

Betts

TANKER PARTS
CATALOG COMPILATION



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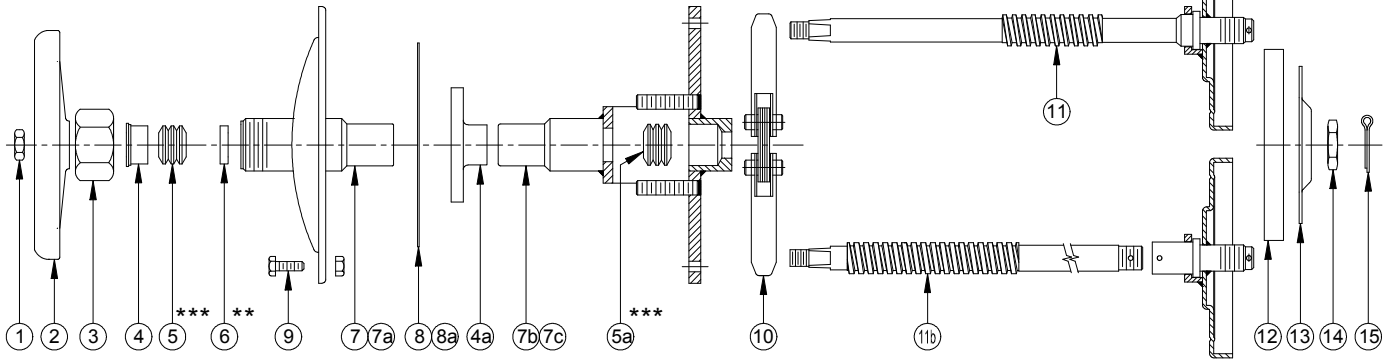
Tanker Parts Catalog Compilation

Betts Industries, Inc.

Part Number	Description	Pg #	Part Number	Description	Pg #	Part Number	Description	Pg #
Section 10								
• 15022CB	3" GASKET	(5B)	• 15905TF	TEFLON GASKET 3"	(5B)	• 25186AL	3" WAY AIR WHEEL	(5B)
• 15024BU	MANIFOLD GASKET 4" DISC	(5B)	• 15977TF	TEFLON GASKET 4"	(5B)	• 25245AL	4" WAY AIR WHEEL	(5B)
• 15024TF	TEFON DISC 4"	(5B)	• 25365AL	4" BONNET	(5B)	• 15076SS	GATE VALVE BTM WASH	(5B)
• 15202BU	MANIFOLD GASKET 3" DISC	(5B)	• 25641SL	3" CLAMP RING	(5B)	• 15026AL	STUFFING BOX NUT	(5B)
• 15265CB	TOP HEAD GASKET 4"	(5B)	• 25683SL	SS CLAMP 4"	(5B)			
• 15265TF	TOP HEAD GASKET 4"	(5B)	• 15220SS	STUFFING TOP NUT	(5B)			
Section 17								
• SV904MSM	TTMA SLIDE GATE VALVE 4"	(1A)	• SV914MSM	TTMA SLIDE GATE VALVE 4"	(1A)			
• SV906MSM	TTMA SLIDE GATE VALVE 6"	(1A)	• SV916MSM	TTMA SLIDE GATE VALVE 6"	(1A)			
Section 18								
• G1003	3" GATE VALVE	(1A)	• 15227NT	PACKING SET	(1A)	• 15076SS	GATE VALVE BTM WASH	(4A)
• G1004	4" GATE VALVE	(1A)	• 15220SS	STUFFING TOP NUT	(4A)	• 15026AL	STUFFING BOX NUT	(4A)
• G1013	3" GATE VALVE	(1A)	• 25186AL	3" WAY AIR WHEEL	(4A)	• 15227NT	PACKING SET	(4A)
• G1014	4" GATE VALVE	(1A)	• 25245AL	4" WAY AIR WHEEL	(4A)			
Section 20								
• WD201ALBV	WET-R-DRY VALVE 2"	(1A)	• 25884EY	WET-R-DRY HANDLE	(3A)	• WD18403VT	WET-R-DRY R/KIT 3"	(5B)
• WD301ALBV	WET-R-DRY VALVE 3"	(1A)	• 26284AL	WET-R-DRY HANDLE	(3A)			
• WD401ALBV	WET-R-DRY VALVE 4"	(1A)	• WD18404VT	WET-R-DRY R/KIT 4"	(5B)			
Section 25								
• AV46850 ALTS	BOLTED VAPOR VALVE	(16A)						
• AV46855 ALTS	TREADED VAPOR VALVE	(16A)						
Section 28								
• OP9011EY	1 COMP OPERATOR	(2A)	• OP9013EY	3 COMP OPERATOR	(2A)	• 20040A001	OPERATOR FUSEABLE	(4B)
• OP9012EY	2 COMP OPERATOR	(2A)	• 20040A001	OPERATOR FUSEABLE	(2B)	• 20761	3 WAY AIR VALVE	(4B)
Section 29								
• 35603SL	EMERGENCY OPERATOR	(1A)						
Section 30								
• EV46398ALB	4" EMERGENCY VALVE	(2A)	• FP15003BR	FUSEABLE PLUG	(9A)	• FP15003BR	FUSEABLE PLUG	(13D)
• EV46435ALB	4" EMERGENCY VALVE	(2A)	• AC35005ALB	AIR CYL. EMERG. VALVE	(10A)	• 75141SLBN	JACK SCREW	(13D)
• EV46467ALTS004	6"X4" HIGH FLOW	(6A)	• 19017BU	DISC 4"	(10A)	• 9B4921	PLUG	(13D)
• AC35005ALB	AIR CYL. EMERG. VALVE	(9A)	• EV46921AL	4" EMERGENCY VALVE	(13C)	• EV47059TS	6" EMERG VALVE	(25A)
Section 31								
• FP15003BR	FUSEABLE PLUG	(3B)						
• FP15017BR	FUSEABLE BREAK PLUG	(3B)						
Section 35								
• HP46982ALSL	HYD PUMP	(3D)	• CH47003SST	CHEMICAL HYDRAULIC VLV	(5C)			
• HP75359SL	REPAIR KIT FOR HYD PUMP	(3E)	• CH75549TF	REPAIR KIT	(7B)			
Section 40								
• RGA401NA	4" NON ASB FLNG GASKET	(2A)						
• BG4AL	4" ADAPTER	(7A)						
Section 84								
• 3024BU	10" FILL LID GASKET	(2B)	• 3030BR	CLAMP RING NUT	(2B)	• 3029ZC	CLAMP RING BOLT	(18B)
• 3030BR	CLAMP RING NUT	(2B)	• PPVL716BXB	16" MAN HOLE COVER	(18A)	• 3030BR	CLAMP RING NUT	(18B)
• 3559BN	MAN HOLE GASKET	(2B)	• 3030BR	CLAMP RING NUT	(18B)	• 3119BN	FILL COVER GASKET	(18B)
• 3028ZC	CLAMP 16"	(2B)	• 3559BN	MAN HOLE GASKET	(18B)	• 6496ALB	VENT	(18B)
• 3029ZC	CLAMP RING BOLT	(2B)	• 3028ZC	CLAMP 16"	(18B)			
Section 88								
• 3513WH	20' GASKET	(6B)						
Section 92								
• 8555ABF6	20" CAM LATCH MAN HOLE	(1A)						
• 4383WB	8555 GASKET	(1B)						
Section 95								
• 6496ALB	PPV VENT	(1C)						
Section 200								
• 15634TF	KIT	(4B)	• 15862TF	KIT	(4B)			
• 15759TF	KIT	(4B)						
CBS Parts also stocks these parts not featured in this catalog:								
• 15076AL	STUFFING BOX NUT		• CH18897TFTS	KIT		• WD18404BV	4" REPAIR KIT	
• CH17295TF	KIT		• CH75358TFTS	KIT		• WV17604ALB	4" REPAIR KIT	
• CH17828TF	KIT		• WD304ALBV	WET-R-DRY VALVE 3"		• WV17694ALB	4" MANIFOLD VALVE	
• CH18849TF	KIT		• WD404ALBV	WET-R-DRY VALVE 4"				

PARTS LIST

Hydrolet Valves



No.	Description	Req'd.	Size	Material	Part No.
1	Hex Nut $\frac{7}{16}$ -14 Thd.	1	3"-4"	Steel Zinc Plt.	9Q8579
				304 Stnls	9Q8580
2	Handwheel	1	3"	Aluminum	25186AL
			4"	Aluminum	25245AL
3	Stuffing Box Nut	1	3"-4"	Aluminum	15026AL
				304 Stnls	15026SL
4	Top Gland	1	3"-4"	316 Stnls	15220SS
4a	Top Gland OS&Y Style	1	3"-4"	304 Stnls	16758SL
5***	Teflon Packing	1	3"-4"	Teflon	19649TF
5a***	Teflon Packing	1	3"-4"	Teflon	19648TF
6**	Bottom Gland	1	3"-4"	316 Stnls	15076SS
				Steel	15382MS
7	Tophead & Bonnet Bolted Style	1	3"	Aluminum	15382AL
			4"	Steel	25365MS
				Aluminum	25365AL
7a	Tophead & Bonnet QRB Style	1	3"	316 Stnls	15573SS
				Aluminum	15573AL
			4"	316 Stnls	16126SS
				Aluminum	16126AL
7b	Tophead & Bonnet QRB OS&Y	1	3"	316 Stnls	26133SS
				Aluminum	26133AL
			4"	316 Stnls	26138SS
				Aluminum	26138AL
7c	Tophead & Bonnet Bolted OS&Y	1	3"	Steel	26145MS
				Aluminum	26145AL
			4"	Steel	26150MS
				Aluminum	26150AL
8	Tophead Gasket Bolted Style	1	3"	Cork-Buna-N	15022CB
				Non-Asbestos	15022NA
				Teflon-Env.	15022TF
			4"	Cork-Buna-N	15265CB
				Non-Asbestos	15265NA
				Teflon-Env.	15265TF

No.	Description	Req'd.	Size	Material	Part No.
8a	Tophead Gasket QRB Style	1	3"	Cork-Buna-N	15905CB
				Teflon-Env.	15905TF
			4"	Cork-Buna-N	15977CB
				Teflon-Env.	15977TF
9	Bolts & Nuts (Sets)	Set	3"	Steel Zinc Plt.	15023ZC
				18-8 Stnls	15023SL
			4"	Steel Zinc Plt.	16549ZC
				18-8 Stnls	16549SL
10	QRB Clamp	1	3"	304 Stnls	25641SL
			4"	304 Stnls	25683SL
11	Disc Holder & Stem Assy. Bolted & QRB Style	1	3"	All Aluminum	17683AL
				All Steel	17683MS
				All Stnls	17683SS
			4"	All Aluminum	17684AL
				All Steel	17684MS
				All Stnls	17684SS
11a	Disc Holder & Stem Assy. OS&Y Style	1	3"	Steel	28003MS
				316 Stnls	28003SS
			4"	Steel	28004MS
				316 Stnls	28004SS
12	Disc	1	3"	Buna-N	15202BU
				Non-Asbestos	15202NA
				Teflon	15202TF
				Viton	15202VT
			4"	Buna-N	15024BU
				Non-Asbestos	15024NA
				Teflon	15024TF
				Viton	15024VT
13	Disc Retaining Plate	1	3"	316 Stnls	17028SS
			4"	Steel	15051MS
				Aluminum	15051AL
				316 Stnls	15051SS
14	Disc Plate Nut	1	3"-4"	316 Stnls	15204SS
15	Cotter Pin $\frac{1}{8}$ x1	1*	3"-4"	316 Stnls	9Q5867

** This part note req'd. on OS&Y Models

* 2 Req'd. on OS&Y Models

*** Note:

No. 5 used with Std.
Bonnet Models only.
No. 5a used with
OS&Y Models only.

