as our present PAF9000 models.

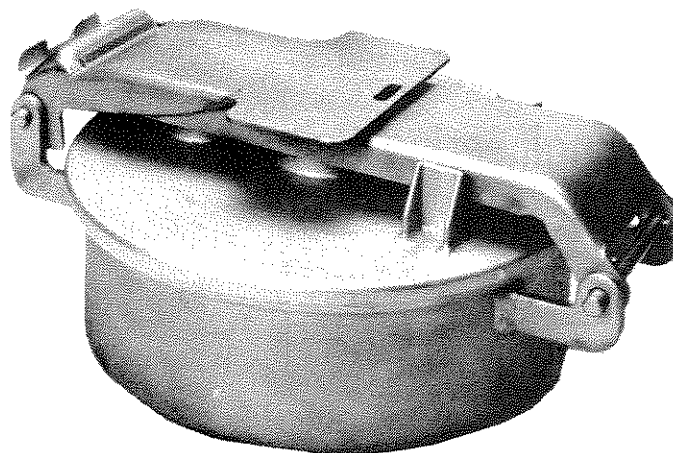
Betts INDUSTRIES, INC.**10" PRESSURE RELIEF VALVE**

PAF 450 MODEL

TIONA®

- PPV VENT
- FLOW RATED & MARKED
- SECONDARY SAFETY LATCH

Rated Pressure Actuated Emergency Venting
450,000 Cu. Ft. Free Air per Hr. @ 5 PSIG.

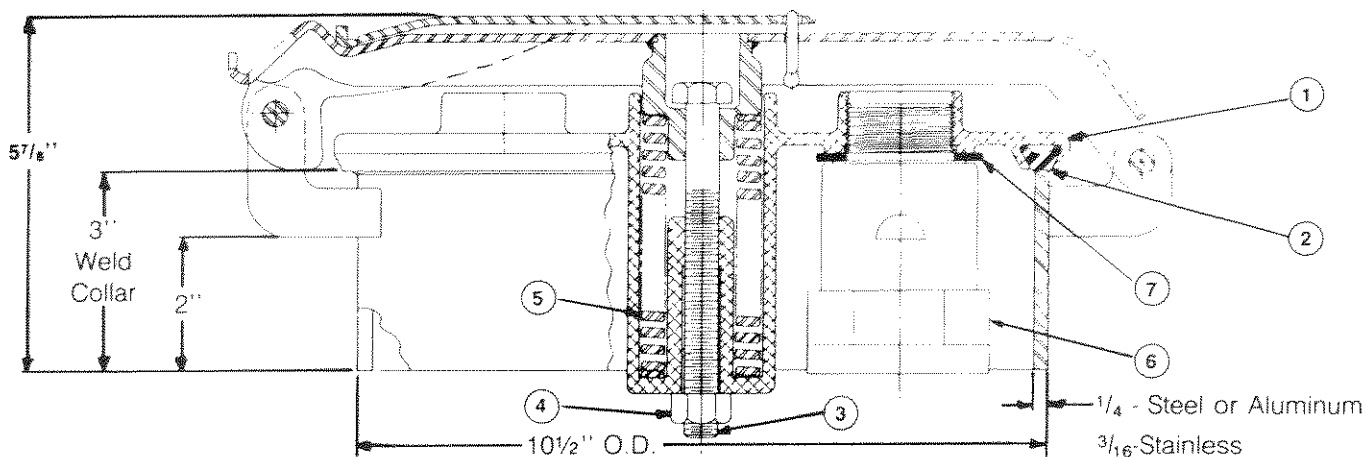


Model 9710

The "Pressure Relief Valve" is set to open at not less than 3 psig and at 5 psig provides a capacity of 450,000 cubic feet of free air per hour of the emergency venting for fire exposure as required by DOT MC306 and NFPA385 and 407*.

* No provision has been made for venting of product due to overfilling.

Collar	Latch Hinge Arm	Cover	Bolt Nut	Spring	Vent	Wt.	Assembly No.
Steel	Steel	Aluminum	Steel	Van Steel Cad. Plt.	Alum	18.0#	FVA9710SSB
Aluminum	Steel Cad.Plt.	Aluminum	Cad.Plt.			13.7#	FVA9710BAB
Stnls 304	Stnls 304	Aluminum	Stnls 316			16.5#	FVA9710CCB
Stnls 316	Stnls 304	Aluminum				16.5#	FVA9710DDB



No.	Description	Material	Part No.
1	Cover	Aluminum	8241AL
2	Gasket	Buna-N	3119BN
		Viton	3119VT
		Wh. Hypalon	3119WH

No.	Description	Material	Part No.
3	Bolt	SteelCdPt	3876CP
		Stls 304	3876SL
4	Hex Nut 1/2 - 13 Thd	Steel Cd Pl	9Q5812
		Stls 304	9Q5853
5	Spring	Van Steel	3859CP
6	Vent	Alum/Stnls	6238AL
7	Gasket	Buna-N	3716BN

*Gasket Maximum Temperature

Buna N(Nitrile) 250°F

Viton 400°F

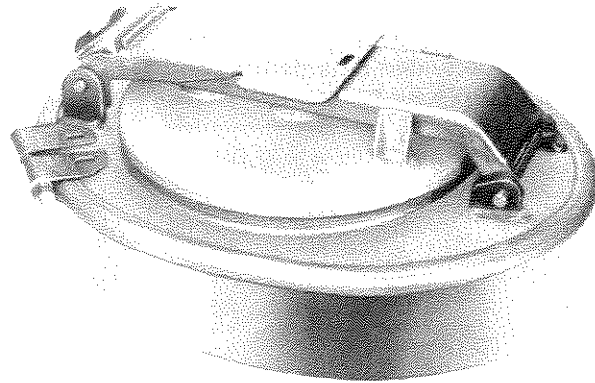
Hypalon-White 250°F

Betts INDUSTRIES, INC.

TIONA®

12" x 16" ELLIPTICAL PAF 450 MANHOLE

With Pressure Relief Valve



- PPV VENT
- WROUGHT STEEL COVER
- SECONDARY SAFETY LATCH
- HEAVY DUTY CLAMP RING

Rated Pressure Actuated Emergency Venting
450,000 Cu. Ft. Free Air per Hr. @ 5 PSIG.

Model 9712 - Standard

PAF Manholes incorporate a Pressure Relief Valve set to open at no less than 3 psig and at 5 psig provides a capacity of 450,000 cubic feet of free air per hour of the emergency venting for fire exposure as required by DOT MC306 and NFPA385 and 407*. Manhole covers are made of 7 gauge wrought steel or stainless. A heavy clamp ring, secondary safety latch and model 6238AL pressure-vacuum vent, which meets the EPA vapor recovery requirements are standard features of these manholes.

*No provision has been made for venting of product due to overfilling.

Cover Plate	Manhole Collar	Fill Cover	Clamping Ring, Strong Back, Latch, Lugs Pins	Clamping Ring Nut	Clamping Ring, Bolt & Washer	Spring	Vent	Wt.	Assembly No.
Steel Cd.Pt.	Steel	Alum.	Steel Cd.Pt.	Brass	Steel Cd.Pt.	Van. Steel	Alum.	22.8	FVA9712BSM
Steel Cd.Pt.	Alum.	Alum.	Steel Cd.Pt.	Brass	Steel Cd.Pt.	Van. Steel	Alum.	21.8	FVA9712BAM
Stls 304	Alum.	Alum.	Steel Cd.Pt.	Brass	Steel Cd.Pt.	Van. Steel	Alum.	21.8	FVA9712GAM
Stls 304	Stls 304	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	23.3	FVA9712CCM
Stls 316	Stls 316	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	23.3	FVA9816DDM

Description	Material	Part No.
Clamping Ring	Steel	3040MS
	Steel Cd.Pt.	3040CP
	Stls 304	3040SL
Manhole Gasket	C Cork Buna-N	3038CB
	A Non-Asbestos	3038NA
Manhole Collar	S Steel	3039MS
	A Aluminum	3039AL
	C Stls 304	3039SL
	D Stls 316	3039SS
Vent Assembly	Alum/Stls.	6238AL
Gasket	Buna-N	3716BN

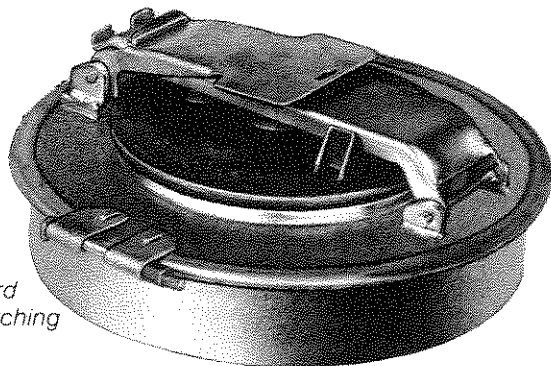


16" PAF 450 MANHOLE

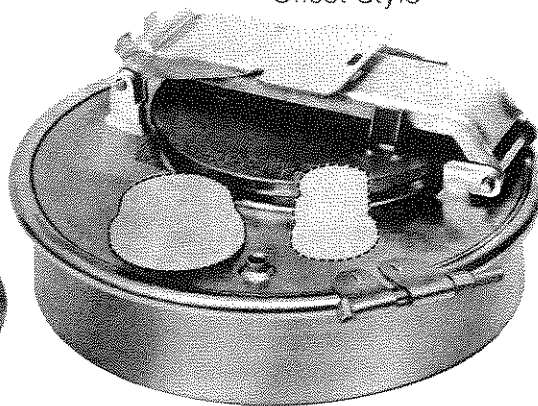
- PPV VENT
- SECONDARY SAFETY LATCH
- WROUGHT STEEL COVER
- HEAVY DUTY CLAMP RING

Rated Pressure Actuated Emergency Venting
450,000 Cu. Ft. Free Air per Hr. @ 5 PSIG.

With Pressure Relief Valve
Offset Style



Model 9716 - Standard
Model 9742 - Self Latching



Model 9816 - Standard
Model 9842 - Self Latching

PAF Manholes incorporate a Pressure Relief Valve set to open at no less than 3 psig and at 5 psig provides a capacity of 450,000 cubic feet of free air per hour of the emergency venting for fire exposure as required by DOT MC306 and NFPA385 and 407*. Manhole covers are made of 7 gauge wrought steel or stainless. A heavy clamp ring, secondary safety latch and model 6238AL pressure-vacuum vent, which meets the EPA vapor recovery requirements are standard features of these manholes.

*No provision has been made for venting of product due to overfilling.

Manholes are also available with a self-latching feature which allows the Pressure Relief Valve cover to open only 91 degrees and drop closed and securely latch upon movement of the tank.

For Self-Latching Model substitute 9742 for 9716 in assembly number.

Cover Plate	Manhole Collar	Fill Cover	Clamping Ring, Strong Back, Latch, Lugs Pins	Clamping Ring Nut	Clamping Ring, Bolt & Washer	Spring	Vent	Wt.	Assembly No.
Steel Cd. Pt.	Steel	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	28.7	FVA9716BFB
Steel Cd. Pt.	Alum.	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	26.8	FVA9716BHB
Stls 30	Alum.	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	26.8	FVA9716GHB
Stls 304	Stls 304	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	29.4	FVA9716CJB
Stls 316	Stls 316	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	29.4	FVA9716DKB

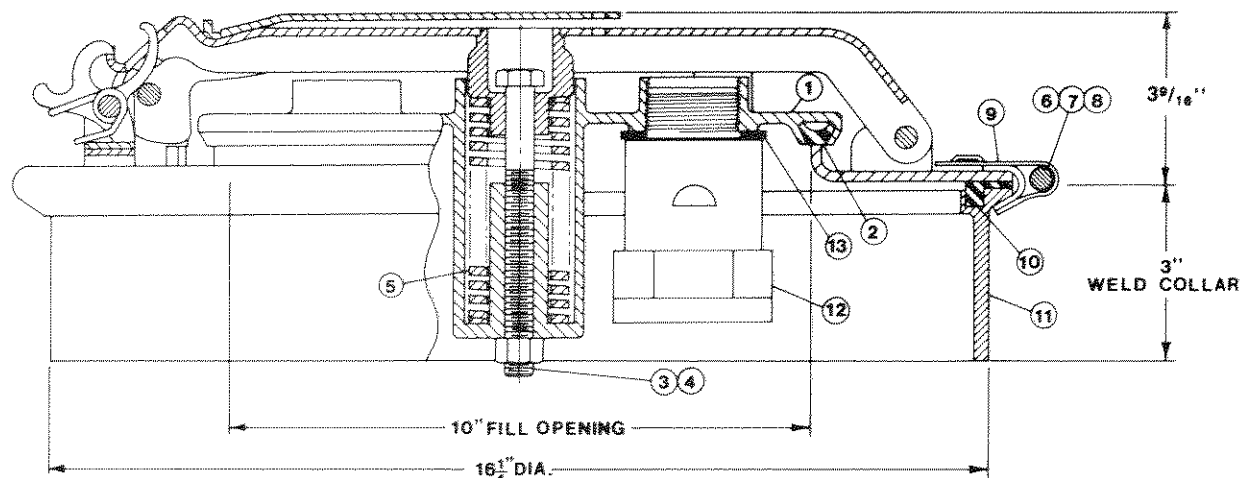
For Self-Latching Model substitute 9842 for 9816 in assembly number.

NOTE: The 3½" vent and liquid level switch not included in assembly.

Cover Plate	Manhole Collar	Fill Cover	Clamping Ring, Strong Back, Latch, Lugs Pins	Clamping Ring Nut	Clamping Ring, Bolt & Washer	Spring	Vent	Wt.	Assembly No.
Steel Cd. Pt.	Steel	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	27.9	FVA9816BFB
Steel Cd. Pt.	Alum.	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	26.0	FVA9816BHB
Stls 304	Alum.	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	26.0	FVA9816GHB
Stls 304	Stls 304	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	28.6	FVA9816CJB
Stls 316	Stls 316	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	28.6	FVA9816DKB

PARTS LIST

16" PAF 450 MANHOLE
Self-Latching Model Illustrated



No.	Description	Material	Part No.
1	Cover-Relief Valve	Aluminum	8241AL
2	Gasket-Relief Valve	Buna-N	3119BN
		Viton	3119VT
		Wh.Hypalon	3119WH
3	Bolt	Steel Cd.Pt.	3876CP
		Stls 304	3876SL
4	Hex Nut 1/2 13 Thd	Steel Cd.Pt.	9Q5812
		Stls 304	9Q5853
5	Spring	Van Steel	3859CP
6	Bolt - Clamp	Steel Cd.Pt.	3029CP
		Stls 304	3029SL
7	Nut - Clamp 3/8 - 16 Thd	Brass	3030BR
		Stls 304	9Q5809
8	Washer - Clamp	Steel Cd.Pt.	3031CP
		Stls 304	3031SL
9	Clamping Ring	Steel	3028MS
		Steel Cd.Pt.	3028CP
		Stls 304	3028SL

No.	Description	Material	Part No.
10	Manhole Gasket Channel Type	B Buna-N	3559BN
		V Viton	3559VT
		W Wh.Hypalon	3559WH
		E Non-Asbestos w/Tef Susp	3049NT
11	Manhole Collar Channel Type	F Steel	3057MS
		H Aluminum	3057AE
		J Stls 304	3057SL
		K Stls 316	3057SS
12	Vent Assembly	Alum/Stls.	6238AL
13	Gasket	Buna-N	3716BN

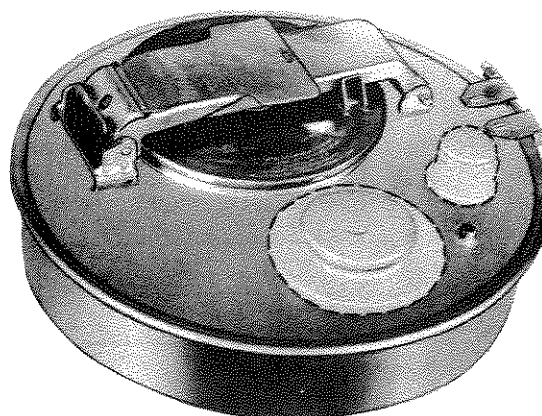
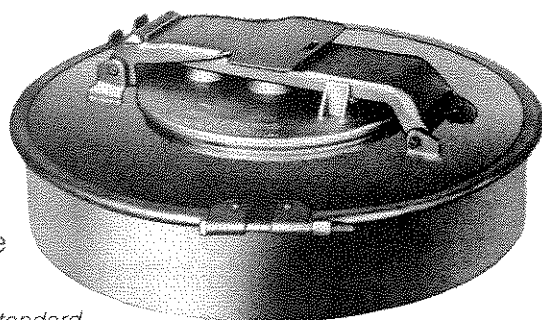
*Gasket Maximum Temperature

Buna N (Nitrile)	250°F
Viton	400°F
Hypalon-White	250°F
Non-Asbestos with Teflon Suspensoid	500°F

MAINTENANCE: Manhole assemblies should be inspected with sufficient frequency and due regard to the products carried to insure a liquid tight closure. Any worn, damaged or missing parts must be replaced. Gaskets should be replaced if their effectiveness is impaired in any way. Replacement gaskets must be compatible with products carried.

Betts INDUSTRIES, INC.**TIONA**®

- PPV VENT
- SECONDARY SAFETY LATCH
- WROUGHT STEEL COVER
- HEAVY DUTY CLAMP RING

20" PAF 450 MANHOLEWith Pressure Relief Valve
Offset StyleWith Pressure
Relief ValveModel 9720 - Standard
Model 9763 - Self LatchingModel 9820 - Standard
Model 9863 - Self Latching**Rated Pressure Actuated Emergency Venting**
450,000 Cu. Ft. Free Air per Hr. @ 5 PSIG.

PAF Manholes incorporate a Pressure Relief Valve set to open at no less than 3 psig and at 5 psig provides a capacity of 450,000 cubic feet of free air per hour of the emergency venting for fire exposure as required by DOT MC306 and NFPA385 and 407*. Manhole covers are made of 7 gauge wrought steel or stainless. A heavy clamp ring, secondary safety latch and model 6238AL pressure-vacuum vent, which meets the EPA vapor recovery requirements are standard features of these manholes.

*No provision has been made for venting of product due to overfilling.

Manholes are also available with a self-latching feature which allows the Pressure Relief Valve cover to open only 91 degrees and drop closed and securely latch upon movement of the tank.

For Self-Latching Model substitute 9763 for 9720 in assembly number.

Cover Plate	Manhole Collar	Fill Cover	Clamping Ring, Strong Back, Latch, Lugs Pins	Clamping Ring Nut	Clamping Ring, Bolt & Washer	Spring	Vent	Wt.	Assembly No.
Steel Cd. Pt.	Steel	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	38.2	FVA9720BFB
Steel Cd. Pt.	Alum.	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	35.7	FVA9720BHB
Stls 304	Alum.	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	35.7	FVA9720GHB
Stls 304	Stls 304	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	39.2	FVA9720CJB
Stls 316	Stls 316	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	39.2	FVA9720DKB

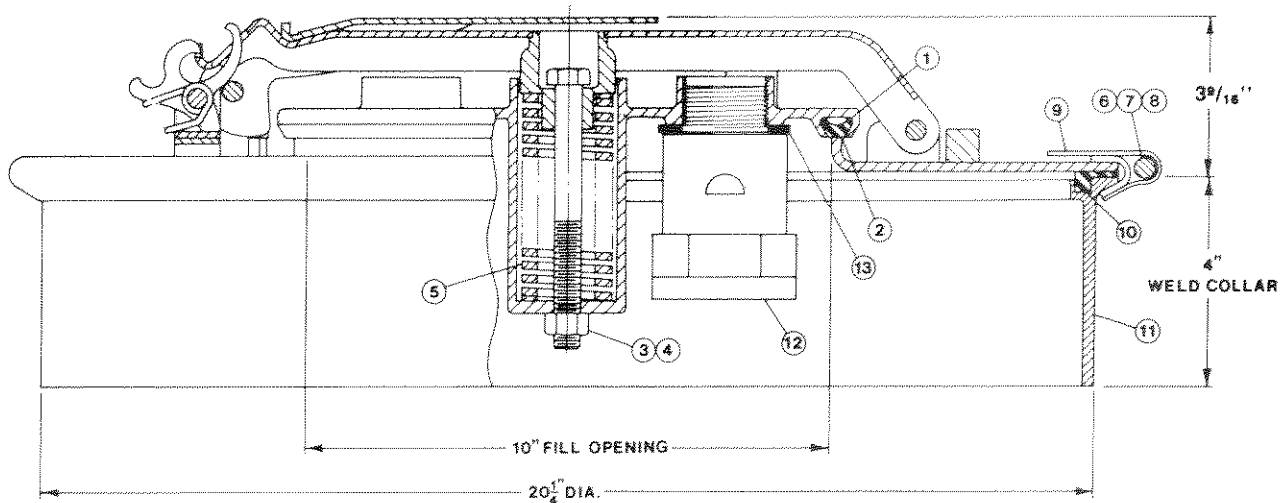
For Self-Latching Model substitute 9863 for 9820 in assembly number.

NOTE: 3½" vent and liquid level switch not included in assembly.

Cover Plate	Manhole Collar	Fill Cover	Clamping Ring, Strong Back, Latch, Lugs Pins	Clamping Ring Nut	Clamping Ring, Bolt & Washer	Spring	Vent	Wt.	Assembly No.
Steel Cd. Pt.	Steel	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	37.4	FVA9820BFB
Steel Cd. Pt.	Alum.	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	34.9	FVA9820BHB
Stls 304	Alum.	Alum.	Steel Cd. Pt.	Brass	Steel Cd. Pt.	Van. Steel	Alum.	34.9	FVA9820GHB
Stls 304	Stls 304	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	38.4	FVA9820CJB
Stls 316	Stls 316	Alum.	Stls 304	Stls 304	Stls 304	Van. Steel	Alum.	38.4	FVA9820DKB

PARTS LIST

20" PAF 450 MANHOLE
Self-Latching Model Illustrated



No.	Description	Material	Part No.
1	Cover-Relief Valve	Aluminum	8241AL
2	Gasket-Relief Valve	Buna-N	3119BN
		Viton	3119VT
		Wh.Hypalon	3119WH
3	Bolt	Steel Cd.Pt.	3876CP
		Stls 304	3876SL
4	Hex Nut 1/2 - 13 Thd	Steel Cd.Pt.	9Q5812
		Stls 304	9Q5853
5	Spring	Van Steel	3859CP
6	Bolt - Clamp	Steel Cd.Pt.	3029CP
		Stls 304	3029SL
7	Nut - Clamp 3/8 - 16 Thd	Brass	3030BR
		Stls 304	9Q5809
8	Washer - Clamp	Steel Cd.Pt.	3031CP
		Stls 304	3031SL
9	Clamping Ring	Steel	3036MS
		Steel Cd.Pt.	3036CP
		Stls 304	3036SL

No.	Description	Material	Part No.
10	Manhole Gasket Channel Type	B Buna-N	3560BN
		V Viton	3560VT
		W Wh.Hypalon	3560WH
		E Non-Asbestos w/Tef Susp	3175NT
11	Manhole Collar Channel Type	F Steel	3176MS
		H Aluminum	3176AE
		J Stls 304	3176SL
		K Stls 316	3176SS
12	Vent Assembly	Alum/Stls.	6238AL
13	Gasket	Buna-N	3716BN

*Gasket Maximum Temperature
 Buna N (Nitrile) 250°F
 Viton 400°F
 Hypalon-White 250°F
 Non-Asbestos 500°F
 with Teflon Suspensoid

MAINTENANCE: Manhole assemblies should be inspected with sufficient frequency and due regard to the products carried to insure a liquid tight closure. Any worn, damaged or missing parts must be replaced. Gaskets should be replaced if their effectiveness is impaired in any way. Replacement gaskets must be compatible with products carried.

Betts INDUSTRIES, INC.

PAF 450 Style

20" FO MANHOLE with 10" RELIEF VALVE

- PPV VENT
- FLOW RATED & MARKED
- THREADED HOLD-DOWNS
- 6" (152.4MM) HIGH COLLAR PROVIDED

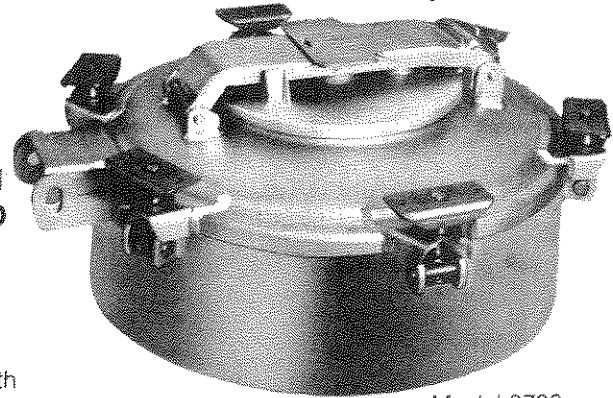
Rated Pressure Actuated Emergency Venting
450,000 Cu. Ft. Free Air per Hr. @ 5 PSIG.

Tiona 20-inch full-opening manholes are fabricated for greater strength and less weight. Full 20-inch opening assures safe entrance for inspection or cleaning of tank.

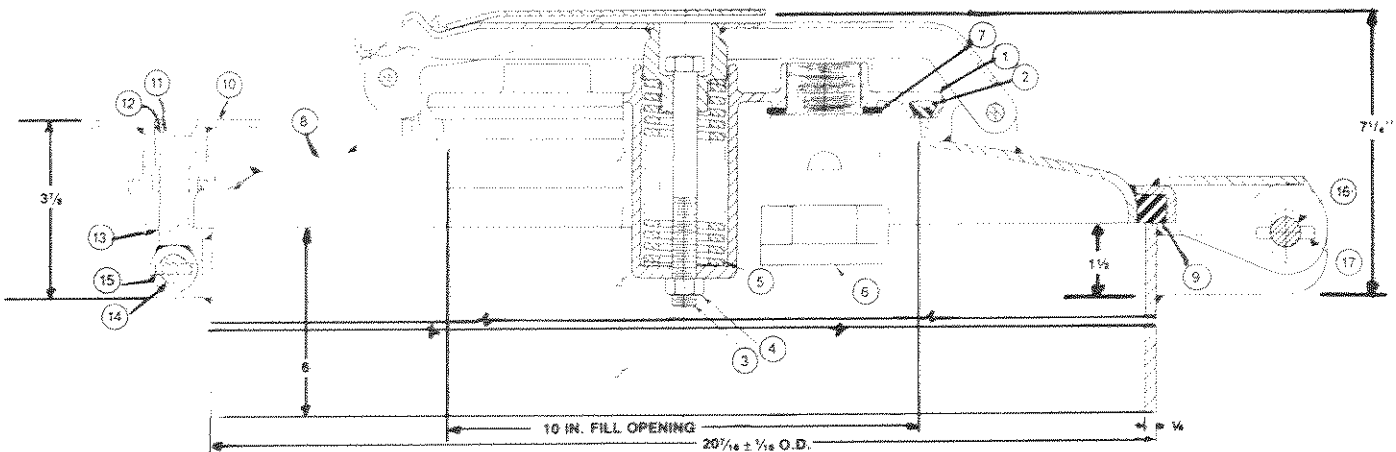
Model 9730

The "Pressure Relief Valve" is set to open at not less than 3 psig and at 5 psig provides a capacity of 450,000 cubic feet of free air per hour of the emergency venting for fire exposure as required by DOT MC306 and NFPA385 and 407*.

* No provision has been made for venting of product due to overfilling.



Weld Collar	Cover ASMB	Wingnut & Pins	10" Cover Vent	Spring	Number Holddowns	Weight	Assembly No.
Steel	Steel	Stnls 304	Aluminum	Steel Cd.Pt.	6	70.5 LB	FVA9730SCB
Aluminum	Steel	Stnls 304	Aluminum	Steel Cd.Pt.	6	50.5 LB	FVA9730ASB
Aluminum	Stnls	Stnls 304	Aluminum	Steel Cd.Pt.	6	50.5 LB	FVA9730ACB
Stnls 316	Stnls 316	Stnls 304	Aluminum	Steel Cd.Pt.	6	70.5 LB	FVA9730DCB



No.	Description	Material	Part No.
1	Cover	Aluminum	8241AL
2	Gasket	Buna-N	3119BN
		Viton	3119VT
		Wh.Hypalon	3119WH
3	Bolt	Steel Cd.Pt.	3876CP
		Stls 304	3876SL
4	Hex Nut 1/2-13 Thd	Steel Cd.Pt.	9Q5812
		Stls 304	9Q5853
5	Spring	Van Steel	3859CP
6	Vent	Alum/Stnls	6238AL
7	Gasket	Buna-N	3716BN

No.	Description	Material	Part No.
8	Cover Assembly	Steel	6438MS
		Stainless 316	6438SS
9	Gasket*	B Buna-N	3513BN
		V Viton	3513VT
		W White Hypalon	3513WH
		T Pure Teflon (Woven)	3513TF
		E White Non-Asbestos with Teflon Suspensoid (Woven)	3513NT
10	Wing Nut	Stnls 304	3576SL
11	Snap Ring	Stnls 304	9Q4933
12	Snap Ring Washer	Stnls 304	3575SL
13	Swing Bolt	Stnls 304	3765SL
14	Swing Bolt Pin	Stnls 304	3086SL
14	Roll Pin-Swg Bolt	Stnls 304	9Q8592
15	Hinge Pin	Stnls 304	3818SL
17	Roll Pin-Hinge Pin	Stnls 304	9Q8594

*Gasket Maximum Temperature

Buna-N (Nitrile)	250°F
Viton	400°F
Hypalon-White	250°F
Pure Teflon	500°F
White Non-Asbestos with Teflon Suspensoid	500°F

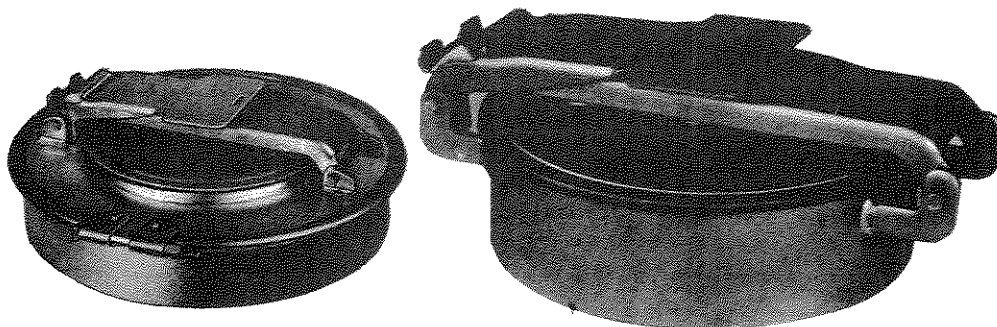
TIONA®

Betts INDUSTRIES, INC. **PARTS LIST**

16 x 10—PAF MANHOLE
PRESSURE ACTUATED FILL

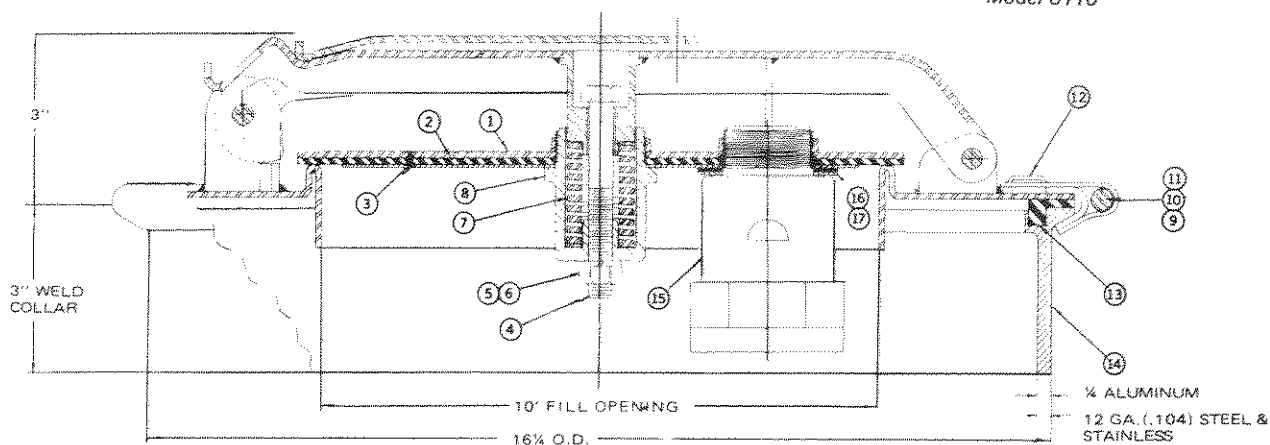
10" PAF FILL
PRESSURE ACTUATED FILL

16 x 10—PAF MANHOLE
PRESSURE ACTUATED FILL



Model 8416

Model 8110



No.	Description	Material	Part No.
1	Fill Cover	Steel	6091 MS
		Steel Cd. Pt.	6091 CP
		Stls 304	6091 SL
		Stls 316	6091 SS
2	Fill Gasket	Bethane	3249 BU
		Asbestos	3249 AS
		White Neop.	3249 WN
		Teflon	3249 TF
3	Retainer -Fill Gasket	Steel	3213 MS
		Aluminum	3213 AL
		Stls 304	3213 SL
		Stls 316	3213-SS
4	Bolt - Spring Well	Steel Cd. Pt.	3248 CP
		Stls 316	3248 SS
5	Lock Washer	Steel Cad Pt.	3781 CP
		Stls 316	3781 SS
6	Nut	Steel Cad Pt.	3302 CP
		Stls 316	3302 SS
7	Spring	Steel	3250 MS
8	Spring Well	Aluminum	3247 AL
		Stls 316	3247 SS

No.	Description	Material	Part No.
9	Bolt -Clamp	Steel Cd. Pt.	3029 CP
		Stls 304	3029 SL
10	Nut-Clamp	Brass	3030 BR
		Stls 304	3030 SL
11	Washer-Clamp	Steel Cd. Pt.	3031 CP
		Stls 304	3031 SL
12	Clamping Ring	Steel	3028 MS
		Steel Cd. Pt.	3028 CP
		Stls 304	3028 SL
13	Manhole Gasket Channel Type	B	Buna-N
		A	Asbestos
		E	Teflon-Asb.
14	Manhole Collar Channel Type 3" Std. Height	F	Steel
		H	1/2 Aluminum
		J	Stls 304
		K	Stls 316
15	Vent Assembly	Alum/Stls	6238 AL
16	Gasket	Buna-N	3716 BN
17	Washer	Alum	3023 MS

Also Available Without Pressure Actuated Fill.

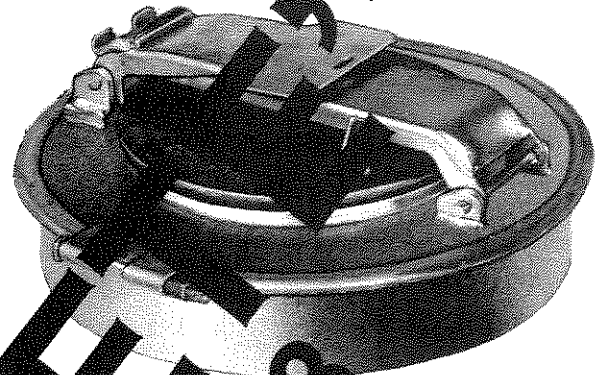
TIONA®**Betts** INDUSTRIES, INC.

PARTS LIST

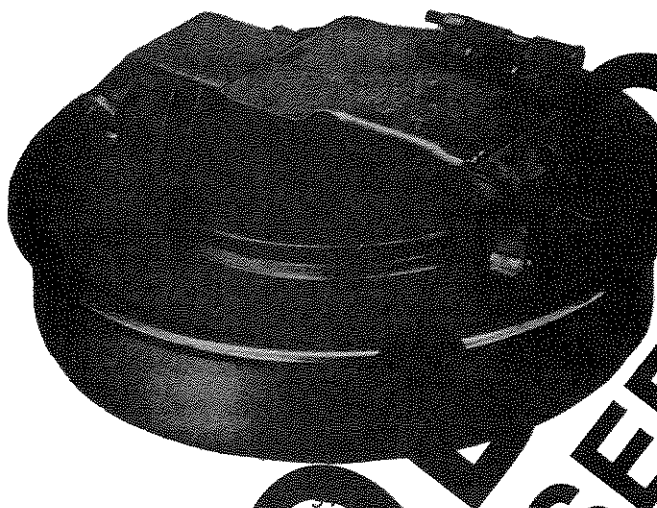
- PPV VENT
- WROUGHT STEEL COVER
- SECONDARY SAFETY LATCH
- HEAVY DUTY CLAMP RING

Rated Pressure Actuated Emergency Venting
250,000 Cu. Ft. Free Air per Hr. @ 5 PSIG.

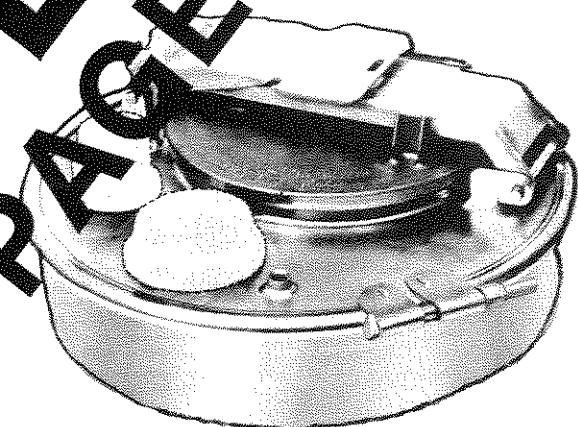
16 x 10 PPM
POSITIVE PROTECTION MANHOLE



16 x 10 PPM
POSITIVE PROTECTION MANHOLE
SELF-LATCHING MODEL



16 x 10 OFFSET PPM
POSITIVE PROTECTION MANHOLE



9516

The all new POSITIVE PROTECTION MANHOLE is standard with the following features:

- PPV Model 6238AL Vent which meets EPA vapor recovery requirements.
- Total protection under any condition of tank upset from 0° to 180°.
- The wrought steel manhole cover is made of 7 gauge plated steel.
- Secondary safety latch insures that fill cover cannot fully unlatch if internal pressure is in tank.
- The clamping ring is heavier to provide greater manhole security.

Pressure Actuated Fill is designed to provide emergency venting for fire exposure as required by DOT MC306 specs and NFPA No. 385 and 407*.

*No provision has been made for venting of product due to overfilling.

The Tiona self-latching provision incorporates a fill cover designed to open to 91 degrees. Upon forward movement of the tank, the fill will drop closed and be secured by a positive self-locking spring latch.

NOTES: Basic manhole assemblies as listed above are standard with "PPV" 6238AL Vent (Prefix "EVA"), Buna-N Fill and Collar Gasket (Suffix "B").
Suffix "A" provides Buna-N Fill Gasket and Asbestos Collar Gasket.
Suffix "E" provides Viton Fill Gasket and Teflon-Asbestos Collar Gasket.

When welding collars to tank, care should be exercised to insure collars remain flat and round.

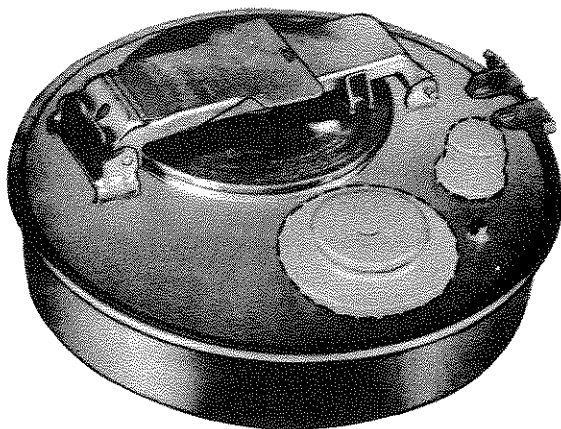
PAF 900 Series discontinued. New PAF 450 Series rated at 450,000 cubic feet of free air per hour at 5 PSIG.

TIONA

Betts INDUSTRIES, INC.

20 x 10—PAF MANHOLE

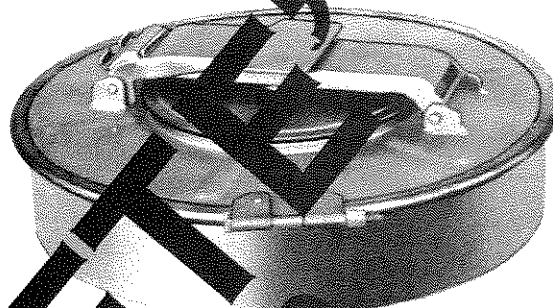
DELUXE 9000 SERIES
PRESSURE ACTUATED FILL



Model 9520

20 x 10—PAF MANHOLE

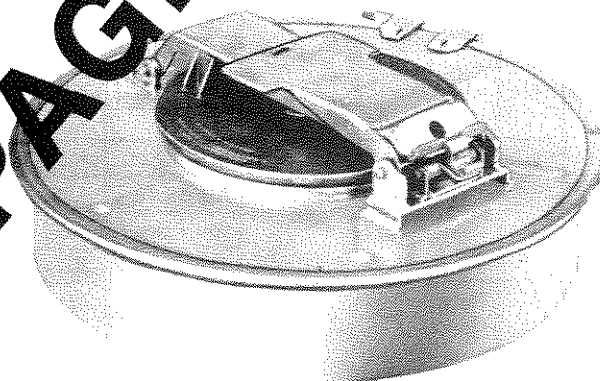
STANDARD - 1000 SERIES
PRESSURE-ACTUATED FILL
Self-Latching Model Available



Model 1000

20 x 10 PPM

POSITIVE PROTECTION MANHOLE
SELF-LATCHING MODEL



9463

- PPV VENT
- WROUGHT STEEL COVER
- SECONDARY SAFETY LATCH
- HEAVY DUTY CLAMP RING

Rated Pressure Actuated Emergency Venting
250,000 Cu. Ft. Free Air per Hr. @ 5 PSIG

The all new POSITIVE PROTECTION MANHOLE is standard with the following features:

- PPV Model 6238AL Vent which meets EPA vapor recovery requirements.
- Total product containment under any condition of tank upset from 0° to 180°.
- The wrought steel manhole cover is made of 7 gauge plated steel.
- Secondary safety latch insures that fill cover cannot fully unlatch if internal pressure is in tank.
- The clamping ring is heavier to provide greater manhole security.

Pressure Actuated Fill is designed to provide emergency venting for fire exposure as required by DOT MC306 specs and NFPA No. 385 and 407*.

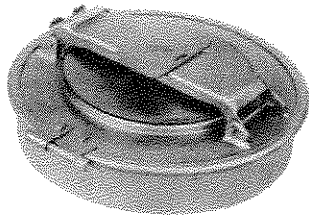
*No provision has been made for venting of product due to overfilling.

The Tiona self-latching provision incorporates a fill cover designed to open to 91 degrees. Upon forward movement of the tank, the fill will drop closed and be secured by a positive self-locking spring latch.

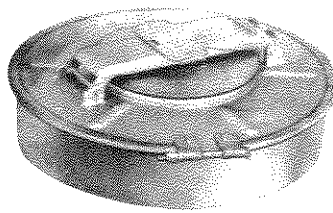
NOTES: Basic manhole assemblies as listed above are standard with "PPV" 6238AL Vent (Prefix "FVA"), Buna-N Fill and Collar Gasket (Suffix "B").
Suffix "A" provides Buna-N Fill Gasket and Asbestos Collar Gasket.
Suffix "E" provides Viton Fill Gasket and Teflon-Asbestos Collar Gasket.

When welding collars to tank, care should be exercised to insure collars remain flat and round.

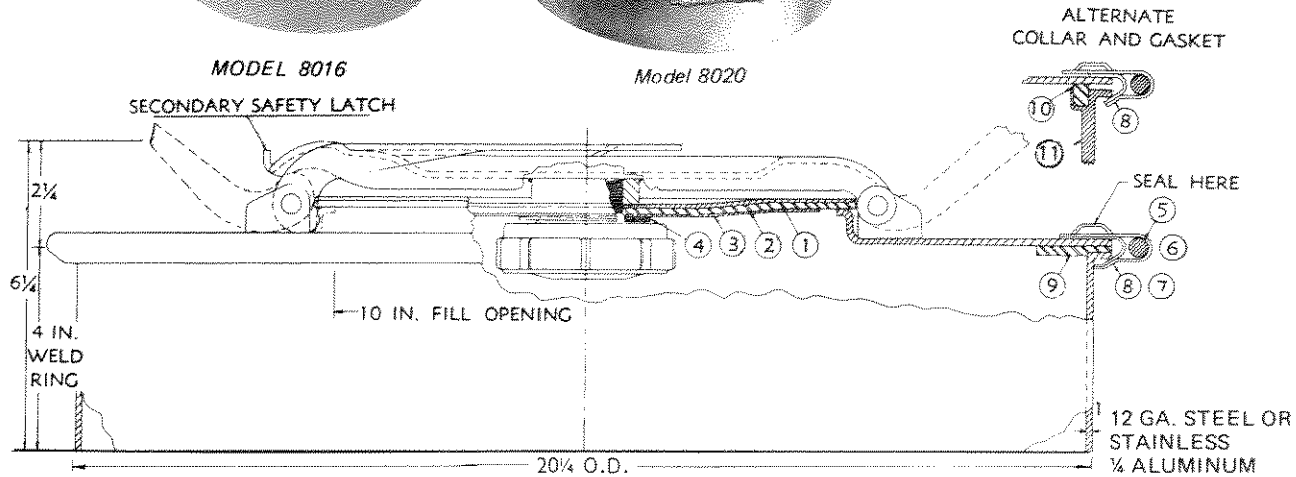
PAF 900 Series discontinued. New PAF 450 Series rated at 450,000 cubic feet of free air per hour at 5 PSIG.

TIONA®**Betts** INDUSTRIES, INC.**MANHOLE COVERS WITHOUT PRESSURE ACTUATED FILL**

MODEL 8016



Model 8020

**20" MANHOLE WITH 10" FILL**

No.	Description	Material	Part No.
1	Fill Cover	Steel	3021 MS
		Steel Cd. Pt.	3021 CP
		Stls 304	3021 SL
		Stls 316	3021 SS
2	Fill Gasket	Bethane	3024 BU
		Asbestos	3024 AS
		White Neop	3024 WN
		Teflon	3024 TF
3	Retainer - Fill Gasket	Steel	3014 MS
		Aluminum	3014 AL
		Stls 304	3014 SL
		Stls 316	3014 SS
4	Shim Washer	Steel	3023 MS
		Aluminum	3023 AL
		Stls 316	3023 SS
5	Bolt-Clamp	Steel Cd. Pt.	3029 CP
		Stls 304	3029 SL
6	Nut-Clamp	Brass	3030 BR
		Stls 304	3030 SL
7	Washer-Clamp	Steel Cd. Pt.	3031 CP
		Stls 304	3031 SL
8	Clamping Ring (20")	Steel	3036 MS
		Steel Cd. Pt.	3036 CP
		Stls 304	3036 SL
9	Manhole Gasket Flat Type (20")	C Cork-Buna-N	3033 CB
		A Asbestos	3033 AS
		N White Neop.	3033 WN
		T Teflon Env.	3033 TF

No.	Description	Material	Part No.
10	Manhole Gasket Channel Type (20")	B Buna-N	3560 BN
		A Asbestos	3175 AS
		T Teflon Asb.	3175 AT
11	Manhole Collar Channel Type 4" Std. Height (20")	F Steel	3176 MS
		H 1/2 Aluminum	3176 AE
		J Stls 304	3176 SL
		K Stls 316	3176 SS

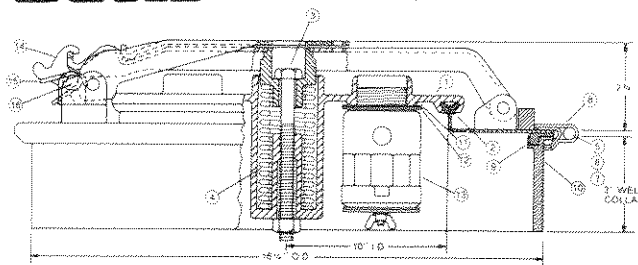
16" Round Manhole with 10" Fill

No.	Description	Material	Part No.
8	Clamping Ring (16")	Steel	3028 MS
		Steel Cd. Pt.	3028 CP
		Stls 304	3028 SL
9	Manhole Gasket Flat Type (16")	C Cork-Buna-N	3025 CB
		A Asbestos	3025 AS
		N White Neop.	3025 WN
		T Teflon Env.	3025 TF
10	Manhole Gasket Channel Type (16")	B Buna-N	3559 BN
		A Asbestos	3049 AS
		E Teflon-Asb.	3049 AT
11	Manhole Collar Channel 3" Std. Ht. (16")	F Steel	3057 MS
		H 1/2 Aluminum	3057 AE
		J Stls 304	3057 SL
		K Stls 316	3057 SS

Adjustment due to gasket wear may be necessary to insure proper sealing of the 10" fill. A shim washer, item No. 4, is provided for this purpose. To increase the sealing force of the 10" fill, remove shim from location shown above and re-position it above fill cover No. 1.

TIONA®

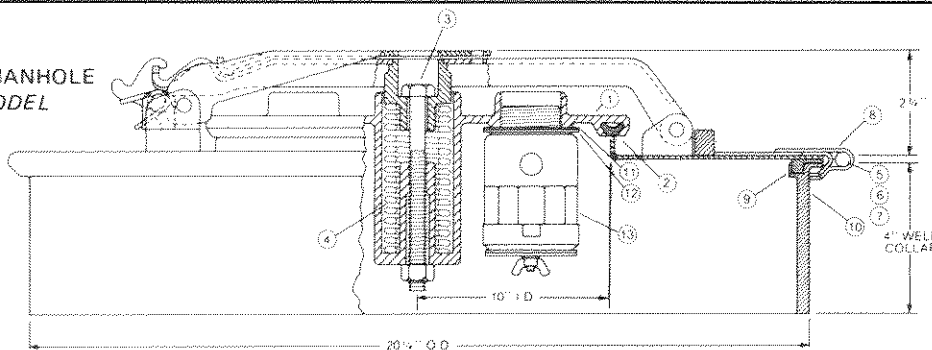
16 x 10 PPM

POSITIVE PROTECTION MANHOLE
SELF-LATCHING MODEL**Betts** INDUSTRIES, INC.**PARTS LIST**

No.	Description	Material	Part No.
1	Fill Cover	Aluminum	8046AL
2	Fill Gasket	Buna-N	3119BN
		Viton	3119VT
3	Bolt & Nut - Spring	Steel Cd. Pt.	3139CP
4	Spring	Van - Steel	3129CP
5	Bolt-Clamp	Steel Cd. Pt.	3029CP
		Stls 304	3029SL
6	Nut-Clamp	Brass	3030BR
		Stls 304	3030SL
7	Washer-Clamp	Steel Cd. Pt.	3031CP
		Stls 304	3031SL
8	Clamp Ring	Steel Cd. Pt.	3028CP
		Stls 304	3028SL

9	Gasket	B	Buna-N	3559BN
		A	Asbestos	3049AS
		E	Teflon-Asb.	3049AT
10	Collar	F	Steel	3057MS
		H	Aluminum	3057AE
		J	Stls 304	3057SL
		K	Stls 316	3057SS
11	Gasket		Buna-N	3716BN
12	Shim		Aluminum	3023AL
			Stls 316	3023SS
13	Vent		Alum/Stls.	6238AL
14	Safety Latch		Brass	6064BR
15	Spring		Stls 302	3097SL
16	Pin		Steel	3283MS
			Stls 304	3283SL

20 x 10 PPM

POSITIVE PROTECTION MANHOLE
SELF-LATCHING MODEL

No.	Description	Material	Part No.
1	Fill Cover	Aluminum	8046AL
2	Fill Gasket	Buna-N	3119BN
		Viton	3119VT
3	Bolt & Nut - Spring	Steel Cd. Pt.	3139CP
4	Spring	Van. Steel	3129CP
5	Bolt-Clamp	Steel Cd. Pt.	3029CP
		Stls 304	3029SL
6	Nut-Clamp	Brass	3030BR
		Stls 304	3030SL
7	Washer-Clamp	Steel Cd. Pt.	3031CP
		Stls 304	3031SL
8	Clamp Ring	Steel Cd. Pt.	3036CP
		Stls 304	3036SL

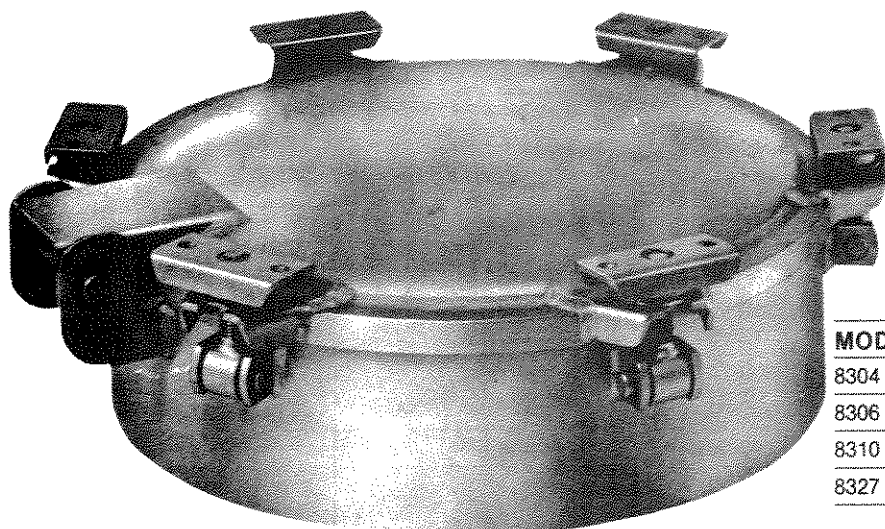
9	Gasket	B	Buna-N	3560BN
		A	Asbestos	3175AS
		E	Teflon-Asb.	3175AT
10	Collar	F	Steel	3176MS
		H	Aluminum	3176AE
		J	Stls 304	3176SL
		K	Stls 316	3176SS
11	Gasket		Buna-N	3716BN
12	Shim		Aluminum	3023AL
			Stls 316	3023SS
13	Vent		Alum/Stls.	6238AL

Betts INDUSTRIES, INC.

PARTS LIST

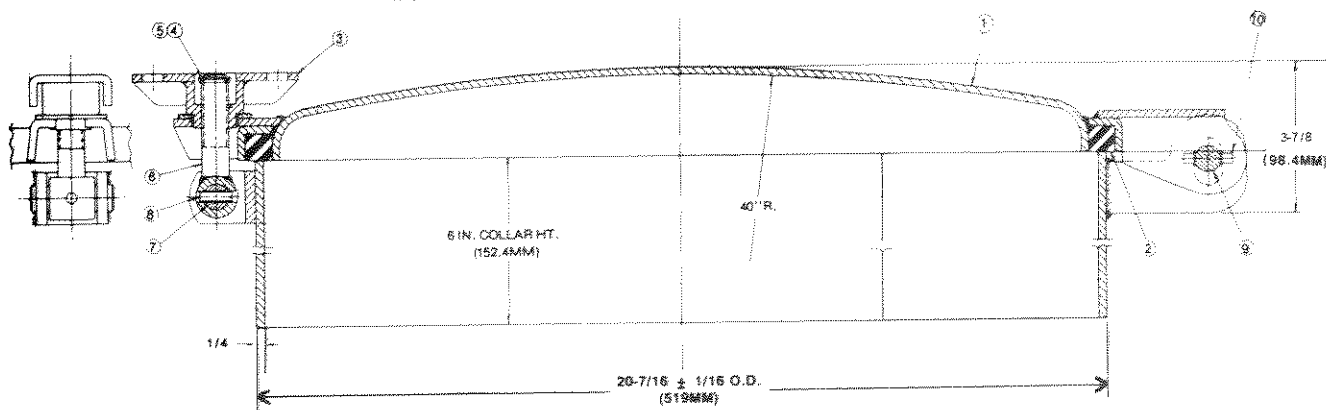
TIONA®

20" (508 mm) FULL OPENING MANHOLE



Model 8217

MODEL	DESCRIPTION	W.P.
8304	4" Collar Pressure	43.5 psi.
8306	6" Collar Pressure	43.5 psi.
8310	10" Collar Pressure	43.5 psi.
8327	6" Collar Non-Pressure	5.0 psi.



No.	Description	Material	Part No.
1	Cover	Steel	6381MS
		Stainless 316	6381SS
		Stainless 316L	6381LC
2	Gasket*	B Buna-N	3513BN
		V Viton	3513VT
		W White Hypalon	3513WH
		T Pure Teflon (Woven)	3513TF
		E White Non-Asbestos with Teflon Suspensoid (Woven)	3513NT

No.	Description	Material	Part No.
3	Wing Nut	Stnls 304	3576SL
4	Snap Ring	Stnls 304	3606SL
5	Snap Ring Washer	Stnls 304	3575SL
6	Swing Bolt	Stnls 304	3765SL
7	Swing Bolt Pin	Stnls 304	3086SL
8	Roll Pin-Swg Bolt	Stnls 304	3607SL
9	Hinge Pin	Stnls 304	3818SL
10	Roll Pin-Hinge Pin	Stnls 304	3171SL

***Gasket Maximum Temperature**

Buna N (Nitrile)	250°F
Viton	400°F
Hypalon-White	250°F
Pure Teflon	500°F
White Non-Asbestos with Teflon Suspensoid	500°F

MAINTENANCE:

Manhole assembly should be inspected with sufficient frequency and with due regard to the products carried to insure a liquid tight closure. Any worn, damaged, or missing parts must be replaced.

GASKETS:

Check the condition of all gaskets and replace if their effectiveness as a seal is impaired in any way. Replacement gaskets must be compatible with products carried.

WING NUTS AND SWING BOLTS:

All swing bolt and wing nut assemblies must be secured to the cover and tightened to insure the pressure and product retention performance of the manhole assembly.

TIONA®

Betts INDUSTRIES, INC.

20" (508 mm) FULL OPENING MANHOLE

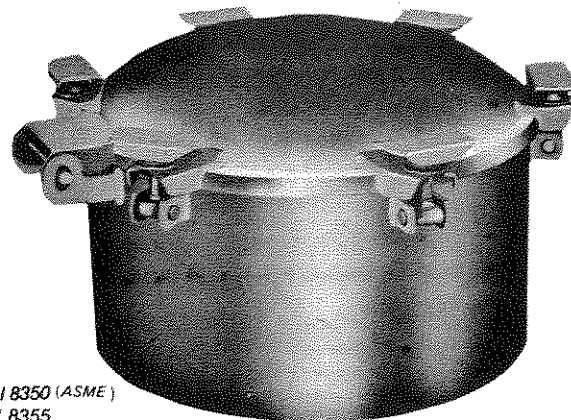
This Tiona 20" Full Opening Manhole conforms to the requirements of the ASME code for pressure vessels Section VIII, Division I. A 10" high collar is standard.

NOTES: White Hypalon gasket furnished as standard (reference suffix "W" in assembly number.) For other gaskets available, see parts page for correct suffix.

*Tests were conducted and ratings determined with homogeneous gaskets.

When a woven or braided gasket is used seepage may be expected.

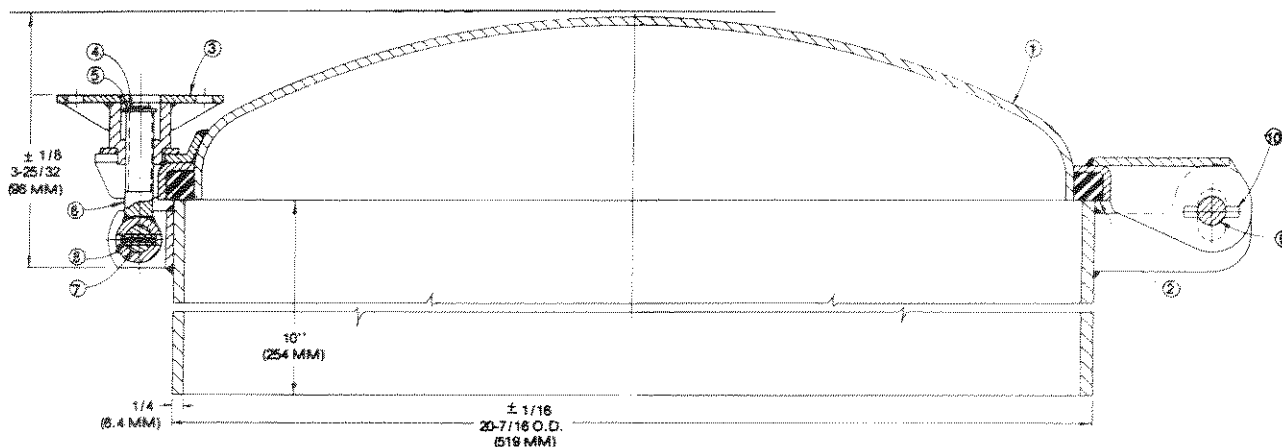
During installation and welding the collars to the tank, care should be exercised to insure the collars remain flat and round in order to assure proper performance. If necessary a welding fixture should be used to prevent distortion.



Model 8350 (ASME)
Model 8355

Weld Collar	Cover	Wing-Nut Washer Hinge Pins	Number Holdows	Working Pressure		Weight		8350 Assembly No.	8355 Assembly No.
								ASME	
Steel	Steel	Stnls 304	6	50 PSI	3.4 BAR	88 LB	40 Kg	8350SCW	8355SCW
Stnls. 316	Stnls-316	Stnls 304	6	50 PSI	3.4 BAR	88 LB	40 Kg	8350DCW	8355DCW
Stnls. 316L	Stnls-316L	Stnls 304	6	50 PSI	3.4 BAR	88 LB	40 Kg	8350LCW	8355LCW

PARTS LIST



No.	Description	Material	Part No.
1	Cover	Steel	6348FB
		Stainless 316	6348SS
		Stainless 316L	6348LC
2	Gasket*	B Buna-N	3513BN
		V Viton	3513VT
		W White Hypalon	3513WH
		T Pure Teflon (Woven)	3513TF
		E White Non-Asbestos with Teflon Suspensoid (Woven)	3513NT

No.	Description	Material	Part No.
3	Wing Nut	Stnls 304	3576SL
4	Snap Ring	Stnls 304	3606SL
5	Snap Ring Washer	Stnls 304	3575SL
6	Swing Bolt	Stnls 304	3765SL
7	Swing Bolt Pin	Stnls 304	3086SL
8	Roll Pin-Swg Bolt	Stnls 304	3607SL
9	Hinge Pin	Stnls 304	3818SL
10	Roll Pin-Hinge Pin	Stnls 304	3171SL

Any worn, damaged, or missing parts must be replaced.

GASKETS:

Check the condition of all gaskets and replace if their effectiveness as a seal is impaired in any way. Replacement gaskets must be compatible with products carried.

WING NUTS AND SWING BOLTS:

All swing bolt and wing nut assemblies must be secured to the cover and tightened to insure the pressure and product retention performance of the manhole assembly.

*Gasket Maximum Temperature

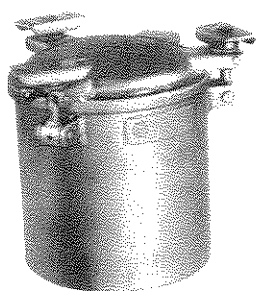
Buna N (Nitrile)	250°F
Viton	400°F
Hypalon-White	250°F
Pure Teflon	500°F
White Non-Asbestos with Teflon Suspensoid	500°F

MAINTENANCE:

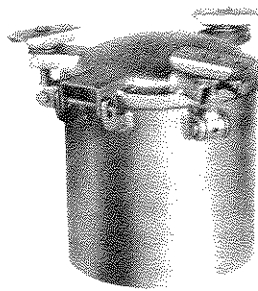
Manhole assembly should be inspected with sufficient frequency and with due regard to the products carried to insure a liquid tight closure.

TIONA®**Betts** INDUSTRIES, INC.

10" (254 mm) PRESSURE FILL



Model 8168 (ASME)



Model 8155

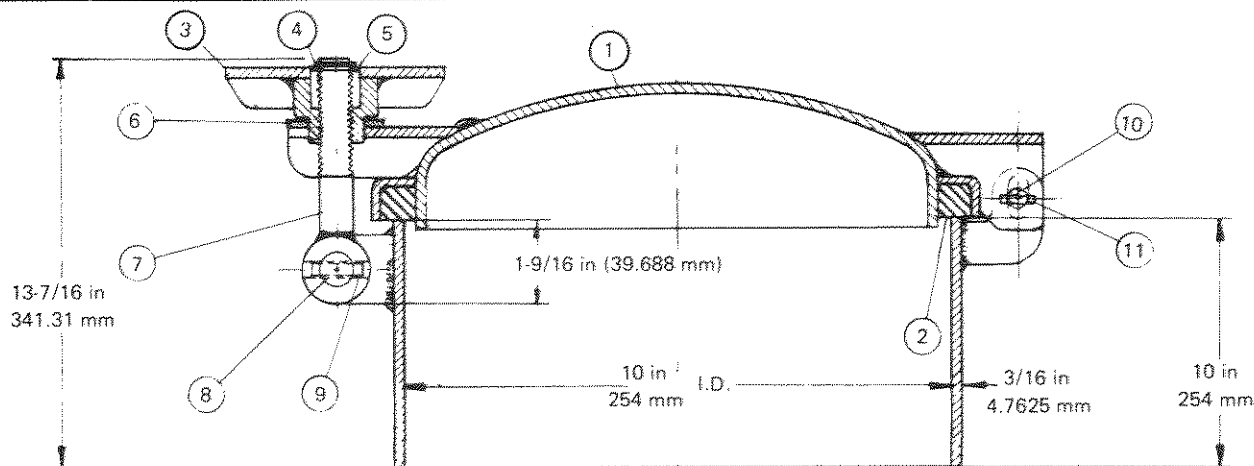
This Tiona 10" Pressure Fill conforms to the requirements of the ASME code for pressure vessels Section VIII, Division I. A 10" high collar is standard.

NOTES: Cork and Buna-N Gaskets (suffix "C") are provided as standard. For variation of gaskets, please refer to parts page. Substitute gasket symbol shown in assembly number (Example: Teflon, suffix "T") and add difference of prices involved to basic price of assembly.

When a woven or braided gasket is used seepage may be expected. *Tests were conducted and ratings determined with homogeneous gaskets.

During installation and welding the collars to the tank, care should be exercised to insure the collars remain flat and round in order to assure proper performance. If necessary a welding fixture should be used to prevent distortion.

Cover, Weld Collar Hinge Lugs	Wing-Nut, Washer Hinge Pins	Number Holdowns	*Working Pressure	Wt.	8168 Assembly No.	8155 Assembly No.
Steel	Stainless 304	3	50 PSI 3.51 Kg/cm ²	32.5 Lb 14.74 Kg.	8168 SC C	8155 SCB
Stainless 316	Stainless 304	3	50 PSI 3.51 Kg/cm ²	32.5 Lb 14.74 Kg.	8168 DC C	8155 DCB



No.	Description	Material	Part No.
1	Cover (3 Hold-downs)	Steel	6222 MS
		Stainless 316	6222 SS
2	Gasket	C Cork-Buna-N	3567 CB
		B Buna-N	3567 BN
		N Neoprene-White	3567 WN
		V *Viton	3567 VT
		H Hypalon	3567 HP
		T *Pure Teflon (Woven)	3567 TF
		A White Asbestos (Woven)	3567 AS
		E White Asbestos with Teflon Suspensoid (Woven)	3567 AT
		F Blue African Asbestos (Woven)	3567 BA
		G Blue African Asbestos with Teflon Suspensoid (Woven)	3567 BT
*Special Order			

No.	Description	Material	Part No.
3	Wing Nut	Stls 304	3576 SL
4	Snap Ring	Stls 304	3606 SL
5	Snap Ring Washer	Stls 304	3575 SL
6	Hold Down Washer	Stls 304	3496 SL
7	Swing Bolt	Stls 304	3603 SL
8	Swing Bolt Pin	Stls 304	3086 SL
9	Roll Pin-Swg. Bolt	Stls 304	3181 SL
10	Hinge Pin	Stls 304	3618 SL
11	Roll Pin-Hinge Pin	Stls	3619 SL

* Gasket Maximum Temperature
 Buna N (Nitrile) 250°F
 Viton 400°F
 Hypalon-White 250°F
 Pure Teflon 500°F
 White Asbestos 600°F
 with Teflon Suspensoid

MAINTENANCE:

Manhole assembly should be inspected with sufficient frequency and with due regard to the products carried to insure a liquid tight closure. Any worn, damaged, or missing parts must be replaced.

GASKETS:

Check the condition of all gaskets and replace if their effectiveness as a seal is impaired in any way. Replacement gaskets must be compatible with products carried.

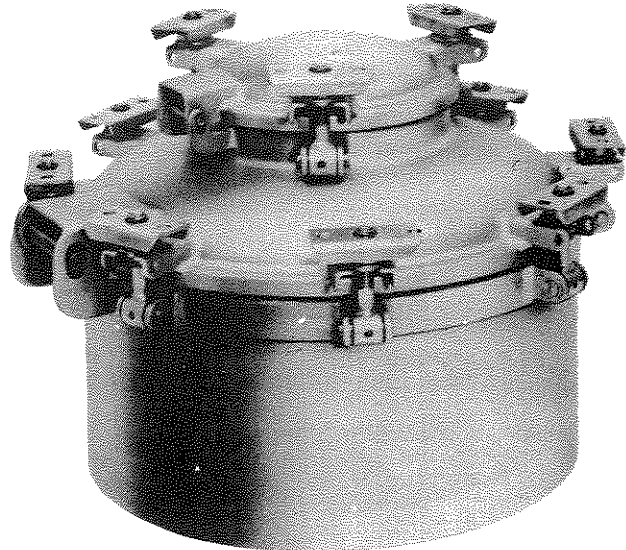
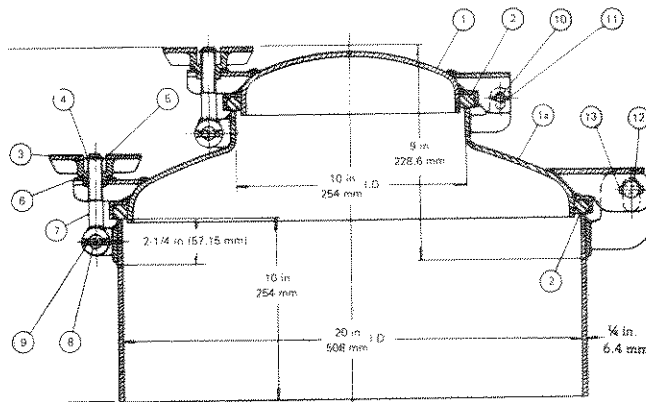
WING NUTS AND SWING BOLTS:

All swing bolt and wing nut assemblies must be secured to the cover and tightened to insure the pressure and product retention performance of the manhole assembly.

TIONA[®] PARTS LIST

Betts INDUSTRIES, INC.

20" (508 mm) FULL OPENING MANHOLE
WITH 10" (254 mm) FILL ASME TYPE



Model 8187

This Tiona 20" Full Opening Manhole conforms to the requirements of the ASME code for pressure vessels Section VIII, Division I. A 10" high collar is standard.

Covers, Weld Collar	Wing-Nut, Washer Hinge Lugs & Pins	Number Holdowns		*Working Pressure	Wt.	Assembly No.
		Fill	Manhole			
Stainless 316	Stainless 304	3	8	50 PSI 3.51 Kg/cm ²	105 LB 47.627 KG	8187 DC C

(Stainless 316L available on request)

NOTES: Cork and Buna-N Gaskets (suffix "C") are provided as standard. For variation of gaskets, please refer to parts page. Substitute gasket symbol shown in assembly number (Example: Teflon, suffix "T").

When a woven or braided gasket is used seepage may be expected. *Tests were conducted and ratings determined with homogeneous gaskets.

During installation and welding the collars to the tank, care should be exercised to insure the collars remain flat and round in order to assure proper performance. If necessary a welding fixture should be used to prevent distortion.

No.	Description	Material	Part No. Fill	Part No. Manhole
1	Cover (3 Hold-downs)	Stainless 316	6222 SS	
1a	Cover (8 Hold-downs)	Stainless 316		6233 SS
2	Gasket	C Cork-Buna-N	3567 CB	3513 CB
		B Buna-N	3567 BN	3513 BN
		N Neoprene-White	3567 WN	3513 WN
		V Viton	3567 VT	3513 VT
		H Hypalon	3567 HP	3513 HP
		T Pure Teflon (Woven)	3567 TF	3513 TF
		A White Asbestos (Woven)	3567 AS	3513 AS
		E White Asbestos with Teflon Suspensoid (Woven)	3567 AT	3513 AT
		F Blue African * Asbestos (Woven)	3567 BA	3513 BA
		G Blue African Asbestos with Teflon Suspensoid (Woven)	3567 BT	3513 BT
*Special Order				

No.	Description	Material	Part No.
3	Wing Nut	Stls 304	3576 SL
4	Snap Ring	Stls 304	3606 SL
5	Snap Ring Washer	Stls 304	3575 SL
6	Hold Down Washer	Stls 304	3496 SL
7	Swing Bolt	Stls 304	3603 SL
8	Swing Bolt Pin	Stls 304	3086 SL
9	Roll Pin-Swg. Bolt	Stls 304	3181 SL
10	Hinge Pin	Stls 304	3618 SL
11	Roll Pin-Hinge Pin	Stls 304	3619 SL
12	Hinge Pin	Stls 304	3121 SL
13	Roll Pin-Hinge Pin	Stls 304	3171 SL

* Gasket Maximum Temperature

Buna N (Nitrile)	250°F
Viton	400°F
Hypalon-White	250°F
Pure Teflon	500°F
White Asbestos	600°F
with Teflon Suspensoid	

MAINTENANCE:

Manhole assembly should be inspected with sufficient frequency and with due regard to the products carried to insure a liquid tight closure. Any worn, damaged, or missing parts must be replaced.

GASKETS:

Check the condition of all gaskets and replace if their effectiveness as a seal is impaired in any way. Replacement gaskets must be compatible with products carried.

WING NUTS AND SWING BOLTS:

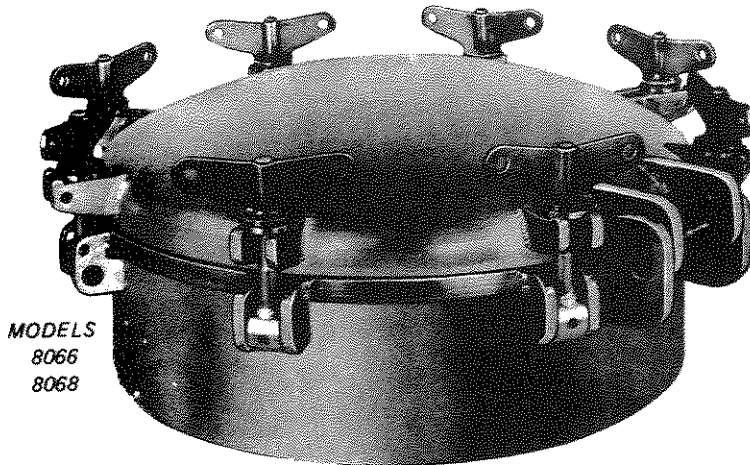
All swing bolt and wing nut assemblies must be secured to the cover and tightened to insure the pressure and product retention performance of the manhole assembly.

Betts INDUSTRIES, INC.

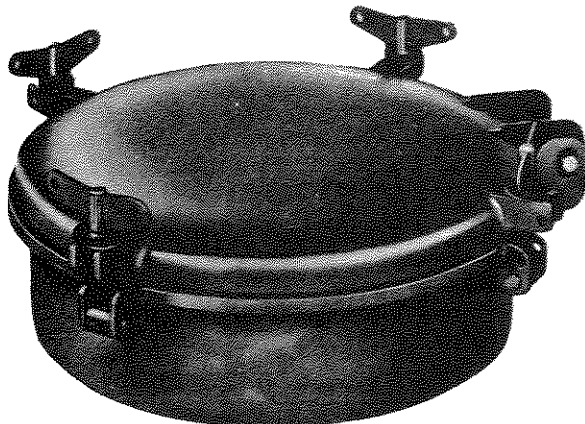
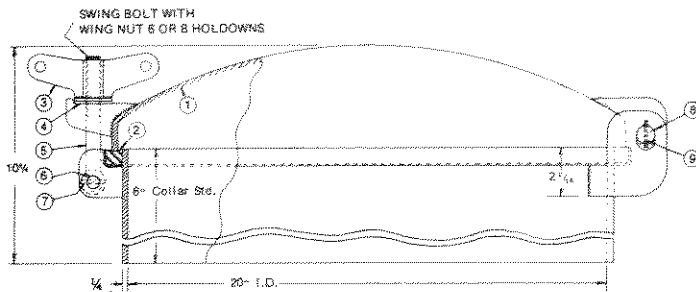
MANHOLE COVERS

PARTS LIST

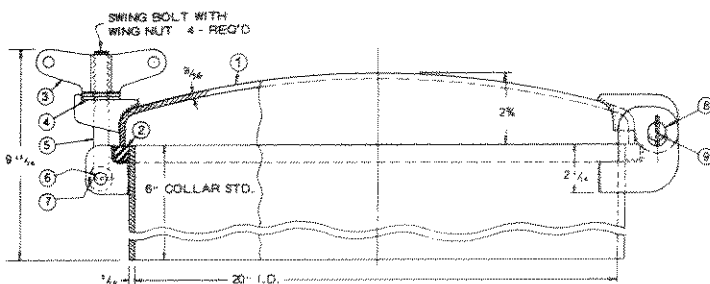
DISCONTINUED STYLE WITH GASKET IN COLLAR



MODELS
8066
8068



Model 8027



20" FULL OPENING MANHOLE

PRESSURE TYPE

No.	Description	Material	Part No.
1A	Cover (6 Hold-downs)	Steel	6074 MS
		Aluminum	6074 AL
		Stainless 304	6074 SL
		Stainless 316	6074 SS
1B	Cover (8 Hold-downs)	Steel	6070 MS
		Aluminum	6070 AL
		Stainless 304	6070 SL
		Stainless 316	6070 SS
2	Gasket	B Buna-N	3078 BN
		N Neoprene-White	3078 WN
		V Viton	3078 VT
		H Hypalon	3078 HP
		T Pure Teflon (Woven)	3078 TF
		E White asbestos with Teflon Suspensoid (Woven)	3078 AT

Gasket Maximum Temperature

Buna N (Nitrile)	250° F
Viton	400° F
Hypalon-White	250° F
Pure Teflon	500° F
White Asbestos with Teflon Suspensoid	600° F

No.	Description	Material	Part No.
3	Wing Nut	Steel Cd. Pt.	3042 CP
		Stls 304	3042 SL
4	Washer	Steel Cd. Pt.	3109 CP
		Stls 304	3109 SL
5	Swing Bolt	Steel Cd. Pt.	3069 CP
		Stls 304	3069 SL
6	Swing Bolt Pin	Steel Cd. Pt.	3086 CP
		Stls 304	3086 SL
7	Roll Pins-Swing Bolt	Stainless	3181 SL
8	Hinge Pin	Steel Cd. Pt.	3121 CP
		Stls 304	3121 SL
9	Roll Pin-Hinge Pin	Stainless	3171 SL

MAINTENANCE:

Manhole assembly should be inspected with sufficient frequency and with due regard to the products carried to insure a liquid tight closure. Any worn, damaged, or missing parts must be replaced.

GASKETS:

Check the condition of all gaskets and replace if their effectiveness as a seal is impaired in any way. Replacement gaskets must be compatible with products carried.

WING NUTS AND SWING BOLTS:

All swing bolt and wing nut assemblies must be secured to the cover and tightened to insure the pressure and product retention performance of the manhole assembly.

20" FULL OPENING MANHOLE NON PRESSURE

No.	Description	Material	Part No.
1	Cover (4-Hold Downs)	Steel	6037 MS
		Aluminum	6037 AL
		Stainless 304	6037 SL
		Stainless 316	6037 SS

TIONA®

A normal vent developed for use on tank vehicles equipped for vapor recovery. Greater opening pressures, within D.O.T. limits for MC-306 tank, are provided on the pressure and vacuum relief for more efficient recovery of vapors during

closed system loading and off-loading. The vent is provided with 6-ounce vacuum setting as standard. The vent has been flow tested and marked. NOTE: This vent will not provide sufficient venting for product discharge.

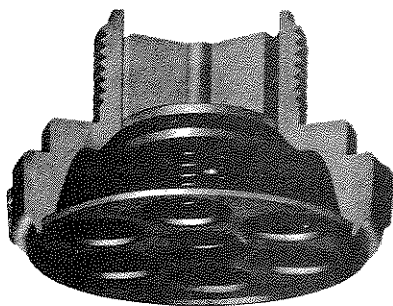
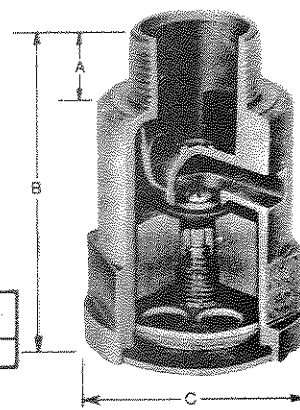
	Thru Area	Capacity
Inbreathing	1.25 sq. in.	3350 cu. ft. hr. @ 1 PSIG
Outbreathing	0.44 sq. in.	1750 cu. ft. hr. @ 3 PSIG

*Note: Unique design retains product at any attitude of rollover.

Material			Thread Size	Dimensions			Wt.	Symbol*	Assembly No.
Body	Disc	Trim		A	B	C			
Aluminum	Viton	Stnls. 316	1 1/8-12	7/8	4 1/8	2 1/4	1.2 LB.	FVA	6238 AL

*NOTE: Symbols are used ONLY in connection with COMPLETE MANHOLE ASSEMBLIES.

PPV VENT



INBREATHING VENT—1-5/8-12 THD.

Designed to supplement the 6238 AL vent to provide additional inbreathing capacity when required. This vent may be used singly or in multiples according to requirements.

NOTE: While this vent does provide additional inbreathing capacity, it is recommended that positive vents, which will open with the emergency valve, be provided when discharging product with the manhole closed.

	Thru Area	Capacity at 1 PSIG
Inbreathing	1.00 sq. in.	4000 cu. ft. hr.

Material			Thread Size	A	Wt.	Assembly No.
Body & O-Ring Holder	O-Ring	Spring				
Aluminum	Viton	Stnls. 316	1 1/8-12	1 1/8	4.5 oz.	6234 AL

OUTBREATHING VENT WITH OVERTURN DISC

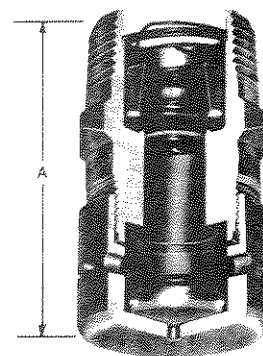
S.P. OUTBREATHING 1 1/4 I.P.S.

The all new Single-Purpose Vents offer many advantages in venting. Vents are designed for use where ease of cleaning is important or where additional venting is required. May be installed singly or

in multiples, according to requirements. This vent has been flow tested and marked in accordance with Nat. Fire Protection Assn. No. 385 (1964) Par. 2263 and No. 407 (1964) Par. 616.

	Thru Area	Capacity at 3 PSIG
Outbreathing	0.44 sq. in.	3285 cu. ft. hr.
Overturn Protection	Flat Disc	

Material			Thread Size-Right Hand	A	Wt.	Assembly No.
Body	Overturn Disc & Spring	Disc				
Alum.	Stnls. 316	Viton	1 1/4 I.P.S.	2 1/8	4.5 oz.	3008 ALV
Stnls. 316	Stnls. 316	Viton			11.6 oz.	3008 SSV



INBREATHING VENT—1-1/4 I.P.S.

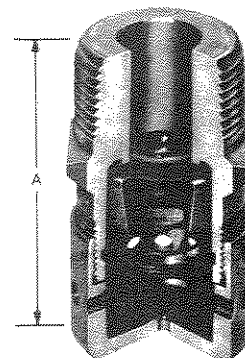
S.P. INBREATHING 1 1/4 I.P.S.

Intake Vent is designed to be used with Exhaust Vent or for additional venting requirements. High capacity, ease of cleaning, few parts are outstanding features. Vents are installed inside manhole cover and

protected by means of a weatherhood. This vent has been flow tested and marked in accordance with Nat. Fire Protection Assn. No. 385 (1964) Par. 2263 and No. 407 (1964) Par. 616.

	Thru Area	Capacity at 1 PSIG
Inbreathing	0.44 sq. in.	1750 cu. ft. hr.

Material			Thread Size-Left Hand	A	Wt.	Assembly No.
Body	Spring	Disc				
Alum.	Stnls. 316	Viton	1 1/4 I.P.S.	2 1/8	3.0 oz.	3010 ALV
Stnls. 316	Stnls. 316	Viton			7.7 oz.	3010 SSV



TIONA®**Betts** INDUSTRIES, INC.

INBREATHING VENT—1-5/8-12 THD.

S.P. INBREATHING 1½-12

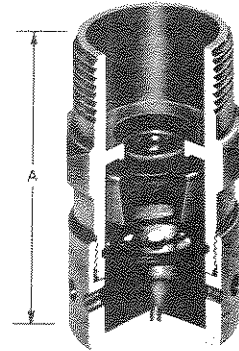
This vent is to be used with Exhaust Vent No. 3008, as shown on Page 87-1. Vent is installed under fill cover; protected from weather and damage. Vent is easily cleaned and available in a variety of

materials.

This vent has been flow tested and marked in accordance with Nat. Fire Protection Assn. No. 385 (1964) Par. 2263 and No. 407 (1964) Par. 616.

	Thru Area	Capacity at 1 PSIG
Inbreathing	0.44 sq. in.	1750 cu. ft. hr.

Material			Thread Size	A	Wt.	Symbol	Assembly No.
Body	Spring	Disc					
Alum.	Stnls. 316	Viton	1½-12	2 11/16	3.0 oz.	SPA	3006 ALV
Stnls. 316	Stnls. 316	Viton			7.7 oz.	SPS	3006 SSV



This Pressure-Actuated Vent is rated at 10,000 cubic feet of air per hour at 5 PSIG. It is designed to provide the pressure-actuated emergency venting as required by DOT MC-306, NFPA No. 385, and No. 407. This model may be in-

stalled from the tank exterior in such devices as manhole covers or pipe caps. The PAV 125 has been flow tested and marked in accordance with DOT MC-306 Par. 178.341-4(e), NFPA 385 Par. 2263, and NFPA 407 Par. 616.

NOTE: To provide a proper load on disc, spring should be loaded to length of 1½ inches.

RATED CAPACITY @ 5 PSIG—10,000 cu. ft. hr.

Material			Thread Size	Dimensions		Wt.	Assembly No.	
Body	Disc	Trim		A	B			
Aluminum	Viton	Stnls. 316	1½ I.P.S.	3¾	2	8 oz.	Interior	3350 ALV
Stnls. 316	Viton	Stnls. 316	1½ I.P.S.	3¾	2	18 oz.		3350 SSV
Aluminum	Viton	Stnls. 316	1½ I.P.S.	3¾	2	8 oz.	Exterior	3338 ALV
Stnls. 316	Viton	Stnls. 316	1½ I.P.S.	3¾	2	18 oz.		3338 SSV

TRIDENT COMBINATION VENT

The Trident provides three-way venting plus overturn protection. It is designed to provide the pressure-actuated emergency venting plus inbreathing (vacuum) and outbreathing (pressure). The Trident can be disassembled for cleaning. The pressure-actuated emergency venting has been flow tested and marked in accordance with D.O.T. MC306 Para. 178.351-4(e), N.F.P.A. 385 Para. 2263, and N.F.P.A. 407 Para. 616.

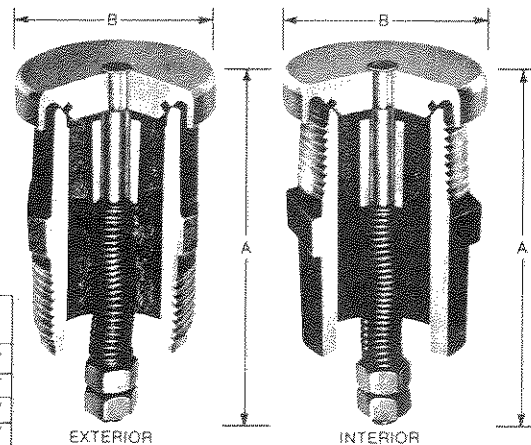
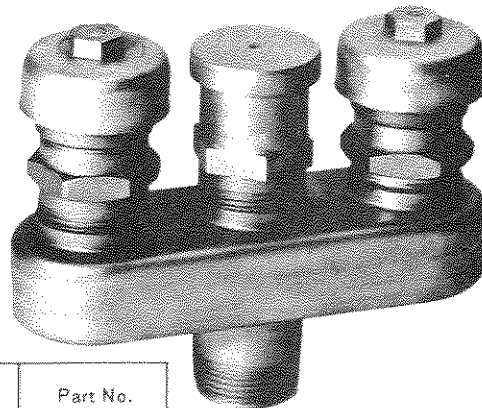
	Thru Area	Capacity
Inbreathing Vent	0.44 sq. in.	1750 cu. ft. hr. @ 1 psig.
Outbreathing Vent	0.44 sq. in.	3285 cu. ft. hr. @ 3 psig.

Pressure Actuated Emergency Venting

Rated Capacity @ 5 PSIG — 10,000 Cu. Ft. Hr.

Note: To provide a proper load on disc, spring should be loaded to a length of 1½ inches.

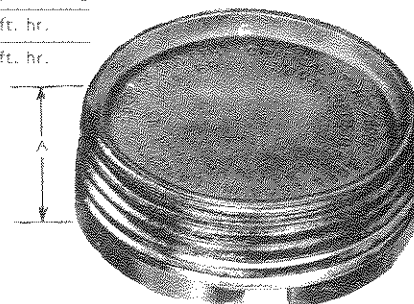
Vent Assembly	Body	Seat	Wt.	Part No.
Aluminum with Stainless	Aluminum	Viton	2.0	6131 ALV
Stainless 316	Stainless	Viton	4.5	6131 SSV

PAV-125 EMERGENCY VENT**Trident Combination Vent****FUSIBLE PLUG (1-1/4" and 2" I.P.S.)****FUSIBLE PLUGS**

Fusible Plugs provide a means of emergency venting which depends only on temperature. Plugs are designed to melt and blow out at a maximum temperature of 250° F. These Fusible Plugs have been flow tested and marked in accordance with Nat. Fire Protection Assn. No. 385 (1964) Par. 2263 and No. 407 (1964) Par. 616 and DOT MC306 Par. 78.341-4.