HYDROLET SUB-ASSEMBLIES

Size	Hydrolet Material	Bolted Style	Bolted OS&Y Style	QRB Style	QRB-OS&Y Style
3"	Steel	WV17593MSB	WV17607MSB		
	Aluminum	WV17593ALB	WV17607ALB	WV17609ALB	WV17611ALB
	316 Stnls.			WV17609SST	WV17611SST
4"	Steel	WV17594MSB	WV17608MSB		
	Aluminum	WV17594ALB	WV17608ALB	WV17610ALB	WV17612ALB
	316 Stnls.			WV17610SST	WV17612SST

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, packing and gasket.

(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.

WARNING Use only genuine Betts Industries Inc. replacement parts. Use of substitute parts can impair the proper functioning of this product.

Sliding Valve Metal-to-Metal Seat

MANUAL VALVE

3", 4", and 6" ID

The Betts sliding valve is an economical manually operated external stop valve that provides a quick open or close function. The 316 stainless discs offer premium corrosion resistance and the adjustable packing nut with woven PTFE infused packing allows for easy stem adjustments. The metal to metal seal has advantages for many applications, but is susceptible to wear and scratches. If a maintainable seal valve is required, please see Betts line of replaceable o-ring seat sliding valves (Section 17 Page 4A).

Add suffix "J" to Part No. for heat tube version. See section 17 page 1B for details.

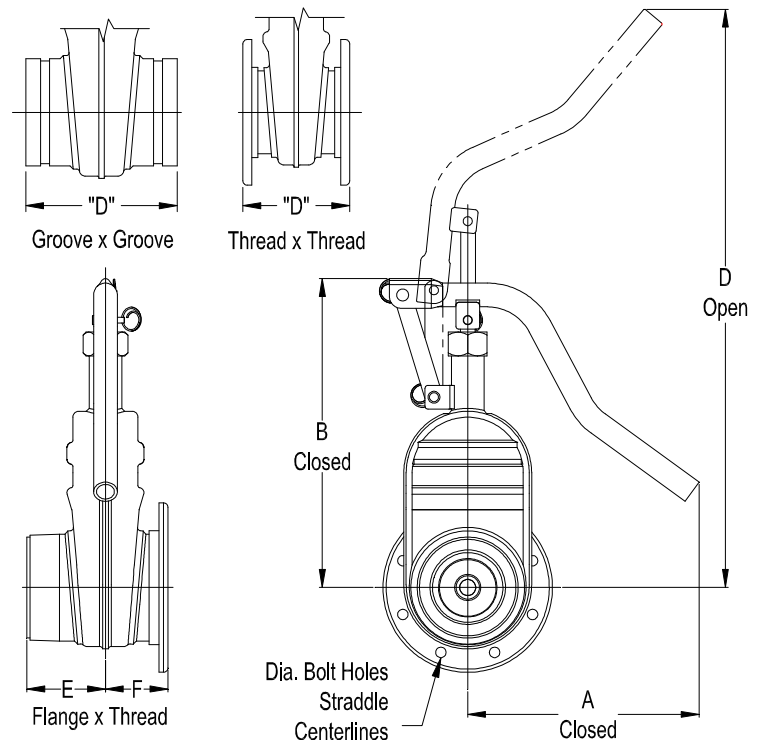
(Heat tube MAWP = 150 psi)

Body Material	Valve MAWP**	Min. Burst Pressure	Temp. Range
Steel or Stainless	50 psi [3.4 bar]	200 psi [13.8 bar]	-40 °F to 500 °F [-40 °C to 260 °C]

NOTE: Valve should NEVER be heated with flame

See section 17 page 1B for parts list.

Flange bolt pattern per TTMA recommendations and grooved outlets per MIL-C-10387B.



Size	Description	Assembly No.	Flange Dims.				Dimensions					Wt.
			OD	BC	Holes	Thick.	A	B	D	E	F	
3" [76 mm]	TTMA Flange x TTMA Flange	SV903***	6.13" [156 mm]	4.88" [124 mm]	8 - .44" [8 - 11 mm]	.135" [3.5 mm]	9.63" [244 mm]	12.06" [306 mm]	19.63" [498 mm]	N/A	2.25" [57 mm]	11.4 lb. [5.2 kg]
	TTMA Flange x 3" Threaded Pipe	SV913***				.135" [3.5 mm]				3.13" [79 mm]		10.9 lb. [4.9 kg]
	ANSI Flange x ANSI Flange	SV953***	7.25" [184 mm]	6.00" [152 mm]	4 - .75" [4 - 19 mm]	.50 [13 mm]				N/A	2.56" [65 mm]	19.0 lb. [8.6 kg]
	ANSI Flange x 3" Threaded Pipe	SV963***				.50 [13 mm]				3.13" [79 mm]		15.0 lb. [6.8 kg]
4" [102 mm]	TTMA Flange x TTMA Flange	SV904***	7.13" [181 mm]	5.88" [149 mm]	8 - .44" [8 - 11 mm]	.135" [3.5 mm]	9.63" [244 mm]	13.00" [330 mm]	24.44" [621 mm]	N/A	2.63" [67 mm]	14.9 lb. [6.8 kg]
	TTMA Flange x 4" Threaded Pipe	SV914***				.135" [3.5 mm]				3.31" [84 mm]		14.1 lb. [6.4 kg]
	ANSI Flange x ANSI Flange	SV954***	9.00" [229 mm]	7.50" [191 mm]	8 - .75" [8 - 19 mm]	.50 [13 mm]				N/A	3.50" [89 mm]	24.5 lb. [11.1 kg]
	ANSI Flange x 4" Threaded Pipe	SV964***				.50 [13 mm]				3.31" [84 mm]		20.0 lb. [9.1 kg]
6" [152 mm]	TTMA Flange x TTMA Flange	SV906***	9.38" [238 mm]	8.13" [206 mm]	12 - .44" [12 - 11 mm]	.135" [3.5 mm]	11.69" [297 mm]	16.69" [424 mm]	31.56" [802 mm]	N/A		32.5 lb. [14.7 kg]
	TTMA Flange x 6" Threaded Pipe	SV916***				.135" [3.5 mm]				5.07" [129 mm]		30.0 lb. [13.6 kg]
	ANSI Flange x ANSI Flange	SV956***	11.00" [279 mm]	9.50" [241 mm]	8 - .88" [8 - 22 mm]	.50 [13 mm]				N/A		46.0 lb. [20.9 kg]
	ANSI Flange x 6" Threaded Pipe	SV966***				.50 [13 mm]				5.07" [129 mm]	4.00" [102 mm]	40.0 lb. [18.1 kg]

** MAWP certified for new valves only. Seat/disc damage or wear may reduce sealable MAWP.

*** Last three letters of part number designates material of construction as shown below:

"MSM" = Steel Body with 316 Stainless Stem & Gates **"SSM"** = 316 Stainless Body, Stem & Gates



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Section 17 Page 1A

Gate Valve Metal-to-Metal Seat

MANUAL VALVE

3" and 4" ID

The Betts gate valve is an economical manually operated external stop valve that offers a double action hand wheel for efficient closure. The standard 316 stainless discs offer premium corrosion resistance and the adjustable packing nut with woven PTFE infused packing allows for easy stem adjustments. The metal-to-metal seal has advantages for many applications, but is susceptible to wear and scratches. If a maintainable seal valve is required, please see Betts line of replaceable o-ring seat gate valves (Section 18 Page 3A).

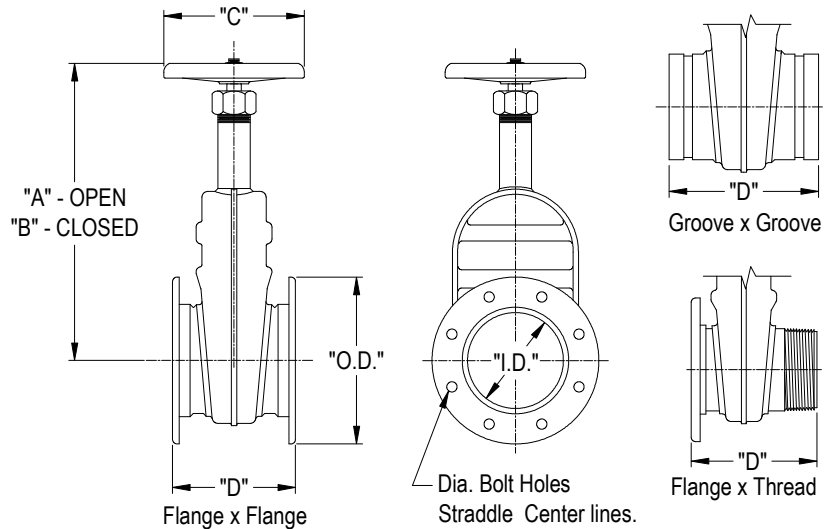
Add suffix "J" to Part No. for heat tube version.
See section 18 page 4A for details.
(Heat tube MAWP = 150 psi)

Body Material	Valve MAWP**	Min. Burst Pressure	Temp. Range
Aluminum	50 psi [3.4 bar]	200 psi [13.8 bar]	-40°F to 212°F [-40°C to 100°C]
Steel or Stainless	50 psi [3.4 bar]	200 psi [13.8 bar]	-40°F to 500°F [-40°C to 260°C]

NOTE: Valve should NEVER be heated with flame

See section 18 page 4A for parts list.

Flange bolt pattern per TTMA recommendations and grooved outlets per MIL-C-10387B.



Size	Description*	Assembly No.	Material		Flange Dims.			Dimensions					Wt. lb. [kg]
			Body	Stem	OD	BC	Holes	A	B	C	D	E	
3" [76 mm]	TTMA Flange x 3" Threaded Pipe	AAG1003	Alum	Alum	5.62" [143 mm]	4.88" [124 mm]	8 - .44" [8 - 11 mm]	14.25" [362 mm]	12.62" [320 mm]	4.50" [114 mm]	3.19" [81 mm]	2.25" [57 mm]	4.5 [2.0]
		ASG1003	Alum	SS	5.0 [2.3]								
		G1003	Steel	Brass	9.4 [4.3]								
		FG1003	Steel	Steel	9.3 [4.2]								
		SSG1003	SS	SS	9.3 [4.2]								
	TTMA Flange x TTMA Flange	AAG1013	Alum	Alum	5.62" [143 mm]	4.88" [124 mm]	8 - .44" [8 - 11 mm]	14.25" [362 mm]	12.62" [320 mm]	4.50" [114 mm]	4.50" [114 mm]	N/A	4.7 [2.1]
		ASG1013	Alum	SS	5.2 [2.4]								
		G1013	Steel	Brass	9.9 [4.5]								
		FG1013	Steel	Steel	9.8 [4.5]								
		SSG1013	SS	SS	9.8 [4.5]								
	Groove x Groove	AAG1033	Alum	Alum	N/A			14.25" [362 mm]	12.62" [320 mm]	4.50" [114 mm]	5.50" [140 mm]	N/A	4.3 [1.9]
		ASG1033	Alum	SS									4.8 [2.2]
		G1033	Steel	Brass									8.9 [4.0]
		FG1033	Steel	Steel									8.8 [4.0]
		SSG1033	SS	SS									8.8 [4.0]
4" [102 mm]	TTMA Flange x 4" Threaded Pipe	AAG1004	Alum	Alum	6.62" [168 mm]	5.88" [149 mm]	8 - .44" [8 - 11 mm]	14.25" [362 mm]	13.12" [333 mm]	6.00" [152 mm]	3.31" [84 mm]	2.62" [66 mm]	6.3 [2.9]
		ASG1004	Alum	SS	6.9 [3.1]								
		G1004	Steel	Brass	12.5 [5.7]								
		FG1004	Steel	Steel	12.3 [5.6]								
		SSG1004	SS	SS	12.3 [5.6]								
	TTMA Flange x TTMA Flange	AAG1014	Alum	Alum	6.62" [168 mm]	5.88" [149 mm]	8 - .44" [8 - 11 mm]	14.25" [362 mm]	13.12" [333 mm]	6.00" [152 mm]	5.25" [133 mm]	N/A	6.6 [3.0]
		ASG1014	Alum	SS	7.2 [3.3]								
		G1014	Steel	Brass	13.3 [6.1]								
		FG1014	Steel	Steel	13.1 [6.0]								
		SSG1014	SS	SS	13.1 [6.0]								
	Groove x Groove	AAG1034	Alum	Alum	N/A			14.25" [362 mm]	13.12" [333 mm]	6.00" [152 mm]	6.38" [162 mm]	N/A	5.5 [2.5]
		ASG1034	Alum	SS									5.9 [2.7]
		G1034	Steel	Brass									11.3 [5.1]
		FG1034	Steel	Steel									11.1 [5.1]
		SSG1034	SS	SS									11.1 [5.1]

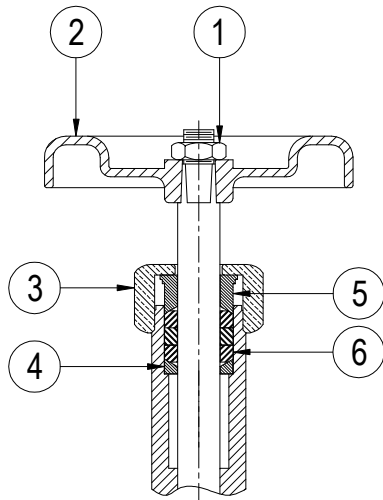
* Sump flange and other combinations available upon request.

** MAWP certified for new valves only. Seat/disc damage or wear may reduce sealable MAWP.

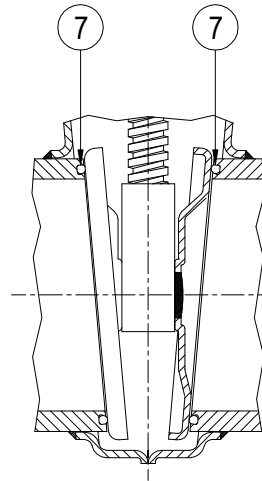
PARTS LIST

3 & 4" GATE VALVES

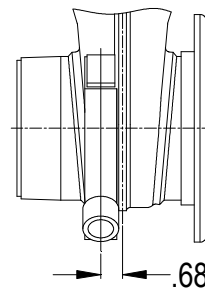
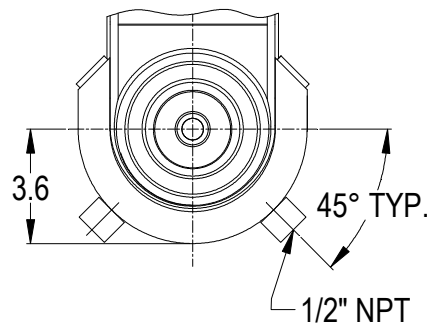
MANUAL VALVE



**Metal-to-Metal or
Replaceable Seat**



Replaceable Seat Only



Heat Tube Details – 4" Only

NO.	REQ.	DESCRIPTION	MATERIAL	PART NO.
1	1	7/16-14 hex Nut	Steel	9Q5811
2	1	3" Hand Wheel	Aluminum	25186AL
		4" Hand Wheel	Aluminum	25245AL
3	1	Stuffing Box Nut	Anodized Aluminum	15026AL
			Stainless Steel	15026SL
4	1	Bottom Gland	Stainless Steel	15076SS
5	1	Top Gland	Stainless Steel	15220SS
6	1	Packing Set (3 Rings per Set)	Teflon Suspensoid	15227NT
7	2	* Seat O-Ring (4" valve only)	Tef-Sil	19430TS

* Replaceable Seat Valves only.

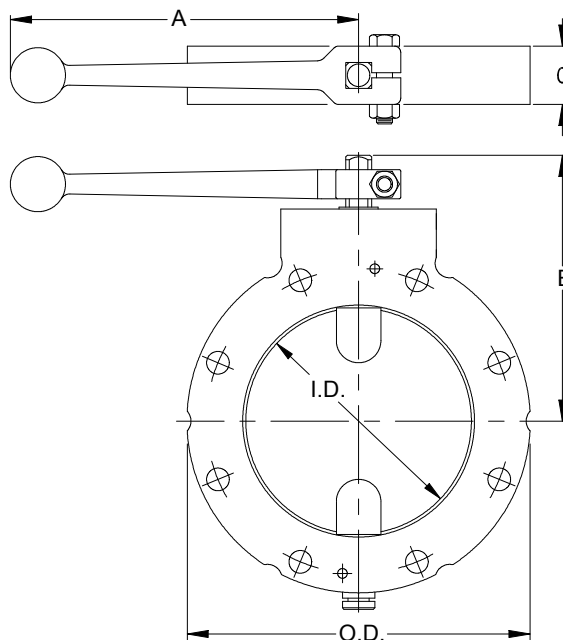
Wet-R-Dri Valve

TTMA STYLE

LIGHTWEIGHT

COMPACT

VERSATILE



Size	Standard Model	Wt.	Detent Model	Wt.	Standard Material		Max. Working Pressure	Temperature Range
	Assembly No.		Assembly No.		Body	Disc		
2"	WD200 AL B	2.4	WD201 AL B	2.4	Aluminum	Buna-N	75 PSI	See Chart Below
	WD200 GI B	4.6	WD201 GI B	4.6	Grey Iron			
3"	WD300 AL B	3.6	WD301 AL B	3.6	Aluminum	Buna-N	75 PSI	
	WD300 GI B	6.9	WD301 GI B	6.9	Grey Iron			
4"	WD400 AL V	4.5	WD401 AL V	4.5	Aluminum	Viton	75 PSI	
	WD400 GI V	8.3	WD401 GI V	8.3	Grey Iron			
5"	WD500 AL V	7.9	WD501 AL V	7.9	Aluminum	Viton	50 PSI	
6"	WD600 AL U	11.8	WD601 AL U	11.8	Aluminum	Urethane	50 PSI	
8"	WD800 AL U	17.3	WD801 AL U	17.3	Aluminum	Urethane	50 PSI	

NOTE: Standard drilling fits TTMA recommended standards.

Valves are available with the following options: Stainless steel liners and shafts, grease fittings installed in the drive and bearing shafts, and "E" Coating of aluminum valves (recommended for aluminum valves used in water service).

For repair kit, see Section 20, Page 5B.

Dimensions

Size	A	B	C	I.D.	O.D.	B.C.	Holes
2"	6 ³ / ₄	4 ¹ / ₄	1 ¹ / ₈	2 ¹ / ₄	3 ³ / ₄	3 ³ / ₄	6 ⁻⁷ / ₁₆
3"	6 ³ / ₄	4 ⁵ / ₈	1 ¹ / ₈	3 ³ / ₈	5 ⁵ / ₈	4 ¹ / ₈	8 ⁻⁷ / ₁₆
4"	6 ³ / ₄	5 ¹ / ₈	1 ¹ / ₈	4 ³ / ₈	6 ⁵ / ₈	5 ⁷ / ₈	8 ⁻⁷ / ₁₆
5"	6 ³ / ₄	6 ³ / ₈	2 ¹ / ₈	5 ⁷ / ₁₆	7 ⁵ / ₈	7	12 ⁻⁷ / ₁₆
6"	12	7	2 ¹ / ₈	6 ¹ / ₈	8 ⁵ / ₈	8 ¹ / ₈	12 ⁻⁷ / ₁₆
8"	12	8	2 ¹ / ₂	8	10 ⁷ / ₈	10 ¹ / ₈	16 ⁻⁷ / ₁₆

Suffix for Disc Material

Buna-N		Viton	Urethane		EPDM
Black	White		Black	White	
B	WB	V	U	WU	E
-40°F	-40°F	-0°F	-40°F	-40°F	-50°F
+200°F	+200°F	+400°F	+200°F	+200°F	+300°F

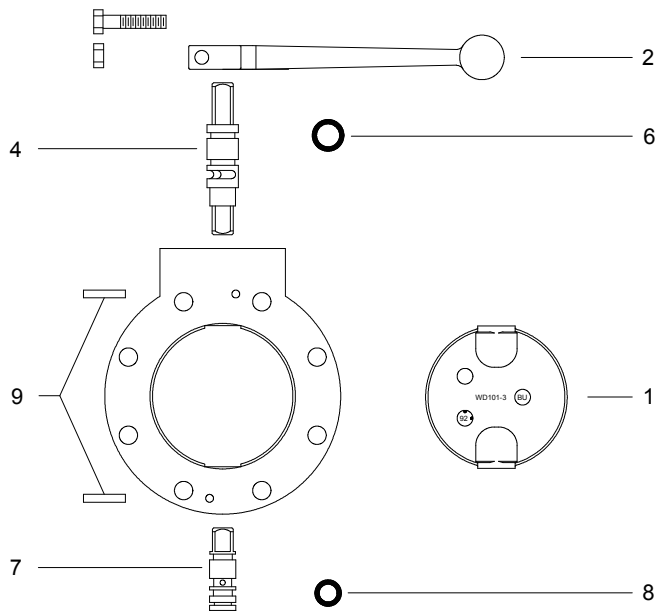
NOTE: Temperature ranges based on published information and may vary due to actual operating conditions.