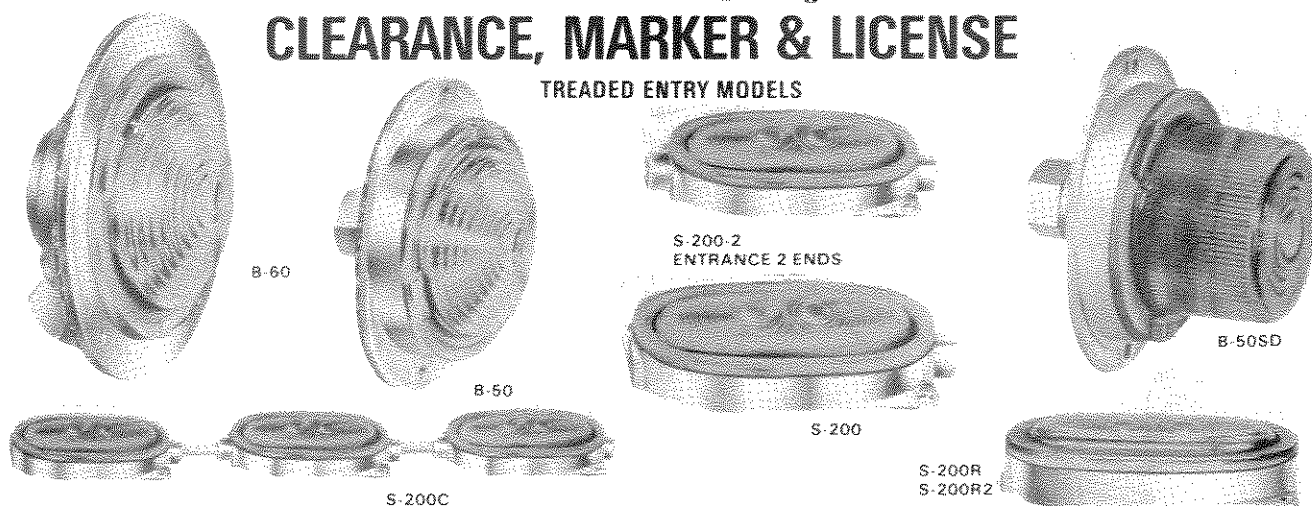
Size	Temp. Release	Rated Capacity @ 5 psig.
1¼ IPS	250° F. Max.	26,200 cu. ft. hr.
2 IPS	250° F. Max.	53,000 cu. ft. hr.

Material		Thread Size	A	Wt.	Fusible Plug Part No.	
Body	Disc					
Brass	Brass	1¼ I.P.S.	5/8	2 oz.	P	3019 BR
Stainless 316	Stainless 316		1 1/16		P	3019 SS
Steel	Steel				P	3322 MS
Steel Cad. Plt.	Steel Cad. Plt.	2 I.P.S.	1¼	5.5 oz.	P	3322 CP
Stainless 316	Stainless 316				P	3322 SS



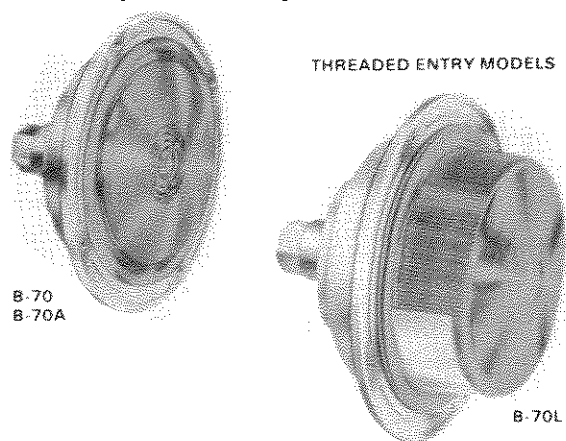
Betts SnapSeal CLEARANCE, MARKER & LICENSE

TREADED ENTRY MODELS

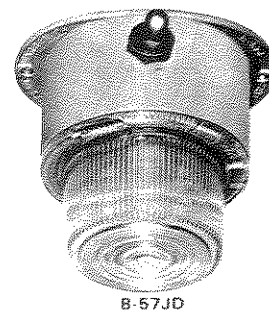


STOP, TURN, TAIL & LICENSE

TREADED ENTRY MODELS

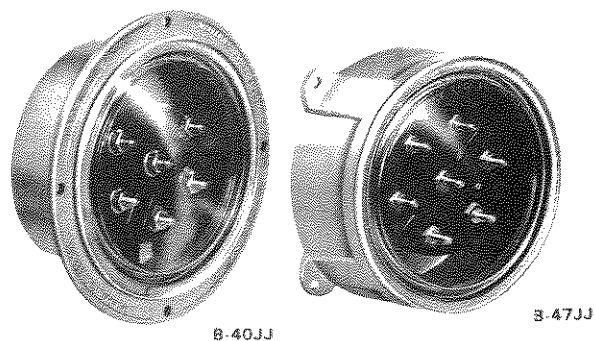


CABINET, METER & DOME LAMPS



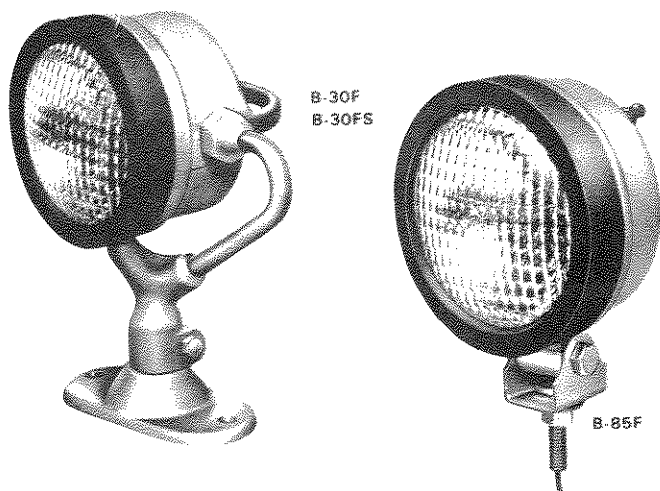
JUNCTION BOXES

JUNCTION BOXES WITH & WITHOUT
TERMINAL BLOCK ASSEMBLY



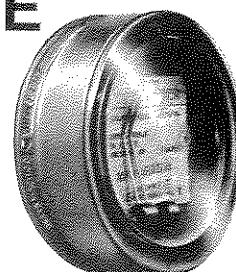
SEALED BEAM FLOOD LAMPS

AVAILABLE WITH AMBER SEAL BEAM FOR
FOG LIGHTS

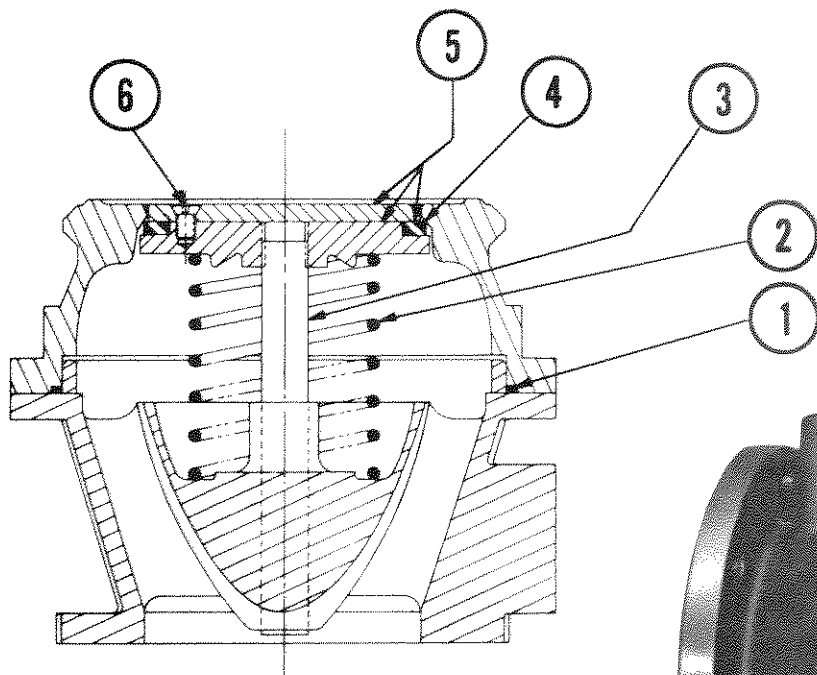
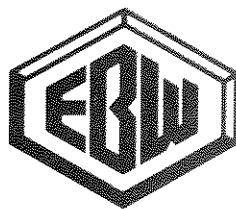


CERTIFICATE HOLDER

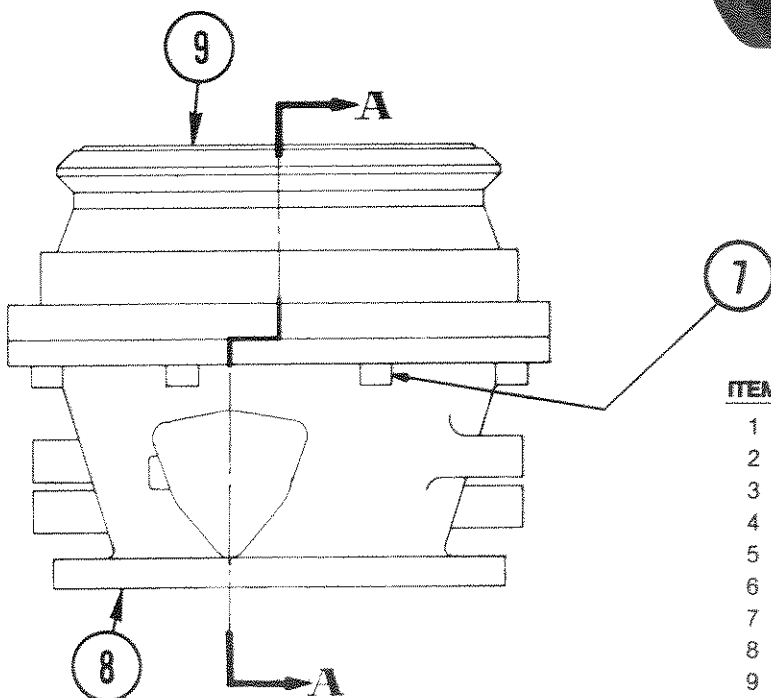
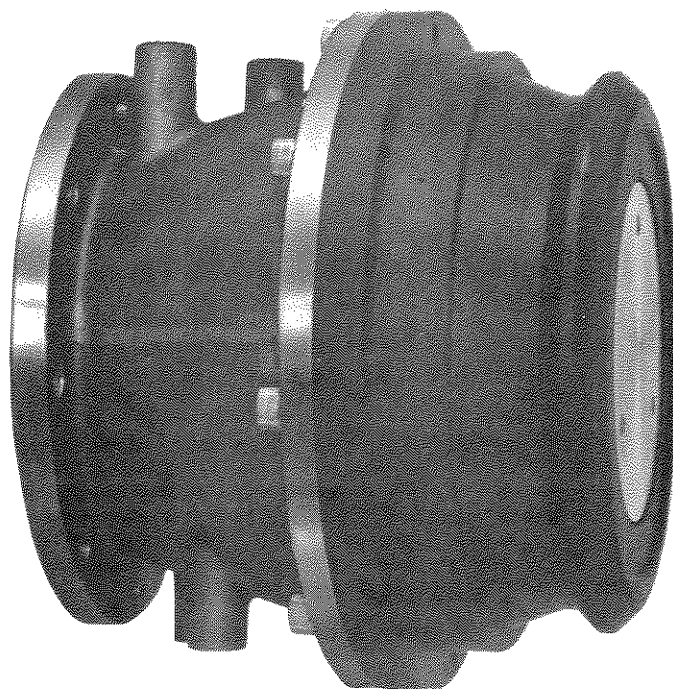
PS-1
PAPER SAFE



These models and many more models available.
Please call for complete specifications and catalogs.

880-404
ADAPTOR

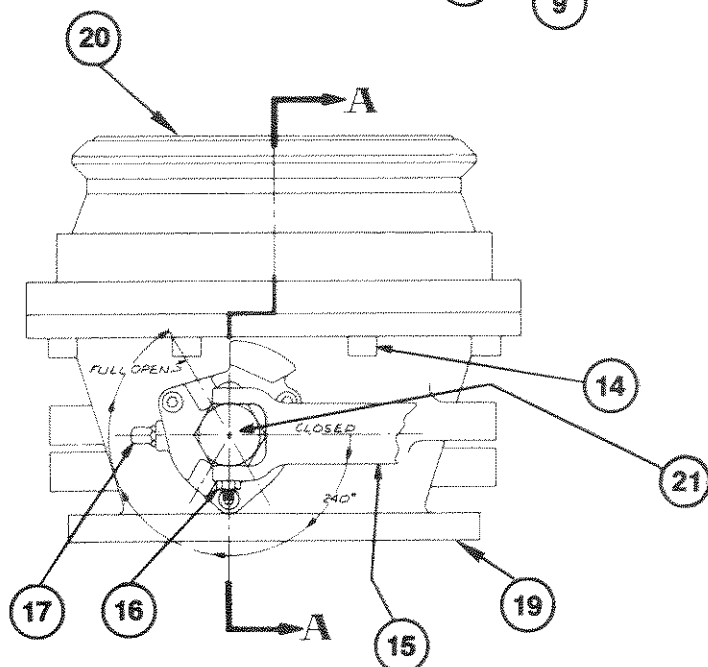
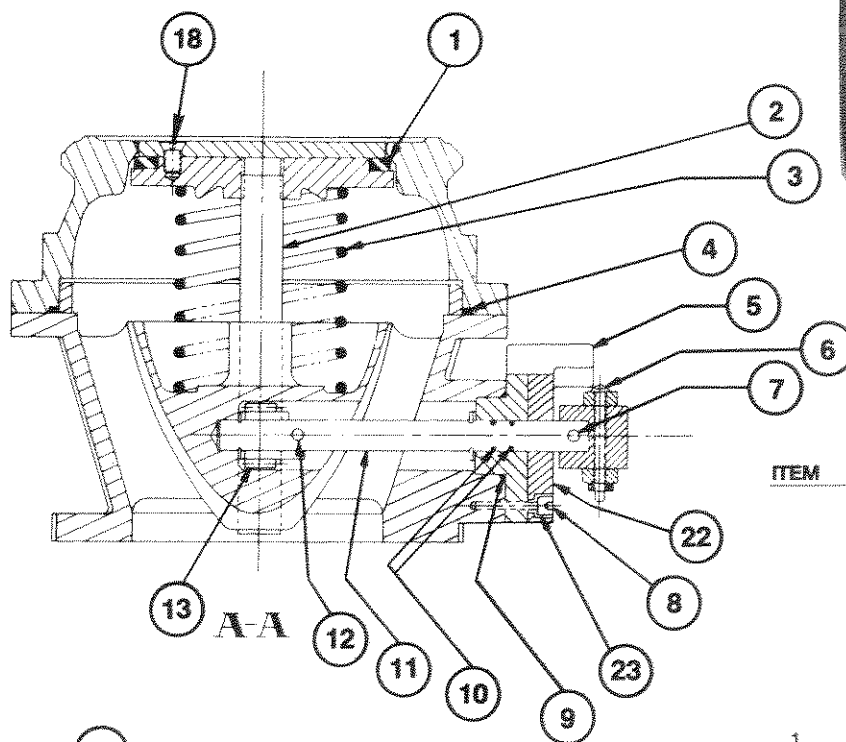
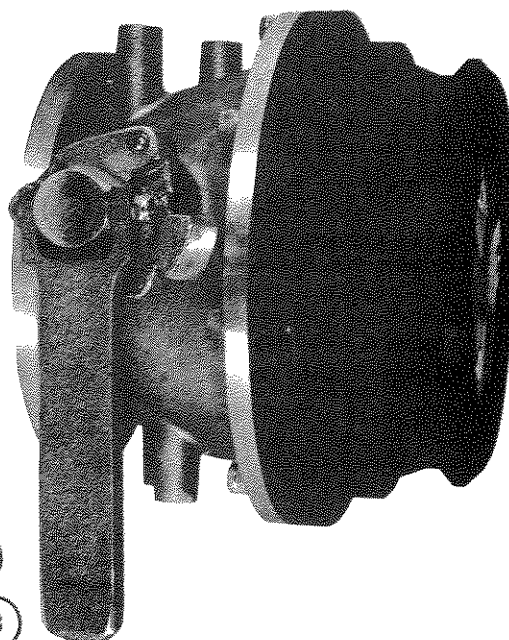
A-A

**PARTS LIST**
EBW 880—404
BOTTOM LOADING ADAPTOR

ITEM	NAME	QTY. REQ'D	PART NO.
1	Seal Ring (Viton)	1	11034-02
2	Spring	1	880-127-01
3	Stem	1	880-108-01
4	Poppet Seal Gasket (Viton)	1	880-116-01
5	Service Kit	1	90005
6	Flat Hd. Sock Cap Screw	3	11067-03
7	Socket Head Screws	8	11030-06
8	Body	1	880-400-01
9	API Adaptor	1	880-401-01

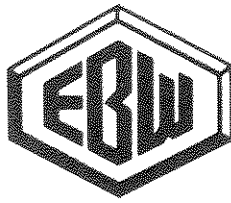


880-405 ADAPTOR WITH 3 POSITION OPERATING HANDLE



PARTS LIST EBW 880—405 ADAPTOR

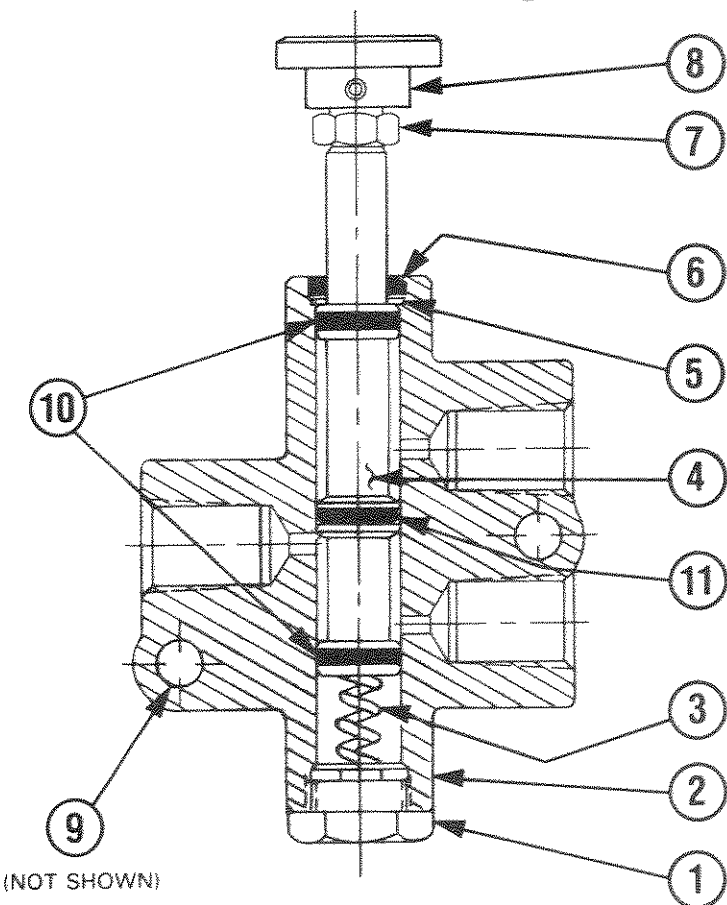
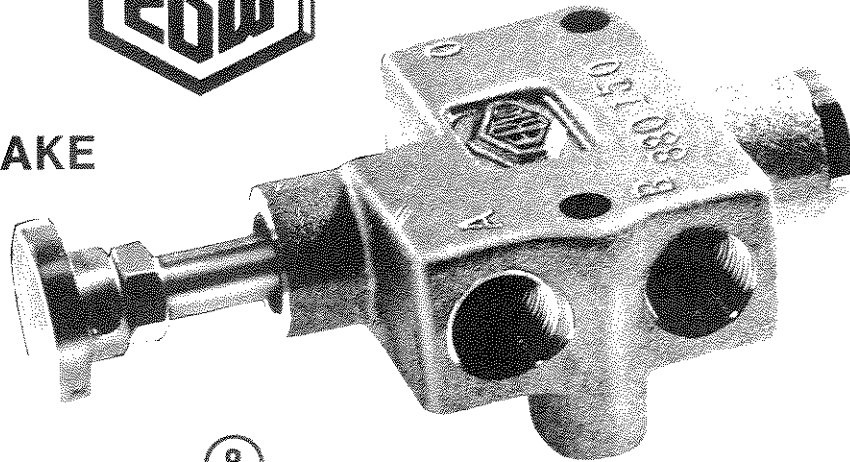
ITEM	NAME	QTY. REQ'D	PART NO.
	Service Kit	1	90006
	Service Kit Includes:		
	(1) Item 1		
	(1) Item 4		
	(3) Item 8		
	(1) Item 9		
	(2) Item 10		
	(3) Item 18		
1	Poppet Seal Gasket (Viton)	1	880-116-01
2	Stem with Gear	1	880-105-01
3	Spring	1	880-127-01
4	Seal Ring (Viton)	1	11034-02
5	Latch	1	880-212-01
6	Rd. Hd. Screw	1	11011-03
7	Spirol Pin	1	11086-04
8	Sock Hd. Cap Screw	3	11030-07
9	"O" Ring (Viton)	1	11062-02
10	"O" Ring (Viton)	2	11039-02
11	Shaft	1	880-101-01
12	Grooved Pin	1	11095-01
13	Gear	1	880-106-01
14	Sock. Hd. Cap Screw	8	11030-06
15	Handle	1	880-211-01
16	Locknut	1	11109-01
17	Grease Fitting	1	11111-01
18	Flat Hd. Screws	3	11067-03
19	Body (Openable) Style	1	880-400-02
20	API Adaptor	1	880-401-01
21	Hub	1	880-123-02
22	Latch Plate	1	880-172-01
23	Insert	3	880-173-01



MODEL 880-150 AIR INTERLOCK BRAKE

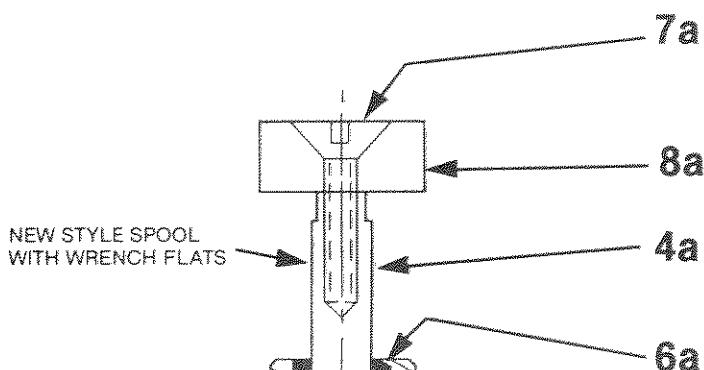
NOTE:

Meets A.P.I. RP-1004
Requirements Spec.

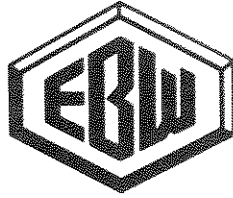


PARTS LIST 880-150 AIR INTERLOCK BRAKE ASSEMBLY

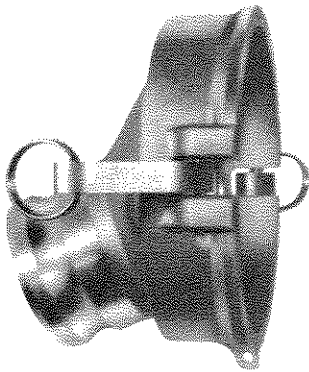
ITEM	NAME	QTY REQ'D	PART NO.
1	Plug-Nut	1	880-145-01
2	Body-Air Valve	1	880-323-01
3	Spring	1	880-148-01
4	Spool & O-Ring Ass'y	1	880-147-01
5	Retaining Ring	1	11090-04
6	Dust Seal	1	880-142-01
7	Hex Nut (.250-20)	1	11212-01
8	Screw Adjust-Ass'y	1	880-144-01
9	Mounting Screws	2	11063-07
10	O-Ring	2	11134-01
11	O-Ring	1	11134-02



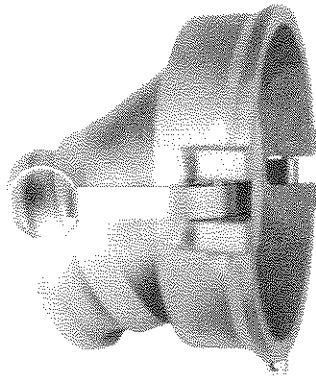
ITEM	NAME	QTY REQ'D	PART NO.
4a	Spool & O-Ring Ass'y	1	880-171-01
6a	Dust Seal	1	880-142-01
7a	Ft. Hd. Screw	1	11251-01
8a	Button	1	880-170-01



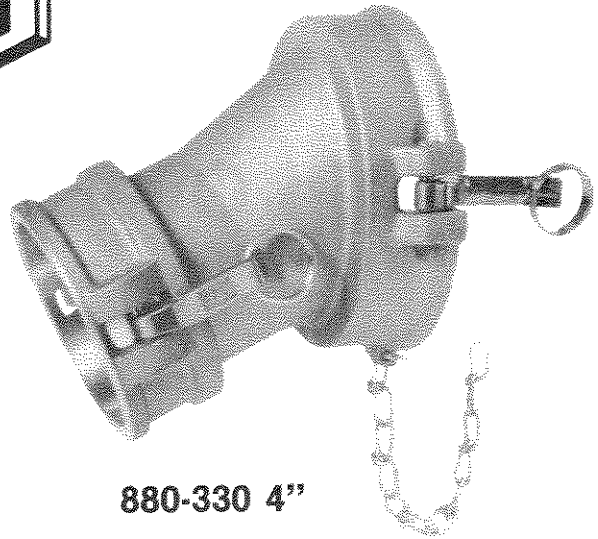
22½° GRAVITY DROP ADAPTORS



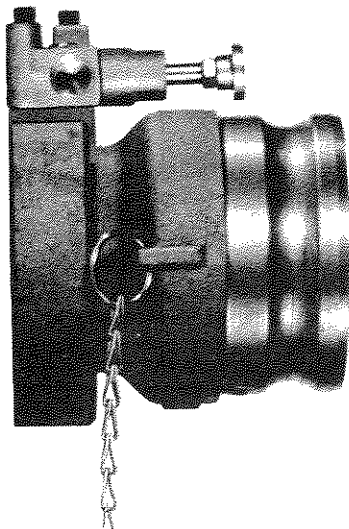
880-410 3"



880-411 4"



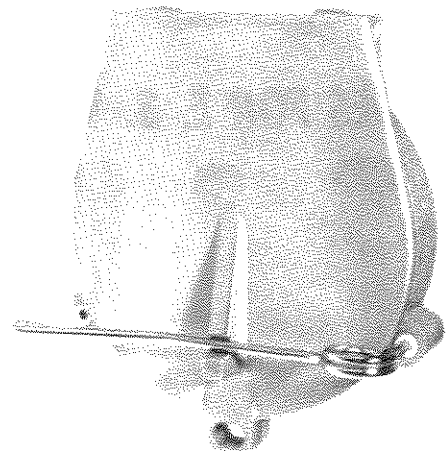
880-330 4"



**301 Tank Truck
Vapor Check Valve
(Shown w/880-150)**



304 Vapor Cap

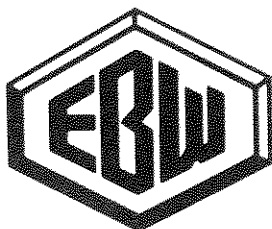


**EBW 784
Hose Tube Door**

**VAPOR RECOVERY
TANK TRUCK ADAPTOR**

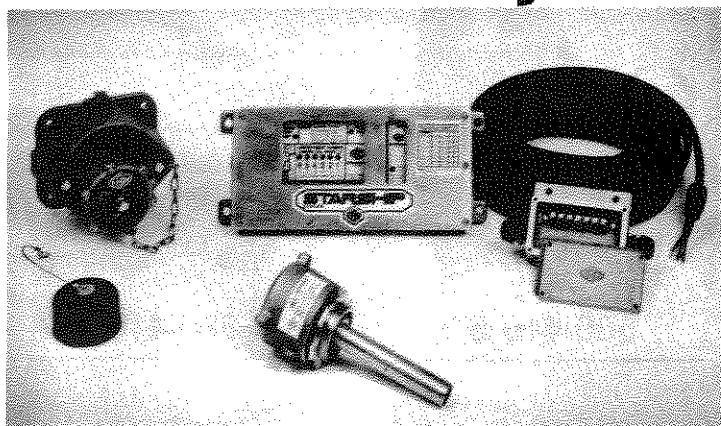
EBW 302-4"





Starship Overfill Protection System

Manufacturer's Catalogs and Other Available Publications and Data Can Be Furnished On Request.



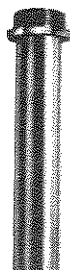
TUBES FOR E. B. W. NOZZLES



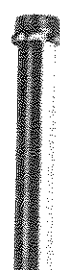
410-116



410-122

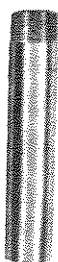


410-129

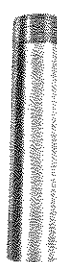


410-133

NUMBER	THREAD SIZE	TUBE SIZE	MATERIAL
410-116	1-1/2" NPT	1-3/8"	BRASS
410-122	1-1/4" NPT	1-1/8"	BRASS
410-129	1-1/2" NPT	1-5/8"	BRASS
410-133	1-1/4" NPT	1-3/8"	BRASS



491-100



491-101



491-107

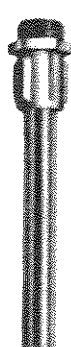
491-100	1-1/4" NPT	1-1/4"	ALUMINUM
491-101	1-1/2" NPT	1-1/2"	ALUMINUM
491-107	1-1/4" NPT	1"	ALUMINUM



495-210

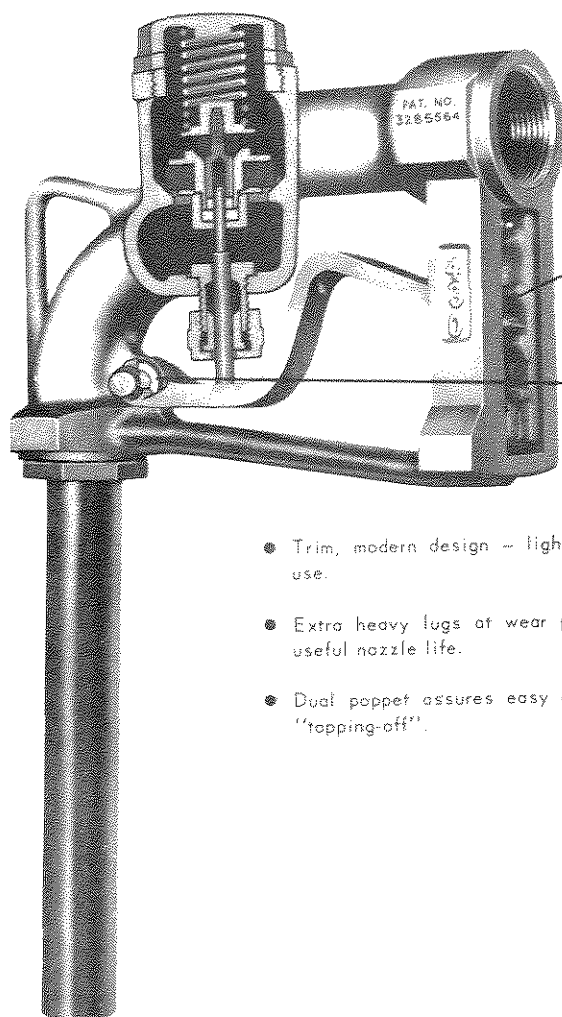
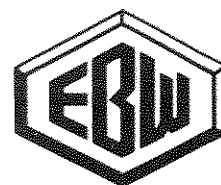


495-211



495-112

495-210	1-1/2" NPS	1-29/32"	ALUMINUM
495-211	1-1/4" NPS	1-21/32"	ALUMINUM
495-112	1-1/4" NPS	1-1/8"	BRASS



EBW 490
Fuel Oil Nozzle

NEW NYLAFIL*
HOLD-OPEN NOTCHES

NEW NYLAFIL*
LEVER PIN BUSHING

- Trim, modern design — light to hold — easy to use.
- Extra heavy lugs at wear points means longer useful nozzle life.
- Dual poppet assures easy opening and precise "topping-off".

CONSTRUCTION DETAILS

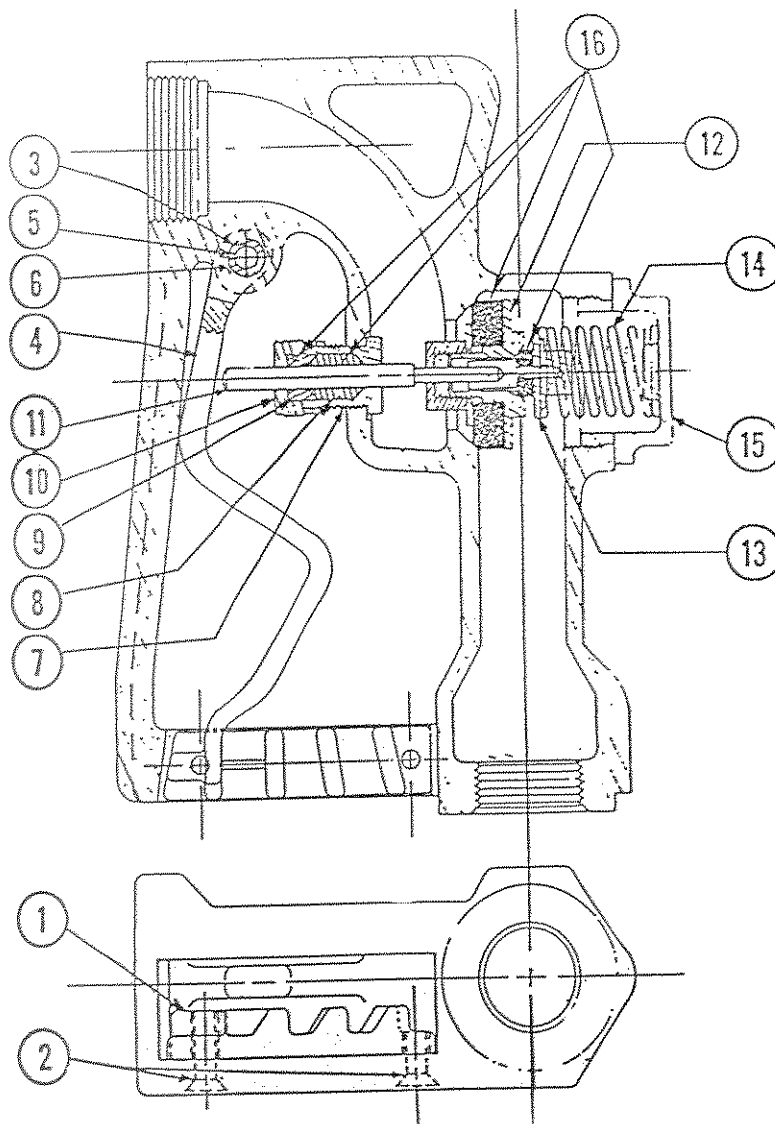
Body: Aluminum
Stem: Stainless Steel
Packing: Teflon-impregnated Asbestos
Discs: Buna N Standard,

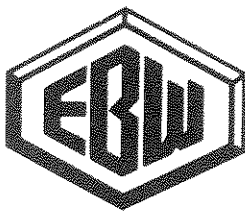
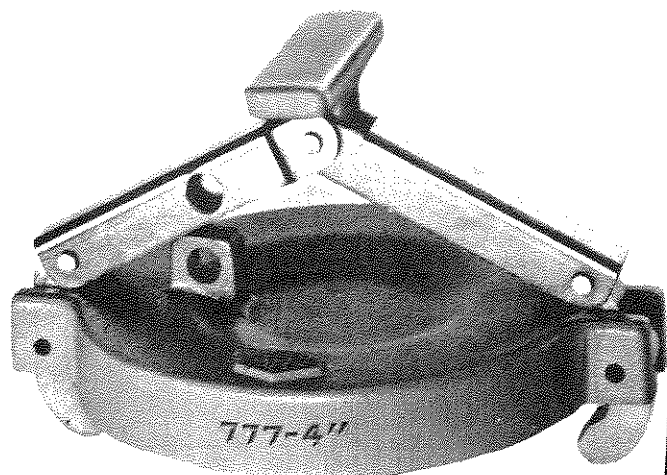
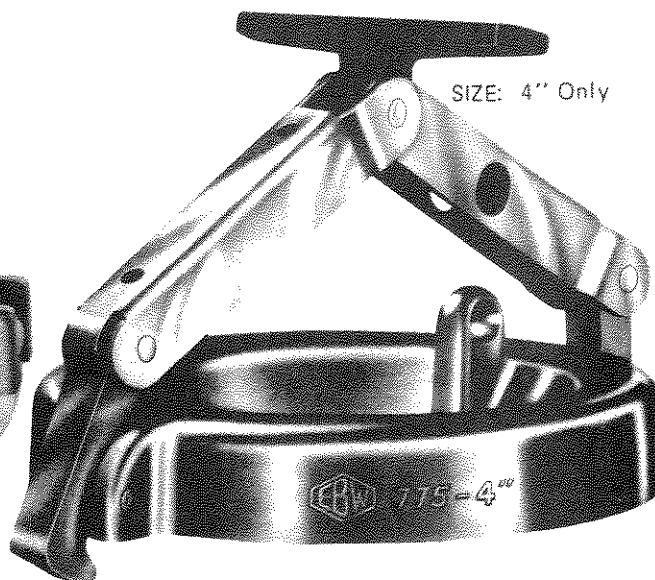
Inlet Sizes:	1"	1 1/4"	1 1/2"
Tube Outlet Sizes:	1 1/4"	1 1/4"	1 1/2"

490 1", 1 1/4" NOZZLE ASSEMBLY PARTS LIST

EBW 490 Fuel Oil Nozzle 1" and 1 1/4"

ITEM	NAME	QTY REQ'D	PART NO.
1	Latch-Lever	1	410-114-01
2	Flat Head Screws	2	11015-01
3	Bushing	1	410-115-01
4	Lever-Hand	1	490-300-01
5	Rivet	1	11009-01
6	Retaining Ring	1	11007-02
7	Gland-Packing	1	498-105-01
8	Packing	1	11022-01
9	Follower-Packing	1	410-109-01
10	Nut-Packing	1	410-113-01
11	Stem	1	410-118-01
12	Poppet Assembly	1	490-104-01
13	Pilot Valve Ass'y	1	410-120-01
14	Spring	1	410-121-01
15	Nut	1	490-102-01
16	Service Kit	1	90001

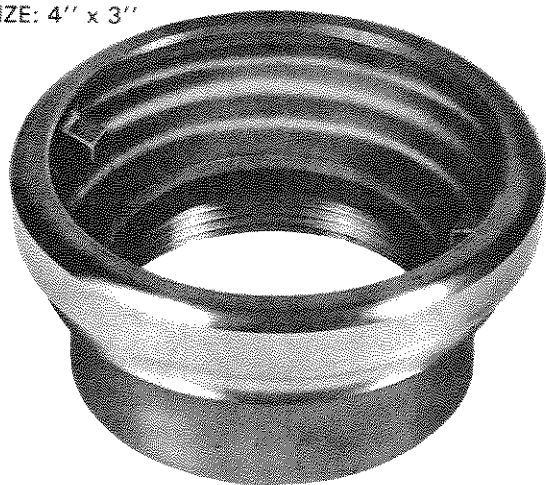
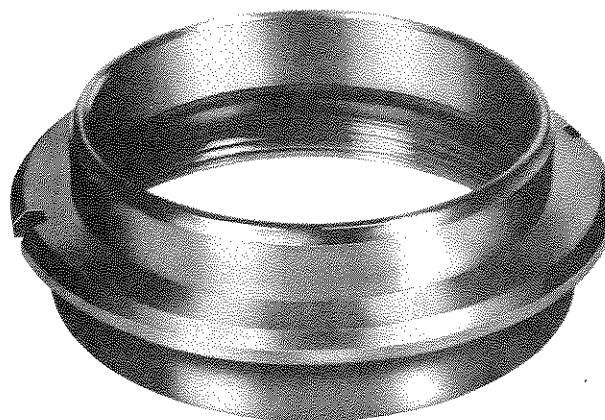


"LoKwiK"**MODEL 775
SIDE SEAL FILL CAP****EBW MODEL 777 FILL CAP**

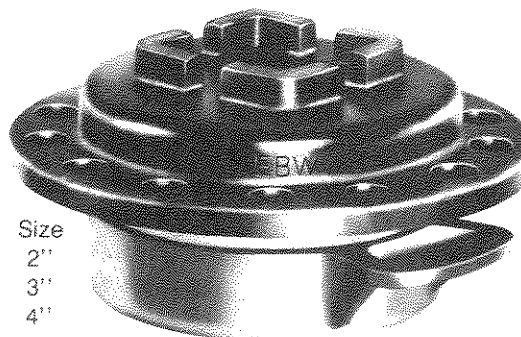
SIZE: 4" Only

778 ADAPTORS

SIZE: 4" x 3"

**776 ADAPTOR**SIZE: 4"X4"
HEIGHT: 1-5/8"

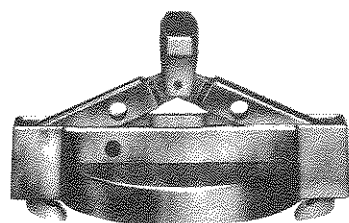
4" x 4"

**LOCKING FILL CAP No. 770**Size
2"
3"
4"

Emco Wheaton Tight Fill Caps

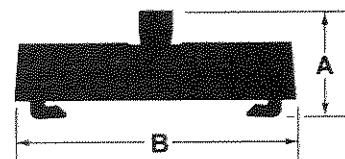
Emco Wheaton offers a variety of tight fill caps designed to mate with different adapters in various fill system configurations. When selecting fill caps, be sure to consult the charts below each product description for the correct variant.

A97 Tight Fill Cap



The A97 top seal fill cap is designed for use on all coaxial adapters and the A30-014 adapter. Protects the adapter and prevents product line contamination. The A97 features an exclusive self-aligning, toggle-action design for easy coupling and removal. Toggle pins are stainless steel, cams are cast bronze and links are

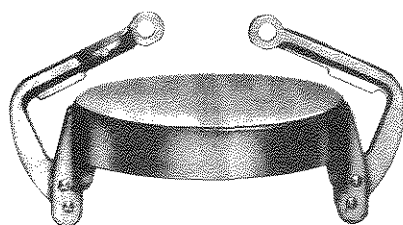
plated steel. Provides even compression on a low swell compound gasket for long service life. Replaceable seals and padlocking capability.



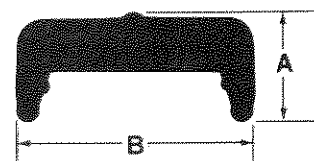
Model No.	Material	Seal	Size	Adapter	A	B
*A97-001	Die Cast Aluminum	Buna	4"	All V/R Adapters	3"	7 ² / ₅ "
A97-002	Die Cast Aluminum	Buna	4"	A30 and All V/R Adapters	3"	7 ² / ₅ "

* Supplied with identification sticker, "Use only with F298 elbow."

A39 Tight Fill Cap

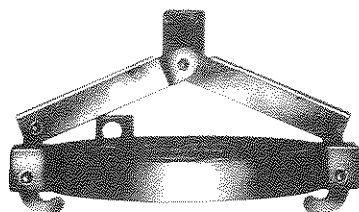


The A39 is an economical, lever-locking type fill cap designed for use with the A30 adapter. Cam action lever seals the cap against the adapter and assures a water tight, vapor tight seal. Top-sealing fill cap can be padlocked to prevent product theft.

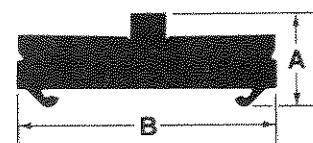


Model No.	Material	Seal	Size	Adapter	A	B
A39-002	Brass	Buna	4"	A30	2 ³ / ₄ "	6 ¹ / ₈ "
A39-003	Brass	Buna	3"	A30	1 ¹⁵ / ₁₆ "	4 ⁹ / ₁₆ "

A99 Vapor Adapter Cap



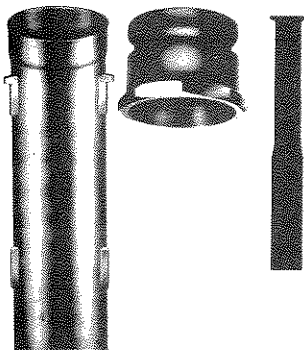
The A99 cam and groove cap features a special cam system expressly designed for use with the A76 adapter on the vapor line portion of dual point fill systems. Features epoxy coating for corrosion resistance, and an exclusive self-aligning toggle-action design. Same rugged design as the A97. Replaceable seals and padlocking capability. Painted orange to identify vapor return line.



Model No.	Material	Seal	Size	Adapter	A	B
A99-001	Aluminum	Buna	4"	A76	2 ¹ / ₂ "	6 ⁴ / ₅ "

Emco Wheaton Drop Tubes

A70 Coaxial Drop Tube with Adapter



Emco Wheaton offers a range of drop tubes to match various fill system needs. These drop tubes are supplied in a variety of lengths and are designed to be altered in the field to meet specific tank dimensions.

The A70 drop tube is used for coaxial vapor recovery tight fill systems, and has a vapor recovery efficiency rated in excess of 95%.

The A70 drop tube comes complete with the 491687 or 491688 adapter, and the 491689 bushing if required.

Installing Emco Wheaton drop tubes is fast and simple and requires no excavation. The drop tube is inserted in the riser pipe until it touches the bottom of the tank. Next, the distance from the top of the tube or lugs

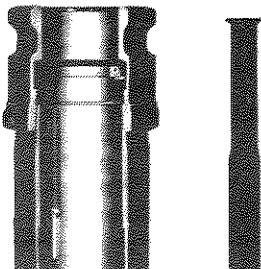
to the top edge of the riser pipe is measured, and 3" is added. This amount is then cut from the bottom of the drop tube at a 45° angle. The tube is inserted in the tank and ready for use.

The A70 is light weight aluminum for easy handling. Guides are heliarc welded for extra strength. Comes complete with buna seal. Cut to size in the field at a 45° angle for efficient flow.

Installation instructions are supplied. Use with the A97 fill cap and the F298 coaxial elbow or equivalent. SOLD IN CARTONS OF TWO. (Tube and adapter can be ordered separately.)

Model No.	Fuel	Size	Weight	Tube No.	Adapter	Bushing
A70-001	Leaded	4" x 12'	12 lbs.	491312	491687	N/A
A70-002	Leaded	3" x 12'	8 lbs.	491402	491687	491689
A70-003	Unleaded	3" x 12'	8 lbs.	491402	491688	491689
A70-004	Unleaded	4" x 12'	12 lbs.	491312	491688	N/A

A88 Coaxial Drop Tube with Adapter

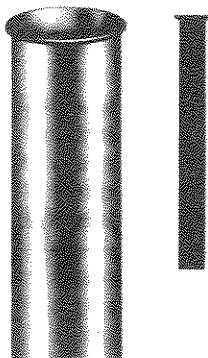


Emco Wheaton's exclusive A88 drop tube is used in coaxial fill systems to provide a self-sealing vapor line. Spring-loaded assembly secures the tube against the adapter during normal storage. When product is dropped, the coaxial elbow pushes the tube down from the adapter to create a path for vapor return. The A88 comes complete with adapter and, if required, a reducer bushing. Drop tube is light weight aluminum for easy handling. Guides are heliarc welded for extra strength. Standard buna seal is supplied. Cut 45° in the

field for efficient flow. Vapor recovery efficiency rated in excess of 95%. Use the A97 fill cap and F298 elbow or equivalent. Installation instructions are supplied. SOLD IN CARTONS OF TWO. (Tube and adapter can be ordered separately.)

Model No.	Fuel	Size	Weight	Tube No.	Adapter	Bushing
A88-001	Leaded	4" x 12'	12½ lbs.	491563	491685	N/A
A88-003	Leaded	3" x 12'	8½ lbs.	491659	491685	491879
A88-005	Unleaded	4" x 12'	12½ lbs.	491563	491686	N/A
A88-007	Unleaded	3" x 12'	8½ lbs.	491659	491686	491879

A20 Drop Tube



The A20 drop tube is used in conventional non-vapor recovery and dual point vapor recovery fill systems. The drop tube fits directly into the tank riser pipe to permit tight fill submerged filling with reduced turbulence and minimal vapor loss. Light weight aluminum for easy handling and installation. Complete with buna gasket. Cut 45° in the field to fit. Use with the Emco Wheaton A30 adapter and A39 or A97 fill caps. Use the F523 Elbow or equivalent. SOLD IN CARTONS OF FOUR.

Model No.	Size	Weight
A20-001	3" x 10'	3 lbs.
A20-002	3" x 11'	3½ lbs.
A20-003	4" x 10'	4½ lbs.
A20-004	4" x 12'	5 lbs.
A20-006 (.065 Wall Thickness)	4" x 12'	5½ lbs.
A20-007	2" x 10'	2½ lbs.

Emco Wheaton

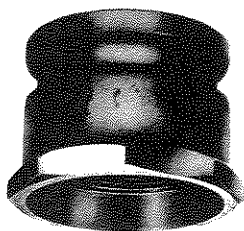
Adapters

Adapters

Emco Wheaton adapters are designed to fit various 3" and 4" tank risers and accommodate standard and coaxial elbows for product drops.

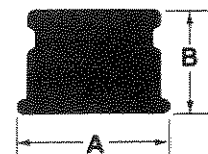
These adapters are easy to install and provide secure seating on the riser.

Coaxial Vapor Recovery Adapters



Emco Wheaton Vapor Recovery Adapters are expressly designed for standard coaxial fill systems and coaxial systems with self-sealing vapor lines. Features recessed threads for easy installation and positive seating on riser pipes. A set screw in the adapter body secures it to the riser to prevent loosening. Coaxial vapor recovery adapters are used with the A70 and A88 drop tubes, and require A97 fill caps. To avoid mixing product types, these adapters are specially machined in leaded and unleaded versions to accommodate leaded or unleaded F298 elbows. Where product mix is not a problem, use leaded model

as it will accommodate either version of the F298 elbow. Also compatible with competitive elbows. Unleaded adapters painted blue for positive identification. The A81 adapter wrench is recommended for installation. THESE ADAPTERS ARE INCLUDED WITH A70 AND A88 DROP TUBES; ALSO AVAILABLE SEPARATELY.

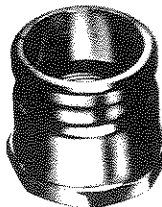


Part No.	Fuel	Material	Size	Drop Tube	Weight	A	B
491685	Leaded	Korloy	4" x 4"	A88	3 lbs., 2 oz.	5 ³ / ₃₂ "	3 ³ / ₃₂ "
491686	Unleaded	Korloy	4" x 4"	A88	3 lbs., 2 oz.	5 ³ / ₃₂ "	3 ³ / ₃₂ "
491687	Leaded	Korloy	4" x 4"	A70	3 lbs., 11 oz.	5 ³ / ₃₂ "	3 ³ / ₃₂ "
491688	Unleaded	Korloy	4" x 4"	A70	3 lbs., 11 oz.	5 ³ / ₃₂ "	3 ³ / ₃₂ "

A30 Adapter

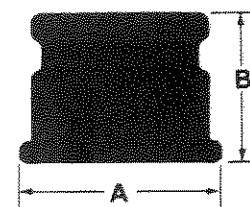


3"



4"

The A30 adapter is designed for use with conventional or dual point fill systems. Features recessed threads for easy installation and positive seating on standard riser pipes. A set screw in the adapter body secures it against the riser pipe to prevent loosening. Use with the A97 or A39 fill cap, and the Emco Wheaton F523 elbow or equivalent. The A81 adapter wrench is recommended for installation of the 4" variant.

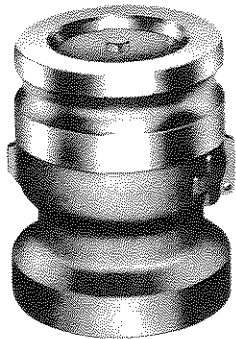


Model No.	Material	Seal	Size	Weight	A	B
A30-009	Brass	Buna	3" x 3"	2 lbs., 6 oz.	3 ⁵ / ₈ "	1 ² / ₃₂ "
A30-014	Korloy	Buna	4" x 4"	3 lbs., 5 oz.	5 ³ / ₃₂ "	3 ³ / ₃₂ "

Emco Wheaton

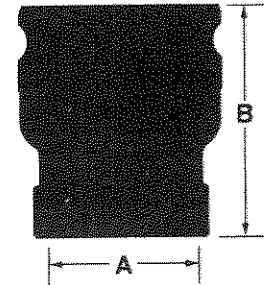
Adapters

A76 Vapor Adapter



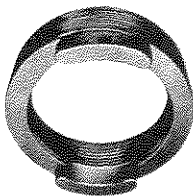
The A76 adapter is used in dual point fill systems on the vapor return line from the underground tank. Features a poppet design which, when not coupled, seals off the vapor path. External lugs on the adapter body make installation easy. The A76 has a standard buna seal, stainless steel spring, and cam-locking type groove to accept the vapor return coupler or elbow. Two sizes available to match any riser configuration.

Requires the A99 fill cap and the F77 vapor coupler or equivalent.



Model No.	Material	Seal	Size	Weight	A	B
A76-002	Aluminum	Buna	3" x 4"	2 lbs., 2 oz.	3 ³ / ₃₂ "	5 ³ / ₈ "
A76-003	Aluminum	Buna	4" x 4"	3 lbs., 3 oz.	4 ⁷ / ₈ "	5 ³ / ₈ "

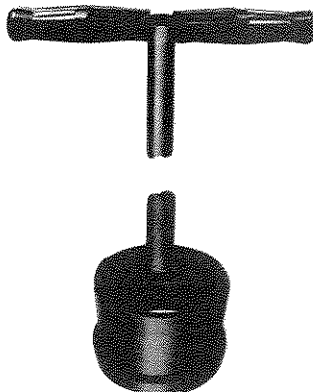
Reducer Bushings



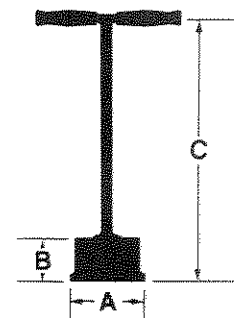
Emco Wheaton reducers are used to accommodate standard 4" adapters on 3" riser pipes. Supplied as standard equipment with the A70, A88 and A90 3" drop tube assemblies. ALSO AVAILABLE SEPARATELY.

Part No.	Used With	Material	Size	Weight
491879	(3") A88 Assy.	Steel	3" x 4"	2 lbs., 4 oz.
491689	(3") A70, A90 Assy.	Steel	3" x 4"	2 lbs., 4 oz.

A81 Adapter Wrench



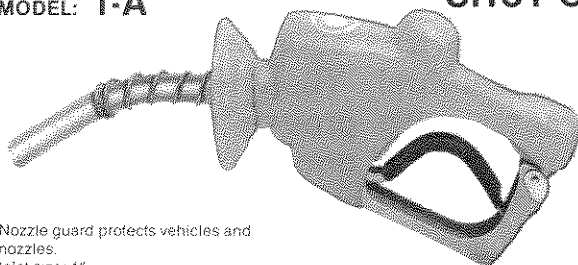
The A81 adapter wrench is a specially designed tool for installing Emco Wheaton coaxial vapor recovery adapters, and the 4" A30 adapter. Octagonal bottom and bicycle grip handles assure tight positive seating of the adapter on the riser pipe.



Part No.	Material	Weight	A	B	C
A81-001	Steel	10lbs.	6 ¹ / ₄ "	3 ³ / ₄ "	22"

NOZZLES

MODEL: 1-A



- Nozzle guard protects vehicles and nozzles.
- Inlet size: 1".

SWIVELS

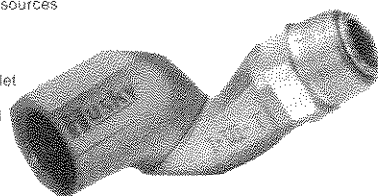
VI Description

- Full 230° spherical rotation.
- Lightweight for easier handling.
- UL listed for use at dispenser outlet and nozzle inlet.
- High strength step shoulder bearing diameters and impact absorbing stops.
- Certified by the California Air Resources Board.



VII Description

- UL listed for use at dispenser outlet and nozzle inlet.
- Full bore flow path for high speed dispensing.
- 340° of spherical rotation.



CURB PUMP HOSE

FLEXSTEEL™ Hardwall (UL Approved)

Flexsteel Gasoline hose is designed for dispensing pump applications which require a hard wall construction for full flow and no internal spring guards. It is ideal for reel or retractable cable pump applications. It handles all types of gasoline, oil and petroleum based products.

WIRE BRAID REINFORCED FOR LONGER SERVICE LIFE. A single braid of high tensile wire reinforcement provides extra strength and durability, high resistance to crushing, and static conductivity. *It retains its shape even after vehicle run-over.*

LOW OVERALL HOSE COST. Flexsteel Gasoline hose delivers top value. It takes rough punishment in use and is highly resistant to gasoline and high test additives.

MULTI-USE VERSATILITY. Flexsteel Gasoline hose can be used on all types of gasoline pumps and handles all types of petroleum fuels. It can be used for pressure or suction applications and will withstand a full vacuum on all sizes. All sizes are UL approved.

IMPROVED METER ACCURACY. Flexsteel Gasoline hose exhibits unusually low expansion and contraction under pressure. This assures minimal volumetric change and accurate meter readings on the pump.

CONSTRUCTION:

Tube: Chemigum synthetic rubber (ORS)

Reinforcement: Wire braid

Cover: Chemivic synthetic rubber (ORS). Available in black, red, green, yellow, blue, white, and orange

LENGTHS: Specified cut and coupled lengths or long continuous lengths on reels

FITTINGS: Reattachable swivel, one-time or standard reattachable gasoline hose fittings

SPECIFICATIONS					
I.D. x O.D.		MAX. WP		REINFORCEMENT	WEIGHT
in.	mm	psi	MPa		lb./ft. kg./m.
3/4 x 1.125	19.1 x 28.6	150	1.4	1 WTR	.40 .59

GAUGE STICKS

PART NO.

DESCRIPTION

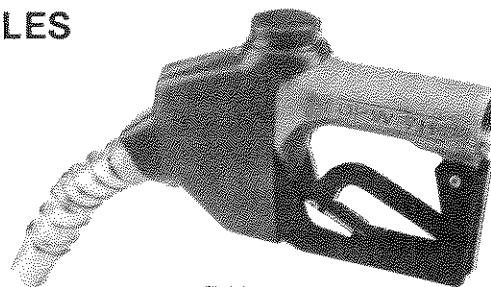
GS 10-0A	8' Calibrated
GS 12-0A	10' Calibrated
GS 13-0A	11' Calibrated
GS 14-0A	12' Calibrated
GS 16-0A	14' Calibrated
GS 16-0A3	Folding 3 Sec. 14' Cal.

WATER FINDER PASTE

GSWF

Detex

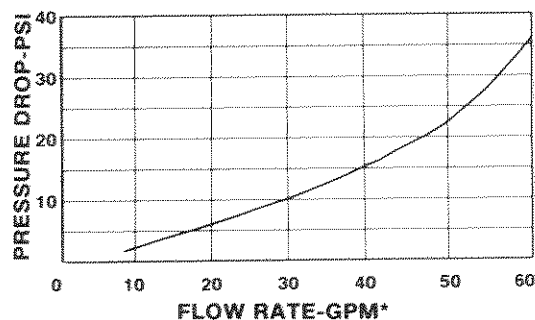
AUTOMATIC SHUT-OFF NOZZLES



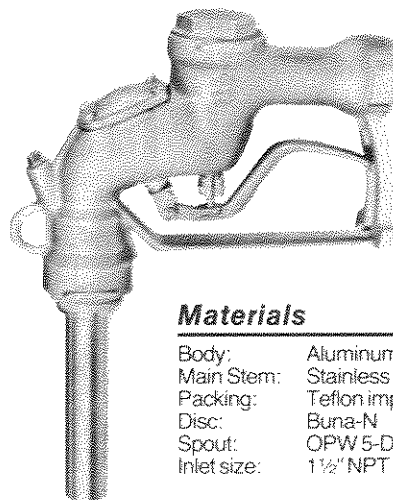
7-H

Patent No. 3653415

FLOW RATE CHART FOR OPW 7-H AND 7-HB



* Test Fluid is Stoddard Solvent @ 75°F.

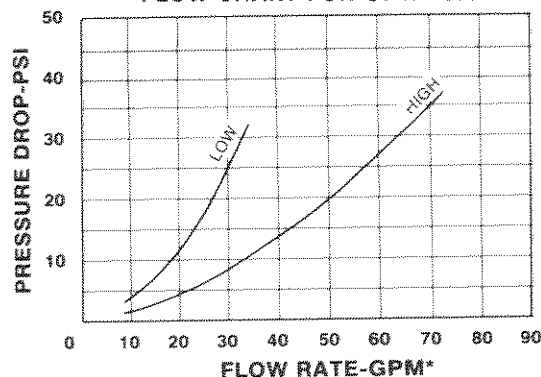


1290

Materials

Body:	Aluminum
Main Stem:	Stainless steel
Packing:	Teflon impregnated asbestos
Disc:	Buna-N
Spout:	OPW 5-D aluminum 1 3/8" O.D.
Inlet size:	1 1/2" NPT

FLOW CHART FOR OPW 1290



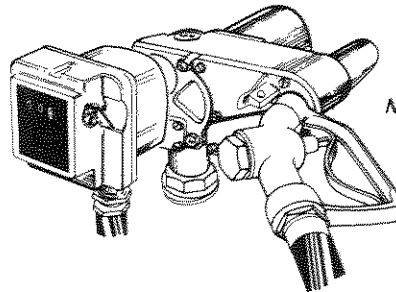
* Test Fluid is Stoddard Solvent @ 75°F.

PBL FUEL METERS

PBL Fuel Meters are designed to give trouble free service for measuring the delivery of gasoline, kerosene or diesel fuel. The units are a light weight, compact nutating disc type meter with proven reliability. The meters mounted on a PBL transfer pump give a compact, light weight transfer pump-meter combination for fast, efficient fueling of your equipment.

- Cast aluminum construction for good appearance & corrosion resistance
- Light weight & compact design
- Factory calibrated for diesel fuel
- Large easy to read display
- 99.9 gallon resettable counter (99.9 liters)
- 9999.9 gallon totalizer (9999.9 liters)
- 4 gpm to 20 gpm range (15 lpm to 75 lpm)
- 50 psi maximum
- Available in gallons or liter display
- For uses with gasoline, diesel, kerosene and other petroleum products
- Not to be used for resale.

Fuel Transfer Pumps



MODEL M15G Fuel Meter installed
on MODEL P12F Pump

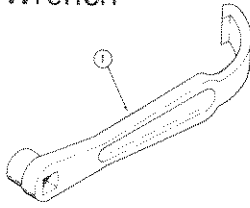
The PBL fuel transfer pumps are designed for long life and efficient operation under demanding conditions. An improved motor and gear design allows greater pump delivery (up to 15 gpm) at reduced current draw (12 amps) for 12 volt model.

PBL pumps are available in either 12 volt DC or 110 volt AC models.

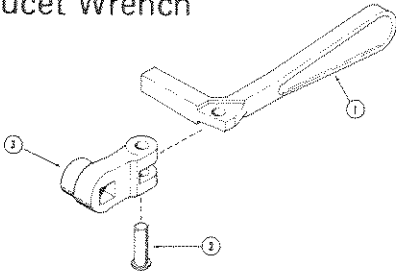
12 VOLT MODELS

For installation where 12 volt DC (battery) is the best power source or mobile service is required.

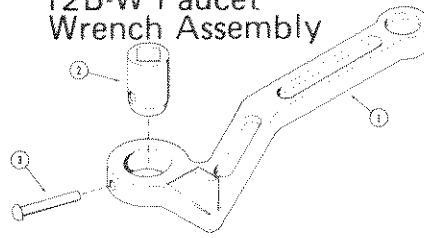
- Flow capacity of 15 gpm.
- Positive displacement, self priming gear pump design.
- Built in relief valve and strainer.
- Specially designed permanent magnet motor. 1/4 HP, 12 volt DC, 30 minute duty cycle.
- Low current draw (12 amps @ 12 volts DC).
- Some models shipped complete with all mounting and installation hardware including hose, nozzle, power cord and instructions.
- Built in sealed electrical connector.
- Light weight corrosion resistant aluminum construction.
- Factory lubricated motor bearings never need service.
- Heavy duty (1 horsepower) switch is totally enclosed for explosion protection.
- All pumping parts designed to provide easy access without breaking any electrical or pumping connections.

F-56
8" Faucet Wrench

REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
1	Faucet Wrench - 8"	F56-001	1	Gray Iron

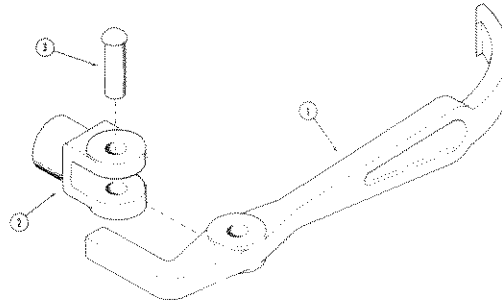
F-57
7" Faucet Wrench

REF.	DESCRIPTION FAUCET WRENCH - 7"	PART NUMBER F57-001	REQ'D.	MAT'L.
1	Wrench Handle	443180	1	"M" Iron
2	Rivet	449650	1	Steel
3	Wrench Socket	443182	1	"M" Iron

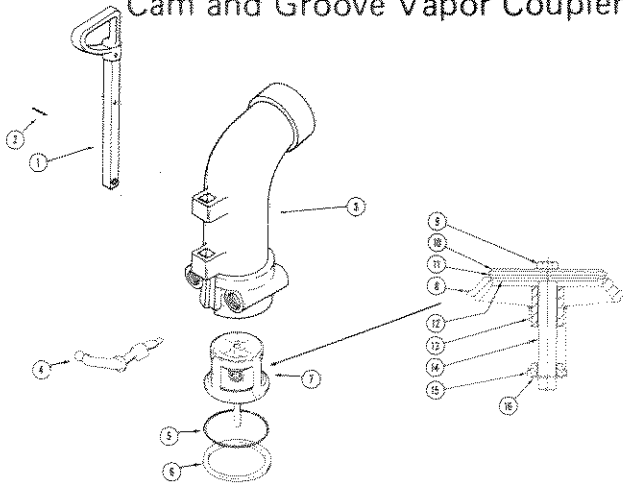
F-136
12B-W Faucet
Wrench Assembly

REF.	DESCRIPTION FAUCET WRENCH ASS'Y - (12 B-W)	PART NUMBER F136-001	REQ'D.	MAT'L.
1	Handle	443192	1	Iron
2	Socket	443190	1	Iron
3	Rivet	403065	1	Steel

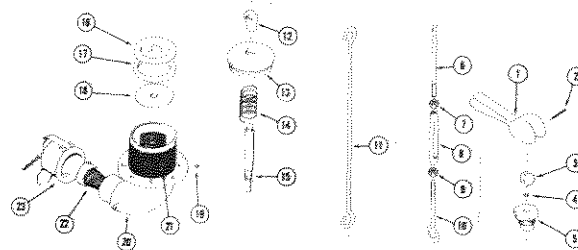
F-135 12-S Faucet Wrench Assembly



REF.	DESCRIPTION FAUCET WRENCH ASS'Y - (12S)	PART NUMBER F135-001	REQ'D.	MAT'L.
1	Handle	443196	1	Iron
2	Socket	443194	1	Iron
3	Rivet	449650	1	Steel

F-77
Cam and Groove Vapor Coupler

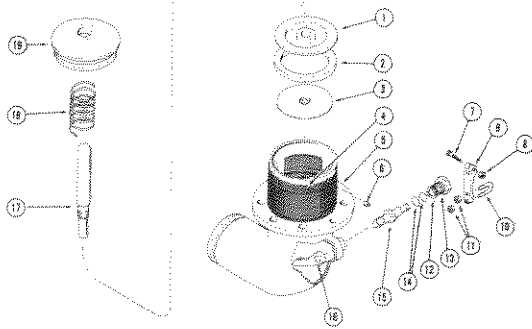
REF.	DESCRIPTION CAM & GROOVE VAPOR COUPLER 4" X 4"	PART NUMBER		REQ'D.	MAT'L.
		Viton	Buna		
1	Handle	562246	562246	1	Alum.
2	Roll Pin	408270	408270	2	Steel
3	Body	563444	563444	1	Alum.
4	Cam - RIGHT HAND	563435	563435	1	Bronze
4	Cam - LEFT HAND	563436	563436	1	Bronze
5	Retainer	409350	409350	1	Steel
6	Gasket	563456	408604	1	Buna
7	Housing Assembly	492900	492901	1	-
8	Housing	563455	563455	1	Celcon
9	Hex HD Screw	444514	444514	1	Steel
10	Top Plate	409193	409193	1	Steel
11	Disc	409192	409192	1	Buna
12	Bottom Plate	409191	409191	1	Steel
13	Spring	409560	409560	1	-
14	Plunger	563638	563638	1	Alum.
15	Spring Retainer	563456	563456	1	Celcon
16	Retaining Ring	563461	563461	1	Steel

F-139
(Sheet 1 of 2) AM Emergency Valve

REF.	DESCRIPTION AM EMERGENCY VALVE	PART NUMBER		REQ'D.	MAT'L.
		F139-015 2"	F139-016 2"		
1	Control Handle	-	-	1	Alum.
2	Roll Pin	-	-	1	Steel
3	Block	-	-	1	Alum.
4	"O" Ring	-	-	2	Buna-N
5	Cam Support	-	-	1	Bronze
6	Connecting Rod	-	-	1	Alum.
7	Jam Nut - (Left Hand)	-	-	1	Alum.
8	Turn Bucket	-	-	1	Alum.
9	Jam Nut - (Right Hand)	-	-	1	Alum.
10	Center Rod	-	-	1	Alum.
11	Bottom Rod	-	-	1	Alum.
12	Plunger Ball	440036	440036	1	Alum.
13	Bonnet	408178	408178	1	Alum.
14	Spring	443462	443462	1	Wire
15	Plunger Stem	443480	443480	1	Alum.
16	Plunger Disc Holder	443435	443435	1	Zinc
17	Plunger Disc	443496	443496	1	Buna-N
18	Plunger Disc Nut	444676	444676	1	Alum.
19	Set Screw	444562	444562	3	S.S.
20	Body	441820	441820	1	Alum.
21	Screen	443472	443472	1	Wire
22	Strainer Assembly	449620	-	1	Bonze
23	Dust Cap w/Chain	H0008-111	H0008-111	1	Alum.
24	Chain & "S" Hook	561521	561521	1	Alum.

F-139 (Sheet 2 of 2)

AM Emergency Valve

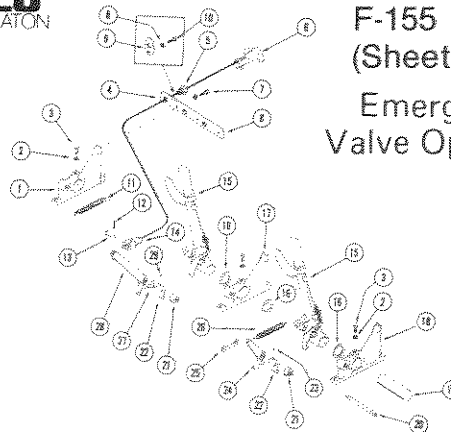


REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
	AM EMERGENCY VALVE	F139-018 3"		
1	Plunger Disc Holder	441830	1	Bronze
2	Plunger Disc	443496	1	Buna-N
3	Plunger Disc Nut	441828	1	Bronze
4	Screen	447308	1	Wire
5	Body	441804	1	Bronze
6	Set Screw	444562	3	S.S.
7	Clamp Screw	444512	1	Steel
8	Clamp Nut	403139	1	Steel
9	Operating Lever	441836	1	Iron
10	U-Bolt	443793	1	Steel
11	Nut	445540	2	Steel
12	Gasket	443458	1	Copper
13	Stuffing Box Nut	443439	1	Brass
14	O' Ring	404942	2	Buna-N
15	Operating Stem	443469	1	Brass
16	Cam	441844	1	Bronze
17	Plunger Stem	443481	1	Bronze
18	Plunger Spring	443460	1	S.S.
19	Bonnet	444685	1	Bronze
	Fuse Plate	444056	1	
	Fuse Plate Holder	443587	1	

EMCO
WHEATON

F-155 (Sheet 2 of 2)

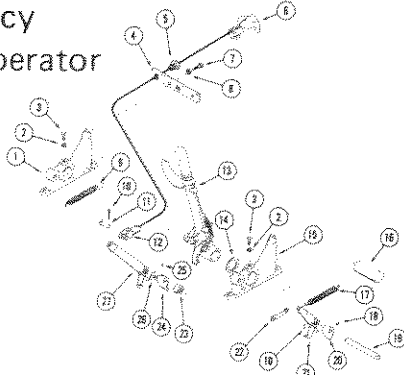
Emergency Valve Operator



		2-COMPARTMENT	3-COMPARTMENT	4-COMPARTMENT	5-COMPARTMENT
REF	DESCRIPTION	F155-002 REQ.	F155-003 REQ.	F155-004 REQ.	F155-005 REQ.
	EMERGENCY VALVE OPERATOR				
1	R.H. Bearing Bracket Ass'y	452102	1	452102	1
2	Lockwasher	444616	3	444616	5
3	Dowel Screw	443812	3	443812	5
4	Spacer	444714	1	444790	1
5	Loom Bushing	443824	3	443824	5
6	Front End Release	F163-001	1	F163-001	1
7	Cap screw	443382	3	443382	5
8	Lockwasher	444616	3	444616	5
9	Cable Guide	---	---	---	---
10	Cap screw	---	---	---	---
11	Spring	443821	1	443821	1
12	Cotter Pin	444591	3	444591	5
13	Clavis Pin	444590	1	444590	1
14	Cable Connector Ass'y	447309	1	447309	1
15	Operating Lever Ass'y	452103	2	452103	4
16	Spacer Washer	443827 A/R	443827 A/R	443827 A/R	443827 A/R
17	Inter. Bearing Bracket Ass'y	452104	1	452104	1
18	L.H. Bearing Bracket Ass'y	452104	1	452104	1
19	Shaft	444713	1	444796	1
20	Trip Roller Shaft	444711	1	444791	1
21	Trip Roller	443786	2	443786	4
22	Trip Cam	441442	2	441442	4
23	Set Screw	444563	1	444563	1
24	Fuse Release Lever	441448	1	441448	2
25	Fuse Link Assembly	452100	1	452100	2
26	Spring	443822	1	443822	2
27	Plain Washer	444609 A/R	444609 A/R	444609 A/R	444609 A/R
28	Front End Release Lever	441450	1	441450	1
29	Set Screw	444561	1	444561	3

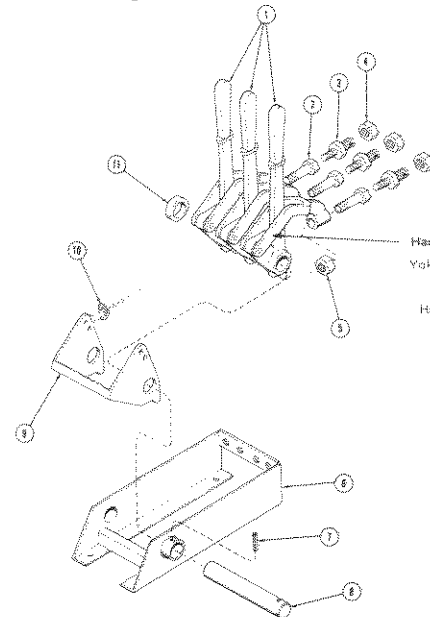
F-155 (Sheet 1 of 2)

Emergency Valve Operator



REF.	DESCRIPTION	PART NUMBER	REQ'D.
	EMERGENCY VALVE OPERATOR	F155-001	
1	Right Hand Bearing Bracket Assembly	452102	1
2	Lockwasher	444616	2
3	Dowel Screw	443812	2
4	Bearing Bracket Spacer	447312	1
5	Loom Bushing	443824	2
6	Front End Release	F163-001	1
7	Cap screw	443382	2
8	Lockwasher	444616	2
9	Spring	443822	1
10	Cotter Pin	444591	3
11	Clavis Pin	444590	1
12	Cable Connector Assembly	447309	1
13	Operating Lever Assembly	452103	1
14	Spacer Washer	443827	A/R
15	Left Hand Bearing Bracket Assembly	452104	1
16	Shaft	444713	1
17	Spring	443822	1
18	Set Screw	444563	1
19	Trip Lever Shaft	447348	1
20	Fuse Link Cam	447313	1
21	Fuse Release Lever	441448	1
22	Trip Roller	443786	1
23	Trip Cam	441442	1
24	Set Screw	444561	1
25	Plain Washer	444609	A/R
27	Front End Release Lever	441450	1

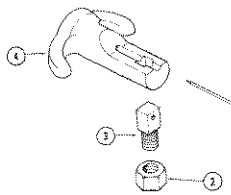
F-157 Emergency Valve Operator



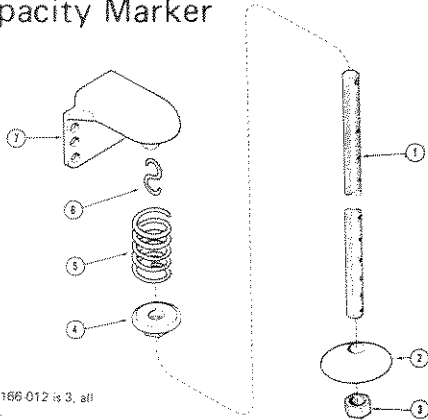
Handle Assembly:
Yoke Link 442898
Pin 443802
Handle 442896

		PART NUMBER									
REF	DESCRIPTION EMERGENCY VALVE OPERATOR (CABLE OPERATED)	F157-001	F157-002	F157-003	F157-004	F157-005	F157-006				
		REQ.	REQ.	REQ.	REQ.	REQ.	REQ.	REQ.	REQ.	REQ.	REQ.
1	Handle Assembly	452108	1	452109	3	452109	4	452109	5	452108	6
2	Adjusting Nut	443791	1	443791	2	443791	4	443791	5	443791	5
3	Cable Adjusting Bolt	443789	1	443789	2	443789	4	443789	5	443789	5
4	Cable Nut, Max	443790	1	443790	3	443790	4	443790	5	443790	6
5	Fuse Nut Bushing	444707	1	444707	2	444707	4	444707	5	444707	5
6	Container Assembly	444945	1	444946	1	444947	1	444948	1	444949	1
7	Roll Pin	407843	1	407843	1	407843	1	407843	1	407843	1
8	Shaft	444951	1	444951	1	444951	1	444951	1	444951	1
9	Trip Lever Assembly	452690	1	452691	1	452692	1	452693	1	452694	1
10	Macarico Clip	452710	1	452710	1	452710	1	452710	1	452710	1
11	Spacer	452712	1	452712	1	452712	1	452712	1	452712	1

F-163 Front End Release

EMCO
WHEATON

REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
	FRONT END RELEASE	F163-001 3/16" Cable		
1	Nail	451596	1	Steel
2	Hex Nut	444577	1	Steel
3	Cable Conn. Bolt	444712	1	Steel
4	Handle	441462	1	Brass

F166
T.T. Capacity Marker

NOTE:
Quantity required for F166-012 is 3, all
others are quantity of 2.

REF.	DESCRIPTION	PART NUMBER					REQ'D.	MAT'L.
		T.T.	F166-007	F166-008	F166-009	F166-012			F166-013
	CAPACITY MARKER		18"	24"	36"	36"		
1	Threaded Rod		452453	452453	452455	452455	1	Alum.
2	Indicator Nut		448974	448974	448974	448974	1	Alum.
3	Hex Nut		447647	447647	447647	447647	See Note	SS
4	Spring Cap		448976	448976	448976	448976	1	Alum.
5	Spring		448970	448970	448970	448970	1	SS
6	"S" Hook		409795	409795	409795	409795	1	Wrought
7	Mounting Plate		452456	452456	452456	452456	1	Alum.

Emergency Valve-(90°)
F-241 (Sheet 1 of 2)

Flange Gaskets

(not included)

2" 443508

2 1/2" 443511

3" 443512

4" 443510

6" 443502

Sump Gaskets

(not included)

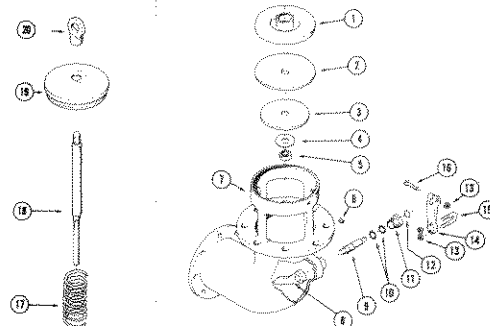
2" 443506

2 1/2" 443506

3" 443506

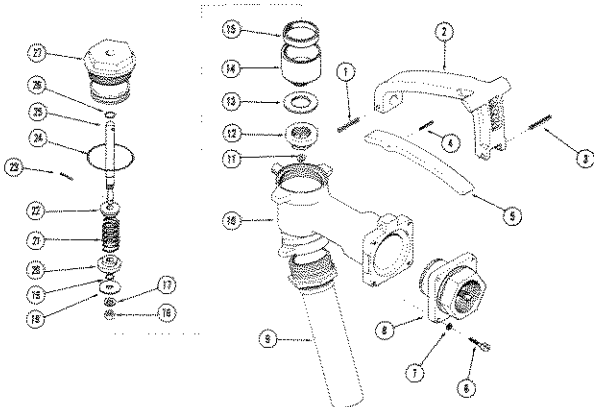
4" 443507

6" 443503

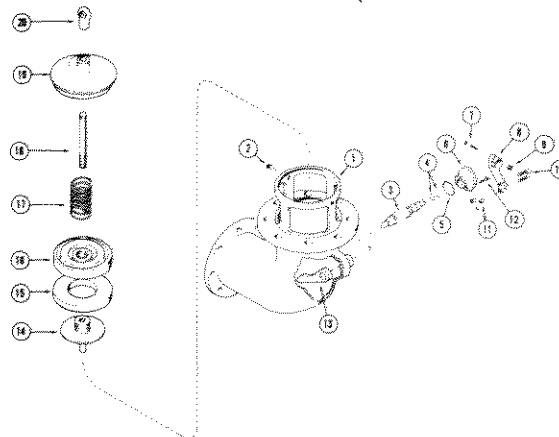


		BUNA-N DISC				TEFLON DISC				VITON DISC				
REF	DESCRIPTION	P241-001	P241-002	P241-003	P241-004	P241-005	P241-006	P241-007	P241-008	P241-009	P241-010	REQ.		
	EMERGENCY VALVE	2" 1/8	3"	4"	5"	6"	8"	10"	12"	14"	16"			
1	Disc Holder	408051	408051	408051	408051	408051	408051	408051	408051	408051	408051	1	408051	
2	Plunger Disc	407710	407710	407710	407710	407710	407710	407710	407710	407710	407710	1	407710	
3	Nut Retainer Plate	407699	407699	407699	407699	407699	407699	407699	407699	407699	407699	1	407699	
4	Washer	407722	407722	407722	407722	407722	407722	407722	407722	407722	407722	1	407722	
5	Plunger Stem Nut	407722	407722	407722	407722	407722	407722	407722	407722	407722	407722	1	407722	
6	Body	407735	407735	407735	407735	407735	407735	407735	407735	407735	407735	1	407735	
7	Set Screw	444562	444562	444562	444562	444562	444562	444562	444562	444562	444562	3	444562	
8	Cam	407717	407717	407717	407717	407717	407717	407717	407717	407717	407717	1	407717	
9	Operating Stem	407713	407713	407713	407713	407713	407713	407713	407713	407713	407713	1	407713	
10	Packing Gland	407804	407804	407804	407804	407804	407804	407804	407804	407804	407804	2	407804	
11	Stuffing Box Nut	407709	407709	407709	407709	407709	407709	407709	407709	407709	407709	1	407709	
12	O-Ring	404942	404942	404942	404942	404942	404942	404942	404942	404942	404942	1	404942	
13	Nut	445540	445540	445540	445540	445540	445540	445540	445540	445540	445540	3	445540	
14	Operating Lever	441836	441836	441836	441836	441836	441836	441836	441836	441836	441836	1	441836	
15	U-Bolt	443793	443793	443793	443793	443793	443793	443793	443793	443793	443793	1	443793	
16	Screw	407943	407943	407943	407943	407943	407943	407943	407943	407943	407943	1	407943	
17	Spring	409733	409733	409733	409733	409733	409733	409733	409733	409733	409733	1	409733	
18	Plunger Stem	407715	407715	407715	407715	407715	407715	407715	407715	407715	407715	1	407715	
19	Bonnet	444671	444671	444671	444671	444671	444671	444671	444671	444671	444671	1	444671	
20	Plunger Ball	440036	440036	440036	440036	440036	440036	440036	440036	440036	440036	1	440036	

F-220 Nozzle With Swivel



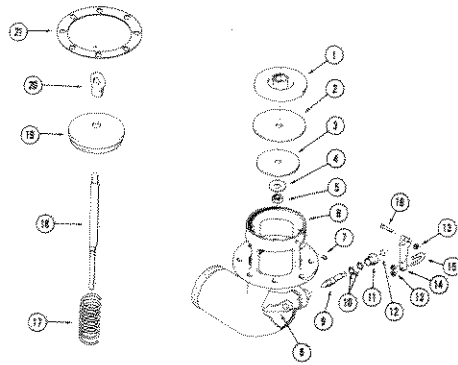
REF.	DESCRIPTION	FUEL OIL				GASOLINE				REQ'D.
		PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER	
	NOZZLE WITH SWIVEL	F220-001	F220-002	F220-003	F220-004	F220-005	F220-006	F220-007	F220-008	
1	Roll Pin	405772	405772	405772	405772	405772	405772	405772	405772	1
2	Guards	405441	405441	405441	405441	405441	405441	405441	405441	1
3	Roll Pin	470071	470071	470071	470071	470071	470071	470071	470071	1
4	Roll Pin	470029	470029	470029	470029	470029	470029	470029	470029	1
5	Lever	405447	405447	405447	405447	405447	405447	405447	405447	1
6	Screw	405391	405391	405391	405391	405391	405391	405391	405391	4
7	Lockwasher	470081	470081	470081	470081	470081	470081	470081	470081	4
8	Swivel Sub-Ass'y	451282	451282	451282	451282	451282	451282	451282	451282	1
9	Tube Ass'y	405567	405567	405567	405567	405567	405567	405567	405567	1
10	Body	407521	407521	407521	407521	407521	407521	407521	407521	1
11	Washer	470013	470013	470013	470013	470013	470013	470013	470013	1
12	Disc Nut	406183	406183	406183	406183	406183	406183	406183	406183	1
13	Disc	406188	406188	406188	406188	406188	406188	406188	406188	1
14	Piston	406168	406168	406168	406168	406168	406168	406168	406168	1
15	Sealing Strip	406228	406228	406228	406228	406228	406228	406228	406228	1
16	Lock Nut	406236	406236	406236	406236	406236	406236	406236	406236	1
17	Washer	470091	470091	470091	470091	470091	470091	470091	470091	1
18	Relief Valve Disc	406174	406174	406174	406174	406174	406174	406174	406174	1
19	O-Ring	480004	480004	480004	480004	480004	480004	480004	480004	1
20	Relief Valve Body	406993	406993	406993	406993	406993	406993	406993	406993	1
21	Spring	405030	405030	405030	405030	405030	405030	405030	405030	1
22	Spring Retainer	406691	406691	406691	406691	406691	406691	406691	406691	1
23	Center Pin	470039	470039	470039	470039	470039	470039	470039	470039	1
24	O-Ring	409527	409527	409527	409527	409527	409527	409527	409527	1
25	Stem	406180	406180	406180	406180	406180	406180	406180	406180	1
26	O-Ring	405634	405634	405634	405634	405634	405634	405634	405634	1
27	Cap	405445	405445	405445	405445	405445	405445	405445	405445	1

Emergency Valve-(90°)
F-241 (Sheet 2 of 2)

REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
	EMERGENCY VALVE - 90°	F241-005	6"	
1	Body	440450	1	Alum.
2	Set Screw	444562	4	S.S.
3	Operating Stem	443614	1	Steel
4	O-Ring	404113	2	Buna
5	O-Ring	443611	1	Buna
6	Stuffing Box Cover	440492	1	Bronze
7	Screw	409736	1	Stl. Pl.
8	Operating Lever	440462	1	Iron
9	Nut	403150	1	Stl. Pl.
10	U-Bolt	443793	1	Stl. Pl.
11	Nut	445540	2	Stl. Pl.
12	Stuffing Box Screw	470114	1	Stl. Pl.
13	Cam	406564	1	Bronze
14	Plunger Bottom	440456	1	Bronze
15	Plunger Disc	443594	1	Buna
16	Disc Holder	440458	1	Alum.
17	Plunger Spring	443580	1	Steel
18	Plunger Stem	448734	1	Brass
19	Bonnet	440454	1	Alum.
20	Plunger Ball	440466	1	Brass

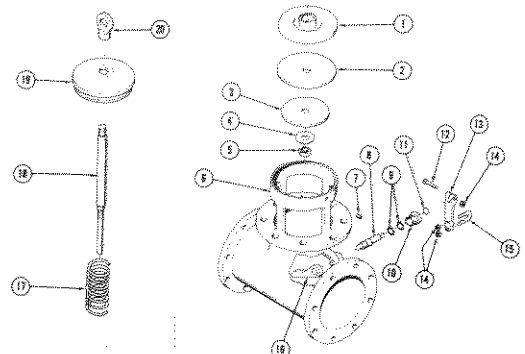
F-242 Emergency Valve-(90°)

EMCO
WHEATON



REF.	DESCRIPTION	PART NUMBER					REQ'D.	MAT'L.
		F242-001 2"	F242-002 2 1/2"	F242-003 3"	F242-004 4"	F242-024 4"		
1	Disc Holder	408051	408051	408051	408031	408031	1	Alum.
2	Plunger Disc	407710	407710	407710	407747	---	1	Buna-N
3	Plunger Disc	---	---	---	---	408024	1	Viton
4	Disc Retainer Plate	407699	407699	407699	450342	450342	1	Alum.
5	Washer	407723	407723	407723	407723	407723	1	Steel
6	Nut	407722	407722	407722	407722	407722	1	Steel
7	Body	407737	407733	407718	407743	407743	1	Alum.
8	Set Screw	444562	444562	444562	444562	444562	3	S.S.
9	Cam	407717	407717	407717	---	---	1	Steel
10	Operating Stem	407713	407713	407713	407713	407713	1	M. Iron
11	Packing Gland	407804	407804	407804	407804	407804	2	Teflon
12	Stuffing Box Nut	407709	407709	407709	407709	407709	1	Brass
13	O-Ring	404942	404942	404942	404942	---	1	Buna-N
14	O-Ring	---	---	---	---	408361	1	Viton
15	Nut	445540	445540	445540	445540	445540	3	Stl. Pl.
16	Operating Lever	441836	441836	441836	442144	442144	1	M. Iron
17	U-Bolt	443793	443793	443793	443793	443793	1	Stl. Pl.
18	Screw	407943	407943	407943	407943	407943	1	Stl. Pl.
19	Spring	409733	409733	409733	443462	443462	1	Wire
20	Plunger Stem	407715	407715	407749	407749	407749	1	Stl. Pl.
21	Bonnet	444671	444671	450339	450339	450339	1	Alum.
22	Plunger Ball	440036	440036	440036	440036	440036	1	Alum.