INSTALLATION:

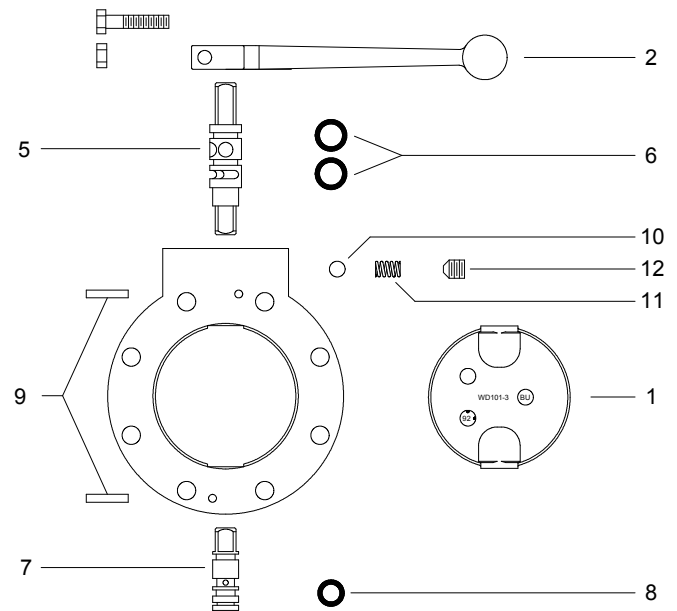
The Wet-R-Dri Valve may be mounted in any position with handle located for easy operation. Valve, as assembled, opens by turning handle ¹/₄ turn counter clockwise (right hand operation). If clockwise rotation is desired (left hand operation) please specify. Care should be taken when mounting valve to be sure the I.D. of adjoining flanges or pipe is large enough to allow disc of valve to open freely. We suggest using our accompanying flanges and adapters shown in Section 20, Page 5A.

PARTS LIST

Wet-R-Dri VALVE



STANDARD MODEL



DETENT MODEL

No.	Description	Material	2" Size	3" Size	4" Size	5" Size	6" Size	8" Size
			Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
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	Mall. "E" Coated	25884EY	25884EY	25884EY	25884EY	25933AL	25933AL
	Cap Screw	Steel Zinc Plt.	9Q5813	9Q5813	9Q5813	9Q5813	9Q5898	9Q5898
	Hex. Nut	Steel Zinc Plt.	9Q5808	9Q5808	9Q5808	9Q5808	9Q5808	9Q5808
4	Drive Shaft	Steel	27053MS	27050MS	27050MS	27051MS	16229MS	16229MS002
5	Drive Shaft	Steel	27053MS001	27050MS001	27050MS001	27051MS001	16229MS	16229MS002
6	O-Ring	To Match Disc Mat'l.	17889**	17889**	17889**	17889**	18831**	18831**
7	Bearing Shaft	Steel	16006MS	15913MS	15913MS	15913MS	16230MS	16230MS002
8	O-Ring	To Match Disc Mat'l.	17781**	18141**	18141**	18141**	18831**	18831**
9	Driv-Lok-Pin	Steel Zinc Plt.	9Q4893	9Q4893	9Q4893	9Q4925	9Q4926	9Q4938
10	Detent Ball	440 Stnls	9Z4856	9Z4856	9Z4856	9Z4856	9Z4856	9Z4856
11	Detent Spring	304 Stnls	15229SL	15229SL	15229SL	15229SL	15229SL	15229SL
12	Ret. Screw	304 Stnls	9Q5838	9Q5838	9Q5838	9Q5838	9Q5838	9Q5838

** O-Ring material suffix to match Disc suffix (i.e.-17889VT)

WARNING Use only genuine Betts Industries Inc. replacement parts. Use of substitute parts can impair the proper functioning of the Wet-R-Dri Valve.

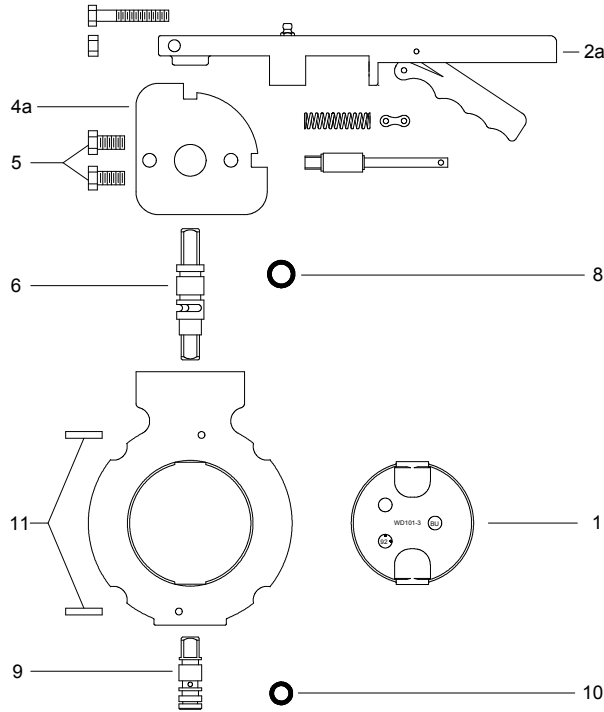
Wet-R-Dri VALVE Repair Kit

For WD Valve Size	Repair Kit Part No.	Suffix: BN Buna-N Disc PY Urethane Disc VT Viton Disc EP EPDM Disc REPAIR KITS CONSIST OF: 1 Disc 2 Drive Shaft O-Rings 1 Bearing Shaft O-Ring 2 Drive Lock Pins 2 Flange Gaskets 1 Sec. 20, Page 1A & B
2"	WD18402BN	
	WD18402VT	
3"	WD18403BN	
	WD18403VT	
4"	WD18404VT	
5"	WD18405VT	
6"	WD18406PY	
	WD18406VT	
8"	WD18408PY	
	WD18408VT	
All Detent	WD18400SL	Detent Repair Kit (For all sizes detent models) CONSISTS OF: 1 Detent Ball WD109SL 1 Detent Spring WD110SL 1 Retaining Screw WD111SL

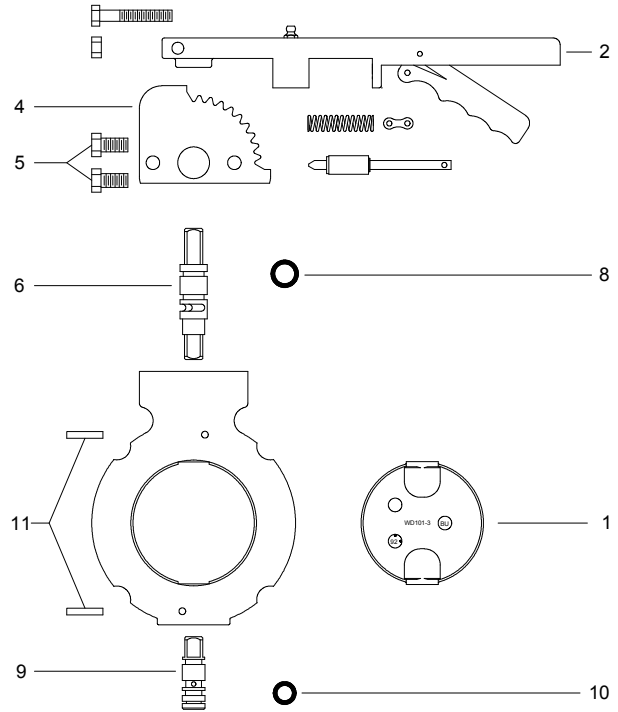
For Detent model valves a Detent Repair Kit is required in addition to the appropriate size valve repair kit.

PARTS LIST

Wet-R-Dri VALVE



LOCKING MODEL



METERING MODEL

No.	Description	Material	2" Size	3" Size	4" Size	5" Size	6" Size	8" Size
			Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
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.	Alum. "E" Coated	26284AL	26284AL	26284AL	26284AL	26287AL	26287AL
2a	Handle Assy.	Alum. "E" Coated	26075AL	26075AL	26075AL	26075AL	26077AL	26077AL
	Handle/Grip	Alum. "E" Coated	25815ALEY	25815ALEY	25815ALEY	25815ALEY	25802ALEY	25802ALEY
	Spring	302 Stnls	16365SL	16365SL	16365SL	16365SL	16365SL	16365SL
	Plunger-Metering	Steel	16969MS	16969MS	16969MS	16969MS	17020MS	17020MS
	Plunger-Locking	Steel	16385MS	16385MS	16385MS	16385MS	16400MS	16400MS
	Chain Link	Steel	9Z4915	9Z4915	9Z4915	9Z4915	9Z4915	9Z4915
	Cap Screw	Alum. Or Steel	9Q5897	9Q5897	9Q5897	9Q5897	9Q5898	9Q5898
	Hex. Nut	Steel Zinc Plt.	9Q5808	9Q5808	9Q5808	9Q5808	9Q5808	9Q5808
4	Indexing Plate	Steel "E" Coated	17012EY	17012EY	17012EY	17012EY	17016EY	17016EY
4a	Indexing Plate	Steel "E" Coated	16358EY	16358EY	16358EY	16358EY	16668EY	16668EY
5	Cap Screw	Stainless	9Q5884	9Q5884	9Q5884	9Q5884	9Q5884	9Q5884
6	Drive Shaft	Steel	27053MS	27051MS	27051MS	27051MS	16229MS	16229MS002
8	O-Ring	To Match Disc Mat'l.	17889**	17889**	17889**	17889**	18831**	18831**
9	Bearing Shaft	Steel	16006MS	15913MS	15913MS	15913MS	16230MS	16230MS
10	O-Ring	To Match Disc Mat'l.	17781**	18141**	18141**	18141**	18831**	18831**
11	Driv-Lok-Pin	Steel Zinc Plt.	9Q4893	9Q4925	9Q4925	9Q4925	9Q4926	9Q4938

** O-Ring material suffix to match Disc suffix (i.e.-17889VT)

WARNING Use only genuine Betts Industries Inc. replacement parts. Use of substitute parts can impair the proper functioning of this product.