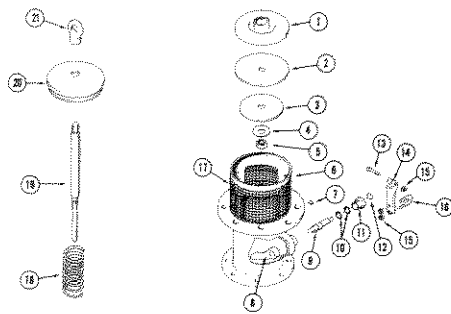
Emergency Valve-(Tee) F-244 (Sheet 1 of 2)



REF.	DESCRIPTION	PART NUMBER		REQ'D.	MAT'L.
		F244-001 4"	F244-001 4"		
1	Plunger Disc Holder	408031	---	1	Alum.
2	Plunger Disc	407747	---	1	Buna-N
3	Disc Retainer Plate	450342	---	1	Alum.
4	Washer	407723	---	1	Steel
5	Nut	407722	---	1	Steel
6	Body	491226	---	1	---
7	Set Screw	409733	---	3	S.S.
8	Operating Stem	443471	---	1	Steel
9	Packing Gland	407804	---	2	---
10	Stuffing Box Nut	407709	---	1	Brass
11	O-Ring	404942	---	1	Buna-N
12	Screw	407943	---	1	Steel
13	Operating Lever	444925	---	1	Iron
14	Nut	445540	---	3	Steel
15	U-Bolt	443793	---	1	Steel
16	Cam	408114	---	1	Iron
17	Spring	409733	---	1	Wire
18	Plunger Stem	407715	---	1	Steel
19	Bonnet	450339	---	1	Alum.
20	Plunger Ball	440036	---	1	Alum.

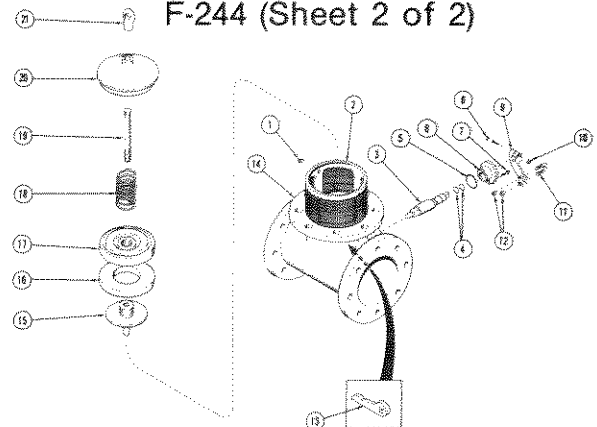
F-243

Emergency Valve- (Straight)

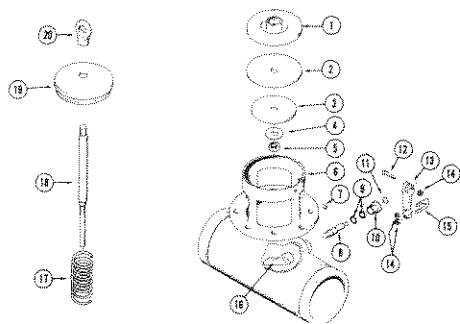


		PART NUMBER								
DESCRIPTION		BUNA "N" DISC		VITON	TEFLON DISC		VITON DISC		S.S. TRIM	
REF.	EMERGENCY VALVE	F243-001 3"	F243-002 4"	F243-004 3"	F243-005 4"	F243-006 3"	F243-011 4"	F243-013 4"	REQ'D	
1	Disc Holder	408051	408031	408051	408031	408051	408051	408031	1	
2	Plunger Disc	407710	407747	407724	446362	407707	407724	408024	1	
3	Disc Retainer Plate	407699	450342	407699	450342	407699	407699	450342	1	
4	Washer	407723	407723	407700	407700	407700	407723	407700	1	
5	Plunger Stem Nut	407722	407722	407701	407701	407701	407722	407701	1	
6	Body	407720	407745	407720	407745	407720	407720	407745	1	
7	Set Screw	444562	444562	444562	444562	444562	444562	444562	3	
8	Cam	407717	407751	407704	407727	407704	407717	407727	1	
9	Operating Stem	407713	407713	443468	443468	443468	407713	443468	1	
10	Packing Gland	407804	407804	407804	407804	407804	407804	407804	2	
11	Stuffing Box Nut	407709	407709	407709	407709	407709	407709	407709	1	
12	"O" Ring	404942	404942	404942	404942	404942	408361	408361	1	
13	Screw	407943	407943	407943	407943	407943	407943	407943	1	
14	Operating Lever	444925	442144	444925	442144	444925	444925	442144	1	
15	Nut	445540	445540	445540	445540	445540	445540	445540	3	
16	U-Bolt	443793	443793	443793	443793	443793	443793	443793	1	
17	Screen	---	---	443472	---	---	---	---	1	
18	Spring	409733	443462	443460	443460	443460	409733	443460	1	
19	Plunger Stem	407715	407715	407702	407702	407702	407715	407702	1	
20	Bonnet	444671	450339	444671	450339	444671	444671	450339	1	
21	Plunger Ball	440036	440036	440036	440036	440036	440036	440036	1	

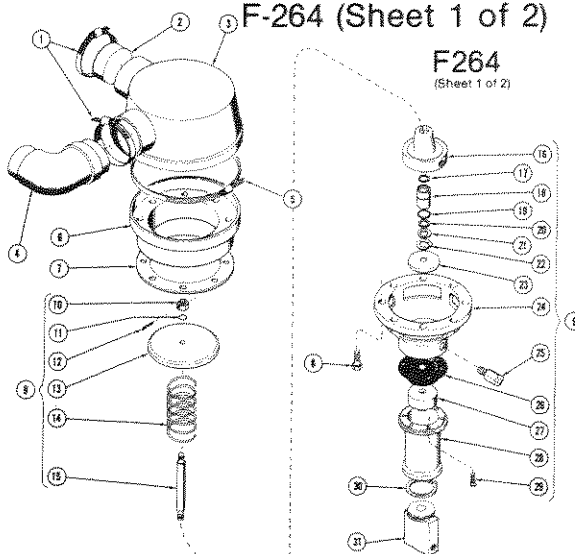
Emergency Valve-(Tee) F-244 (Sheet 2 of 2)



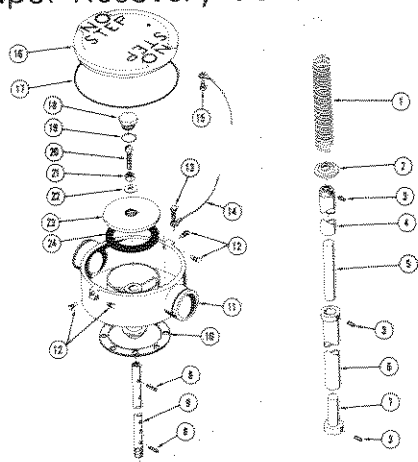
REF.	DESCRIPTION	PART NUMBER		REQ'D.
		F244-002 6"	F244-003 8"	
1	Set Screw	444562	444562	3
2	Body	440452	440452	1
3	Operating Stem	443614	443614	1
4	O-Ring	404113	406285	2
5	O-Ring	443611	406638	1
6	Stuffing Box Cover	440492	440492	1
7	Stuffing Box Screw	470114	470114	1
8	Screw	409736	409736	1
9	Operating Lever	440462	440462	1
10	Nut	403150	403150	1
11	U-Bolt	443793	443793	1
12	Nut	445540	445540	3
13	Cam	408584	408584	1
14	Screen	443593	443593	1
15	Plunger Bottom	440456	440456	1
16	Plunger Disc	443584	443584	1
17	Disc Holder	440458	440458	1
18	Plunger Spring	443580	443580	1
19	Plunger Stem	448734	448734	1
20	Bonnet	440454	440454	1
21	Plunger Ball	440466	440466	1

Emergency Valve-(Tee)
F-245**EMCO**
WHEATON

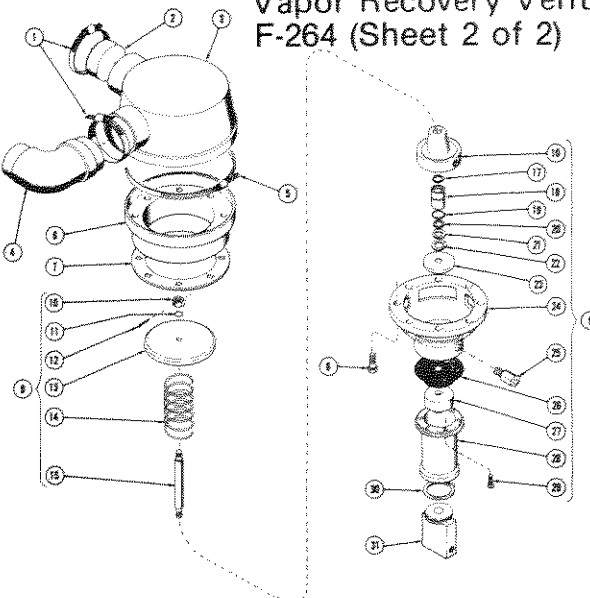
REF.	DESCRIPTION	PART NUMBER		REQ'D.	MAT'L.
		F245-001 3"	F245-002 4"		
1	Plunger Disc Holder	408051	408031	1	Alum.
2	Plunger Disc	407710	407747	1	Buna-N
3	Disc Retainer Plate	407699	450342	1	Alum.
4	Washer	407723	407723	1	Steel
5	Plunger Stem Nut	407722	407722	1	Steel
6	Body	407746	407746	1	Alum.
7	Set Screw	444562	444562	3	S.S.
8	Operating Stem	407713	443471	1	Steel
9	Packing Gland	407804	407804	2	Steel
10	Stuffing Box Nut	407709	407709	1	Brass
11	"O" Ring	404492	404492	1	Buna-N
12	Screw	407943	407943	1	Steel
13	Operating Lever	444925	444925	1	Iron
14	Nut	445540	445540	3	Steel
15	U-Bolt	443793	443793	1	Steel
16	Cam	407717	408114	1	—
17	Spring	409733	409733	1	Wire
18	Plunger Stem	407715	407715	1	Nick Plat.
19	Bonnet	444671	450339	1	Alum.
20	Plunger Ball	440036	440036	1	Alum.

Vapor Recover Vent
F-264 (Sheet 1 of 2)

REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
	VAPOR RECOVERY VENT	F264-001 4"		
1	Clamp	408480	2	S.S.
2	Plug	406481	1	Alum.
3	Hood	408479	1	Buna-N
4	Elbow	491314	1	W.C.
5	Clamp	409483	1	S.S.
6	Hood and Base Ring	409573	1	Alum.
7	Seat Gasket	409574	1	Viton
8	Screw	409108	8	S.S.
9	Vent Assembly	491086	1	—
10	Nut	409406	1	S.S.
11	"O" Ring	409334	1	Buna-N
12	Cotter Pin	470045	1	S.S.
13	Popper	409571	1	Alum.
14	Spring	409030	1	S.S.
15	Rod	408384	1	S.S.

5" Vapor Recovery Vent
F-249

REF.	DESCRIPTION	PART NUMBER		REQ'D.	MAT'L.
		F249-003 5"	249-005 5"		
1	Spring	408436	408436	1	S.S.
2	Spacer Cap	451648	451648	1	Alum.
3	Set Screw	444562	444962	2	S.S.
4	Top Link	444807	444807	1	Alum.
5	Slip Guide Pin	443533	—	1	Alum.
6	Bottom Link	444811	444811	1	—
7	Valve Adapter	443527	443537	1	Alum.
8	Roll Pin	444236	444236	2	S.S.
9	Stem	451647	451647	1	Alum.
10	Body Gasket	443543	—	1	Alum.
11	Body	446626	561855	1	Alum.
12	Shear Pin	446648	—	4	Nylon
13	Screw	443362	409783	1	Steel
14	Cable Assembly	560589	—	1	—
15	Screw	451255	443362	1	Steel
16	Screw	446628	561856	1	Alum.
17	O Ring	443946	561857	1	Buna-N/Tef
18	Flange	451859	451859	1	Alum.
19	O Ring	451870	451870	1	Buna-N
20	Screw	408437	408437	1	S.S.
21	Nut	451865	451865	1	S.S.
22	Washer	451860	451860	1	Nylon
23	Disc Holder	451869	—	1	Alum.
24	Disc	446629	446900	1	Buna-N

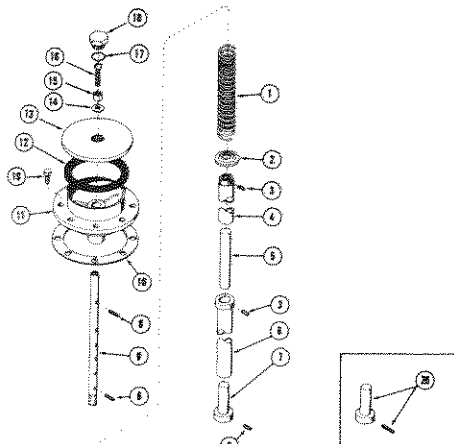
Vapor Recovery Vent
F-264 (Sheet 2 of 2)

REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
	VAPOR RECOVERY VENT	F264-001 4"		
16	Upper Body	409401	1	Alum.
17	Wiper	409404	1	Buna-N
18	Guide	409396	1	Caloon
19	"O" Ring	480040	1	Buna-N
20	Quad Ring	409405	1	Buna-N
21	Washer	409402	1	Alum.
22	Retaining Ring	408063	1	S.S.
23	Retainer	409397	1	Alum.
24	Vent Body	409569	1	Alum.
25	Filter	491529	1	—
26	Diaphragm	409398	1	P.S.I.
27	Piston	409399	1	Alum.
28	Lower Body	409393	1	Alum.
29	Screw	408414	2	S.S.
30	Retaining Ring	—	1	S.S.
31	Sequence	—	1	—

F-265 Mechanical Vent

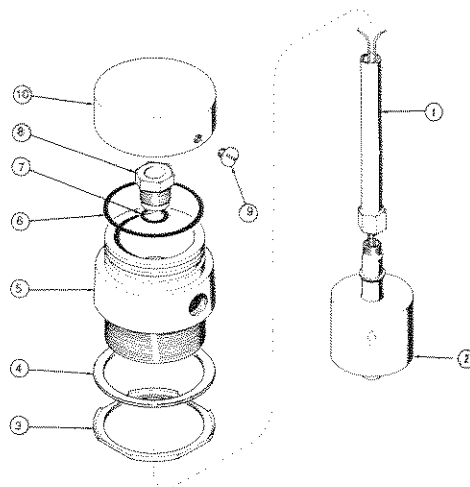
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High Level Shut-Off w/Junction Box F-275 (Sheet 1 of 2)



REF.	DESCRIPTION	PART NUMBER			REQ'D	MAT'L.
		F265-005 5"	F265-006 4"	F265-007 5"		
1	Spring	408436	408532	408436 1SS	1	St. Pl.
2	Spacer Cap	451648	451648	451648	1	Alum.
3	Set Screw	455979	444562	444562	3	S.S.
4	Top Link	444807	444807	444807	1	Alum.
5	Slip Guide Pin	443533	443533	443533	1	Alum.
6	Bottom Link	444811	444811	444811	1	—
7	Valve Adapter	443537	443537	443537	1	Alum.
8	Roll Pin	444236	444236	444236	2	S.S.
9	Stem	451647	451647	451647	1	Alum.
10	Gasket	443543	444127	443543	1	Corpr.
11	Body	451630	408560	451630	1	Alum.
12	Disc	408553	408554	408553	1	Viton
13	Disc Holder	446629	408536	446629	1	Buna-N
14	Washer	451869	408535	451869	1	Alum.
15	Nut	451865	451865	451865	1	Nylon
16	Screw	408437	408437	408437	1	S.S.
17	O-Ring	451870	451870	451870	1	Buna-N
18	Plug	451859	451859	451859	1	Steel
19	Cap screw	443362	443362	443362	6	St. Pl.
20	Valve Adapter*	450354	450354	450354	1	Alum.

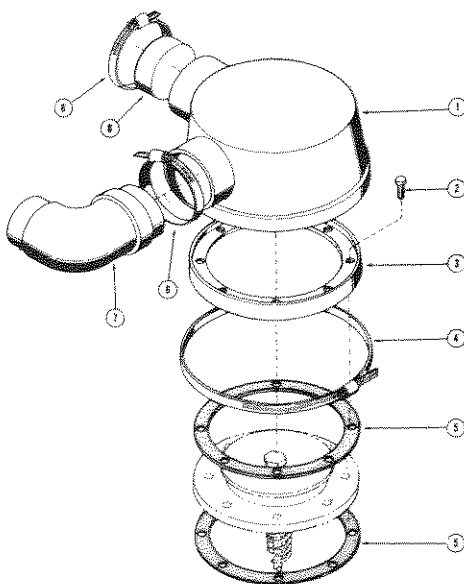
*Used with Allegheny Valves



REF.	DESCRIPTION	PART NO.		REQ'D	MAT'L.
		HIGH LEVEL SHUT-OFF W/JUNCTION BOX	F275-001		
1	Tube Assembly		491470	1	—
2	Float Switch		452113	1	Alum.
3	Lock Nut		409074	1	Steel
4	Gasket		409073	1	Buna-N
5	Body		409067	1	Alum.
6	O-Ring		404711	1	Buna-N
7	O-Ring		408968	1	Viton
8	Stuffing Box Screw		409070	1	Brass
9	Screw		407576	2	SS
10	Cap		409069	1	Alum.

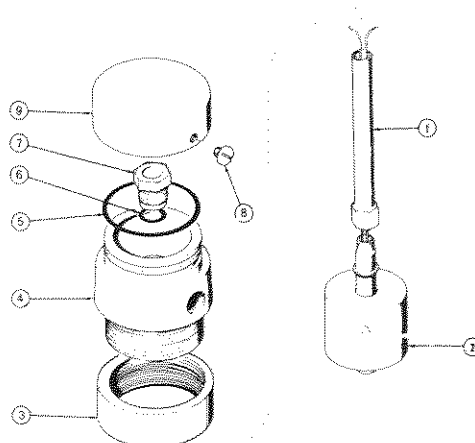
F-270 Conversion Kit

High Level Shut-Off w/Junction Box F-275 (Sheet 2 of 2)

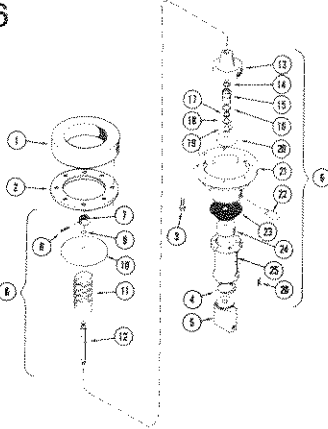


REF.	DESCRIPTION	PART NUMBER			REQ'D	MAT'L.
		F270-002 5"	F270-003 4"	F270-001 5"		
1	Vapor Recovery Hood, Collapsible	408479	408479	408479	1	Nitrile
2	Hex. Hd. Screw	405766	405766	405766	8	Str. Cad. Pl.
3	Adapter	561446	408485	561446	1	Alum.
*4	Clamp, Band Screw Type	*408483	*408483	*408483	1	SS
5	Gasket	443543	444127	443543	2	Corpr.
6	Clamp, Band Screw Type	408480	408480	408480	2	SS
7	Elbow, 90°	491314	491314	—	1	PCV grey
8	Plug	408481	408481	408481	1	Alum.

*408483 made from 451678 & 451679

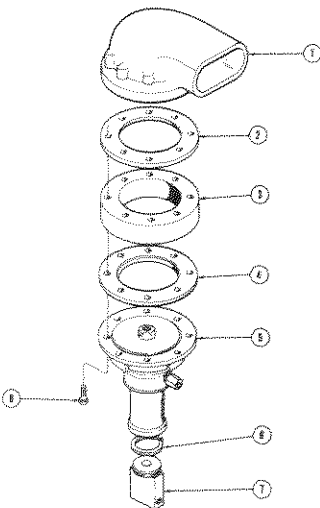


REF.	DESCRIPTION	PART NUMBER					REQ'D	MAT'L.
		HIGH LEVEL SHUT-OFF W/JUNCTION BOX	F275-003	F275-004	F275-005	F275-006		
1	Tube Assembly		491470	491470	491470	491470	1	—
2	Float Switch		452113	—	452113	—	1	Alum.
3	Ball Coupling		445208	445208	444936	444936	1	—
4	Body		409067	409067	409067	409067	1	Alum.
5	O-Ring		404711	404711	404711	404711	1	Buna-N
6	O-Ring		408968	408968	408968	408968	1	Viton
7	Stuffing Box Screw		409070	409070	409070	409070	1	Brass
8	Screw		407576	407576	407576	407576	2	S.S.
9	Cap		409069	409069	409069	409069	1	Alum.

Vapor Recovery Vent
F-286

REF.	DESCRIPTION	PART NUMBER		REQ'D	MAT'L
		F286-003 3"	F286-004 3"		
1	Mounting Flange	409106	409106	1	Alum.
2	Seat Gasket	409026	409026	1	Viton
3	Screw	409108	409108	8	S.S.
4	Retaining Ring	---	409035	1	---
5	Sequence	---	491466	1	---
6	Vent Assembly	491482	491482	1	---
7	Nut	409406	409406	1	S.S.
8	Cotter Pin	470045	470045	1	---
9	"O" Ring	480004	480004	1	Buna-N
10	Plunger	409403	409403	1	Alum.
11	Spring	409030	409030	1	S.S.
12	Rod	409384	409384	1	S.S.
13	Upper Body	409401	409401	1	Alum.
14	Wiper	409404	409404	1	Buna-N
15	Guide	409399	409399	1	Calcon
16	"O" Ring	480040	480040	1	Buna-N
17	Quad Ring	409405	409405	1	Buna-N
18	Washer	409402	409402	1	Alum.
19	Retaining Ring	409063	409063	1	S.S.
20	Retainer	409387	409387	1	Alum.
21	Vent Body	409407	409407	1	Alum.
22	Filter	491529	491529	1	FSI
23	Diaphragm	409398	409398	1	---
24	Piston	409396	409396	1	Alum.
25	Lower Body	409393	409393	1	Alum.
26	Screw	409414	409414	6	S.S.

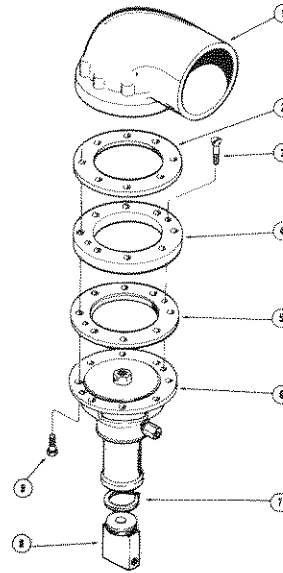
F-289 Vapor Recovery Vent



REF.	DESCRIPTION	PART NUMBER		REQ'D	MAT'L
		F289-003 3"	F289-004 3"		
1	Hood	409025	409025	1	Alum.
2	Gasket	409111	409111	1	ASB
3	Mounting Flange	409107	409107	1	Alum.
4	Seat Gasket	409026	409026	1	Viton
5	Vent	491482	491482	1	---
6	Retaining Ring	---	409035	1	SS
7	Sequence	---	491466	1	---
8	Screw	409112	409112	8	SS

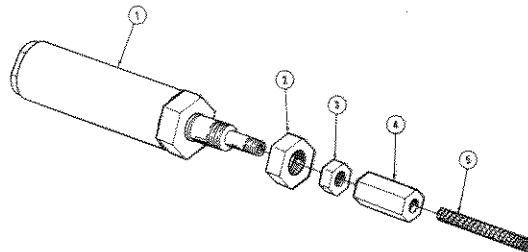
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F-290 Vapor Recovery Vent



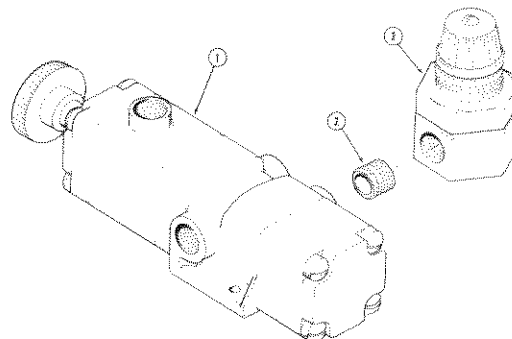
REF.	DESCRIPTION	PART NUMBER				REQ'D	MAT'L
		F290-005 3"	F290-006 3"	F290-007 3"	F290-008 3"		
1	Hood	409153	409153	409153	409153	1	Alum.
2	Gasket	409111	409111	409111	409111	1	ASB
3	Screw	---	---	444602	444602	2	S.S.
4	Mounting Flange	409107	409107	409181	409181	1	Alum.
5	Seat Gasket	409026	409026	409026	409026	1	Viton
6	Vent Assembly	491482	491482	491482	491482	1	---
7	Retaining Ring	---	409035	---	409035	1	S.S.
8	Sequence	---	491466	---	491466	1	---
9	Screw	409112	409112	408906	408906	8	S.S.

F-296 Release Cylinder



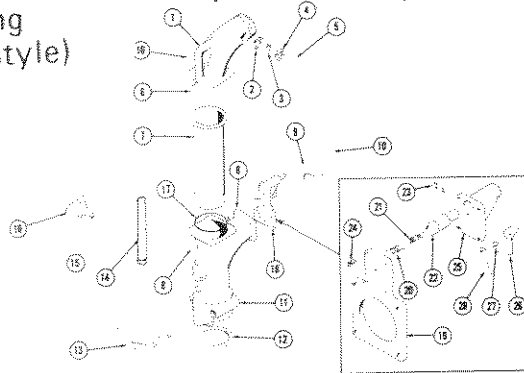
REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
	RELEASE CYLINDER	F296-001		
1.	Air Cylinder	491527	1	—
2	Nut	409338	1	Brass
3	Nut	407722	1	Stl.
4	Connector	409337	1	Brass
5	Cable	491528	1	—

F-297 Air Supply Valve



REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L
	AIR SUPPLY VALVE	F297-001		
1	Supply Valve	491525	1	---
2	Nipple	447515	1	Steel
3	Regulator	491526	1	---

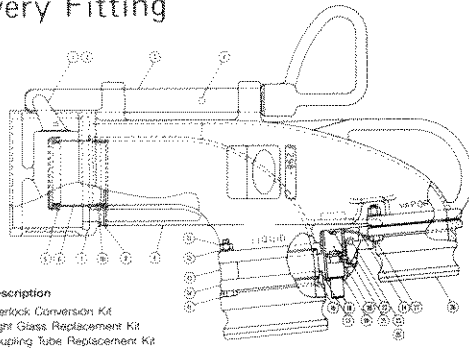
F-298 4" x 3" Coaxial Vapor Recovery Fitting (old style)



REF.	DESCRIPTION	PART NUMBER		REQ'D.	MAT'L.
		F298-001	F298-002		
1	Body	408571	408571	1	Alum.
2	Gasket	408605	408605	2	Buna-N
3	Window Disc	409210	409210	10	Polycarb.
4	Base	408609	408609	2	Resin
5	Screw	406724	406724	6	Cap. Pl. Stl.
6	Gasket	408603	408603	1	Buna-N
7	Coupling Tube Ass'y	491513	491513	1	Alum.
8	Nut	403150	403150	8	Cap. Pl. Stl.
9	Adapter	409312	409312	1	Alum.
10	Bolt	408618	408618	8	Cap. Pl. Stl.
11	Body	408593	408593	1	Alum.
12	Gasket	408604	408604	1	Buna-N
13	Left Hand Cam (Shown)	408617	408617	1	Alum. Br.
14	Right Hand Cam (Not Shown)	408615	408615	1	Alum. Br.
15	Latch Rod	408607	408607	1	Alum.
16	Roll Pin	408620	408620	1	Alum.
17	Handle	408611	408611	1	Alum.
18	O-Ring	480056	480056	1	Buna-N
19	Interlock Assembly	491520	491520	1	—
20	Mounting Plate	409324	409324	1	—
21	Spring	409325	409325	1	—
22	Pin	409326	409326	1	—
23	Roll Pin	404840	404840	1	—
24	Screw	403062	403062	4	—
25	Housing	409320	409320	1	—
26	Latch	409322	409322	1	—
27	Screw	447744	447744	1	—
28	Spring	409340	409340	1	—

Interlock Repair Kit 492537 (includes installation instructions)
Sightglass Repair Kit 562249 (includes installation instructions)
Coupling Tube Repair Kit 562250 (includes installation instructions)

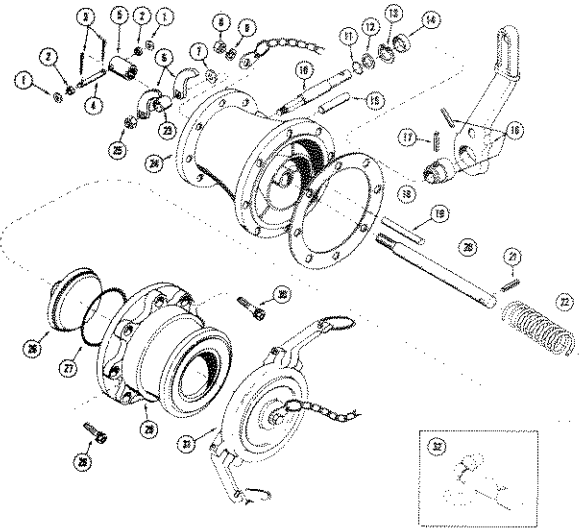
F-298 4" x 3" Coaxial Vapor Recovery Fitting



Kit No. Description
492537 Interlock Conversion Kit
562249 Sight Glass Replacement Kit
562250 Coupling Tube Replacement Kit

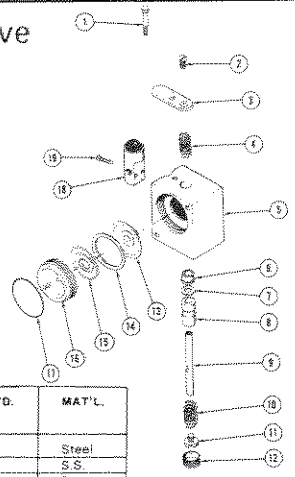
ITEM NO.	DESCRIPTION	PART NUMBER		Quantity	MATERIAL
		F298-004	F298-006		
1	Cam, Left Hand	408615	408615	1	Br. Pl.
2	Cam, Right Hand	408617	408617	1	Br. Pl.
3	Latch Rod Assy	562369	562369	1	Alum.
4	Pin	408270	408270	1	Steel
5	Seal	561566	561566	1	Buna
6	Coupler Tube	561641	561641	1	Alum.
7	Gasket	408604	408604	1	Buna
8	Cap Pl. Scr. 1/20 x .75	562236	562236	1	Steel
9	Body	561640	561640	1	Alum.
10	O-Ring	561868	561868	2	Buna
11	Hex Nut, 5/16-18	403150	403150	8	Stl./CAD
12	Lockwasher, 5/16	470034	470034	8	Stl./CAD
13	Spacer	561567	561567	4	Alum.
14	4" Liquid Adapter	561568	561568	1	Alum.
15	Hex Cap Scr. 5/16-18 x 2 1/2	447380	447380	4	Steel
16	Interlock	561814	561814	2	Buna
17	Sight Glass	561565	561565	1	Acrylic
18	Interlock Platen	561566	561566	1	Nylon
19	Interlock Body	561568	561568	1	Nylon
20	Spring	409325	409325	1	Steel
21	Cap Scr. 1/2 x 20 x .5	447459	447459	3	SST
22	Latch	561570	561570	1	Alum.
23	Pin	404840	404840	1	Steel
24	Spring	409340	409340	1	Steel
25	Rd. Cap Scr. 1/20 x .5	444817	444817	4	Stl./CAD
26	3" Vapor Adapter	409312	409312	1	Alum.
27	Vapor Gasket	562239	562239	1	—

F-451 API Openable Adapter

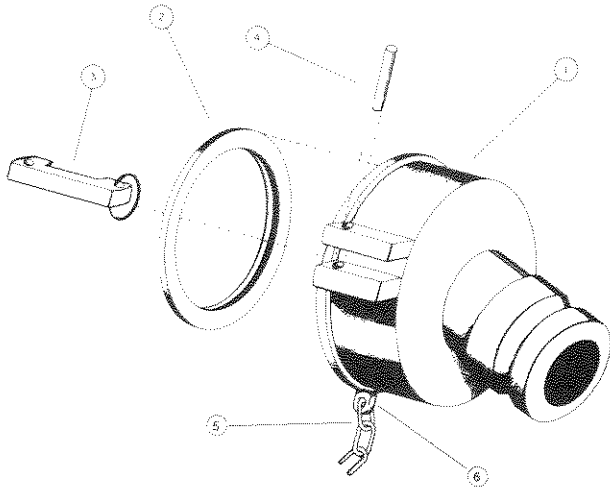


REF.	DESCRIPTION	PART NUMBER				REQ'D.
		F451-001	F451-002	F451-003	F451-005	
1	Washer	409136	409136	409136	409136	2
2	Bearing	409135	409135	409135	409135	2
3	Cotter Pin	445719	445719	445719	470038	2
4	Bearing Pin	409138	409138	409138	409138	1
5	Adjusting Nut	409142	409142	409142	409142	1
6	Cam	408165	408165	408165	408165	2
7	Washer	408441	408441	408441	408759	1
8	Nut	403150	403150	403150	403150	1
9	Lockwasher	405767	405767	405767	405767	1
10	Lifter Stem	408164	408164	408164	408164	1
11	O-Ring	407433	407433	407433	407433	1
12	Spacer	408167	408167	408167	408167	1
13	Retaining Ring	408169	408169	408169	408169	1
14	Buna Seal	561520	408168	408168	408168	1
15	Shaft	408146	408146	408146	408146	1
16	Lever Assembly	491458	491458	491458	491458	1
17	Spring Pin	409059	409059	409059	409059	1
18	Gasket	407985	407985	407985	407985	1
19	Guide Pin	409139	409139	409139	409139	1
20	Poppet Stem	409137	409137	409137	409137	1
21	Roll Pin	470132	470132	470132	409455	1
22	Spring	560814	560814	560814	560814	1
23	Spacer	408434	408434	408434	408434	1
24	Body Assembly	491284	491284	491284	491284	1
25	Nut	409141	409141	409141	409141	1
26	Poppet	409230	409230	409230	409230	1
27	O-Ring	408061	408061	408061	408061	1
28	Socket Head Screw	408029	408029	408029	408029	1
29	Adapter Flange	407984	407984	407984	407984	1
30	Socket Head Screw	408032	408032	408032	408032	1
31	Dust Cap Assembly	491234	491234	491234	491234	1
32	Air Interlock Valve	491661	491661	491661	491661	1

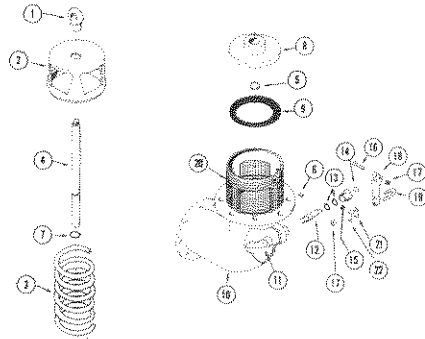
F-452 Vacuum Valve



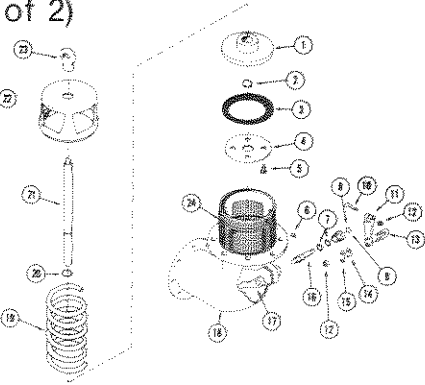
REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
1	Screw	407943	1	Steel
2	Screw	444602	1	S.S.
3	Lever	409380	1	Steel
4	Spring	409381	1	S.S.
5	Body	409379	1	Alum.
6	Bushing	406967	1	Brass
7	Shock Bushing	400129	1	Buna-N
8	Guide	400130	1	Brass
9	Stem	409378	1	S.S.
10	Spring	400111	1	Wire
11	Screw	400105	1	Brass
12	Plug	400109	1	Brass
13	Diaphragm Ass'y	490989	1	—
14	Spacer	400108	1	Brass
15	Spring	409384	1	S.S.
16	Cap	406138	1	Zinc
17	O-Ring	480000	1	Buna-N
18	3-Way Valve Ass'y	491540	1	Brass
19	Screw	409457	1	Steel

F-459
4" Hose End FittingEMCO
WHEATONF-460 4" Emergency Valve
(Sheet 2 of 2)

REF.	DESCRIPTION	PART NUMBER			REQ'D.
		BUNA	VITON		
	4" HOSE END FITTING	F459-006	F459-007	F459-008	
1	Hose End Fitting	561302	561300	561300	1
2	Seal	560611	560611	561305	1
3	Cam & Ring Ass'y.	491248	491248	491248	2
4	Pin	409660	409660	409660	2
5	Open End Link	563504	563504	563504	1
6	Chain Link Ass'y.	491544	491544	491544	1

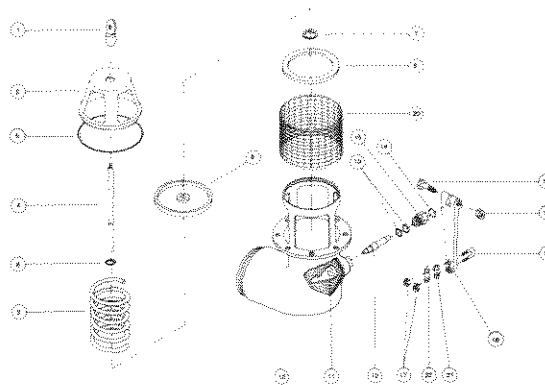


		FLANGED BUNA			FLANGED VITON		
REF.	DESCRIPTION	PART NUMBER					REQ'D
	4" EMERGENCY VALVE	F460-025	F460-027	F460-028	F460-026	F460-029	
1	Ball	440036	440036	440036	440036	440036	1
2	Spring Ret.	297029	297029	297029	297029	297029	1
3	Spring	409734	409734	409434	409734	409734	1
4	Stem	560098	560098	560098	560098	560098	1
5	Ret. Ring	297030	297030	297030	297152	297030	1
6	Ret. Ring	409040	409040	409040	409040	409040	2
7	O-Ring	408136	408136	408136	408136	408136	1
8	Disc Holder	560099	560099	560099	560099	560099	1
9	Disc	408940	408940	408940	409044	409044	1
10	Body	560124	408520	408520	408520	408520	1
11	Cam	408520	408520	408520	408520	408520	1
12	Stem	450052	450052	450052	450052	450052	1
13	Packing	407804	407804	407804	407804	407804	2
14	O-Ring	404942	404942	404942	404942	404942	1
15	Stuffing Box	407709	407709	407709	407709	407709	1
16	Screw	407943	407943	407943	407943	407943	1
17	Nut	445540	445540	445540	445540	445540	3
18	Lever	441836	441836	441836	441836	441836	1
19	U-Bolt	443793	443793	443793	443793	443793	1
20	Screen	443519	443519	443519	443519	443519	1
21	Fuse Plate	444686	444686	444686	444686	444686	1
22	Support	444687	444687	444687	444687	444687	1

F-460 4" Emergency Valve
(Sheet 1 of 2)

REF.	DESCRIPTION	BUNA-N DISC			VITON DISC	REQ'D.
		F460-001	F460-002	F460-003	F460-010	
1	Disc Holder	408939	408939	408939	408939	1
2	Retaining Ring	409040	409040	409040	409040	1
3	Disc	408940	408940	408940	409044	1
4	Disc Retaining Plate	408941	408941	408941	408941	1
5	Screw	409094	409094	409094	409094	4
6	Set Screw	444562	444562	444562	444562	3
7	Packing	407804	407804	407804	407804	2
8	Stuffing Box	407709	407709	407709	407709	1
9	O-Ring	404942	404942	404942	404942	1
10	Screw	407943	407943	407943	407943	1
11	Lever	441836	441836	441836	409474	1
12	Nut	445540	445540	445540	445540	3
13	U-Bolt	443793	443793	443793	443793	1
14	Fuse Plate	444686	444686	444686	444686	1
15	Support	444687	444687	444687	444687	1
16	Stem	450052	450052	450052	450052	1
17	Cam	408520	408520	408520	408520	1
18	Body	408933	408933	408933	408933	1
19	Spring	409041	409041	409041	409041	1
20	O-Ring	408136	408136	408136	408136	1
21	Stem	408937	408937	408937	408937	1
22	Bonnet	409037	409037	409037	409037	1
23	Ball	440036	440036	440036	440036	1
24	Screen	443519	443519	443519	443519	1

F-462 4" Emergency Valve

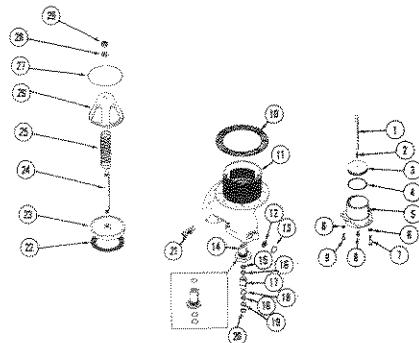


		VICTAULIC BUNA		VICTAULIC VITON		
REF.	DESCRIPTION 4" EMERGENCY VALVE	PART NUMBER				REQ'D.
		F462-013	F462-015	F462-016	F462-017	
1	Ball	440036	440036	440036	440036	1
2	Spring Ret.	297029	297029	297029	297029	1
3	Spring	409734	409734	409734	409734	1
4	Stem	560098	560098	560098	560098	1
5	Ret. Ring	297030	297030	297030	297030	1
6	Ret. Ring	409040	409040	409040	409040	2
7	O-Ring	408136	408136	408136	408136	1
8	Disc Holder	560099	560099	560099	560099	1
9	Disc	408940	408940	408940	409044	1
10	Body	560125	560125	560125	560687	1
11	Cam	408520	408520	408520	408520	1
12	Stem	450052	450052	450052	450052	1
13	Packing	407804	407804	407804	407804	2
14	O-Ring	404942	404942	404942	404942	1
15	Stuffing Box	407709	407709	407709	407709	1
16	Screw	407943	407943	407943	407943	1
17	Nut	445540	445540	445540	445540	3
18	Lever	441836	441836	441836	441836	1
19	U Bolt	443793	443793	443793	443793	1
20	Screen	443519	443519	443519	443519	1
21	Fuse Plate	444686	—	—	444686	1
22	Support	444687	—	—	444687	1

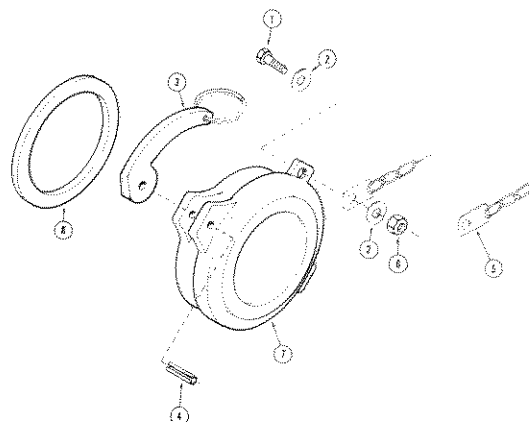
F-465 4" Emergency Valve

EMCO
WHEATON

F-499 Dust Cap Assembly



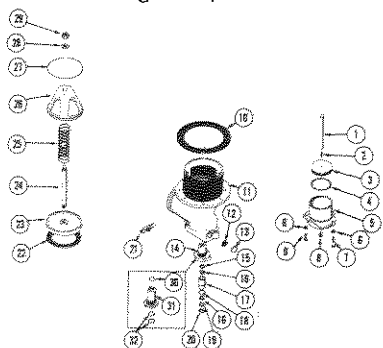
REF.	DESCRIPTION EMERGENCY VALVE- AIR OPERATED	PART NUMBER				REQ'D	MAT'L
		F465-001 4"	F465-002 4"	F465-006 4"	465-007 4"		
1	Cylinder Stem	297050	297050	560127	560127	1	Steel
2	Roll Pin	---	470031	470031	470031	1	Steel
3	Cylinder Poppet	297052	297052	297052	297052	1	Alum.
4	O-Ring	297043	297043	297043	297043	1	Buna
5	Cylinder Cup	297048	297048	297048	297048	1	Alum.
6	Lockwasher	170006	170006	470034	470034	3	Steel
7	Screw	405766	405766	297282	297282	1	Steel
8	Screw	---	---	403587	403587	1	Steel
9	Screw	405766	405766	405766	405766	2	Steel
10	Gasket	025618	025618	443507	443507	1	Cork Buna
11	Body	297032	297032	560173	560173	1	Alum.
12	Breather Filter	297041	297041	297041	297041	1	Felt
13	Retaining Ring	297045	297045	409262	409262	1	Steel
14	Housing	---	---	560126	560126	1	Alum.
15	Wiper	---	---	409404	560129	1	Buna
16	Quad Ring	---	---	409405	560130	2	Buna
17	Sieve	---	---	409399	409399	1	Celcon
18	O-Ring	---	---	480040	407433	1	Buna
19	Washer	---	---	560126	560128	1	Steel
20	Retaining Ring	---	---	408169	408169	1	Steel
21	Feed Tee w/Fuse Plug	297055	297055	297055	297055	1	Brass
22	Valve Disc	408940	408940	408940	---	1	Buna
23	Disc Holder	297039	297039	297039	297039	1	Alum.
24	Stem	297054	297054	297054	297054	1	Steel
25	Spring	024628	024628	409734	409734	1	Steel
26	Spring Retainer	297023	297023	297029	297029	1	Alum.
27	Retaining Ring	297030	297030	297030	297030	1	Steel
28	Washer	281128	281128	470026	470026	1	Steel
29	Nut	297056	297056	407722	407722	1	Steel
30	Wiper	297042	297227	---	---	1	Buna
31	Stuffing Box	207044	207044	---	---	1	Alum.
32	O-Ring	407433	407433	---	---	2	Buna



REF.	DESCRIPTION DUST CAP ASSEMBLY	PART NUMBER F499-001	REQ'D.	MAT'L.
1	Screw	403138	1	Steel
2	Washer	560040	2	Steel
3	Cam Lug	561474	1	Nylon
4	Right Hand Cam - (Shown)	492345	1	Nylon
5	Pin	409793	2	Steel
6	Chain	491544	1	Steel
7	Nut	406236	1	Steel
8	Dust Cap Body	409784	1	Alum.
	Seal	409786	1	Buna

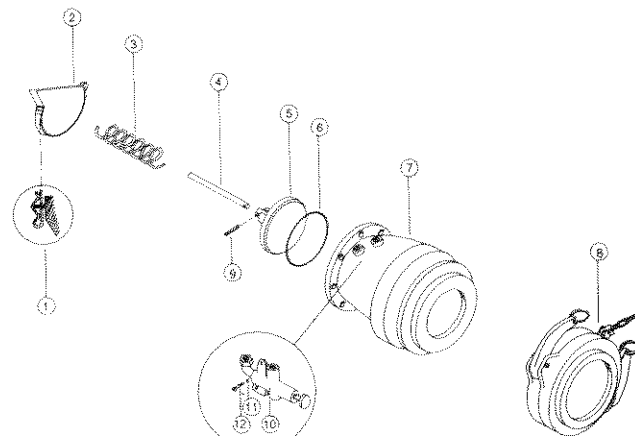
NOTE: Optionally available with chain. Please specify

F-467 4" Emergency Valve



REF.	DESCRIPTION EMERGENCY VALVE -AIR OPERATED	PART NUMBER						REQ'D.	MAT'L.
		F467-001 4"	F467-002 4"	F467-006 4"	F467-007 4"	F467-008 4" X 1/2"	F467-009 4" X 1/2"		
1	Cylinder Stem	297050	297050	560127	560127	560127	560127	1	Steel
2	Roll Pin	---	470031	470031	470031	470031	470031	1	Steel
3	Cylinder Poppet	297052	297052	297052	297052	297052	297052	1	Alum.
4	O-Ring	297043	297043	297043	297043	297043	297043	1	Buna
5	Cylinder Cup	297048	297048	297048	297048	297048	297048	1	Alum.
6	Lockwasher	170006	170006	470034	470034	470034	470034	3	Steel
7	Screw	405766	405766	297282	297282	403587	403587	1	Steel
8	Screw	---	---	403587	403587	403587	403587	1	Steel
9	Screw	405766	405766	405766	405766	405766	405766	2	Steel
10	Gasket	025618	025618	443507	443507	443507	443507	1	Cork Buna
11	Body	297032	297032	560175	560175	560177	560177	1	Alum.
12	Breather Filter	297041	297041	297041	297041	297041	297041	1	Felt
13	Retaining Ring	297045	297045	409262	409262	409262	409262	1	Steel
14	Housing	---	---	560126	560126	560128	560128	1	Steel
15	Wiper	---	---	409404	560129	409404	560129	1	Buna
16	Quad Ring	---	---	409405	560130	409405	560130	2	Buna
17	Sieve	---	---	409399	409399	409399	409399	1	Celcon
18	O-Ring	---	---	480040	407433	480040	407433	1	Buna
19	Washer	---	---	560128	560128	560128	560128	1	Steel
20	Retaining Ring	---	---	408169	408169	408169	408169	1	Steel
21	Feed Tee w/Fuse Plug	297055	297055	297055	297055	297055	297055	1	Brass
22	Valve Disc	408940	408940	408940	408940	---	---	1	Buna
23	Disc Holder	297039	297039	297039	297039	297039	297039	1	Alum.
24	Stem	297054	297054	297054	297054	297054	297054	1	Steel
25	Spring	024628	024628	409734	409734	409734	409734	1	Steel
26	Spring Retainer	297023	297023	297029	297029	297029	297029	1	Alum.
27	Retaining Ring	297030	297030	297030	297030	297030	297030	1	Steel
28	Washer	281128	281128	470026	470026	470026	470026	1	Steel
29	Nut	297056	297056	407722	407722	407722	407722	1	Steel
30	Wiper	297042	297227	---	---	---	---	1	Buna
31	Stuffing Box	207044	207044	---	---	---	---	1	Alum.
32	O-Ring	407443	407443	---	---	---	---	2	Buna

F-500 API Adapter

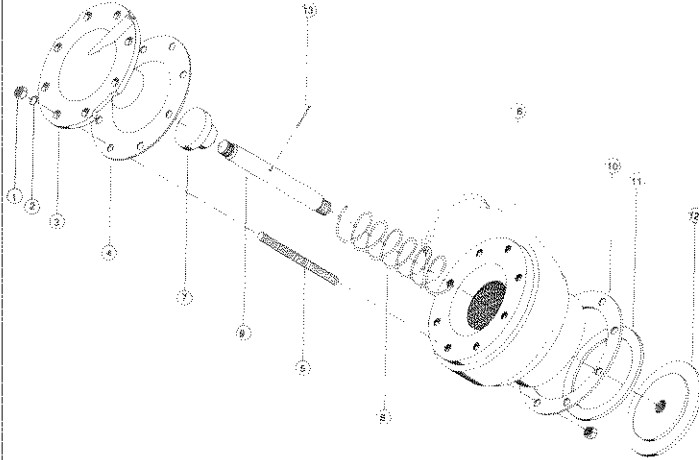
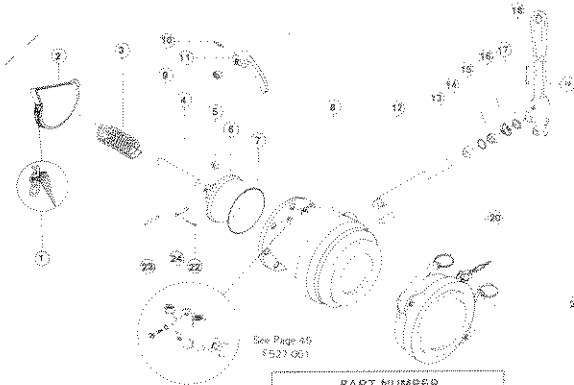


REF.	DESCRIPTION	PART NUMBER						REQ'D.	MAT'L.
	API ADAPTER	F500-001	F500-002	F500-003	F500-004	F500-005	F500-006		
1	Hair Pin Clip	560489	560489	560489	560963	560963	560963	1	St.
2	Cone	560946	560946	560946	560946	560946	560946	1	Alum.
3	Spring	560614	560614	560614	560955	560955	560955	1	S.S.
4	Stem	409433	409033	409433	409433	409433	409433	1	Alum.
5	Poppet	409430	409430	409430	560956	560956	560956	1	Alum.
6	O-Ring	408061	408061	408061	560961	560961	560961	1	Viton
7	Body	409427	409427	409427	560957	560957	560957	1	Alum.
8	Dust Cap	491649	491649	491649	491864	491864	---	1	---
9	Roll Pin	470079	470079	470079	470079	470079	470079	1	S.S.
10	Air Valve	---	---	491691	491691	491691	---	1	---
11	Lockwasher	---	403107	---	403107	---	---	2	St.
12	Screw	---	470104	---	470104	---	---	2	St.

F-501 API Openable Adapter

EMCO
WHEATON

F-513 3" Vapor Valve

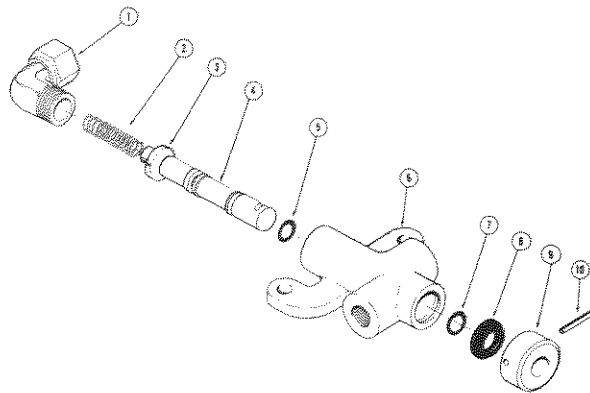
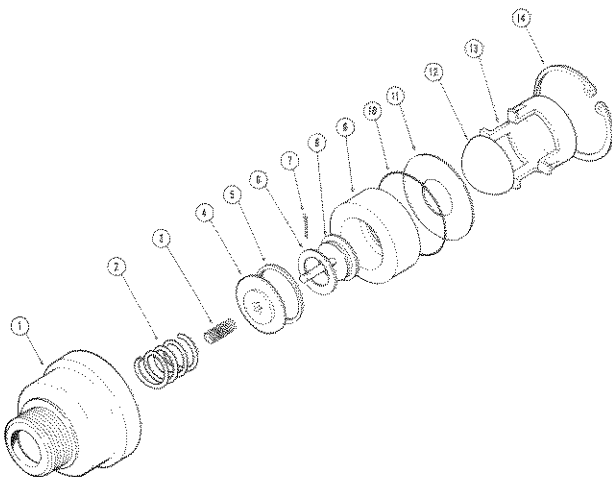


REF.	DESCRIPTION	PART NUMBER			REQ'D	MAT'L.
		VITON	TEFLON			
	API OPENABLE ADAPTER	F501-001	F501-003	F501-004		
1	Hex Pin Cap	560485	560489	560962	3	St. Alum.
2	Cone	560946	560946	560946	1	S.S.
3	Spring	560614	560614	560920	1	S.S.
4	Stem	409433	409432	409433	1	Alum.
5	Bearing	409435	409436	409760	1	S.S.
6	Poppet	409430	409430	560956	1	Alum.
7	O-Ring	409061	409061	560951	1	Vit./Tefl.
8	Body	409428	409428	560958	1	Alum.
9	Small Bearing	409438	409438	409438	1	Nylon
10	Roll Pin	409835	409835	409835	1	S.S.
11	Cam	409441	409441	409441	1	S.S.
12	Shaft	409439	409439	560962	1	Alum.
13	Large Bearing	409443	409443	409443	1	Hyp.
14	O-Ring	407432	407433	409031	1	Vit./Tefl.
15	Spacer	408167	408167	408167	1	S.S.
16	Retaining Ring	408169	408169	408169	1	S.S.
17	O-Ring	561320	561320	561320	1	Buna
18	Roll Pin	409829	409829	409829	1	S.S.
19	Lever Assembly	491571	491571	491571	1	
20	Shaft	491549	408746	408746	1	St.
21	Dust Cap	491549			1	
22	Cotter Pin	470039	470039	470039	2	S.S.
23	Bearing Pin	409437	409437	409437	1	S.S.
24	Roll Pin	470079	470079	409829	1	S.S.

REF.	DESCRIPTION	PART NUMBER	REQ'D	MAT'L.
		F513-001		
1	Nut	470051	16	Steel Cad.
2	O-Ring	480068	8	Buna-N
3	Valve Cover	560911	1	Alum.
4	Diaphragm	560912	1	Buna-N
5	Stud	560913	8	SST
6	3" Vapor Valve Body	560915	1	Alum.
7	Diaphragm Base	560916	1	Celcon 20
8	Spring	407104	1	SST
9	Valve Stem	560918	1	Cork-Buna
10	Gasket	560919	1	SST
11	Vapor Vent Disc	560920	1	Viton
12	Poppet	560962	1	Alum.
13	Pin	407087	1	S.S.

F-505 P.V. Vent with Rollover

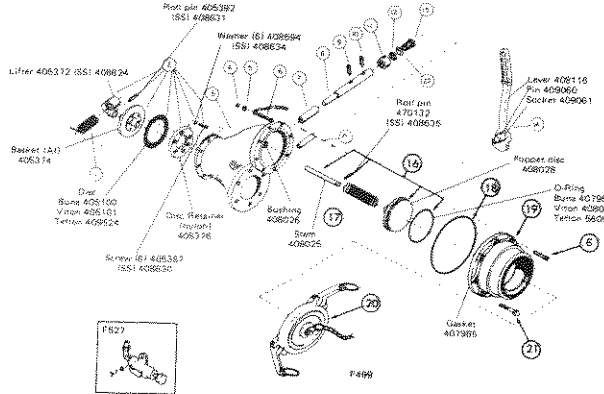
F-527 API Air Valve



REF.	DESCRIPTION	PART NUMBER			REQ'D.	MAT'L.
		F505-002				
1	Vent Body	454543	1		1	Alum.
2	Pressure Spring	454257	1		1	S.S.
3	Vacuum Spring	454258	1		1	S.S.
4	Pressure Poppet	560862	1		1	Alum.
5	Pressure Seal	560826	1		1	Viton
6	Vacuum Seal	560881	1		1	Viton
7	Cotter Pin	470039	1		1	S.S.
8	Vacuum Poppet	454260	1		1	Alum.
9	Press Seal	560868	1		1	Alum.
10	O-Ring	409047	1		1	Buna
11	Seal Disc	454265	1		1	Buna
12	Roll Over Ball	454268	1		1	Brass
13	Ball Cage	454546	1		1	Alum.
14	Retaining Ring	454265	1		1	Steel

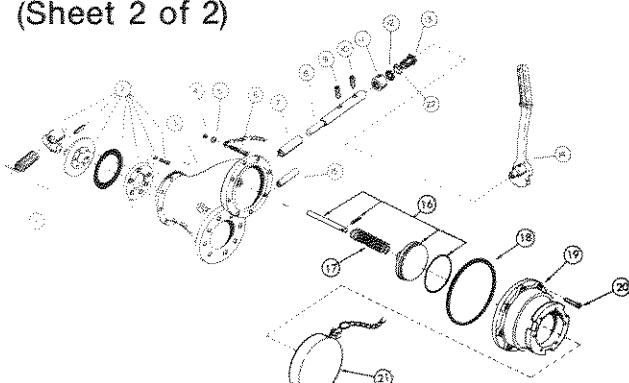
REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
		F527-001		
1	Fitting	409984	1	Brass
2	Spring	409749	1	S.S.
3	Stem End	409982	1	S.S.
4	Stem	409981	1	S.S.
5	O-Ring	560086	1	Viton
6	Body	409986	1	Brass
7	O-Ring	480007	1	Viton
8	Wiper	560085	1	Buna-N
9	Button	409983	1	Alum.
10	Roll Pin	470061	1	S.S.

F-552 (Sheet 1 of 2) Combination Tank Valves with AP 1 Adaptor



REF.	DESCRIPTION	BUNA SEALS			REQ'D.
		F552-023	F552-024	F552-025	
1	Spring	405378	405378	405378	1
2	Lifter Assy.	491438	491440	491561	1
3	Body Assy.	491899	491899	491900	1
4	Nut	406234	406234	406234	1
5	Lockwasher	405767	405767	405767	1
6	Screw	408032	408032	408032	1
7	Sleeve	405398	405398	405398	1
8	Lifter Stem	405377	405377	408625	1
9	Roller Pin	405386	405386	408629	1
10	Roller Pin	404868	404868	404868	1
11	Drive Bushing	405379	405379	408626	1
12	O-Ring	408054	401905	409732	1
13	Stuffing Box	408627	408627	409730	1
14	Lever Assy.	F0616-005	F0616-005	F0616-005	1
15	Stud	405383	405383	405383	1
16	Poppet Assy.	491441	491442	491560	1
17	Spring	560614	560614	408638	1
18	O-Ring	405638	405708	405638	1
19	Adaptor	407984	407984	560634	1
20	API Dust Cap	491849	491849	491949	1
21	Screw	408029	408029	408029	7
22	Washer	409553	409553	409553	1

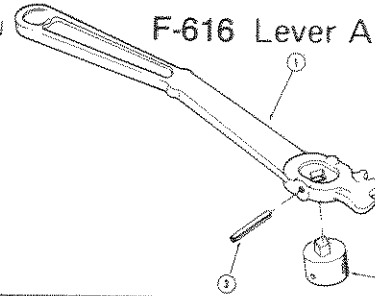
F-552 Combination Tank Valves with Buckeye Adaptors (Sheet 2 of 2)



REF.	DESCRIPTION	BUNA SEALS			REQ'D.
		F552-023	F552-024	F552-025	
1	Spring	405378	405378	405378	1
2	Lifter Assembly	491440	491440	491561	1
3	Body	491899	491899	491900	1
4	Nut	470073	470073	470073	1
5	Lockwasher	405872	405872	405872	1
6	Screw	407544	407544	407544	1
7	Sleeve	405398	405398	405398	1
8	Lifter Stem	405377	405377	408625	1
9	Roller Pin	405386	405386	408629	1
10	Roller Pin	404868	404868	404868	1
11	Drive Bushing	405379	405379	408626	1
12	O-Ring	405708	405708	405638	1
13	Stuffing Box	408627	408627	409730	1
14	Lever Assembly	F616-005	F616-005	F616-005	1
15	Stud	405383	405383	405383	1
16	Poppet Assembly	491443	491443	491560	1
17	Spring	560614	560614	408638	1
18	O-Ring	401905	401905	405638	1
19	Adaptor Assembly	491437	491437	491560	1
20	Screw	444738	444738	444738	8
21	Dust Cap	J1410-002	J1410-002	J1410-002	1
22	Washer	409553	409553	409553	1

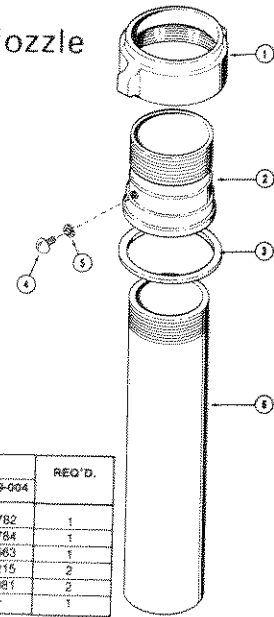
EMCO
WHEATON

F-616 Lever Assembly



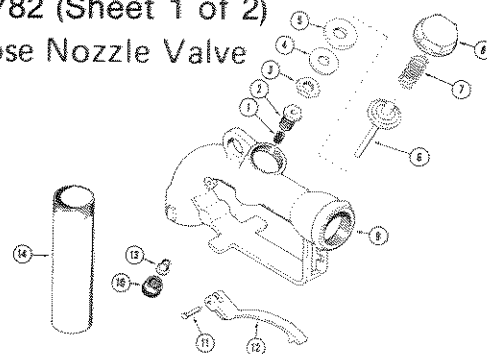
REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
	LEVER ASSEMBLY	F616-005		
1	Lever	408116	1	Ductile Iron
2	Socket	409061	1	Ductile Iron
3	Spiral Pin	409060	1	Steel

F-679 1 1/2" Coupling Nozzle

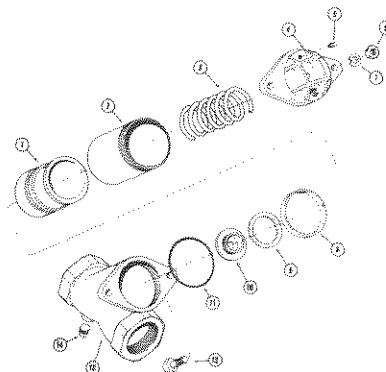
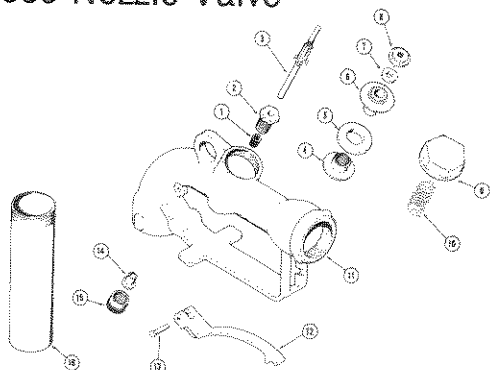


REF.	DESCRIPTION	PART NUMBER	REQ'D.
	1 1/2" COUPLING NOZZLE	F679-002	
1	Union Nut	401782	1
2	Tailpiece	401784	1
3	Gasket	402563	1
4	Screw	403215	2
5	Lockwasher	470081	2
6	Tube	401050	1

F-782 (Sheet 1 of 2) Hose Nozzle Valve



REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
	HOSE NOZZLE VALVE	F782-033		
1	Packing	402823	1	M.P.
2	Side Cap	402825	1	Brass
3	Disc Nut	402622	1	Brass
4	Disc Washer	402826	1	Brass
5	Disc	402827	1	—
6	Stem	402819	1	Brass
7	Spring	402831	1	Brz.
8	Cap	402833	1	Brass
9	Body	403405	1	Alum.
10	Stuffing Box	402820	1	Brass
11	Lever	402817	1	Brass
12	Pin	403122	1	Brass
13	Gland	402821	1	Brass
14	Tube	406565	1	Brass
—	Body and Side Cap (consists of Items 2 and 9)	490382	1	—
—	Disc Assembly (consists of Items 3 thru 6)	490318	1	—

F-782 (Sheet 2 of 2)
Hose Nozzle Valve**EMCO**
WHEATONF-903
3" Line Valve

Hose Nozzle Valve

REF.	DESCRIPTION	PART NUMBER							REQ'D	MAT'L
	HOSE NOZZLE VALVE	F782-038 1 1/4"	F782-040 1 1/4"	F782-042 1 1/2"	F782-044 1 1/2"	F782-056 1 1/2"	F782-046 2"	F782-048 2"		
1	Packing	402734	402734	402734	402734	402734	402734	402734	2	M.P.
2	Side Cap	402428	402428	402428	402428	402428	402591	402591	1	—
3	Stem	402401	402401	402401	402401	402401	402583	402583	1	Brass
4	Disc Nut	402404	402404	402404	402404	402404	402585	402585	1	Brass
5	Disc	402405	402405	402405	402405	402405	401955	401955	1	—
6	Seat Ring	402413	402413	402413	402413	402413	402589	402589	1	Brass
7	Disc	402414	402414	402414	402414	402414	402947	402947	1	—
8	Disc Bracket	402419	402419	402419	402419	402419	401946	401946	1	Brass
9	Cap	402421	402421	402421	402421	402421	402593	402593	1	Brass
10	Spring	402595	402595	402595	402595	402595	402595	402595	1	Brz.
11	Body	403238	403238	403240	403240	403240	403258	403258	1	Alum.
12	Lever	402425	402425	402604	402604	402604	404410	404410	1	Brass
13	Rivet	403110	403110	403110	403110	403110	403110	403110	1	Brass
14	Stuffing Box	402426	402426	402426	402426	402426	403673	403673	1	Brass
15	Gland	402427	402427	402427	402427	402427	402594	402594	1	Brass
16	Tube	—	401050	—	401050	401050	—	406567	1	Brass
—	Body and Safe Cap Ass'y (consists of items 2 & 11)	490383	490383	490384	490384	490384	490385	490385	1	—
—	Disc Assembly (consists of items 3 thru 8)	490315	490315	490315	490315	490315	490321	490321	1	—

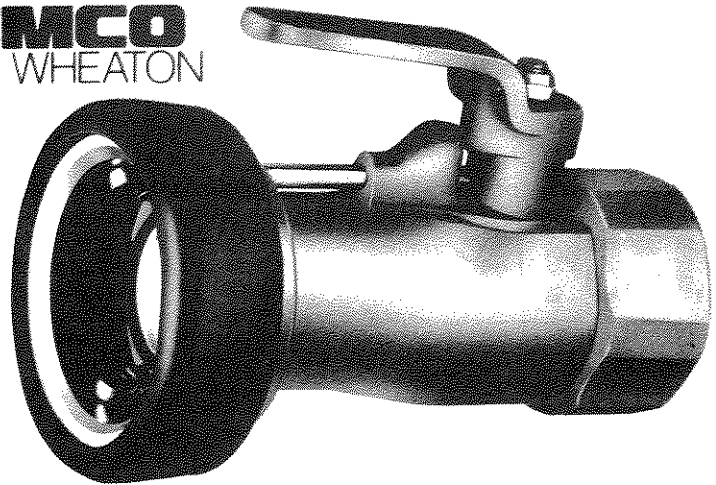
3" Line Valve (See Schematic Drawing Above)

REF.	DESCRIPTION	PART NUMBER	REQ'D.	MAT'L.
	3" LINE VALVE	F903-001		
1	Piston	405533	1	Brass
2	Cap Sleeve	406934	1	Brass
3	Spring	401248	1	S.S.
4	Cap Cover	406933	1	Brass
5	Pipe Plug	403061	1	Cad. Pl. Stl.
6	Nut	405521	2	Cad. Pl. Stl.
7	Lockwasher	470026	2	Cad. Pl. Stl.
8	Bearing Strip	406932	1	Tflon
9	Disc	405536	1	Alum.
10	Disc Nut	405535	1	Alum.
11	O-Ring	405520	1	Buna-N
12	Bolt	405519	2	Cad. Pl. Stl.
13	Body	405529	1	Alum.
14	Pipe Plug	403160	1	Cad. Pl. Stl.

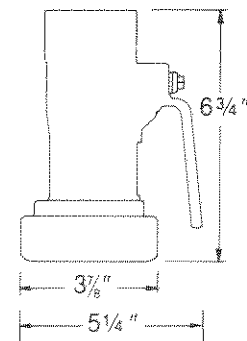
EMCO
WHEATON

DRY-BREAK COUPLINGS

J 1401 | Coupler

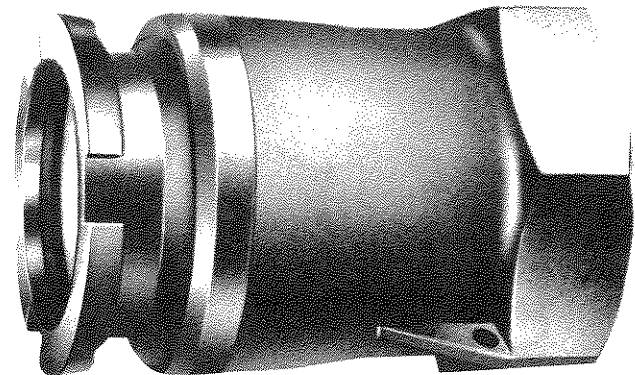


Variant	Size	Material	Inlet	Wt. #	Seal
- 001	1½"	Aluminum	Female NPT	2.2	Buna
- 002	1½"	Aluminum	Female NPT	2.2	Viton
- 004	1½"	Aluminum	Female NPT	2.2	Thiokol
- 046	1½"	Aluminum	Female NPT	2.2	EPR
- 009	2"	Aluminum	Female NPT	3.0	Buna
- 010	2"	Aluminum	Female NPT	3.0	Viton
- 013	2"	Aluminum	Female NPT	3.0	Thiokol
- 017	2"	Aluminum w/S.S. trim	Female NPT	3.0	Viton
- 032	2"	Brass w/S.S. trim	Female NPT	7.1	Viton

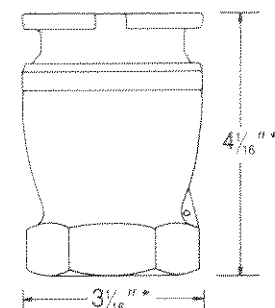


Also available with lever rotated 90°. This is used where close lever clearance is necessary. Contact factory for details and part numbers.

J 1302 | Adapter



Variant	Size	Material	Inlet	Wt. #	Seal
- 001	1½"	Brass	Female NPT	2.0	Viton
- 007	1½"	Brass	Female NPT	2.0	EPR
- 009	2"	Brass	Female NPT	2.6	Buna
- 010	2"	Brass	Female NPT	2.6	Viton
- 017	2"	Aluminum	Female NPT	1.1	Buna
- 018	2"	Aluminum	Female NPT	1.1	Viton
- 022	2"	Aluminum w/S.S. trim	Female NPT	1.1	Viton
- 035	3"	Brass	Female NPT	7.0	Viton
- 071	3"	Aluminum w/S.S. trim	Female NPT	2.6	Viton



*Dimensions depicted for 1½" and 2" adapter. For 3" adapter, width = 4 7/8", length = 5 5/8".

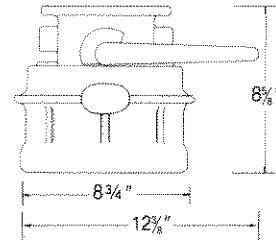
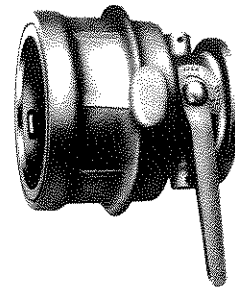
A.P.I. Dry-Breaks

Recognizing the need for uniform standards for tank vehicle bottom loading equipment, the American Petroleum Institute (A.P.I.) established, in 1965, criteria to insure equipment compatibility at all terminals.

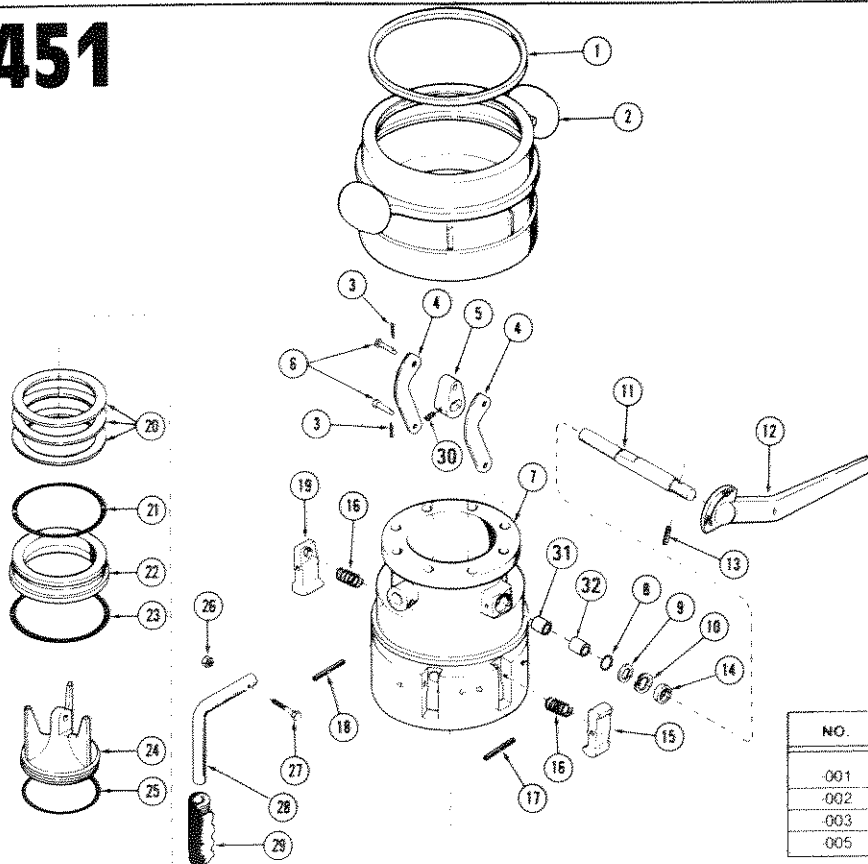
The Emco Wheaton couplers and adapters presented here meet all A.P.I. standards and specifications.

J451 Coupler A.P.I.

Variant	Size	Material	Inlet	Wt. #	Seal
-001	4" API	Aluminum	T.T. Flange	18.2	Viton
-002	4" API	Aluminum	T.T. Flange	18.2	Buna
-003	4" API	Aluminum	T.T. Flange	18.2	EPR
492717		New Style Repair Kit For J451			Buna
492718		New Style Repair Kit For J451			Viton
492719		New Style Repair Kit For J451			EPR

EMCO
WHEATON

J0451



NO.	SEALS	BODY - TRIM
-001	Viton	Aluminum - S.S.
-002	Nitrile	Aluminum - S.S.
-003	EPR	Aluminum - S.S.
-005	Viton	Aluminum - S.S.

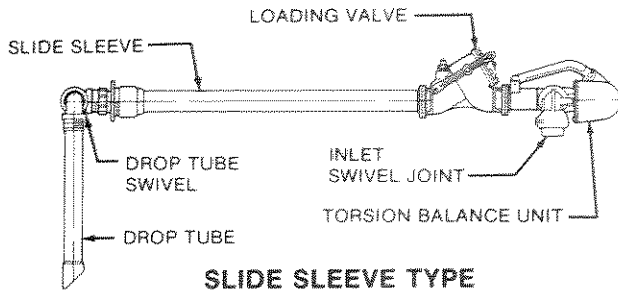
REF.	DESCRIPTION COUPLER - API STYLE	PART NUMBER				REQ'D.	MAT'L.
		J0451-001	J0451-002	J0451-003	J0451-005		
1	Dust Seal	408278	408278	408278	408278	1	Felt
2	Sleeve	408267	408267	408267	409520	1	Alum.
3	Cotter Pin	405034	405034	405034	405034	2	S.S.
4	Bent Link	408262	408262	408262	408262	2	S.S.
5	Link	408254	408254	408254	408254	1	S.S.
6	Link Pin	408252	408252	408252	408252	2	S.S.
7	Body	408269	408269	408269	408269	1	Alum.
8	O-ring	407433	480040	409422	407433	1	Viton
9	Washer	408167	408167	408167	408167	1	S.S.
10	Retaining Ring	408169	408169	408169	408169	1	S.S.
11	Shaft	408259	408259	408259	408259	1	S.S.
12	Lever	408243	408243	408243	408243	1	Alum.
13	Spiral Pin	560295	560295	560295	560295	1	Steel
14	Felt Seal	408168	408168	408168	408168	1	Felt
15	Interlock Lug	408258	408258	408258	408258	1	S.S.

DOVER **LOADING SYSTEMS GROUP**
CORPORATION / OPW DIVISION

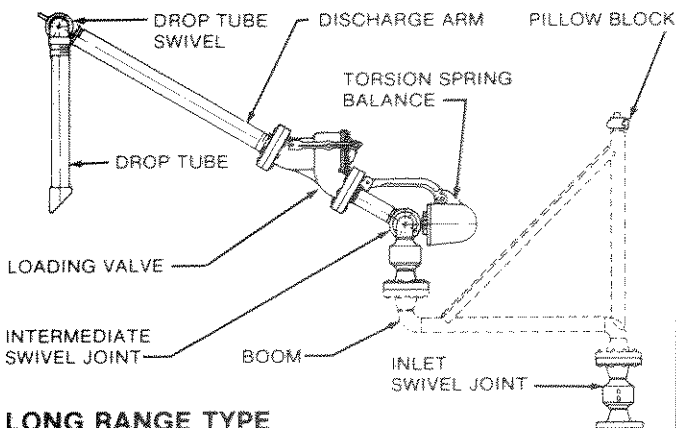
STYLES AND STANDARD LOADER NOMENCLATURE

When referring to various styles of loaders described in this catalog, you will encounter certain standard nomenclature applied to various styles and components. The following loader assembly configurations illustrate the styles and nomenclature for the components as used throughout

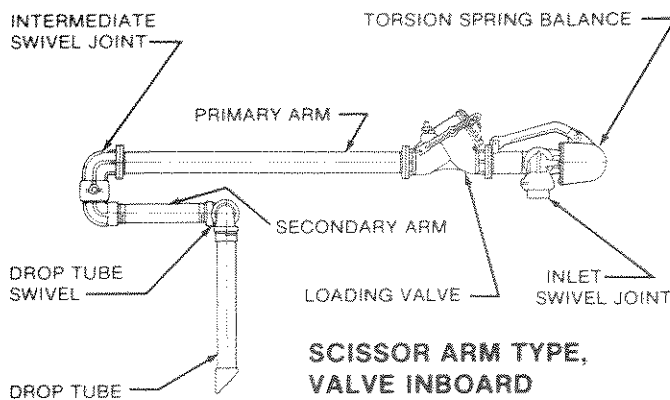
TOP LOADERS



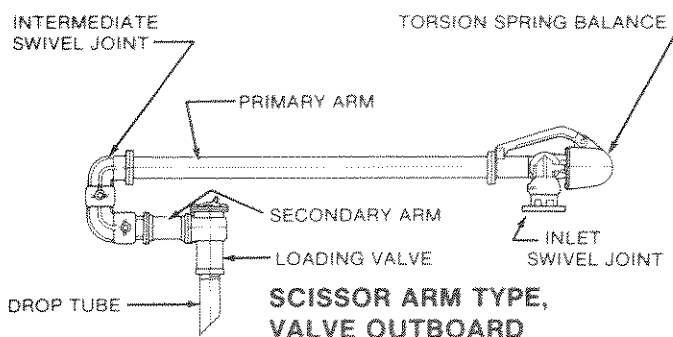
SLIDE SLEEVE TYPE



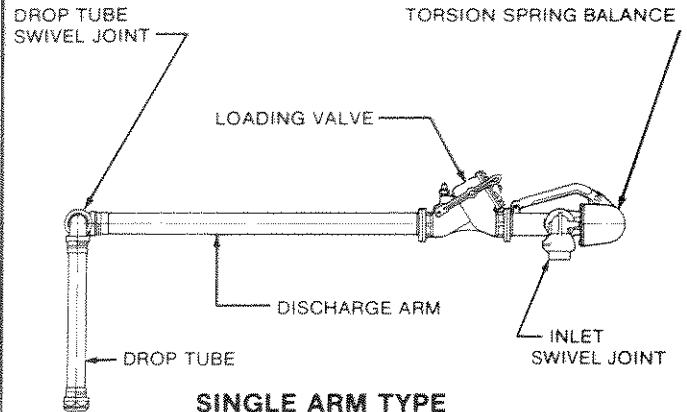
LONG RANGE TYPE



**SCISSOR ARM TYPE,
VALVE INBOARD**

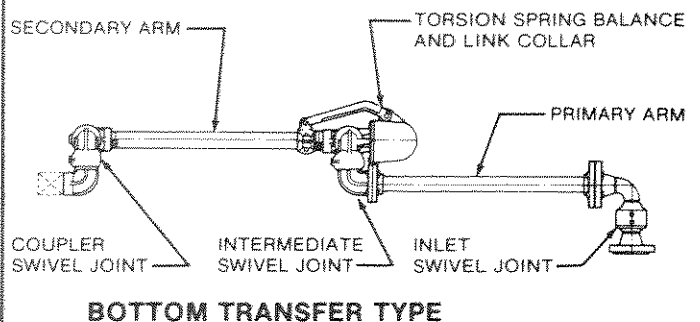


**SCISSOR ARM TYPE,
VALVE OUTBOARD**

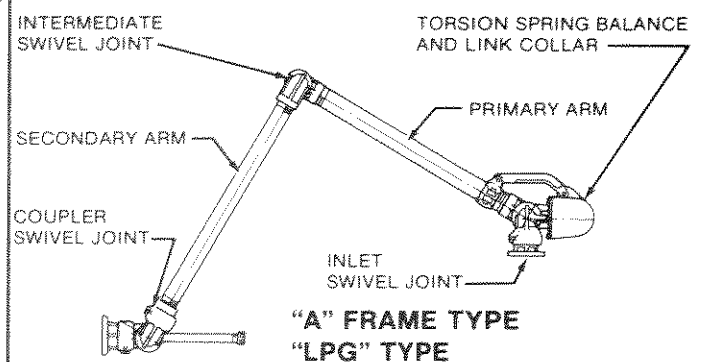


SINGLE ARM TYPE

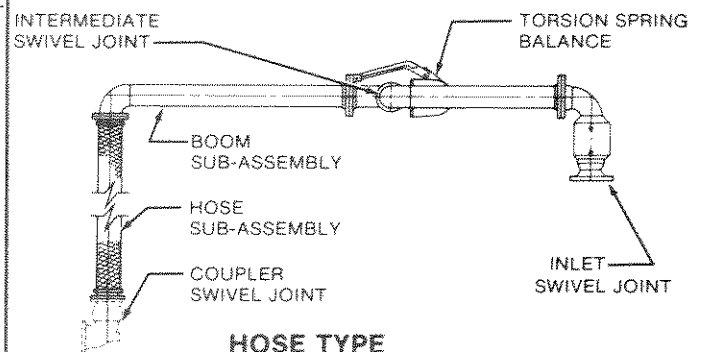
BOTTOM LOADERS



BOTTOM TRANSFER TYPE



**"A" FRAME TYPE
"LPG" TYPE**

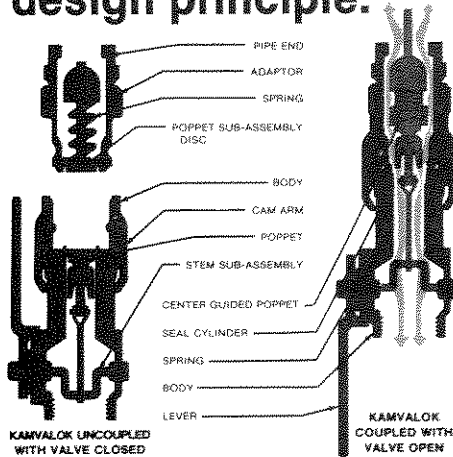


HOSE TYPE

DOVER CORPORATION / OPW DIVISION

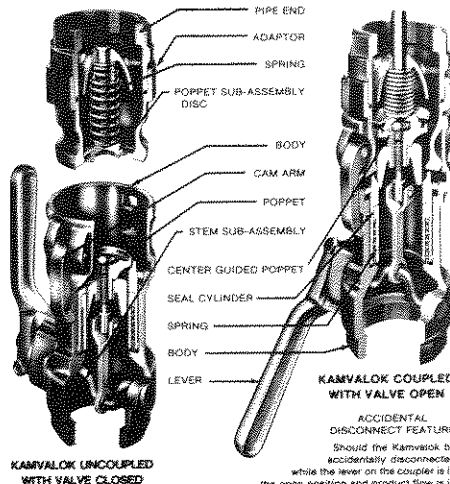
OPW KAMVALOK®
 DRY DISCONNECT COUPLINGS

design principle:



KAMVALOK UNCOUPLED WITH VALVE CLOSED
Above, this simplified drawing graphically demonstrates how, when the Kamvalok adaptor is separated from the coupler, its own spring-loaded poppet assembly holds the poppet disc firmly in the closed position. The coupler poppet disc is also held in the closed position.

Above, with the coupler and adaptor coupled together and the Open/Close lever actuated, the coupler poppet mates with the adaptor poppet, then pushes it to full open position, allowing flow through. Simplified drawing shows clearance, and guiding vanes that enable liquid to flow smoothly.



KAMVALOK UNCOUPLED WITH VALVE CLOSED

KAMVALOK COUPLED WITH VALVE OPEN
ACCIDENTAL DISCONNECT FEATURE
Should the Kamvalok be accidentally disconnected while the lever on the coupler is in the open position and product flow is in progress, the poppet in the adaptor will automatically close and the seal cylinder, called out in the above cutaway, will automatically stop flow through the coupler. Excessive product spill is prevented.

The OPW Kamvalok is a dry disconnect coupling with a quick connect and quick disconnect feature. The spring loaded coupler contains a built-in valve; the adaptor contains a spring loaded poppet to assure fast closing and a tight seal.

The OPW Kamvalok® is a natural extension of the highly successful OPW Kamlok® quick coupling for hose and pipe. Connections and disconnections with both are accomplished simply by closing and opening two cam arms which lock into a machined groove and around the circumference of the mating adaptor. There are no locating lugs or threads.

The Kamvalok adaptor contains a poppet assembly, spring loaded to hold the poppet disc firmly in the closed position until the coupler is attached and the entire assembly is lever actuated.

The coupler contains the open/close lever plus its own valve assembly. This valve consists of a spring-loaded poppet and disc which firmly closes the coupler until opened by the open/close actuating lever.

After the Kamvalok adaptor and coupler are firmly coupled together, the lever is turned to the OPEN position. This action moves the coupler poppet toward the adaptor poppet disc until these two mating discs make contact. Complete turning of the lever to the full open position causes the coupler poppet to extend beyond the end of the coupler, depressing the adaptor poppet back into the adaptor body, which creates clearance for liquid flow around both discs.

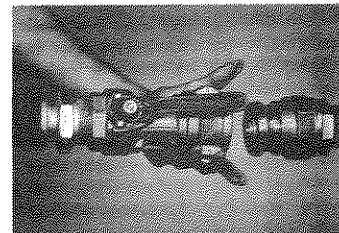
Even flow and low pressure drop are achieved by a deflector, built into the adaptor, which reduces turbulence. Guiding fins within the coupler further assure even flow characteristics.

When the lever is returned to the CLOSE position and disconnect is made, only a very small amount of product loss results because the disc faces of these poppets remain in contact until the coupler and adaptor are separated. Spillage of more than a few drops of liquid is prevented.

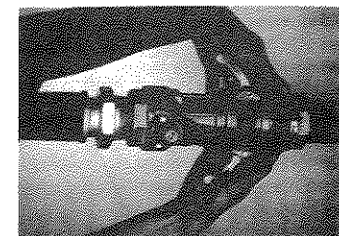
Should accidental disconnection of coupler and adaptor occur while the lever is in the OPEN position, both coupler and adaptor are designed to automatically shut off, preventing spillage.

operation:

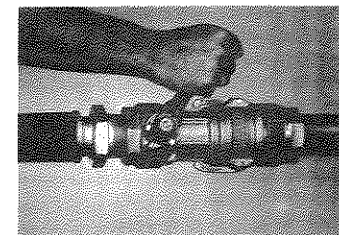
IT ONLY TAKES 4 SECONDS TO START FLOW.



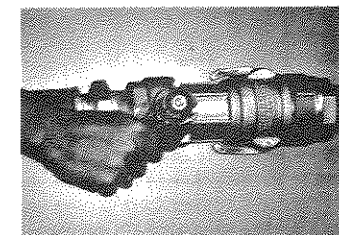
1. COUPLE IN ANY POSITION



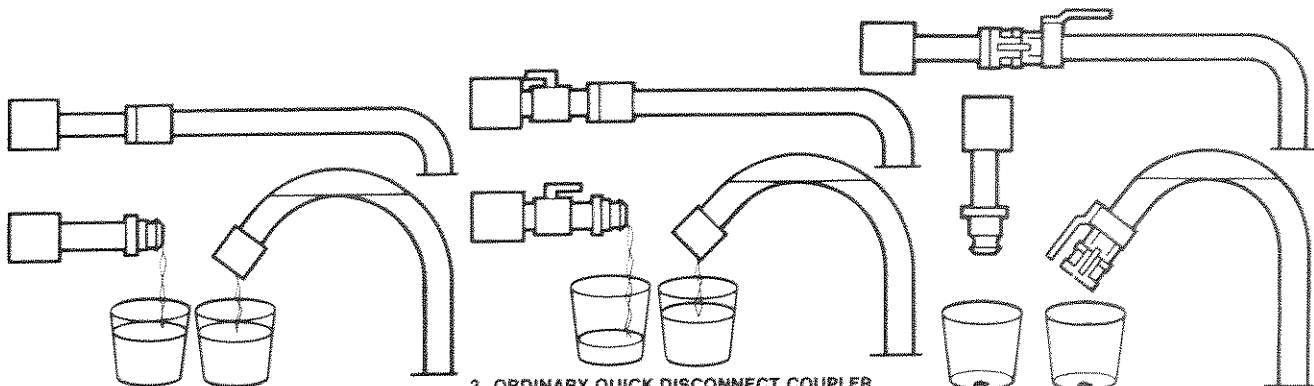
2. CAM ARMS LOCK COUPLER AND ADAPTOR TOGETHER



3. LEVER OPENS VALVE



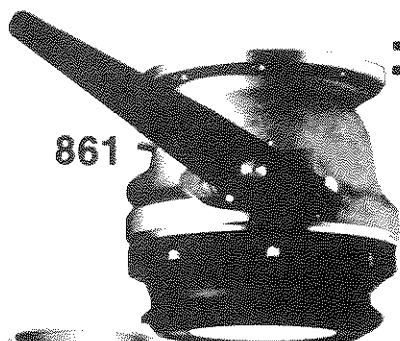
4. FULL FLOW STARTS



1. **ORDINARY QUICK DISCONNECT COUPLER**
Excessive amount of liquid spills out when coupling is disconnected.

2. **ORDINARY QUICK DISCONNECT COUPLER PLUS BALL VALVE**
Excessive amount of liquid spills out when coupling and ball valve are disconnected.

3. **OPW KAMVALOK DRY DISCONNECT COUPLER**
Only a drop or two of liquid leaks out when Kamvalok is disconnected.

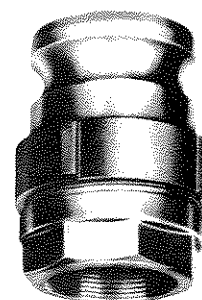
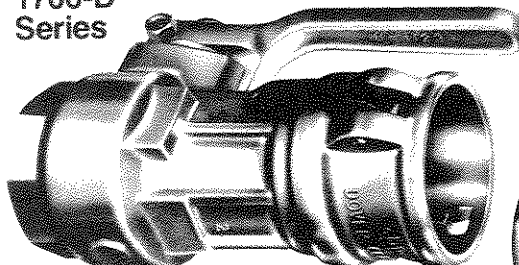


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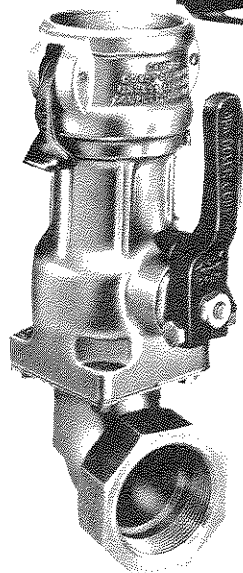
FLUID HANDLING GROUP
CORPORATION / OPW DIVISION

KAMVALOK®
DRY DISCONNECT COUPLINGS

1700-D
Series

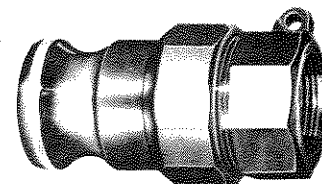
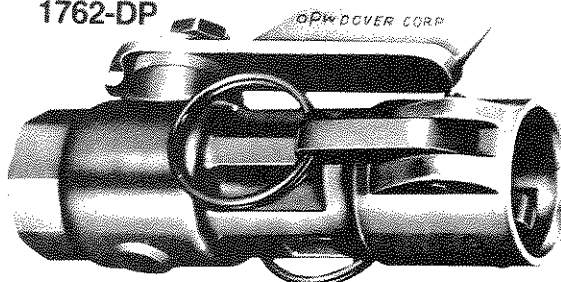


1600-A
Series



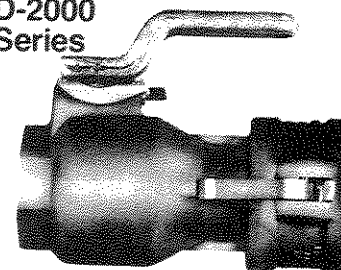
1711-ES

1762-DP



1662-A

D-2000
Series



availability chart:

Kamvalok™ Series

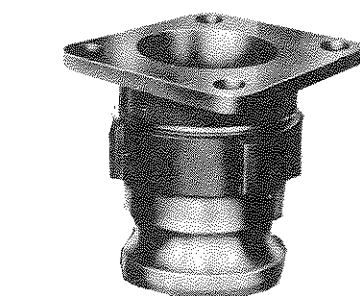
NUMBER	PRODUCT	SIZE	CONSTRUCTION	SEALS
1611-A	ADAPTOR	1½", 2", 3"	ALUMINUM, BRONZE	BUNA-N
1612-A	ADAPTOR	1½", 2"	ALUMINUM, BRONZE	VITON
1661-A	ADAPTOR	2", 3"	ALUMINUM	BUNA-N
1661-SF*	TANK TRUCK ADAPTOR	2"	ALUMINUM**	BUNA-N
1662-A	ADAPTOR	¾", 1½", 2", 3"	ALUMINUM**	VITON
1663-A	ADAPTOR	1½", 2", 3"	ALUMINUM**	TEFLON*
1664-A	ADAPTOR	1½", 2", 3"	ALUMINUM**	E.P.T.
1672-A	ADAPTOR	1½", 2", 3"	STAINLESS STEEL**	VITON
1673-A	ADAPTOR	1½", 2", 3"	STAINLESS STEEL**	TEFLON
1674-A	ADAPTOR	1½", 2"	STAINLESS STEEL	E.P.T.
1711-D	COUPLER	1½", 2", 3"	ALUMINUM	BUNA-N
1711-ES*	ELBOW SWIVEL COUPLER	2"	ALUMINUM	BUNA-N
1711-GC*	GRAVITY COUPLER	2", 3"	ALUMINUM	BUNA-N
1712-D	COUPLER	1½", 2"	ALUMINUM	VITON
1762-D	COUPLER	1½", 2", 3"	ALUMINUM**	VITON
1762-DP	COUPLER	¾"	ALUMINUM**	VITON
1764-D	COUPLER	1½", 2", 3"	ALUMINUM**	E.P.T.
1765-D	COUPLER	1½", 2", 3"	ALUMINUM**	TEFLON* and KALREZ*
1772-D	COUPLER	1½", 2", 3"	STAINLESS STEEL**	VITON
1774-D	COUPLER	1½", 2"	STAINLESS STEEL**	E.P.T.
1775-D	COUPLER	1½", 2", 3"	STAINLESS STEEL**	TEFLON* and KALREZ*

D-2000™ Series

NUMBER	PRODUCT	SIZE	CONSTRUCTION	SEALS
2261-D	COUPLER	1½", 2"	ALUMINUM**	BUNA-N
2262-D	COUPLER	1½", 2"	ALUMINUM**	VITON
2264-D	COUPLER	1½", 2"	ALUMINUM**	E.P.T.
2265-D	COUPLER	1½", 2"	ALUMINUM**	TEFLON* and KALREZ*
2271-D	COUPLER	1½", 2"	STAINLESS STEEL**	BUNA-N
2272-D	COUPLER	1½", 2"	STAINLESS STEEL**	VITON
2274-D	COUPLER	1½", 2"	STAINLESS STEEL**	E.P.T.
2275-D	COUPLER	1½", 2"	STAINLESS STEEL**	TEFLON* and KALREZ*

*With Stainless Steel Turn

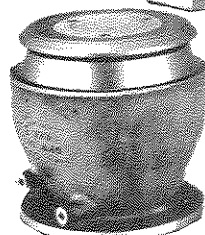
Teflon® and Kalrez® are registered trademarks of the DuPont® Corporation.



1661-SF



1711-GC



866

SWIVEL JOINTS

HOW TO SELECT THE RIGHT SWIVEL JOINT

OPW swivel joints are standard in combinations of five metals and five seal materials so that you can order, from stock, the ones that are most suitable for the products you handle. Two types of body construction (CAST and FABRICATED) cover pressures, temperatures, corrosion resistance, weights and load-bearing capacities well within the requirements of most products handled.

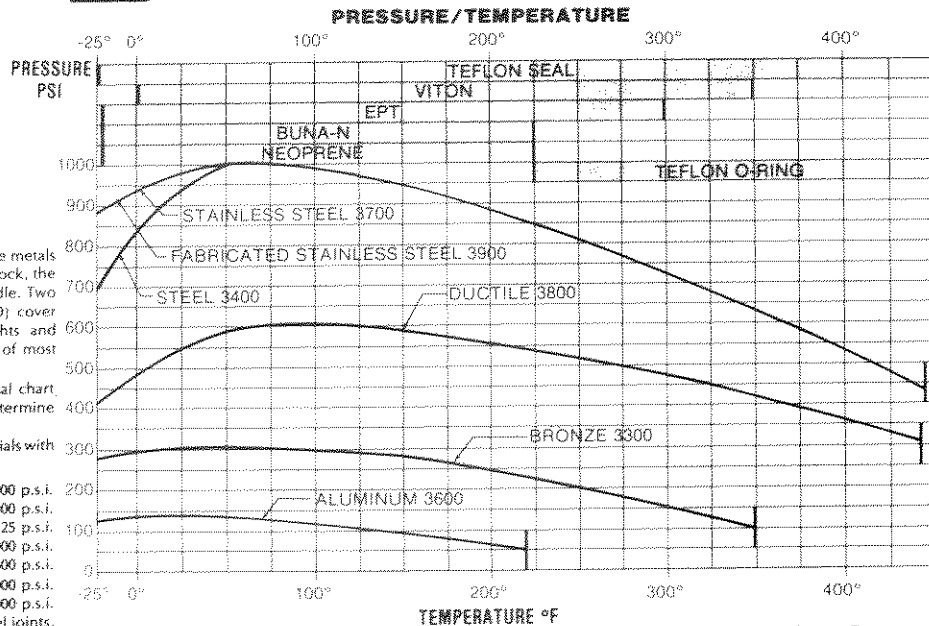
From the pressure/temperature graphs and chemical chart shown below and on pages 36 and 37, you can easily determine which metals and seals you need.

OPW swivel joints are available in the following materials with pressure ratings as shown:

OPW 3200 Series:	Cast Steel	3000 p.s.i.
OPW 3300 Series:	Cast Bronze	300 p.s.i.
OPW 3600 Series:	Cast Aluminum	125 p.s.i.
OPW 3700 Series:	Cast Stainless Steel	1000 p.s.i.
OPW 3800 Series:	Cast Ductile Iron	600 p.s.i.
OPW 3400 Series:	Fabricated Steel	1000 p.s.i.
OPW 3900 Series:	Fabricated Stainless Steel	1000 p.s.i.

Buna-N seals are standard with all of the above swivel joints, but each is available with seals made of Neoprene, Teflon, EPT or Viton-A, depending on the pressures and temperatures of your operation.

LOADING SYSTEMS GROUP CORPORATION / OPW DIVISION



REPLACEMENT KIT ASSEMBLIES

- 3001-K Buna-N Seal Replacement Kit.** Available in the following sizes: 1/4" or 1", 1 1/4" or 1 1/2", 2", 2 1/2" or 3", 4" and 6".
- 3002-K Viton Seal Replacement Kit.** Available in the following sizes: 1/4" or 1", 1 1/4" or 1 1/2", 2", 2 1/2" or 3", 4" and 6".
- 3003-K Teflon Seal Replacement Kit.** Available in the following sizes: 1/4" or 1", 1 1/4" or 1 1/2", 2", 2 1/2" or 3" and 4". Main seal is Teflon with garter spring.

Each kit consists of the following parts:

- 1/4" and 1" — One main seal* (O-ring), one dust seal (O-ring), one grease fitting, four balls and an instruction sheet.
- 1 1/4", 1 1/2" and 2" — One main seal (O-ring), one dust seal (O-ring) and one dust seal (left). One grease fitting, four balls and an instruction sheet.
- 2 1/2", 3", 4" and 6" — One main seal (O-ring), one felt dust seal, four balls and an instruction sheet.

LUBRICANTS

Lubrication of OPW swivel joints should be performed periodically, depending on service and operating conditions. For normal operation, twice yearly is usually sufficient. Lubrication as often as once daily may be required when service is severe, such as high temperatures, heavy loads, or constant rotation. Use OPW 884 Lubricant or a good grade 2 cup grease. Use OPW 885 for EPT Seals. See Page 40 for food service applications.

OPW 884 Lubricant. For use on OPW Swivel Joints and similar applications. This is a lithium 12-hydroxy-stearate grease, containing molybdenum disulfide, polyethylene and rust and oxidation inhibitors. Rated up to 350 degrees F. Packaged in a 14 ounce container. For use with buna-N, viton-A, neoprene and Teflon gaskets. Eliminates the need for high-temperature grease. (Do not use with EPT seals.)

OPW 885 Lubricant. For use on OPW Swivel Joints and similar applications using EPT O-rings only. Packaged in 16 ounce package.

O-RINGS

MAIN SEALS	Part No.	1/4" & 1"	1 1/4" & 1 1/2"	2"	2 1/2" & 3"	4"	6"
Buna-N (Standard)	H-5971-M	H-6176-M	H-6175-M	H-6125-M	H-5923-M	H-6764-M	H-6781-M
Neoprene	Part No.	H-7415-M	H-7308-M	H-7312-M	H-7316-M	H-7320-M	
Teflon	Part No.	H-7550-M	H-7551-M	H-7552-M	H-7553-M	H-7553-M	H-3130-M
Viton-A	Part No.	H-3414-M	H-0790-M	H-0791-M	H-0792-M	H-0793-M	H-2271-M
Ethylene-Propylene-Terpolymer (EPT)	Part No.	H-5424-M	H-5423-M	H-5422-M	H-5421-M	H-5420-M	H-5419-M
Teflon Seal/Garter Spring	Part No.	H-4803-M	H-4804-M	H-4805-M	H-4806-M	H-4807-M	
DUST SEALS	Part No.	1/4" & 1"	1 1/4" & 1 1/2"	2"	2 1/2" & 3"	4"	6"
Buna-N Dust Seal	Part No.	H-3083-M	H-4034-M	H-6224-M			H-1155-M
Neoprene Dust Seal	Part No.	H-3418-M					
Ethylene-Propylene-Terpolymer (EPT) Dust Seal	Part No.	H-9338-M					
Viton-A Dust Seal	Part No.	H-3417-M		H-5471-M	H-5472-M	H-5473-M	H-2415-M
Felt Dust Seal	Part No.		H-6804-F	H-6714-F	H-6718-F	H-6765-F	H-6782-F

100 LB. R.F. BRONZE AND ALUMINUM FLANGES ARE ASA 150 LB. F.F. CONFIGURATION
ALL FLANGED ENDS ON FERROUS OPW SWIVEL JOINTS ARE ASA STANDARD

SPECIFICATIONS

3200 SERIES (CAST STEEL)

Bodies and tails of cast carbon steel. Flame-hardened ball races and special polishing on all sealing areas. Balls are precision ground steel, steel retaining plug, Buna-N O-ring dust seal. Buna-N seal and Teflon back up ring standard.

3300 SERIES (CAST BRONZE)

Bodies and tails of hard, wear-resistant bronze. Balls are precision ground steel, bronze retaining plug, felt dust seal. Buna-N seal standard.

3400 SERIES (FABRICATED STEEL)

Bodies and tails of steel tubing. Flame-hardened ball races and special polishing on all sealing areas. Welded construction. Balls are precision ground steel, steel retaining plug. Felt dust seal. Buna-N seal standard.

3600 SERIES (CAST ALUMINUM)

Bodies and tails of high-tensile strength aluminum. Balls are precision ground steel, aluminum retaining plug, felt dust seal. Buna-N seal standard.

3700 SERIES (CAST STAINLESS STEEL)

Bodies and tails of stainless steel. Balls are precision ground stainless steel, stainless steel retaining plug, felt dust seal. Buna-N seal standard.

3800 SERIES (CAST DUCTILE IRON)

Bodies and tails of cast ductile iron. Balls are precision ground steel, steel retaining plug, felt dust seal. Buna-N seal standard.

3900 SERIES (FABRICATED STAINLESS STEEL)

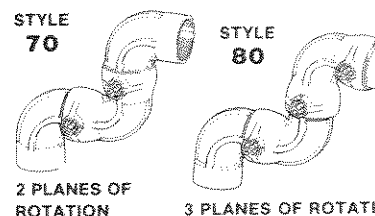
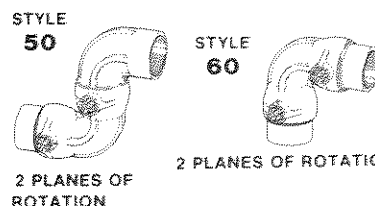
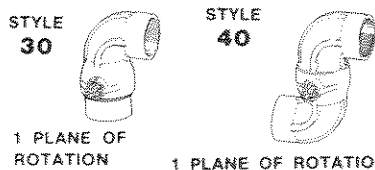
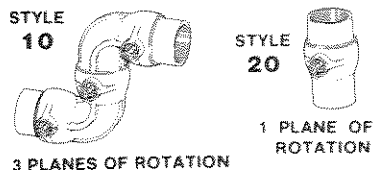
Bodies and tails of high quality investment cast stainless steel. Balls are precision ground stainless steel, stainless steel retaining plug, felt dust seal. Buna-N seal standard.

SEALING COMPOUND

OPW 880 Sealing Compound. Gives low-cost sealing protection. Just spread on threads with finger or brush. Gives full even coating over entire thread area. Packaged in 8 ounce tube or 1 lb. can.

STYLES

CAST SERIES 3200, 3300, 3600, 3700 AND 3800

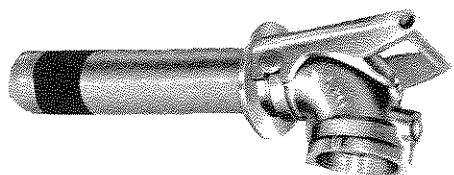


TITE-FILL SYSTEM



A. Y. McDonald MFG. CO.

LINE STRAINERS



Model 236—Vapor-Tite Fill Tube

This system provides a universal, vapor-tite connection for underground tank refilling without the need for an adaptor.

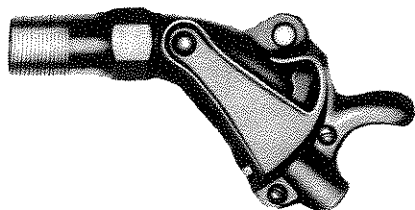
To obtain a vapor-tite connection, the handle is merely pushed down after the Model 236 is lowered into the fill pipe. Pushing down the handle causes a Buna-N rubber sealing sleeve to expand inside the fill pipe to create a vapor-tite connection, without the need of special adaptors.

Made of Almag 35 aluminum, the lightweight elbow is both corrosion-resistant and durable. It is provided with drag bars at all strategic points for extended service.

Note: Recommended for gravity transfer only. (Must be hand held when pressures are involved.)

Nominal sizes: (inlet x outlet) 2 x 2, 3 x 2, 3 x 3, 4 x 3, 4 x 4

BARREL FAUCETS

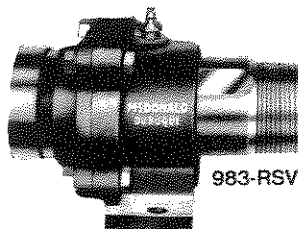
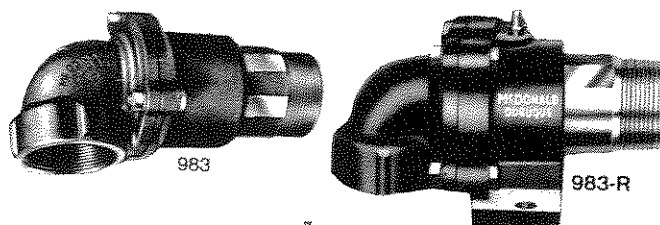


Model 884—Oil Gate-Type Barrel Faucet (Molasses Gate Faucet)

This iron gate barrel faucet may be padlocked.

Nominal sizes: (FIP inlet x MIP outlet) 3/4, 1, 1-1/4, 1-1/2, 2

SWING JOINTS



Model 983—Swing Joint

For use in bulk plant loading lines. Rotates 360° in one plane. Nominal sizes: 1-1/2, 2, 3

Model 984—Swing Joint

For use in bulk plant loading lines. Rotates 360° in two planes. Nominal size: 2

Hose Reel Swing Joints

For use on tank truck hose reels. All brass construction. U.L. listed.

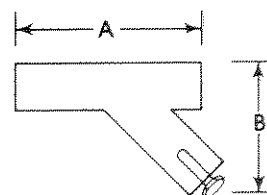
Model 983-R: 1-1/2 female thread x 1-1/2 male thread.

Model 983-RSV: 1-1/2 female thread & victualic groove x 1-1/2 male thread.

Model 914-S—Line Strainer

Bottom clean-out design. Cast iron body. Stainless steel strainer cage and screen. Available in 16 or 40 mesh.

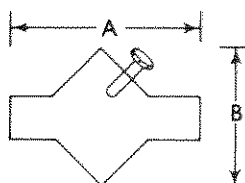
Operating line pressure: 125 psi



Nominal size	1-1/2	2	3
A-dimension	6-7/8	7-5/8	9-1/8
B-dimension	6-3/8	7-11/16	10-15/16

Model 963-S—Line Strainer

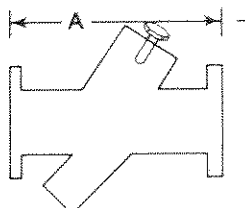
Top clean-out style. Cast iron body. Stainless steel strainer cage and screen. Available in 16 or 40 mesh. Operating line pressure: 125 psi.



Nominal size	2	3
A-dimension	9	12-1/2
B-dimension	12-1/2	15-1/2

Model 963-FS—Line Strainer

Same as Model 963-S, but with faced and drilled flanges on both ends. Operating pressure: 125 psi.



Nominal size	3	4
A-dimension	12	15-7/8
B-dimension	15-1/4	20-1/2
Flange Hole C-C Dia.	6	7-1/2
Flange Hole Size	11/16	3/4
No. of Holes	4	8

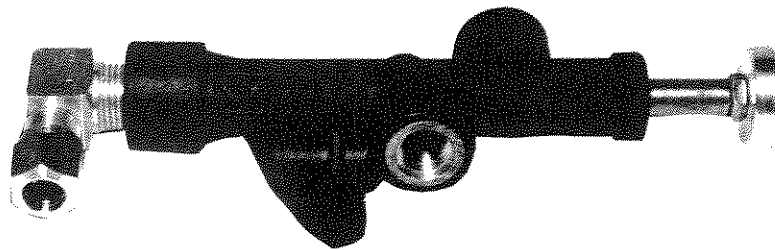
DOVER CORPORATION / OPW DIVISION

Product Delivery Equipment

OPW 865-C Air Interlock Valve

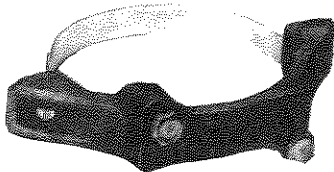
OPW Fluid Handling Group has introduced an improved Air Interlock Valve for use with bottom loading operations. The redesigned OPW 865-C (patent pending) Air Interlock Valve can be installed for normally **open** or **closed** service.

When installed on the bottom loading adaptor, it can be used to lock the trailer brakes and/or facilitate vent operation.

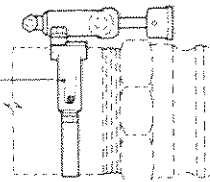


Product Features

- New main shaft sealing design eliminates seal or valve failure previously caused by seals sliding across air ports.
- Corrosion resistant, high impact "DURATUFF"™ body with brass threaded inserts.
- Main shaft wiper seal will prevent contaminants from entering the sealing area.
- 50% lighter in weight than the old style.
- Adjustable shaft height.
- Mounting holes and shaft actuation meet all standardized API and TTMA specifications.



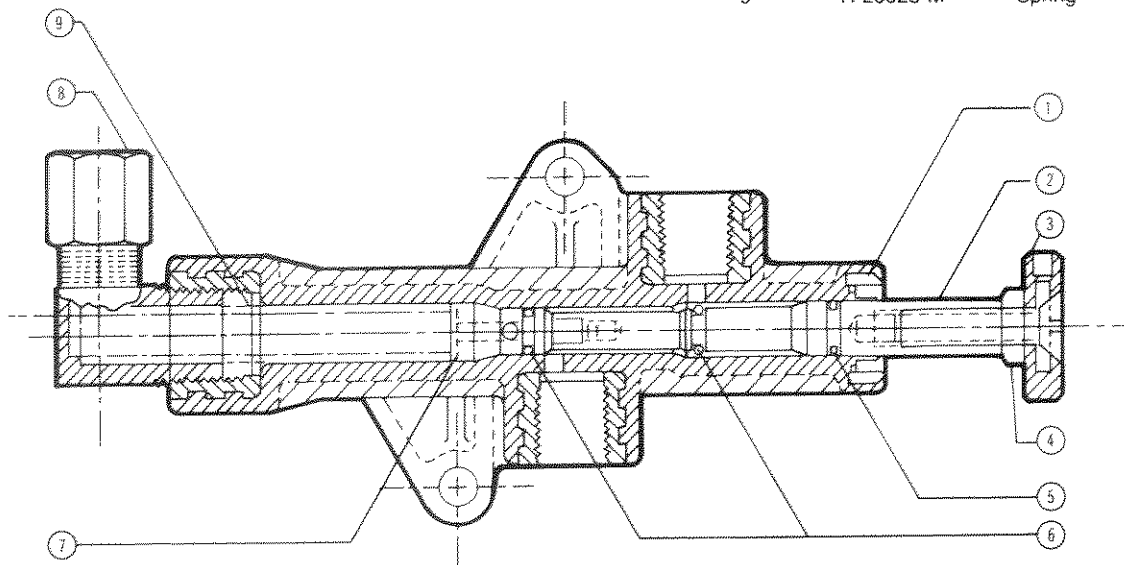
OPW 865-K
VALVE MTG.
BRACKET



OPW 865-C

KEY	PART NO.	DESCRIPTION
1	H-20015-M	Wiper Seal
2	H-20019-RB	Stem
3	H-20016	Stem Adjuster S/A
4	H-500-M	Nut
5	H-20085-M	O-Ring
6	H-20084-M	O-Ring (2)
7	H-20014-RB	Stem Retainer
8	H-20022-M	90° Male Elbow
9	H-20023-M	Spring

The OPW 865-K Air Valve Mounting Bracket is used in conjunction with the OPW 865-C Interlock Valve and is mounted on the vapor recovery line of the transport. Available in 3" and 4" sizes.



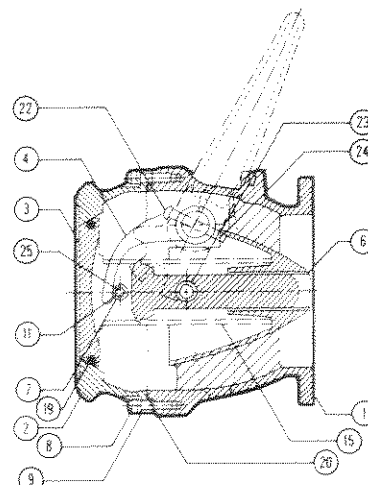
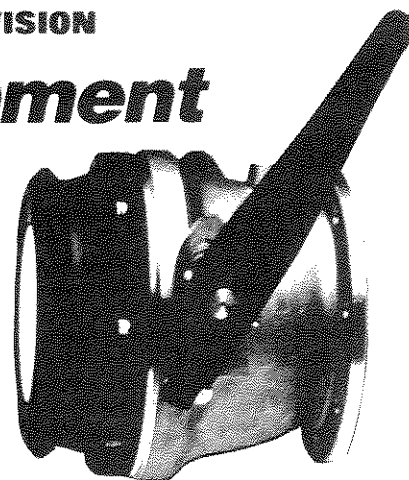
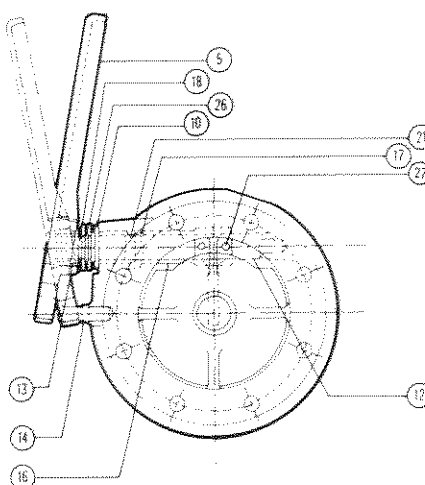
DOVER FLUID HANDLING GROUP
CORPORATION / OPW DIVISION

Product Delivery Equipment

Bottom Loading API Tank Truck Adaptor

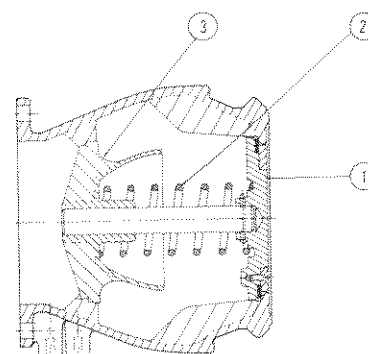
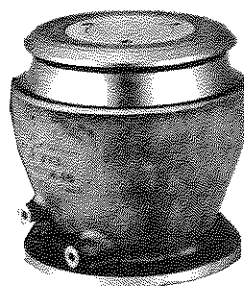
**OPW 861 (patent pending) openable A.P.I.
Bottom Loading Adaptor Product Features:**

- Two piece aluminum construction with a rotatable Hardcoated Adaptor for longer life.
- One piece Heavy Duty Poppet with an Acetal Resin Bearing for smoother opening characteristics.
- Computer designed cam profile provides easy opening.
- Lighter weight "Duratuff"™ Corrosion Resistant Lever.
- Designed in accordance with A.P.I. RP-1004, with a standard 4" TTMA Flange.
- Mounting Lugs provided for 865C Brake Interlock Valve.
- Operating Lever closes away from the operator with a minimal rotation for increased operator convenience.



OPW 861

KEY	PART NO.	DESCRIPTION
1	E-10002-A	Pipe End
2	E-10003-AH	Adaptor End
3	E-10004-A	Poppet
4	C-10008-EW	Cam
5	C-10009-M	Handle
6	H-20071-RP	Bearing
7	H-20052-RE	Roller
8	H-1753-RS	Screw (8)
9	H-20057-M	Lock Washer (8)
10	H-20048-RP	Bearing
11	H-20078-M	Roller Bearing
12	H-20050-RS	Shaft
13	H-20049-M	Hub
14	H-20051-RS	Stop Pin
15	H-20073-M	Spring
16	H-20055-RA	Spacer
17	H-20053-M	Wave Spring
18	H-20054-M	Spring Washer (2)
19	H-20058-M	O-Ring
20	H-20059-M	O-Ring
21	H-5138-M	O-Ring
22	H-8901-M	Pin
23	H-3915-M	Washer
24	H-1471-M	Cotter Pin
25	H-20056-RE	Pivot Pin
26	H-20061-M	Washer (2)
27	H-20060-M	Spirol Pin



The OPW 866 Tank Truck Dry Disconnect Adaptor complies with A.P.I. RP-1004. Has a one piece cast aluminum body, hard-coat anodized for wear and corrosion resistance. Poppet stem and disc holder are also aluminum. The 866 has a Viton disc. Inlet end standard 4" TTMA flange.

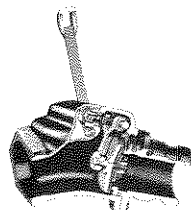
OPW 866

KEY	PART NO.	DESCRIPTION
1	H-8840	Poppet Sub-Assy.
2	H-8327-M	Spring
3	C-2779-M	Bell Ribbed Support

DOVER CORPORATION / OPW DIVISION

Product Delivery Equipment

Tank Truck Faucets

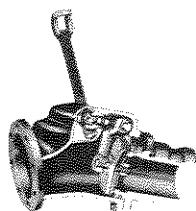


OPW 41-K. Female threaded inlet, OPW Kamlok on outlet. Outlet is 22½° below horizontal. Aluminum body and adaptor. Sizes: 2", 3".

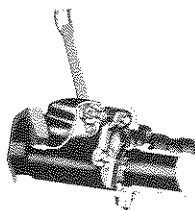


OPW-41-R. Female threaded inlet, male threaded outlet. Outlet is 65° below horizontal. Aluminum body and bronze adaptor. Size: 2".

● **OPW 41-RK.** Similar to OPW 41-R, except Kamlok Adaptor on outlet, with aluminum body and adaptor. Size: 2".

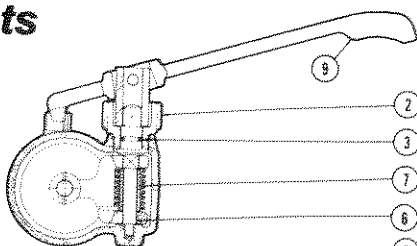
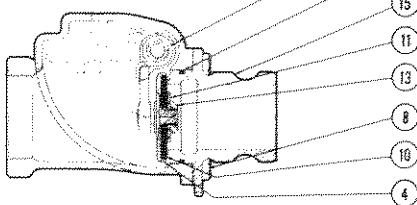
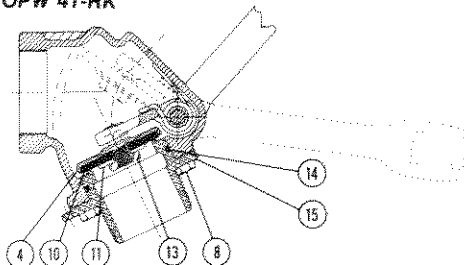


OPW 41-FK. The inlet end has a TTMA flange, while the outlet end is a Kamlok Adaptor for quick and easy attachment of the hose. The 41-FK faucet outlet slopes downward 22½° from horizontal. Aluminum body. Size: 3".



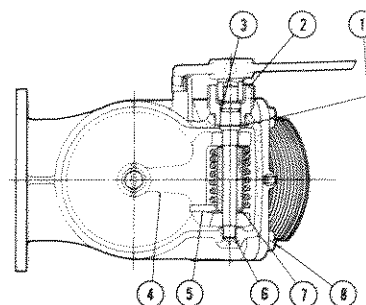
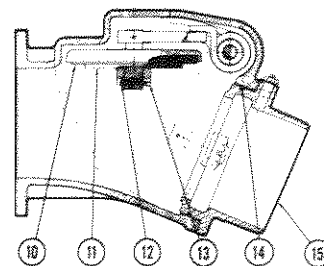
OPW 41-SK. Female threaded inlet. Straight aluminum body. OPW aluminum Kamlok Adaptor on outlet. Size: 2".

● **OPW 41-FSK.** Similar to OPW 41-SK except inlet has square flange. Size: 2".

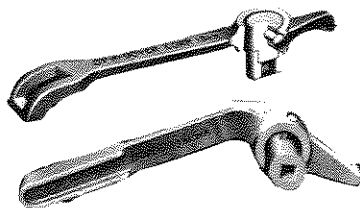
**OPW 41-SK****OPW 41-RK**

OPW 41 Series

	2"	2"	3"
	41-K		
	41-FSK		
	41-RK		41-FK
KEY DESCRIPTION	41-SK	41-R	41-K
1 Retaining Ring			H-5811-M
2 Stuffing Box	H-3453-RB	H-3453-RB	H-1021-RB
3 O-Ring	H-7329-M	H-7329-M	H-6924-M
4 Carrier & Disc Holder S/A	H-3145	H-3145	H-3165
5 Spring	H-2485-M	H-2485-M	H-2491-M
6 Stem	C-431-RE	C-431-RE	H-1018-RE
7 Spring Guide	H-2484-RA	H-2484-RA	H-2488-RA
8 Adaptor Screw	H-2673-M	H-2673-M	H-5431-M
9 Wrench			See Page 8
10 Disc	H-1849-M	H-1849-M	H-6794-M
11 Washer	H-3295-M	H-3295-M	H-2486-M
12 Cotter Pin			H-7821-M
13 Disc Nut	H-4035-M	H-4035-M	H-2487-M
14 O-Ring	H-7003-M	H-7003-M	H-1046-M
15 Adaptor	C-432-A	C-473-B	C-292-A

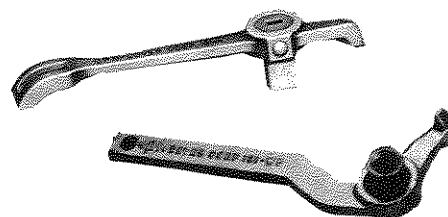
**OPW 41-K**

Wrenches for OPW Tank Truck Faucets



OPW 131-H. Malleable iron with brass socket. Fusible section melts in case of fire to prevent feeding fire if faucet is left in lock-open position. Fits all styles and sizes of OPW 41 Series.

OPW 131-WA. Ductile Iron. Fits all OPW 41 Series Faucets. 45° angle. Sizes: 2", 3". Please specify size of Faucet when ordering wrench.



OPW 131-W. Malleable Iron with brass socket. Fits OPW 41 Series. Sizes: 2", 3".

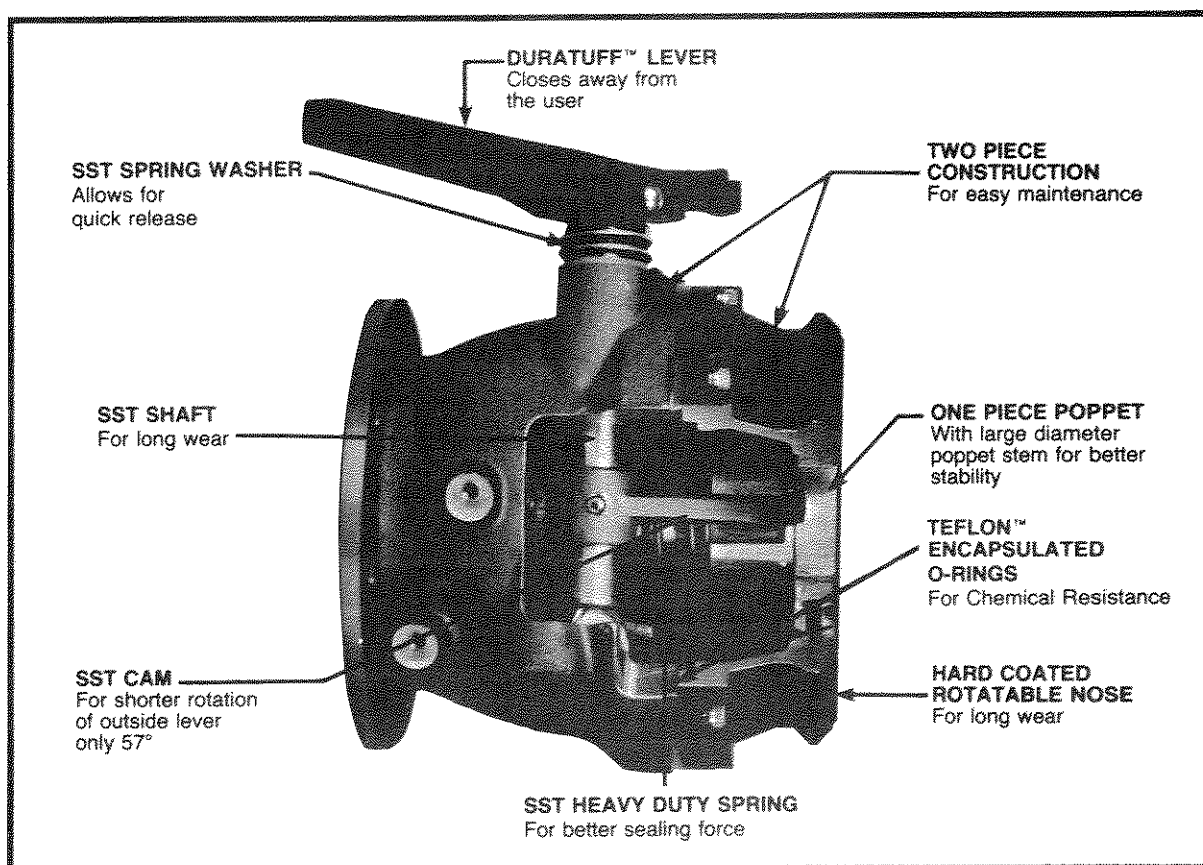
OPW 131-WP. Ductile Iron for OPW 41 Series Faucets. 65° angle. Size: 2".

NOTE: WRENCHES NOT FURNISHED WITH FAUCETS UNLESS SPECIFIED.

DOVER FLUID HANDLING GROUP
CORPORATION / OPW DIVISION

OPW introduces...New...861ST... for handling petro-chemicals

For those MC306 Transports needing A.P.I. adaptors to load and off load petroleum derivatives.



Product Features and Benefits

1. Two piece aluminum construction with a Hardcoated Nose Adaptor for long life.
2. One piece Heavy Duty Poppet with an Acetal Resin Bearing for smoother opening characteristics.
3. Computer designed cam profile provides easy opening.
4. Lighter weight "Duratuff"™ Corrosion Resistant Lever.
5. Designed in accordance with A.P.I. RP1004, with a standard 4" TTMA Flange.
6. Mounting Lugs provided for 865C Brake Interlock Valve.
7. Operating Lever closes away from the operator with a minimal 57 degree rotation for increased operator convenience.

DOVER CORPORATION / OPW DIVISION

Vapor Recovery Equipment

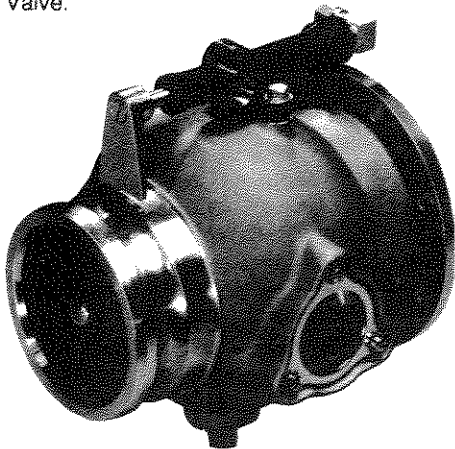
Vapor Return Hose Fittings

633-LVH-4" - Vapor Recovery Fitting: Features/Benefits

Lower operational costs - the high flow rate/low pressure drop design enables faster loading.

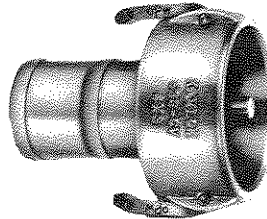
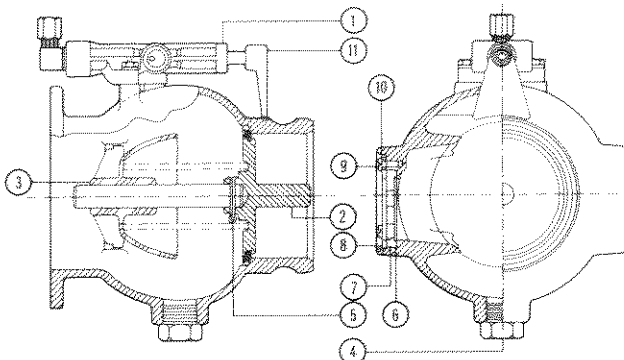
Proper vapor collection - with superior flow characteristics, vents are less likely to pop open due to compartment back pressure, decreasing the chance of vapor loss to the atmosphere.

The 633-LVH is provided with two sight glasses and a 3/4" pipe plug, for detecting and draining liquids in case of accidental overfill. Also provided as a standard feature is an OPW 865-CVH Air Interlock Valve.



OPW 633-LVH

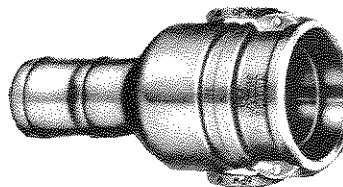
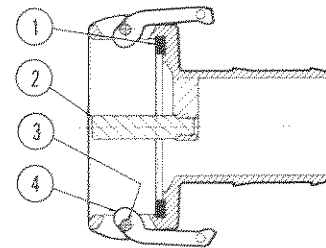
KEY	PART NO.	DESCRIPTION
1	865-CVH	Interlock Valve
2	H-20009	Poppet S/A
3	C-2779-M	Deflector
4	H-7365-M	Pipe Plug
5	H-20007-M	Spring
6	H-20010-M	Gasket (2)
7	H-1912-M	Sight Glass (2)
8	H-4135-M	Retaining Plate (2)
9	H-20012-M	Screw (6)
10	H-4225-M	Lock Washer (6)
11	H-20030-A	Push Plate



OPW 633-CV

KEY	PART NO.	DESCRIPTION
1	H-6471-M	Gasket (3" only)
1	H-6476-M	Gasket (4" x 4" & 4" x 3")
2	H-8939-RA	Probe (3" only)
2	H-8402-RA	Probe (4" x 4" & 4" x 3")
3	H-9771-RE	Pin (2)
4	C-3379-M	Cam Arm (2)

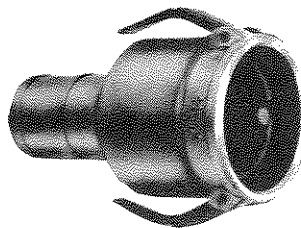
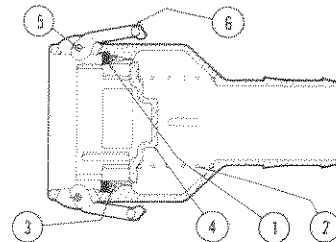
The OPW 633-CV Kamlok hose shank coupler, with a probe, is attached to the vapor recovery hose and is used to open the OPW 633-LVH poppeted adaptor. Size: 3" x 3", 4" x 4", and 4" x 3".



OPW 633-CPV

KEY	PART NO.	DESCRIPTION
1	H-8945-M	Gasket
2	H-9110-M	Spring
3	H-8942-RAH	Guide Ring
4	C-2808-AH	Poppet
5	H-9771-RE	Pin (2)
6	C-3379-M	Cam Arm (2)

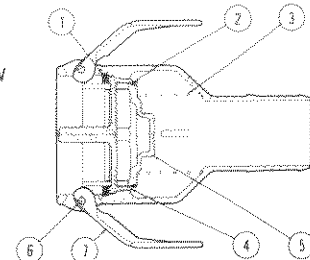
The OPW 633-CPV is a poppeted Kamlok hose shank coupler which is attached to the tank truck connection end of the vapor recovery hose. It contains metal-to-metal seats and acts as a check valve until connected to the transport vapor recovery adaptor. Designed to mate to 633-A-4" Adaptor. Size: 4" x 3".



OPW 633-CPP

KEY	PART NO.	DESCRIPTION
1	H-8945-M	Gasket
2	H-7408-M	O-Ring
3	H-9110-M	Spring
4	C-2843-AH	Guide Ring
5	C-2844-AH	Poppet
6	H-9771-RE	Pin (2)
7	D-272-B	Cam Arm (2)

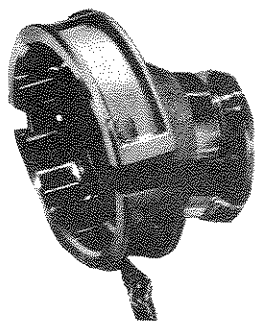
The OPW 633-CPP Coupler is similar to the 633-CPV, above, except it contains a buna-n seal on the check valve and includes a probe to open the poppet on the OPW 633-LVH when a dry disconnect adaptor is required on the tank truck. Size: 4" x 3" and 4" x 4".



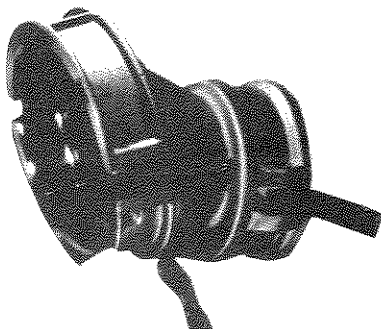
NOTE: 633-CV AND CPV OFFERS THE TWIN-KAM VIBRATION RESISTANT CAM ARMS AS A STANDARD FEATURE.

FLUID HANDLING GROUP
DOVER CORPORATION / OPW DIVISION

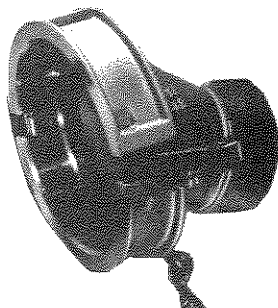
Product Delivery Equipment Gravity Couplers



The OPW 871-A Gravity Coupler mates with A.P.I. RP-1004 Tank Truck Adaptors. The body is aluminum with buna-n seals. The hose connection end is an integral 4" Kamlok Adaptor which is angled 15° downward from horizontal to allow better drainage. For use with the OPW 861 Adaptor. Size: 4".



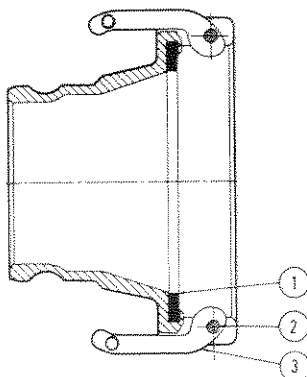
The OPW 871-B is similar to the 871-A except the hose end is an integral Kamlok Quick Coupler. Size: 4".



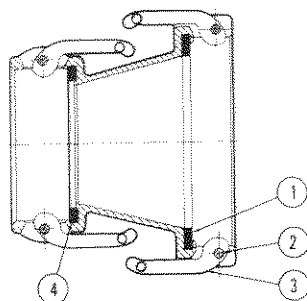
The OPW 871-D is similar in construction to the OPW 871-A and OPW 871-B except the outlet connection is a 3" female threaded end. Size: 4" x 3".

OPW 871 Series

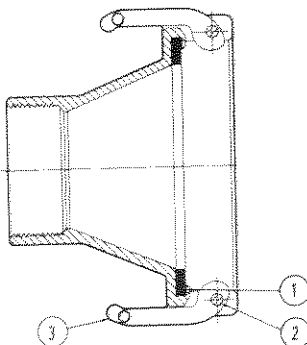
KEY	PART NO.	DESCRIPTION
1	H-8347-M	Gasket
2	H-9771-RE	Pin (2) (871-B (4))
3	C-3379-M	Cam Arm (2) (871-B (4))
4	H-6476-M	Gasket



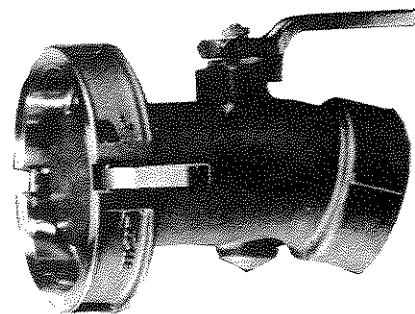
OPW 871-A



OPW 871-B



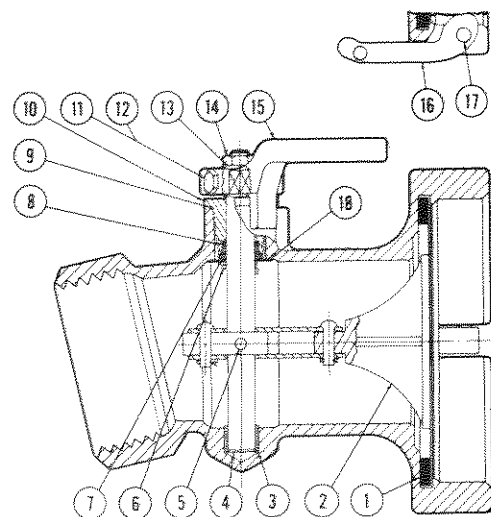
OPW 871-D



The OPW 871-ED Gravity Coupler is lever actuated and may be used in conjunction with A.P.I. Tank Truck Adaptors. The outlet connection is a 4" female threaded end. Size: 4".

OPW 871-ED

KEY	PART NO.	DESCRIPTION
1	H-8347-M	Gasket
2	H-8475	Poppet Sub-Assy.
3	H-6111-RP	Bushing
4	H-8474-RE	Shaft
5	H-4139-M	Pin
6	H-1186-M	Cotter Pin
7	H-6121-RP	Shaft Retainer
8	H-6281-M	O-Ring
9	H-7725-M	O-Ring
10	H-7724-M	Stuffing Box
11	H-3114-M	Bolt
12	H-6151-M	Nut
13	H-2525-M	Lock Washer
14	H-5403-M	Nut
15	C-2659-DI	Lever
16	C-3379-M	Cam Arm (2)
17	H-9771-RE	Pin (2)
18	H-6364-M	Washer

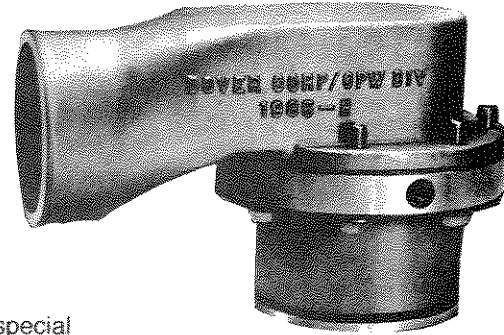


NOTE: ALL OPW GRAVITY COUPLERS INCLUDE THE OPW TWIN-KAM™ VIBRATION-RESISTANT CAM ARMS AS A STANDARD FEATURE.

DOVER CORPORATION / OPW DIVISION

Vapor Recovery Equipment

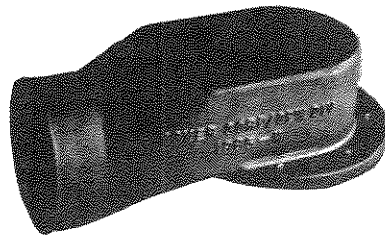
Vapor Recovery Vapor Valve

*OPW 1985-3" (patent pending)
externally air operated
Vapor Valve Product Features*

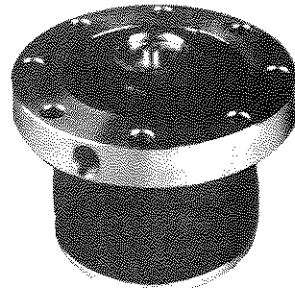
- External air connection
- Light weight aluminum hood
- 7.3 square inch vapor flow area in accordance with A.P.I. RP-1004 and TTMA RP-45
- Vapor Valve construction is light weight aluminum with viton seals and SST trim
- 3" standard TTMA flange
- Ease of maintenance with no special tools
- Low profile 3 1/2" from top of manhole
- Poppet opens into tank to prevent surge pressure leakage and spillage from Vapor Valve in case of turn over

OPW 1985-3"

KEY	PART NO.	DESCRIPTION
1	H-20069-M	Disc
2	C-10010-A	Poppet
3	H-20070-M	Screw
4	H-20063-RP	Piston
5	H-20062-RA	Plug
6	H-5487-M	Washer
7	H-4467-M	Lockwasher
8	1985-H	Hood
9	H-20068-M	Spring
10	H-20067-M	U-Cup Packing
11	H-20065-M	O-Ring
12	H-20066-M	Retaining Ring
13	H-20064-RP	Bearing
14	C-10011-M	Gasket (2)
15	H-20074-M	Sealing Washer (8)
16	H-20075-M	Hex Cap Screw (8)

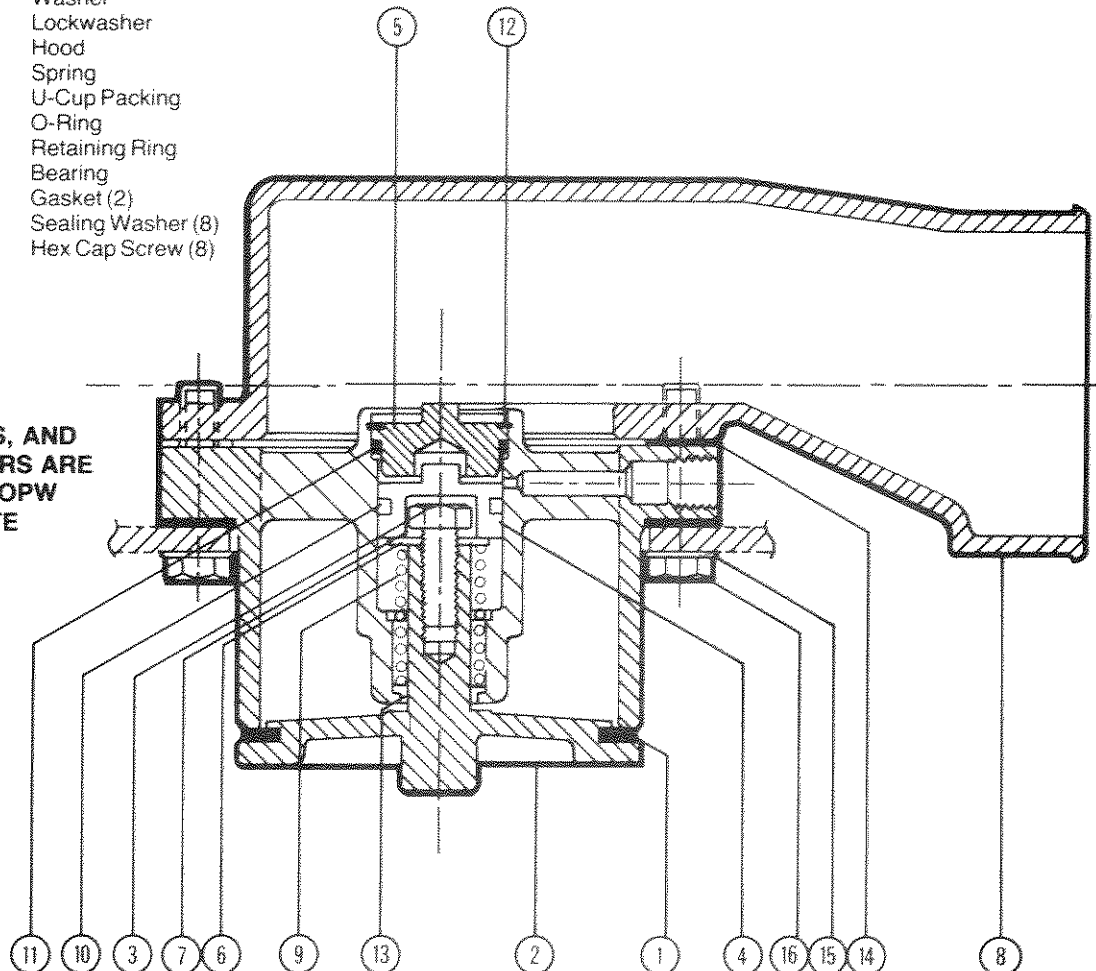


1985H



1985V

NOTE:
GASKETS, BOLTS, AND
SEALING WASHERS ARE
SUPPLIED WITH OPW
1985-3" COMPLETE
ASSEMBLY.



DOVER FLUID HANDLING GROUP
CORPORATION / OPW DIVISION

1986-3" External Air Operated Vapor Valve

Product Features

- Low profile, lightweight aluminum hood
- Will accept a standard 3" rubber hood
- Vapor Valve construction is lightweight aluminum with viton seals and SST trim
- Ease of maintenance with no special tools
- Poppet opens into tank to prevent surge pressure leakage and spillage from vapor valve in case of turn-over
- Designed to mount conventional 16" manhole

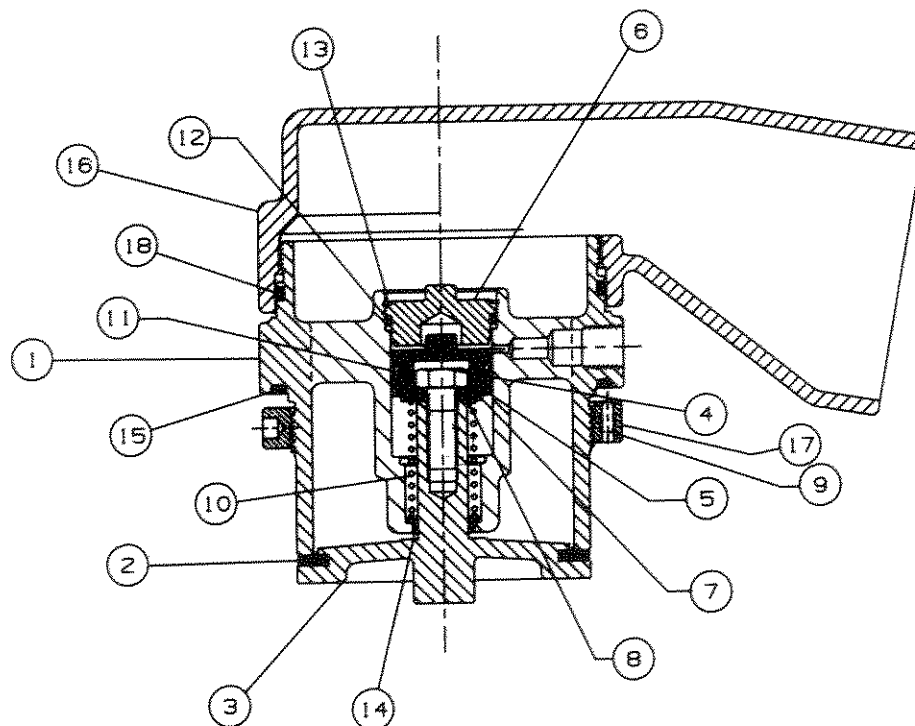


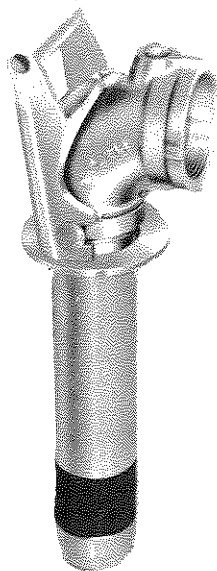
**VAPOR RECOVERY
EQUIPMENT**

**VAPOR RECOVERY
VAPOR VALVE**

OPW 1986

KEY	PART NO.	DESCRIPTION	KEY	PART NO.	DESCRIPTION
1	D-10044-A	BODY	10	H-20068-M	SPRING
2	H-20122-M	DISC	11	H-20250-M	U-CUP SEAL
3	C-10045-A	POPPET	12	H-20249-M	O-RING
4	H-20070-M	SCREW	13	H-20066-M	RET. RING
5	H-20063-RP	PISTON	14	H-20064-RP	BEARING
6	H-20062-RA	PLUG	15	H-20124-M	O-RING
7	H-5487-M	WASHER	16	E-10064-A	HOOD
8	H-4467-M	LOCKWASHER	17	H-20083-RS	LOCK RING
9	H-20123-M	SET SCREW	18	H-20195-M	O-RING





TITE-FILL SYSTEM

Model 236—Vapor-Tite Fill Tube

This system provides a universal, vapor-tite connection for underground tank refilling without the need for an adaptor.

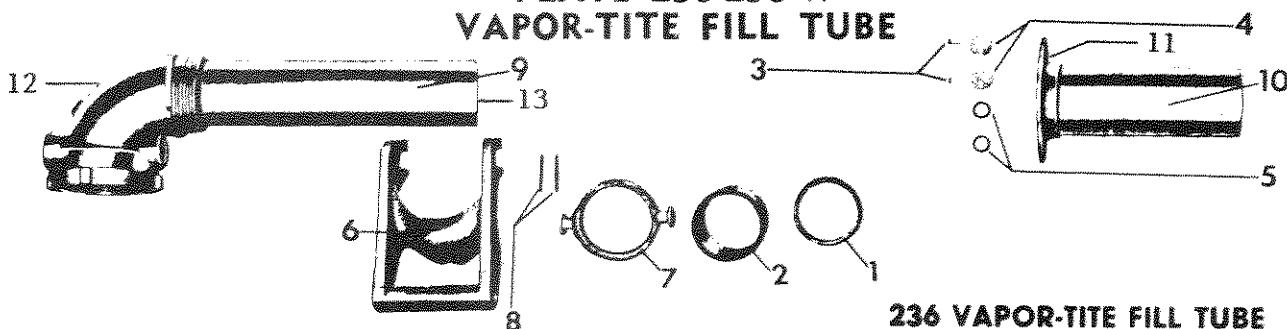
To obtain a vapor-tite connection, the handle is merely pushed down after the Model 236 is lowered into the fill pipe. Pushing down the handle causes a Buna-N rubber sealing sleeve to expand inside the fill pipe to create a vapor-tite connection, without the need of special adaptors.

Made of Almag 35 aluminum, the lightweight elbow is both corrosion-resistant and durable. It is provided with drag bars at all strategic points for extended service.

Note: Recommended for gravity transfer only. (Must be hand held when pressures are involved.)

Nominal sizes: (inlet x outlet) 2 x 2, 3 x 2, 3 x 3, 4 x 3, 4 x 4

PLATE 236-236-W VAPOR-TITE FILL TUBE



1. Tailpiece - Brass
2. Sealing Sleeve
3. Rivets
4. Elbow Window (Window retaining ring not shown)
5. O-Ring
6. Handle
7. Adjusting Ring
8. Roll Pins (Handle)
9. Elbow and Tube Assembly
10. Outer Tube (Aluminum)
11. Flange
12. Elbow
13. Inner Tube

236 VAPOR-TITE FILL TUBE

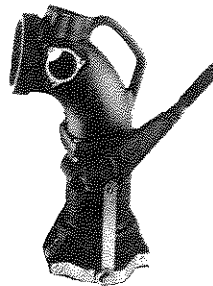
10	Sleeve (Alum.) (3x2)	7311-261
	Sleeve (Alum.) (3x3) (4x3)	7311-259
	Sleeve (Alum.) (4x4)	7311-254
11	Flange (3x2)	7311-263
	Flange (3x3)	7311-260
	Flange (4x3)	7311-265
	Flange (4x4)	7311-255
4	Window Ea (2 Req.) (All)	7311-256
5	"O" Ring Ea (2 Req.) (All)	3134-117
N/S	Retaining Ring Ea (2 Req.) (All)	7311-258
6	Handle (2x2)	7311-206
	Handle (3x2) (3x3)	7311-214
	Handle (4x3) (4x4)	7311-226
7	Adjusting Ring (2x2)	7311-207
	Adjusting Ring (3x2) (3x3)	7311-215
	Adjusting Ring (4x3) (4x4)	7311-227
1	Tailpiece (2x2) (3x2)	7311-208
	Tailpiece (3x3) (4x3)	7311-216
	Tailpiece (4x4)	7311-297
2	Expansion Sealing Sleeve (2x2) (3x2)	7311-209
	Expansion Sealing Sleeve (3x3) (4x3)	7311-217
	Expansion Sealing Sleeve (4x4)	7311-229
8	Roll Pin Ea. (2 Req.) (All)	3121-103
3	Rivet Ea. (2 Req.) (All)	3124-109

Product Delivery Elbows Dual Point Systems

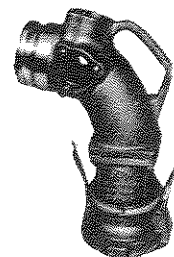
The OPW 60-TT-4" Elbow is a two piece modular construction elbow. The patented ROLLOK™ roller cam design reduces coupling effort. Design includes an integral inlet adaptor. Size 4". (Top Seal type)



The OPW 60-TTF-4" Elbow. Same as 60-TT except with 4" female NPT inlet. The inlet is designed to accept a 633-FD-3" x 4" adaptor or a 633-B-4" coupler. (Top Seal type)



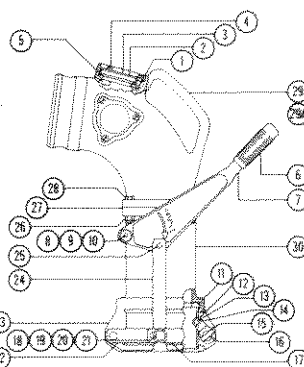
The OPW 60-AS-4" Elbow 2 piece modular design. It has an integral inlet adaptor for a smoother flow path. Three sight windows to monitor product flow. Cast Aluminum body. (Side Seal type)



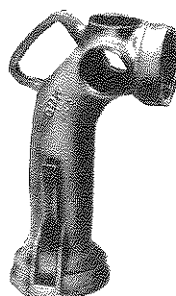
• **The OPW 60-ASF-4" Elbow.** Same as 60-AS except with 4" female NPT inlet. Both OPW 60-AS and ASF are supplied with 60-L Lock Ring as a standard feature.

OPW 60-TT, 60-TTF

KEY	PART NO.	DESCRIPTION	KEY	PART NO.	DESCRIPTION
1	H-4225-M	Lockwasher (9)	17	H-10315	Actuator Arm Sub-Assy.
2	H-1912-M	Sight Glass (3)	18	H-10087-RS	Sleeve
3	H-4135-M	Retaining Plate (3)	19	H-3866-M	Flatwasher (2)
4	H-20012-M	Retaining Screw (9)	20	H-10088-M	Spring Washer
5	H-20010-M	Tetra Seal (3)	21	H-10086-RS	Stud
6	H-10091-M	Grip	22	H-10314	Actuator Arm Sub-Assy
7	C-3280-A	Handle	23	H-10090-RB	Flange Bearing (4)
8	H-10084-M	Shoulder Screw	24	H-10079-M	Link
9	H-10088-M	Spring Washer	25	H-10077-RS	Pin
10	H-3866-M	Flatwasher (2)	26	H-6151-M	Nut (4)
11	H-4137-M	Gasket	27	H-10039-M	Gasket
12	H-10085-RE	Pivot Pin (2)	28	H-3114-M	Bolt (4)
13	H-10089-M	Bearing (2)	29	E-254-A	Upper Body
14	H-10075-RS	Roller (2)	29-A	E-254-A	Upper Body 60-TTF
15	H-10076-DI	Yoke (2)	30	E-259-A	Lower Body
16	H-7128-M	Pin (2)			



The OPW 60-3" Elbow, used for connecting the delivery hose to the fill adaptor, has an aluminum body with manganese bronze, spring loaded cam arms which automatically engage the locking flange of the 61-AS adaptor when pressed onto fillpipe. Built-in windows. (Side Seal type)

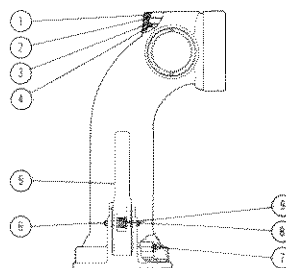


The OPW 60-L Lock Ring fits around the body of the OPW 60 Elbow to hold the locking arms in place and prevent them from accidentally being unlocked during the filling operation. This lock ring is easily lifted to permit the elbow to be removed. Size 3" & 4".



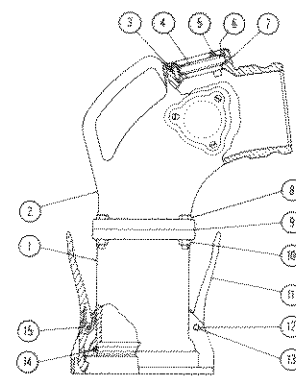
OPW 60

KEY	PART NO.	DESCRIPTION
1	H-37-RB	Sight Glass Retaining Ring (3)
2	H-96-M	Outside Gasket (3)
3	H-1912-M	Sight Glass (3)
4	H-97-M	Inside Gasket (3)
5	C-2232-B	Lock Lever (2)
6	H-7288-RE	Lock Lever Pin (2)
7	H-4878-M	O-Ring
8	H-7284-M	Lock Lever Spring (2)
9	H-7257-M	Pin Retaining Ring (4)



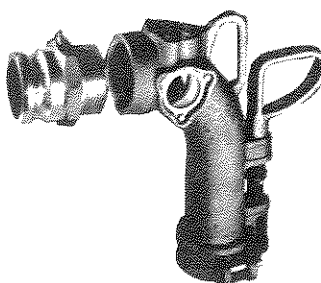
OPW 60-AS, 60-ASF

KEY	PART NO.	DESCRIPTION
1	E-255-A	Lower Body
2	E-254-A	Upper Body-Integral Adptr.
2	E-264-A	Upper Body-Female Thread
3	H-4225-M	Lockwasher (9)
4	H-1912-M	Sight Glass (3)
5	H-20012-M	Retaining Screw (9)
6	H-4135-M	Retaining Plate (3)
7	H-20010-M	Glass Seal (3)
8	H-3114-M	Bolt (4)
9	H-10039-M	Gasket
10	H-6151-M	Nut (4)
11	C-3262-B	Lever (2)
12	H-7288-RE	Pin (2)
13	H-7257-M	Retaining Ring (4)
14	H-3740-M	O-Ring
15	H-7284-M	Spring (2)
16	60-L	Lock Ring

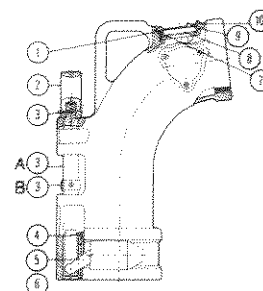


OPW 60-T

The OPW 60-T-3" Elbow is an unrestricted, full flow tight fill connector. Simply pressing downward on the plunger engages double cams which securely locks the unit on adaptor. Built-in windows. (Top Seal type)



KEY	PART NO.	DESCRIPTION
1	H-4225-M	Lock Washer (9)
2	C-3012-A	Actuator Handle
3	H-4139-M	Pin (2)
3A	C-3189-RAH	Actuator Rod
3B	H-4154-RB	Stop Bushing
4	H-4982-M	Gasket
5	C-1086-BW	Cam-Right Hand
6	C-1087-BW	Cam-Left Hand
7	H-20010-M	Glass Seal (3)
8	H-1912-M	Sight Glass (3)
9	H-4135-M	Retaining Plate (3)
10	H-20012-M	Retaining Screw (9)



Product Delivery Equipment

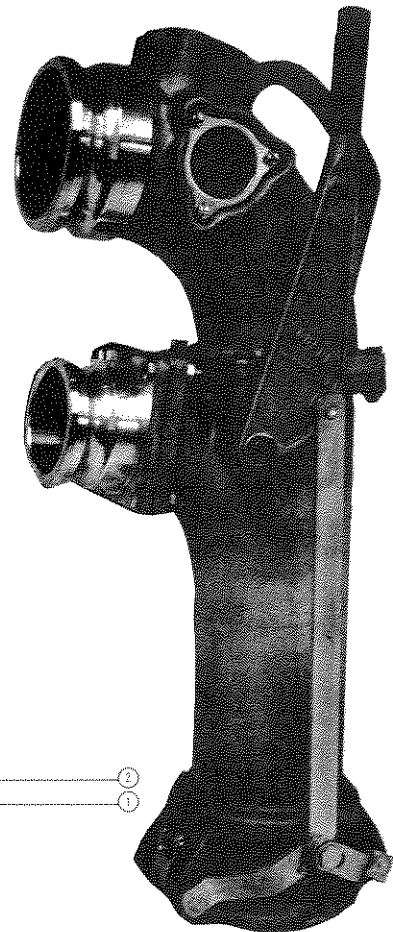
Coaxial Single Point System

Coaxial Features

- Three sight windows for monitoring product flow
- Reduced coupling effort - due to patented "Rollok"™ roller cam design
- Product port on top to eliminate vapor hose interference when draining product hose
- Uniform lower seal compression
- Available in two overall heights

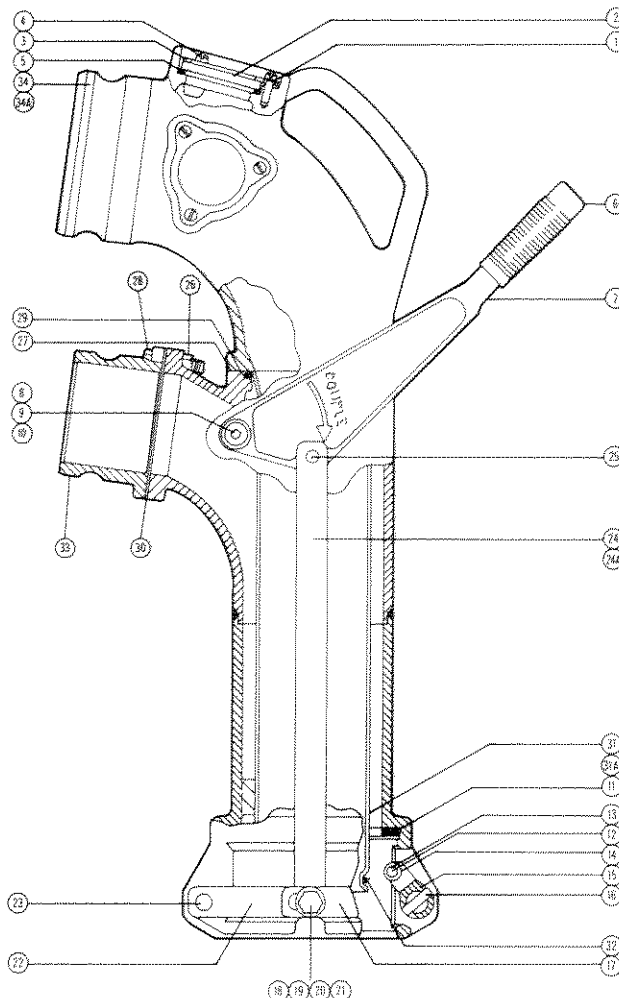
Optional Styles

- 60TTC - Product Delivery has Kamlok Adaptor - Overall Height 26"
- 60TTCF - Product Delivery has Female NPT Threads - Overall Height 26"
- 60TTCP - Product Delivery has Kamlok Adaptor with poppeted Vapor Recovery Adaptor - Overall Height is 26"
- 60TTCS - Same as 60TTC - Overall Height 22¾"
- 60TTDFS - Same as 60TTCF - Overall Height 22¾"



OPW Coaxial Rollok™ Elbows

KEY	PART NO.	DESCRIPTION
1	H-4225-M	Lockwasher (9)
2	H-1912-M	Sight Glass (3)
3	H-4135-M	Retaining Plate (3)
4	H-20012-M	Screw (9)
5	H-20010-M	Tetralseal (3)
6	H-10091-M	Grip
7	C-3280-A	Actuator Handle
8	H-10084-M	Screw
9	H-10088-M	Spring Washer
10	H-3866-M	Flatwasher (2)
11	H-4137-M	Gasket
12	H-10085-RE	Pivot Pin (2)
13	H-10089-M	Bearing (2)
14	H-10075-RS	Roller (2)
15	H-10076-DI	Yoke (2)
16	H-7128-M	Pin (2)
17	H-10315	Actuator Arm Sub-Assy. Outside
18	H-10087-RS	Sleeve
19	H-3866-M	Flatwasher (2)
20	H-10088-M	Spring Washer
21	H-10086-RS	Stud
22	H-10314	Actuator Arm Sub-Assy. Inside
23	H-10090-RB	Flange Bearing (4)
24	H-10261-M	Link 60-TTC, 60-TTCF, 60-TTCP
24-A	H-20038-M	Link 60-TTCS, 60-TTCFS
25	H-10077-RS	Pin
26	H-6151-M	Nut (8)
27	H-10039-M	Tetralseal
28	H-3114-M	Bolt (8)
29	H-10262-M	Gasket
30	H-9501-M	Gasket
31	C-3355-M	Tube 60-TTC, 60-TTCF, 60-TTCP
31-A	C-10007-M	Tube 60-TTCS, 60-TTCFS
32	H-5471-M	Lip Seal
33	C-3014-A	Adaptor
33-A	633-LPV 3"	Poppeted Adaptor 60-TTCP
34	E-266-A	Upper Body
34-A	E-269-A	Upper Body 60-TTCF, 60-TTCFS



DOVER

FLUID HANDLING GROUP
CORPORATION / OPW DIVISION

VAPOR RECOVERY ELBOW PROBLEMS?

- TOO SHORT?
- TOO HARD TO COUPLE?
- TOO MANY PARTS?
- MAINTENANCE HEADACHES?

opw[®]
**HAS THE
SOLUTION!**

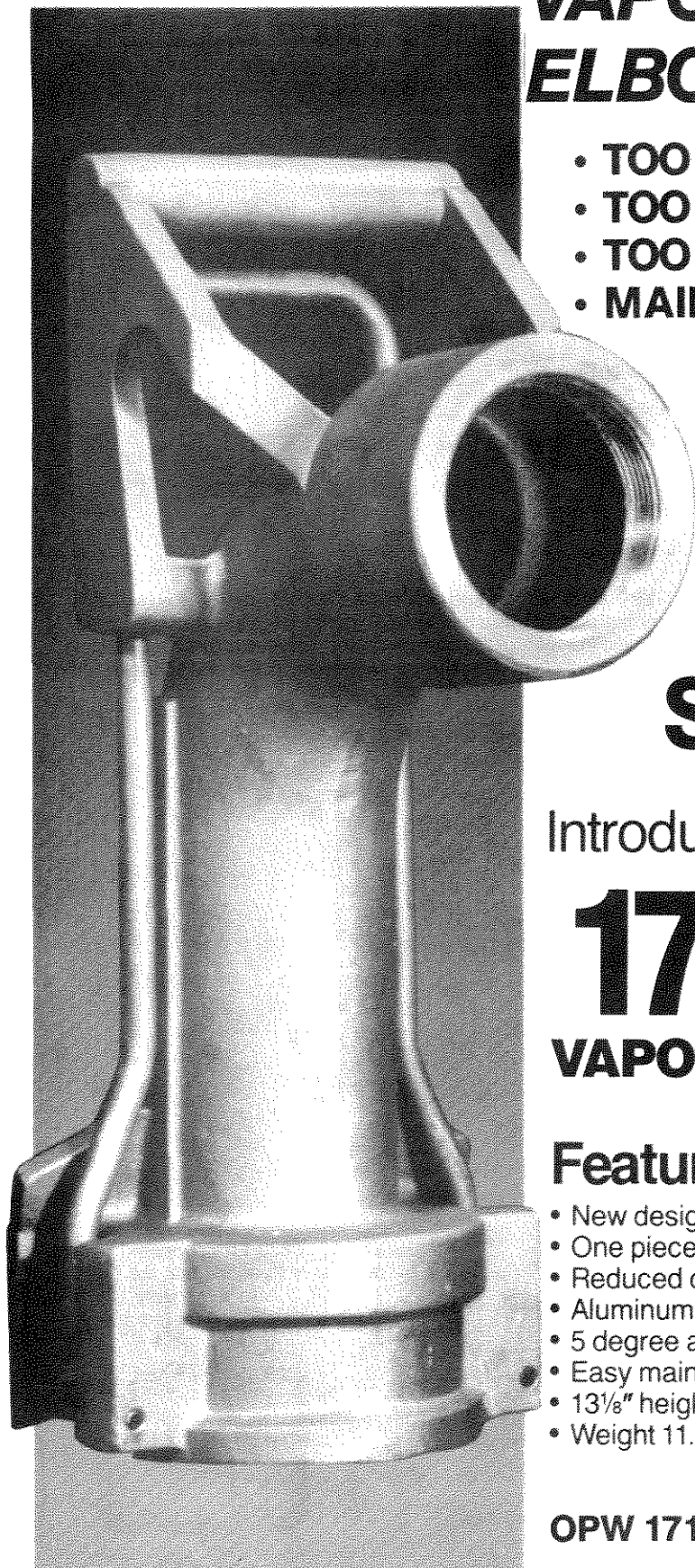
Introducing the...

1711-VL 3" **VAPOR RECOVERY ELBOW**

Features:

- New design for increased durability
- One piece aircraft grade aluminum handle
- Reduced coupling effort
- Aluminum construction with polyurethane seal
- 5 degree angled outlet
- Easy maintenance with no special tools
- 13 $\frac{1}{8}$ " height (16 $\frac{3}{4}$ " overall height)
- Weight 11.5 lbs.

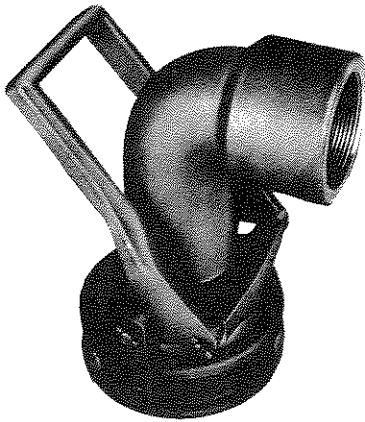
OPW 1711-VL 3".....The Drivers' Choice



DOVER CORPORATION / OPW DIVISION

Vapor Recovery Elbows

Dual Point Systems

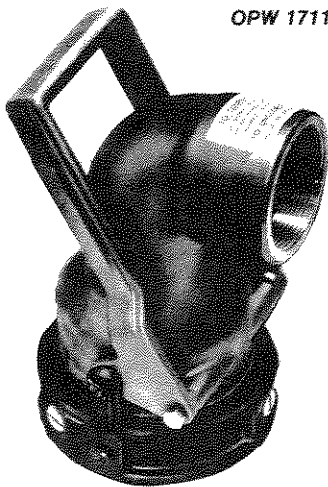
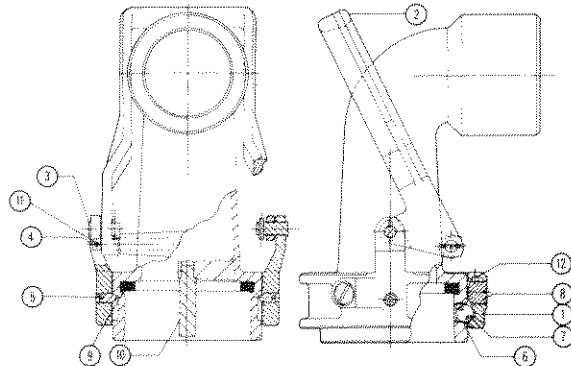


OPW 1711-VT

The OPW 1711-VT Vapor Line Coupler has a toggle type locking mechanism to provide a secure attachment to the Vapor Recovery Adaptor with a minimum of operator effort. The body collar and operating lever are cast aluminum. The collar is hardcoated. Hardened steel wear bushings are provided at each locking ball to insure long service life.

OPW 1711-VT3"

KEY	PART NO.	DESCRIPTION
1	E-235-AH	Collar
2	D-1141-A	Lever
3	H-20045-RE	Stud (2)
4	H-20046-RE	Pin
5	H-8839-M	Screw (2)
6	H-8483-M	Sleeve Bearing (3)
7	H-1172-M	Ball (3)
8	H-8484-RS	Wear Bushing (3)
9	H-8514-M	Seal
10	H-8402-RA	Stern
11	H-20047-M	Pin (4)
12	H-4498-M	Set Screw (3)



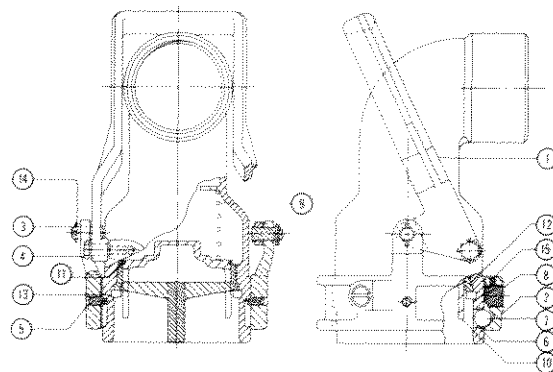
OPW 1711-VP

The OPW 1711-VP is similar in size and material to 1711-VT, above. However, this coupler has an integral poppet with a buna-n seal which closes automatically when the coupler is removed from Vapor Recovery Adaptor. This design prevents loss of recovered vapor from the transport truck in case the hose has not been disconnected from the truck.

Both 1711-VT and 1711-VP are available in 3" size.