3-1/2" Aluminum Vapor Valve

Sequential Interlock

AIR OPERATED

- Air Actuated Sequential Operation
- Stainless Trim with PTFE Seals
- Inward Opening

SERVICE TEMPERATURE RATINGS (°F)

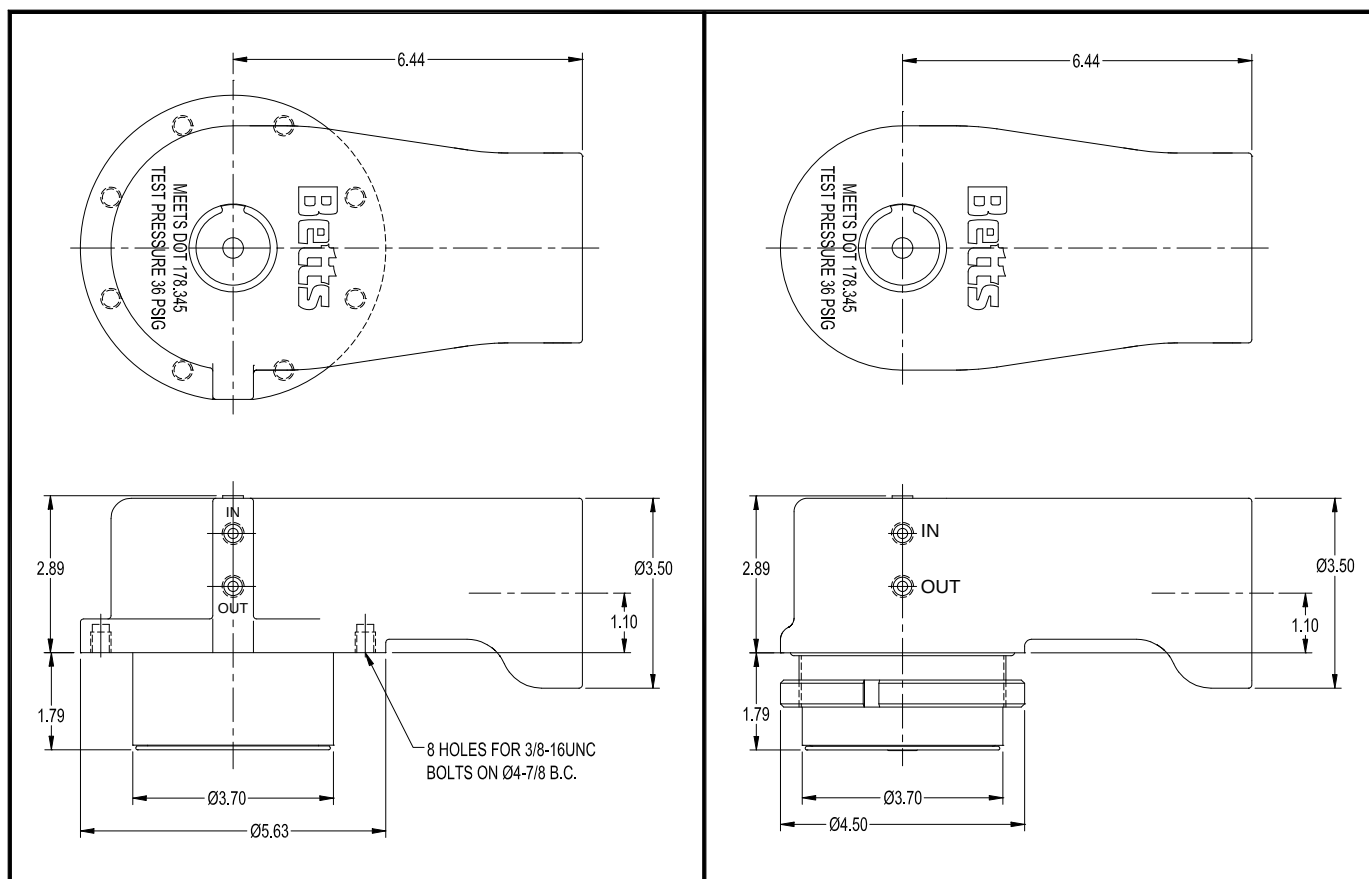
Standard Valves -20 °F to 200 °F
w/ '022' suffix (fluorosilicone) -80 °F to 400 °F

NOTE: Temperature ratings are based on published information and may vary due to actual conditions.

Bolted Model: **AV46850ALTS***

* Add suffix "022" for Stainless Mounting Bolts

Threaded Model: **AV46855ALTS**



Betts 3-1/2" Sequential Vapor Valves are designed for use as positive vapor recovery valves on cargo tanks during loading and unloading. Sequential interlock design allows the vapor valve to be plumbed in series with the emergency valve to ensure the vapor valve is open before the emergency valve. Vapor valves can also be plumbed to operate independently of the emergency valves, if desired. Internal interlock device guarantees that all vapor valves and emergency valves will close fully when air pressure is released, regardless of their location in the plumbing system.

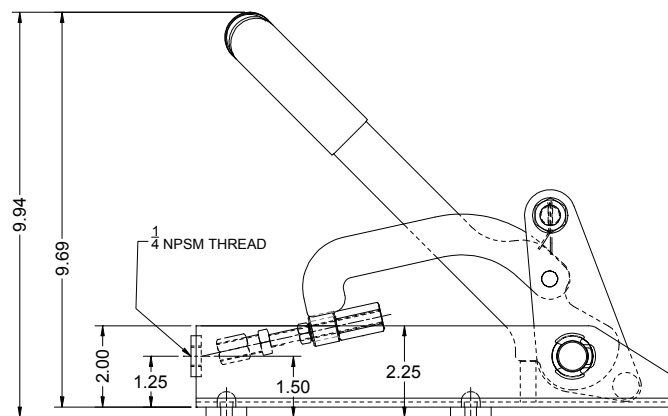
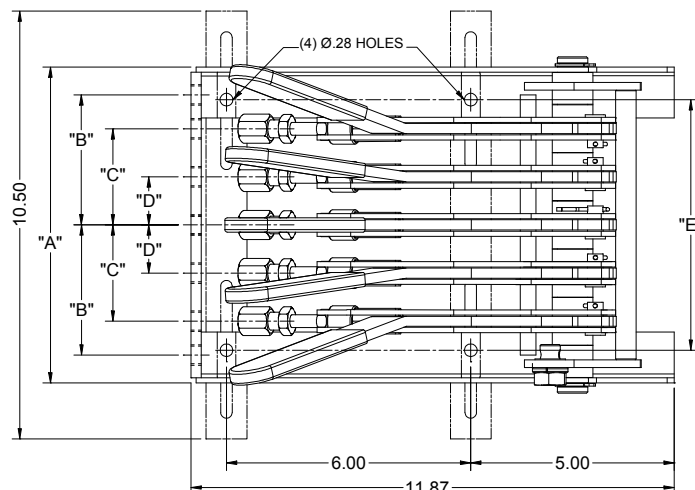
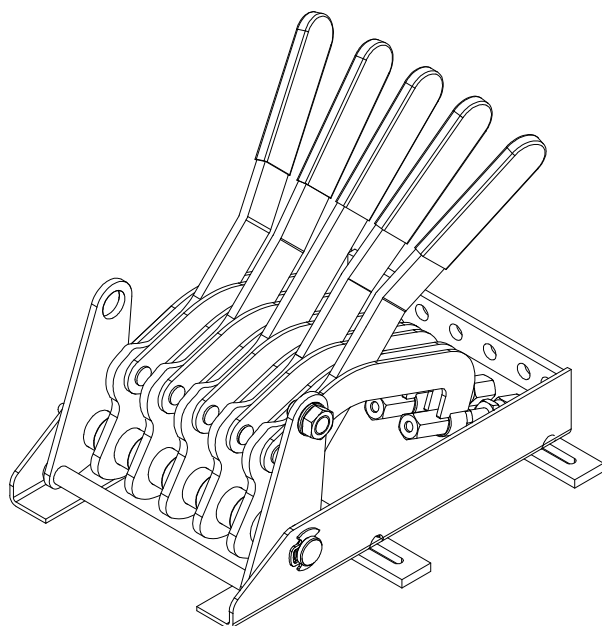
Available in two configurations - bolted design mounts in 20" offset PAF manhole cover using eight 3/8-16UNC bolts (included), while threaded design mounts in 16" offset PAF manhole. Both versions meet all requirements for loading/unloading venting devices on MC306 and DOT406 cargo tanks and are tested and marked with a test pressure of 36 psig in accordance with 49CFR178.345-5(f).

Inward opening action prevents loss of lading due to surge pressure during a roll-over accident. All moving parts are internal to minimize chance of freeze-ups during cold weather. Aluminum bodies with stainless trim minimize corrosion and PTFE seals in contact with vapors ensure compatibility with a wide variety of products.

Mechanical Operator

COMPACT - NON-LUBRICATED

- Compact Design
- Stainless or Powder Coated Steel
- 2-3/8" Stroke
- Solid Handles
- Non-Lubricated Stainless Shaft



Betts Compact Mechanical Operators function cable operated emergency valves from a central location on a cargo tank. Available from 1 up to 5 compartments in stainless or powder coated steel; each compartment is supplied with a fusible link designed to melt at not more than 250°F as well as non-slip cable connectors that allow cable to be cut to length after installation.

New design is more compact than comparable Universal or Deluxe models. Slotted mounting straps are available as an option to allow for replacement of Deluxe operators without drilling new mounting holes. Specify straps by adding suffix "001" to assembly number. Other mounting options available by contacting sales.

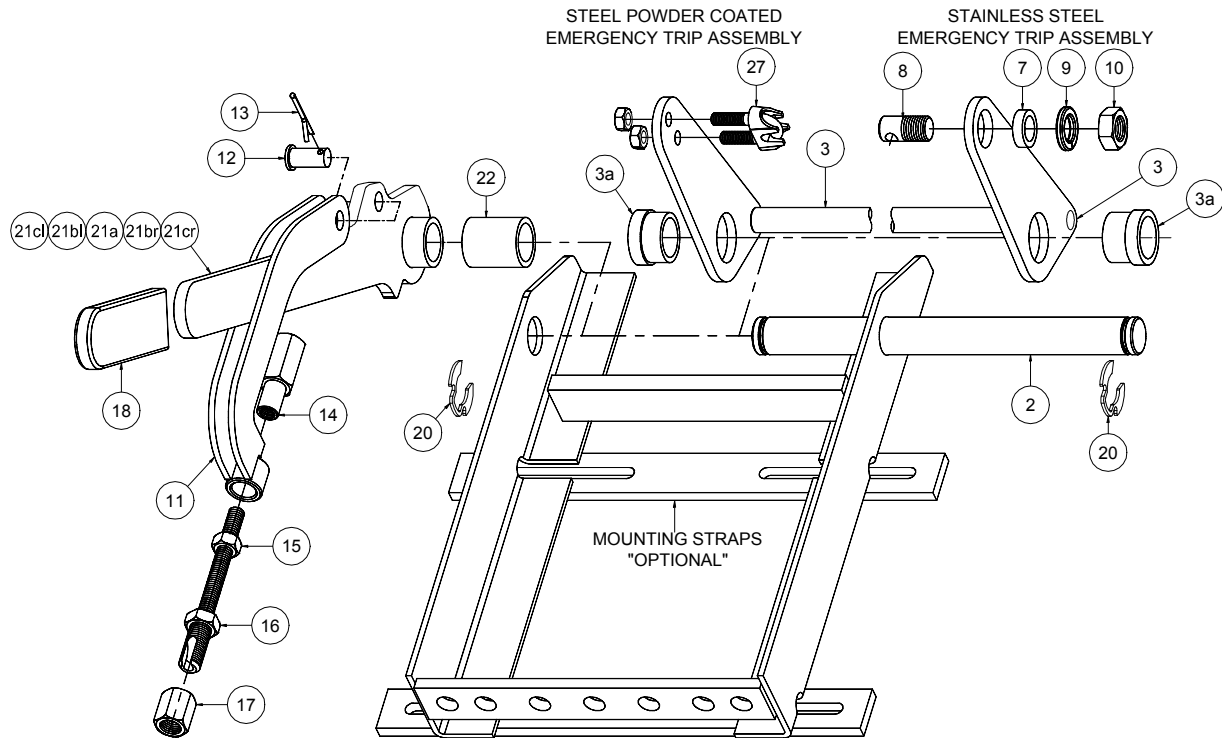
Lever arms provide 2-3/8" stroke and 5.6:1 mechanical advantage. Two trip levers provided for flexibility in locating cable remote control or for attaching two remotes, if required. See Section 29, Page 1A for cable remote control.

No. of Compts.	Material	Weight (lb)	Part No.	Dim. "A" (in.)	Dim. "B" (in.)	Dim. "C" (in.)	Dim. "D" (in.)	Dim. "E" (in.)
1	Stainless	7.1	OP9011SL	4.20	1.41	N/A	.59	2.60
	Steel Powder Coated		OP9011EY					
2	Stainless	9.5	OP9012SL	7.75	3.19	2.36	1.18	6.15
	Steel Powder Coated		OP9012EY					
3	Stainless	12.7	OP9013SL	7.75	3.19	2.36	1.18	6.15
	Steel Powder Coated		OP9013EY					
4	Stainless	15.1	OP9014SL	7.75	3.19	2.36	1.18	6.15
	Steel Powder Coated		OP9014EY					
5	Stainless	17.5	OP9015SL	7.75	3.19	2.36	1.18	6.15
	Steel Powder Coated		OP9015EY					

TM

PARTS LIST

Compact Mechanical Operator Non-Lubricated



No.	Description	Material		Part No.				
		Steel Model	Stainless Model	1 Compt.	2 Compt.	3 Compt.	4 Compt.	5 Compt.
2	SHAFT	304 SS		27818SL-2		27818SL-5		
3	EMERGENCY TRIP LEVER ASSEMBLY	STEEL PC	304 SS	35659EY-2* / 35686SL-2**		35659EY-5* / 35686SL-5**		
3a	FLANGED BUSHING	NA	NA	9V4255				
7	EMERGENCY CABLE CLAMP BUSHING	NA	304 SS	19617SL**				
8	EMERGENCY TRIP CABLE CLAMP	NA	304 SS	19622SL**				
9	1/2 in. SPRING LOCK WASHER	STEEL ZC	304 SS	9Q5908**				
10	1/2 -20 JAM NUT	STEEL ZC	304 SS	9Q5909**				
11	LINK ARM ASSEMBLY	STEEL PC	304 SS	27815EY* / 27815SL**				
12	CLEVIS PIN	STEEL ZC	304 SS	15757ZC* / 19621SL**				
13	3/32 in. x 3/4 in. COTTER PIN	BRASS	304 SS	9Q5865* / 9Q5866**				
14	FUSIBLE BUSHING NUT	BRASS		19724BR				
15	5/16 -24 HEX NUT	STEEL ZC	304 SS	9Q5808A* / 9Q5858**				
16	ADJUSTING BOLT	STEEL	303 SS	20040ZC* / S20040A**				
17	CLAMPING NUT	STEEL ZC	304 SS	10268ZC* / S10268A**				
18	HANDLE GRIP - RED/BLUE	VINYL - RED	VINYL - BLUE	9Z4830* / 9Z4829**				
20	RETAINING RING	STEEL ZC	304 SS	9Q4974* / 9Q4973**				
21cl	LEVER ARM ASSEMBLY - LEFT #2	STEEL PC	304 SS	NA	35650EYL2* / 35650SL2**			
21bl	LEVER ARM ASSEMBLY - LEFT #1	STEEL PC	304 SS	NA	NA	NA	NA	35650EYL1* / 35650SL1**
21a	LEVER ARM ASSEMBLY - STRAIGHT	STEEL PC	304 SS	35650EY* / 35650SL**	NA	35650EY* / 35650SL**		
21br	LEVER ARM ASSEMBLY - RIGHT #1	STEEL PC	304 SS	NA	NA	NA	NA	35650EYR1* / 35650SLR1**
21cr	LEVER ARM ASSEMBLY - RIGHT #2	STEEL PC	304 SS	NA	35650EYR2* / 35650SLR2**			
22	REPLACEMENT BUSHING	STEEL PC	304 SS	19624EY* / 19624SL**	NA	19624EY* / 19624SL**		NA
27	CABLE CLAMP	STEEL ZC	NA	9Q1660*				

*EY" FOR STEEL POWDER COATED GLOSS BLACK , "SL" FOR STAINLESS, "ZC" STEEL ZINC COATED.

*** PARTS FOR STEEL POWDER COATED GLOSS BLACK MODELS ONLY**

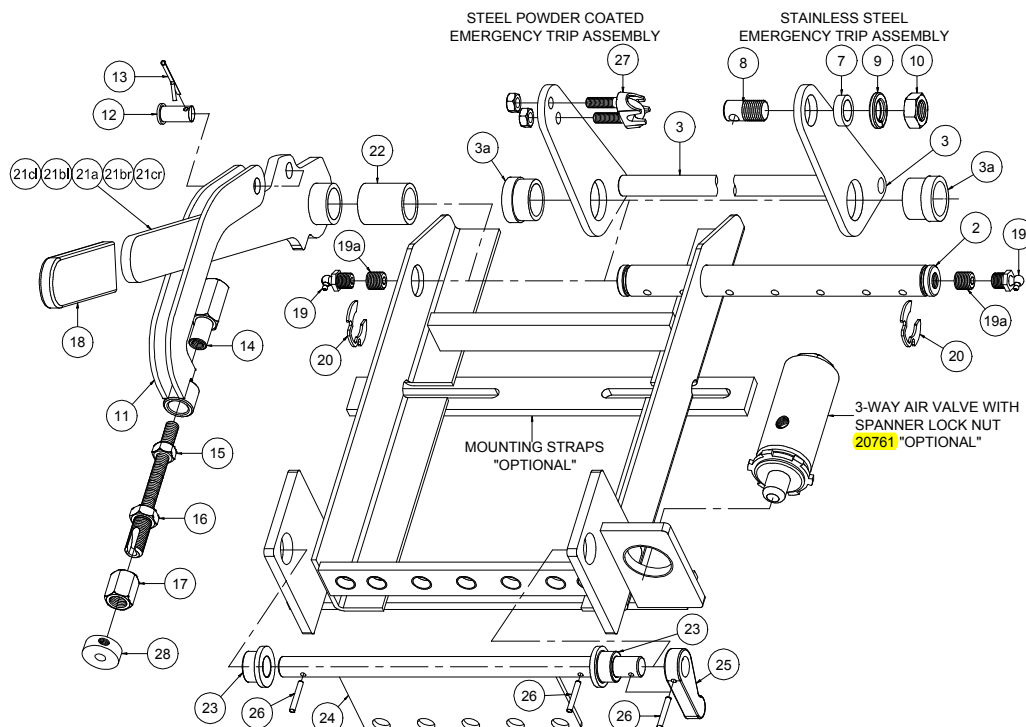
**** PARTS FOR STAINLESS MODELS ONLY**

WARNING Use only genuine BETTS INDUSTRIES INC. replacement parts. Use of substitute parts can impair the proper function of this product.

Note: **Adjusting Bolt assembly 20040A001** and S20040A001 includes items 14,15,16,17.

PARTS LIST

Compact Mechanical Operator Delta I - Lubricated



No.	Description	Material		Part No.					
		Steel	Stainless Model	1 Compt.	2 Compt.	3 Compt.	4 Compt.	5 Compt.	
2	SHAFT	304 SS		277766SL		27715SL			
3	EMERGENCY TRIP LEVER ASSEMBLY	STEEL	304 SS	35659EY-2* / 35686SL-2**		35659EY-5* / 35686SL-5**			
3a	FLANGED BUSHING	NA	NA	9V4255					
7	EMERGENCY CABLE CLAMP BUSHING	NA	304 SS	19617SL**					
8	EMERGENCY TRIP CABLE CLAMP	NA	304 SS	19622SL**					
9	1/2 in. SPRING LOCK WASHER	STEEL	304 SS	9Q5899* / 9Q5908**					
10	1/2 -20 JAM NUT	STEEL	304 SS	9Q5910* / 9Q5909**					
11	LINK ARM ASSEMBLY	STEEL	304 SS	27815EY* / 27815SL**					
12	CLEVIS PIN	STEEL	304 SS	15757ZC* / 19621SL**					
13	3/32 in. x 3/4 in. COTTER PIN	BRASS	304 SS	9Q5865* / 9Q5866**					
14	FUSIBLE BUSHING NUT	BRASS		19724BR					
15	5/16 -24 HEX NUT	STEEL	304 SS	9Q5808A* / 9Q5858**					
16	ADJUSTING BOLT	STEEL	303 SS	20040ZC* / S20040A**					
17	CLAMPING NUT	STEEL	304 SS	10268ZC* / S10268A**					
18	HANDLE GRIP - RED/BLUE	VINYL -	VINYL - BLUE	9Z4830* / 9Z4829**					
19	GREASE FITTING	STEEL		9Z4873					
19a	THREADED INSERT	NA		9Z9017					
20	RETAINING RING	STEEL ZC		9Q4974* / 9Q4974**					
21cl	LEVER ARM ASSEMBLY - LEFT #2	STEEL	304 SS	NA	35650EYL2* / 35650SL2**				
21bl	LEVER ARM ASSEMBLY - LEFT #1	STEEL	304 SS	NA	NA	NA	NA	35650EYL1* / 35650SL1**	
21a	LEVER ARM ASSEMBLY -STRAIGHT	STEEL	304 SS	35650EY* / 35650SL**	NA	35650EY* / 35650SL**			
21br	LEVER ARM ASSEMBLY - RIGHT #1	STEEL	304 SS	NA	NA	NA	NA	35650EYR1* / 35650SLR1**	
21cr	LEVER ARM ASSEMBLY - RIGHT #2	STEEL	304 SS	NA	35650EYR2* / 35650SLR2**				
22	REPLACEMENT BUSHING	STEEL	304 SS	19624EY* / 19624SL**	NA	19624EY* / 19624SL**		NA	
23	BUSHING	BRONZE		9Z4869					
24	SHAFT & GATE ASSEMBLY	STEEL	304 SS	27811ZC* / 27811SL**		27812ZC* / 27812SL**			
25	CAM	STEEL ZC		10938ZC					
26	ROLL PIN 1/8 x 7/8	STEEL	420 SS	9Q5894* / 9Q5920**					
27	CABLE CLAMP	STEEL	NA	9Q1660*					
28	CABLE BUSHING & SET SCREW	STEEL ZC		10942					

"EY" FOR STEEL POWDER COATED GLOSS BLACK, "SL" FOR STAINLESS, "ZC" STEEL ZINC COATED.