OPW 1711-VP 3"

KEY	PART NO.	DESCRIPTION
1	D-10007-A	Lever
2	E-235-AH	Collar
3	H-20045-RE	Stud (2)
4	H-3019-RS	Stud (2)
5	H-8839-M	Screw (2)
6	H-8483-M	Sleeve Bearing (3)
7	H-1172-M	Ball (3)
8	H-8484-RS	Wear Bearing (3)
9	H-9110-M	Spring
10	C-2844-AH	Poppet
11	H-7408-M	O-Ring
12	C-2843-AH	Guide Ring
13	H-8945-M	Gasket
14	H-20047-M	Roll Pin (2)
15	H-4498-M	Set Screw (3)

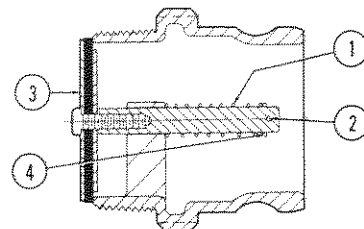


Vapor Return Poppeted Adaptor

OPW 633-FPV 3"

KEY	PART NO.	DESCRIPTION
1	H-5066-M	Spring
2	H-1186-M	Cotter Pin
3	H-8940	Poppet Sub-Assy.
4	H-3866-M	Spacer

The OPW 633-FPV poppeted Kamlok adaptor is threaded into the OPW 1711-VT-3" vapor recovery elbow when a check valve is required.



Liberty

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Onboard Monitors

Order Guide:

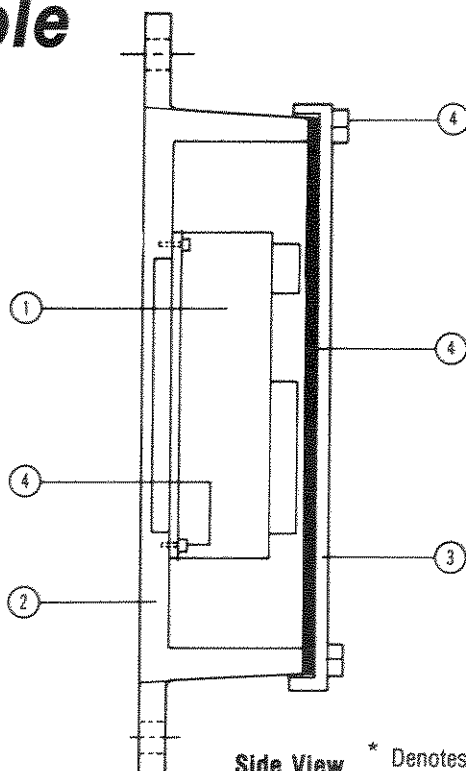
3100	1-6 Compartment Onboard Monitor with Indicator Lights
3150	Replacement Chassis For Product No. 3100
3500	7-8 Compartment Onboard Monitor with Indicator Lights
3550	Replacement Chassis For Product No. 3500
2100	100' Roll 5-Conductor, Jacketed Cable (Optic Sensor Color-Coded)
2200	500' Roll 5-Conductor, Jacketed Cable (Optic Sensor Color-Coded)
2500	Strain Relief Fittings, 1/2" NPT (5 Per Package)

Factory Mutual System



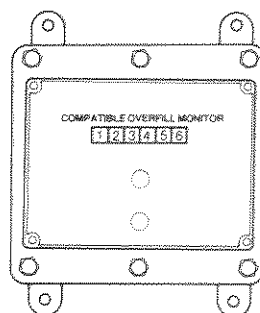
OPW vehicle-mounted onboard monitors permit trailers and truck tanks equipped with optic sensors to load at terminals where compatible optic, thermistor or float rack control monitors are installed.

Compatible Overfill Onboard Monitors



Side View

Part Key No.	Description
1	Replacement Chassis
3150	* Product 3100
3550	* Product 3500
2	D40006A Replacement Box Only, No Lid
3	Replacement Lid
H50192	Product 3100
H50193	Product 3500
4	H50194 Hardware Assembly, Both Products (includes gasket, lid screws and washers, chassis screws and washers)
H50101PA	Instruction Sheet



Front View

* Denotes OPW/Scully dimensional and functional interchangeability

FLUID SENSING SYSTEMS
DOVER CORPORATION / OPW DIVISION**Liberty
opw****Factory
Mutual
System**

Optic Level Sensors

Order Guide:

- 1100 Adjustable Optic Sensor, 2" NPT Housing
- 1150 Adjustable Optic Sensor, 2" NPT Housing, Low Profile Cap
- 1200 Adjustable Optic Sensor, Flanged Housing
- 1250 Adjustable Optic Sensor, Flanged Housing, Low Profile Cap
- 1300 Replacement Optic Sensor, No Housing
- 2100 100' Roll 5-Conductor, Jacketed Cable (Optic Sensor Color-Coded)
- 2200 500' Roll 5-Conductor, Jacketed Cable (Optic Sensor Color-Coded)
- 2500 Strain Relief Fittings, 1/2" NPT (5 Per Package)

OPW optic sensors detect the presence of liquid at a preset level. OPW sensors are used with OPW or other compatible control monitors. OPW sensors interface with thermistor and float control monitors when used in conjunction with compatible overfill (onboard) monitors. When properly installed, an overfill prevention system provides for automatic shutoff of product flow at a pre-determined liquid level and warns of an impending overflow

OPW thermistor probes detect the presence of liquid at a preset level. OPW probes are used in conjunction with compatible thermistor control monitors.



Thermistor Probes

Order Guide:

- 1500 Adjustable Thermistor Probe, 2" NPT Housing
- 1550 Adjustable Thermistor Probe, 2" NPT Housing, Low Profile Cap
- 1600 Replacement Thermistor Tip, No Housing
- 1900 Solid State Thermistor Dummy, 1-5 Loads

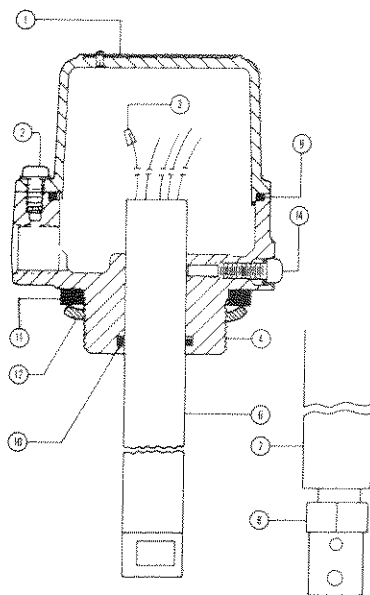
DOVER

**FLUID SENSING SYSTEMS
CORPORATION / OPW DIVISION**

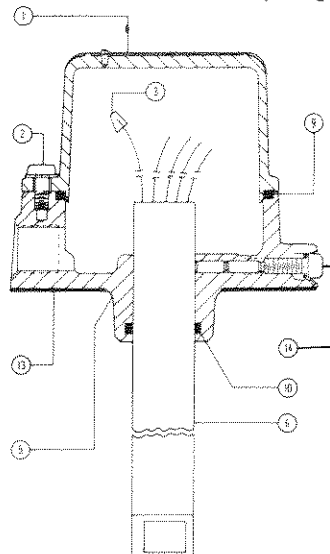
Replacement Parts

Optic Sensors and Thermistor Probes

Product 1100, 1150, 1500, 1550 (Threaded)



Product 1200, 1250 (Flanged)



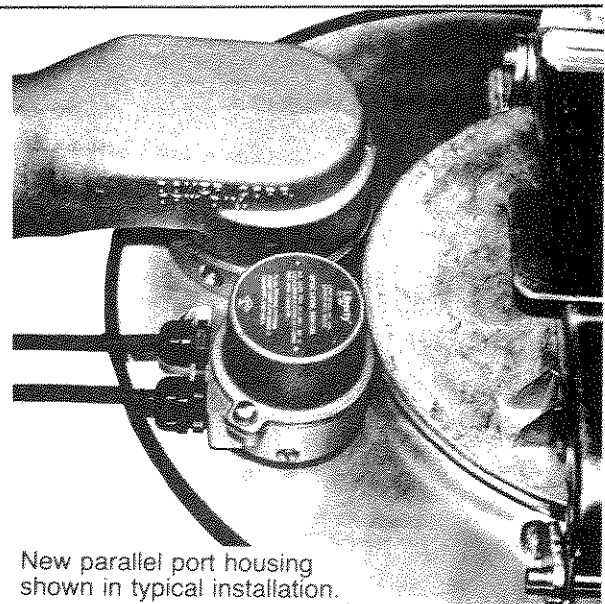
Part Key No.	Description
1	Housing Cap
H50185	Product 1100 Threaded Optic Sensor
H50236	Product 1150 Threaded Optic Sensor (short)
H50186	Product 1200 Flanged Optic Sensor
H50237	Product 1250 Flanged Optic Sensor (short)
H50187	Product 1500 Threaded Thermistor Probe
H50238	Product 1550 Threaded Thermistor Probe (short)
2	H50188 Cap Screws and Lockwashers (2)
3	H50239 Wire Nuts (5)
4	H50189 Lower Housing for Products 1100, 1500
5	H50190 Lower Housing for Product 1200
6	1300 * Replacement Optic Sensor Only Products 1100, 1200
7	C40023M * Thermistor Tip Holder Only Product 1500
8	1600 * Replacement Thermistor Tip Only Product 1500
9	H50062M * Cap O-ring
10	H50080M Body O-ring
11	H50082M Gasket for Products 1100, 1500
12	H50083M Lock Ring for Products 1100, 1500
13	H50081M Cork Gasket for Product 1200
14	H50191 Lockscrew Assembly (includes set screw, o-ring, set pin)
H50123PA	Instruction Sheet, Products 1100, 1200
H50121PA	Instruction Sheet, Product 1500

* Denotes OPW/Scully dimensional and functional interchangeability

STOP INSTALLING THOSE JUNCTION BOXES! STOP DRILLING AND TAPPING THOSE OUTDATED AND OLD FASHIONED SENSOR HOUSINGS!

The new OPW model 1110 Liberty optic sensor, with the exclusive parallel port housing, is designed with today's 16" manhole cover in mind. Insist on Liberty and get the best!

Liberty...once again, addressing the issues of our industry.



New parallel port housing shown in typical installation.

Optic Sensor Tester

DOVER FLUID SENSING SYSTEMS
CORPORATION / OPW DIVISION

Liberty

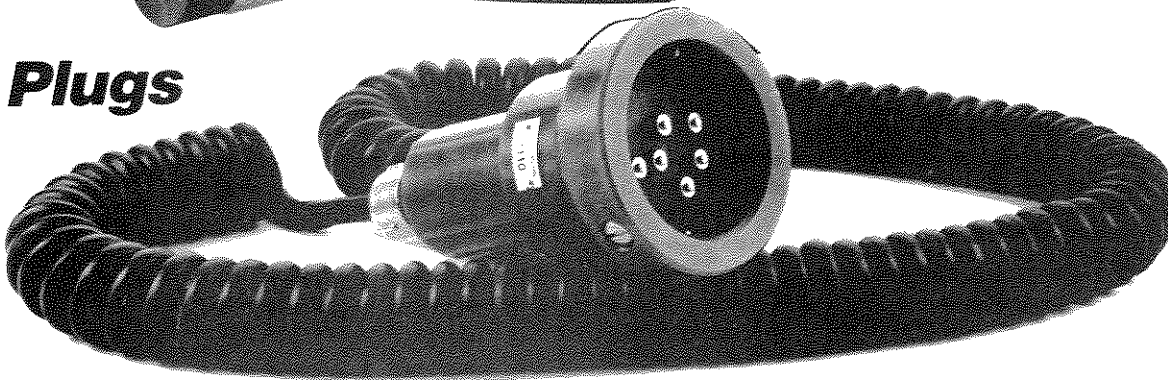
OPW optic sensor testers are designed to test the operation of all OPW 1100, 1200 and 1300 series Liberty™ optic sensors. It will test either individual sensors or a string of sensors (maximum of eight).

Order Guide:

1391 Liberty Optic Sensor Tester
(Test lead with alligator clips included)
H50264M Replacement cable assembly



Plugs



Order Guide:

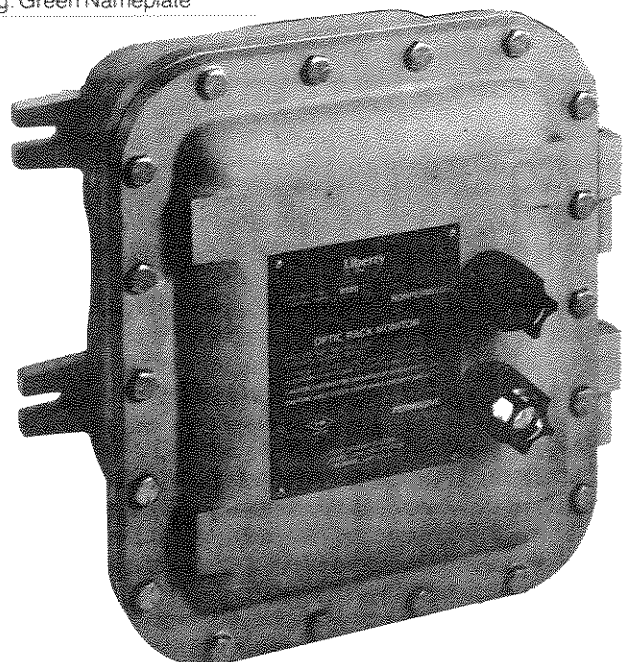
- | | | | |
|------|---|------|---|
| 7100 | API Pattern Optic Plug (Blue) With 20' Coiled Cordset | 7320 | 20' 7-Conductor Coiled Thermistor Cordset |
| 7110 | API Pattern Optic Plug (Blue) | 7350 | Storage Hanger For API Pattern Thermistor Plug: Green Nameplate |
| 7120 | 20' 4-Conductor Coiled Optic Cordset | | |
| 7150 | Storage Hanger For API Pattern Optic Plug: Blue Nameplate | | |
| 7300 | API Pattern Thermistor Plug (Green) With 20' Coiled Cordset | | |
| 7310 | API Pattern Thermistor Plug (Green) | | |

Optic Control Monitors

Order Guide:

- | | |
|------|--|
| 8100 | Explosion-Proof Optic Monitor (Nema 7) |
| 8120 | Explosion-Proof Optic Monitor With Status Lights |
| 8140 | Explosion-Proof Optic Monitor, Lights, Bypass Switch |
| 8190 | 8100 Series Replacement Chassis |
| 8200 | General Purpose Optic Monitor (Nema 12) |

Factory Mutual System

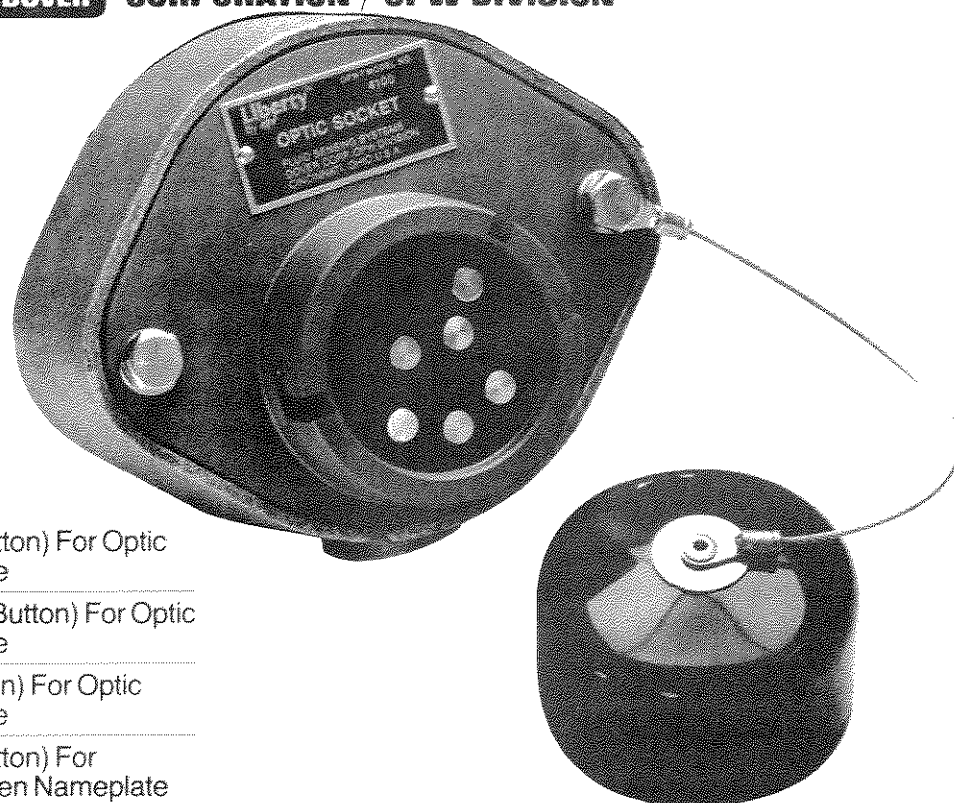


DOVER FLUID SENSING SYSTEMS
CORPORATION / OPW DIVISION

Liberty

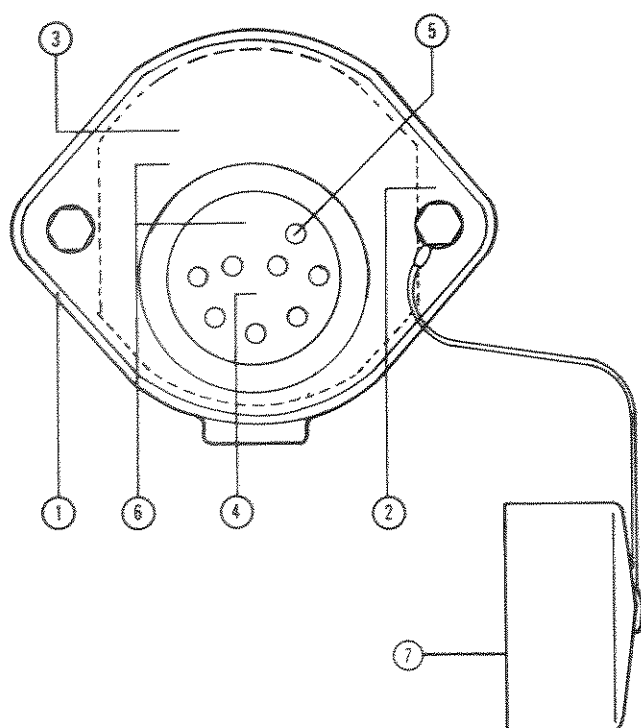
by **opw**®

Sockets



Order Guide:

4100	API Pattern Socket (Button) For Optic Output: Blue Nameplate	4150	Replacement Cap and Cable Assembly For Models 4100, 4200: Blue
4200	Scully Pattern Socket (Button) For Optic Output: Blue Nameplate	4450	Replacement Cap and Cable Assembly For Model 4400: Green
4300	J560 Pattern Socket (Pin) For Optic Output: Blue Nameplate	4750	Replacement Cap and Cable Assembly For Model 4700: Red
4400	API Pattern Socket (Button) For Thermistor Output: Green Nameplate		
4500	J560 Pattern Socket (Pin) For Thermistor Output: Green Nameplate		
4600	API Pattern Socket (Pin) For Float Output: Red Nameplate		
4700	Scully Pattern Socket (Button) For Float Output: Red Nameplate		



Part Key No.	Description
1	D40005A * Housing Only
2	H50064M * Face-Plate Gasket
3	Face-Plate with J-Slot Connection
	H50205 * Product 4100 Optic Socket
	H50206 * Product 4200 Optic Socket
	H50207 * Product 4400 Thermistor Socket
	H50208 * Product 4700 Float Socket
4	Contact Assembly (includes pins & screws)
	H50195 * Product 4100, 4200
	H50196 * Product 4400
	H50197 * Product 4700
5	H50198 * Single Replacement Pin and Screw For Above Products
6	Face-Plate and Contact Assembly
	H50199 * Product 4300
	H50230 * Product 4500
	H50231 * Product 4600
7	Replacement Cap and Cable
	4150 * Products 4100, 4200 (Blue)
	4450 * Product 4400 (Green)
	4750 * Product 4700 (Red)
	H50200PA Instruction Sheet

* Denotes OPW/Scully dimensional and functional interchangeability

GIRARD EQUIPMENT INC.



Girard's new line of "French Connections" are basically 3" Gunlok twist type plugs in T-316 Stainless Steel which can be manufactured with 2, 2½ and 3" N.P.T. male pipe threads.

The plug can be used as a terminus to an off loading line and the adapters can be used to convert the tank valve connection to U.S. type fittings.

Adapter male threads readily accept all cam and groove type fittings.

DESCRIPTION	GEI PART #
3" T316 STAINLESS GUNLOK PLUG W/12" CABLE	GE 3BS-SS
3" T316 STAINLESS GUNLOK PLUG X 2" I.P.T. MALE THREADED ADAPTER	GE 3BS-SS X 2
3" T316 STAINLESS GUNLOK PLUG X 3" I.P.T. MALE THREADED ADAPTER	GE 3BS-SS X 3



Girard's "British Connections" are 3" B.S.P. Female threaded caps which are manufactured in T-316 Stainless Steel, Bronze, Aluminum and Malleable Iron. 3" B.S.P. Female X 2, 2½ and 3" Adapters are available in T-316 Stainless Steel only.

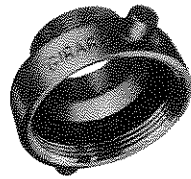
The caps are normally used as a terminus to the off loading line of the tank container and the adapters are used to convert the tank valve connection to U.S. type fittings.

Adapter male threads readily accept cam and groove type fittings.

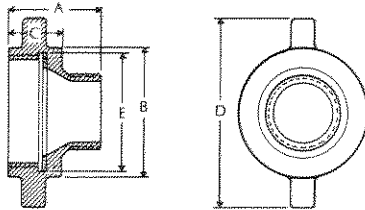
DESCRIPTION	GEI PART #
3" BSP FEMALE THREADED ALUMINUM CAP	GE 3AC-BSP
3" BSP FEMALE THREADED ALUMINUM CAP W/STAINLESS DISC	GE 3ASD-BSP
3" BSP FEMALE THREADED STAINLESS T316 CAP	GE 3SC-BSP
3" BSP FEMALE THREAD X 2" I.P.T. MALE THREADED ADAPTER	GE 3X2 BSP X IPT
3" BSP FEMALE THREAD X 3" I.P.T. MALE THREADED ADAPTER	GE 3X3 BSP X IPT

GIRARD EQUIPMENT INC.

REDUCER MADE IN NON- SPARKING METALS



A one piece reducer for unloading cross-over discharge lines and fill pipes. Faced for gasket seal with hose couplings, can be sealed hand tight. Eliminates leaks and costly pipe connections required to reduce hose size. Chamfered to allow unhindered flow and less trapping of liquid.

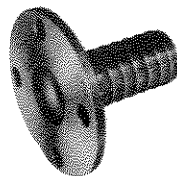


DESCRIPTION	CAT. NO.	A	B	C	D	E
3"x2" ALUMINUM REDUCER	3x2A					
3"x2" BRONZE REDUCER	3x2B					
3"x2" MALLEABLE REDUCER	3x2M					
3"x2" STAINLESS REDUCER	3x2S*					
4"x3" ALUMINUM REDUCER	4x3A	4	5	1-1/4	6-1/2	4-1/2

* Teflon gaskets supplied as standard equipment.

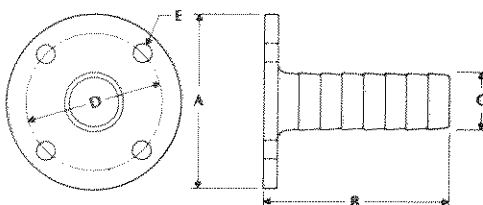
150# FLANGED HOSE END

COMES IN T-316 S.S.,
STEEL or PVC



Used for flanged connections on new chemical transfer hose applications. The hose shank is fully serrated to give maximum holding power with two bands.

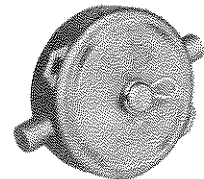
This fitting, manufactured in T-316, Steel and PVC is also useful in salvaging acid hoses whose built on flanges have been damaged or broken. Cast iron backup flanges are supplied with the PVC fittings.



DESCRIPTION	CAT. NO.	A	B	C	D	hole E
2" PVC FLANGED HOSE END	2 FHP					
2" STEEL FLANGED HOSE END	2 FHS	6	6-1/2	2	4-3/4	5/8
2" STAINLESS STEEL FLANGED HOSE END	2 FHSS					

FUSIBLE CAP MEETS D.O.T. STANDARDS.

A necessary supplement for emergency venting facilities when transporting flammable liquids. These fusible caps are tested and marked in accordance with D.O.T. MC-306 and MC-307 requirements. Fusible metal is placed in an area not in contact with tank lading and sealed by gasket. Manufactured from heavy duty sand castings that excessive wrenching will neither distort nor damage fusible area. Each cap is hydrostatically tested to 75 PSIG on a faced I.P.T. nipple for insurance against leakage in casting or fusible metal.

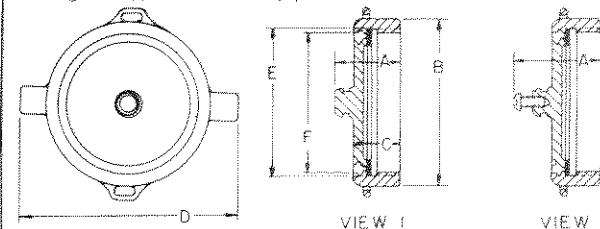


NOW AVAILABLE IN 2" AND 4" STAINLESS

FLOW RATE	5 PSIG	32 1/2 PSIG	39 PSIG	45.5 PSIG
2"	50,000 CFH	140,000 CFH	160,000 CFH	180,000 CFH
3"	110,000 CFH	275,000 CFH	350,000 CFH	385,000 CFH
4"	200,000 CFH	525,000 CFH	600,000 CFH	700,000 CFH

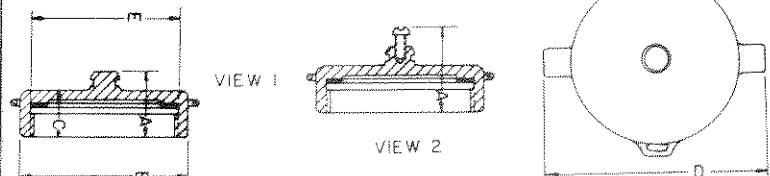
DESCRIPTION	CAT. NO.	dim. A	dim. B	dim. C	dim. D	dim. E	FUSIBLE VENTING AREA	VIEW	WT. (#)
2" ALUMINUM FUSIBLE	2 AF	1-5/8	2-3/4	15/16	3-1/2	2-7/16	3.976 Sq. in.	2	0.3
2" MALLEABLE FUSIBLE	2 MF	1-5/8	2-3/4	15/16	3-1/2	2-7/16	3.976 Sq. in.	2	0.8
3" ALUMINUM FUSIBLE	3 AF	1-9/16	3-15/16	1-1/8	5-1/4	3-9/16	8.295 Sq. in.	1	0.9
3" BRONZE FUSIBLE	3 BF	1-9/16						1	2.5
3" MALLEABLE FUSIBLE	3 MF	1-13/16						2	1.7
3" STAINLESS FUSIBLE	3 SF*	1-9/16						1	1.8
3" ALUMINUM S.S. FUSIBLE	3 ASF	1-9/16	Aluminum Body - Stainless Fusible Disc.					1	1.2
3" MALLEABLE S.S. FUSIBLE	3 MSF	1-9/16	Malleable Iron Body - Stainless Fusible Disc.					1	2.2
4" ALUMINUM FUSIBLE	4 AF	2	5	1-1/4	6-1/2	4-1/2	14.190 Sq. in.	2	1.3

* Teflon gasket supplied as standard equipment.



CAP POSITIVE SEAL

Used for all unloading lines and top clean-out nipples. This cap, with I.P.S. thread, was originally designed by Girard. Manufactured from heavy-duty sand finished castings that insure durability and strength against distortion from excessive wrenching. Seals hand tight with gaskets-also prevents galled threads. All caps come equipped with chain holders and seal lugs. 3" T316 stainless steel, bronze, and aluminum caps have cast bosses on top with chain attachment that swivels 360°. 3" caps available with 3.B.S.P. thread.



DESCRIPTION	CAT. NO.	dim. A	dim. B	dim. C	dim. D	dim. E	WT. (#)	VIEW
2" ALUMINUM CAP	2 AC	1-5/8	2-3/4	15/16	3-1/2	2-7/16	0.2	2
2" MALLEABLE CAP	2 MC						0.6	2
2" ALUMINUM S.S. DISC.	2 ASD						0.2	2
3" ALUMINUM CAP	3 AC	1-9/16	3-15/16	1-1/8	5-1/4	3-9/16	0.7	1
3" BRONZE CAP	3 BC	1-9/16					2.0	1
3" MALLEABLE CAP	3 MC	1-13/16					1.5	2
3" STAINLESS CAP	3 SC*	1-3/4					1.6	1
3" ALUMINUM S.S. DISC.	3 ASD	1-9/16					0.7	1
3" MALLEABLE S.S. DISC.	3 MSD	1-13/16					1.5	2
4" ALUMINUM CAP	4 AC	2	5	1-1/4	6-1/2	4-1/2	1.0	2

* Teflon gaskets supplied as standard equipment.

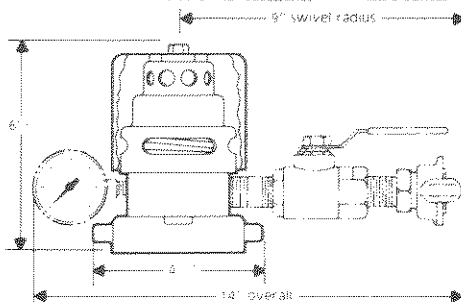
GIRARD EQUIPMENT INC.

PRESSURE RELIEF VENTS FOR TANK TRANSPORTS

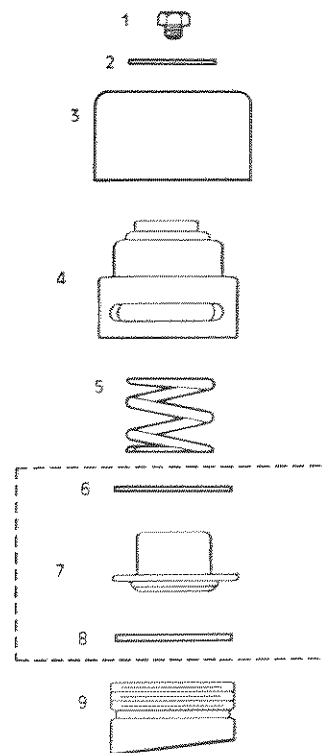
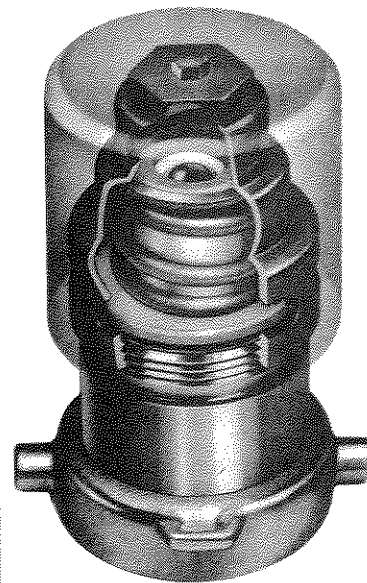
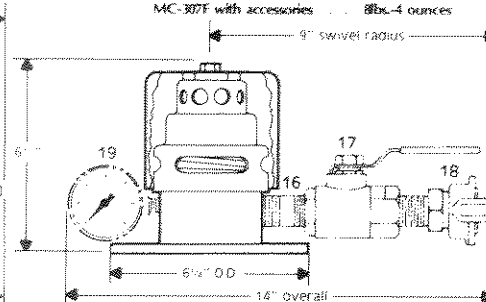
Styles	
MC-307B-LV	Vent with 3" swivel nut, less vacuum section. Attaches to 3" clean-out nipple and seals against teflon envelope ring gasket.
MC-307B-WV	Same as above, but with vacuum section.
MC-307F-LV	Vent with 3" TTMA drilled tank truck flange less vacuum section. Mounts to 3" TTMA drilled companion flange on transport. Supplied with teflon envelope flange gasket.
MC-307F-WV	Same as above, but with vacuum section.
MC-307S-LV	Vent less vacuum section. Lower Housing terminates in straight Stub End. Welds to dome cover.
MC-307S-WV	Same as above, but with vacuum section.
MC-307S-LV-LP	Vent less vacuum section. Low Profile overall height. Lower Housing terminates in straight Stub End. Welds to dome cover. NOTE: 3/4" & 1/4" N.P.T. tap not available in this style.
Accessory Package	Air inlet fittings, valves and gauges.

ITEM	PART#	DESCRIPTION
1	202001	Bolt
2	202002	Identification & Rating Disc
3	202003	Rain Cover
4	202004	Upper Housing
5	202005	Pressure Spring
6	202006	Spring Retainer
7	202007	Teflon Valve Seat (w/provision for vacuum parts)
7A	202020	Teflon valve Seat (Solid—no provision for vacuum parts)
8	202008	Hypalon Gasket
9	202009	Vacuum Ball—Pressure Vacuum Vents Only*
10	202010	Vacuum Spring—Pressure Vacuum Vents Only*
11	202011	Lower Housing — B Model
11A	202011-A	Lower Housing — S Model
12	202012	Swivel Nut — B Model
13	202013	Teflon Envelope Gasket
14	202014	Lower Housing & Flange — F Model
15	202015	Teflon Envelope Flange Gasket
ACCESSORY ITEMS		
16	202016	1/4" Stainless Steel Short Nipple
17	202017	1/4" Stainless Steel Ball Valve
18	202018	1/4" Universal Male Fitting—Mall. Iron Cad. Plid.
19	202019	1/4" Stainless Steel 1/4" L.M. Gauge 0-60 PSI

MC-307B Weight MC-307B without accessories . . . 9lbs-8 ounces
MC-307B with accessories . . . 7lbs-0 ounces



MC-307F Weight MC-307F without accessories . . . 6lbs-12 ounces
MC-307F with accessories . . . 8lbs-4 ounces



MC307S-LV-LP-1

ITEM	PART#	DESCRIPTION
1	202001	Bolt
2	202002	Identification & Rating Disc
3	202003A	Rain Cover
4	202004A	Upper Housing-Low Profile
5	202005	Pressure Spring
6	202006	Spring Retainer
7	202020A	Teflon Valve Seat
8	202008	White Hypalon Gasket
9	202011B	Lower Housing 18° Bias-Cut

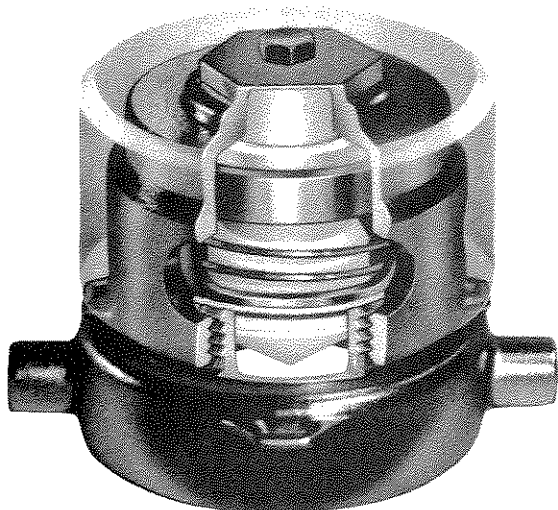
PROCEDURES FOR ASSEMBLY AND DISASSEMBLY OF GIRARD MC307 VENT

1. If vent is swivel nut type (MC307B) remove complete assembly from tank. If it is a flanged type, disassembly procedure can be carried out with vent attached to tank.
2. Remove rain cover (Part #3).
3. Remove Upper Housing (Part #4) CAUTION: This section is spring loaded and slight pressure should be maintained to insure upper housing does not fly off when free. Upper housing unscrews in a counter-clockwise manner.
4. After the upper housing has been removed the teflon valve seat (Part #7 or 7A) is now accessible. The pressure spring (Part #5) fits over the seat and rides on a stainless steel washer (Part #6).
5. Examine teflon seat (Part #7 or 7A) for nicks or splitting. If either condition exists replace the seat.
6. Examine Hypalon Gasket (Part #8) for swelling or hardness. If either condition exists replace the gasket.
7. Invert the teflon seat (Part #7 only) and disassemble vacuum section. There are two parts to be removed; the vacuum spring (Part #10) and the vacuum ball (part #9). Removal of the spring can be done with a pair of needle nose pliers. Grasp the tang on the lower coil of the spring with the pliers, carefully lift it over the lip and rotate seat counter-clockwise unscrewing spring. Care should be taken not to stretch the spring excessively. Thoroughly clean all parts.
8. Examine the lower housing seat (Part #11, 11A or 14) making sure that there are no burrs or sharp edges that would damage the teflon valve seats.
9. After parts have been cleaned, start assembling the teflon valve seat, the vacuum section first. Place the ball in first then screw and press the spring into place.
10. Replace the hypalon gasket (Part #8) and place the teflon valve section (Part #7 or 7A) on top of lower housing (Parts #11, 11A or 14).
11. Replace the spring retainer washer (Part #6) and pressure spring (Part #5).
12. Replace the upper housing (Part #4) on top of the assembly. NOTE: Use an antiseizing compound on threads. Exert pressure while rotating the housing clockwise. After one or two threads have caught the upper housing can be tightened using wrench on hex section provided.
13. Replace rain cover and identification disc.

NOTE: ID DISC REQUIRED TO MEET MC 307 SPECIFICATION.

GIRARD EQUIPMENT INC.

MAGNETIC VACUUM BREAKER FOR TANK TRANSPORTS

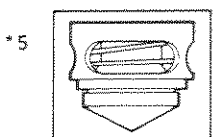
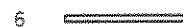
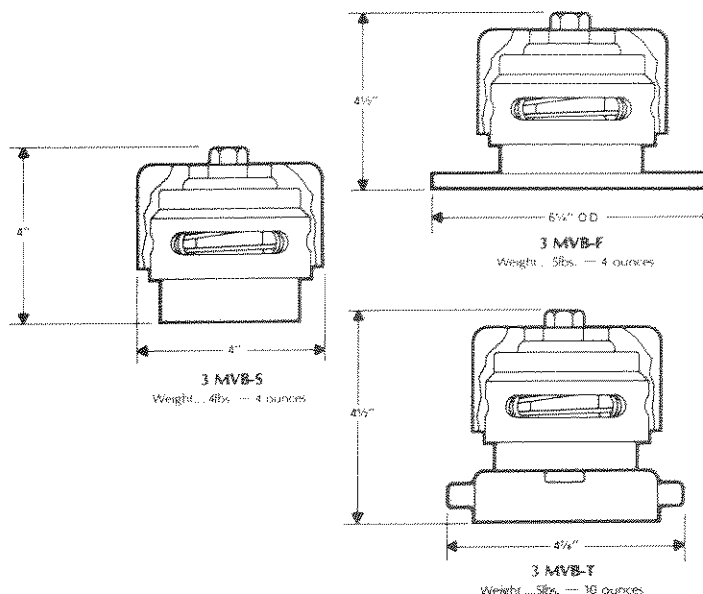


Replacement parts

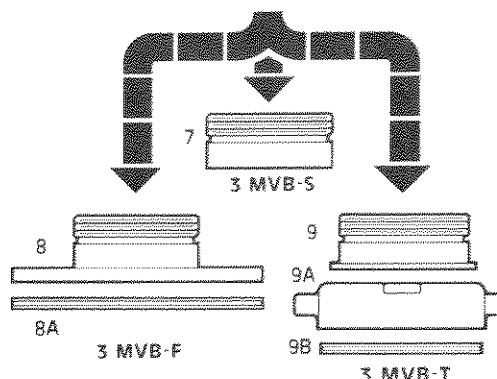
When ordering replacement parts, please specify quantity, item number, part number and description of part (i.e.) 6 — #2 201003 Rain Covers

Part #5 (201005) is the valve assembly in its housing. It is sold as an assembly only.

Styles	
3 MVB-S	Complete vacuum breaker with stub end outlet. Designed to be welded in dome of transport.
3 MVB-F	Complete vacuum breaker with 3" TTMA drilled flange outlet. Designed for installation on flanged nozzle in transports.
3 MVB-T	Complete vacuum breaker with 3" N.P.T. swivel nut outlet. Designed for attachment to a tank truck clean out nipple.



(Sold as unit assembly)



Performance specifications

Instant opening at 2" Hg

Instant opening at 2" Hg

Flow Rates at 2" Hg. — 11,900 SCFH through .690 sq. in. orifice to a maximum of 13,550 SCFH through .785 sq. in. orifice.

Test Pressure: Seat is tight on pressures from 0-50 PSIG.

Vibration Test: 25 times gravitational acceleration or 25G.

Magnetic Field: Ferrite permanent magnets — Cannot be contaminated by surrounding metals or products being transported.

ITEM	PART #	DESCRIPTION	ITEM	PART #	DESCRIPTION
1	201001	Bolt	7	201007	Stub End — Lower Housing
2	201002	Rating Disc	8	201008	Flanged Lower Housing 3" TTMA Drilling
3	201003	Rain Cover	8A	201009	Teflon Envelope Flange Gasket
4	201004	Upper Housing	9	201010	Swivel Spud — Lower Housing
*5	201005	Valve Housing w/assembled valve. (Sold as unit assembly)	9A	201011	Swivel Nut — 3 N.P.S.
6	201006	Teflon Gasket — Valve Housing	9B	201012	Teflon Envelope Gasket

**PROCEDURES FOR ASSEMBLY AND DISASSEMBLY
GIRARD MODELS - 3MVB-S - 3MVB-T - 3MVB-F**

The GEI Magnetic Vacuum Breaker is designed to prevent negative pressure from imploding or collapsing your tank vehicle. In order that the Breaker work properly the following maintenance and cleaning steps should be carried out on a regular basis.

1. Remove Rain Cover (Part #3)
2. Remove Upper Housing (Part #4) by unscrewing in a counter clockwise direction. The unit is not spring loaded therefore no caution has to be taken upon removal of the Upper Housing.
3. When removing the cover the Valve Cage with valve (Part #5) should now be exposed on the Lower Housing (Part #7, #8 or #9) vent. Sometimes upon removal of the Upper Housing, the Valve Cage, will stay together. The Cage and Valve section can be removed by simply pulling the two sections apart by hand.
4. Examine the Lower Housing for cleanliness. Make sure the air passage is free of foreign or set up materials.
5. Inspect the Valve Seat and the Cage for nicks or foreign material. If contaminants are clinging to Valve Seat or Cage, clean before replacing unit on Lower Housing - CAUTION - DO NOT REMOVE TEFLON VALVE SEAT FROM CAGE.
6. Inspect Valve Seat magnetic section for foreign material. If material is present clean out before re-setting Valve.
7. Inspect Upper Housing and magnet for cleanliness. Clean if necessary.
8. If all parts are clean, re-assembly Valve by placing Teflon Gasket (Part #6) on bottom of Valve Cage (Part #5). Place Cage on Lower Housing. Place Upper Housing (Part #4) over Cage and screw clockwise until the housing is bottomed on thread. Replace protective Rain Cover (Part #3) with Parts #2 and #1 return unit to vehicle.

The critical parts of the vent are the Magnetic Teflon Valve Seat, Cage and Retaining Spring. If in your judgement the Valve Seat must be preplaced for any reason please order a new Valve Seat and Cage Assembly from Lynn, as this part is sold as a unit item. We will upon receipt of your returned parts, allow your company a price adjustment on the replacement Cage and Valve Seat Assembly.

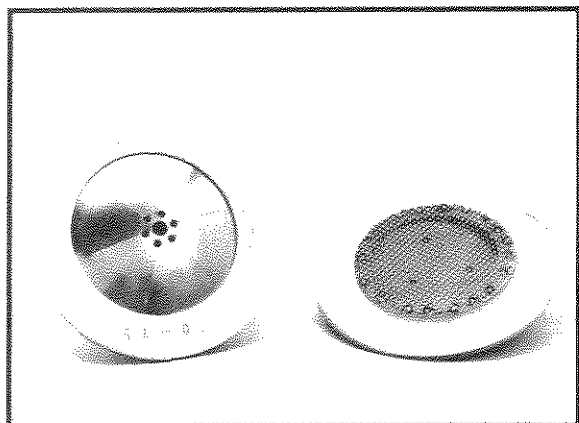
The 3" Magnetic Vacuum Breaker is manufactured in three styles:

1. 3MVB-S Stub End Style - Lower Housing terminates in stub and is normally welded into dome cover. Inspection of this unit is usually carried out by opening cover and examining exposed Valve Seat.
2. 3MVB-T 3" I.P.S. Female Swivel Lower Housing - This unit is attached to 3" clean-out nipple and must be fully removed from nipple for examination.
3. 3MVB-F 3" TTMA Drilled Flanged Lower Housing - Unit is attached to flanged nozzle in tank and should be examined by either removing fully from companion flange or by disassembly according to eight (8) enumerated steps.

CAUTION should be exercised when removing fittings from a tank transport. Please make sure that prior to removal of the Magnetic Vacuum Breaker or any other fitting that the tank you are working on is free of internal pressure.

FOR REPLACEMENT PARTS FOR THE GEI MAGNETIC VACUUM BREAKER PLEASE CALL:

Tanksert Type Rupture Disc



The Tanksert type rupture disc is designed for use in railroad tank cars, over the road tank trucks and other transportable vessels. It is designed to fit both threaded and bolted-type SAFETY VENT ASSEMBLIES. Two styles are available:

1. TANKSERT DISC WITH BEE SCREEN is used for applications that require protection against bees, insects or other airborne particles from entering the tank after a rupture disc opening has occurred.
2. TANKSERT DISC without the bee screen.

Specifications:

Size: 2 inch to fit Safety Vent Assembly

Operating pressure: Up to 80% of rated burst pressure.

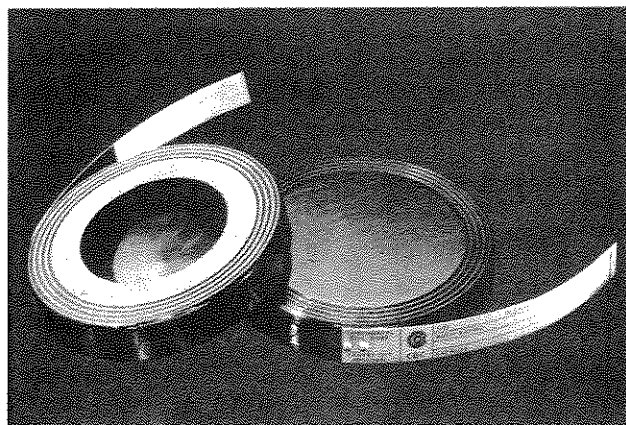
Burst pressure: The TANKSERT disc is a stocked item available for immediate shipment in the following burst pressure ranges:
psig @ 72°F

25 to 30
40 to 45
55 to 60
70 to 75
95 to 100

Materials: Stainless steel components with plastic seal. Bee screen is #14 or #20 mesh stainless steel screen.

For additional information, refer to C.D.C.
"TANKSERT RUPTURE DISC" catalog.

Graphite Rupture Disc



Graphite rupture discs are machined from a monolithic piece of graphite and impregnated with phenolic. Graphite discs are corrosive resistant to most chemicals.

Specifications:

Sizes: 1 through 24 inch diameter
25 through 600mm diameter

Operating conditions:

Pressure:

- Up to 80% of rated burst pressure.
- Cyclic conditions up to 80% of rated burst pressure.

Temperature: To 1000°F (542°C)

Burst pressure: 1 to 450 psig @ 72°F
0.07 to 31 bars @ 22°C
Dependent on size.

Service: Gas or liquid.

Material: Graphite impregnated with phenolic.

Seat configuration: Flat seat.

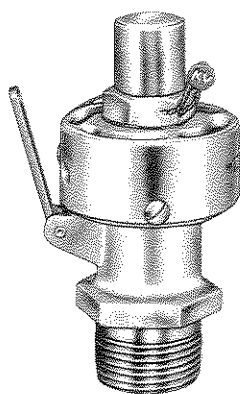
Holder: May be used between 150 or 300 LB ANSI class flanges.

Tagging: Stainless steel tag.

Alarm system: B.D.I. alarm system compatible.

Options: Coatings, linings, dual acting, armor ringed, vacuum support, gaskets, high temperature assembly.

For additional information, refer to C.D.C.
"IMPERVIOUS GRAPHITE RUPTURE DISC"
catalog.



KUNKLE

BRONZE SAFETY VALVES

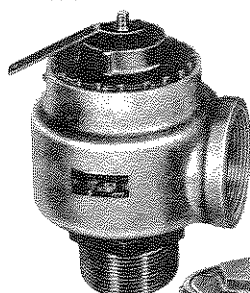
FIGURE 1-A (air) A.S.M.E. Standard—N.B. Certified

PRESSURE SETTINGS: AIR/GAS TO 250 PSI. 300° F.

Very compact assembly. Cup-type disc. Extra-long disc guides. Fully enclosed spring. Precision-ground seats.

STEAM/AIR RELIEVING CAPACITIES

Set Pressure PSIG	1/2" & 3/4"			1"		
	Lbs./Hour Steam 90% Basis 3% Acc.	Lbs./Hour Steam 90% Basis 10% Acc.	SCFM Air 10% Acc.	Lbs./Hour Steam 90% Basis 3% Acc.	Lbs./Hour Steam 90% Basis 10% Acc.	SCFM Air 10% Acc.
5	81	82	29	139	142	50
10	101	104	37	173	179	63
15	120	125	44	207	215	76
20	139	145	52	240	250	89
25	158	165	59	272	284	101
30	176	185	66	304	318	113
40	211	223	79	365	383	136
50	245	258	92	422	445	158
60	277	293	104	477	504	179
70	307	325	115	530	560	199
80	335	355	126	579	613	217
90	362	384	136	625	662	235
100	387	411	146	669	709	252
125	442	469	167	764	811	288
150	486	517	183	842	895	318
175	520	553	196	902	959	340
200	542	577	205	943	1003	356
225	554	590	210	966	1028	365
250	556	592	210	971	1034	367



Model 337-1

CAST IRON RELIEF VALVES

A.S.M.E. Standard—N.B. Certified

For Air • Gas

Figure 337. Cast iron housing with bronze full nozzle and disc. Reversible steel lever or optional lift ring for manual operation.

Figure 215-V. For vacuum. Same construction as Figure 337, except for pressure tight housing and no lever. Installed "in reverse". See drawing center left.

PRESSURE SETTINGS TO 60 PSI.; VACUUM TO 22" HG.

CAPACITIES

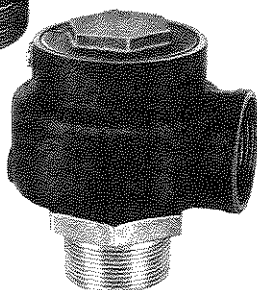
SCFM Air, 60° F., 10% Accumulation.

Set Pressure PSIG	Figure 337			Set Inches Mercury	Figure 215-V		
	2"	2 1/2"	3"		2"	2 1/2"	3"
5	527	799	1157	1	140	213	308
10	743	1127	1632	2	217	329	477
15	903	1368	1982	3	264	400	579
20	1062	1609	2331	4	299	453	657
25	1221	1850	2680	5	331	501	726
30	1380	2091	3029	6	352	533	772
35	1539	2332	3379	7	372	564	817
40	1698	2573	3728	8	391	592	858
45	1857	2814	4076	9	403	610	884
50	2017	3055	4428	10	413	625	906
60	2335	3537	5125	12	424	642	930
				12.8+	426	646	935

APPLICATIONS

For protection of low to medium pressure high volume blowers and compressors, light gauge tanks, bulk hauling trailers, and similar equipment.

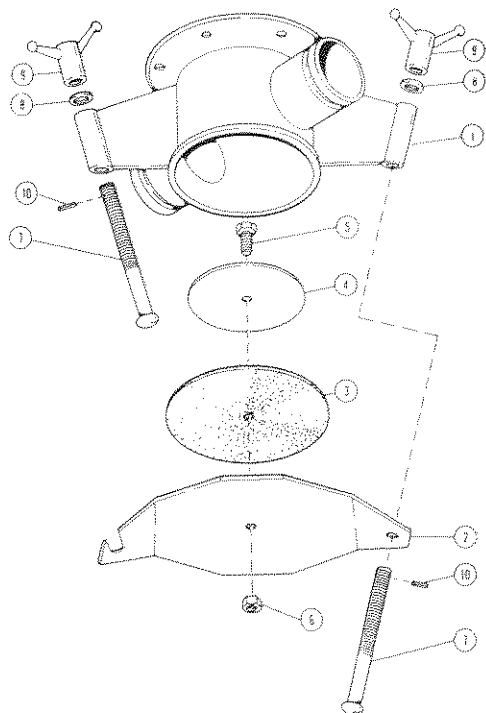
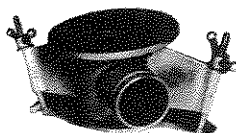
Model 215-V.



The Perfect Companion

ULTRAFLO HOPPER TEE

PATENT PENDING



BOTTOM DROP TEE PARTS

REF #	PART #	DESCRIPTION
1	TT-454041	4" BOTTOM DROP TEE BLANK
	TT-455043	5" BOTTOM DROP TEE BLANK
	456045	6" BOTTOM DROP TEE BLANK
2	TT-381824	4" ALUMINUM BOTTOM DROP DOOR ONLY
	TT-384831	5"-6" ALUMINUM BOTTOM DROP DOOR ONLY
3	TT-381678	4" BOTTOM DROP GASKET
	TT-381679	5" BOTTOM DROP GASKET
	TT-381680	6" BOTTOM DROP GASKET
4	TT-381681	BOTTOM DROP GASKET RETAINER
5	TT-3652	1/2" x 1' BOLT
6	TT-3649	1/2" NUT
7	TT-381036	BOTTOM DROP BOLT - PLATED
8	TT-3674	5/8" BOTTOM DROP WASHER
9	316109	BOTTOM DROP WING NUT - PLATED

CAST ALUMINUM TEE'S

PART NUMBER DESCRIPTION AVAILABLE IN 4", 5" OR 6"

CAST ALUMINUM TEE W/GROOVES
CAST ALUMINUM TEE W/3" FRONT FLANGE
CAST ALUMINUM TEE W/3" FRONT THREAD
CAST ALUMINUM B/D TEE BLANK
CAST ALUMINUM B/D TEE BLANK W/3" FRONT FLANGE
CAST ALUMINUM B/D TEE BLANK W/3" FRONT THREAD
CAST ALUMINUM B/D TEE BLANK W/4" REAR THREAD
CAST ALUMINUM B/D TEE ASSEMBLY
CAST ALUMINUM B/D TEE ASSEMBLY W/3" FRONT FLANGE
CAST ALUMINUM B/D TEE ASSEMBLY W/3" FRONT THREAD
CAST ALUMINUM B/D TEE ASSEMBLY W/4" FRONT THREAD
*B/D = BOTTOM DROP

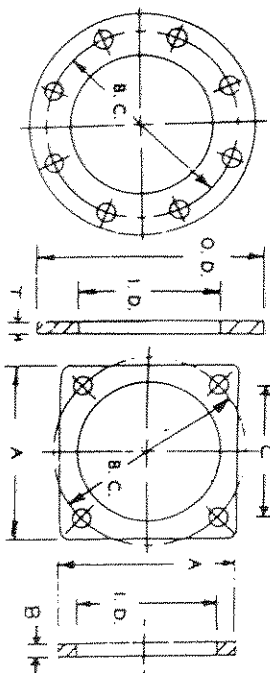
BUTTERFLY VALVE FLANGES - ALUMINUM

SIZE	PART #	THICKNESS	O.D.	I.D.	BC	# OF HOLES	HOLE SIZE
2"	4748	3/8	5-1/2	2-7/16	4-1/4	4	7/16
3"	4733	3/8	6	3-9/16	4-7/8	6	7/16
4"	4726	1/2	9	4	7	6	9/16
5"	4702	1/2	10	5	7-7/8	6	9/16
6"	4701	1/2	11	6	9	8	9/16
8"	4700	1/2	13-1/2	8	11-5/8	8	11/16

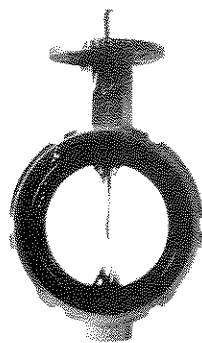
NOTE: ABOVE FLANGES MATCH ALL POPULAR BUTTERFLY VALVE BOLT PATTERNS

3" SQUARE CHECK VALVE FLANGE - ALUMINUM

PART #	I.D.	BC	# OF HOLES	HOLE SIZE	A	B	C
4725	3-9/16	5	4	9/16	4-7/8	3/8	3-1/2



KEYSTONE BUTTERFLY VALVE FIGURE 99



VALVE DIMENSIONS														
SIZE	A	B	C	D	Q	WEIGHT	E	F	G	H	TOP PLATE DRILLING			
											BOLT CIRCLE	NO. HOLES	HOLE DIA.	ADAP CODE
2	2 1/8	4 1/8	3 5/16	1 5/8	1 1/16	6	4	1 1/4	9/16	3/8	3 1/4	4	7/16	BAB
2 1/2	2 9/16	4 7/8	4 1/2	1 3/4	2 1/8	8	4	1 1/4	9/16	3/8	3 1/4	4	7/16	BAB
3	3 1/8	5 3/8	4 7/8	1 3/4	2 3/16	9	4	1 1/4	9/16	3/8	3 1/4	4	7/16	BAB
4	4 1/8	6 7/8	6	2	3 7/8	11	4	1 1/4	5/8	7/16	3 1/4	4	7/16	BAC
5	5 5/16	7 3/4	6	2 1/8	5	15	4	1 1/4	5/8	7/16	3 1/4	4	7/16	BAC
6	6 1/8	8 3/4	6 1/2	2 1/8	6	17	4	1 1/4	3/4	1/2	3 1/4	4	7/16	BAD
8	8 1/8	11	8 5/16	2 1/2	8	29	6	1 1/4	7/8	5/8	5	4	9/16	CAE

Available materials:

Body:

Cast iron, cast iron (electroless nickel coated), ductile iron, aluminum, aluminum (white epoxy coated), aluminum bronze

Disc-stem:

316 stainless steel, 316 stainless steel (satin finished), EPDM or Buna-N covered disc with 316 stainless steel stem

Resilient seat:

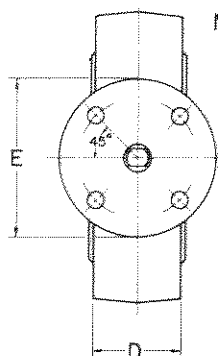
EPDM, Buna-N, white Buna-N, chlorobutyl

Stem bushing:

Acetal

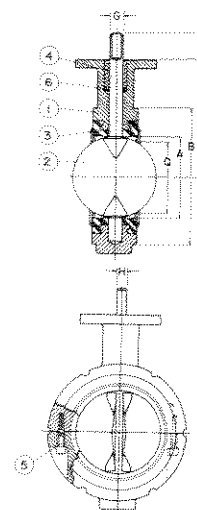
Stem packing:

Buna-N



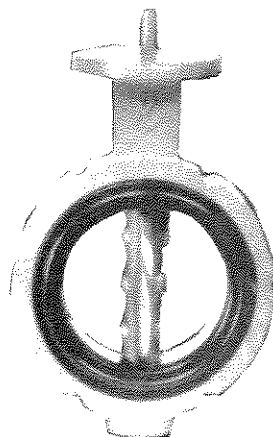
NOTES:

1. VALVE RATED AT 150 PSI PRESSURE DIFFERENTIAL IN THE CLOSED POSITION.
2. BODY O.D., WHEN BODY PLACED BETWEEN ASA 125 OR 150 POUND FLANGES, TO BE CENTERED & SPANNED BY THE FLANGE BOLTING. SEE "B" DIMENSION. (NOT FOR ASA 250 OR 300 LB. FLANGES)
3. "Q" DIMENSION IS THE MINIMUM ALLOWABLE PIPE OR FLANGE INSIDE DIAMETER AT THE CENTERED BODY FACE TO PROTECT THE DISK SEALING EDGE AGAINST DAMAGE WHEN OPENING THE VALVE.
4. SEE DATA PAGE SMOOOI FOR ADAPTABILITY CODE LETTER SYMBOL DIMENSIONS REGULATING INTERCHANGEABILITY OF BODY TOP PLATE, MOUNTING AS TO KEYSTONE HANDLES, PLATES, GEAR OPERATORS, POWER ACTUATORS, ETC.



ITEM NO.	NAME	NO. REQ'D	PART NO. & FIG. NO.
1	BODY	1	203-099
2	DISK-STEM	1	234-099
3	SEAT	1	206-100
4	BUSHING	1	207-100
5	SCREW	2	905-735
6	PACKING	1	928-100

KEYSTONE BUTTERFLY VALVE FIGURE 100



VALVE DIMENSIONS														
SIZE	A	B	C	D	Q	WEIGHT	E	F	G	H	TOP PLATE DRILLING			
											BOLT CIRCLE	NO. HOLES	HOLE DIA.	ADAP CODE
2	2 1/8	4 1/8	3 5/16	1 5/8	1 1/16	6	4	1 1/4	9/16	3/8	3 1/4	4	7/16	BAB
2 1/2	2 9/16	4 7/8	4 1/2	1 3/4	2 3/16	8	4	1 1/4	9/16	3/8	3 1/4	4	7/16	BAB
3	3 1/8	5 3/8	4 7/8	1 3/4	2 7/8	9	4	1 1/4	9/16	3/8	3 1/4	4	7/16	BAB
4	4 1/8	6 7/8	6	2	3 1/8	13	4	1 1/4	5/8	7/16	3 1/4	4	7/16	BAC
5	5 3/16	7 3/4	6	2 1/8	5	15	4	1 1/4	5/8	7/16	3 1/4	4	7/16	BAC
6	6 1/8	8 3/4	6 1/2	2 1/8	6	19	4	1 1/4	5/8	7/16	3 1/4	4	7/16	BAC
8	8 1/8	11	8 5/16	2 1/2	8	31	6	1 1/4	3/4	1/2	5	4	9/16	CAD
10	10 1/8	13 3/8	9	2 1/2	10 1/16	47	6	1 1/4	7/8	5/8	5	4	9/16	CAE

Available materials of construction

Body: Cast iron, ductile iron, aluminum in Fig. 100, cast iron only in Fig. 122

Disc: Ductile iron, electroless nickel-coated ductile iron, aluminum bronze, 316 stainless steel

Stem: Coated steel, 316 stainless steel or 18-8 stainless steel

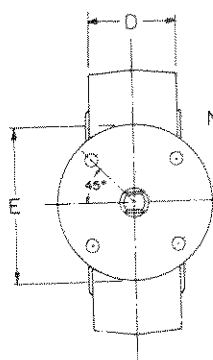
Resilient seat: EPDM, Buna N

Stem bushing: Acetal

Disc screws: 316 stainless steel

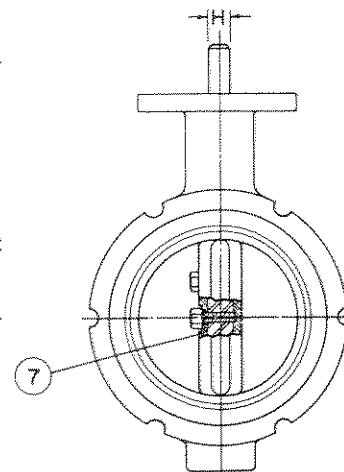
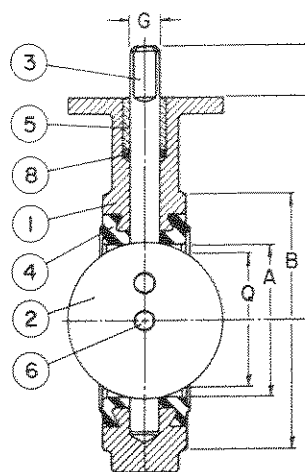
"O" ring: Buna N

Stem packing: Buna N



NOTES:

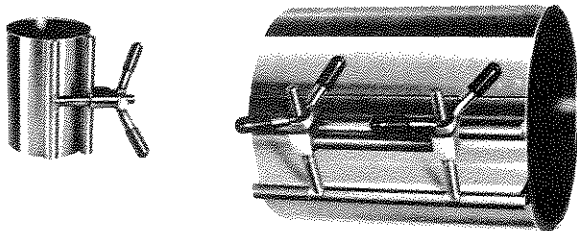
1. VALVE RATED AT 150 PSI PRESSURE DIFFERENTIAL IN THE CLOSED POSITION.
2. BODY O.D., WHEN BODY PLACED BETWEEN ANSI 125 OR 150 POUND FLANGES, TO BE CENTERED & SPANNED BY THE FLANGE BOLTING. SEE "B" DIMENSION. (NOT FOR ANSI 250 OR 300 LB. FLANGES)
3. "Q" DIMENSION IS THE MINIMUM ALLOWABLE PIPE OR FLANGE INSIDE DIAMETER AT THE CENTERED BODY FACE TO PROTECT THE DISK SEALING EDGE AGAINST DAMAGE WHEN OPENING THE VALVE.



ITEM NO.	NAME	NO. REQ'D	PART NO. & FIG. NO.
1	BODY	1	203-100
2	DISK	1	204-100
3	STEM	1	205-100
4	SEAT	1	206-100
5	BUSHING	1	207-100
6	SCREW	2	905-100
7	"O" RING	2	927-730
8	PACKING	1	928-100



Midbrook Couplings Inc.

"THE GRIPPER"**Fast Action, Positive Locking Coupler**

- Installs without tools in seconds
- Fast takedown and re-assembly
- One piece construction — no loose parts.

The "GRIPPER" is used to securely join pipe, tube, or flexible tubing in O.D.'s from 1½" thru 24" O.D. It slides onto the pipe or wraps around it for quick installation. Then tighten by hand and you're all done. The tough gum gasket is abrasion resistant and allows for tube and pipe variations. The "GRIPPER" will stay closed in spite of expansion, contraction and vibration.

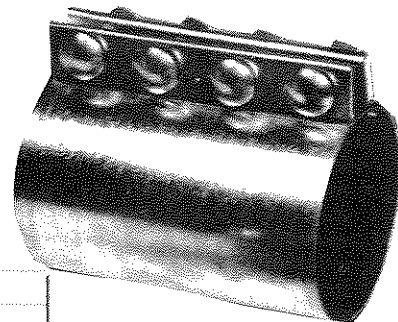
Sizes 1½" O.D. through 12¾" O.D.
standard 4" lengths

O.D. SIZE IN.	CODE NO.
1.5	G-1500-1
1.660	G-1660-1
1.750	G-1750-1
1.900	G-1900-1
2.000	G-2000-1
2.125	G-2125-1
2.188	G-2188-1
2.250	G-2250-1
2.375	G-2375-1
2.500	G-2500-1
2.625	G-2625-1
2.750	G-2750-1
2.875	G-2875-1
3.000	G-3000-1
3.125	G-3125-1
3.250	G-3250-1
3.500	G-3500-1
3.750	G-3750-1
4.000	G-4000-1
4.250	G-4250-1
4.500	G-4500-1
4.750	G-4750-1
5.000	G-5000-1
5.250	G-5250-1
5.500	G-5500-1
5.563	G-5563-1
5.750	G-5750-1
6.000	G-6000-1
6.250	G-6250-1
6.500	G-6500-1
6.625	G-6625-1
8.000	G-8000-1
8.625	G-8625-1
9.000	G-9000-1
10.000	G-10000-1
12.000	G-12000-1
12.750	G-12750-1

ORDER BY O.D. SIZE
AND CODE NO.

Sizes 3" O.D. through 24" O.D.
standard 9½"

O.D. SIZE IN.	CODE NO.
3.000	G-3000-2
3.125	G-3125-2
3.250	G-3250-2
3.500	G-3500-2
3.750	G-3750-2
4.000	G-4000-2
4.250	G-4250-2
4.500	G-4500-2
4.750	G-4750-2
5.000	G-5000-2
5.250	G-5250-2
5.500	G-5500-2
5.563	G-5563-2
5.750	G-5750-2
6.000	G-6000-2
6.250	G-6250-2
6.500	G-6500-2
6.625	G-6625-2
8.000	G-8000-2
8.625	G-8625-2
9.000	G-9000-2
10.000	G-10000-2
10.750	G-10750-2
12.000	G-12000-2
12.750	G-12750-2

**COMPRESSION
COUPLINGS**

SIZE				SIZE			
O.D. (1)	NOMINAL PIPE SIZE (2)	LENGTH OF COUPLING (3) (INCHES)	NO. BOLTS	O.D. (1)	NOMINAL PIPE SIZE (2)	LENGTH OF COUPLING (3) (INCHES)	NO. BOLTS
1 1/2		4	2	5 1/4		6	3
1 1/2		6	3	5 1/4		8	4
1 21/32	1 1/4	4	2	5 1/2		6	3
1 21/32	1 1/4	6	3	5 1/2		8	4
1 3/4		4	2	5 1/2		6	3
1 3/4		6	3	5 1/2		8	4
1 29/32	1 1/2	4	2	5 9/16	5	6	3
1 29/32	1 1/2	6	3	5 9/16	5	8	4
2		4	2	5 3/4		6	3
2		6	3	5 3/4		8	4
2		8	4	5 3/4		6	3
2 1/8		4	2	5 3/4		8	4
2 1/8		6	3	6		4	2
2 3/16		4	2	6		6	3
2 3/16		6	3	6		8	4
2 1/4		4	2	6 1/4		6	3
2 1/4		6	3	6 1/4		8	4
2 1/4		8	4	6 1/2		6	3
2 3/8	2	4	2	6 1/2		8	4
2 3/8	2	6	3	6 1/2		6	3
2 3/8	2	8	4	6 5/8	6	6	3
2 1/2		4	2	6 5/8	6	8	4
2 1/2		6	3	6 3/4		6	3
2 1/2		8	4	6 3/4		8	4
2 5/8		6	3	7		6	2
2 5/8		8	4	7		8	3
2 3/4		6	3	7		10	4
2 7/8	2 1/2	4	2	7 1/4		6	2
2 7/8	2 1/2	6	3	7 1/4		8	3
2 7/8	2 1/2	8	4	7 1/2		6	2
3		4	2	7 1/2		8	3
3		6	3	7 3/4		6	2
3		8	4	7 3/4		8	3
3 1/8		6	3	8		6	2
3 1/8		8	4	8		8	3
3 1/4		6	3	8		10	4
3 1/4		8	4	8		12	5
3 1/2	3	4	2	8 5/8	8	6	2
3 1/2	3	6	3	8 5/8	8	8	3
3 1/2	3	8	4	8 5/8	8	10	4
3 3/4		6	3	8 5/8	8	12	5
3 3/4		8	4	9		6	3
4	3 1/2	4	2	9		10	4
4	3 1/2	6	3	10		8	3
4	3 1/2	8	4	10		10	4
4 1/4		6	3	10		12	5
4 1/4		8	4	10 3/4	10	8	3
4 1/2	4	4	2	10 3/4	10	10	4
4 1/2	4	6	3	10 3/4	10	12	5
4 1/2	4	8	4	12		8	3
4 3/4		6	3	12		10	4
4 3/4		8	4	12		12	5
5	4 1/2	4	2	12 3/4	12	8	3
5	4 1/2	6	3	12 3/4	12	10	4
5	4 1/2	8	4	12 3/4	12	12	5



SWING CHECK VALVE



KNAPPCO'S Swing Check Valves are designed for maximum flow with minimum pressure drop. The poppet assembly is self-aligning to assure even sealing on the raised vertical seat. The poppet assembly can be easily removed for replacement of the gasket.

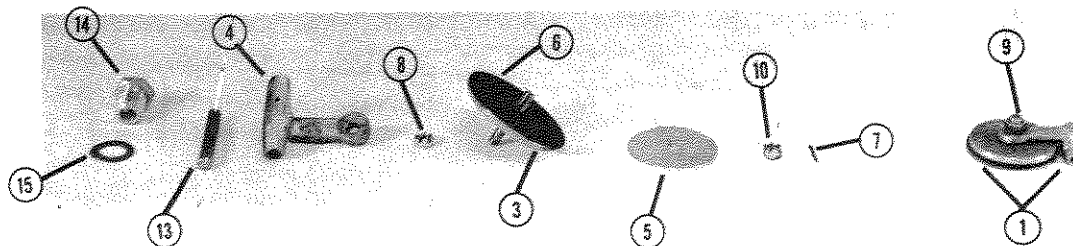
These valves are made with aluminum bodies ONLY, and are available in 2" 3" and 4" sizes.

Gaskets (Viton A) are cemented to poppet if valve is to be used for pneumatic service.

Please specify

BODY	INTERNAL TRIM			
	Brass/Stl Buna N	Alum/SS Buna N	Brass/Stl Viton	Alum/SS Viton
2" Flanged	VA 0001	VA 0002	VA 0003	VA 0004
2" Flanged, Spring Loaded	VA 0005	VA 0006	VA 0007	VA 0008
• 3" Flanged	VA 0009	VA 0010	VA 0011	VA 0012
* 3" Flanged, Spring Loaded	VA 0013	VA 0014	VA 0015	VA 0016
3" Threaded	VA 0017	VA 0018	VA 0019	VA 0020
3" Threaded, Spring Loaded	VA 0021	VA 0022	VA 0023	VA 0024
4" Flanged	VA 0025	VA 0026	VA 0027	VA 0028
4" Victaulic	VA 0029	VA 0030	VA 0031	VA 0032

* STANDARD DIMENSION FLANGE FACE TO FACE: 7 $\frac{1}{8}$ ". SPECIAL DIMENSION FLANGE FACE TO FACE: 6 $\frac{7}{8}$ ". SAME AS MILWAUKEE VALVE.



REFERRALS	DESCRIPTION	2" CHECK VALVE		3" CHECK VALVE		4" CHECK VALVE	
		Standard Brass & Steel Internal	Aluminum SS Internal	Standard Brass & Steel Internal	Aluminum SS Internal	Standard Brass & Steel Internal	Aluminum SS Internal
1	Poppet and Arm Assembly with Viton Gasket	1850	1852	1724	1740	1860	2800
2	Poppet and Arm Assembly with Buna N Gasket	NOT SHOWN		1722	1739	1859	2799
3	Poppet	1700	1711	1719	1737	1745	2519
4	Arm	1701	1712	1720	1738	1746	2516
5	Back Up Disc	1708	1708	1721	1721	1749	1749
6	Poppet Gasket Buna	1704	1704	1717	1717	1750	1750
7	Cotter Pin	1718	1716	1718	1716	1756	2797
8	Nut (Poppet)	1705	1714	1705	1714	1754	2819
9	Screw (Back Up Disc)	1707	1707				
10	Nut (Back Up Disc)			1705	1714	1755	1115
11	Cap NOT SHOWN	1699	1710	1727	1733	1744	1744
12	Cap Gasket NOT SHOWN			1731	1731	1752	1752
13	Shaft	1702	1713	1728	1734	1748	2817
14	Shaft Nut	1706	1715	3960	1735	1747	2818
15	Shaft Nut Gasket			1730	1730	1730	1730

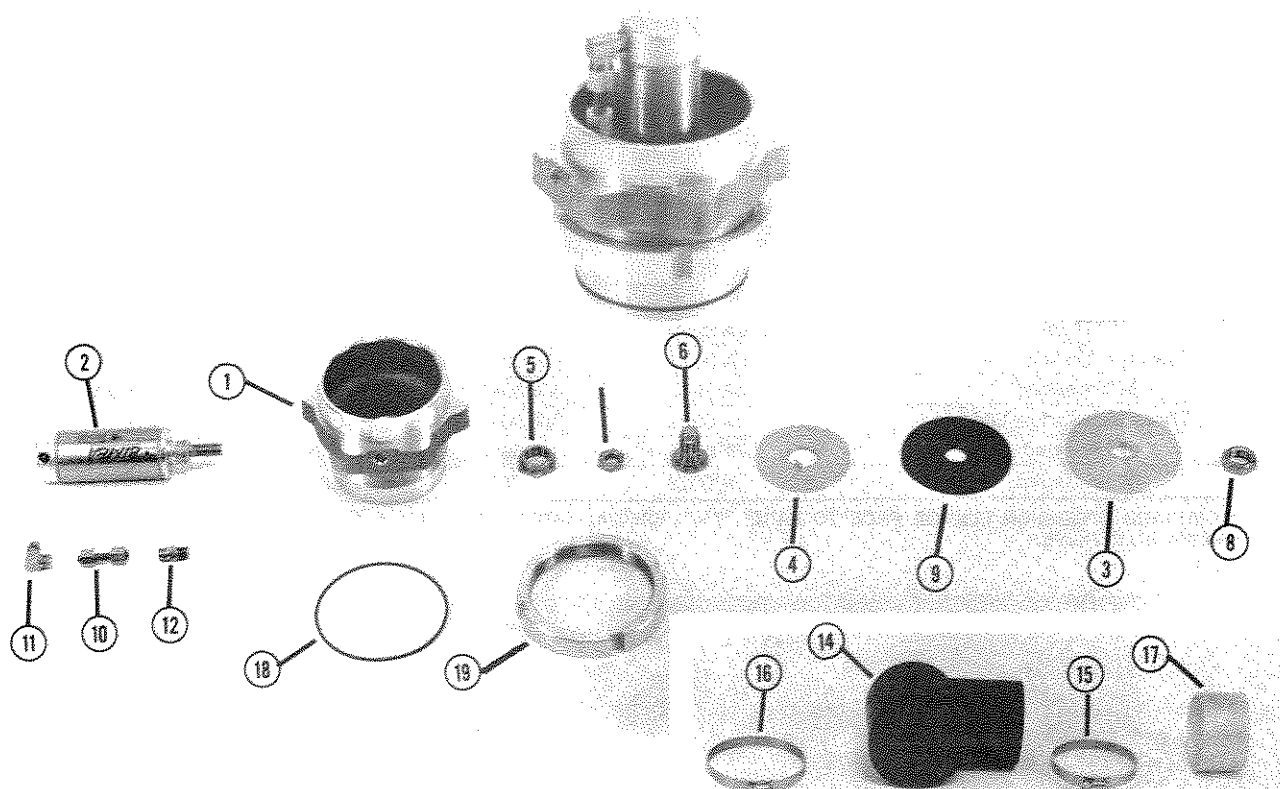


VAPOR RECOVERY VENT

VE 0002 — is designed to fit the hole pattern on existing KNAPPCO

VE 0003 — is mounted with a spanner nut and can be fitted to a 3.84" dia hole.

VE 0004 — has a 3" flange with TTMA hole pattern for mounting.



VE 0003 VAPOR RECOVERY VENT

REFERRALS	DESCRIPTION	STEEL	ALUMINUM	PLATED	304 SS	316 SS	OTHER
1	Body		3985				
2	Cylinder				3424		
3	Poppet		3902				
4	Retainer Gasket		3904				
5	Nut, Retainer Cylinder				3907		
6	Stud, Poppet Retainer				3908		
7	Nut, Hex Jam, Thin				3909		
8	Nut, Hex Jam 5/8-18				3910		
9	Gasket, Poppet						3903
10	Kit Tube Assembly, Brass						3982
11	Fitting, Brass Elbow						3900
12	Fitting, Brass 68F						3901
13	Kit, Hood Assembly						1809
14	Hood						1810
15	Clamp				1813		
16	Clamp				1812		
17	Adapter		1811				
18	"O" Ring						4035
19	Nut, Spanner		3986				



VE 0005 VENT

The VE 0005 Vent is a newly designed, pressure vacuum, rollover protection system which meets the most stringent field requirements. (Patent No. 4,593,711.) The design eliminates accidental venting caused by road bounce and eliminates leakage due to surge.

This Vent relieves pressure at 1 PSI and vacuum at 6 ounces per sq. inch and provides complete rollover protection from 0 to 180 degrees.

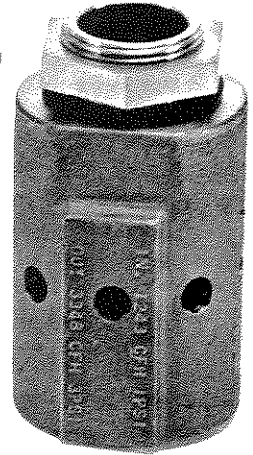
The KNAPPCO VE 0005 Vent is designed for easy cleaning and maintenance. Replacement parts and gaskets are available.

Relief capabilities of

Intake — 1243 CFH @ 1 PSI

Exhaust — 3348 CFH @ 3 PSI

Thread size: 1½ — 12 N



VE 0006 ALUMINUM VENT

The VE 0006 Aluminum Vent is designed to fit into a 2-15/16" opening and is rated as follows:

Opens @ 3 PSI

Capacity of 11,720 CFH @ 5 PSI

The Vent is internally threaded to accept the VE 0007 Vent for a complete vacuum, pressure relief system. In combination with the VE 0005 Vent, which eliminates accidental venting caused by road bounce, it provides pressure and vacuum release and complete rollover protection.



COMBINATION:
VE 0006 — VE 0005

COMBINATION:
VE 0006 —
VE 0007



VE 0007 ALUMINUM VENT VE 0008 STAINLESS STEEL VENT

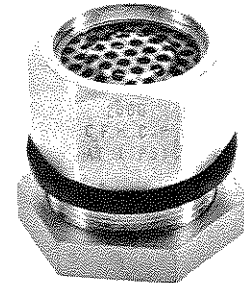
The VE 0007 Aluminum Vent and the VE 0008 Stainless Steel Vent are designed to fit into a 1-11/16" opening and they relieve vacuum as follows:

Opens @ not more than 6 ounces vacuum

Capacity of 2,000 CFH @ 1 PSI

These vents, when used with the KNAPPCO VE 0006 Vent, provides complete vacuum and pressure relief.

Thread size: 1½ — 12 N



FUSIBLE PLUG KIT

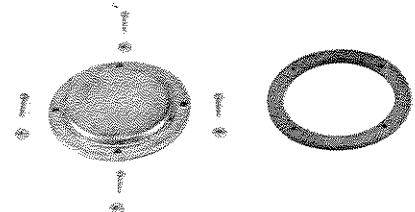
Stainless Steel — 2778

Steel — 1792

This Fusible Plug Kit comes complete with gasket and mounting bolts and nuts. It is available in steel or stainless steel.

Certified venting capacity — 52,500 CHF @ 5 PSI

Releases at not more than 250 degrees F



FUSIBLE PLUG

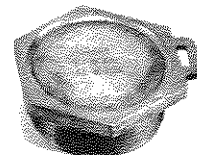
Aluminum — 2131

Brass — 2132

The Fusible Plugs are made of aluminum or brass — 2" — with male threads.

Certified venting capacity — 52,500 CHF @ 5 PSI

Releases at not more than 250 degrees F.



FUSIBLE PLUG

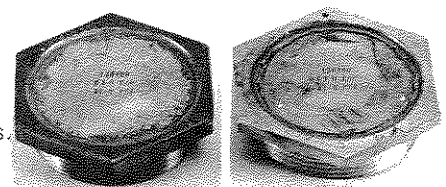
Aluminum — 2133

Brass — 2134

This Fusible Plug is available in either aluminum or brass. It is 3" with male threads.

Certified venting capacity — 130,400 CHF @ 5 PSI

Releases at not more than 250 degrees F.





LN 16" VAPOR RECOVERY MANHOLE

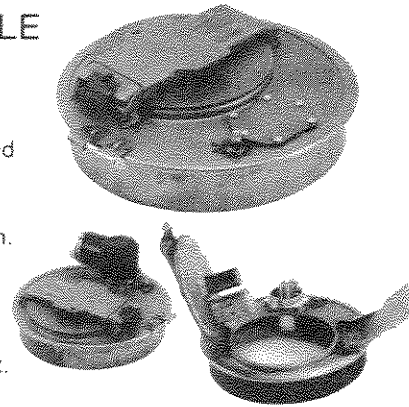
The KNAPPCO LN 16" Manhole with 10" Pressure Relieving Fill Cover is furnished with the VE 0005 Vent as standard.

Rated emergency venting capacity — 172,077 CFH @ 5 PSI.

The Manhole is made of steel, with weld rings available in either steel or aluminum. With the addition of KNAPPCO'S VE 0002 Vent — air operated vapor recovery vent — this unit is ideally suited for bottom loading and vapor recovery.

Fusible plugs are available for additional emergency venting requirements.

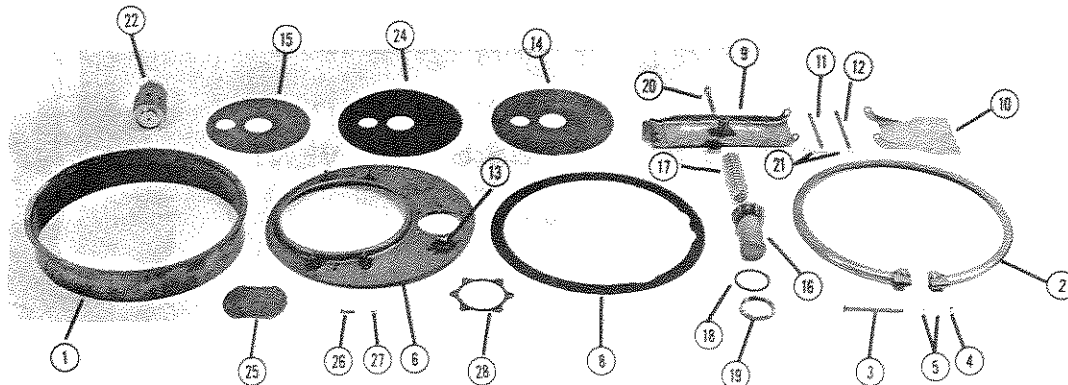
Optional: Sensor hole up to 2-7/16" for liquid level switch is available on request.



OVERALL HEIGHT: 5 3/4" (Approximately)

AVERAGE SHIPPING WEIGHT: 35 pounds

MODEL		COVER MATERIAL		WELD RING 16" ID		GASKET		VENT	
TYPE	CODE	CONTACT PARTS	EXTERNAL PARTS	CODE	MATERIAL	CODE	MATERIAL	CODE	TYPE
LN	1	Steel	Steel	1	Steel	1	Black Buna N	0	No Fusible
	2	Plated	Plated	2	Aluminum			1	One Fusible
								2	Two Fusibles



LN 16" VAPOR RECOVERY MANHOLE

REFERRALS	DESCRIPTION	STEEL	ALUMINUM	PLATED	304 SS	316 SS	OTHER
1	Weld Ring	1089	1090				
2	Ring, Clamp	1107		1108			
3	Bolt, Clamp Ring			1110			
4	Nut, Clamp Ring			1114			
5	Washer				1113		
6	Cover Assembly	1235		3759			
7	Cover Assembly Fuse	1258	NOT SHOWN				
8	Gasket, Cover						1106
9	Strongback Assembly	1236		3746			
10	Latch	1575		2472			
11	Pin, Hinge	2657		2658			
12	Pin, Latch	1640		3721			
13	Plug, Pipe	1237					
14	Cover, Fill	3495		3757			
15	Retainer, Gasket	3496		3758			
16	Tube, Spring	1238		1255			
17	Spring			3866			
18	Gasket, Spring Tube						1199
19	Nut, Spring Tube			1200			
20	Bolt, Spring Tube			1233			
21	Pin, Cotter			1045			
22	VE 0005 Vent Assembly		VE 0005				
23	VE 0002 Vent Assembly	NOT SHOWN	VE 0002				
24	Gasket, Fill Cover						3429
25	Plate	1232		1254			
26	Bolt, Hex			1228			
27	Nut, Hex			1059			
28	Gasket, Plate						1230

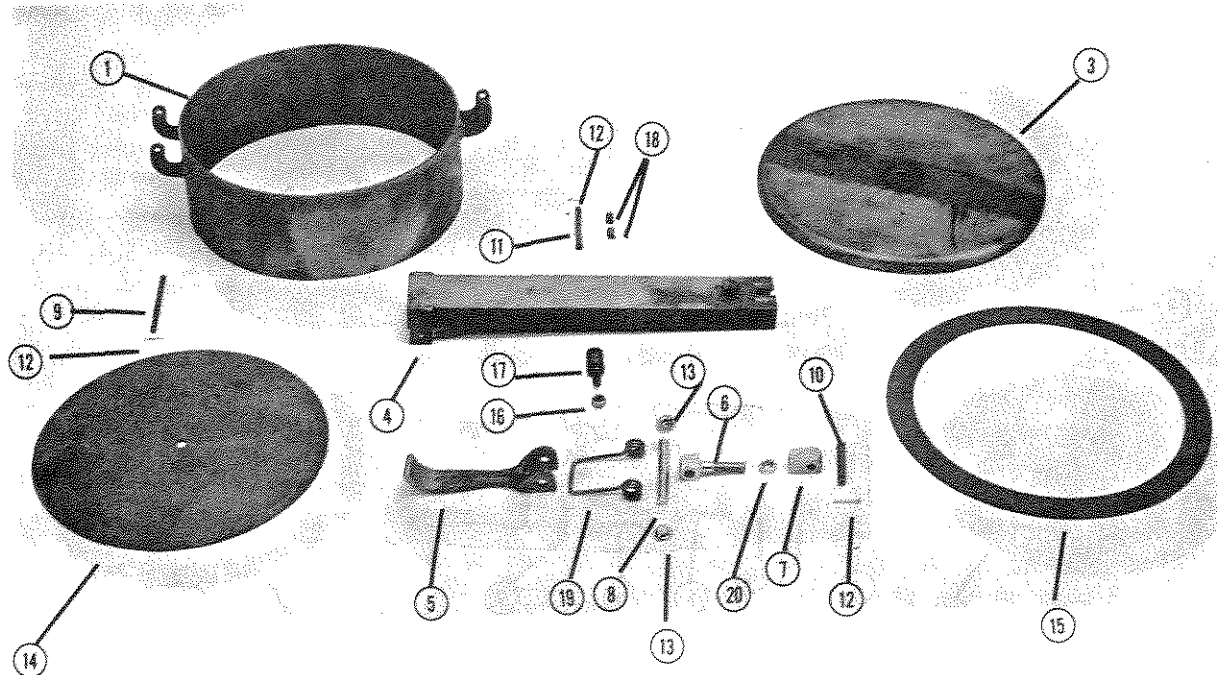


KH 16" MANHOLE — HOT PRODUCTS

OVERALL HEIGHT: 4 3/8" (3" weld ring)

AVERAGE SHIPPING WEIGHT: 27 pounds

MODEL		COVER MATERIAL		WELD RING 16" ID		GASKET		VENT	
TYPE	CODE	CONTACT PARTS	EXTERNAL PARTS	CODE	MATERIAL	CODE	MATERIAL	CODE	TYPE
KH	1	Steel 3/16	Steel	1	3" Steel 3/16	1	Hi-Temp	0	No Vent
	2	Aluminum	Plated	2	3" Aluminum 3/16				
				3	6" Steel 3/16				
				4	6" Aluminum 3/16				



REFERRALS	DESCRIPTION	STEEL	ALUMINUM	PLATED	304 SS	316 SS	OTHER
1	Weld Ring Assembly 6"	1570	1574				
2	Weld Ring Assembly 3"	1571	1572				
3	Cover	1555	3384				
4	Strongback Assembly	1554		2476			
5	Lever, Cam	1013		1041			
6	Stud, Clamp			1011			
7	Connector			1562			
8	Pin, Pivot	1018		1046			
9	Pin, Hinge	1563		3921			
10	Pin, Connector	1564		3922			
11	Pin, Center	1565		3923			
12	Pin, Cotter (3)			1045			
13	Nut, Pal			1020			
14	Retainer, Gasket	3074	3381				
15	Gasket, Hi-Temp						1560
16	Nut, Hex			3077	3879		
17	Post, Center	3075			3924		
18	Spacer, SS (2)				3076		
19	Safety Catch	1019		1048			
20	Nut, Jam			1016			

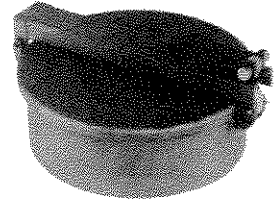


LU 20'' MANHOLE — HOT PRODUCTS

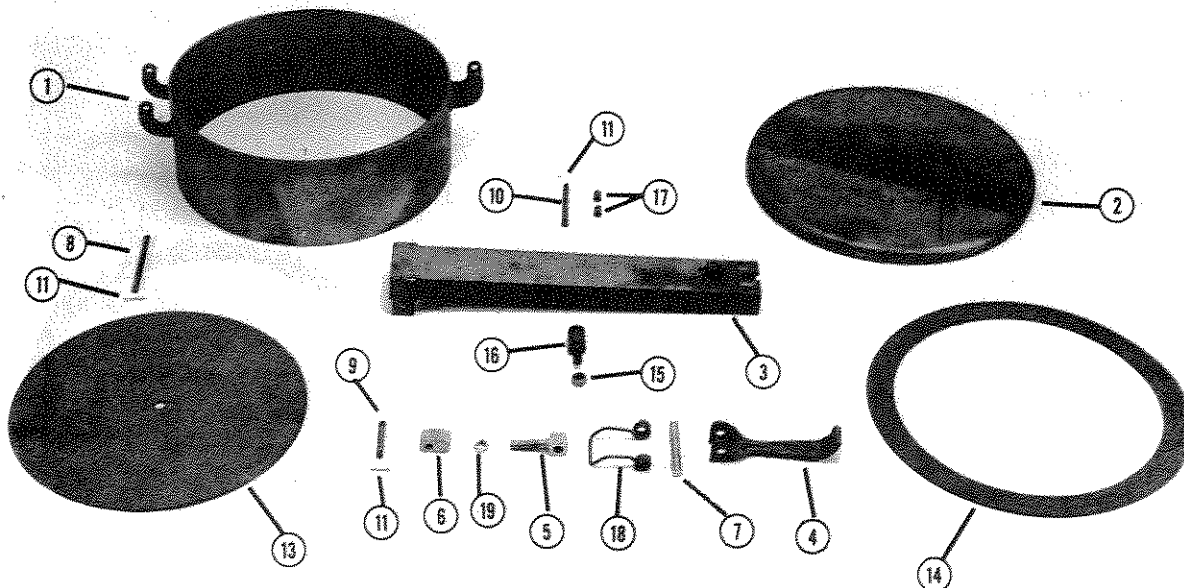
Its primary use is for asphalt or other hot products. The cover is available in all steel or aluminum with plated steel external parts. A Hi-Temp gasket with a one piece gasket retainer is standard.