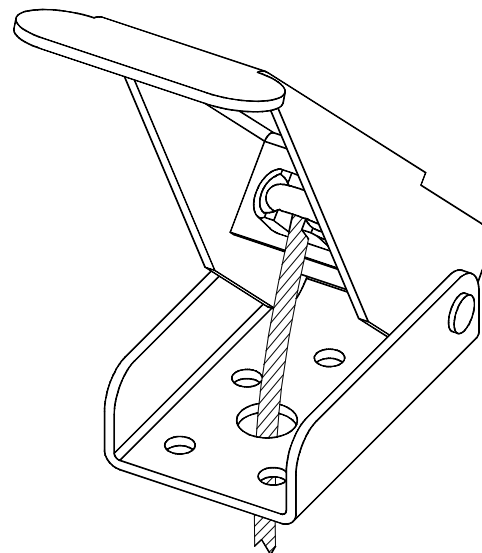
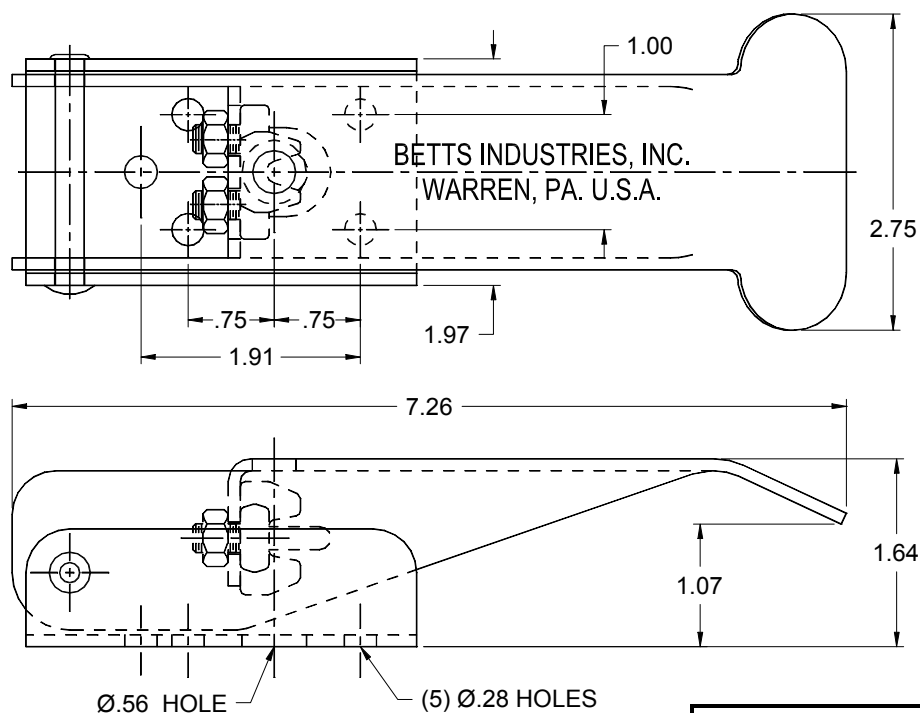
* PARTS FOR STEEL POWDER COATED GLOSS BLACK MODELS ONLY

** PARTS FOR STAINLESS MODELS ONLY

WARNING Use only genuine BETTS INDUSTRIES INC. replacement parts. Use of substitute parts can impair the proper function of this product.

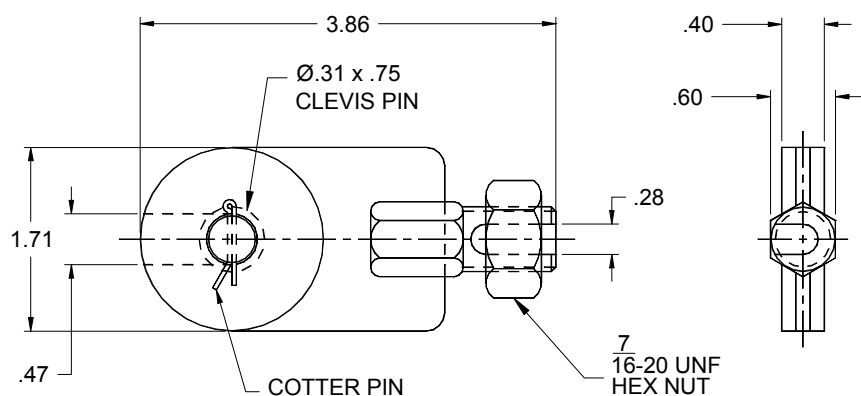
Note: Adjusting Bolt assembly **20040A001** and S20040A001 includes items 14,15,16,17.

Operator Accessories



Description	Part No.	Material	Weight (lb)
Remote Control Assy.	35603SL	Stainless	1.10
Cable Clamp only	9Q1660		.10

New design provides greater stroke (2-1/8") and leverage. Stainless steel to resist corrosion. Remote attaches to trip lever on operator using cable. Pulling remote lever rotates operator trip lever and bar assembly, causing all open emergency valves to close. Per 49CFR178.345-11, remote must be located at least 10 feet away from loading/unloading outlet (where vehicle length allows) or on the end of the cargo tank farthest from the loading/unloading outlet. Test cable remote controls and operators at least once a day to insure proper functioning.



Fusible Link

Part No.	Material	Weight (lb)
21050A	Steel	.17

Heavy duty fusible cable links are designed to attach the cable to the emergency valve cable lever arm and to provide thermal activation at the emergency valve. Fusible element melts at not more than 250°F, releasing the cable tension and allowing the emergency valve to close. Uses same non-slip, adjustable cable attachment as on Betts operators.

Emergency Valve

Aluminum Flat Seat Style

- Air or Cable Operated
- Groove or Flange Outlet
- Buna Urethane or Viton Seals

Betts flat seat style emergency valves combine Betts quality with an economical design. Valves feature aluminum construction with a specially designed seat disc to provide positive sealing. Shear section tested per TTMA RP84 and meets 49CFR178.345-8.

Air operated valves are provided with an external air cylinder to help prevent gasoline or other products from contaminating the air supply. The air cylinder is hard-coated aluminum with a polished stainless steel shaft. Cylinders have 1/8" NPT port for air connection and are supplied with a fusible plug installed.

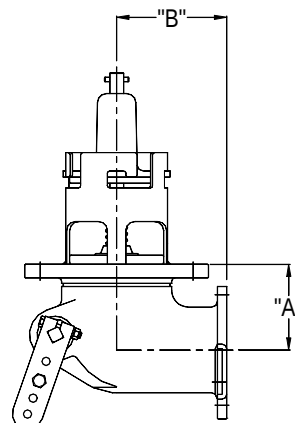
Cable operated valves are supplied with a universal lever arm which provides up to 8 cable travel options to work with most operators. Lever arm is "E" Coated to provide exceptional corrosion resistance.

Left-hand valves are available with air cylinder or cable lever arm on opposite side of valve as shown at right. Add suffix -005 for left-hand option. Add suffix -004 for optional screen.

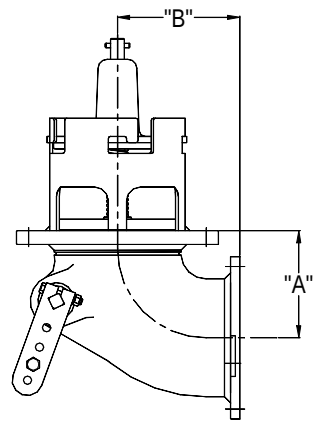
4" Valves are available with Stainless Trim, add suffix 010.

See section 30 Page 10A for parts list.

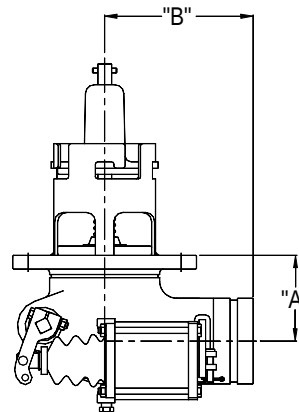
90° ELBOW



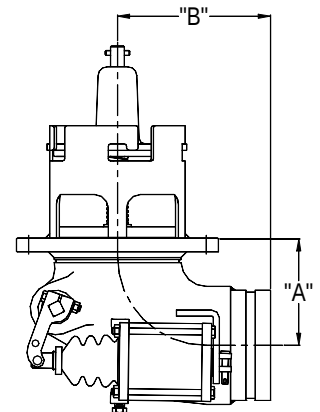
3in. CABLE / FLANGED



4in. CABLE / FLANGED



3in. AIR / GROOVED



4in. AIR / GROOVED

Size	*Assembly No.	Air/Cable	Outlet	Wt.	Dimensions		Inlet Flange		Outlet Flange	
					A	B	B.C.	Holes	B.C.	Holes
3"	EV46672ALB	Air	3" Grv	10.5	3.50"	6.06"	6.25"	6-9/16	N.A.	N.A.
	EV46673ALB	Cable	3" Grv	8.2						
	EV46670ALB	Air	3" Flg	10.5	3.50"	4.50"	6.25"	6-9/16	4.88"	8-7/16
	EV46671ALB	Cable	3" Flg	8.2						
4"	EV46435ALB	Air	4" Grv	12.7	4.38"	6.25"	7.25"	8-9/16	N.A.	N.A.
	EV46398ALB	Cable	4" Grv	10.4						
	EV46428ALB	Air	4" Flg	12.7	4.38"	5.00"	7.25"	8-9/16	5.88"	8-7/16
	EV46399ALB	Cable	4" Flg	10.4						

*Specify Viton seals by substituting "V" for "B" in Assembly Number.

Force rating from TTMA RP86: 3" Valves: $F_{b-max} = 21,035$ lb.

4" Valves: $F_{b-max} = 15,500$ lb.