The unit may be ordered with either a 3'' or 6'' high weld ring. A channel type strongback exerts pressure on the center of the cover for even sealing and a single cam lever provides easy opening.

The newly designed safety catch helps protect the operator from sudden opening of the cover caused by internal tank pressure.



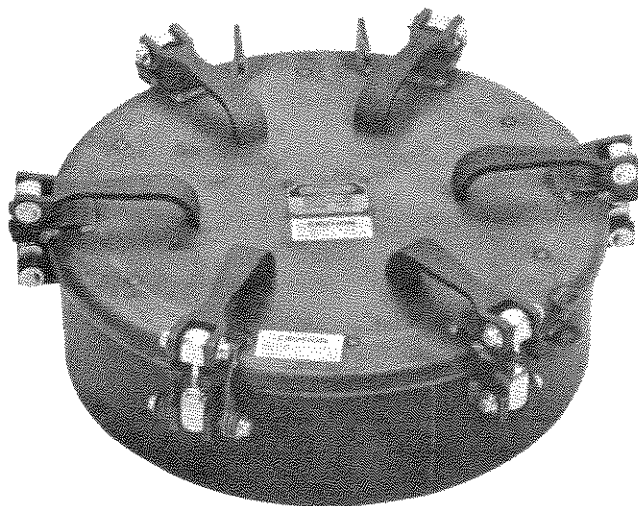
MODEL		COVER MATERIAL		WELD RING 20'' ID		GASKET		VENT	
TYPE	CODE	CONTACT PARTS	EXTERNAL PARTS	CODE	MATERIAL	CODE	MATERIAL	CODE	TYPE
LU	1	Steel	Steel	1	Steel 6 x 3/16	1	Hi-Temp	0	None



LU 1110 — 20''

REFERRALS	DESCRIPTION	STEEL	ALUMINUM	PLATED	304 SS	316 SS	OTHER
1	Weld Ring Assembly — 6''	3939					
2	Cover	3940					
3	Strongback Assembly	3942					
4	Lever, Cam	1013					
5	Stud, Clamp			1011			
6	Connector			1562			
7	Pin, Pivot	1018					
8	Pin, Hinge	1563					
9	Pin, Connector	1564					
10	Pin, Center	1565					
11	Pin, Cotter (3)			1045			
12	Nut, Pin (2) NOT SHOWN			1020			
13	Retainer, Gasket	3941					
14	Gasket, Hi-temp						2726
15	Nut, Hex	3077					
16	Post, Center	3075					
17	Spacer, SS (2)				3076		
18	Catch, Safety	1019					
19	Nut, Jam			1016			
20	Gasket, Center Post NOT SHOWN						3944

KS 20" FULL OPENING PRESSURE MANHOLE

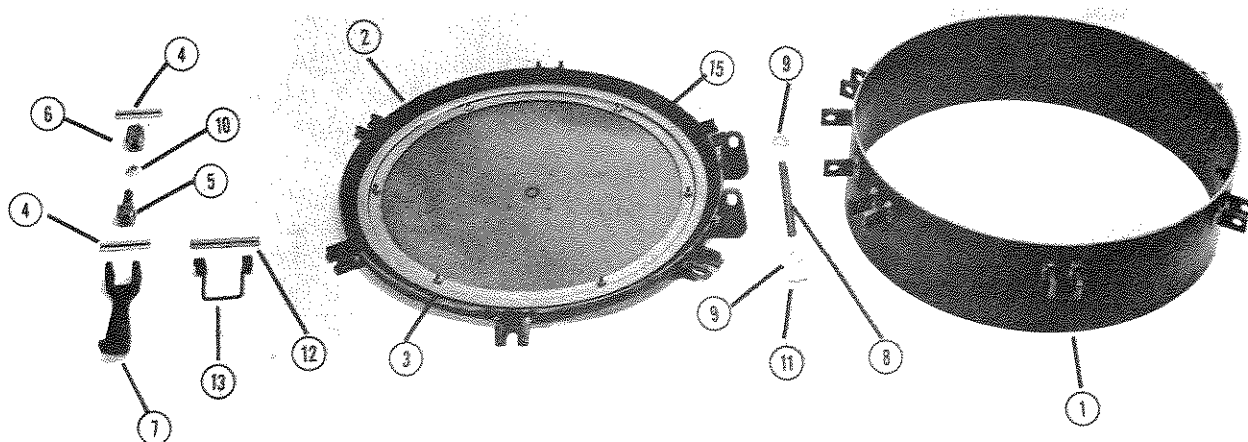


OVERALL HEIGHT: 7-7/16"

4 1/2" ABOVE CAM BRACKET

AVERAGE SHIPPING WEIGHT: 52 pounds

MODEL		COVER MATERIAL		WELD RING 20" ID		GASKET		VENT	
TYPE	CODE	CONTACT PARTS	EXTERNAL PARTS	CODE	MATERIAL	CODE	MATERIAL	CODE	TYPE
KS	1	Steel	Steel	1	Steel 6" x 3/16	1	Buna N	0	No Vent
	2	SS 304	Plated	2	SS 304 6" x 3/16				
	3	SS 316	Plated	3	SS 316 6" x 3/16				
	4	SS 304	SS						



REFERRALS	DESCRIPTION	STEEL	ALUMINUM	PLATED	304 SS	316 SS	OTHER
1	Weld Ring 6"	1006			1008	1009	
2	Cover Assembly	1001			1004	1005	
3	Retainer, Gasket	1027			1054	1068	
4	Pin, Pivot (11)	1010		1038	1438		
5	Stud, Clamp (6)			1011	1077		
6	Connector (6)			1012	1078		
7	Lever, Cam (6)	1013		1041	1079		
8	Pin, Hinge	1014		1042	1080		
9	Washer (2)			1043	2618		
10	Nut, Jam (6)			1016	1082		
11	Pin, Cotter			1045	1083		
12	Pin, Safety Pivot (1)	1018		1046	1084		
13	Catch, Safety	1019		1048	1085		
14	Nut, Pal (12)			1020			
15	Gasket, Black Buna N						1026

LM 20" FULL OPENING MANHOLE

KNAPPCO'S engineering has greatly improved the LM 20" Manhole cover, which now offers new safety features and easy cleaning.

The new unit, of high strength cast aluminum alloy, has a self retaining $\frac{3}{8}$ " thick gasket which eliminates the need for a retainer and screws. It has a more secure safety catch and positive lock adjustable cams.

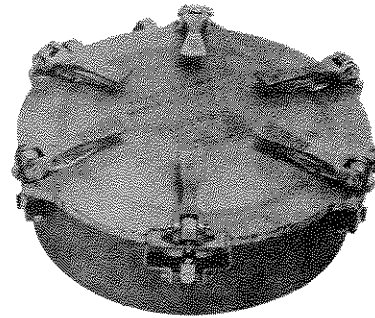
Safety instructions, cast into the cover, and the new safety catch will help protect the operator.

The KNAPPCO LM 20" Manhole is full opening to 180 degrees and can be used on pressurized and non-pressurized tanks.

A 6" high weld ring is standard and is available in steel, aluminum or stainless steel.

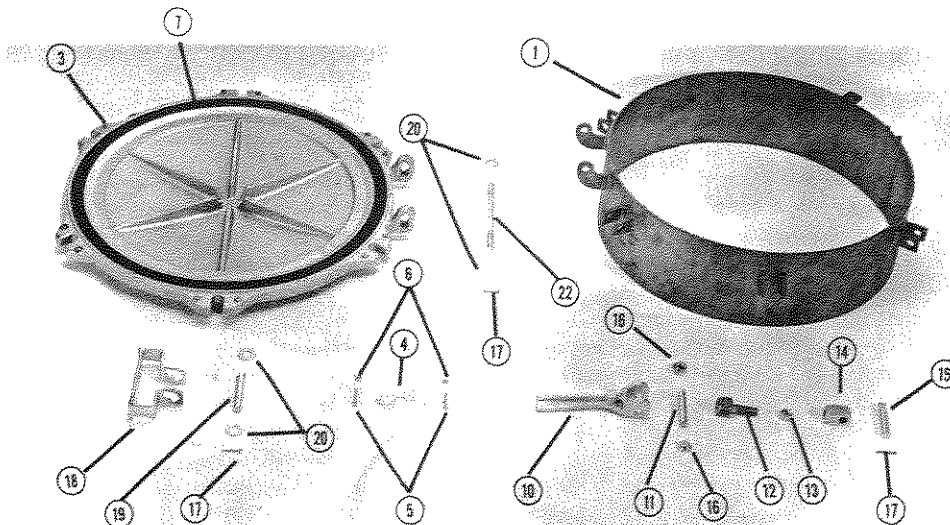
The KNAPPCO Bulker can be used for either dry or liquid loads.

This unit is rated at 25 PSI (MAWP)



OVERALL HEIGHT: 8 $\frac{3}{4}$ " (Approximately) 4 $\frac{1}{2}$ " above cam bracket AVERAGE SHIPPING WEIGHT: 55 pounds

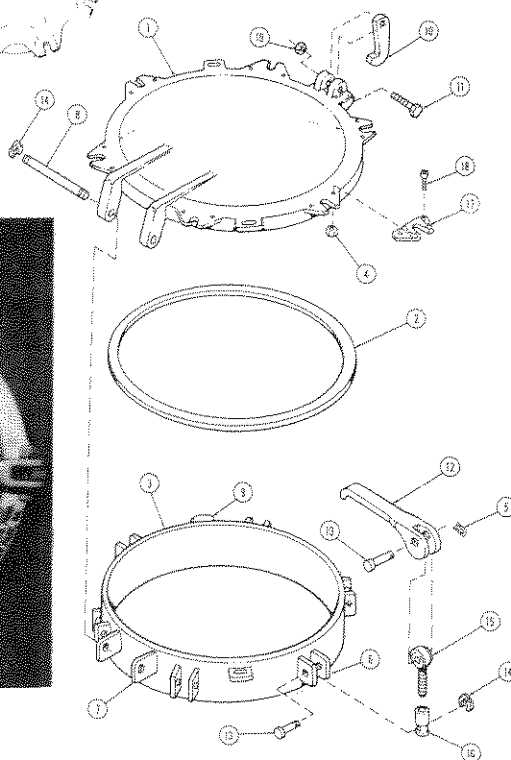
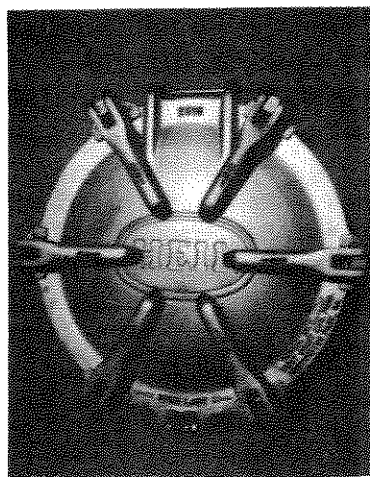
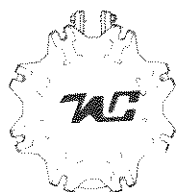
MODEL		COVER MATERIAL		WELD RING 20" ID		GASKET		VENT	
TYPE	CODE	CONTACT PARTS	EXTERNAL PARTS	CODE	MATERIAL	CODE	MATERIAL	CODE	TYPE
LM	1	Aluminum	Plated	1	Aluminum 1/4"x6"	1	Black Buna N	0	No Vent
	2	Aluminum	Stainless Steel	2	Steel 3/16"x6"	2	White Neoprene		
				3	304 SS 3/16"x6"				



REFERRALS	DESCRIPTION	STEEL	ALUMINUM	PLATED	304 SS	316 SS	OTHER
1	Weld Ring	3512	3467		3511		
2	Kit, Cover Assembly NOT SHOWN			3580	3581		
3	Cover Assembly		3539				
4	Plate, Wear				2592		
5	Screws, SS, 10-32x1 (10)				3545		
6	Nuts, SS, 10-32 (12)				3544		
7	Gasket, Black Buna N						3395
8	Gasket, White Neoprene	NOT SHOWN					3523
9	Kit, Cam Assembly	NOT SHOWN		3519	3520		
10	Lever, Cam (6)			1383	3508		
11	Pin, Pivot (6)			1038	1438		
12	Stud, Clamp (6)			3439	3700		
13	Nut, Jam (6)			1016	1082		
14	Connector (6)			3440	3701		
15	Pin, Pivot - Lower (5)	(STEEL & SS ONLY)		1437	1438		
15	Pin, Pivot - Lower (5)	(ALUMINUM ONLY)		1436			
16	Nut, Pal (12)			1020			
17	Pin, Cotter (7)			1045	1083		
18	Catch, Safety	(ALUMINUM ONLY)		3677			
18	Catch, Safety	(STEEL & SS ONLY)		3686	3513		
19	Pin, Safety Catch	(ALUMINUM ONLY)		3670			
19	Pin, Safety Catch	(STEEL & SS ONLY)		1436	1435		
20	Washer (4)			1043	2618		
22	Pin, Hinge			1382	3237		
23	Screw - 10-32x3/4 (2)	NOT SHOWN (SAFETY CATCH)			3524		

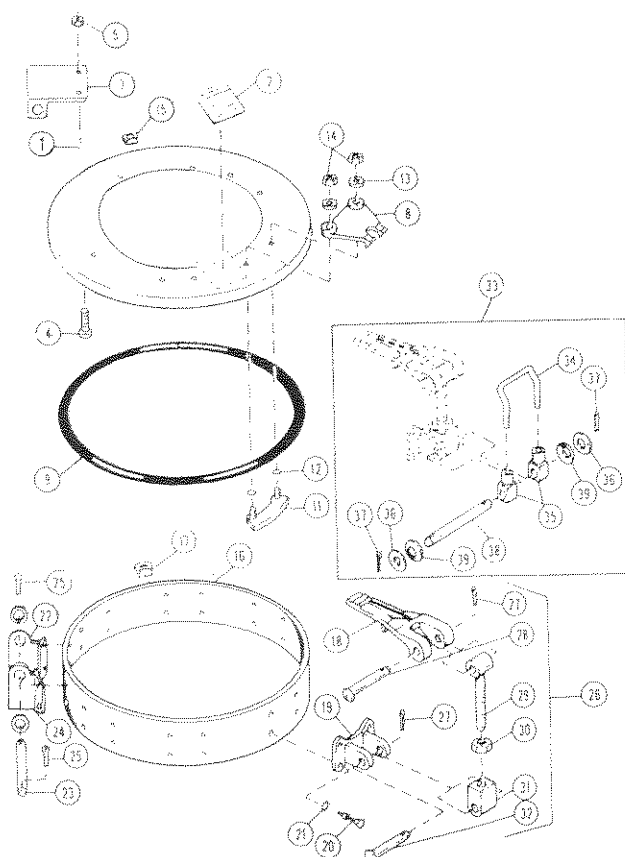
WEST COAST ENGINEERED PRODUCTS CO.

DRY BULKER ALUMINUM 20" DOME "HEIL" STYLE



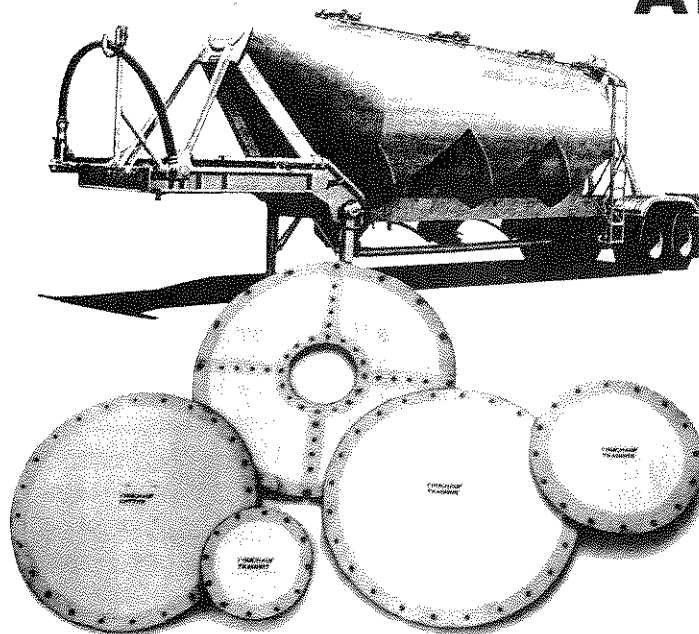
REF.	PART NO.	DESCRIPTION	QTY PER ASSY
	2016-2-P-C-04-2-AL-1-B	Manhole Assembly	
1	2016-AC	Cover	1
2	134-BN	Gasket, Blk.	1
3	2016-AR	Weld Ring	1
4	N/A	10-32 Nut	12
5	829	Hitch Pin Clip	6
6	828-A	Neck Ear	12
7	508-A	Hinge Ear	2
8	509-P	Hinge Pin	1
9	N/A	Seal Clip	2
10	131-1	Safety Latch	1
11	141	Latch Bolt	1
12	821	Cam	6
13	822	Clevis Pin	12
14	825	Retaining Ring	8
15	824	Adjusting Bolt	6
16	823	Adjusting Nut	6
17	826	Wear Plate	6
18	N/A	10-32 Screw	12
19	N/A	3/8-16 Nut	1
	134-BN-W	Gasket, WH.	1

BUTLER MANHOLE PARTS



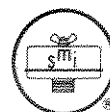
REF.	#	P/N	DESCRIPTION
	3	BT902370	Butler Upper Hinge Plate
	4	BT096905	Butler 3/8 x 1 Capscrew
	7	BT319697	Butler Capscrew-O-Ring
	8	BT070094	Butler Hold Down Lug
	9A	BT070099	Butler Manhole Gasket, White
	9B	BT901603	Butler Manhole Gasket, Black
	11	BT901546	Butler Gasket Retaining Lug
	12	BT319665	Butler Retaining Lug O-Ring
	13	BT096687	Butler SS Shakeproof Washer
	14	BT096696	Butler SS 3/8 Hex Nut
	15	BT381977	Butler Seal Clip-Cover
	17	BT381576	Butler Seal Clip-Collar
	18	BT070096	Butler Cam-Lever
	19	BT070465	Butler Pivot Block Bracket
	22	BT381571	Butler Left Hand Hinge Brkt.
	23	BT384282	Butler 1/2 x 5 Hinge Pin
	24	BT381572	Butler Right Hand Hinge Brkt.
	25	BT096242	Butler 1/8 x 3/4 Cotter Pin
	26	BT315294	Butler Service Kit (27-32)
	33	BT384280	Butler Safety Latch Kit (34-39)

AERATION PADS



Membrane of woven polyester is ideally suited as a fluidizing medium in fluidized bed conveyors or as aeration pads for fluidizing fine particles in storage tanks, rail cars or tank trailers. Low pressure air pumped through membrane will fluidize cement, sugar, salt, alumina, flour, dry pigments, pharmaceuticals and other dry chemicals.

MP-AP13	Aeration Pad, Polyester, 3/16 x 13"
MP-AP1958	Aeration Pad, Polyester, 3/16 x 19-5/8"
MP-AP30	Aeration Pad, Polyester, 3/16 x 30"
MP-AP30316	Aeration Pad, Polyester, 3/16 x 30-3/16"



SOLBERG MFG., INC. NEW INLINE FILTER FOR TRUCK BLOWER APPLICATIONS



This filter is designed primarily for the trucking industry which has to scrap entire \$40,000 shipments because of product contamination due to an inadequate air filter. Four inherent problems with filters have been eliminated and are illustrated at left.

1. Filter housing and element parts available in stainless steel to prevent rust contamination. Connections offered in 3" tubing (4" pending). You can get it in mild steel and epoxy painted if you like.
2. Element made to withstand temperatures up to 400°F. It is a cloth material rated 98% efficient @10 micron.
3. Unit has quick release, "V" Band Clamp for easy maintenance and "no excuses" for not changing dirty elements. Filter is rated to 14.9 PSI.
4. The filters' safety feature insures for proper installation of the top cover before securing "V" Band Clamp and protects against mishaps.

Can you afford to lose a \$40,000 shipment because of bad filtration?

DRY BULK EQUIPMENT

☒ CALL LYNN FOR . . .

☐ AERATION

Hose 1", 1½", 2"
Pads Polyester
Parts Polar Mfg.

☐ COUPLINGS

Allegheny Alum., Stl., S/S
Ever-Tite Quick Couplers
Midbrook Quick-On, Bolted
Rubber Sleeve 3½", 4½", 5½"
Victaulic Alum., Stl.

☐ DOMES & PARTS

Betts Tiona 20" Alum, Stl, S/S
Butler 20" Alum, Stl
Knappco 20" Alum, Stl
West Coast 20" Alum

☐ FILTERS

Bags Large, Small
Inline Air S/S, Steel

☐ FLANGES

Allegheny Alum, Stl, S/S
Valve Prod.Vlvs - Alum

☐ GASKETS

Black Rubber Most Couplings
White Rubber Most Couplings

☐ GAUGES

Flange Case 4½"
Plain Case 4¼"

☐ HOSE

Product Rubber, S/S, PVC
Hot Air Rubber, Stainless
Aeration Rubber
Sleeve Rubber - Pipe Size

☐ LIGHTING

Betts Lamps Stop, Tail, Marker
Reflectors Red, Amber

☐ TEES - Product Valve

Flanged x Straight
Flanged x Grooved
Flanged x Flanged
Drop Bottom & Parts

☐ VALVES & PARTS

Keystone Product
Knappco Check
Kunkle Relief
Milwaukee Check, Product, Relief
Techno-Check Check
Ultraflow Product

VALVE REPAIR

SAVE TIME!! SAVE MONEY!!

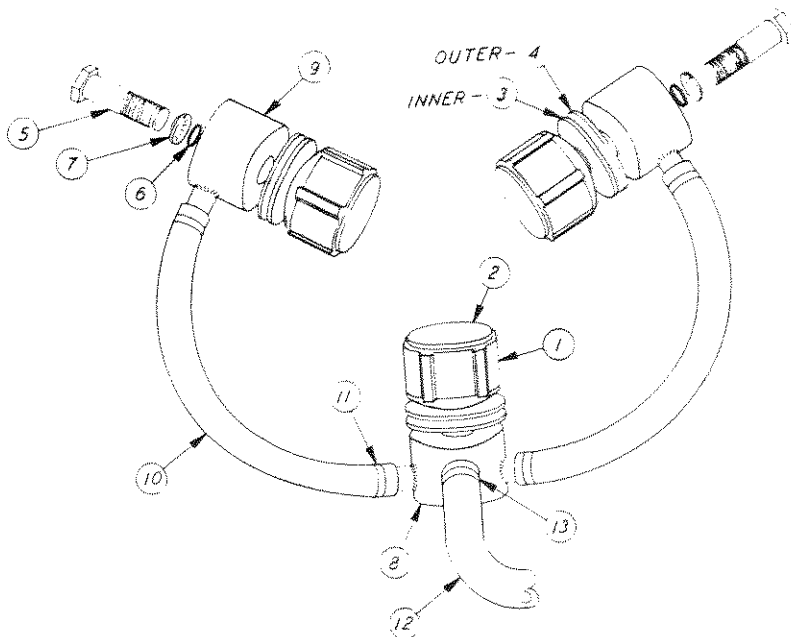
YOU SAVE BOTH WAYS
WITH LYNN INDUSTRIES

Let us recondition your valves
using GENUINE factory parts

CONTACT CUSTOMER SERVICE

800 - 633 - 2948

POLAR AERATION



PART	PART NO.
1 Rubber Aeration Cylinder	PT031515
2 Cylinder Body	PT031514
3 Gasket, Aerator Housing	PT031513
4 Gasket, Aerator Manifold	PT031512
5 3/8"-16 x 2" Long Z.P. Bolt	PT022205
6 3/8" Neoprene O-Ring	PT030558
7 3/8" Spring Washer S.S.	PT022208
8 Aerator Manifold, 3 Port	PT031516
9 Aerator Manifold, 1 Port	PT031511
10 1' Hose x 18" Long	PT030385
11 Hose Clamp S.S.	PT030711
12 2" Hose x 24' Long	PT030365
13 Hose Clamp S.S.	PT031461
5 3/8" x 16 x 2½" Bolt	PT021530

NOTE:

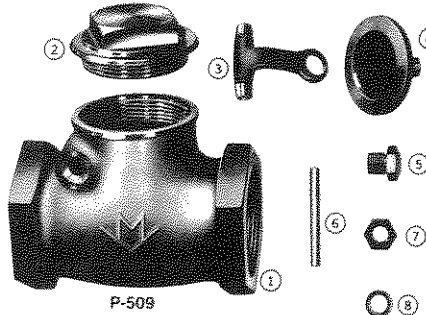
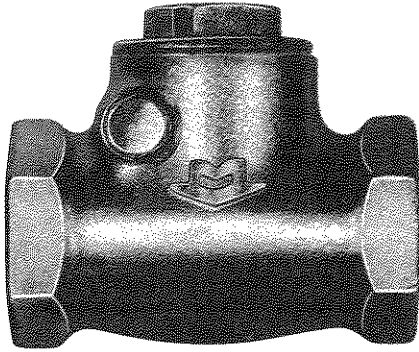
1. Use caution when tightening item 5, excessive tightness may crack casting.
2. Make sure to install item 2 with top mark up so curvature fits hopper.

MILWAUKEE VALVE COMPANY

CHECK P-509, P-509S

BRONZE — HORIZONTAL SWING

Tank • Dry Bulk Trucks • Bronze Disc Threaded Cap • Threaded Ends



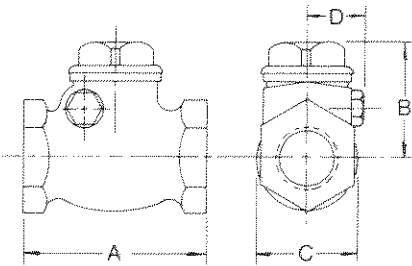
REPAIR PARTS LIST

P-509 Only

P-509S

NO.	DESCRIPTION	SIZE-INCHES/PART NUMBER									
		1/4	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	
1	Body	1516-B	1516-C	1516-D	1516-E	1516-F	1516-G	1516-H	1516-J	1516-K	1516-L
2	Cap	4046-D	4046-E	4046-F	4046-G	4046-H	4046-I	4046-J	4046-K	4046-L	
3	Lever	4405-B	4405-C	4405-D	4405-E	4405-F	4405-G	4405-H	4405-I	4405-J	4405-K
4	Bronze Disc	3892-D	3892-E	3892-F	3892-G	3892-H	3892-I	3892-J	3892-K	3892-L	
5	Plug	4210-B	4210-C	4210-D	4210-E	4210-F	4210-G	4210-H	4210-I	4210-J	4210-K
6	Pin	598-G	598-H	598-I	598-J	598-K	598-L	598-M	598-N	598-O	598-P
7	Disc Retainer	52109-28	52109-29	52109-30	52109-31	52109-32	52109-33	52109-34	52109-35	52109-36	52109-37
8	Washer	...	...	...	...	...	...	...	...	...	...
9	Disc Assembly	84109-D	84109-E	84109-F	84109-G	84109-H	84109-I	84109-J	84109-K	84109-L	84109-M

*Disc Assembly No. 9 includes Part Nos. 3, 4, 7, 8



DIMENSIONS-INCHES

SIZE	A	B	C	D
1/4	2 1/8	1 1/2	1 1/8	2 1/32
1/2	2 1/8	1 1/2	1	2 1/32
3/4	2 1/8	1 1/2	1 1/8	2 1/32
1	2 1/8	1 1/2	1 1/8	2 1/32
1 1/4	3 1/8	2	1 1/8	2 1/32
1 1/2	3 1/8	2 1/8	2 1/8	1 1/8
2	4 1/8	2 3/8	3	1 1/8
2 1/2	6 1/8	3 1/8	4	1 1/8
3	6 1/8	4 1/8	4 1/8	1 1/8

P-509S Only

NO.	DESCRIPTION	SIZE-INCHES/PART NUMBER									
		1/4	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	
1	Body	1516-B	1516-C	1516-D	1516-E	1516-F	1516-G	1516-H	1516-J	...	...
2	Cap	4046-D	4046-E	4046-F	4046-G	4046-H	4046-I	4046-J	4046-K	...	...
3	Lever	4416-B	4416-C	4416-D	4416-E	4416-F	4416-G	4416-H	4416-I	...	...
4	Disc Holder	3931-D	3931-E	3931-F	3931-G	3931-H	3931-I	3931-J	3931-K	...	...
5	Plug	4210-B	4210-C	4210-D	4210-E	4210-F	4210-G	4210-H	4210-I	...	...
6	Pin	598-G	598-H	598-I	598-J	598-K	598-L	598-M	598-N	...	...
7	Disc Retainer	52109-28	52109-29	52109-30	52109-31	52109-32	52109-33	52109-34	52109-35	...	...
8	Disc Nut	3015-B	3015-C	3015-D	3015-E	3015-F	3015-G	3015-H	3015-I	...	...
9	Composition Disc	3837-D	3837-E	3837-F	3837-G	3837-H	3837-I	3837-J	3837-K	...	...
*10	Disc Assembly	84110-D	84110-E	84110-F	84110-G	84110-H	84110-I	84110-J	84110-K	...	...

*Disc Assembly No. 10 includes Part Nos. 3, 4, 7, 8, 9

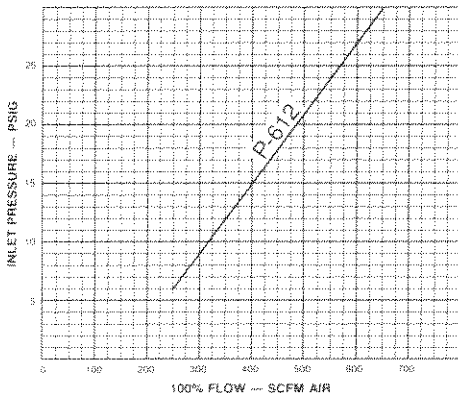
RELIEF VALVE P-612

ALUMINUM

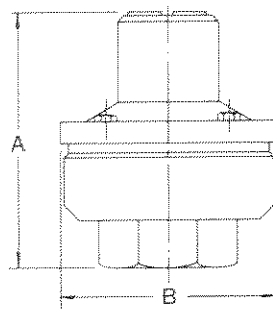
Bulk Tank Trucks •
Pneumatic Conveyor Systems
Railroad Dry Bulk Tanks •
NPT Threaded Inlet
Expanded-In Stainless Steel
Seat Ring



(PATENTED)



Valve specifically designed for over-the-road tank protection as well as a variety of industrial applications. Standard relieving pressure, 15 lbs. Other factory settings from 10 to 30 lbs. Aluminum body and cap with a stainless steel disc and viton diaphragm for maximum life. A seal wire coupled with seating design provides a tamper-proof valve. The diaphragm design eliminates product contact with spring, guide and stem assembly thus reducing maintenance cost. When valve relieves, outlet flow design permits seat to be self-cleaned. Specify if valve is to be mounted on tank or blower.



DIMENSIONS-INCHES

SIZE	A	B
2	5 1/2	4 1/8

TEMPERATURE RANGE

MINIMUM	MAXIMUM
-20°F	+400°F

REPAIR PARTS LIST

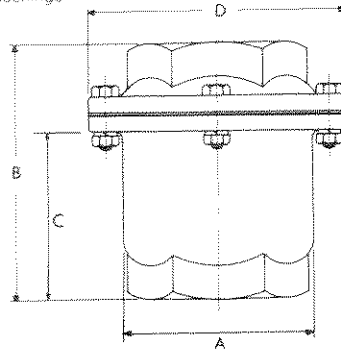
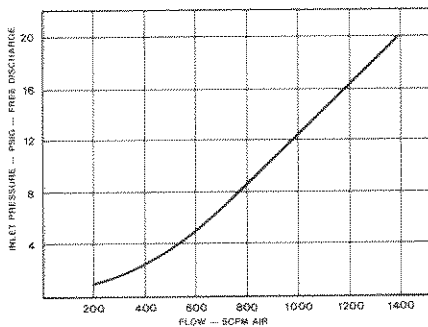
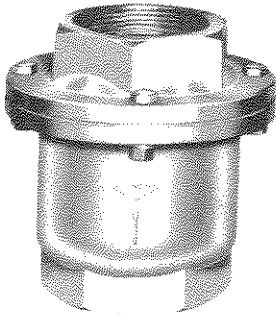
NO.	DESCRIPTION	MATERIAL	PART NO.
1	Body	Cast Alum-356-T6	1632-J
2	Cap	Cast Alum-356-T6	40282-J
3	Guide Disc	Rod Alum-6262-T9	38241-J
4	Guide Stem	St. Steel-302	3774-J
5	Valve Disc	St. Steel-416	38240-J
6	Disc Nut	St. Steel-416	31131-B
7	Cap Screw	St. Steel-416	4288-D
8	Seat Ring	St. Steel-302	51180-J
9	Guide Post	Rod Alum-6262-T6	3775-J
10	Seal Wire	Stl Wire-Cad. Plated	7967-J
11	Diaphragm	Viton-A-50-60 Duro	5323-J
12	Wire Cap	St. Steel-302	7991-B
13	Washer 14-19 lbs.	St. Steel-304	38242-J
14	Spring 14-19 lbs.	Stl Wire-Cad. Plated	70181-15
13A	Washer 14-19 lbs.	St. Steel-304	38253-J
14A	Spring 20-25 lbs.	Stl Wire-Cad. Plated	70181-21

MILWAUKEE VALVE COMPANY

LIFT CHECK P-728, P-728-1 ALUMINUM

Dry Bulk Transports • Tank Trucks •
125 psi WOG† @ 100°F 25 psi @ 350°F •
Spring Loaded Composition Disc
Threaded Ends

Vibration-proof disc construction. Viton-A* renewable disc assures tight close at high temperature operation. Stainless poppet stem and disc retainer, guided top and bottom in friction free bushings.



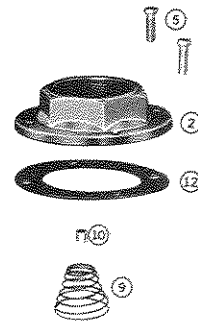
P-728-1

Same as P-728 but not spring loaded

DIMENSIONS-INCHES				
SIZE	A	B	C	D
3	5	6 3/4	4 1/4	6 3/4

†Non-Shock

*Registered E. I. DuPont Trademark



REPAIR PARTS LIST

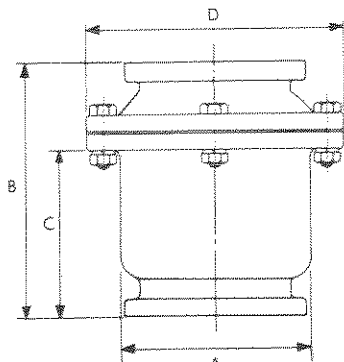
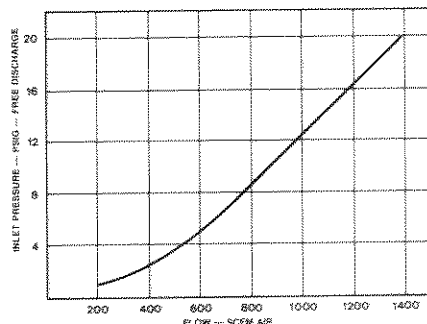
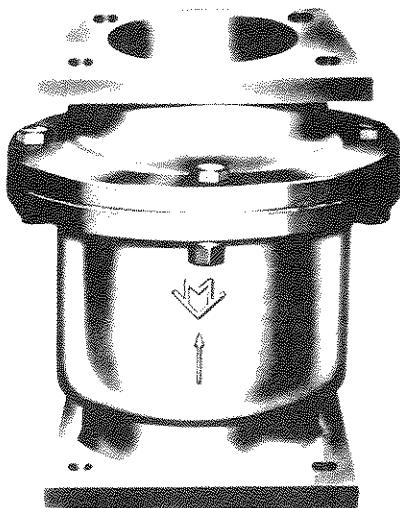
NO.	DESCRIPTION	PART NO.
1	Body	1539-L
2	Top	40260-L
3	Disc Guide	84284-L
4	Pinch Washer	38220-L
5	Cap Screw (4 req.)	4256-M
6	Hex Nut (4 req.)	3198-C
7	Lock Washer (4 req.)	38084-C
8	Lock Nut	31139-H
9	Spring	70163-L
10	Bearing	4165-L
11	Seat Disc	38180-L
12	Gasket	66146-L
13	Disc Assembly Complete	84258-L

P-728-1

Same as P-728 but not spring loaded

LIFT CHECK P-729, P-729-1 ALUMINUM

Dry Bulk Transports • Tank Trucks •
125 psi WOG† @ 100°F 25 psi @ 350°F •
Spring Loaded Composition Disc Flanged Ends



P-729-1

Same as P-729 but not spring loaded

P-728

Threaded version

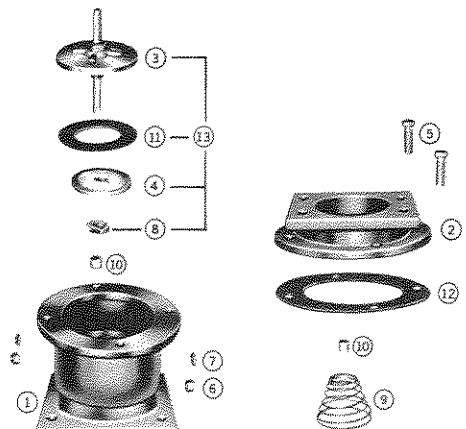
DIMENSIONS-INCHES				
SIZE	A	B	C	D
3	5	6 3/4	4 1/4	6 3/4

FLANGE SPECIFICATIONS-INCHES

SIZE	FLANGE	B.C. DIA.	B.H. DIA.
3	4 1/2 Sq	5	7 1/2

†Non-Shock

*Registered E. I. DuPont Trademark



REPAIR PARTS LIST

NO.	DESCRIPTION	PART NO.
1	Body	1545-L
2	Top	40266-L
3	Disc Guide	84284-L
4	Pinch Washer	38220-L
5	Cap Screw (4 req.)	4256-M
6	Hex Nut (4 req.)	3198-C
7	Lock Washer (4 req.)	38084-C
8	Lock Nut	31139-H
9	Spring	70163-L
10	Bearing	4165-L
11	Seat Disc	38180-L
12	Gasket	66146-L
13	Disc Assembly Complete	84258-L

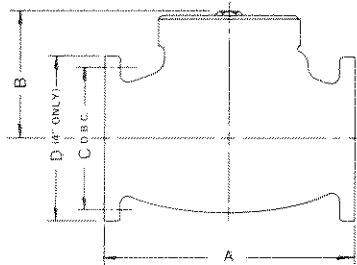
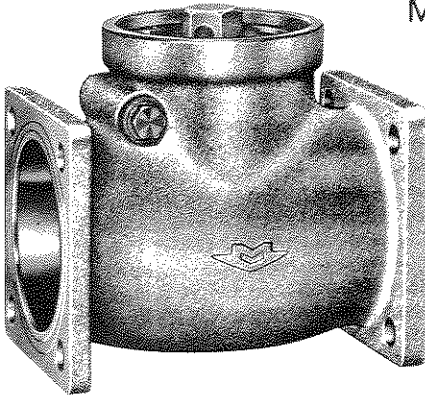
P-729-1

Same as P-729 but not spring loaded

MILWAUKEE VALVE COMPANY

SWING CHECK P-2519 ALUMINUM

Dry Bulk Transports • Tank Truck
Aluminum Disc With Teflon* O-Ring Seal
150 WOG†



A rugged multi-purpose swing check for general tank and loading rack installations. All the advantages of full flow afforded by swing check design, near silent operation, leak resistance and quick cap removal, stainless steel pin and plugs

DIMENSIONS-INCHES							
SIZE	A	B	C	D	E	F	G
3	6 7/8	4 1/8	5	—	4 3/4	4	9/16
4	9 3/8	4 9/16	5 3/8	6 3/4	—	8	1/16
DIMENSION DESCRIPTION							
C	Diameter Bolt Circle						
D	For 4" Round Flange						
E	For 3" Square Flange						
F	Number of Bolt Holes						
G	Size of Bolt Holes						

†Non-Shock

*Registered E.I. DuPont Trademark

REPAIR PARTS LIST

NO.	DESCRIPTION	MATERIAL	SIZE-INCHES/PART NUMBER	
			3	4
1	Cap	Aluminum	40290-L	40290-N
2	Plug (2 Required)	St. Steel	42124-L	42124-N
3	Pin	St. Steel	5979-L	5979-N
4	Retaining Ring	Carb. Steel	52109-362	52109-500
5	O-Ring	Buna-N	65118-043	65118-248
6	Lever Bushing	Teflon*	4171-L	4171-N
REPAIR KITS				
7	Disc-Lever Assembly (incl. Lever Bushing)		8465-L	84115-N

*Registered E.I. DuPont Trademark

ANGLE LIFT CHECK P-717F ALUMINUM

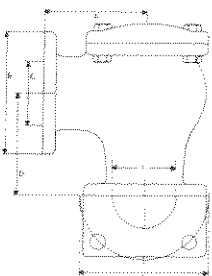
125 psi WOG at 100°F • 25 psi WOG at 350°F
Square Bolted Cap • Square Flange

Lightweight, positive closing, Viton-A* renewable disc. Stainless steel poppet stem and disc retainers. Guided top and bottom in friction free bearings.

NOTE: This valve was formerly identified by drawing number C-35417-F

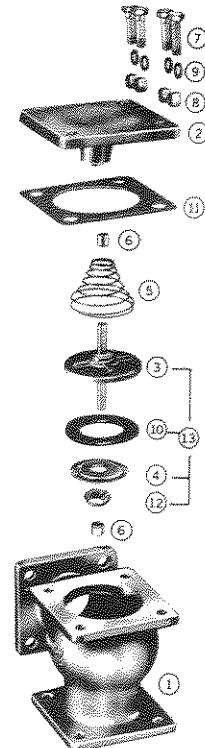
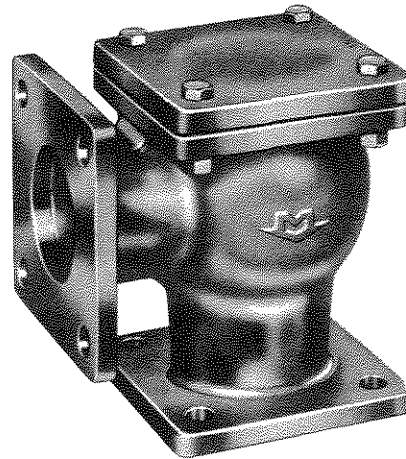
Valve must be mounted in upright position

For 2" Threaded Bronze Angle Check see P-717S



DIMENSIONS-INCHES				
SIZE	A	B	C	E
2 1/2	4	4 3/4	2 1/2	5
CAP FLANGE SPECIFICATIONS-INCHES				
SIZE	FLANGE	BOLT DIA.	NO. BOLTS	
2	4 1/4 Sq.	1/2	4	

*Registered E.I. DuPont Trademark



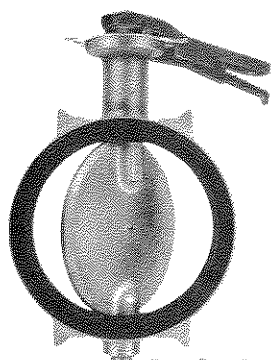
REPAIR PARTS LIST

NO.	DESCRIPTION	PART NO.
1	Body	15129-K
2	Cap	40258-K
3	Disc Guide	84284-K
4	Pinch Washer	38220-K
5	Spring	70163-K
6	Bearing	4165-L
7	Cap Screw	4256-M
8	Hex Nut	3198-C
9	Lock Washer	38084-C
10	Seat Disc	38180-K
11	Gasket	66144-K
12	Lock Nut	31139-H
13	Disc Assembly Complete	84253-K

MILWAUKEE VALVE COMPANY BUTTERFLY P-2850, 2851 SERIES ALUMINUM

Tank Trucks • Bulk Plants • Dry Bulk Plants
90° Arc • Quick Open

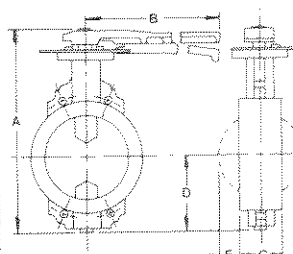
LOCATES BETWEEN A.N.S.I., T.T.M.A. AND
COMPETITIVE SPECIAL FLANGES



MODELS

P-2850-X
P-2850-H
P-2851-H
P-2851-X

These Butterfly valves of rugged lightweight aluminum are designed to accept a variety of flange fittings. They have been developed specifically for tank truck application. Models P-2850-X and P-2851-X have abrasion resistant polyurethane liners for dry bulk lines. Models P-2850-H and P-2851-H have Hydrin liners for air lines, petroleum and a wide variety of chemicals to 300°F. Model P-2850 valves have plated ductile iron discs. P-2851 valves have stainless steel discs.



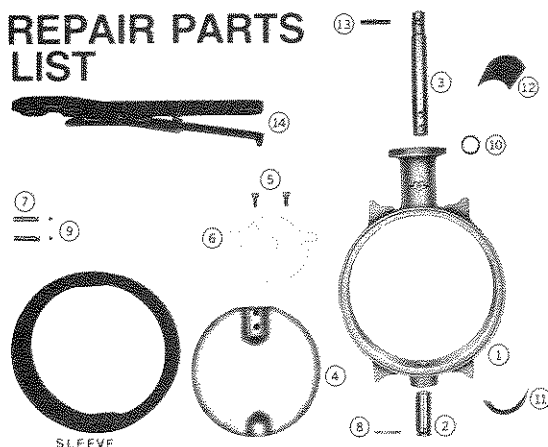
DIMENSIONS-INCHES

SIZE	A	B	C	D	E
2	7 1/2	8 1/2	1 1/2	2 1/2	1 1/2
3	8 1/2	8 1/2	1 1/2	3	1 1/2
4	9 1/2	11 1/2	2 1/2	3 1/2	1 1/2
5	11 1/2	11 1/2	2 1/2	4 1/2	1 1/2
6	12 1/2	11 1/2	2 1/2	4 1/2	2

FLANGE SPECIFICATIONS-INCHES

SIZE	A.S.A.			T.T.M.A.			COMPETITIVE		
	B.C. DIA.	BOLT DIA.	NO. BOLTS	B.C. DIA.	BOLT DIA.	NO. BOLTS	B.C. DIA.	BOLT DIA.	NO. BOLTS
2	4 1/2	3/8	4	4 1/2	3/8	4	4 1/2	3/8	4
3	6	3/8	4	6	3/8	4	6	3/8	4
4	7 1/2	3/8	6	7 1/2	3/8	6	7 1/2	3/8	6
5	8 1/2	3/8	8	8 1/2	3/8	8	8 1/2	3/8	8
6	9 1/2	3/8	8	9 1/2	3/8	8	9 1/2	3/8	8

REPAIR PARTS LIST



NO.	DESCRIPTION	SIZE-INCHES/PART NUMBER				
		2	3	4	5	6
1	Body	1727-J	1727-L	1727-N	1727-R	1727-S
2	Bottom Stem	26238-L	26238-L	26238-R	26238-R	26238-S
3	Top Stem	26239-J	26239-J	26239-N	26239-R	26239-S
4	Disc	38269-J	38269-L	38269-N	38269-R	38269-S
5	Screw, Socket HD	42136-N	42136-N	42136-N	42136-N	42136-N
6	Plate, Cover	4556-L	4556-L	4556-R	4556-R	4556-S
7	Pin, Groove	5945-L	5945-L	5945-N	5945-R	5945-S
8	Pin, Groove	5996-L	5996-L	5996-S	5996-S	5996-S
9	O-Ring	6520-002	6520-002	6520-002	6520-004	6520-004
10	O-Ring	6520-112	6520-112	6520-114	6520-114	6520-116
11	Bottom Bearing	7417-L	7417-L	7417-R	7417-R	7417-S
12	Top Bearing	7418-L	7418-L	7418-N	7418-R	7418-S
13	Spiral Pin	5959-L	5959-L	5959-N	5959-R	5959-S
14	Assembly, Lever-HNL	8445-L	8445-L	8445-R	8445-R	8445-S

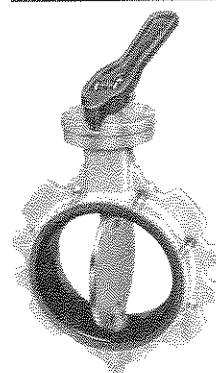
SLEEVE CHART

TRADE DESIGNATION	2	3	4	5	6
Polyurethane (Blue)	X-7929-J	X-7929-L	X-7929-N	X-7994-R	X-7994-S
Hydrin (Black)	H-7927-J	H-7927-L	H-7927-N	H-7927-R	H-7927-S

BUTTERFLY P-2860X, P-2860H ALUMINUM

Tank Trucks • Bulk Plants • Dry Bulk Plants
90° Arc • Quick Open

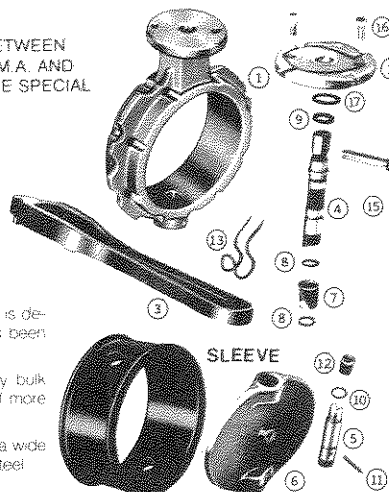
LOCATES BETWEEN
A.N.S.I., T.T.M.A. AND
COMPETITIVE SPECIAL
FLANGES



This Butterfly valve of rugged lightweight aluminum is designed to accept a variety of flange fittings. It has been developed specifically for tank truck application.

Model P-2860-X has a high abrasion seat for dry bulk applications to 200°F and provides longer life and more durability than valves having Buna type seats.

Model P-2860-H has a Hydrin liner for air lines and a wide variety of chemicals to 300°F. Discs are stainless steel.



DIMENSIONS-INCHES

SIZE	A	B	C	D	E
2	1 1/4	8 1/2	3 1/2	1 1/2	2 1/2
3	1 1/2	9 1/2	3 1/2	1 1/2	3 1/2
4	2 1/2	10 1/2	4 1/2	1 1/2	4 1/2

FLANGE SPECIFICATIONS-INCHES

SIZE	A.N.S.I. B16.24 150 lb.			T.T.M.A.			COMPETITIVE		
	B.C. DIA.	BOLT DIA.	NO. BOLTS	B.C. DIA.	BOLT DIA.	NO. BOLTS	B.C. DIA.	BOLT DIA.	NO. BOLTS
2	4 1/2	3/8	4	4 1/2	3/8	4	4 1/2	3/8	4
3	6	3/8	4	6	3/8	4	6	3/8	4
4	7 1/2	3/8	8	7 1/2	3/8	8	7 1/2	3/8	8

REPAIR PARTS LIST

NO.	DESCRIPTION	SIZE-INCHES/PART NUMBER		
		2	3	4
1	Body	1726-J	1726-L	1726-N
2	Stop Plate	45199-N	45199-N	45199-N
3	Handle	P-8449	P-8449	P-8449
4	Top Stem	26462-J	26462-N	26462-N
5	Bottom Stem	26399-J	26399-N	26399-N
6	Disc	38221-J	38194-L	38194-N
7	Top Bearing-Split	7410-N	7410-N	7410-N
8	O-Ring	6596-B	6596-B	6596-B
9	Seal	66150-N	66150-N	66150-N
10	O-Ring	6596-B	6596-B	6596-B
11	Spring Pin-Bottom	5996-N	5996-R	5996-R
12	Bottom Bearing	7411-J	7411-N	7411-N
13	Spring	70170-N	70170-N	70170-N
14	Cotter Pin	7959-D	7959-D	7959-D
15	Pin-Top	5988-N	5988-N	5988-N
16	Socket Head Screw	42136-N	42136-N	42136-N
17	Top Seal	6595-N	6595-N	6595-N

REPAIR KIT

Top Stem	8621-J	8621-N	8621-N
Bottom Stem	869-J	869-N	869-N

SLEEVE CHART

TRADE DESIGNATION	2	3	4
Polyurethane (Blue)	N/A	X-7994-L	X-7994-N
Hydrin (Black)	H-7993-J	H-7993-L	H-7993-N



3622 HB,F,RV TYPE 3

PIC USED

NO.	ON	DESCRIPTION	QTY	ORDER BY PART NUMBER
22				
1	C	WASH. HD CAP SCREW	4	G49-24
2	C	HEX HD CAP SCREW	16	G49-037100
3	C	RETAINING RING	1	G41-10
4	C	BALL BRG	1	G40-41
5	C	LUBE FITTING	1	G63-1
6	C	BACKPLATE ASSY	1	N2-403
		BRG, LONG, BRZ	1	G5-257
		BRG, SHORT, BRZ	1	G5-258
7	C	GASKET, CASE	2	D11-338
8	C	DOWEL PIN, HOLLOW	4	D48-34
9	C	LOCKNUT	2	D441-755
10	PB	CLIP, PKG GLAND	2	D42-1
11	PB	GLAND, PKG	1	P10-178
12	PB	SQ HD BOLT	2	G67-043275
13	PB	CLIP, SPRING	1	D42-2
14	PB	PKG SET	1	N43-1
15	PB	WASH., PKG	1	G8-246
16	MS	RETAINER, SEAL	1	D23-252
17	MS	SQ HD BOLT	2	G67-043125
18	MS	MECH SEAL, COMPL	1	G4-101
19	MS	RETAINING RING	1	G41-76
20	C	DRIVE SCREW	2	G62-9
21	C	NAMEPLATE	1	G12-34
22	C	PIPE PLUG	(4)	G56-12
23	C	CASE	1	NA
24	C	HEX HD CAP SCREW	8	G49-062225
25	C	FLANGE, STRAIGHT	2	P23-10
26	C	GASKET, FLANGE	2	D11-90
27	C	NUT	8	G44-062
28	C	CASE	1	P1-175
29	C	SHAFT, IDLER	1	D1-1077
30	C	KEY	3	D30-9
31	C	SHAFT, DRIVE	1	D1-1998
32	C	GEAR, LH	1	P6-278
33	C	GEAR, RH	1	P6-277
34	C	FACEPLATE, ASSY, PL	1	N3-177
		BRG, BRZ	2	G5-257
35	C	FACEPLATE ASSY, RV	1	N3-200
		BRG, BRZ	2	G5-257
36	C	POPPET	1	D16-16
37	C	ADAPTER, POPPET	1	G8-281
38	C	SPRING, STD	1	G10-355
		SPRING, HIGH PRESS.(1)	1	G10-375
39	C	GUIDE, SPRING	1	D8-348
40	C	GASKET, CAP	1	D828-41
41	C	PLUG CAP	1	P17-110
42	C	NUT, LOCK, AND SEAL	1	G43-18
43	C	SCREW, ADJ	1	G62-44
44	C	HEX HD CAP SCREW	8	G49-062225
45	C	FLANGE, STRAIGHT	2	P23-19
46	C	GASKET, FLANGE	2	D11-90
47	C	CASE, THROUGH-PORTS	1	P1-171
	C	BACKPLATE ASSY	1	
		BRG, LONG, BRZ	1	
		BRG, SHORT, BRZ	1	

N7-250 COMPL RV FACEPLATE ASSY W/STD SPRING (35 THRU 43 INCL)

N7-406 COMPL RV FACEPLATE ASSY W/HIGH PRESS. SPRING (35 THRU 43 INCL)

PIC USED

NO. ON DESCRIPTION QTY ORDER BY PART NUMBER

22

 29 C SHAFT, IDLER, SST 1 D1-1078
 31 C SHAFT, DRIVE, SST 1 D1-2027

3611-4722 HB,F,RV SPEC 5023 TYPE 3

PIC USED

NO. ON DESCRIPTION QTY ORDER BY PART NUMBER

22

 6 C BACKPLATE ASSY 1 N2-480
 BRG, LONG, CARBON 1 G5-416
 BRG, SHORT, CARBON 1 G5-415
 34 C FACEPLATE ASSY, PL 1 N3-226
 BRG, CARBON 2 G5-416
 35 C FACEPLATE ASSY, RV 1 N3-218
 BRG, CARBON 2 G5-416

N7-279 COMPL RV FACEPLATE ASSY W/STD SPRING (35 THRU 43 INCL)

N7-410 COMPL RV FACEPLATE ASSY W/HIGH PRESS. SPRING (35 THRU 43 INCL)

3611-4722 HB,F,RV SPEC 7190 TYPE 3

PIC USED

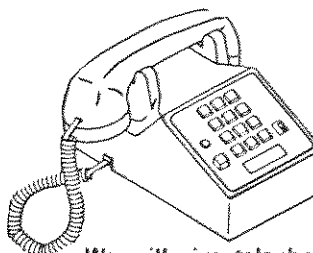
NO. ON DESCRIPTION QTY ORDER BY PART NUMBER

22

 6 C BACKPLATE ASSY 1 N2-422
 BRG, LONG, IRON 1 G5-266
 BRG, SHORT, IRON 1 G5-267
 34 C FACEPLATE ASSY, PL 1 N3-179
 BRG, IRON 2 G5-266
 35 C FACEPLATE ASSY, RV 1 N3-201
 BRG, IRON 2 G5-266

N7-252 COMPL RV FACEPLATE ASSY W/STD SPRING (35 THRU 43 INCL)

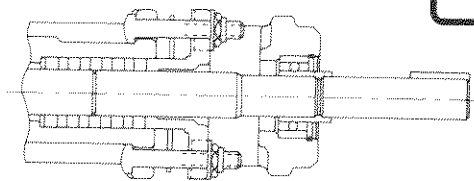
To save time, use the telephone



We will give telephone orders prompt attention.

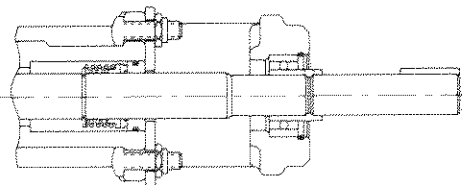


HEAVY DUTY PUMPS ADJUSTABLE RELIEF VALVE

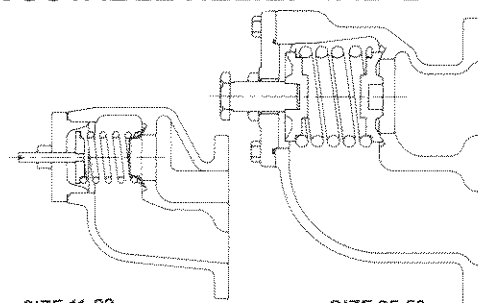


- | | |
|--|---|
| H Pump head without outboard bearing | RV Relief Valve (no letter for plain faceplate) |
| HB Pump head with outboard bearing | L Lo-Drive (no letter for Hi-Drive) |
| GHB Pump head with outboard bearing and built-on gear reduction unit | SB Suspended pumps with outboard bearing |
| F Pump with flanged ports (no letter for tapped ports) | |

MECHANICAL SEAL



Under proper conditions the mechanical seal has longer service life than the packed box. The built-in thrust bearing is suitable for many types of drives. The mechanical seal does not require adjustment, and its compact design reduces the overall size of the pump. The mechanical seal has a normal high temperature limit of 212°F.
NOTE: Special mechanical seals such as Viton and Teflon can be provided at additional cost.

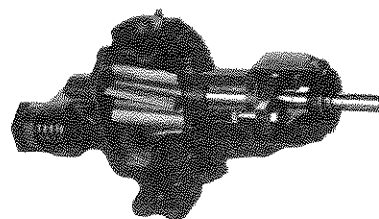


SIZE 11-22

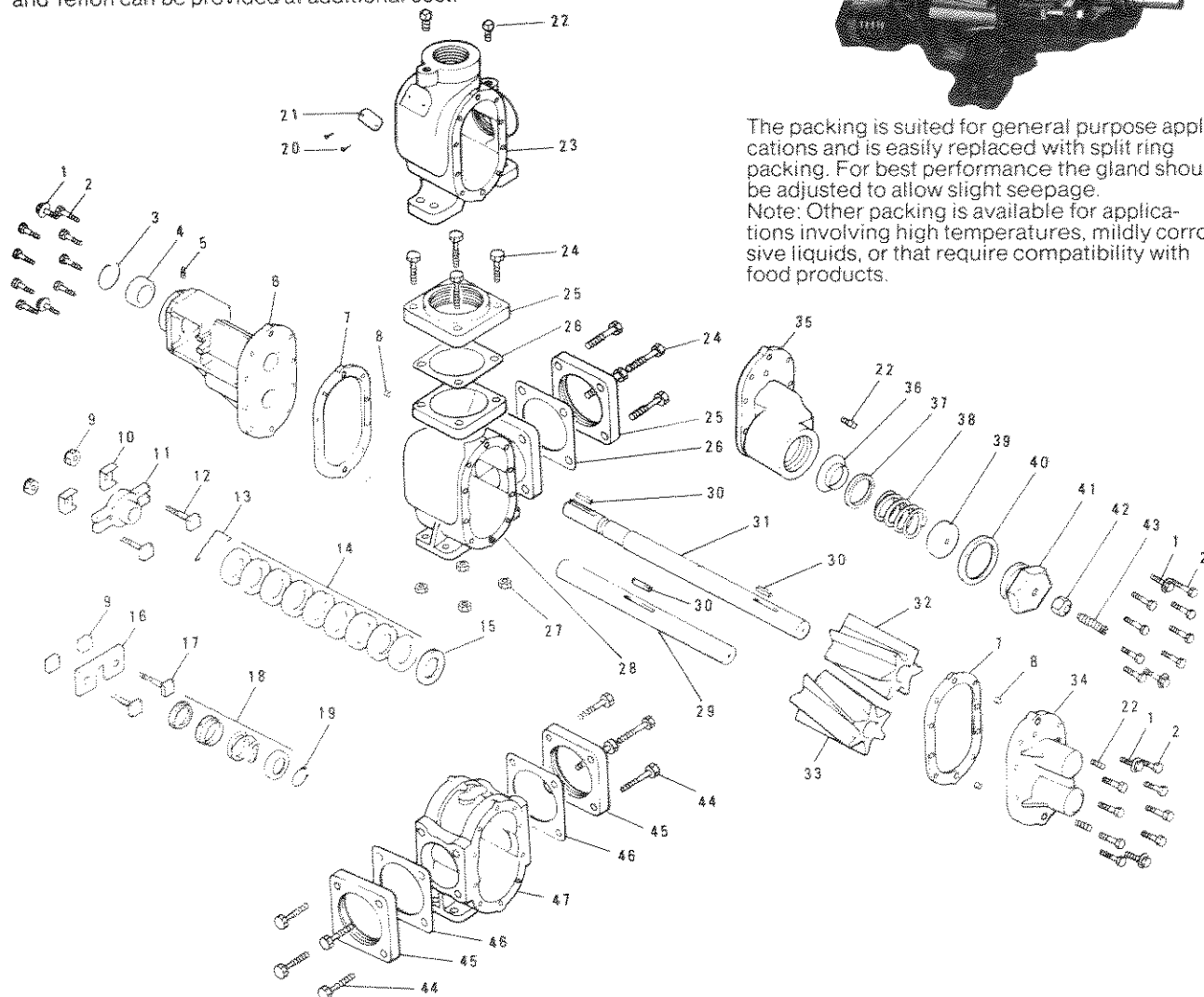
SIZE 35-58

An adjustable relief valve, in the pump faceplate, is available and recommended for protection of the pump. Various springs are available to allow the relief valve to handle a wide range of operating conditions. The Roper inverted poppet relief valve is designed without close fitting guides that can clog and cause excessive pressures when the valve does not open freely. The valve will give protection in only one direction of rotation, however it can be positioned easily to either side of the pump to accommodate the direction of flow.

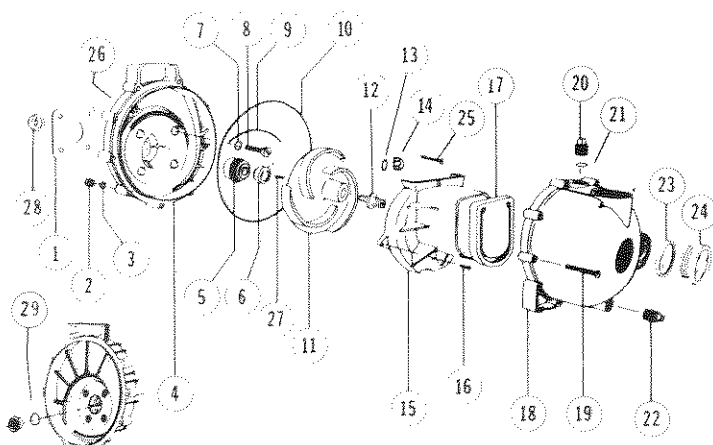
PACKED BOX



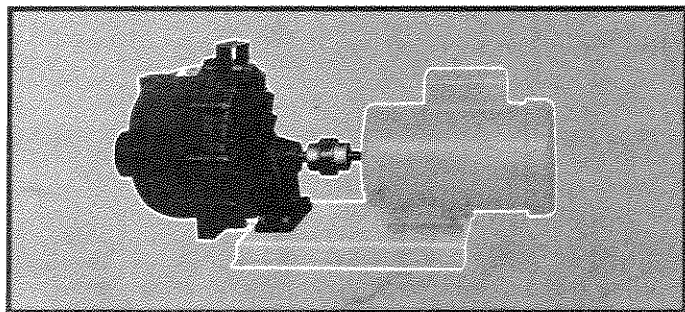
The packing is suited for general purpose applications and is easily replaced with split ring packing. For best performance the gland should be adjusted to allow slight seepage.
Note: Other packing is available for applications involving high temperatures, mildly corrosive liquids, or that require compatibility with food products.



POLYPROPYLENE CENTRIFUGAL PUMP SELF-PRIMING



ITEM	DESCRIPTION	QUANTITY PER PUMP	PART NUMBERS	
			1 1/2"	2"
1	Bracket Shim	1	12751	12751
2	Body Nuts	10	12721	12721
3	Lockwasher	10	12760	12760
4	Rear Bracket	1	12703	12703
5&6	Seal Assembly	1	12713	12713
7	"O" Ring for Screw Hds.	4	12717	12717
8	Bracket Screws	4	12715	12715
9	"O" Ring Segment	1	12754	12754
10	Body "O" Ring	1	12719	12719
11	Impeller	1	12771	12771
12	Impeller Stud	1	12765	12765
13	"O" Ring Acorn Nut	1	12774	12774
14	Acorn Nut	1	12775	12775
15	Volute	1	12702	12702
16	Volute Screws	2	12725	12725
17	Check Valve	1	12705	12705
18	Body	1	12011	12012
19	Body Screws	10	12720	12720
20	Prime Plug	1	12776	12776
21	"O" Ring Prime Plug	1	12722	12722
22	Drain Plug	1	12723	12723
23	Body Plug	1	12766	12766
24	Spanner Nut	1	12767	12767
25	Upper Volute Screw	1	12900	12900
26	1/4" S.S. Washer	4	12901	12901
27	Impeller Key	1	12902	12902
28	Slinger "O" Ring	3	12722	12722
29	Seal "O" Ring	1	12710	12710



PEDESTAL PUMPS: With the addition of the Banjo bearing pedestal, the pump is easily adaptable to electric power. A flexible shaft coupling is used between motor and pump shaft. Pump and motor assembly is mounted on a metal base.

BEARING PEDESTAL PUMPS	
150-PB	1 1/2" Pump/Bearing Pedestal 3/4" Shaft
200-PB	2" Pump/Bearing Pedestal 3/4" Shaft
12682	3/4" Bearing Pedestal
PUMP ONLY (UNASSEMBLED)	
150-PQ	1 1/2" Pump Only
200-PQ	2" Pump Only

RECOMMENDED FRAME SIZES FOR ELECTRIC MOTORS			
2 HP	Single Phase	56 Frame	5/8" Dia. Shaft
2 HP	Three Phase	56 Frame	5/8" Dia. Shaft
3 HP	Single Phase	182T Frame	1 1/8" Dia. Shaft
3 HP	Three Phase	56 Frame	5/8" Dia. Shaft
5 HP	Single Phase	184T Frame	1 1/8" Dia. Shaft
5 HP	Three Phase	184T Frame	1 1/8" Dia. Shaft
7 1/2 HP	Three Phase	184T Frame	1 1/8" Dia. Shaft
(Recommended RPM 3450)			

POLYPROPYLENE CENTRIFUGAL PUMP SELF-PRIMING

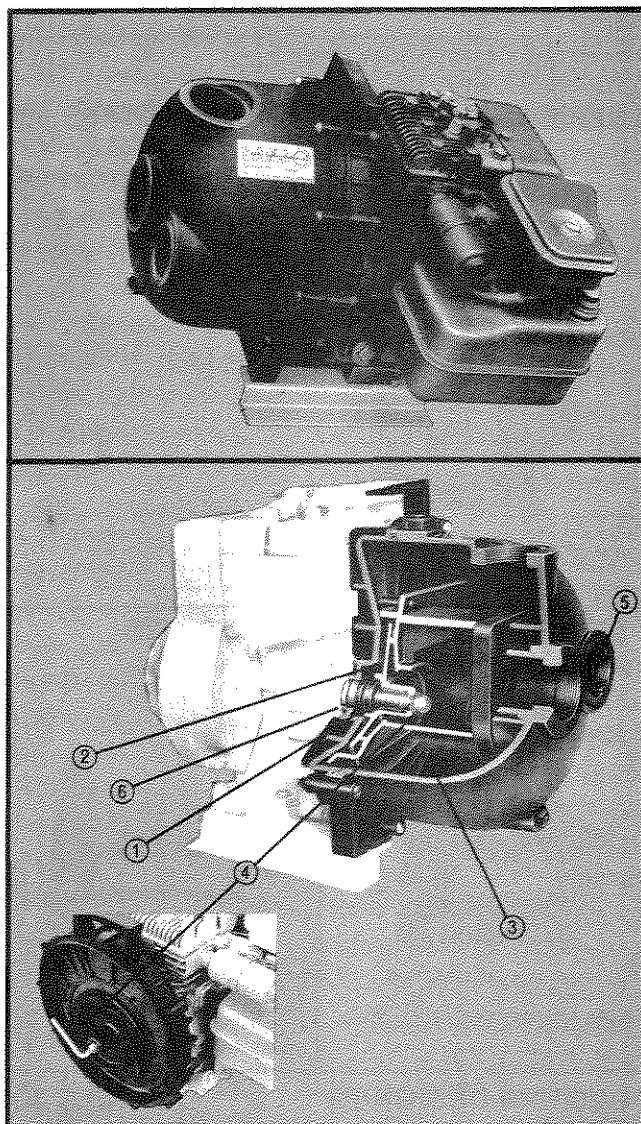
FEATURES:

- Precision Molded Construction
- Corrosion Resistant
- Low Maintenance
- Lightweight
- Innovative Design

MATERIAL: The pump is molded from a special high strength polypropylene which is glass reinforced for strength and toughness. The rubber parts are made of EPDM compound. Also available in Buna "N" and Viton rubber parts. Consult factory for specific chemical resistance.

PERFECTLY BALANCED IMPELLER: Because the impeller is molded, each of the flutes is uniform in thickness and shape giving perfect balance. The impeller is lightweight, which reduces load and wear on the engine crankshaft bearing. This greatly reduces the problem of bearing wear, which causes seal oscillation and failure.

1. We have reversed the seal! The rotating portion of the seal (ceramic section) is located in the impeller. The carbon face and spring section is located in the rear pump case bracket and does not rotate.
2. For additional seal protection, small vanes are molded into the back side of the impeller. During operation, these vanes (on back side of the impeller) pump out a major portion of the liquid from the seal area which reduces pressure. The internal operating pressure of the pump is approximately 50 P.S.I. with the seal area operating at only 5 P.S.I. This leaves enough liquid in the seal area to lubricate and cool.
3. Priming is from the bottom of the pump chamber. A very small amount of liquid in the bottom of the pump is sufficient for priming since the liquid enters the volute from the bottom side. It will prime with the check valve open.
4. The impeller is easily removed for maintenance. A special impeller stud is threaded into the engine shaft and the impeller is secured by an acorn nut. To remove the impeller, simply remove the acorn nut and place a hex wrench into the end of the impeller stud. Turn counter clockwise and the impeller is pulled off the shaft.
5. For protection against extreme pressure or "water hammer" a special rubber plug is fitted into the pump housing. In the event of a high pressure surge, the rubber plug absorbs the shock, protecting the pump.
6. A special O-ring slinger aids in preventing liquid transfer from pump to engine in the event of seal leakage.



PERFORMANCE CHART (Based on Water)						
Head in Feet	10	20	30	40	50	60
Pressure P.S.I.	4.3	8.7	13.0	17.3	21.7	26.0
1 1/2" Size						
Gallon Per Min.	100	100	100	99	96	92
2" Size						
Gallon Per Min.	160	150	140	128	115	100
SUCTION LIFTS AND PRIMING TIMES: 3600 R.P.M.						
Suction Lift (Feet)	5	10	15	20	25	28
1 1/2" Size with 1 1/2"						
Suction Line (Time in Sec.)	12	24	35	42	48	51
2" Size with 2"						
Suction Line (Time in Sec.)	20	40	58	70	80	85

GAS ENGINE PUMPS				
PART NO.	DESCRIPTION	SIZE INLET & OUTLET	HP	WEIGHT
150P-3	Complete Pump & Gas Engine	1 1/2" x 1 1/2"	3	34
200P-3	Complete Pump & Gas Engine	2" x 2"	3	34
200P-5	Complete Pump & Gas Engine	2" x 2"	5	40



Hannay Reels®

HOSE REELS

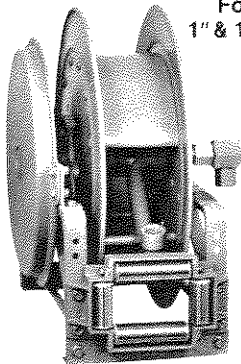
Standard Hannay Reels will handle product temperatures from -20° to 225°F. Operating pressures vary from 200 psi to 1000 psi depending on the specific reel series. Reels to operate at pressures and temperatures other than standard

are available at extra cost. Rewind mechanisms include disc rewind, crank rewind, spring rewind, and chain and spocket drive powered by electric, air or hydraulic motors.

SPRING REWIND REELS

SERIES 700/800/900

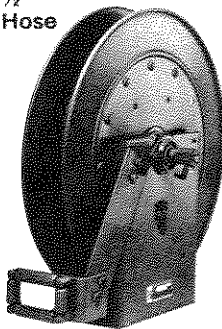
For ½"-¾"-
1" & 1½" Hose



Inlet and outlet are 1" IPT. Handles to 150 ft of ½" hose, 100 ft of ¾" hose; to 110 ft of 1" hose; and up to 70 ft. of 1½" hose. Pressures to 600 psi.

"N" SERIES 500/700/800

For ¼"-½"-
¾" & 1" Hose



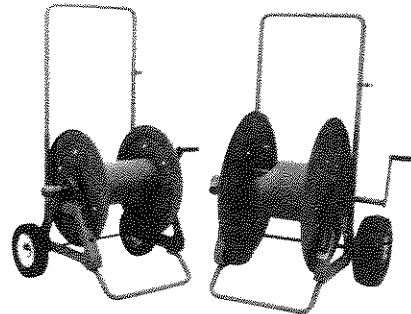
Handles hose from ¼" through 1" I.D. Inlet and outlet are ½" through 1" IPT. Standard N Series reels operate at pressures to 1000 psi; N500 Series to 10,000 psi. Handles up to 100 ft. of ¼" hose; up to 50 ft. of 1" hose.

PORTABLE REELS

MODELS GH 1100/AT 1200

For ¾"-½" Hose

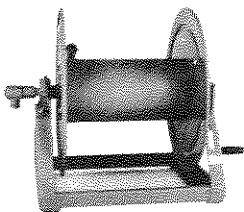
For ¾"-½"-¾" &
1" Hose



Handles hose from ¾" through 1" I.D. Inlet and outlet are ½" IPT on the 1100, 1" on the 1200. Handles up to 300 ft. of ¾" hose; up to 100 ft. of 1" hose. Reels operate at pressures up to 1000 psi.

SERIES 1500

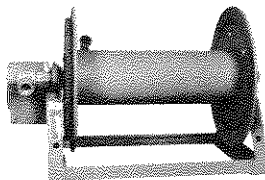
For ¼"-¾" & ½" Hose



Handles ¾" through 1½" I.D. hose. Inlet and outlet are ½" IPT. Reels operate at pressures up to 1000 psi. Handles up to 700 ft. of ¾" hose and up to 500 ft. of 1½" hose.

SERIES 1800

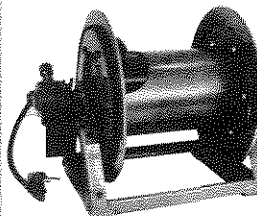
For ½" & ¾" Hose



Handles ½" through ¾" I.D. hose. Reels have 1" swivel joint and ¾" IPT outlet. Operates at pressures up to 1000 psi. Handles up to 500 ft. of ½" hose; 230 ft. of ¾" hose. Power rewind available.

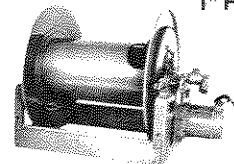
SERIES 4000

For ½"-¾" & 1" Hose



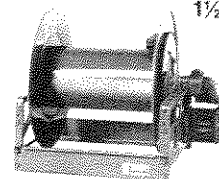
Handles ½" through 1½" I.D. hose. Inlet and outlet are 1" IPT. Reels operate at pressures up to 1000 psi. Handles up to 325 ft. of ½" hose; 175 ft. of ¾" hose; 100 ft. of 1" hose.

SERIES 6000 For ½"-¾" & 1" Hose



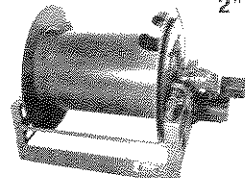
Inlet and outlet are 1" IPT. Large-capacity reel handles to 1600 ft. of ½" hose; 850 ft. of ¾" hose; and up to 500 ft. of 1" hose. Pressures to 1000 psi.

SERIES 7500 For 1"-1½" & 1½" Hose



Inlet and outlet are 1½" IPT. Handles to 600 ft. of 1" hose; 370 ft. of 1½" hose; and to 260 ft. of 1½" hose. Pressures to 600 psi.

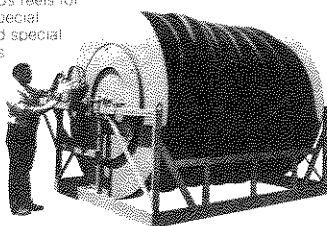
SERIES 8000 For 1½" & 2" Hose



Inlet and outlet are 2" IPT. Handles to 340 ft. of 1½" hose; 225 ft. of 2" hose. Pressures to 600 psi.

CUSTOM-DESIGNED REELS

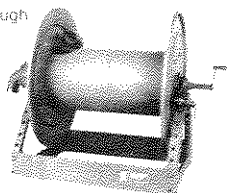
Our experienced staff will work with you to develop custom reels for special jobs. Hannay Reels offers design experience and manufacturing flexibility unique in the field and builds reels for a variety of special purposes and special environments.



SERIES 3000/3500

For ¾"-1"-1½"
& 1½" Hose

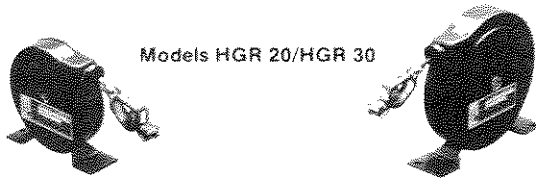
Handles hose from ¾" through 1½" I.D. Inlet and outlet on Series 3000 are 1" IPT. Inlet and outlet on Series 3500 are 1½" IPT. Series 3000 reels operate at pressures to 1000 psi and handle up to 425 ft. of ¾" hose; and up to 265 ft. of 1" hose. Series 3500 reels operate at pressures to 600 psi and handle up to 500 ft. of 1½" hose; and up to 450 ft. of 1" hose. Series 3000/3500 reels are equipped with a spring-actuated pin lock.



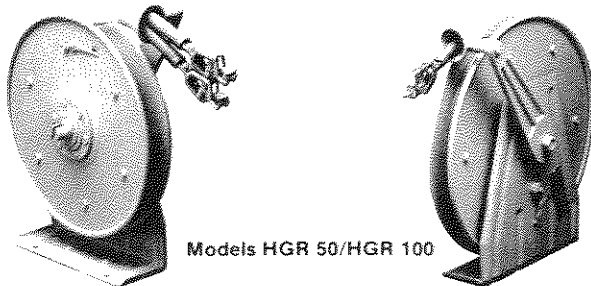


CABLE REELS

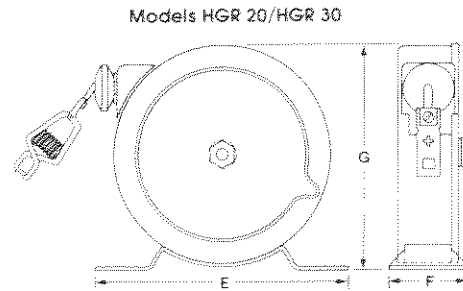
STATIC GROUNDING REELS



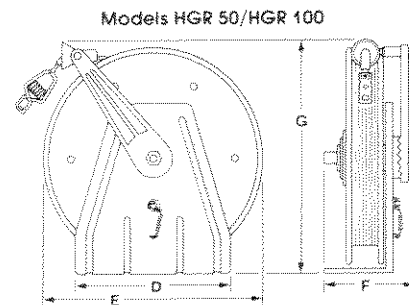
Models HGR 20/HGR 30



Models HGR 50/HGR 100



Models HGR 20/HGR 30



Models HGR 50/HGR 100

Static grounding reels provide for the payout, retraction and compact storage of 20, 50, 75 and 100 feet of static grounding cable. Used in any flammable atmosphere when a build-up of static electricity could cause a spark and subsequent explosion, they operate with a spring rewind mechanism requiring minimal cable pull to release the lock. A declutching arbor automatically disengages the spring to prevent damage from reverse winding.

NOTE: Models HGR 20 and HGR 30 are furnished with 7 x 7

galvanized carbon steel cable. **Standard color is red enamel.** Models HGR 50 and HGR 100 can be supplied with or without 1/8" diameter, 7 x 19 galvanized carbon steel cable. (Stainless steel or plastic covered cable and "Y" branches are available at an additional charge.) Adjustable guide arm with cable guide prevents cable build-up during rewinding. The arm can be locked in any operating position in a 270° arc. **Standard color is gold oxide primer**, with other colors available at an extra charge.

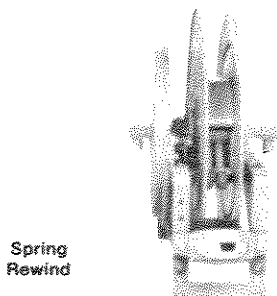
Cable Capacity of Reel in Feet			Model Number	Reel Dimensions in Inches E, F, and G are Overall Dimensions				Approx. Weight Pounds	
O.D.	3/32"	1/8"		E	F	G	D	Without Cable	With Cable
	20	-	HGR 20	6 3/4	2 1/4	6	N.A.	N.A.	3.5
	50	-	HGR 30	8 3/4	2 3/4	7 1/2	N.A.	N.A.	5.5
	-	50	HGR 50	14 1/2	5 1/2	17 1/2	11 1/2	30.0	32.0
	-	100	HGR 100	16 3/4	5 1/2	17 1/2	11 1/2	33.0	36.0

REELS TO HANDLE TWO HOSES SIMULTANEOUSLY

Will hold two lengths of the same diameter, or of different diameter hoses. Capacity of the reel is determined by the larger hose diameter.

SERIES 600

For 1/4" Through 3/4" Hoses

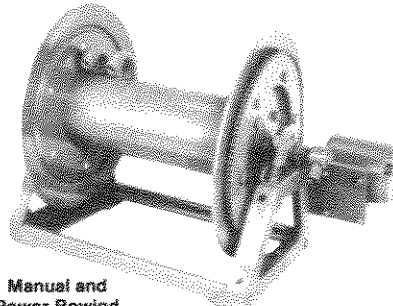


Spring Rewind

Two inlets and outlets are 1/2" or 3/4" IPT to properly match hose size. Handles to 100 ft. of two 1/4" or 3/4" hoses; to 90 ft. of two 1/2" hoses; to 85 ft. of two 3/4" hoses; to 50 ft. of two 1" hoses. Pressures to 1600 psi. N Series also available.

SERIES 2000

For 1/4"-3/4" & 1/2" Hoses

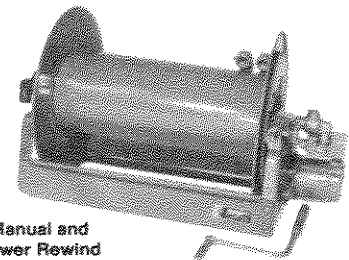


Manual and Power Rewind

Two inlets and outlets are 1/2" IPT. Handles to 375 ft. of two 1/4" hoses; 300 ft. of two 3/4" hoses; and 200 ft. of two 1/2" hoses. Pressures to 1000 psi.

SERIES 7000/7200

For 1/2"-1" & 1 1/2" Hoses



Manual and Power Rewind

Two inlets and outlets are 1" IPT on Series 7000, 1 1/2" IPT on Series 7200. Series 7000 handles up to 200 ft. of two 1/2" hoses and to 135 ft. of two 1" hoses; for Series 7200, up to 90 ft. of two 1 1/2" hoses. Pressures to 1000 psi for Series 7000, to 600 psi for Series 7200.



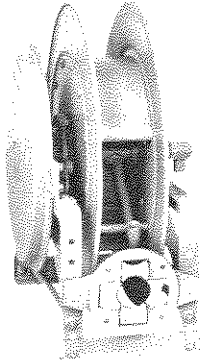
SPRING REWIND REELS

SERIES 700, N700, 800, N800, 900, N900

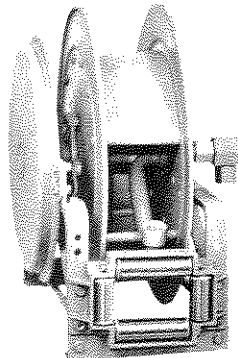
TO HANDLE SINGLE HOSE SIZES

¼ inch through 1½ inch I.D.

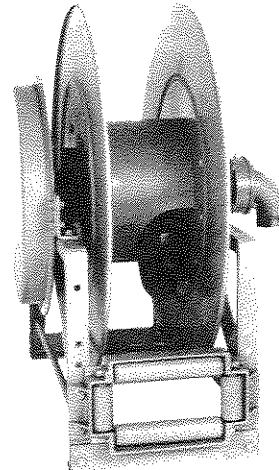
STANDARD



SERIES 700

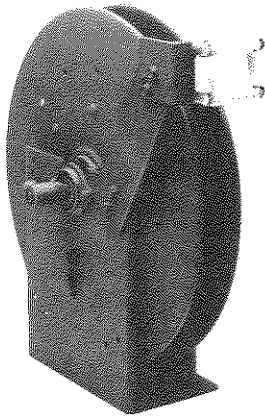


SERIES 800

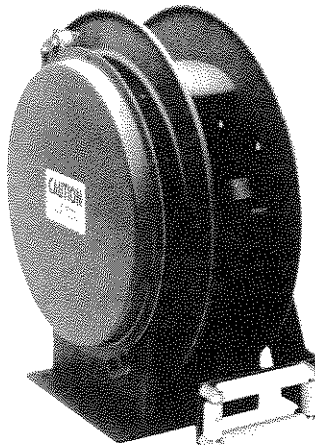


SERIES 900

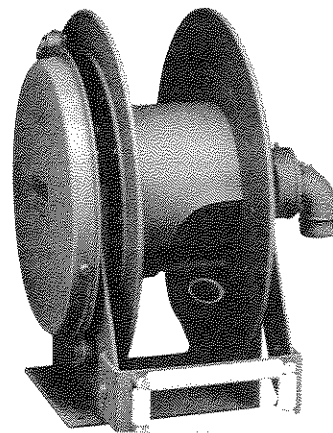
NARROW FRAME



SERIES N700



SERIES N800



SERIES N900

Single hose spring rewind reels are available as **standard** reels (Series 700, 800 and 900) and **narrow frame** reels (Series N700, N800 and N900). The N series reels have the same features as their conventional counterparts, except for a narrower frame and compact mounting base.

SERIES 700 and N700 reels handle hose through ½" I.D. Inlet is ½" female IPT 90° swivel joint. Outlet riser is ½" female IPT.

SERIES 800 and N800 reels handle hose from ¾" through 1" I.D. Inlet is 1" female IPT 90° swivel joint. Outlet riser is 1" female IPT.

SERIES 900 and N900 reels handle hose from 1¼" through 1½" I.D. Inlet is 1½" female IPT 90° swivel joint. Straight swivel joint available at no extra cost and *must be specified*. Outlet riser is 1½" female IPT.

NOTE: Other sizes and/or threads can be furnished for outlet risers when specified.

All these reels handle product temperatures from -20° to +225° F. Series 700, N700, 800, and N800 reels operate at pressures to 1000 p.s.i. Series 900 and N900 reels operate at pressures to 600 p.s.i. Reels to operate at other temperatures or pressures can be furnished at extra cost.

The standard color for these series is dark blue.

HOSE STOP: A hose stop should be used to prevent damage to rollers and nozzles and to permit adjustment of free hose length. (A hose stop is not required on reels for automatic operation.)

IMPORTANT

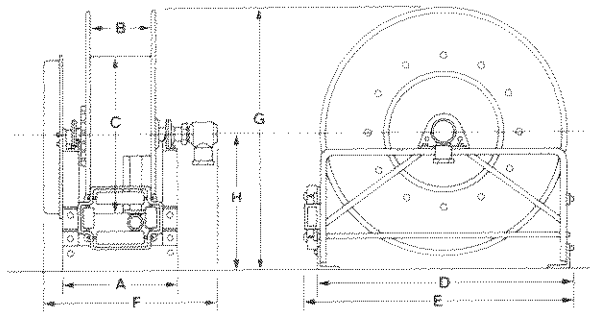
(specify roller position and hose stop).

SEE COMPLETE SPECIFICATIONS ON FACING PAGE.

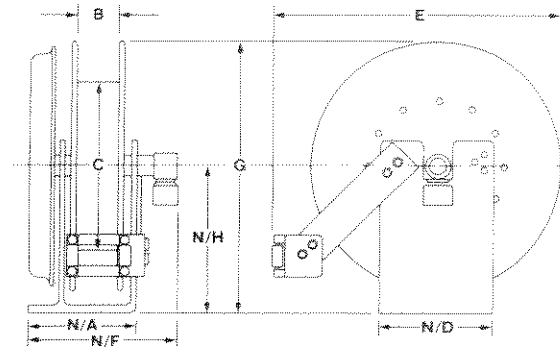


SPRING REWIND REELS

HOSE CAPACITIES and REEL DIMENSIONS



SERIES 700, 800 and 900



SERIES N700, N800 and N900

Hose Capacity of Reel in Feet								Model Number	Reel Dimensions in Inches E, F and G are Overall Dimensions												Approx. Weight Pounds		Roller Assy Supplied on Standard Models
I.D.	¼"	⅜"	½"	¾"	1"	1¼"	1½"		A	N/A	B	C	D	N/D	E	F	N/F	G	H	N/H	NET	SHIP	
O.D.	⅝"	¾"	⅞"	1⅜"	1⅞"	1⅞"	2⅞"																
35	35	35						716-16-17C	9¼	8	4	10½	17½	12	19¼	13¼	11½	17%	9¾	9¼	54	64	EH-714
35	35	40						716-19-20C	9¼	8	4	10½	18	12	19¾	13¼	11½	19¾	10¾	10¾	55	80	EH-714
45	45	50						716-19-20J	9¼	8	4	10½	18	12	19¾	13¼	11½	19¾	10¾	10¾	61	86	EH-714
60	60	65						716-23-24J	9¼	8	4	15½	23¼	12	25	13¼	11½	23¾	12¾	12¾	73	98	EH-714
75	80	85						716-25-26B	9¼	8	4	15½	25	12	26¾	13¼	11½	25¾	13½	13¾	104	129	EH-714
80	85	90						716-30-31B	9¼	8	4	15½	28½	12	30¼	13¼	11½	31¾	17	16½	110	135	EH-714
100	110	110						718-30-31G	11¼	10	6	15½	28½	12	30¼	15¼	13½	31¾	17	16½	115	140	EH-716
140	150	120					#	716-30-31-20G	9¼	—	4	20	28½	—	30¼	13¼	—	31¾	17	—	116	141	EH-714
175	150	150					#	718-30-31-20D	11¼	—	6	20	28½	—	30¼	15¼	—	31¾	17	—	126	151	EH-716
35	25	9						818-16-17C	11¼	10	6	10½	17½	12	19¼	16½	15	17¾	9¾	9¼	60	85	EH-716
40	30	15						816-19-20C	9¼	8	4	10½	18	12	19¾	14½	13	19¾	10¾	10¾	60	85	EH-714
40	45	20						816-23-24C	9¼	8	4	10½	23¼	12	25	14½	13	23¾	12¾	12¾	85	110	EH-714
80	35	25						818-23-24B	11¼	10	6	15½	23¼	12	24½	16½	15	23¾	12¾	12¾	90	115	EH-678
60	60	30						816-25-26B	9¼	8	4	10½	25½	12	26¾	14½	13	25¾	13½	13¾	100	125	EH-714
60	70	50						818-25-26B	11¼	10	6	10½	25½	12	26¾	16½	15	25¾	13½	13¾	101	126	EH-678
80	90	45						820-25-26B	13¼	12	8	15½	25½	12	26¾	18½	17	25¾	13½	13¾	129	154	EH-678D
115	85	65						817-30-31A	10¼	9	5	15½	28½	12	29¼	16¼	14¾	31¾	17	16½	124	149	EH-679
100	110	100						820-30-31A	13¼	12	8	15½	28½	12	29¾	19¼	17¾	31¾	17	16½	137	162	EH-678D
100	110	120						822-30-31A	15¼	14	10	15½	28½	12	29¾	21¼	19¾	31¾	17	16½	150	175	EH-678C
	45	20						920-23-24B	13¼	12	8	10½	23¼	12	24½	21	19½	23¾	12¾	12¾	101	126	EH-678D
	55	25						922-23-24B	15¼	14	10	10½	23¼	12	24½	23	21½	23¾	12¾	12¾	104	129	EH-678C
	60	50						922-25-26A	15¼	14	10	10½	25	12	26¼	23¾	22¼	25¾	13½	13¾	134	159	EH-678C
	95	55						920-30-31A	13¼	12	8	10½	28½	12	29¾	21¾	20¼	31¾	17	16½	140	165	EH-678D
	100	70						922-30-31A	15¼	14	10	10½	28½	12	29¾	23¾	22¼	31¾	17	16½	152	177	EH-678C
	#	100	75					920-33-34A	13¼	—	8	10½	31	—	32½	21¾	—	33¾	17¾	—	155	180	EH-678D
	#	100	90					922-33-34A	15¼	—	10	10½	31	—	32½	23¾	—	33¾	17¾	—	167	192	EH-678C

N Series not available in these sizes.

NOTE: Add 1" to G dimension if roller is in VR position.

MANY MORE SIZES, FROM STANDARD COMPONENTS, AVAILABLE ON REQUEST.



ACCESSORIES

REWIND MOTORS

Reels are equipped with electric, compressed air or hydraulic rewind motors to drive chain and sprocket rewind mechanisms.

ELECTRIC MOTORS are reversible type for A.C. or D.C. operation. D.C. motors are supplied with a sealed, push-button operating switch and solenoid. A junction box is supplied for wiring A.C. motors, no switch provided.



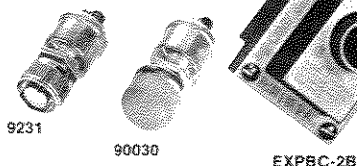
COMPRESSED AIR MOTORS are supplied with a fingertip control valve with integral backpressure relief, and with flexible air line from control valve to rewind motor. We recommend using a lubricator and filter with air rewind motors.



HYDRAULIC MOTORS are reversible type with standard IPT fittings. No other hydraulic components are furnished with the reel. A 4-way, three-position control valve with motor spool is recommended but is not supplied.



OPERATING SWITCHES FOR ELECTRIC REWIND REELS



SEALED PUSH-BUTTON SWITCHES

MODEL 9231 sealed push-button momentary contact switch with chrome mounting ring, for 12 or 24-volt D.C. service. Use with appropriate solenoid.

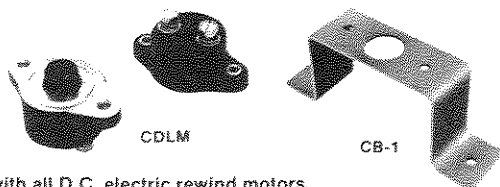
MODEL 90030 sealed push-button momentary contact switch with rubber cap, for 12 or 24-volt D.C. service. Use with appropriate solenoid.

EXPLOSION-PROOF SWITCH

MODEL EXPBC-2B for direct starting and control of A.C. rewind motor. Press to start, release to stop. Cast metal housing with two mounting holes. May also be used with starting solenoid for 12 or 24-volt D.C. service.

TO ORDER: Specify Model Number.

CIRCUIT BREAKERS



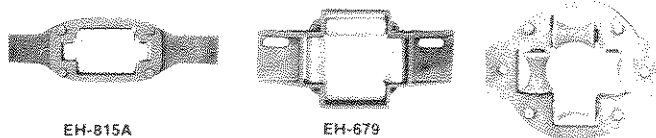
Must be used with all D.C. electric rewind motors.

MODEL CDLM Manual Reset. Push-button must be pressed firmly to reset. Several amperage ratings are available to suit specific application.

MODEL CB-1 Mounting bracket for CDLM Breaker.

TO ORDER: Specify Model CDLM and give Model Number of reel motor. Specify CB-1 bracket, if required.

ROLLER ASSEMBLIES



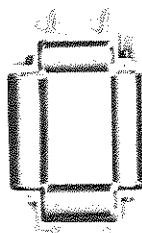
These 4-way roller assemblies are for use on the reel, on cabinet door openings and for similar locations where sharp metal edges may cut or damage the hose. 4-way design protects hose even when payout or rewind is at an angle.

Series EH-678 has stainless steel rollers with Delrin bearings in a cast aluminum alloy frame with pre-drilled mounting holes. All other series have Delrin rollers supported in cast aluminum alloy frames with adjustable mounting tabs. Tabs can be cut or drilled to precisely fit the reel or installation. (Series EH-679 has fixed tab length with slots for mounting bolts.)

NOTE: A hose stop should be used with 4-way rollers to prevent damage to rollers and nozzles. See description below.

TO ORDER: Specify Model Numbers.

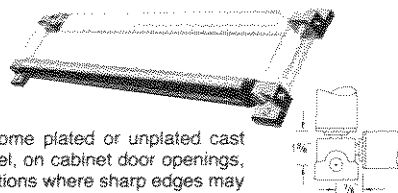
EH-714



EH-678

MODEL NO.	OVERALL DIMENSIONS	OPENING
EH-815	13 $\frac{1}{8}$ " x 3 $\frac{3}{4}$ " (Length may be cut to 8")	5 $\frac{1}{8}$ " x 1 $\frac{1}{8}$ "
EH-815A	11 $\frac{1}{8}$ " x 3 $\frac{3}{4}$ " (Length may be cut to 7")	3" x 1 $\frac{1}{8}$ "
EH-679	10 $\frac{1}{4}$ " x 5"	3" x 2 $\frac{1}{4}$ "
EH-714	9" x 6 $\frac{1}{2}$ "	2 $\frac{1}{2}$ " Dia.
EH-715	10" x 6 $\frac{1}{2}$ "	2 $\frac{1}{2}$ " Dia.
EH-716	11" x 6 $\frac{1}{2}$ "	2 $\frac{1}{2}$ " Dia.
EH-717	13" x 6 $\frac{1}{2}$ "	2 $\frac{1}{2}$ " Dia.
EH-678	11 $\frac{1}{8}$ " x 6 $\frac{1}{2}$ "	5 $\frac{1}{8}$ " x 2 $\frac{3}{4}$ "
EH-678D	13 $\frac{1}{4}$ " x 6 $\frac{1}{2}$ "	7 $\frac{3}{8}$ " x 2 $\frac{3}{4}$ "
EH-678C	15 $\frac{1}{4}$ " x 6 $\frac{1}{2}$ "	8 $\frac{1}{2}$ " x 2 $\frac{3}{4}$ "

UTILITY HOSE ROLLERS



Stainless steel rollers and chrome plated or unplated cast zinc brackets for use on the reel, on cabinet door openings, truck platforms and similar locations where sharp edges may cut or damage hose.



Specifications: 1 $\frac{1}{8}$ " diameter stainless steel roller, stainless steel rod, Delrin bearings, brackets and required fasteners.

TO ORDER: Specify Assembly A, B or C, and give distance between each pair of mounting holes (Dimensions X and Y) or overall length of each roller. (W and Z) W = Vert. Roller Length, Z = Horiz. Roller Length.

Also available factory-installed on the reel.

HOSE STOPS

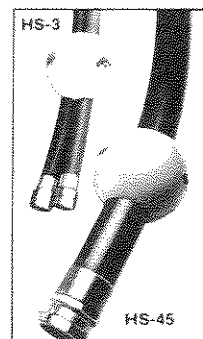
RECOMMENDED WITH SPRING REWIND REELS AND 4-WAY ROLLER ASSEMBLIES.

Each model is easily assembled with the fasteners provided, without any special tools.

Models HS-3 and HS-45 are two-piece molded plastic spheres, custom drilled to the size you specify.

Hose O.D. Must be specified or Hose Stop will be shipped undrilled.

TO ORDER: For HS-3 or HS-45, specify Model Number and O.D. of hose. (Indicate single or dual hose.)



MODEL HS-3 is 3" O.D.
MODEL HS-45 is 4 $\frac{1}{2}$ " O.D.

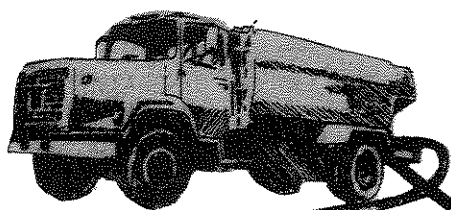
unifil **scully**

The Scully Unifil® System of Tight Fill Connections

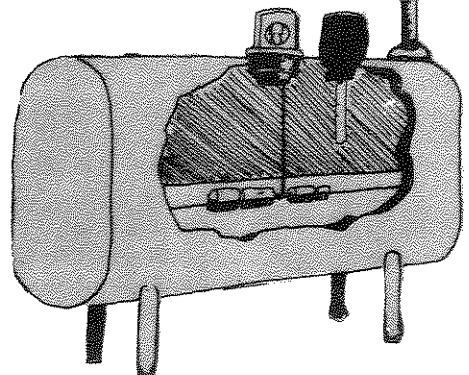
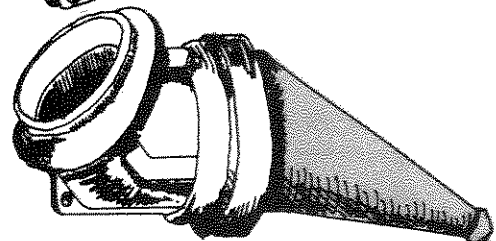
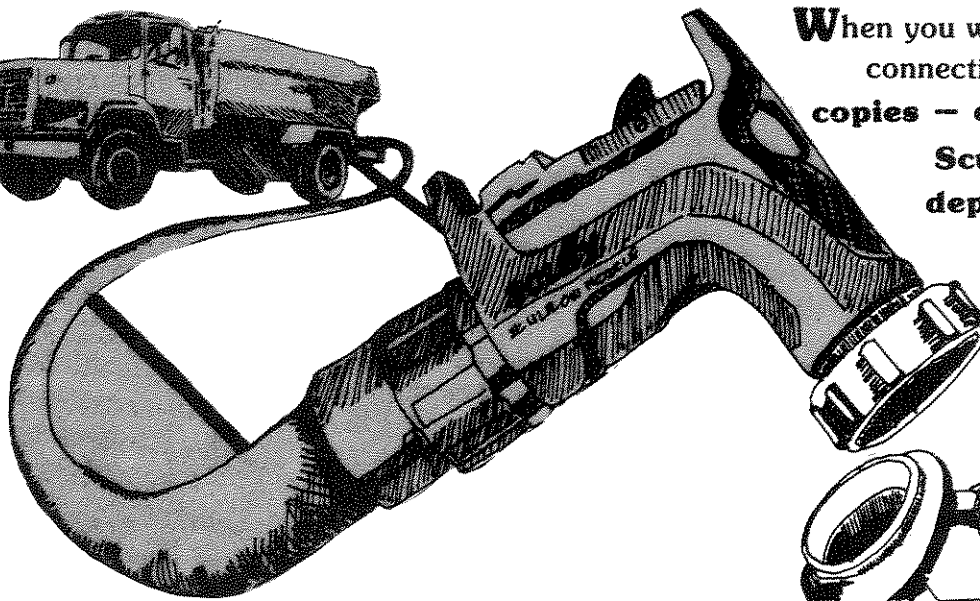
For Instant, Leak-Proof, Spill-Free Connections

Scully's Unifil System saves you time and money. It provides you with a standard hook-up and allows for high pumping rates.

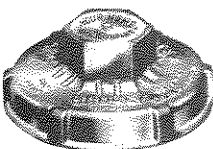
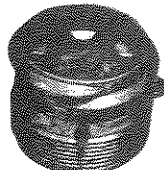
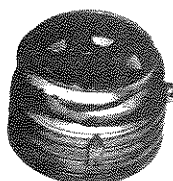

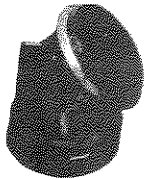

Installed by the driver himself in a matter of seconds, no special keys, tools or magnets are necessary. There is nothing extra for the driver to carry and lose.



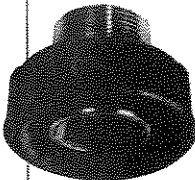

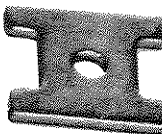
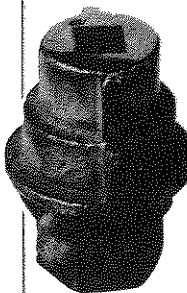

When you want the best in tight fill connections, **don't count on copies — count on the original Scully Unifil System** for dependable, leak-proof, cost saving fills.



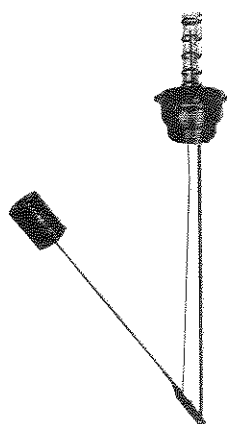
scully**UNIFIL®**
CAPS & ADAPTORS

ITEM	DESCRIPTION	Model #	Size	Order by this Part Number
	ALL-WEATHER CAP This cap fits the top of all Scully adaptors, no matter what the pipe size. No gasket is necessary.	UF-21	Fits all Scully Adaptors	04316
	MALE STRAIGHT ADAPTOR This Adaptor is used when replacing a plug in a female 45° elbow or at an occasional coupling.	UF-15 UF-16 UF-16C UF-17 UF-17C	1¼" 1½" 1½" cored 2" 2" cored	04311 04312 04313 04314 04315
	FEMALE STRAIGHT ADAPTOR This Adaptor replaces the pipe cap on a standard male nipple or an exposed fill box which can easily be removed from the fill pipe. It is also available with the interior lugs removed (cored) for installation at underground tanks where a tube must be inserted through it.	UF-65 UF-65C UF-66 UF-66C UF-67 UF-67C	1¼" 1¼" cored 1½" 1½" cored 2" 2" cored	04336 04337 04338 04339 04340 04341
	FEMALE 45° ADAPTOR Ideally suited in cases where the fill pipe is very close to the wall, or where overhangs give troublesome clearance problems with the nozzle connector. Because of its shape, it is also well adapted to areas where extreme water drip conditions occur, or for new installations.	UF-41 UF-44 UF-47	1¼" 1½" 2"	04324 04325 04328
	MALE 45° ADAPTOR This is the counterpart of the female 45° adaptor, but is used where a male thread is required.	UF-152 UF-151	1½" 2"	04352 04351
	MALE SHOULDER ADAPTOR Specifically designed for installation in an existing fill box or coupling, or in any applications where a good watershed is desired around the joint. Available in 2" IPS size with standard threads (50S) or large threads (50L).	UF-50S UF-50SC	2"S 2"S cored	04332 04385

scully**UNIFIL[®]**
UNIFIL ACCESSORIES

DESCRIPTION	Model #	Size	Order by this Part Number	
NOZZLE CONNECTOR Installed on the nozzle outlet, it incorporates a hex opening which matches the hex on Scully's all weather caps. It is all you need to complete the Unifil Tight Fill System.	UF-37 UF-46 UF-122	1¼" NPT 1½" NPT Special threads for Sculflow Nozzle	04323 04327 04346	
SPOUT This accessory spout quickly attaches to the nozzle connector. It is used for troublesome fills or where a loose connection is desired.	UF-54	1¼"	04334	
INSERT WRENCH May be used at installations where the sunken fill box does not permit use of the flush insert connector for tightening or loosening the flush insert cap.	UF-327	—	04360	
HEX DRIVER One side of the hex driver is used to install all standard adaptors by inserting the adaptor and turning against the internal lugs. The other side is used for installation of flush insert adaptors. The ribs on the hex driver fit against the internal lugs of the insert.	UF-309	—	04355	
"O" RING PACKAGE The nozzle connector "O" Ring is fabricated from high-cost compound designed for maximum life. The "O" Ring can be replaced easily within seconds with a nail file, penknife or pencil, right on the job if necessary. We suggest a package of the "O" rings be carried in the glove compartment of the cab. Viton for chemical use.	UF-32 UF-32V	Regular 3 VITON	04322 04318	

Our Expert staff is eager to help. Don't hesitate to call with a special problem.

scully**TANK EQUIPMENT** (Residential)
(For Fuel Oil Deliveries)
60562**ECON-O-GAGE**
ECONOMICAL GAUGE
FOR NEW OR EXISTING
TANKS

FITS 1½" & 2"

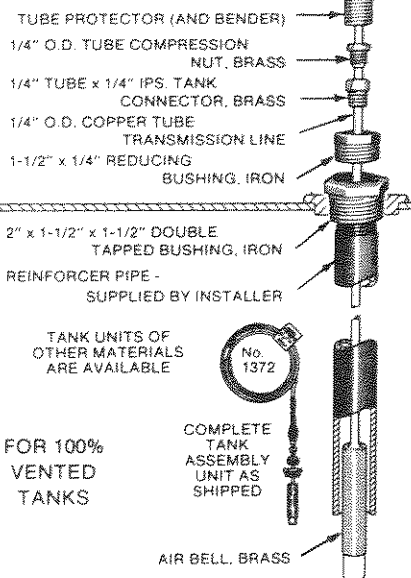
DESCRIPTION	SIZE	ORDER BY THIS PART NUMBER
EG-217	22"-24"	1401424
EG-216	26"-27"	1401421
EG-220	30"	1401434
EG-218	37"	1401425
EG-221	40"	1401435
EG-215	42"-44"	1401422
EG-222	48"	1401436

VENTALARM®
SIGNALS
FOR NEW INSTALLATIONBASEMENT OR
UNDERGROUND TANKSORDER
BY THIS
PART
NUMBER

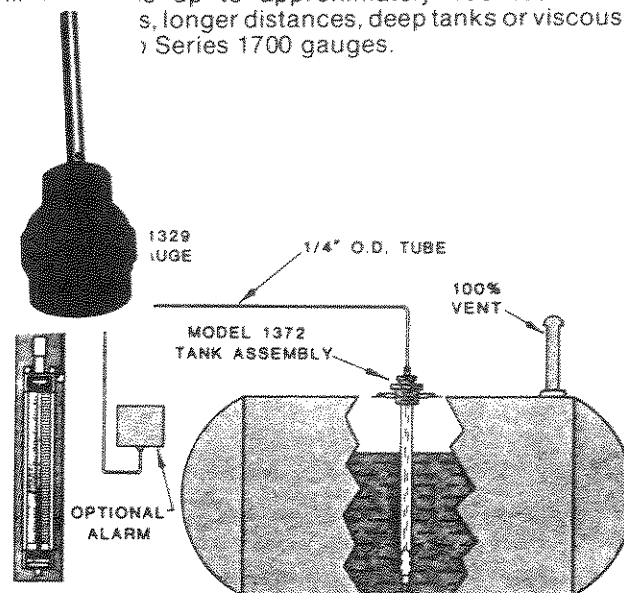
DESCRIPTION	SIZE	ORDER BY THIS PART NUMBER
VS-201	1¼" x 1¼"	0200201
VS-240	1½" x 1¼"	0200208
VS-202	1½" x 1½"	0200202
VS-521	2" x 1¼"	0200215
VS-530	2" x 1½"	0200216
VS-270	2" x 2"	0200209
90° ELBOW		
VS-230	1¼" x 1¼"	0200227

Petrometer Corporation
MODEL 1329
TANK LIQUID LEVEL GAUGEAPPROVED
BOARD OF
STANDARDS
AND APPEALS
CITY OF
NEW YORK
CAL. NO.
593-48-SM

- Remote reading
TANK GAUGES for**
- **INDUSTRIAL AND DOMESTIC OIL BURNER INSTALLATIONS**
 - **STORAGE TANKS FOR INDUSTRIAL LIQUIDS**





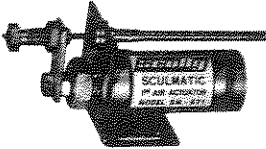
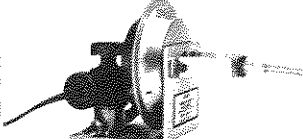


The Model 1329 Petrometer was designed primarily for use on fuel oil or other liquids of similar viscosity, on small to medium 100% vented tanks, and distance from tank to gauge up to approximately 150 feet. For use on larger tanks, longer distances, deep tanks or viscous liquids, see Series 1700 gauges.

**SCHEMATIC OF COMPLETE SYSTEM**

scully

TRUCK EQUIPMENT

DESCRIPTION	ORDER BY THIS NUMBER	PRODUCT
ELECTRIC AND AIR MODELS AVAILABLE 2" F x GROOVED-ELECTRIC 2" F x GROOVED-AIR 2" F x 2" M ELECTRIC 2" F x 2" M AIR	6806818 6806817 6806825 6806826	 MK IV CHECK VALVE & FLOW SWITCH FOR AUTOMATIC FLOW CONTROL
FITS IN 2" NPT OPENING INSTALLS IN 2", 2½" & 3" PIPE PIPE SIZE 2" NPT 2½" NPT 3" NPT	6806801 6806802 6806803	 ELECTRIC PADDLE TYPE FLOW SWITCH
1 INCH STROKE SM-580 12 VOLT SM 585 24 VOLT	6806807 6806809	 ELECTRIC SOLENOID ACTUATOR 12 & 24 VOLT MODELS
1" & 3" STROKE 12 & 24 VOLT MODELS-CONVERTS ELECTRIC SIGNAL TO HIGH PULL POWER OF VEHICLE'S AIR SYSTEM 12VDC 1" STROKE 24VDC 1" STROKE 12VDC 3" STROKE 24VDC 3" STROKE	6806863 6806864 6806865 6806866	 ELECTRIC-AIR ACTUATOR 1" AND 3" STROKE 12 & 24 VOLT MODELS
HIGH PULL POWER USED WITH TRUCKS AIR SYSTEM 1" STROKE 3" STROKE	6806867 6806868	 ALL-AIR ACTUATOR
1" STROKE HIGH PULL POWER USED WITH 12 VOLT ELECTRICAL SYSTEM WILL NOT OVERHEAT	6806839	 VACUUM ACTUATOR

scully**TRUCK EQUIPMENT**
(For Fuel Oil Deliveries)

FUEL TROCK EQUIPMENT (For Fuel Oil Deliveries)			ORDER BY THIS PART NUMBER		
PRODUCT	DESCRIPTION				
	SCULFLOW NOZZLE	SCULLY SCULFLOW BALL VALVE NOZZLE			
	SCULFLOW NOZZLES WITH SUPER SWIVEL INLET AND UNIFIL CONNECTOR OUTLET	F=FEMALE THDS M=MALE THDS			
		INLET	OUTLET	CHECK VALVE	
		1¼"F	UNIFIL	3 PSI	5305062
		1¼"F	UNIFIL	5 PSI (L.I.)	5305063
		1½"F	UNIFIL	3 PSI	5305064
		1½"F	UNIFIL	5 PSI (L.I.)	5305065
		1¼"M	UNIFIL	3 PSI	5305100
		1½"M	UNIFIL	3 PSI	5305106
	WITH SUPER SWIVEL INLET AND THREADED OUTLET FOR USE WITH CONNECTOR OR SPOUT	1¼"F	1¼"F	3 PSI	5305066
		1¼"F	1¼"F	5 PSI (L.I.)	5305067
		1½"F	1½"F	3 PSI	5305072
		1½"F	1½"F	5 PSI (L.I.)	5305073
		1¼"M	1¼"F	3 PSI	5305096
		1½"M	1½"F	3 PSI	5305104
	L.I.=LONG ISLAND MODEL				
	SUPER NOZZLES	1½"F	1½"F	2 PSI	5305917
		1½"F	1½"F	5 PSI (L.I.)	5305921
		2"F	2"F	2 PSI	5305920
		2"F	2"F	5 PSI (L.I.)	5305924
	SUPER SWIVELS	COM A FITS SCULFLOW NOZZLE			
		1¼"F	COM A		5805815
		1½"F	COM A		5805816
		1¼"M	COM A		5805865
		1½"M	COM A		5805868
		1¼"F	1¼"M		5805817
		1¼"M	1¼"M		5805863
		1½"F	1½"M		5805820
		1½"M	1½"M		5805867
	BALL BEARING DESIGN FOR EASY ROTATION	COM B FITS SUPER NOZZLE			
		1½"F	COM B		5805824
		2"F	COM B		5805826
		2"M	COM B		5805862
		2"F	2"M		5805828

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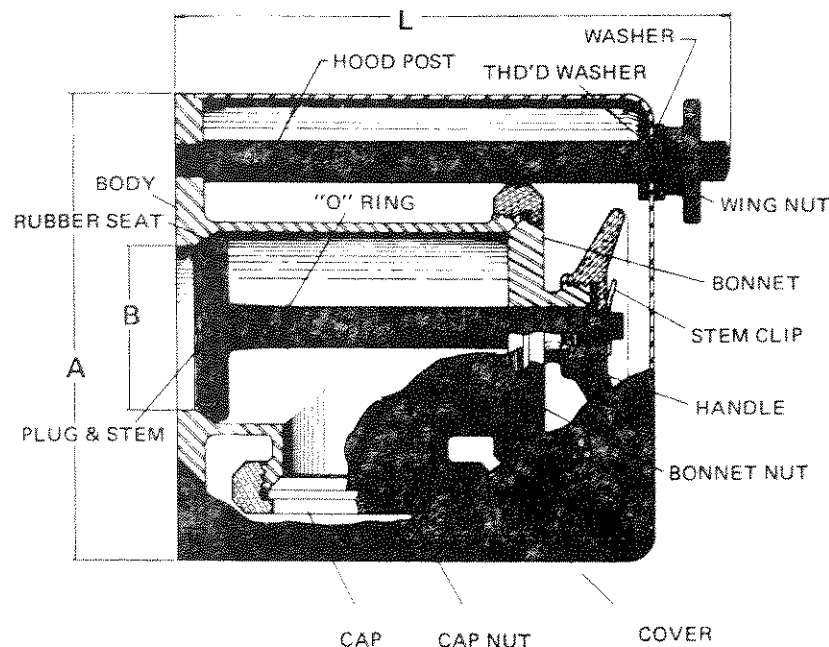
(Continued Next Page)

NOZZLES AND SWIVELS ALSO AVAILABLE WITH VITON-A SEALS FOR USE WITH GASOLINES & CHEMICALS.

TRUCK TANK VALVE SF60TTF3-A

Solid Bonnet, "O" Ring on Stem complete with cap, nut and cover.

*Bonnet Nut 3½" size.



SIZE	L	A	B	BOLT CIRCLE	BOLT DIA.	NO. HOLES
3	11	8-9/16	3.000	6	11/16	4

PART NUMBER	DESCRIPTION
SF60TTF3-1A	Body, Stainless
SF60TTF3-2	Body Gasket, Wh. Neo.
SF60TTF3-2AB	Rubber Seat, Black
SF60TTF3-2AS	Stem/Plug Assembly
SF60TTF3-2AW	Rubber Seat, White
SF60TTF3-3N	Bonnet Nut (3½")
SF60TTF3-3SD	Bonnet, Solid
SF60TTF3-6	Handle
SF60TTF3-9	Stem Clip
SF60TTF3-10A	Hood Post, 5/8-11
SF60TTF3-10T	Threaded Cover Washer (5/8-11)
SF60TTF3-11A	Wing Nut (Cover) 5/8-11
SF60TTF3-12	Cover Aluminum
SF60TTF3-13H	Nut, Stainless 3"
SF60TTF3-13N	Nut, Nylon 3"
SF60TTF3-16H	Cap, Stainless
SF60TTF3-16N	Cap, Nylon
SF60TTF90211	Stem O-Ring

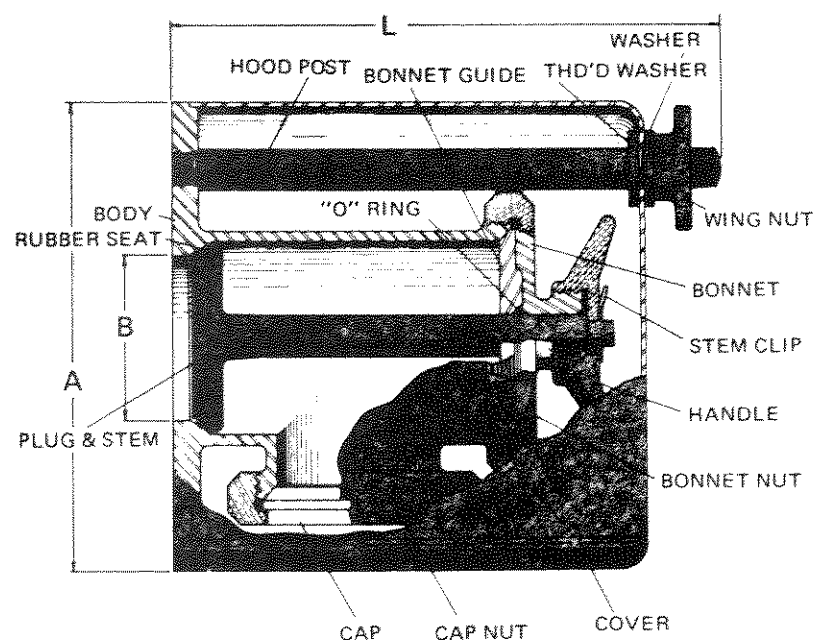
WRENCHES

SF25H-30	Hex Wrench, Nut 3"
SF25H-31	Hex Wrench, Nut 3"
	Stubby
SF25H-35	Hex Wrench, Nut 3½"

TRUCK TANK VALVE SF60TTF3-B

Split Bonnet (No "O" Ring on Stem) complete with cap, nut and cover.

*Bonnet and outlet nut same size-3"



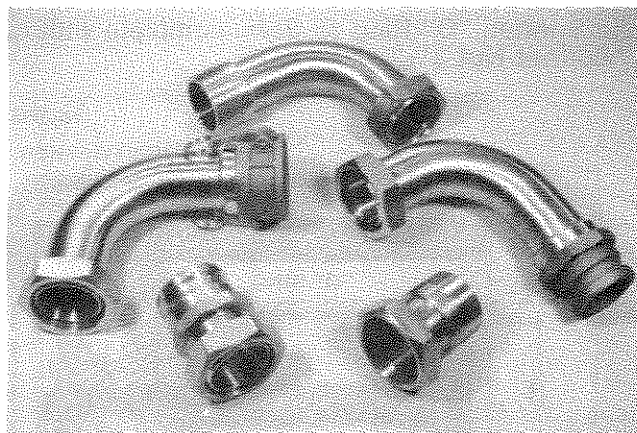
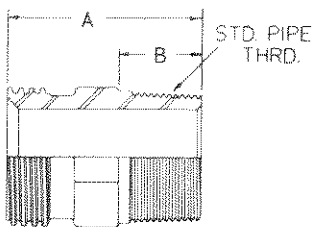
SIZE	L	A	B	BOLT CIRCLE	BOLT DIA.	NO. HOLES
3	11	8-9/16	3.000	6	11/16	4

PART NUMBER	DESCRIPTION
SF60TTF3-1B	Body, Stainless
SF60TTF3-2	Body Gasket, Wh. Neo.
SF60TTF3-2BB	Rubber Seat, Black
SF60TTF3-2BW	Rubber Seat, White
SF60TTF3-3	Bonnet
SF60TTF3-3A	Bonnet Guide
SF60TTF3-3N	Bonnet Nut (3½")
SF60TTF3-6	Handle
SF60TTF3-9	Stem Clip
SF60TTF3-10B	Hood Post, 3/4-16
SF60TTF3-10X	Threaded Cover Washer (3/4-10)
SF60TTF3-11B	Wing Nut (Cover) 3/4-16
SF60TTF3-12	Cover, Aluminum
SF60TTF3-13H	Nut, Stainless 3"
SF60TTF3-13N	Nut, Nylon 3"
SF60TTF3-16H	Cap, Stainless
SF60TTF3-16N	Cap, Nylon
SF60TTF90209	Stem Guide
SF60TTF90210	Stem O-Ring
SF25H-30	Hex Wrench, Nut 3"
SF25H-31	Hex Wrench, Nut 3" (short)
SF25H-35	Hex Wrench, Nut 3½"
SF60TTF3-2BS	Stem/Plug Assembly

SANITARY FITTINGS AND ADAPTERS

21 ADAPTER

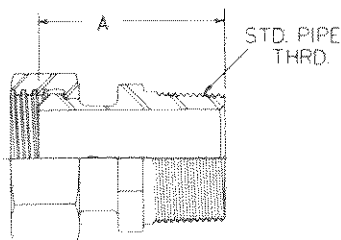
Size Tube O.D.	A	B
1	2 $\frac{1}{4}$	2 $\frac{1}{32}$
1 $\frac{1}{2}$	2 $\frac{7}{16}$	2 $\frac{3}{32}$
2	2 $\frac{21}{32}$	$\frac{3}{4}$
2 $\frac{1}{2}$	3 $\frac{9}{32}$	1 $\frac{1}{8}$
3	3 $\frac{1}{2}$	1 $\frac{3}{16}$
4	3 $\frac{13}{16}$	1 $\frac{9}{64}$



SF3LFN-FQC ELB, 90, SS, 3" BEVEL NUT X FQC
SF3LFN-MPT ELB, 90, SS, 3" BEVEL NUT X MPT
SF3LFN-MQC ELB, 90, SS, 3" BEVEL NUT X FQC
SF3SFN-MQC STRAIGHT SS, 3" BEVEL NUT X MQC

21-14 ADAPTER

Size Tube O.D.	A
1	2 $\frac{29}{32}$
1 $\frac{1}{2}$	2 $\frac{15}{16}$
2	3
2 $\frac{1}{2}$	3 $\frac{5}{8}$
3	4 $\frac{5}{32}$
4	4 $\frac{17}{32}$

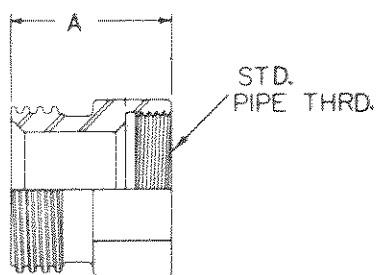


VALVE TO PUMP CONNECTIONS

SF90-3SR ELB, 90, 3" BEV PLN END, LESS NUT (SHORT RADIUS)
SFHA-3SH STR APTR, 3" BEV/HOSE SHK, LESS NUT
SF60TTF3-13H NUT, STAINLESS 3"
35-472-30 FDA, CLEAR PVC HOSE 3"

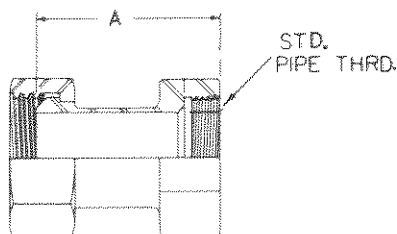
22 ADAPTER

Size Tube O.D.	A
1	1 $\frac{13}{16}$
1 $\frac{1}{2}$	1 $\frac{13}{16}$
2	1 $\frac{15}{16}$
2 $\frac{1}{2}$	2 $\frac{7}{16}$
3	2 $\frac{5}{8}$
4	3



22-14 ADAPTER

Size Tube O.D.	A
1	2 $\frac{1}{2}$
1 $\frac{1}{2}$	2 $\frac{13}{16}$
2	2 $\frac{23}{32}$
2 $\frac{1}{2}$	3 $\frac{1}{4}$
3	3 $\frac{27}{32}$
4	4 $\frac{7}{32}$

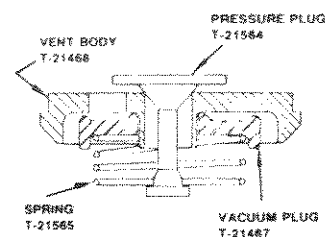


CERTIFIED DOUBLE ACTING OLSON VENT

These double acting, anti-splash, sanitary transport vents have been scientifically designed and thoroughly tested. They are far superior, in venting capabilities, to any other device available for sanitary tanks.

THE TRANSPORT VENT WILL:

1. Limit vacuum during pump out at 300 GPM to less than $\frac{3}{4}$ psig.
2. Limit air or vapor pressure to 5 psig.
3. Prevent spill during surge.
4. Prevent fluid leakage on inclines.



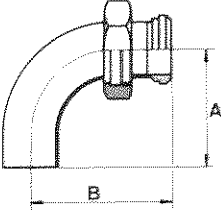
WARNING

These are not intended to be a substitute for the necessary and safe practice of opening the manhole cover before loading or unloading.

#SFT-21642 OLSEN VENT PRESS/VAC

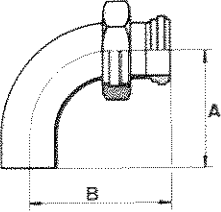
SANITARY FITTINGS AND ADAPTERS

G2F. Elbow 90°, butt-weld to 14 and 13H. No. 7 finish

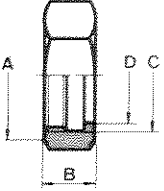
	Nom. size	A	B
	1	2 3/16	2 29/32
	1 1/2	2 15/16	3 21/32
	2	4 1/16	4 13/16
	2 1/2	5 3/16	6 1/16
	3	6 5/16	7 7/32
	4	8 5/16	9 7/16

SF90-3SR Less 13H Nut - Short Radius

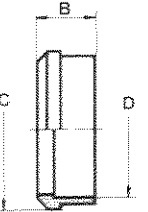
Elbow 90°, butt-weld to 14

	Nom. size	A	B
	3	6 5/16	5 1/2

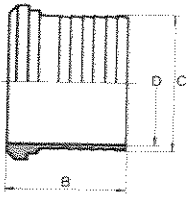
13H. Hex union nut

	Nom. size	D	A	B	C
	1	1 3/16	1 3/4	29/32	1 17/32
	1 1/2	1 3/4	2 11/32	31/32	2 1/16
	2	2 1/4	2 15/16	1 1/16	2 5/8
	2 1/2	2 3/4	3 17/32	1 3/16	3 1/8
	3	3 1/4	4 1/8	1 9/32	3 21/32
	4	4 5/16	5 11/32	1 1/2	4 3/4

14. Union ferrule. plain, No. 1 finish

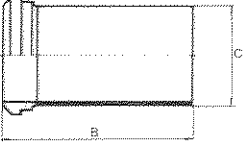
	Nom. size	A	B	C	D
	1	1	3/4	1 5/16	7/8
	1 1/2	1 1/2	7/8	1 27/32	2 3/8
	2	2	1 1/16	2 29/32	3 1/8
	2 1/2	2 1/2	1 1/8	3 7/16	4 1/2
	3	3	1 1/4	4 1/2	
	4	4			

14AHR. Rubber hose adapter

	Nom. size	B	C	E
	1	1 11/16	1	7/8
	1 1/2	2 1/32	1 1/2	1 3/8
	2	2 5/16	2	1 7/8
	2 1/2	2 1/2	2 1/2	2 3/8
	3	2 11/16	3	2 27/32
	4	3 1/8	4	3 27/32

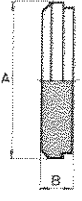
	Nom. size	B	C
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14AHT. Tygon hose adapter

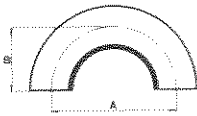
	Nom. size	B	C
	1	4 11/16	1 1/2
	1 1/2	4 23/32	2
	2	4 23/32	2 1/2
	2 1/2	4 27/32	3
	3	4 29/32	4
	4	5 7/32	

16A. Solid end cap

AISI 304

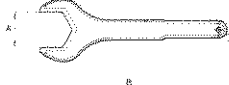
	Nom. size	A	B	Code No.	US\$
	1	1 5/16	15/32	9611-34-328-0	5.10
	1 1/2	1 27/32	9/16	9611-34-328-1	5.10
	2	2 3/8	5/8	9611-34-328-2	7.10
	2 1/2	2 29/32	21/32	9611-34-328-3	11.60
	3	3 7/16	23/32	9611-34-328-4	16.50
	4	4 1/2	13/16	9611-34-328-5	35.30

G2WU. Return bend, 180°. No. 1 finish

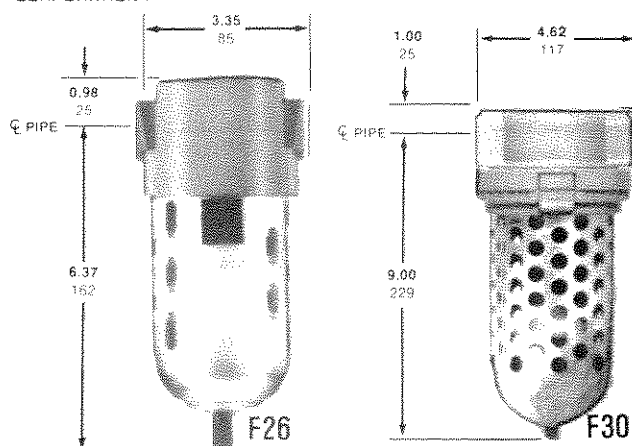
	Nom. size	A	B
	1	3	1 1/2
	1 1/2	4 1/2	2 1/4
	2	6	3
	2 1/2	7 1/2	3 3/4
	3	9	4 1/2
	4	12	6

Wrenches

25H. Wrench for hex union nuts
(Stubby Wrench Available)

	Nom. size	A	B
	1	1 55/64	11
	1 1/2	2 15/32	12 3/4
	2	3 1/16	15
	2 1/2	3 21/32	17 1/2
	3	4 1/4	21
	4	5 31/64	23 1/4

**IMMEDIATE DELIVERY
Is Available
From Our New Abundant
Warehouse**

WILKERSON
CORPORATION**FILTERS****STANDARD SIZE**

Model No	Pipe Size*	SCFM**	dm ³ /s
F26-04-000	1/2" NPT	138	65

- 5-micron-rated reusable element standard
- Quick-disconnect bowl guard with integral plastic bowl and safety warning latch standard
- Manual Flex-Drain™ standard
- Bowl capacity: 10 oz. (2.6 dl)

JUMBO SIZE

Model No	Pipe Size*	SCFM**	dm ³ /s
F30-06-000	3/4" NPT	226	126

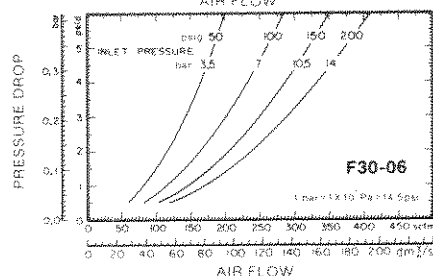
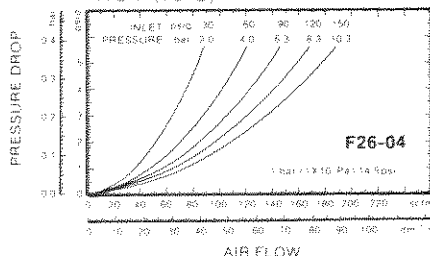
- 5-micron rated reusable element standard
- 3-micron throw-away element optional
- Quick-disconnect clamp ring for easy bowl removal
- Manual Flex-Drain™ standard—flex from any direction to drain; release to shut off
- Bowl capacity: 1 qt. (1.0 l)
- Transparent bowl with metal bowl guard std.

Maximum operating conditions:

Transparent Bowls:
150 PSIG (10 bar) and 125°F (52°C)

Metal Bowls:
F26 - 250 PSIG (17 bar) and 175°F (79°C)

F30 - 200 PSIG (14 bar) and 175°F (79°C)



** Maximum recommended air flow at 100 PSIG (7 bar)

Filter Parts Available.**WARNING****DO NOT PLACE PLASTIC BOWL UNIT IN SERVICE WITHOUT METAL BOWL GUARD INSTALLED.**

Plastic bowl units are sold only with metal bowl guards. To minimize the danger of flying fragments in the event of plastic bowl failure, the metal bowl guards should not be removed. If the unit is in service without the metal bowl guard installed, manufacturer's warranties are void, and the manufacturer assumes no responsibility for any resulting loss.

IF UNIT HAS BEEN IN SERVICE AND DOES NOT HAVE A METAL BOWL GUARD, ORDER ONE AND INSTALL BEFORE PLACING BACK IN SERVICE.

CAUTION

Certain compressor oils, chemicals, household cleaners, solvents, paints and fumes will attack plastic bowls and can cause bowl failure. Do not use near these materials. When bowl becomes dirty replace bowl or wipe only with a clean, dry cloth. Reinstall metal bowl guard or buy and install a metal bowl guard. Immediately replace any crazed, cracked, damaged or deteriorated plastic bowl with a metal bowl or a new plastic bowl and a metal bowl guard.

CAUTION

Except as otherwise specified by the manufacturer, this product is specifically designed for compressed air service, and use with any other fluid (liquid or gas) is a misapplication. For example, use with or injection of certain hazardous liquids or gases in the system (such as alcohol or liquid petroleum gas) could be harmful to the unit or result in a combustible condition or hazardous external leakage. Manufacturer's warranties are void in the event of misapplication, and manufacturer assumes no responsibility for any resulting loss. Before using with fluids other than air, or for non-industrial applications, or for life support systems consult manufacturer for written approval.

Number

WCF20-04-000
WCF30-06-000
WCFRP-95-062
WCFRP-95-063
WCFRP-95-209
WCFRP-95-236
WCFRP-95-271
WCFRP-95-831
WCFRP-95-832
WCGRP-95-154
WCGRP-95-804
WCGRP-95-808
WCGRP-96-404

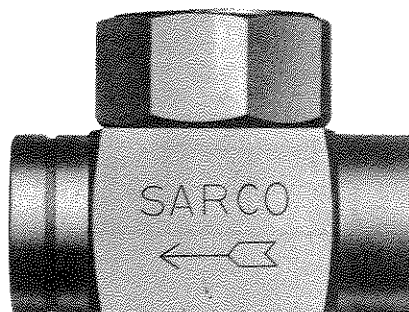
Description

Air Filter Complete 1/2"
Air Filter Complete 3/4"
Baffle 3/4", 1"
Baffle 1/2"
Filter Element 3/4", 1"
Filter Element 1/2"
Filter Element Only 3/4", 1"
Plastic Bowl, Drain, Guard 1/2"
Plastic Bowl, Drain, Guard 3/4", 1"
Clamp Ring Assembly 1/2"
Bowl Guard Only 1/2"
Bowl Guard Only 3/4", 1"
Clamp Ring Assembly 3/4", 1"

U/M

Ea.
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SPIRAX SARCO INC.

**TD-52 Thermo-Dynamic®
Steam Trap****Capacities**

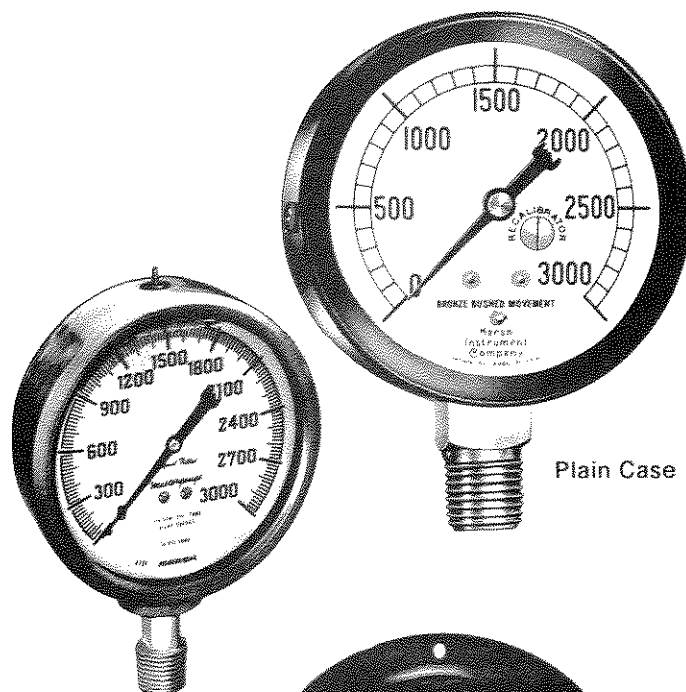
Pounds of condensate per hour continuous discharge at saturated steam temperature to atmosphere.

Inlet psig	Press. bar	1/2" TD-52	TD-52 3/4"	Inlet psig	Press. bar	1/2" TD-52	TD-52 3/4"
3.5	24	300	405	200	13.8	1140	1670
5	34	310	420	250	17.2	1270	1900
10	69	345	470	300	20.7	1410	2100
20	1.4	410	560	350	24.1	1530	2250
30	2.1	465	640	400	27.6	1630	2430
50	3.5	575	810	450	31.0	1730	2600
75	5.2	700	1000	500	34.5	1830	2750
100	6.9	810	1160	550	37.9	1910	2900
150	10.3	1000	1450	600	41.4	2000	3050

For kg/hr multiply above by .454.

PART NO. DESCRIPTION STANDARD GAUGE

15-100-04	30 PSI, 2" DIA. 1/8 CBM
15-100-08	30 PSI, 2 1/2" DIA. 1/4 BM
15-100-10	300 PSI, 3 1/2" DIA. 1/4 BM
15-100-12	30 PSI, 4 1/2" DIA. 1/4 BM
15-100-16-1	PLSTC 60 PSI, 2", 1/4 BM
15-100-17	60 PSI 2 1/2" DIA. 1/4 BM
15-100-18	60 PSI, 3 1/2" DIA. 1/4 BM
15-100-21	160 PSI, 2" DIA. 1/4 CBM
15-100-22	160 PSI, 2" DIA. 1/8 CBM
15-100-23	160 PSI, 2 1/2" DIA. 1/8 CBM
15-100-29	100 PSI, 2 1/2" DIA. 1/4 BM
15-100-30	200 PSI, 2 1/2" DIA. 1/4 BM
15-100-30-1	PLSTC 200 PSI, 2", 1/4 BM
15-100-40	300 PSI, 4 1/2" DIA. 1/4 BM
15-100-50	600 PSI, 4 1/2" DIA. 1/4 BM
15-100-65	2000 PSI, 2 1/2" DIA. 1/4 BM
15-400-05	30" HG VAC, 2" DIA. 1/4 BM

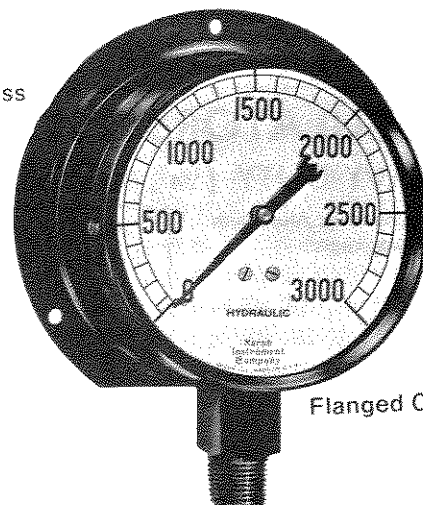


Plain Case

COMPOUND GAUGE

Liquid-Filled Stainless Steel

15-300-05	30/30 COMP, LIQ. FILLED
15-300-08	30/60 COMP, 2 1/2" 1/4 BM
15-300-10	30/100 COMP, 2 1/2", 1/4 BM
15-300-20	30/30 COMP, 3 1/2" BM
15-300-30	30/150 COMP, 2 1/2", 1/4 BM



Flanged Case

FLANGED CASE

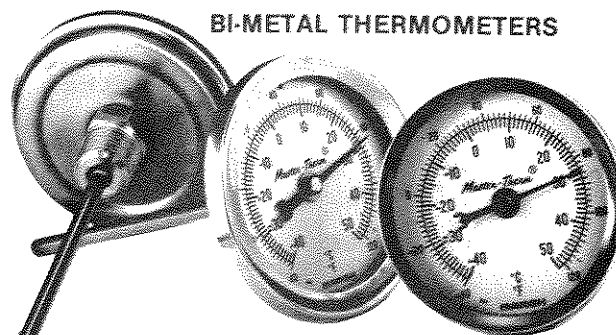
15-100-15	30 PSI FLGCS 4 1/2", 1/4 BM
15-100-19	60 PSI FLGCS 4 1/2", 1/4 BM

STAINLESS STEEL LIQUID FILLED

GEMC307GAG	60#, 2 1/2", 1/4 BM
GEMC307GAG-2	60#, 2 1/2", 1/4 BRASS BM

BI-METAL THERMOMETERS

15-400-203	T204 1/2" NPT x 6" WELL
15-500-05	0-250, 3" x 6", 1/2 NPT
15-500-06	0-250, 3" x 9", 1/2 NPT
15-500-07	50-500, 3" x 9", 1/2 NPT

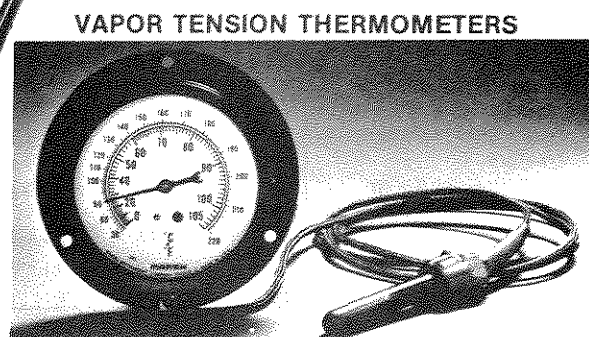


BI-METAL THERMOMETERS

VAPOR TENSION THERMOMETERS

15-600-05	THERM/PANEL MTG, S/S, 5' TUBE, 30-300F
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OTHER SIZES AND MATERIALS AVAILABLE



VAPOR TENSION THERMOMETERS

FILTERS



GENERAL PURPOSE (1/4", 3/8"; 1/2" Series)

- Poly-C bowl and plastic guard or Zinc bowl with sight glass.
- Filter Rating: 40 micron
- Temperature Ranges:
Poly-C 40°-120°F at 150 PSIG max. Zinc: 40°-150°F at 250 PSIG max.

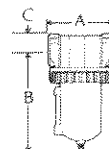
Port Size (inches)	Flow (SCFM)	Bowl Capacity	Model Number*	Dimensions (inches)		
				A	B	C
1/4	53.0	5 oz.	F602-02-BJ F602-02-WJ	2-1/2	5-1/16	1/2
3/8	77.0	5 oz.	F602-03-BJ F602-03-WJ	2-1/2	5-1/16	1/2
1/2	106.0	8 oz.	F602-04-BJ F602-04-WJ	3-1/4	5-7/32	19/32



HEAVY-DUTY (3/4", 1"; 1 1/4", 1 1/2" Series)

- Capacity: 16 oz. Zinc bowl with sight glass
- Filter Rating: 40 micron
- Temperature Range/
Pressure: 40°-150°F at 250 PSIG max.

Port Size (inches)	Flow (SCFM)	Model Number	Dimensions (inches)		
			A	B	C
3/4	250.0	F602-06-WJ	4-9/16	7-1/8	1 5/16
1	350.0	F602-08-WJ	4-9/16	7-1/8	1 5/16
1-1/4	370.0	F602-10-WJ	5-5/16	8-1/4	1 9/32
1-1/2	380.0	F602-12-WJ	5-5/16	8-1/4	1 9/32

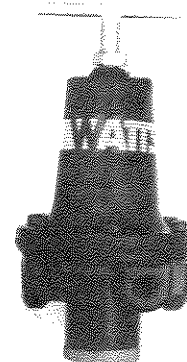
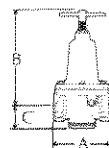


REGULATORS

HEAVY-DUTY (1/4", 3/8"; 1/2"; 3/4", 1"; 1 1/4", 1 1/2" Series)

- Zinc body. Aluminum alloy cage.

Port Size (inches)	Flow (SCFM)	Model Number	Dimensions (inches)		
			A	B	C
1/4	105.0	R119-02-C	2-3/4	4-13/16	1-3/8
3/8	125.0	R119-03-C	2-3/4	4-13/16	1-3/8
1/2	200.0	R119-04-C	3-1/4	5-9/32	1-15/32
3/4	380.0	R119-06-C	4-5/16	8-1/2	1-15/16
1	380.0	R119-08-C	4-7/16	8-1/2	1-15/16
1-1/4	380.0	R119-10-C	4-15/16	8-15/16	1-7/8
1-1/2	380.0	R119-12-C	4-15/16	8-15/16	1-7/8



AIR LUBRICATORS

GENERAL PURPOSE (1/4", 3/8"; 1/2" Series)

- Poly-C with plastic bowl guard, or Zinc bowl with sight glass.
- Temperature Ranges:
Poly-C 40°-120°F at 150 PSIG max. Zinc: 40°-150°F at 250 PSIG max.

Port Size (inches)	Flow (SCFM)	Bowl Capacity	Model Number*	Dimensions (inches)		
				A	B	C
1/4	55.0	5 oz.	L606-02-B L606-02-W	2-1/2	5-1/16	2-1/32
3/8	88.0	5 oz.	L606-03-B L606-03-W	2-1/2	5-1/16	2-1/32
1/2	127.0	8 oz.	L606-04-B L606-04-W	3-1/4	5-1/16	2-9/16



*Model numbers with "B" suffix are for Poly-C bowl, and with "W" suffix are for Zinc bowl with sight glass.



HEAVY-DUTY (3/4", 1"; 1 1/4", 1 1/2" Series)

- Capacity: 16 oz. Zinc bowl
- Sight glass standard feature.
- Temperature Range:
40°-120°F at 250 PSIG max.

Port Size (inches)	Flow (SCFM)	Model Number	Dimensions (inches)		
			A	B	C
3/4	290.0	L606-06-W	4-1/16	7-1/4	2-5/8
1	320.0	L606-08-W	4-1/16	7-1/4	2-5/8
1-1/4	495.0	L606-10-W	4-13/16	7-5/8	2-27/32
1-1/2	570.0	L606-12-W	4-13/16	7-5/8	2-27/32



Note: All flows taken at 100 PSIG supply pressure, and 5 PSIG pressure drop.

THREADED FITTINGS

Threaded fittings are used in low and high pressure systems depending upon material used. These fittings allow quick construction and frequent disassembly and assembly for repairs.

MATERIALS — 150 lb. fittings are available in: Malleable Iron —Stainless Steel



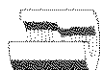
90° ELL



45° ELL



TEE AND REDUCING TEE



REDUCING COUPLING



COUPLING



HEX BUSHING



90° STREET ELBOWS



SQUARE HEAD PLUG



HEX HEAD PLUG



45° STREET ELBOWS



UNION



NIPPLE

FLANGES

A flange joins two pieces of pipe or connect up valves in a piping system. It may be cast, forged or a ring of steel cut from plate.

MATERIALS — Available in:

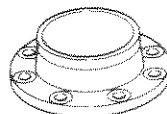
Carbon Steel — ASTM A-105
Stainless Steel — ASTM A-182
and various Alloys

SLIP ON



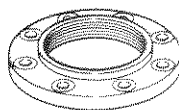
Preferred for their virtual low cost, reduced accuracy required in cutting pipe to length and somewhat greater ease of alignment of the assembly.

WELDING NECK



Preferred for severe service condition. The tapered hub provides an important reinforcement of the flange.

THREADED



Chief merit lies in that it can be assembled with no welding. Usually limited to piping systems 2" and under. Used for low pressure systems.

LAP JOINT



Chief use is in services requiring frequent dismantling for inspection and cleaning. Used in conjunction with stub ends.

NOTE: Flanges are generally manufactured in pressure classes of 150, 300, 400, 600, 900, 1500 and 2500 lbs.

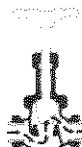
VALVES

GATE



Gate valves are designed to insure a straight line flow, and to reduce to a minimum the pressure drop due to friction. Should be used in liquid lines, pump lines, and main supply lines where unrestricted flow is desired. Not recommended for throttling applications.

GLOBE



Globe valves are used to regulate or throttle fluid flow from none to full capacity. The change in direction of fluid flow through the valve produces increased resistance and considerable pressure drop in globe valves.

CHECK



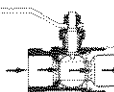
Check valves are used to prevent the back-flow in a pipeline. Offers quick automatic reaction to flow changes. The pressure of flowing fluid keeps the valve open, and any reversal of flow closes it. They are also used as a safety device to protect equipment, product and human lives.

PLUG



Plug valves are used primarily for on-off service and in limited throttling applications. Has quarter turn operation and tight shut-off characteristics.

BALL



Ball valves are used to shut off or permit full flow of fluid. Offers quarter turn operation and low maintenance costs with easy repair characteristics. Flow control applications.

BUTTERFLY

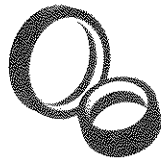


Butterfly valves are low pressure shutoff valves of simple design. Normally not intended for tight shutoff but resilient seats have broadened their possibilities. Easy to install and relatively low in cost.

BOLTING DIMENSIONS FOR 150 LB. FLANGES

Nom Pipe Size	150 Lb. Steel Flanges					
	Outside Diameter	Diam of Bolt Circle	Diam of Bolts	No. of Bolts	Length of Bolts	
					Stud Bolts Raised Face	Machine Bolts Raised Face
1/2	3-1/2	2-3/8	1/2	4	2-1/4	1-3/4
3/4	3-7/8	2-3/4	1/2	4	2-1/4	2
1	4-1/4	3-1/8	1/2	4	2-1/2	2
1-1/4	4-5/8	3-1/2	1/2	4	2-1/2	2-1/4
1-1/2	5	3-7/8	1/2	4	2-3/4	2-1/4
2	6	4-3/4	5/8	4	3	2-3/4
2-1/2	7	5-1/2	5/8	4	3-1/4	3
3	7-1/2	6	5/8	4	3-1/2	3
3-1/2	8-1/2	7	5/8	8	3-1/2	3
4	9	7-1/2	5/8	8	3-1/2	3
5	10	8-1/2	3/4	8	3-3/4	3-1/4
6	11	9-1/2	3/4	8	3-3/4	3-1/4
8	13-1/2	11-3/4	3/4	8	4	3-1/2
10	16	14-1/4	7/8	12	4-1/2	3-3/4
12	19	17	7/8	12	4-1/2	4

**ASK US
ABOUT OUR
COMPLETE LINE
OF PIPING
PRODUCTS**



STANDARD GASKET

Victaulic® Standard Gasket is designed for use with coupling Styles 77, 75, 78, 775, and HP-70. It is identified as Gasket Style 77/75/78. Similar for Styles 41, 44 and 22.

Gasket Selection

Victaulic offers a variety of synthetic rubber gaskets to provide the option of selecting grooved piping products for the widest range of applications. To assure the maximum life for the service intended, proper gasket selection and specification in ordering is essential.

Many factors must be considered in determining the optimum gasket for a specific service. The foremost consideration is temperature, along with concentration of product, duration of service and continuity of service. Temperatures beyond the recommended limits have a degrading effect on the gasket. Therefore, there is a direct relationship between temperature, continuity of service and gasket life.

Services listed are General Service Recommendations only. It should be noted that there are services for which these gaskets are *not* recommended. Reference should *always* be made to the latest Victaulic Gasket Selection Guide for specific gasket service recommendations and for a listing of services which are not recommended.

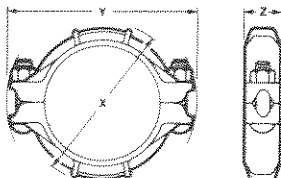
Gasket recommendations apply only to Victaulic gaskets. Recommendations for a particular service do not necessarily imply compatibility of the coupling housing, related fittings or other components for the same service.

Standard Gaskets

Grade	Temp. Range	Compound	Color Code	General Service Recommendations
E	-30°F to +230°F	EPDM	Green Stripe	Recommended for hot water service within the specified temperature range plus a variety of dilute acids, oil-free air, and many chemical services. <i>Not recommended for petroleum services.</i>
T	-20°F to +180°F	Nitrile	Orange Stripe	Recommended for petroleum products, air with oil vapors, vegetable and mineral oils, within the specified temperature range, except hot dry air over +140°F and water over +150°F. <i>Not recommended for hot water services.</i>

Viton Also Available.

Style 75 Lightweight



Pipe Size	Max. Working Pressure PSI*	Allow. Pipe End Sep. in.*	Deflection from 0°		Dimensions/Inches			Weight each Lbs.
			Degrees per Coupling	In. per 20' Pipe	X	Y	Z	
2	500	0-1/8	3°-1'	12.6	3 1/2	5 1/8	1 3/4	1.6
2 1/2	500	0-1/8	2°-29'	10.4	4	5 7/8	1 3/4	2.0
3	500	0-1/8	2°-3'	8.6	4 1/8	6 3/4	1 3/4	2.5
3 1/2	500	0-1/8	1°-48'	7.5	4 7/8	7 3/4	1 3/4	3.0
4	400	0-1/8	3°-11'	13.3	5 1/8	8	2	3.5
4 1/2	400	0-1/8	2°-52'	12.0	6 3/8	9 1/8	2	5.0
5	400	0-1/8	2°-35'	10.8	7	10 1/8	2	5.5
6	400	0-1/8	2°-10'	9.1	7 7/8	11	2	6.7
8	350	0-1/8	1°-40'	7.0	10 3/8	14	2 3/8	12.5

* On cut grooved standard steel pipe prepared in accordance with Victaulic specifications. Refer to Victaulic Piping Design Manual for performance on other pipe.

Materials Specifications

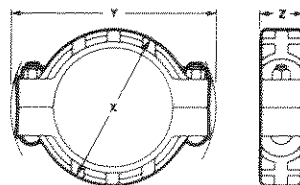
Optional Gaskets

Grade	Temp. Range	Compound	Color Code	General Service Recommendations
M	-20°F to +200°F	Halogenated Butyl	Brown Stripe	Recommended for water service within the specified temperature range plus a variety of dilute acids, oil-free air, and many chemical services. Readily conforms to ductile pipe surfaces. <i>Not recommended for petroleum services.</i>
M2	-40°F to +160°F	Epichlorohydrin	White Stripe	Specially compounded to provide superior service for common aromatic fuels at low temperatures. Also suitable for certain ambient temperature water services.
S	-20°F to +180°F	Nitrile	Red Stripe	Specially compounded to conform to ductile pipe surfaces. Recommended for petroleum products, air with oil vapors, vegetable and mineral oils, within the specified temperature range, except hot dry air over +140°F and water over +150°F. <i>Not recommended for hot water services.</i>
V	+30°F to +180°F	Neoprene	Yellow Stripe	Recommended for hot lubricating oils and certain chemicals. Good oxidation resistance. Will not support combustion. Also available in white neoprene. Contact Victaulic for details.
O	+20°F to +300°F	Fluoro-elastomer	Blue Stripe	Recommended for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids and air with hydrocarbons to +300°F.
L*	-30°F to +350°F	Silicone	Red Gasket	Recommended for dry heat, air without hydrocarbons to +350°F and certain chemical services.
W	-20°F to +180°F	White Nitrile	White Gasket	No carbon black content. May be used for food services not subject to FDA requirements.
T EndSeal®	-20°F to +150°F	Nitrile	None-External Identification	Specially compounded with excellent oil resistance and a high modulus for resistance to extrusion. Temperature range -20°F to +150°F. Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range. <i>Not recommended for hot water services over +150°F or for hot dry air over +140°F.</i> For maximum gasket life under pressure extremes, temperature should be limited to +120°F. Special FIRE-R™ EndSeal gasket available, qualified to API 607 standards.

* FIT Products silicone gaskets are recommended for fire protection dry systems, all systems operating below 0°F, plus dry heat, air without hydrocarbons, certain chemical services, and water to +160°F.

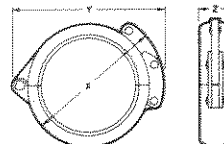
PRODUCT DATA Couplings (For IPS)

Style 77 Standard



Pipe Size	Max. Working Pressure PSI*	Allow. Pipe End Sep. in.*	Deflection from 0°		Dimensions/Inches			Weight each Lbs.
			Degrees per Coupling	In. per 20' Pipe	X	Y	Z	
1/2	1000	0-1/8	6°-47'	28.6	2 1/8	3 3/8	1 3/4	1.3
1	1000	0-1/8	5°-26'	22.8	2 3/8	3 7/8	1 3/4	1.4
1 1/4	1000	0-1/8	4°-19'	18.1	2 3/4	4 1/8	1 3/4	2.1
1 1/2	1000	0-1/8	3°-46'	15.8	3	5	1 3/4	2.3
2	1000	0-1/8	3°-1'	12.6	3 5/8	5 1/8	1 3/4	2.7
2 1/2	1000	0-1/8	2°-29'	10.4	4 1/8	6 1/8	1 3/4	3.8
3	1000	0-1/8	2°-3'	8.6	5	7	1 3/4	4.2
3 1/2	1000	0-1/8	1°-48'	7.5	5 5/8	8	1 3/4	5.0
4	1000	0-1/8	3°-11'	13.3	6 1/8	8 1/2	2	7.0
5	1000	0-1/8	2°-35'	10.8	7 1/8	10 1/2	2	11.5
6	1000	0-1/8	2°-10'	9.1	9	11 1/2	2	13.5
8	800	0-1/8	1°-40'	7.0	11 1/8	14 1/2	2 3/8	23.0

Style 78 Snap-Joint®



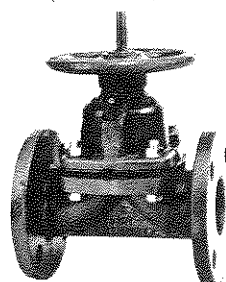
Pipe Size	Max. Working Pressure PSI*	Allow. Pipe End Sep. in.*	Deflection from 0°		Dimensions/Inches			Weight each Lbs.
			Degrees per Coupling	In. per 20' Pipe	X	Y	Z	
1	300	0-1/8	5°-26'	22.8	2 3/8	3 3/8	1 3/4	0.9
1 1/4	300	0-1/8	4°-19'	18.1	3 1/8	3 3/4	1 3/4	1.2
1 1/2	300	0-1/8	3°-46'	15.8	3 1/2	4 1/8	1 3/4	1.5
2	300	0-1/8	3°-1'	12.6	4	4 3/8	1 3/4	1.5
2 1/2	300	0-1/8	2°-29'	10.4	4 3/8	5 1/8	1 3/4	2.5
3	300	0-1/8	2°-3'	8.6	5 1/8	6 1/8	1 3/4	3.2
4	300	0-1/8	3°-11'	13.3	6 1/8	7 3/8	2	5.5
5	300	0-1/8	2°-35'	10.8	8 3/8	9 1/2	2	9.9
6	300	0-1/8	2°-10'	9.1	8 3/8	10 1/2	2	10.6
8	300	0-1/8	1°-40'	7.0	11 1/8	13	2 3/8	14.8

* On cut grooved standard steel pipe prepared in accordance with Victaulic specifications.

ITT Grinnell Diaphragm Valves

Weir type bodies

Selection of the most suitable body material, body lining and diaphragm materials for a specific service depends on several variables: economic considerations; nature of the material handled, its concentration and corrosiveness; temperature; pressure; velocity and continuity of flow.



Flanged Metal*

1/2"-20" Iron	2431
1/2"-8" Bronze	2432
1/2"-10" Stainless Steel	2433
1/2"-10" Aluminum	2434
1/2"-10" Cast Steel	2435
1/2"-10" CN7M	2437
1/2"-8" Ductile Iron	2441

Flanged Plastic Lined* Cast Iron

3/4"-6" PVC	2536
3/4"-8" Saran	2537
3/4"-8" Polypropylene	2538
3/4"-8" Tefzel	2529

Ductile Iron

3/4"-8" Kynar	2555
3/4"-8" Saran	2557
3/4"-8" Polypropylene	2558
3/4"-8" Tefzel	2559

Cast Steel

3/4"-8" Polypropylene	2546
3/4"-8" Saran	2547

Flanged Rubber Lined*

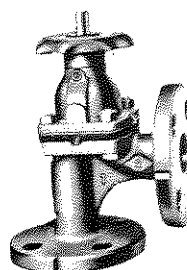
Cast Iron

1/2"-18" Neoprene #7	2501
1/2"-18" Soft Rubber #5	2516
1/2"-18" Hard Rubber #10	2521
3/4"-18" Butyl #16	2522
3/4"-18" Hypalon #9	2523
3/4"-18" Soft Gum Rubber #11	
1/2"-18" #5471 #12	2530

Ductile Iron

3/4"-18" Neoprene #7	2550
3/4"-18" Soft Rubber #5	2551
3/4"-18" Hard Rubber #10	2552

*All 3/4" flanged valves are actually 1" valves with the end flanges machined and drilled to 3/4" dimensions. Bonnets and diaphragms for 3/4" flanged valves will therefore be 1" size.

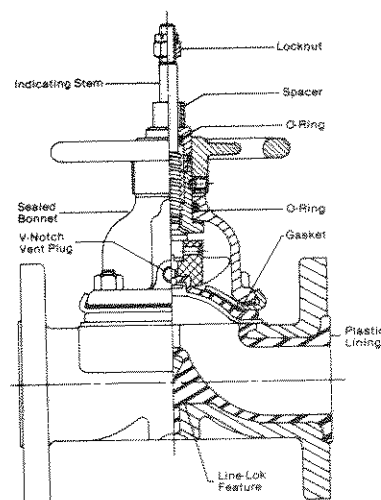


Flanged Angle

1/2"-8" Iron	2611
1/2"-8" Bronze	2612
1/2"-8" Stainless Steel	2613
1/2"-8" Aluminum	2614
1/2"-8" Carbon Steel	2615

Flanged Lined Angle (Iron)

1/2"-8" Neoprene #7	2621
1/2"-8" Glass	2622
1/2"-8" Soft Rubber #5	2623
1/2"-8" Hard Rubber #10	2624

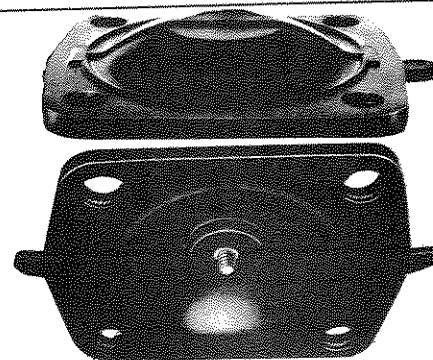


Choice of diaphragms

Diaphragm life depends not only upon the nature of the material handled — but also upon the temperature, pressure and frequency of operation.

Elastomer diaphragm

Elastomer diaphragms are molded in the closed position. This unique design offers a number of advantages. (1) longer diaphragm life (2) lower closing torques, (3) a constant closing torque for (4) special construction permits use under full vacuum



Note: tabs on diaphragms indicate diaphragm grade and size.

Diaphragm selection†

Valve	Grade	Material	Size	Typical Services	Temp. °F	
					Min.	Max.
Weir type elastomers	A	Gum Rubber (Faced)	3/4"-4"	Abrasives	-20	160
	B	Black butyl	1/2"-12"	Chemicals, gases, stronger acids	-20	250
	C	Hypalon	1/2"-20"	Oxidizing fluids, oil resistant	0	225
	M	Ethylene propylene	1/2"-14"	Chemicals, acids, hi-temp, abrasives	-30	300
	P	Buna N	1/4"-12"	Foods, oils	10	180
	S	Natural rubber	1/2"-14"	Water	-30	180
	T	Neoprene	1/2"-20"	Weak chemicals, air, oil resistant	-20	200
	V	Viton	1/2"-6"	Specific solvents & chemicals, oils	-20	325
Weir type plastics*	WB	White butyl	1/2"-8"	Foods, beverages	0	225
	R-2	Tetrafluoroethylene (TFE)	1/2"-10"	Severe chemicals, solvents	-30	350
	Z-2	Tetrafluoroethylene (TFE)	1/2"-4"	Severe chemicals, solvents	-30	280

*With ethylene propylene backing cushion.
Diaphragms at maximum temperatures cannot be used satisfactorily at maximum pressures.
as a guide to the maximum combinations.

†To be used as General guide:

**HAYWARD**

Hayward Industrial Products, Inc.

Safe Block™

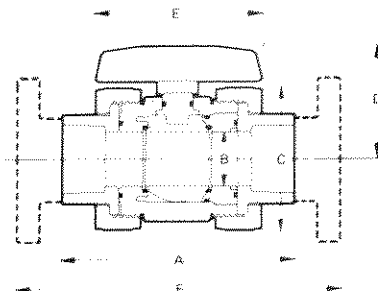
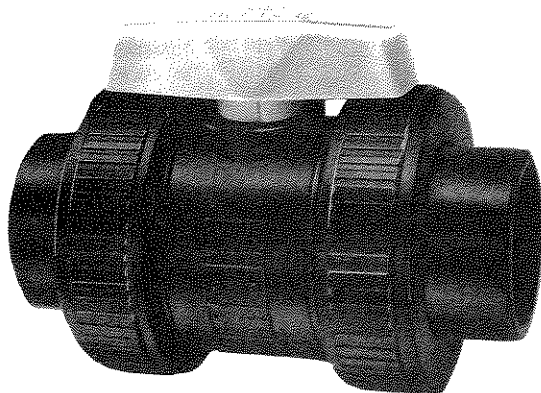
True Union Ball Valve

Double union connections allow easy removal from pipeline.

Size: 1/4"-6"

Material: PVC/CPVC/Polypropylene

End Conn: Threaded/Socket/Flanged

**DIMENSIONS**—Dimensions are in inches for reference only. For installation purposes, request certified drawings.

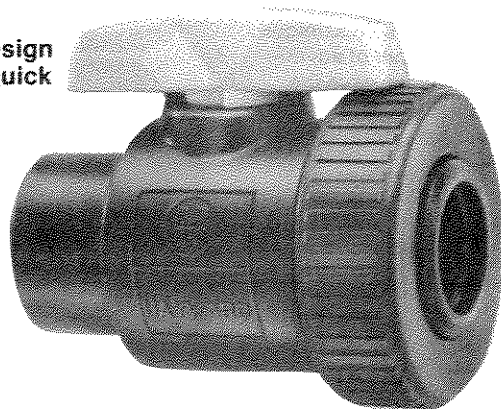
Size	A	B	C	D	E	F	Weight in LBS.	
							Socket/Threaded	Flanged
1/4	4.5/8	1/2	2.1/4	1.7/8	3	—	3/4	—
3/8	4.5/8	1/2	2.1/4	1.7/8	3	—	3/4	—
1/2	4.5/8	1/2	2.1/4	1.7/8	3	6.3/4	3/4	—
3/4	4.3/4	3/4	2.5/8	2	3	7.1/8	3/4	—
1	5.1/4	1	3	2.5/8	4	7.3/4	1.1/8	2.1/8
1-1/4	6.7/16	1.1/4	3.9/16	2.7/8	4	9.7/16	1.3/4	2.3/4
1-1/2	6.3/4	1.1/2	4	3	4	9.3/4	2.1/8	3.5/8
2	8	2	4.3/4	3.5/8	5	11.1/4	3.3/4	6.1/4
2-1/2	10.9/16	3	6.9/16	5.1/2	9.1/2	14.3/8	10.1/2	16
3	10.9/16	3	6.9/16	5.1/2	9.1/2	14.7/16	10.1/2	16
4	12.7/16	4	8.9/16	6.1/2	9.1/2	16.5/16	28.1/2	37.1/2
6	—	4	8.9/16	6.1/2	9.1/2	19.3/16	—	45.1/2

CV FACTORS

Size	GPM
1/4	1.0
3/8	8.0
1/2	8.0
3/4	15.0
1	29.0
1-1/4	75.0
1-1/2	90.0
2	140.0
2-1/2	330.0
3	480.0
4	600.0
6	600.0

Single Entry Ball Valve

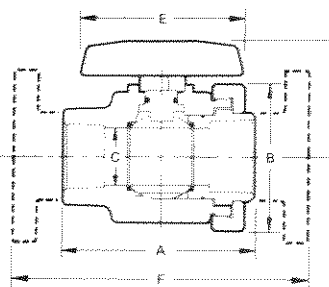
Proven Hayward design with full-flow and quick acting shutoff.



Size: 1/4"-6"

Material: PVC

End Conn: Threaded / Socket / Flanged

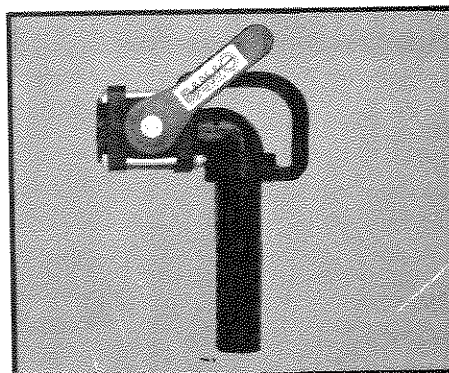
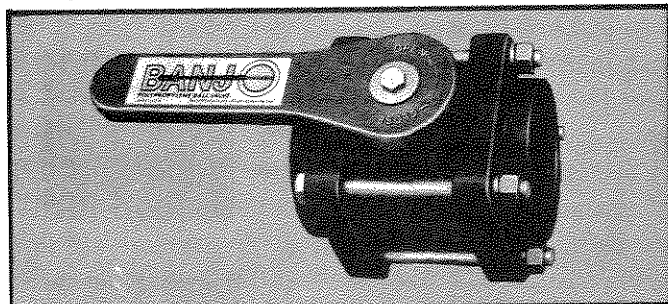


Size	A	B	C	D	E	F	Weight in LBS.		Size	GPM
							Socket/Threaded	Flanged		
1/4	3.3/8	2.1/4	1/2	1.7/8	3	—	1/2	—	1/4	1.0
3/8	3.3/8	2.1/4	1/2	1.7/8	3	—	1/2	—	3/8	8.0
1/2	3.3/8	2.1/4	1/2	1.7/8	3	5.1/2	1/2	1	1/2	8.0
3/4	3.3/4	2.5/8	3/4	2	3	6	3/4	1.3/8	3/4	16.0
1	4.3/8	3	1	2.5/8	4	7	1.1/8	2	1	29.0
1-1/4	5	3.9/16	1.1/4	2.7/8	4	7.7/8	2.3/4	1.3/4	1-1/4	75.0
1-1/2	5.3/8	4	1.1/2	3	4	8.3/8	2	3.1/4	1-1/2	90.0
2	6.7/16	4.3/4	2	3.5/8	5	9.3/4	3.1/2	5.1/2	2	140.0
2-1/2	8.3/4	6.5/8	2.1/2	5.1/2	9.1/2	12.9/16	11	14.1/2	2-1/2	330.0
3	8.3/4	6.5/8	3	5.1/2	9.1/2	12.5/8	10	15	3	480.0
4	10.1/2	8.5/8	4	6.1/2	9.1/2	14.3/8	21	29	4	600.0
6"	—	8.5/8	4	6.1/2	9.1/2	17.1/4	—	37	6	600.0

POLYPROPYLENE BALL VALVES

Lightweight hose end valve for convenient transfer of liquids. Angle end flange with 8" long polypropylene fill spout. Same features as straight through valve.

#TP-VA200/150
2" FPT INLET, 1 1/2" OUTLET



Drumming Nozzle available in Poly, Brass, Stainless or Steel.

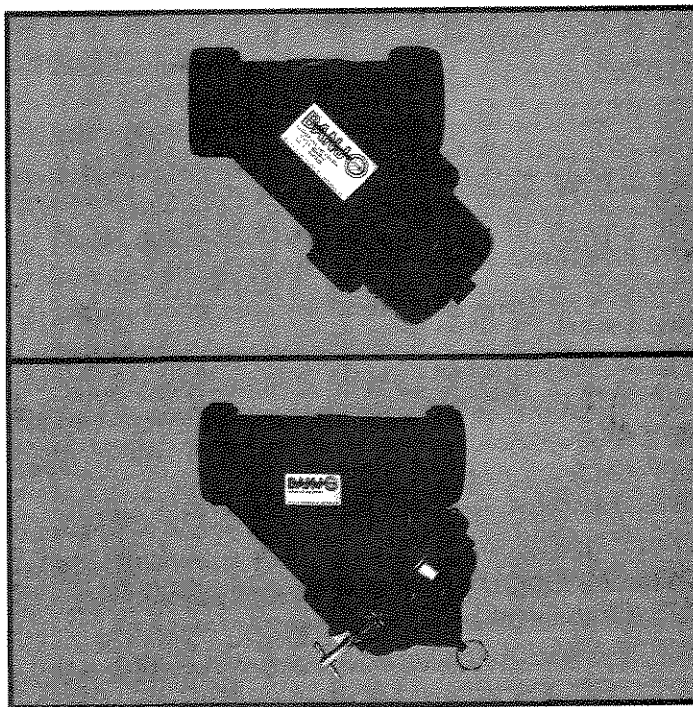
POLYPROPYLENE LINE STRAINERS

1/2" THRU 2" LINE STRAINER FEATURES:

- Precision Molded Construction
- Corrosion Resistant
- Lightweight
- Fiberglass Reinforced
- Easy Grip End Cap
- Stainless Steel and Polypropylene Screens
- EPDM Gasket
- Heavy Duty End Cap Threads
- 75 PSI max. (1 1/2" and 2" sizes)

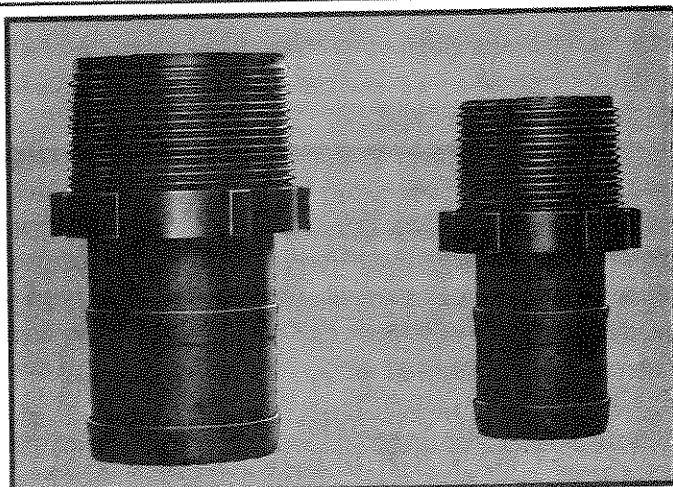
3" LINE STRAINER FEATURES:

- Lightweight
- High Volume
- Constructed of Glass Filled Poly
- Stainless Steel "T" Handle Clamp
- 1/2" Drain Plug in the Bottom of Cap
- Reinforced Stainless Steel Screen
- 50 PSI max. (3" sizes)

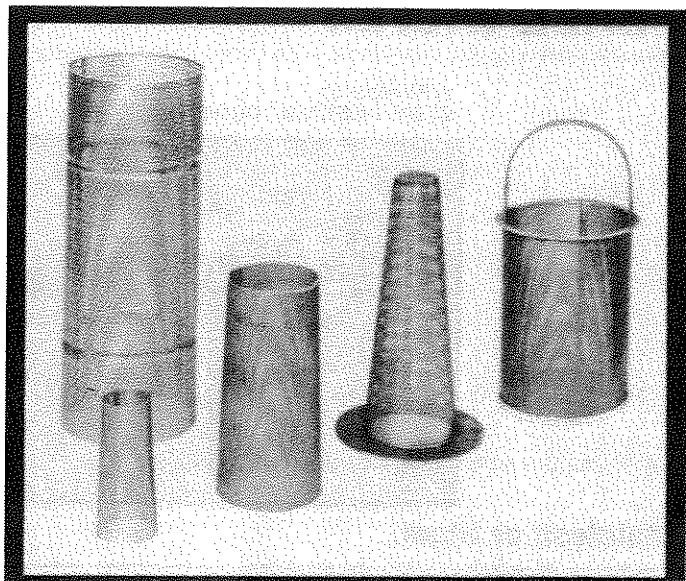


POLYPROPYLENE HOSE BARB FEATURES:

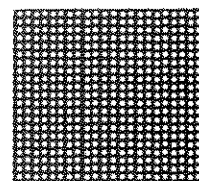
- Precision molded in polypropylene.
- Hose Barbs are designed specifically to fit properly when inserted into hose.
- Polypropylene is glass filled for rugged strength and durability.



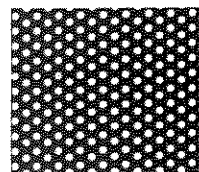
PART NO.	DESCRIPTION
HB-150	1 1/2" MPT x 1 1/2" Hose Barb
HB-200	2" MPT x 2" Hose Barb
HP-200/150	2" MPT x 1 1/2" Hose Barb
HB-300	3" MPT x 3" Hose Barb



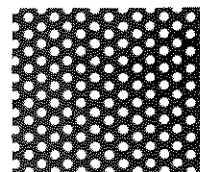
.024 Dia.
517 Holes Per
Sq. In.
24% Open Area



.033 Dia.
237 Holes Per
Sq. In.
21% Open Area



.045 Dia.
169 Holes Per
Sq. In.
27% Open Area



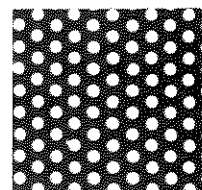
SCREENING ELEMENTS

The efficiency of a strainer is dependent upon the size of perforations or number of mesh in the screening element. On water service, for instance where it is desired to strain foreign matter, 3/64" openings or larger are likely to be required. If it is desired to strain ingredients as fine as silt, a 100 or finer mesh should be employed. Selection of the right screen material requires judgment. Brass is commonly employed. For food products stainless steel screens should be used. For chemical service it is often required to make screens from special materials.

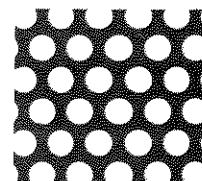
Monel screen is suitable for brine or sea water. Brass screens may be used in brass bodies. Stainless steel is not recommended.

Non-ferrous screens are recommended for temperatures up to 406° F. For higher temperatures monel or stainless steel screens are furnished. Screens, when made from sheet brass, can be furnished with perforations ranging from 1/64 to 1/2 inch diameters. When made from sheet steel, monel or stainless steel, the perforations range from 1/32 to 1/2 inch diameters. Meshed materials can be furnished in brass, monel, or stainless steel. The material and desired size of mesh opening must be specified.

.0625 Dia.
98 Holes Per
Sq. In.
30% Open Area



.125 Dia.
33 Holes Per
Sq. In.
40% Open Area



SELECTION OF STRAINERS

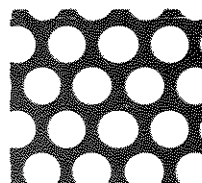
The effect of liquids, steam, and gases on both strainer bodies and screens requires careful judgment in choosing the materials that will render the longest trouble free service. To aid in selecting the most suitable metal for a specific service, the chart at right lists some of the common subjects encountered. For fluids or gases not listed, send a complete description of your problem of our recommendations. Wire mesh screens can be furnished in the following mesh—20, 30, 40, 50, 60, 80, and 100. Finer mesh screens also available.

With inquiries or orders, always specify service, pressure, and temperature the strainers are intended for. Type of screen (perforated or mesh), material, and size of perforation or number of mesh should also be specified. If no screen information is given, a perforated brass screen will be furnished in flanged iron body strainers. Perforated stainless screen will be furnished in all steel strainers. In style "B" strainers 1/4"-30 mesh, 3/8" thru 2"-20 mesh, stainless steel screens furnished 2 1/2" and 3", brass perforated.

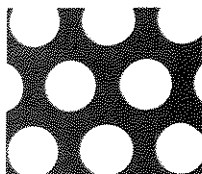
All strainers can be furnished in aluminum, brass, ductile iron, stainless steel and carbon steel, both screwed and flanged. Ductile iron is required for LP gas service.

We can make screens and baskets for other make strainers, as well as custom fabricated wire mesh or perforated items when drawings are provided.

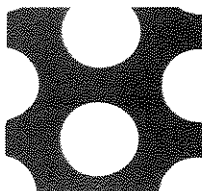
.1875 Dia.
51% Open Area



0.25 Dia.
40% Open Area



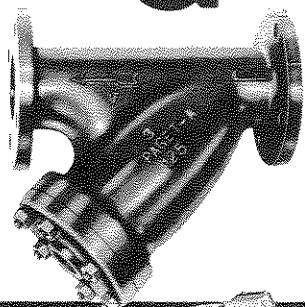
.375 Dia.
40% Open Area



**LET US BID ON CUSTOM SCREENS & BASKETS
TO YOUR SPECIFICATIONS**

PAGET

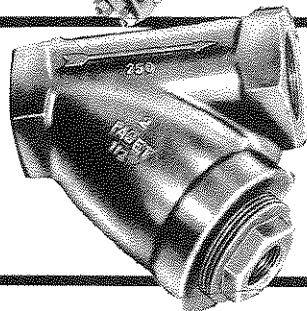
SELF-CLEANING "Y-TYPE" STRAINERS



TYPE "A" FLANGED ENDS and BLOW-OFF CAP

Standard — 125 lbs. DIMENSIONS and WEIGHTS
125 PSI at 450° F 200 PSI W.O.G.

Size, Inches	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12
A	7 3/8	10 3/8	11 7/8	13 1/4	14 3/4	16 1/4	18	20 1/2	25	31	34 1/2
D	6 1/4	8	9 1/4	10 1/2	12	13	15	16 1/2	20	24 1/2	28
F	2 1/4	2 1/2	2 5/8	3	3 1/8	3 3/8	3 1/2	3 3/4	5	6	6 1/2
G	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2
Weight, Pounds	17	39	47	65	95	107	140	215	343	659	1117

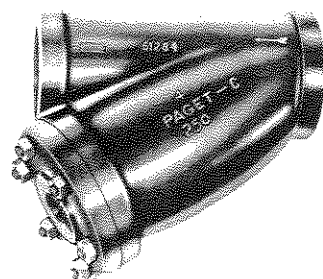


TYPE "B" SCREWED ENDS and SCREWED BLOW-OFF

Standard type for general service. Semi-steel body — Brass screen. Rated 250 lbs.
Saturated steam — 400 lbs. Water, oil or gas at 100° F. non-shock.

DIMENSIONS and WEIGHTS

Size, Inches	A	D	F	G	Weight, Pounds	Size, Inches	A	D	F	G	Weight, Pounds
1/4	2 1/2	2	7/16	3/8	1	1 1/4	5 1/2	4 1/2	1 1/4	3/4	8
3/8	3 1/2	3	7/8	7/8	2	1 1/2	5	5	1 1/4	1	8
1/2	3 3/4	3	1 1/8	1 1/2	2 1/4	2	7 1/4	5	1 1/4	1 1/4	14.5
3/4	3 3/4	3	1 3/8	1 1/2	2 1/4	2 1/2	9	6 3/8	1 3/8	1 1/4	26
1	5	4	1 1/2	3/4	4 1/2	3	10	7 1/8	1 7/8	1 1/4	34

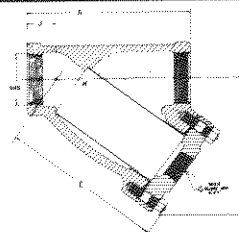


TYPE "C" SCREWED ENDS and FLANGED BLOW-OFF CAP

250 LBS. SATURATED STEAM—450° F
400 LBS. WATER—OIL—GAS

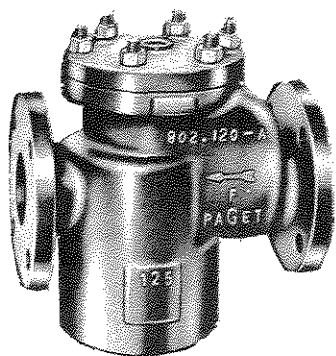
DIMENSIONS and WEIGHTS

Size, Inches	2	2 1/2	3	4
A	8	9	10	14 1/4
D	6 1/2	8	8 3/4	11
F	2 1/4	1 3/4	1 5/8	1 3/4
G	1	1 1/4	1 1/4	1 1/4
Weight, Pounds	19	32	40	100



CUT-AWAY VIEW and DIMENSION DIAGRAM for TYPES "A", "B", and "C"

STRAITWAY SELF-CLEANING STRAINERS



SELF-CLEANING "BASKET TYPE" STRAINERS

125 LBS. SATURATED STEAM; 175 LBS.—WATER, OIL or GAS at 150° F
NON-SHOCK AVAILABLE IN SIZES 2" THRU 12"

PAGET basket type strainers are used on pressure and suction pipe lines carrying fluids. Their use is to remove foreign material to protect automatic valves, controls, meters, pumps and other shop equipment.

Applications of PAGET basket strainers include cooling water for air conditioning systems, recirculating process water, swimming pools, water systems, oil

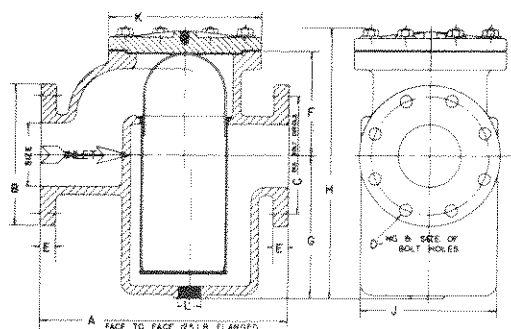
storage and handling facilities, chemical and food processing.

Internal passage areas of PAGET basket strainers are greater than connecting pipe area. Exceptionally large baskets are provided to reduce to a minimum pressure drop thru the strainer. The larger sized basket means less frequent removal for cleaning.

Insert on Basket Strainers

Strainers can also be furnished with clamp cover. This type cover has one bolt, which makes for quick

opening. Clamps for strainers from 2" thru 4" are made of ductile iron. Over 4" clamps are made of steel.



Size	A Face to Face	B Dia. of Flange	C Dia. of Circle	D No. & Size Holes	E Thick. of Flange	F	G Center to Bottom	H	J	K Dia. of Cover	L Size (Approx.)	Weight Lbs.
2"	9 1/8	6	4 3/4	4—3/8	3/8	3 3/8	3 3/8	9	4 7/8	5 sq.	3/4	30
2 1/2"	10 3/8	7	5 1/2	4—3/8	1 1/16	4 1/8	5 1/2	11	5 3/4	6 1/2	3/4	54
3"	13	7 1/2	6	4—3/8	3/8	5 1/2	6 1/4	13 3/4	7 3/4	8 1/2	3/4	72
4"	15 7/8	9	7 1/2	8—3/8	1 1/16	6 5/8	9 1/8	17 3/8	8 3/4	9 3/4	1	130
5"	18 1/2	10	8 1/2	8—7/8	1 1/16	8	11	20 3/4	9 1/2	10 5/8	1	150
6"	19 1/4	11	9 1/2	8—7/8	1	9	13 3/16	24 1/8	10 3/4	12	1 1/4	235
8"	25	13 1/2	11 3/4	8—3/8	1 1/8	11	18 1/4	31 3/8	12 5/8	15	1 1/4	435
10"	29 1/2	16	14 1/4	12—1	1 3/16	13 1/2	20 3/4	36 3/8	16	18	1 1/2	789
12"	33 3/4	19	17	12—1	1 1/2	16	24 3/8	43	20 1/4	21	1 1/2	1180

STRAHMAN automatic water-saver spray nozzle

(CAUTION: Not for use on Steam Hose Lines)

INSTRUCTIONS FOR SERVICING

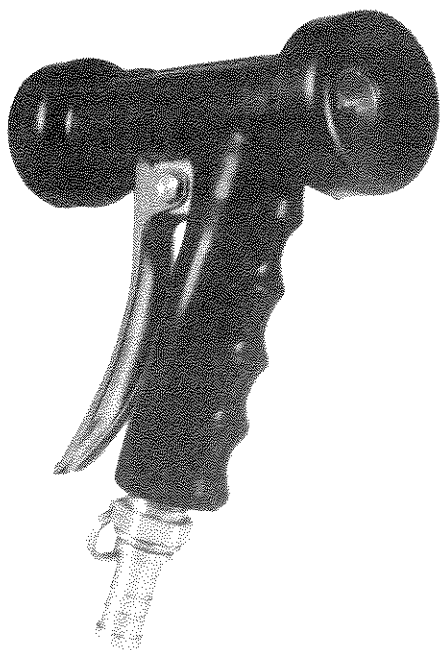
The entire working parts of the Strahman Automatic Water-Saver Spray Nozzle are contained in a single cartridge (S). This cartridge can be removed by:

1. Remove rubber cover (20) by slipping rubber off back of nozzle and pulling over front.
2. Remove lever arm screw (24) and remove lever arm (6).
3. Unscrew lock screw (30) and extract cartridge from back end of nozzle.
4. To insert new cartridge, reverse above procedure. (Immerse a new rubber cover in a mild solution of soap and warm water, to ease replacement.)
5. Be sure when replacing cage (18) to place

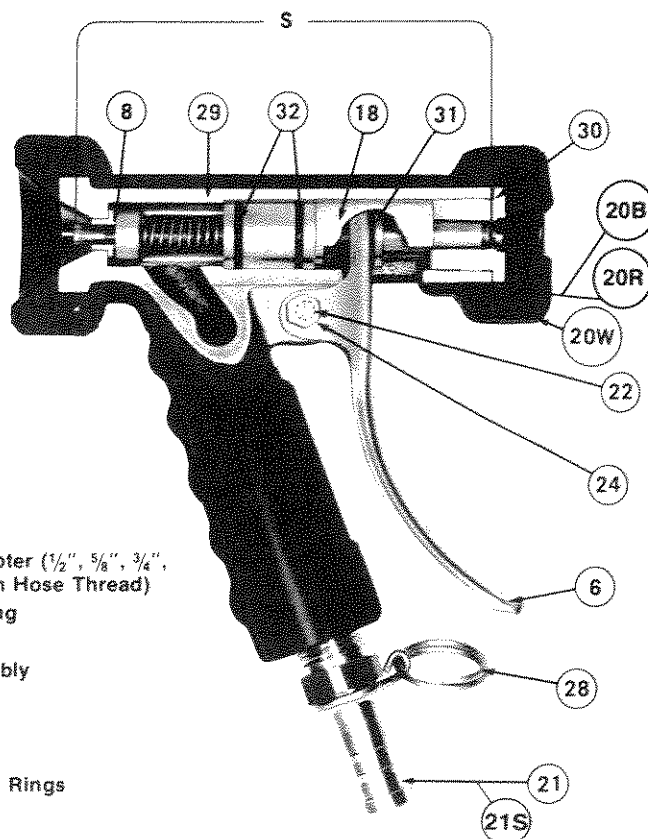
cut-away part of cage facing downward, so lever arm (6) can be inserted.

6. Be sure lever arm is placed ahead of stem guide (31).
7. Stainless steel seat (8) can be renewed by extracting cartridge and inserting new seat. To be replaced only at factory.
8. Body sealing "O" rings (32) can easily be replaced.

The Renewable Rubber Cover is a valuable protection to your sturdy precision built Water-Saver Spray Nozzle. When the rubber cover becomes worn, as it will in normal use, be sure to slip on a new rubber cover as soon as it is needed and so insure against damage to your nozzle and other equipment with which it may come in contact.



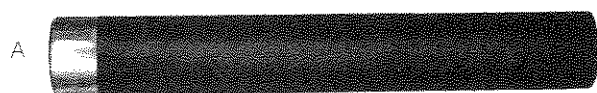
MODEL M-70 (Black Cover)
MODEL M-75 (White Cover)
MODEL M-77 (Red Cover)



PARTS LIST

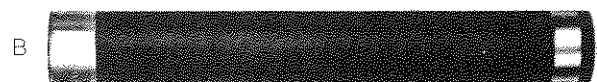
- | | | | |
|-----|---|-----|---|
| S | Renewable Cartridge Unit containing all working parts | 21S | Swivel Hose Adapter ($\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{3}{4}$ " Swivel Garden Hose Thread) |
| 6 | Lever Arm | 22 | Lever Arm Bushing |
| *8 | Stainless Steel Seat | 24 | Lever Arm Screw |
| 18 | Cage | 28 | Lock Ring Assembly |
| 20B | Renewable Rubber Cover (Black) | 29 | Body |
| 20R | Renewable Rubber Cover (Red) | 30 | Lock Screw |
| 20W | Renewable Rubber Cover (White) | 31 | Stem Guide |
| 21 | Hose Adapter ($\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{3}{4}$ " Garden Hose Thread) | 32 | Body Sealing "O" Rings |

*See Note #7 Above



Water Savers

Model A



Compact interchangeable heavy duty water saver.



A terrific unit for use by service stations, soft drink manufacturers, breweries, and dairy industries, where a soft volume stream of water or other liquids is handled from an open hose. The water or other liquids need not ever be shut off when the job is done. The liquid will only pass through when pressure is applied to the hose end. By this design, consumption can be reduced substantially.

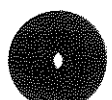
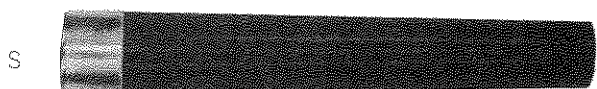


Model B

Interchangeable, durable water saver.

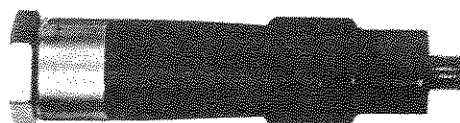


This unit will perform the same operations as the Model A Water Saver, but due to a special insert in the outlet end of the hose, a spray tip for a forced, concentrated stream of the liquid is obtained. Through the design of this spray tip, you can do away with booster pumps and still obtain a powerful concentrated stream of liquid.



Replacement Parts for all Water Savers

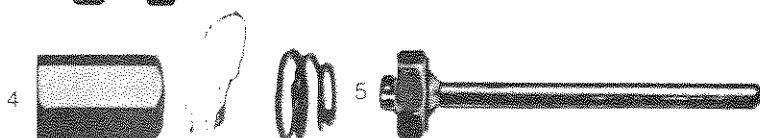
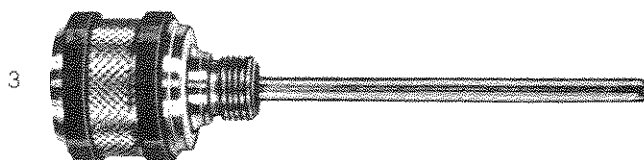
Models A,B,L,M,R,S, & FINESPRAY



Finespray

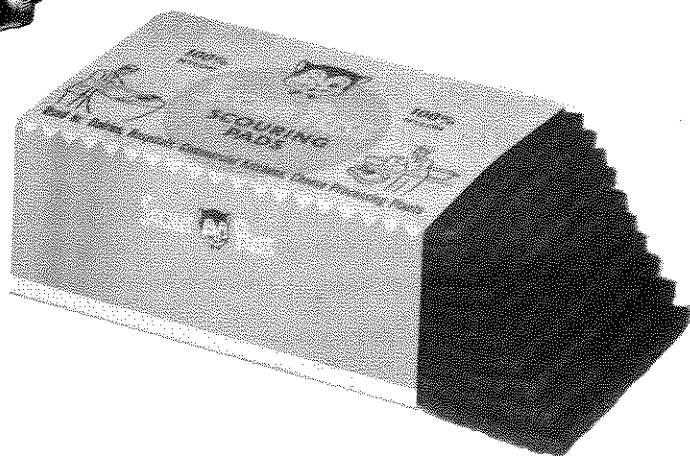
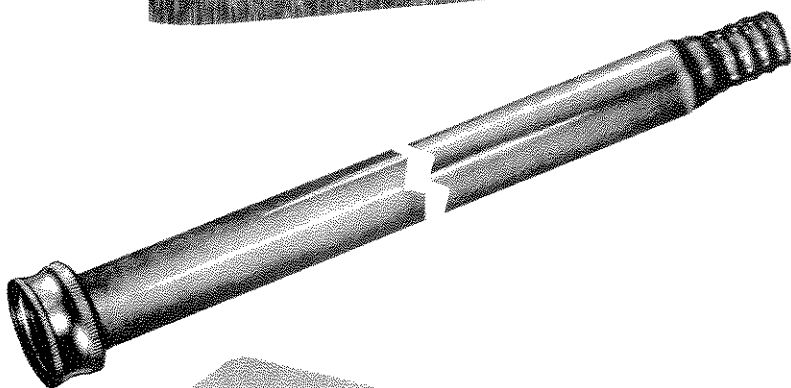
Male threaded connection not shown.

1



Money saving replacement parts for long service of original equipment.

1. Hose Ends for A, B, L, M, R, S & FINESPRAY
2. Water Saver Throw Pin
3. Water Saver Valve — includes head & pin assembly.
4. Nozzle for FINESPRAY.
No. 1. Head — Recommended for Floral Industry.
No. 2. Head — Recommended for Printing Industry.
5. Throw Pin Assembly for FINESPRAY.

TRUCK WASHERS—*Fountain Type***Snow White
Flagged Polypropylene****DUAL-PURPOSE FOUNTAIN OR
BUCKET BRUSH—*Deluxe Oblong***

The top tool for cleaning highly polished surfaces. Dirt, dust and grime are literally "washed up" when attacked by this brush. Wire staple-set construction into structural foam plastic block. Easy-to-use, oblong type, with protective vinyl bumpers to prevent marring and scratching. 1 tapered and 1 threaded handle hole for fountain handle. Use as either a bucket type washer or a fountain brush.

NUMBER	DESCRIPTION	U/M
16-100-61	Standard Truck Wash Brush	Ea.

Handles: Not included in price or

**FOUNTAIN TRUCK WASHER—Oblong
DUAL PURPOSE FOUNTAIN OR
BUCKET TYPE BRUSH**

This brush provides maximum efficiency and is one of the best brushes for the price. Delivers a constant flow of water through the hollow handle. Grey patent fiber or Flagged Zimran Green, 2 color Grey or Tampico color, staple-set into natural waterproofed structural foam plastic block that has one standard Acme threaded hole and one tapered handle hole, which permits the brush to also be used as a bucket-type washer if desired. Vinyl bumper encircles the block to prevent accidental scratching. Ideal for keeping the truck fleet sleek!

NUMBER	DESCRIPTION	U/M
16-100-26	Fountain Truck Wash Brush	

Handles: Not included in prices

STEEL FOUNTAIN HANDLE

A hollow tubular steel handle with 3/4" hose adapter attached. Standard Acme threaded tip; baked enamel finish.

Also Available: Roll Towels, C-Fold Towels, Toilet Tissue, Wipers, Squeegees, Straight or Curved.

Brooms—push, street or warehouse.

Hand Pads

dark green—heavy duty scouring pad for jobs requiring rugged scouring action. replaces steel wool and scrapers for those tough-to-clean spots. measures 6 x 9 1/2 x 3/8 inches. packed 10 pads per carton, 6 cartons per case.

**Stainless
Steel
Sponge**

stainless steel sponge — the most aggressive of all metal sponges. Made from one piece of stainless steel. Won't pull apart, shred, or rust. Suitable for all types of cleaning. See current price sheet for packaging details.

Dynagrip

Plastic Coated Wet Grip



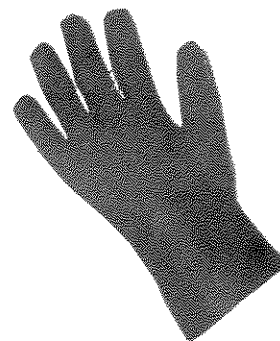
DYNAGRIP is a superior abrasion resistant and excellent chemical resistant work glove. Made with a 2-piece jersey shell and special plastic overcoating, DYNAGRIP offers double thickness protection with the

comfort and flexibility of one. This model features a wet grip that lasts for the life of the glove. DYNAGRIP gloves are superior for handling oil, acids, caustics and many solvents.

Features:

- Nonslip wet grip finish.
- Curved fingers — fit natural contour of the hand.
- No seams on wearing surface.
- Superior flexibility.

No.	Style	Size	Coated
512	12" Gauntlet	M.L.	Fully



Granecon

Plastic Coated Super Flexible



GRANECON is an excellent general purpose work glove with exceptional pliability, permitting finger dexterity not possible in most work gloves. Its soft jersey lining, formed out of two separate pieces, eliminates seams on the wearing surface and avoids any possible irritation from within.

GRANECON offers abrasion resistance with excellent gripping qualities.

Features:

- Economical general purpose glove.
- Curved fingers — fit natural shape of the hand.
- Abrasion resistant.
- Good gripping qualities.
- Available with a thermal lining for cold weather applications.

No.	Style	Coated
WITH THERMAL LINING		
2086	12" Gauntlet	Fully

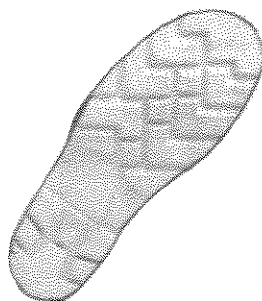


RANGER

PVC SHOES & BOOTS



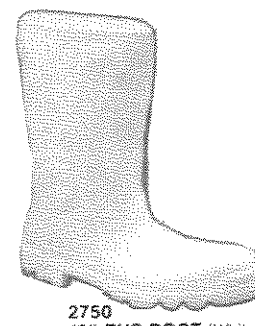
2762
16" SUPERPOLY BOOT
Superpoly Angle Cleat
outsole
Whole sizes 3-13



SUPERPOLY
ANGLE CLEAT
SOLE & HEEL



2746
16" PVC BOOT
PVC Angle Cleat outsole
Whole sizes 3-13



2750
12" PVC BOOT (White)
PVC Angle Cleat outsole
Whole sizes 3-13

RANGER Superpoly Boots

New RANGER Superpoly Boots are molded from the most advanced Urethane and PVC compound formula created to provide softer, more comfortable boots that stand up well under deteriorating conditions found in slaughterhouses, packing plants, oil rigs and refineries.

RANGER took great care in perfecting their poly-guard PVC boots. The special compounds, the extra reinforcements and the contour fit of RANGER PVCs have become the standard of many industries. Check the applications chart to see where RANGER PVC boots stand out against many oils, fats, acids, salts and other chemicals.

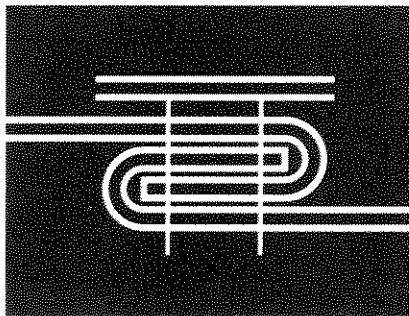
RANGER PVC with Nitrile is especially popular with petrochemical industries and with food processors where animal and vegetable oils, fats and blood deteriorate ordinary boots.

NATIONAL SAFETY WEAR, INC.**Natchem****PVC Neoprene**

103-OSH

Designed for use in chemical splash applications, our Natchem suit has a double acid snapping storm front and tapered sleeves for attaching safety rings and gloves. All seams are double lock stitched and then a heat sealed tape is applied to form Nat-Wear's Saf-T-Seam for added protection.

Natchem's splash suit material is made from a unique Neoprene/PVC compound which combines the truly excellent resistance of Neoprene against hydro carbon and PVC's excellent ratings against alcohol, inorganic acids, organic acids, salts and alkalines.



8036-29

An exclusive Saf-T-Seam process which consists of Natchem material is sealed on top of Nat-Wear's sealed double stitched lap seams for added protection against liquids.

JACKET
8036-29 Natchem Acid Jacket with exclusive Saf-T-Seam Construction. Safety double acid snap storm front, tapered sleeves for attaching safety ring and glove.

PANT
2033-53 Natchem acid pant with exclusive Saf-T-Seam Construction. Bib style with all Natchem suspenders.

HOOD
103-0 Fits over safety hat
103-OSH Safety hood made of Natchem material with a built in face shield window.

Jackets are also available in seamless shoulder pattern.

2033-53

Available in Green only.

Economy Series**NW-50**

These low cost economy suits are produced to Nat-Wear's specifications.

Features include: Extra strong electronically sealed seams, patch pockets and vinyl snaps that will not corrode.

NW-50

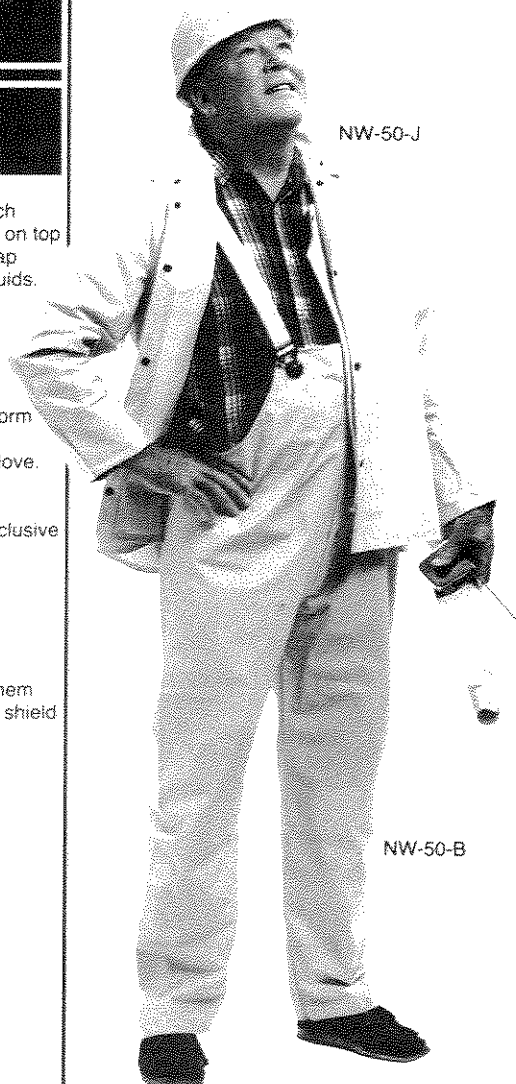
This material is a 25 mil PVC laminated PVC which has proven to be an excellent low cost suit for limited general use.

JACKET

NW-50-J Jacket includes detachable hood and take-up snaps at cuffs

PANTS

NW-50-B Drawstring waist with snap fly front



NW-50-J

NW-50-B

HAZ-MAT—Hazardous Materials Totally Encapsulated Suits

CHARKATE DISPOSABLE CLOTHING

Hazardous and chemical waste clean-up is a problem receiving national attention. Charkate is a leader in the design and manufacture of innovative disposable suits for toxic waste clean-up.

Using our years of experience and expertise, these suits have been designed to provide the following:

- An economical garment to protect against a wide range of hazardous substances
- Safe and comfortable protection for greater worker acceptance
- Wide range of applications to fit the needs of this rapidly changing field

Ideal for: Hazardous waste sites
Fire Departments
Haz-Mat Teams
Chemical companies
Cover suits to protect more expensive garments and reduce decontamination costs

- Features:**
- Attached hood with clear visor for excellent visibility
 - Oversized boot covers—will accommodate turn-out gear
 - Elastic wrists for snug fit around protective gloves
 - Storm fly front with seal
 - Unique diagonal zipper (non-sparking) makes suit easier to put on and take off
 - Non-sparking zippered back for easy bottle changing
 - Extra-large "Hump Back" protects breathing apparatus, accommodates 30 or 60 minute bottles
 - Bound and reinforced seams for greater strength and protection
 - Full cut for greater fit, comfort and protection—will accommodate full turn-out gear
 - Re-usable vinyl storage pouch available (standard with 8201SCB)
 - Pouches are available with custom screening
 - Emergency supplied-air inlet available

8201SCB—Saranex[®] (Saran-Coated TYVEK[®])—white
8001SCB—Polycoated (TYVEK P.E.)—high visibility yellow
Suits are available in sizes S-XXXL
Sold individually



8201SCB

Saranex is a trademark of Dow Chemical
TYVEK is a trademark of DuPont

Supplied Air Suits

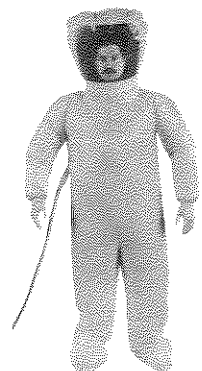
DISPOSABLE CLOTHING Hazardous Material Handler's Suits

Sure Shield[™] Cocoon Suits are designed for use with supplied air
Features:

- Attached hood with clear visor for excellent visibility
- Oversized shoe covers
- Elastic wrists for snug fit around protective gloves
- Elastic opening on air-inlet
- Storm fly front with seal
- Non-sparking zipper
- Bound and reinforced seams for greater strength and protection (Saran and polycoated styles only)
- Full cut for better fit, comfort and protection

These suits provide protection from asbestos and other hazardous materials when used in conjunction with proper respiratory and hand protection. Sure Shield[™] cocoons are available in three levels of protection:

8201AB—Saranex (Saran Coated TYVEK)—white—
Sold individually
8001AB—Polycoated (TYVEK P.E.)—high visibility yellow—
Sold individually
6001AB—TYVEK—white (case of 25)
Suits are available in sizes S-XXXL



8001AB

DISPOSABLE CLOTHING Polycoated (Tyvek P.E.) Zippered Coveralls

Polycoated Coveralls—high visibility yellow

- Features:**
- Full cut for better fit and comfort
 - Non-sparking zipper front

8001—Available in sizes S-XXXL—(case of 25)

Hooded Coveralls

Polycoated Coveralls with Attached Hood—high visibility yellow

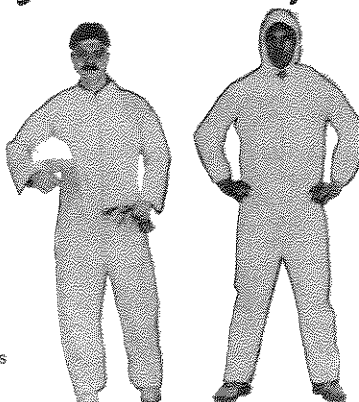
Features:

- Attached hood
- Full cut for better fit and comfort
- Non-sparking zipper front

8001HEWA—Coverall with attached hood, elastic wrists and ankles

8001H—Coverall with attached hood

Available in sizes S-XXXL—(case of 25)



8001HEWA

DISPOSABLE CLOTHING

Tyvek[™]

Zippered Coveralls



6001

Coveralls—TYVEK—white

Features:

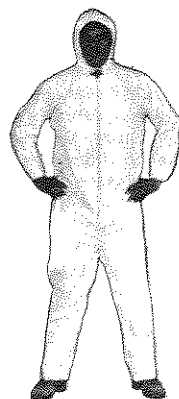
- Non-sparking zippered front
- Full cut for better fit and comfort

6001—Zippered Coverall

6001EWA—Zippered Coverall with elastic wrists and ankles

Available in sizes S-XXXL (Case of 25)

Hooded Coveralls



6001HEWA

Coveralls with attached hood—TYVEK—white

Features:

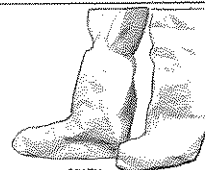
- Attached hood
- Non-sparking zippered front
- Full cut for better fit and comfort

6001HEWA—Coverall with attached hood, elastic wrists and ankles

6001H—Coverall with attached hood

Available in sizes S-XXXL (Case of 25)

Shoe Covers



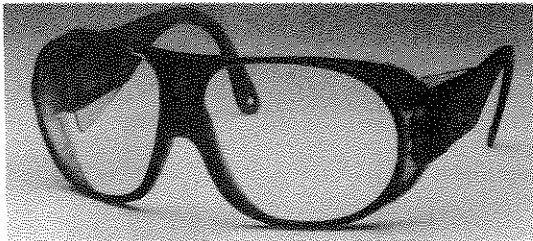
6017H

TYVEK Shoe Covers—elastic top—(200 pair per case)
6017—Shoe Covers

6017R—Non-slip TYVEK Shoe Covers

6017H—Boot Covers—16" High

Tyvek is a trademark of DuPont

uvex
SAFETY GOGGLES

9180 cricket 9181 cricket (smaller version)

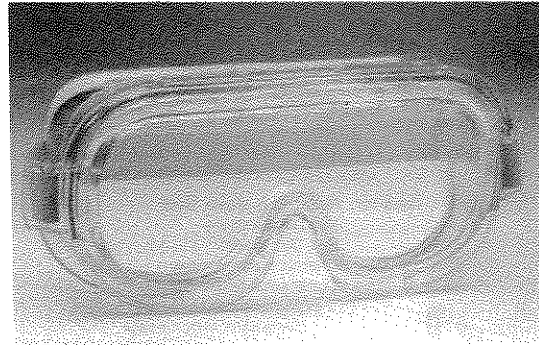
The cricket is the most innovative safety glass in the market place today. Its ratchet-adjustable temples, unique styling and maximum comfort provide the fit of a glass with the protection of a goggle.

With the option of a black, opaque frame and infra-dura lenses the cricket is also a very popular welding glass. Because of its popularity, the cricket is now available in two sizes: the larger cricket comes with 66mm lenses while the new, smaller version has 64mm lenses.

The cricket is available in clear, green, gray and 4C or regular polycarbonate lenses. It also comes in 3.0 or 5.0 infra-dura polycarbonate lenses for gas welding applications.

- ☐ exclusive 4C coating
- ☐ top, bottom and side protection
- ☐ sleek but durable frame
- ☐ widest field of peripheral vision available

Meets ANSI Z87.1 - 1979 Standards

9305
splash-guard
cover goggle

This is the only goggle on the market that offers two chemical drainage systems that protect against seepage. Its indirect venting provides optimum ventilation while protecting against chemical splash, flying particles and dust.

- soft, extra-wide frame fits snugly and comfortably around the face
- wide, neoprene strap holds goggles securely in place while the frontal attachment eliminates pressure points
- fits easily over prescription glasses

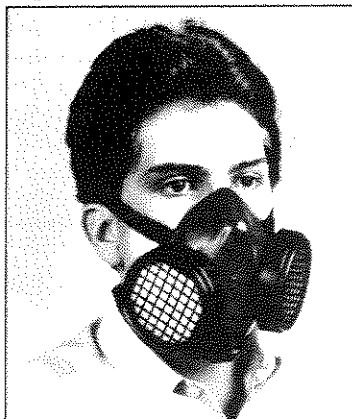
Pro-Tech
*Respirators, Inc.***HALF-MASK
RESPIRATORS**

Pro-Tech half-mask respirators are available with PVC or silicone facepieces. Either offers the extra deep chin cup and wide sealing flange around the perimeter assuring comfort and excellent fit. For more than 95% of your workers the medium size will provide a protection factor well above the minimum acceptable to NIOSH. Small or large facepieces will handle the rest.

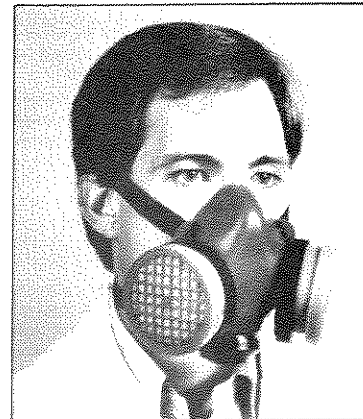
Maintenance and cleaning are simple. Headbands with molded hardware eliminate lost slides and hooks. They make for easy donning too.

Oversized inhalation ports combine with the Pro-Tech cartridge design to offer the lowest breathing resistance in the industry — another big plus for comfort.

Look at cartridge life. Laboratory tests demonstrate that Pro-Tech cartridges last longer.



PVC Model 1482



Silicone Model 1585

WARNING: Be sure that the atmosphere contains adequate oxygen (19.5%) and contains no substance immediately dangerous to life or health, such as carbon monoxide.

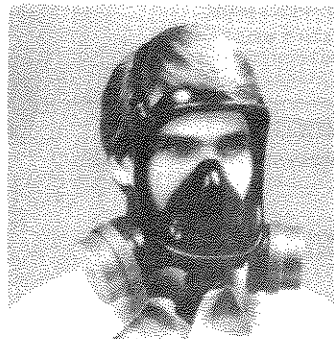
WARNING: Make certain the contaminant does not appear on the "Do Not Use" chart, see instruction booklet.

**FULL FACE
WITH A FULL RANGE OF VISION**

Pro-Tech's model 1694 Full Face Respirator offers protection to 100 times the TLV of over five hundred common airborne contaminants. Dust, mist, fume or vapor — all are removed by air purifying cartridges or filters. Seventeen different NIOSH approved combinations are available.

A truly full range of vision is yours through this uniquely designed "wrap-around" polycarbonate lens. Its scratch resistant, chemical resistant coating provides excellent serviceability. The air purifying elements are mounted low, out of the way and out of your line of sight. An internal nose cup is standard, minimizing fogging of the lens.

The wide, soft face-sealing flange assures comfortable wear, even for extended periods of time.



Full Face Model 1694

Willson AlphaTM Safety Cap

No. 82AC

Only Willson could produce AlphaTM.

Willson has the years on hands-on experience plus the up-to-the-minute technological know-how to produce a safety cap with all the features and benefits of Alpha.

Willson designers, engineers and computer specialists teamed together with one objective in mind: to develop a low profile, well-balanced polyethylene safety cap which stays securely on your head. The result: head protection with minimum weight and maximum comfort.

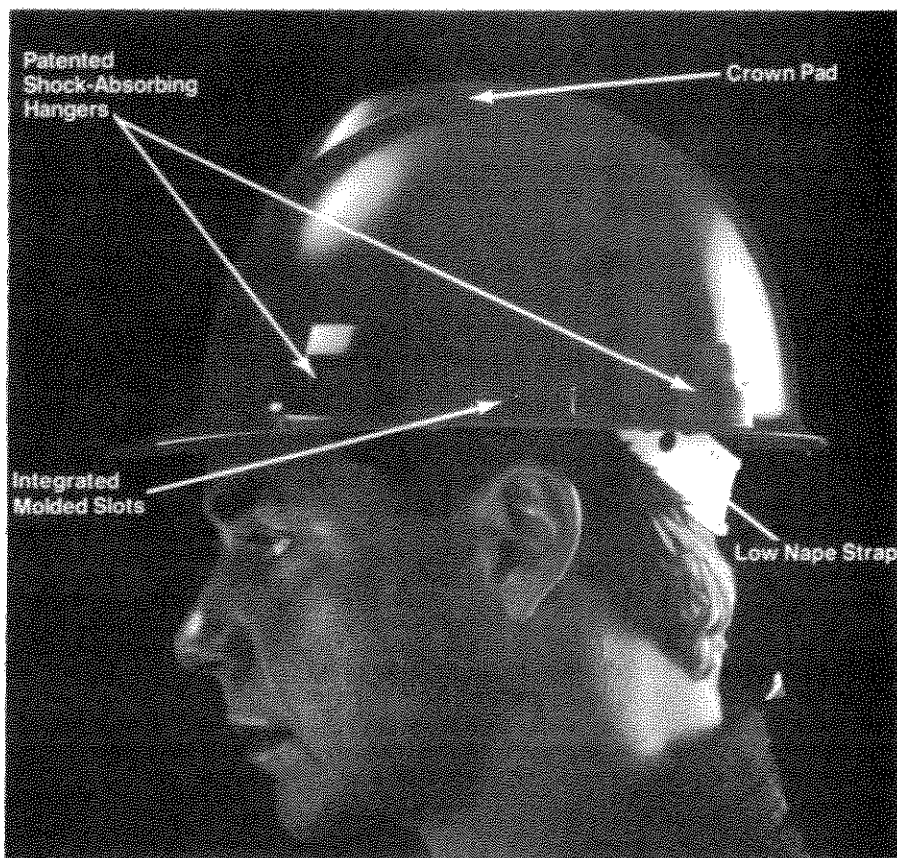
The replaceable Alpha Preslok[®] suspension system is also a product of computer-assisted design. A patented spring-like hanger snaps the Preslok suspension firmly in place and helps evenly absorb the shock.

A replaceable sponge padded vinyl sweatband, integrated crownpad, high quality nylon straps and anti-glare peak, help Alpha provide unequalled on-the-job comfort. The low fitting nape strap works to keep Alpha firmly, yet gently in place. Alpha is adjustable for head sizes 6½ to 8.

For all-around versatility, the Alpha safety cap is hard to beat. Personal protection attachments and accessories make Alpha *the* head protection product in welding, chipping, grinding, and excessive noise work areas.

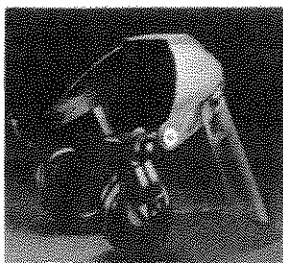
Willson's Alpha safety cap meets or exceeds applicable U.S. governmental standards (ANSI Z89.1-1969 Class A, ANSI Z89.2-1971 Class B and Z89.1-1986). Alpha safety caps also meet the requirements of the Canadian Standards Association (CSA), Z94.1-M1977 Class B.

Add up all of the Alpha features and benefits, and compare your list to the head protection you're now using. Then, call your Willson Safety Products distributor for a head-on demonstration. You'll discover that Alpha really is lighter and more comfortable than humanly possible.



Alpha Colors

	Tan	Sky Blue	Grey	Blaze Orange	
Yellow	Lime Green	Orange	White	Green	Blue
Burgundy	Navy Blue	Gold	Red	Brown	

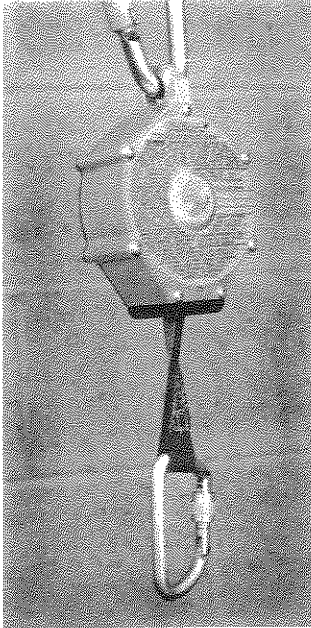
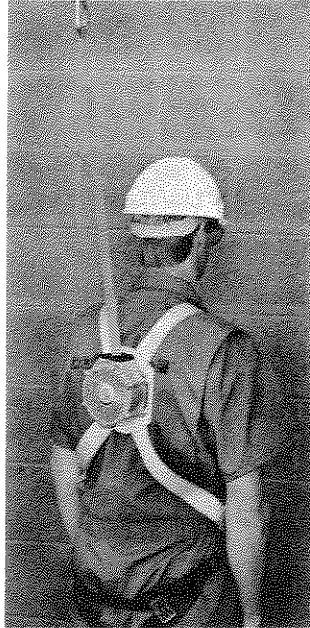
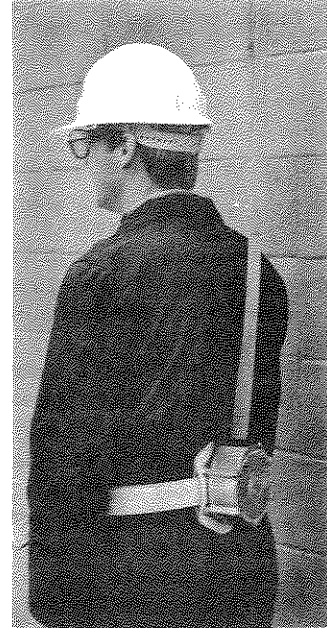


Alpha Plastic Brow Guard with faceshield and Sound Barrier Ear Muffs

DBI/SALA  [®] D B Industries, Inc.

THE WORLD LEADER IN FALL ARREST AND RESTRAINT EQUIPMENT

RETRACTABLE LIFELINE

**L3020 SERIES**Connected to anchorage
with optional snap.**L3120 and L3121 SERIES**Permanently attached to full
body harness (order as one unit).**L3021 SERIES**Adaptable to body belt
(2" maximum width).

DBI/SALA's retractable lifeline devices provide mobility and security when performing operations at various heights. In addition, a complete line of belts, harnesses and safety hooks can be used in conjunction with the retractable lifelines to meet all of your fall protection system requirements.

The lightweight self-contained unit features a spring tensioned lifeline which retracts back into the housing as the worker moves toward the unit and pulls out as the worker moves away. If a slip or fall occurs, the sudden jerk in the lifeline activates the braking system and the worker is brought to a stop within approximately 1½ feet. A lifeline reserve system assures that a sufficient amount of lifeline is on the device should a fall occur.

FEATURES

- Lightweight - Compact
- Velocity Sensing Brake
- Self Retracting Lifeline
- Anti-Ratcheting Design
- Lifeline Reserve System
- Shock Absorbing Features
- Sturdy Aluminum - Stainless Steel Construction
- Multiple Anchoring Methods
(from anchorage or directly to belt/harness)

TECHNICAL DATA

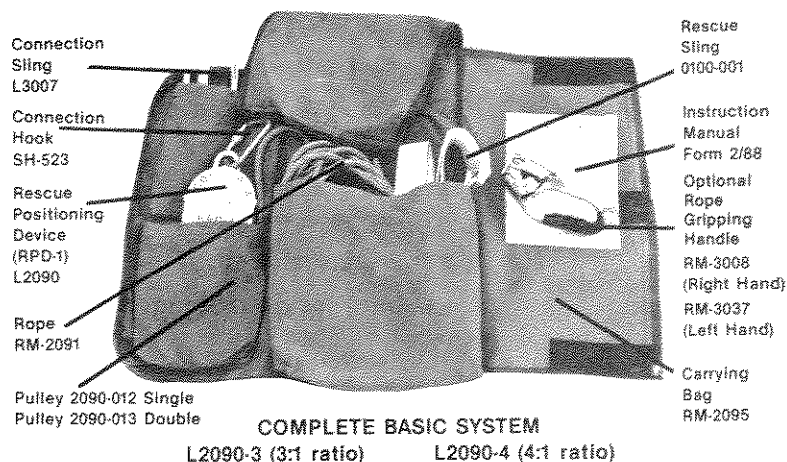
L3020 L3021	Aluminum housing and drum with stainless steel side plates, locking pawls, fasteners and retraction springs; velocity sensing brake with friction disc (bronze); 5.0 ft./sec. locking speed; size - LxWxH 7.1 x 4.9 x 2.3 inches; maximum weight - 3.6 lbs.; rated capacity - 70 to 300 lbs.
Web Lifeline	Synthetic web, 1" wide, 4500 lb. tensile strength, 11 feet of useable line (not including reserve lifeline)
RM-1000 RM-1798 SH-107 SH-523	Single action locking snap, 11/16" throat opening, 5,000 lb. tensile strength. Double action locking snap, 5/8" throat opening, 5,000 lb. tensile strength. Screw lock hook, 3/4" throat opening, 6728 lb. tensile strength. Automatic locking hook, 11/16" throat opening, 6728 lb. tensile strength.

Length - 11 Ft.
(Bearing Point To
Bearing Point)

DBI/SALA  D B Industries, Inc.
THE WORLD LEADER IN FALL ARREST AND RESTRAINT EQUIPMENT

RESCUE & RETRIEVAL SYSTEMS

The DBI/SALA RPD series is easy to operate - no special tools are required. To operate simply (1) attach the unit to a suitable anchorage (i.e. tripod, overhead beam) using the hook and/or connection sling provided. (2) Next attach the traveling pulley to the rescue sling or work seat. (3) Lowering or raising can now be accomplished.



Complete basic system includes all the necessary equipment to perform normal rescue-retrieval operations. Included with the system are the following items: rescue-positioning device (RPD), connecting sling, hooks, rescue sling, pulley, carrying bag and instruction manual. Order rope separately (specify working travel distance when ordering).

Optional equipment includes rescue-work supports (i.e. L1717 tripod), rope gripping handle, work seats, rescue harness, rope grabs and independent lifelines.

User shall make provisions for connecting to acceptable anchorage.

FEATURES

- Inertia locking brake system.
- Lowering and raising capabilities.
- Mode indicator.
- Personnel Rated - 350 lbs.
- Portable Operation.
- Tamper-Resistant Fasteners.
- Anodized Aluminum, Stainless Steel, Brass Construction.
- Multi-purpose carrying bag - back pack.
- Easy to operate.

ORDERING DATA

- 1) Specify either: L2090-3 featuring 3:1 ratio
L2090-4 featuring 4:1 ratio
- 2) Calculate required rope length as follows:
 - For L2090-3 (3:1) multiply working travel length by 4 and add 10 feet for total.
 - For L2090-4 (4:1) multiply working travel length by 5 and add 10 feet for total. Specify correct rope footage.

HARNESSES

DBI/SALA™ offers the most complete range of Full Body Harnesses known to the industry. Manufactured to meet or exceed ANSI A10.14-1975 and OSHA requirements. Reference ANSI A10.14-1975 classification according to use: CLASS III Body Harnesses used to arrest the most severe free falls. Contact factory concerning additional care and use guidelines.



L2000

L2000 SERIES:

FULL BODY HARNESS, features full polyester construction with either Tongue Buckle or Parachute Buckle sub-pelvic support straps, plus one size fits all. The design offers distribution of impact forces throughout the thighs, buttocks, chest and shoulders and allows for maximum freedom of movement. New York State Approval #9172.

AVAILABLE MODELS:

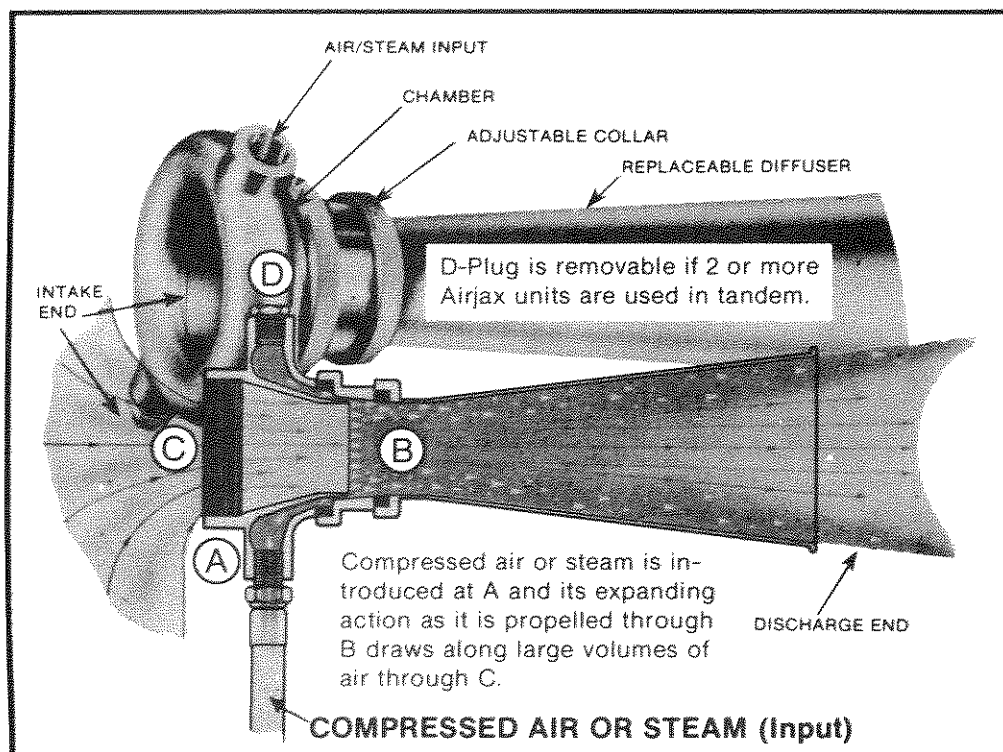
- | | |
|---------|---|
| L2000 | Complete with center back D-Ring, chest straps, parachute adjuster buckles, shoulder straps and tongue buckle sub-pelvic support strap adjusters. |
| L2000TS | Same as L2000 except with shoulder retrieval D-Rings. |
| L2001 | Same as L2000 except with parachute adjuster buckle on sub-pelvic support strap. |
| L2001PS | Same as L2001 except with shoulder retrieval D-Rings. |

AIR MOVER

MOVE....Flammable or Toxic Gases Without Electricity

Airjax
COMPANY, INC.

LOW-PRESSURE • HIGH-VELOCITY



- Reduction of costly down time of heavy equipment that normally operates at elevated temperatures.
- Improved efficiency of men who must work in host areas or where noxious gases are present.
- Safety of workmen who perform their duties where hazardous fumes and gases are present.

Airjax Air Movers can be equipped with various mounting arrangements to suit your needs. Specific mounting arrangements will be quoted on request. You should provide sketches and state sizes peculiar to your requirements.

STANDARD FEATURES

- Light-Duty Models (500 to 2000 CFM)
- Medium-Duty Models (1000 to 6000 CFM)
- Heavy-Duty Models (2000 to 10,000 CFM)

- Operates with Input Pressures Between 20 & 120 psig. **No Electricity**
- Meets OSHA Requirements
- Portable, Hand-Held Operation
- Use grounding wire to release any static electricity.

OPTIONAL FEATURES

- Female-Thread Mounting (4", 6", 10" Diameters)
- Female-Thread Mounting (4", 6", 8", 10" Diameters)
- Male-Thread Mounting (5", 6", 8", 10" Diameters)
- Flange Mounting (4", 6", 8" Diameters)
- Flange for Butterworth Hatch Connection
- Anodized & Dichromated-Treated Units

EXCLUSIVE FEATURES

- Adjustable Throat
- Replaceable Diffuser
- Optional Mounting for Permanent Installations
- Spark-Resistant (**All-Aluminum Construction**)
- Chambers & Collars Available Separately for Exhaust Boosters
- Standard Pipe-Fitting Mounts Available

LIFELINE

Lifeline Safety Products, Inc.

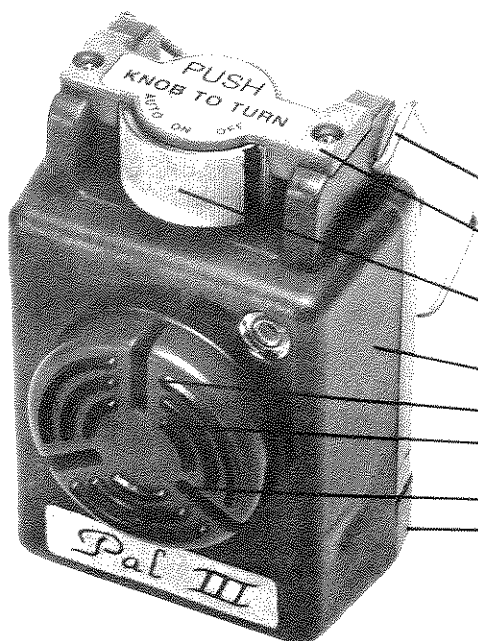
PAL™ III
Personal Alert Safety System**THE "ORIGINAL"**
P.A.S.S.**(Personal Alert Safety System)**

has now been updated with a number of important features, including:

- Improved, stainless steel retaining clip (for belt or SCBA harness).
- New bridge type switch guard (with easy to read positions).
- Improved durable switch controls (3-position, must be pushed to turn).
- TOUGH! Polycarbonate case.
- Low battery audible beep.
- Directional alarm sounder (patented, with extended intermittent feature).
- Self draining grill (prevents muffling of sound).
- Separate battery compartment (prevents damage to electronics.)

Summary Test Report Available—send for copy.

Limited Warranty—LifeLine Safety Products warrants your PAL III to be free from defects in workmanship and materials for a period of one (1) year from date of original purchase.

**SPECIFICATIONS**

Weight: 11 1/2 oz. (including battery).

Size: 4 1/2 x 2 1/2 x 1 1/2 inches

Battery Type: 9 volt alkaline
(recommend Duracell
MN 1604)

Battery Life: Min. 1-hour in full
alarm, then 2-8 hours
of intermittent alarm

Intrinsically Safe: Meets or exceeds
the requirements
of CAL/OSHA and
NFPA 493 for use
in Class I, II, III
and Division 1
Hazardous
locations.

Audio Frequency: 1.0 to 4.0 KHZ.

DBA: 95 + At 3 meters

Meets NFPA 1500.

Temperature range: -40°F to 160°F.

The Newest

The all new PAL III packs a minimum of 95 decibels into one of the most compact personal distress devices on the market.

And ambient climate can't affect its performance. Whether you're fighting fires under the hot California sun or during a New England blizzard, PAL III sounds automatically if you're motionless for 25 seconds. Or you can activate it manually if you're trapped or disabled.

The Clearest

PAL III not only meets or exceeds CAL/OSHA standards, it's fully compliant with even tougher NFPA requirements. And it offers protection that's unique among personal distress devices. For example, its alarm sound is easy to distinguish from other alarms. And PAL III's directional characteristics

make it quicker for rescuers to find unconscious, lost or injured personnel wearing it.

The Easiest

PAL III provides a continuously flashing light to indicate that it's armed and its battery is up to power. At night, at a distance or in smoky areas, you can check PAL III's operating status at a glance.

A large, accessible switch lets you activate PAL III easily even with gloved hands.

The Best

PAL III does what it is supposed to do—allow rescue quickly by following a sound that is truly directional and non-confusing.

Built tough to withstand a tough environment!



Services & Materials Company, Inc.

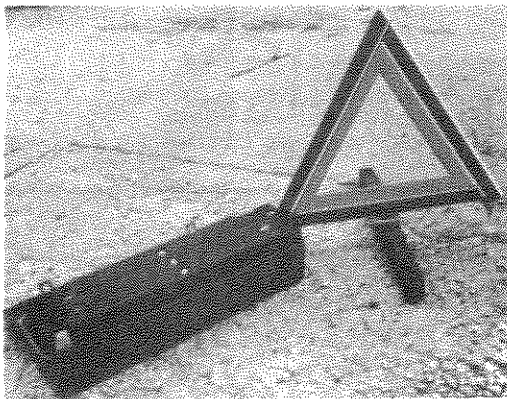
Truck Safety Equipment

Highway Warning Safety Triangle

Commercial Trucks & Buses

- Complies with Federal Motor Vehicle Safety Standard No. 125.
- Automotive Safety Foundation Study reveals that the triangle is the most quickly identifiable geometric shape by the human eye.
- For day or night use.
- Easy to erect and set-up.
- Constructed of molded Polypropylene Plastic with Red Acrylic Plastic reflectors.
- Convenient Carry Case.

For cars, intra-city trucks, campers: Why not carry for safety sake as least one warning triangle. Complete in a fabric bag. Order #HWT-1.



Striped "Reflective" Tape For Your Truck

Great Protection From Rear End Collisions

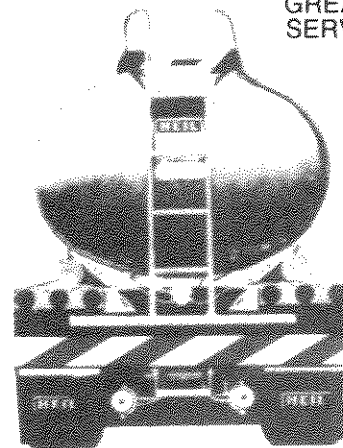
ALTERNATING RED & WHITE DIAGONALLY STRIPED PRESSURE SENSITIVE TAPE.

Now available in 2 widths

6" x 40" Order #SRT-6

8" x 40" Order #SRT-8

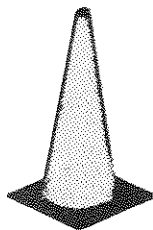
*IMPORTANT PLEASE SPECIFY LEFT OR RIGHT SLANT



GREAT OUTDOOR
SERVICE LIFE

Effective
Night
Or Day

Ultra-Brite PVC Traffic Cones



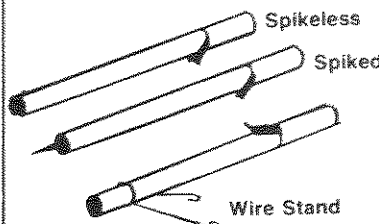
"D" series

Old Faithful (D series)

"D" series cones offer a solid red/orange conical (color throughout) and a rugged black base. This cone can be ordered with a built in flag adapter.

TC18DW
TC28DW

Flares (Fuses)



Dependable Protection Of

- TRUCKERS • AMBULANCE CREWS
- FIRE DEPTS • UTILITY EMERG. CREWS
- POLICE • MOTORISTS

Easy to ignite with self contained striker (no matches required)

Powerful source of long distance illumination to slow & warn traffic. Visible in Fog, Rain or Snow Storm. Approved By Underwriters Labs.

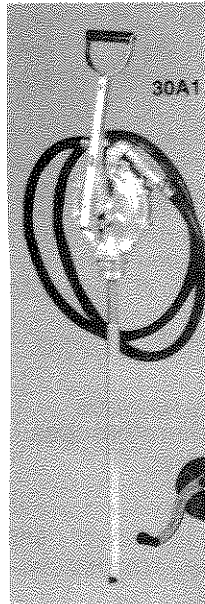
Fusees provide ample light for making emergency repairs on the road, while safely protecting the motorist by warning all approaching traffic of potential danger.

STD PKG		
20 Min.	Spike	72 Order #20 SP
20 Min.	Spikeless	72 Order #20 NSP
20 Min.	Wire	72 Order #20 WIR

STD PKG		
30 Min.	Spike	36 Order #30 SP
30 Min.	Spikeless	36 Order #30 NSP
30 Min.	Wire	36 Order #30 WIR

NATIONAL SPENCER

I N C O R P O R A T E D



30A1

HAND PUMPS - Gasoline and Diesel Fuel

MODEL 30A1 (00301)

Fits 15 through 55 gallon drums, or tanks with 2 inch bung opening. A double acting diaphragm pump for dispensing gasoline, diesel fuel, and similar petroleum products. Steel and aluminum telescoping tube assembly (22 inches to 39 inches) with neoprene seal. No. L30-85N (53095) eight foot hose with straight through discharge nozzle 1/2" NPT inlet and outlet. Delivers approximately one gallon per eight strokes. Shipping Wt. 13 lbs.

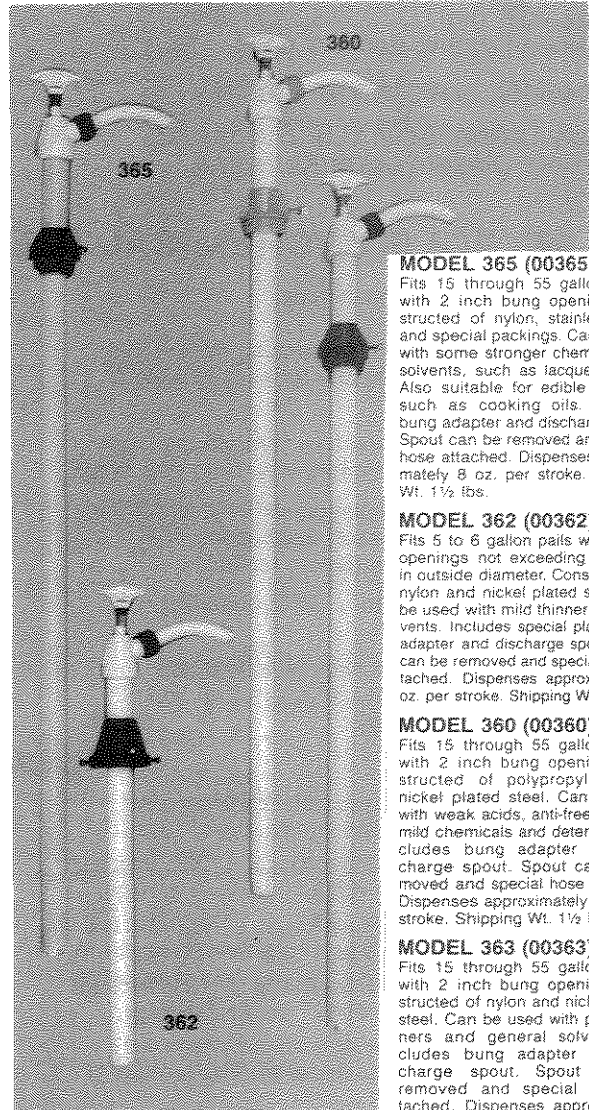
MODEL 952 (00952)*

Fits 15 through 55 gallon drums with 2 inch bung opening. A rotary vane type pump for dispensing gasoline, diesel fuel, and similar light petroleum products. Light weight but strong aluminum diecast body, dual metallic vanes, and aluminum bung adapter. Discharge spout threaded 1/2" NPT. Hose assemblies 2154 (52154), 2156 (52156), 2158 (52158) and 2178 (52178) available at extra cost. Dispenses approximately 7 1/2 gallons per 100 revolutions. Shipping Wt. 10 lbs.

*These pumps will siphon to a lower level

952

PLASTIC PUMPS For Lighter Liquids



MODEL 365 (00365)

Fits 15 through 55 gallon drums with 2 inch bung opening. Constructed of nylon, stainless steel, and special packings. Can be used with some stronger chemicals and solvents, such as lacquer thinner. Also suitable for edible products such as cooking oils. Includes bung adapter and discharge spout. Spout can be removed and special hose attached. Dispenses approximately 8 oz. per stroke. Shipping Wt. 1 1/2 lbs.

MODEL 362 (00362)

Fits 5 to 6 gallon pails with raised openings not exceeding 2 1/8 inch in outside diameter. Constructed of nylon and nickel plated steel. Can be used with mild thinners and solvents. Includes special plastic bung adapter and discharge spout. Spout can be removed and special hose attached. Dispenses approximately 8 oz. per stroke. Shipping Wt. 1 lb.

MODEL 360 (00360)

Fits 15 through 55 gallon drums with 2 inch bung opening. Constructed of polypropylene and nickel plated steel. Can be used with weak acids, anti-freeze, some mild chemicals and detergents. Includes bung adapter and discharge spout. Spout can be removed and special hose attached. Dispenses approximately 8 oz. per stroke. Shipping Wt. 1 1/2 lbs.

MODEL 363 (00363)

Fits 15 through 55 gallon drums with 2 inch bung opening. Constructed of nylon and nickel plated steel. Can be used with paint thinners and general solvents. Includes bung adapter and discharge spout. Spout can be removed and special hose attached. Dispenses approximately 8 oz. per stroke. Shipping Wt. 1 1/2 lbs.

HAND PUMPS For Lighter Liquids



381

MODEL 381 (00381)

Fits 15 through 55 gallon drums with 2 inch bung opening. Has a zinc diecast piston with two brass rings, steel telescoping tube assembly, Buna N Seals, sparkle red plastic handle grip, and curved discharge spout with garden hose threads. Dispenses approximately one pint per stroke. Has adjusting nut on bung threads. Bright zinc plated. Shipping Wt. 6 lbs.



GREAT PLAINS INDUSTRIES, INC.

ELECTRONIC DIGITAL FUEL METER MODEL 1A31GM

**FOR ACCURATE, CONVENIENT,
RELIABLE AND ECONOMICAL
MEASUREMENT OF GASOLINE,
DIESEL FUEL OR KEROSENE.**

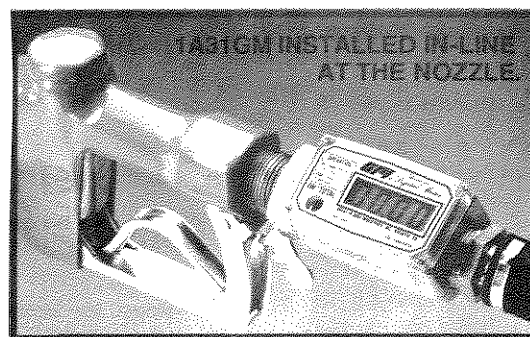
For pump or gravity feed systems in the
3-30 Gallons Per Minute flow range.

Attaches at the nozzle for easy viewing.

4-Digit, 1/2" high LCD Display with
two-place floating decimal point.

Lightweight; weighs only 1 pound.

Factory Calibrated in U.S. Gallons for
Gasoline, Diesel Fuel or Kerosene.



The Model 1A31GM flow metering capacity is
from 3 to 30 Gallons Per Minute (GPM). View
the readout of both Cumulative (Total) volume
dispensed (up to 10,000 gallons) and Current
(Batch) volume dispensed since last reset.

New electronic technology reduces
amount of moving parts, therefore less
down-time than old-fashioned
mechanical meters.

Dual Lithium, self-contained, power cells
with a life expectancy of approximately
2000 operational hours.

Automatic "OFF" five minutes after fluid
flow stops. Meter must be manually
turned "ON" before the next operation.

PETROLEUM/CHEMICAL ELECTRONIC DIGITAL METERS

Electronic Meter features include:

Intermittent-use, totalizer, dispensing meters that
can be attached at the nozzle for easy viewing or
can be plumbed in-line.

Automatic "ON" with fluid flow through the meter.
Automatic "OFF" five minutes after fluid flow stops.

Self-contained, dual Lithium power cells with a life
expectancy of approximately 2000 operational
hours. Batteries must be factory replaced.

-14°F to + 140°F (-25°C to + 60°C) operating
temperature range.

6-Digit LCD Display with two-place floating
decimal point for both Batch (resettable) and
Cumulative totals (999999).

- Factory Calibrated in U.S. Gallons for *Non-Viscous*
fluids such as water and gasoline. $\pm 1.5\%$
accuracy is attainable when properly installed and
used within the rated flow range and fluid
parameters.
- Versatile Field (User) Calibration allows accurate
measurement of *Viscous* fluids, increased
measuring accuracy or measurement in
increments other than gallons (i.e. quarts, pints,
lbs., etc.). $\pm 1\%$ (viscous fluids), $\pm 0.5\%$
(non-viscous fluids), accuracies are attainable
when the calibration procedure has been properly
carried out and the meter is installed correctly.

APPLICATIONS:*

Aluminum Models: For use with Petroleum based
products to a maximum working pressure of 50 PSIG.

3A30GM: 0.3-3.0 GPM Flow Range. 1" NPT inlet and
outlet threads with 1/4" dia. fluid passage.

3A31GM: 3.0-30 GPM Flow Range. 1" NPT inlet and
outlet threads with 1" dia. fluid passage.

3A32GM: 30-300 GPM Flow Range. 2" NPT inlet and
outlet threads with 2" dia. fluid passage.

Nylon Models: For use with water, herbicides and
petroleum products to a maximum working pressure of
150 PSIG.

3N30GM: 0.3-3.0 GPM Flow Range. 1" NPT inlet and
outlet threads with 1/4" dia. fluid passage.

3N31GM: 3.0-30 GPM Flow Range. 1" NPT inlet and
outlet threads with 1" dia. fluid passage.

316 Stainless Steel Models: For use with water,
herbicides and other chemicals compatible with the meter
construction materials** to a maximum working pressure
of 800 PSIG.

3S30GM: 0.3-3.0 GPM Flow Range. 1" NPT inlet and
outlet threads with 1/4" dia. fluid passage.

3S31GM: 3.0-30 GPM Flow Range. 1" NPT inlet and
outlet threads with 1" dia. fluid passage.

3S32GM: 30-300 GPM Flow Range. 2" NPT inlet and
outlet threads with 2" dia. fluid passage.

* Models also available in Liter equivalents.

** Common wetted components include PVDF or Nylon Rotor,
Tungsten Carbide Shaft, Ferrite Signal Generators and Stainless
Steel Retainer Rings.

WROUGHT-IRON AND STEEL PIPE SIZES

All Dimensions in Inches

Standard and Extra Strong Pipe		Standard — Schedule 40	Extra Strong — Schedule 80
Nominal Pipe Diameter	Actual External Diameter	Approx. Internal Diameter	Approx. Internal Diameter
1/8	0.405	0.27	0.21
1/4	0.540	0.36	0.29
3/8	0.675	0.49	0.42
1/2	0.840	0.62	0.54
3/4	1.050	0.82	0.74
1	1.315	1.05	0.95
1 1/4	1.660	1.38	1.27
1 1/2	1.900	1.61	1.49
2	2.375	2.07	1.93
2 1/2	2.875	2.47	2.32
3	3.500	3.07	2.89
3 1/2	4.000	3.55	3.36
4	4.500	4.03	3.82
5	5.563	5.05	4.81
6	6.625	6.07	5.75
8	8.625	7.98	7.63
10	10.750	10.02	9.75
12	12.750	12.00	11.75
14 O.D.	14.000	13.25	13.00
16 O.D.	16.000	15.25	15.00
18 O.D.	18.000	17.25	17.00
20 O.D.	20.000	19.25	19.00
22 O.D.	22.000	21.25	21.00
24 O.D.	24.000	23.25	23.00

Welded and Seamless Steel Pipe — ANSI 36.1

Wrought Steel and Wrought Iron Pipe — ANSI D 36.10

Standard Pipe Dimensions shown are the same as Schedule 40 pipe through 10 inch. Above this size wall thickness is uniformly 3/8".

Extra Strong Pipe Dimensions shown are the same as Schedule 80 pipe up to 8 inch. For 8 inch and above wall thickness is uniformly 1/2".

Wrought Iron Pipe has slightly greater wall thickness (0.001 to 0.020) resulting in correspondingly smaller internal diameter than tabulated above.

LINEAL MEASUREMENT UNITS

DECIMAL AND MILLIMETER

EQUIVALENTS OF FRACTIONAL INCHES

Fractional Inch	Decimal Part of an inch	Millimeters
1/64		
1/32		
1/16		
1/8		
1/4		
1/2		
3/4		
1		
1 1/4		
1 1/2		
2		
2 1/2		
3		
3 1/2		
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28 1/2		
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29 1/2		
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30 1/2		
31		
31 1/2		
32		

AREAS AND CIRCUMFERENCES OF CIRCLES FOR DIAMETERS IN UNITS AND FRACTIONS

Dia. In.	Area Sq. In.	Circum. In.	Dia. In.	Area Sq. In.	Circum. In.	Dia. In.	Area Sq. In.	Circum. In.	Dia. In.	Area Sq. In.	Circum. In.	Dia. In.	Area Sq. In.	Circum. In.	Dia. In.	Area Sq. In.	Circum. In.
0	0.0000	0.0000	2	3.1416	6.2832	5	19.635	31.416	8	50.265	25.133	14	153.94	43.982	20	314.16	62.832
1/32	0.0007	0.0087	2 1/32	3.3410	6.4795	5 1/32	20.129	31.903	8 1/32	51.849	25.524	14 1/32	156.70	44.375	20 1/32	318.10	63.224
1/16	0.0037	0.0174	2 1/16	3.5466	6.6758	5 1/16	20.629	32.289	8 1/16	53.458	25.918	14 1/16	159.46	44.767	20 1/16	322.06	63.617
3/32	0.0069	0.0294	2 3/32	3.7563	6.8722	5 3/32	21.135	32.678	8 3/32	55.086	26.308	14 3/32	162.30	45.159	20 3/32	326.05	64.010
1/8	0.0127	0.0509	2 1/8	3.9761	7.0685	5 1/8	21.644	33.068	8 1/8	56.745	26.703	14 1/8	165.13	45.551	20 1/8	330.06	64.402
3/16	0.0191	0.0764	2 3/16	4.2000	7.2649	5 3/16	22.156	33.462	8 3/16	58.426	27.096	14 3/16	167.99	45.945	20 3/16	334.10	64.795
1/4	0.0276	0.1090	2 1/4	4.4301	7.4612	5 1/4	22.691	33.861	8 1/4	60.132	27.489	14 1/4	170.87	46.338	20 1/4	338.16	65.188
5/16	0.0378	0.1493	2 5/16	4.6664	7.6575	5 5/16	23.221	34.262	8 5/16	61.862	27.881	14 5/16	173.78	46.731	20 5/16	342.25	65.580
3/8	0.0499	0.1988	2 3/8	4.9087	7.8539	5 3/8	23.758	34.666	8 3/8	63.617	28.274	14 3/8	176.71	47.123	20 3/8	346.36	65.973
7/16	0.0621	0.2483	2 7/16	5.1572	8.0503	5 7/16	24.301	35.071	8 7/16	65.397	28.667	14 7/16	179.67	47.516	20 7/16	350.50	66.365
1/2	0.0760	0.3017	2 1/2	5.4119	8.2466	5 1/2	24.850	35.478	8 1/2	67.201	29.059	14 1/2	182.65	47.909	20 1/2	354.66	66.758
5/8	0.0928	0.3692	2 5/8	5.6727	8.4430	5 5/8	25.406	35.886	8 5/8	69.029	29.452	14 5/8	185.68	48.302	20 5/8	358.84	67.151
3/4	0.1104	0.4419	2 3/4	5.9396	8.6393	5 3/4	25.967	36.294	8 3/4	70.862	29.845	14 3/4	188.69	48.694	20 3/4	363.05	67.544
7/8	0.1296	0.5184	2 7/8	6.2126	8.8357	5 7/8	26.535	36.703	8 7/8	72.730	30.237	14 7/8	191.75	49.087	20 7/8	367.28	67.936
1	0.1503	0.5944	2 1	6.4918	9.0320	5 1	27.109	37.114	8 1	74.662	30.630	14 1	194.83	49.480	20 1	371.54	68.329
1 1/16	0.1725	0.6725	2 1/16	6.7771	9.2283	5 1/16	27.688	37.522	8 1/16	76.569	31.023	14 1/16	197.93	49.872	20 1/16	375.83	68.722
1 1/8	0.1963	0.7608	2 1/8	7.0686	9.4247	5 1/8	28.274	37.931	8 1/8	78.540	31.415	14 1/8	201.06	50.265	20 1/8	380.13	69.115
1 1/4	0.2216	0.8597	2 1/4	7.3662	9.6211	5 1/4	28.867	38.341	8 1/4	80.516	31.806	14 1/4	204.22	50.658	20 1/4	384.46	69.507
1 1/2	0.2485	0.9687	2 1/2	7.6699	9.8174	5 1/2	29.465	38.752	8 1/2	82.516	32.201	14 1/2	207.39	51.050	20 1/2	388.82	69.900
1 3/4	0.2768	1.0883	2 3/4	7.9789	10.0138	5 3/4	30.069	39.163	8 3/4	84.541	32.594	14 3/4	210.60	51.443	20 3/4	393.20	70.293
1 5/8	0.3060	1.2180	2 5/8	8.2958	10.2102	5 5/8	30.680	39.575	8 5/8	86.590	32.987	14 5/8	213.82	51.836	20 5/8	397.61	70.685
1 3/4	0.3362	1.3584	2 3/4	8.6179	10.4065	5 3/4	31.296	39.987	8 3/4	88.664	33.379	14 3/4	217.08	52.229	20 3/4	402.04	71.078
1 7/8	0.3712	1.5084	2 7/8	8.9462	10.6029	5 7/8	31.919	40.399	8 7/8	90.763	33.772	14 7/8	220.35	52.621	20 7/8	406.49	71.471
2	0.4054	1.6580	2 1	9.2806	10.7992	5 1	32.548	40.811	8 1	92.886	34.164	14 1	223.65	53.014	20 1	410.97	71.863
2 1/16	0.4417	1.8179	2 1/16	9.6211	10.9956	5 1/16	33.183	41.224	8 1/16	95.033	34.557	14 1/16	226.98	53.407	20 1/16	415.48	72.256
2 1/8	0.4793	2.0437	2 1/8	9.9678	11.1919	5 1/8	33.824	41.636	8 1/8	97.205	34.950	14 1/8	230.33	53.799	20 1/8	420.00	72.649
2 1/4	0.5184	2.2524	2 1/4	10.321	11.3883	5 1/4	34.471	42.048	8 1/4	99.402	35.342	14 1/4	233.71	54.192	20 1/4	424.56	73.042
2 1/2	0.5591	2.4607	2 1/2	10.680	11.5846	5 1/2	35.125	42.460	8 1/2	101.62	35.735	14 1/2	237.10	54.585	20 1/2	429.13	73.434
2 3/8	0.6013	2.6689	2 3/8	11.045	11.7810	5 3/8	35.785	42.872	8 3/8	103.87	36.128	14 3/8	240.53	54.977	20 3/8	433.74	73.827
2 3/4	0.6450	2.8770	2 3/4	11.416	11.9773	5 3/4	36.451	43.284	8 3/4	106.14	36.521	14 3/4	243.98	55.370	20 3/4	438.36	74.220
2 5/8	0.6902	3.0852	2 5/8	11.793	12.1737	5 5/8	37.122	43.696	8 5/8	108.43	36.913	14 5/8	247.45	55.763	20 5/8	443.01	74.612
2 3/4	0.7370	3.2934	2 3/4	12.177	12.3700	5 3/4	37.800	44.108	8 3/4	110.75	37.306	14 3/4	250.95	56.156	20 3/4	447.69	75.005
3	0.7854	3.1416	3	12.566	12.566	6	38.485	21.991	12	113.10	37.991	18	254.47	56.548	24	452.39	75.398
3 1/16	0.8864	3.3974	3 1/16	12.962	12.7627	6 1/16	39.175	22.167	12 1/16	115.47	38.091	18 1/16	258.02	56.941	24 1/16	457.11	75.790
3 1/8	0.9402	3.5342	3 1/8	13.364	12.9591	6 1/8	39.871	22.343	12 1/8	117.86	38.494	18 1/8	261.59	57.334	24 1/8	461.86	76.183
3 1/4	1.0075	3.7704	3 1/4	13.772	13.1554	6 1/4	40.574	22.520	12 1/4	120.28	38.872	18 1/4	265.18	57.726	24 1/4	466.64	76.576
3 1/2	1.2272	3.9269	3 1/2	14.186	13.3518	6 1/2	41.282	22.705	12 1/2	122.72	39.269	18 1/2	268.80	58.119	24 1/2	471.44	76.969
3 3/4	1.3530	4.1234	3 3/4	14.607	13.5481	6 3/4	41.997	22.890	12 3/4	125.19	39.662	18 3/4	272.45	58.512	24 3/4	476.26	77.361
3 5/8	1.4849	4.3199	3 5/8	15.033	13.7445	6 5/8	42.718	23.075	12 5/8	127.68	40.055	18 5/8	276.12	58.904	24 5/8	481.11	77.754
3 3/4	1.6230	4.5164	3 3/4	15.466	13.9408	6 3/4	43.446	23.267	12 3/4	130.19	40.448	18 3/4	279.81	59.297	24 3/4	485.98	78.147
4	1.7671	4.7129	4	15.904	14.1372	7	44.179	23.461	13	132.73	40.840	19	283.53	59.690	25	490.87	78.539
4 1/16	1.9175	4.9087	4 1/16	16.349	14.3335	7 1/16	44.918	23.654	13 1/16	135.30	41.233	19 1/16	287.27	60.083	25 1/16	495.79	78.932
4 1/8	2.0739	5.1050	4 1/8	16.806	14.5299	7 1/8	45.664	23.846	13 1/8	137.89	41.626	19 1/8	291.04	60.475	25 1/8	500.74	79.325
4 1/4	2.2365	5.3014	4 1/4	17.257	14.7262	7 1/4	46.415	24.031	13 1/4	140.50	42.018	19 1/4	294.85	60.868	25 1/4	505.71	79.717

NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no text or other markings on the paper.

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