CAUTION: Never bottom load through emergency valves without first opening valve. Failure to do so may result in damage to the tank and/or valve.

Emergency Valve

Aluminum 6"x4" High Flow

90° ELBOW

- Air or Cable Operated
- Stainless Trim
- Teflon Encapsulated Seals

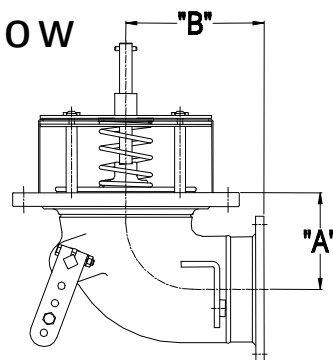
Betts High Flow Emergency valves provide increased flow rates compared to 4" emergency valves. Valves feature Teflon encapsulated seals for compatibility with a wide range of products and a special lift mechanism for smooth operation. Body is constructed of aluminum with stainless steel trim. Shear section tested per TTMA RP84 and meets 49CFR178.345-8.

Air operated valves are provided with an external air cylinder to help prevent gasoline or other products from contaminating the air supply. The air cylinder is hard-coated aluminum with a polished stainless steel shaft. Cylinders have 1/8" NPT port for air connection and are supplied with a fusible plug installed.

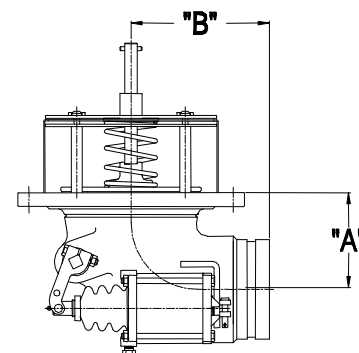
Available in Long-Radius and Short-Radius elbows. Use the Long-Radius for maximum flow or use the Short-Radius where clearance for piping is restricted.

Left-hand valves are available with air cylinder or cable lever arm on opposite side of valve as shown at right. Add suffix -005 for left-hand option. Add suffix -004 for optional screen.

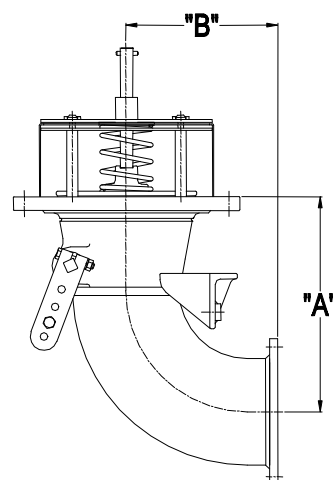
See section 30 Page 11A for parts list.



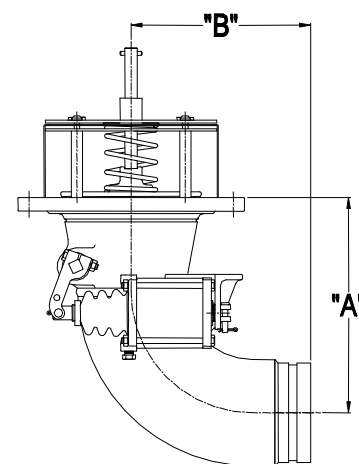
Short Radius Cable / Flanged



Short Radius Air / Grooved



Long Radius Cable / Flanged



Long Radius Air / Grooved

Size	Assembly No.	Air /Cable	Outlet	Wt.	Dimensions		*Inlet Flange		Outlet Flange	
					A	B	B.C.	Holes	B.C.	Holes
6"x4" SHORT RADIUS	EV46467ALTS	Air	4" Grv	16.4	4.38"	6.25"	9.25"	12-9/16	N.A.	N.A.
	EV46470ALTS	Cable	4" Grv	14.2						
	EV46468ALTS	Air	4- 1/2" Grv	16.4	4.38"	6.25"	9.25"	12-9/16	N.A.	N.A.
	EV46471ALTS	Cable	4- 1/2" Grv	14.2						
	EV46466ALTS	Air	4" Flg	16.4	4.38"	6.25"	9.25"	12-9/16	5.88"	8-7/16
	EV46469ALTS	Cable	4" Flg	14.2						
6"x4" LONG RADIUS	EV46473ALTS	Air	4" Grv	18.2	9.75"	8.13"	9.25"	12-9/16	N.A.	N.A.
	EV46476ALTS	Cable	4" Grv	16.0						
	EV46474ALTS	Air	4- 1/2" Grv	18.2	9.75"	8.13"	9.25"	12-9/16	N.A.	N.A.
	EV46477ALTS	Cable	4- 1/2" Grv	16.0						
	EV46472ALTS	Air	4" Flg	18.2	9.75"	6.75"	9.25"	12-9/16	5.88"	8-7/16
	EV46475ALTS	Cable	4" Flg	16.0						

*NOTE: Valves mount to standard 6" TTMA sump

Force rating from TTMA RP86: Short Radius Valves: $F_{b-max}=35,000$ lb.

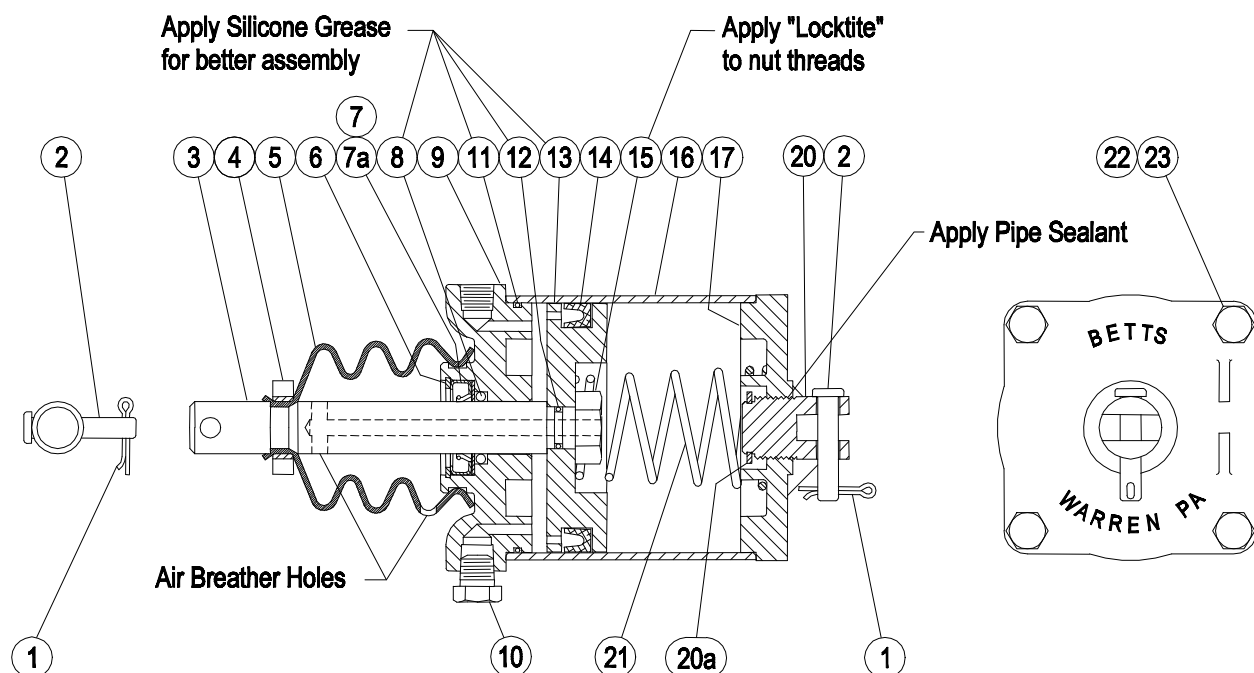
Long Radius Valves: $F_{b-max}=13,800$ lb.

CAUTION: Never bottom load through emergency valves without first opening valve. Failure to do so may result in damage to the tank and/or valve.

PARTS LIST

Air Cylinder

AC35005ALB



REBUILD KIT AC19307BN - Includes Items 3, 4, 5, 7, 7a, 8, 11, 12, 14, 20, and 21

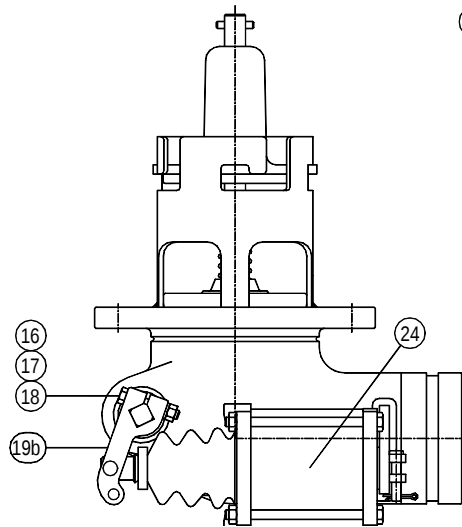
REPAIR KIT AC18674BN - Includes Items 4, 5, 6, 7, 7a, 8, 11, 12, and 14

NO.	REQ.	DESCRIPTION	MATERIAL	PART NO.
1	2	Cotter Pin 3/32 X 3/4"	Brass	9Q5865
2	2	Clevis Pin	Steel Zinc Plt.	9Q4728
3	1	Shaft	Stnls 304	17661SL
4	1	Boot Retainer	Delrin	17952DL
5	1	Boot	Neoprene	17777NE
6	1	Retaining Ring	Steel - Zinc Plt.	9Q4967
7	1	Wiper Seal	Steel - Phosphate Coated	19085PA
7a	1	Spacer	Teflon	19057TF
8	1	O-Ring Shaft Seal	Buna-N	18066BN
9	1	End Plate	Aluminum	17880AL
10	1	Fusible Plug	Brass	FP15003BR
11	1	O-Ring - End Plate	Buna-N	17666BN
12	1	O-Ring - Shaft	Buna-N	17781BN
13	1	Piston	Aluminum	17660AL
14	1	Piston Seal	Buna-N (special low temp.)	17669BN
15	1	Hex Half Nut 1/2-20 Thd.	Steel - Zinc Plt.	9Q5910
16	1	Cylinder	Aluminum	17659AL
17	1	Mounting End Plate	Aluminum	17881AL
20	1	Clevis	Steel - Black Epoxy Coated	19060EY
20a	1	Clevis Retaining Ring	Stnls. 316	9Q4970
21	1	Spring	Steel - Black Epoxy Coated	18742EY
22	4	Locknut 1/4-28 Thd.	Steel - Zinc Plt.	9Q5807
23	4	Bolt 1/4-28 X 4"	Steel - Zinc Plt.	9Q1270

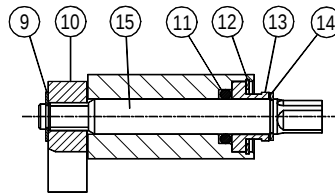
PARTS LIST

Emergency Valve

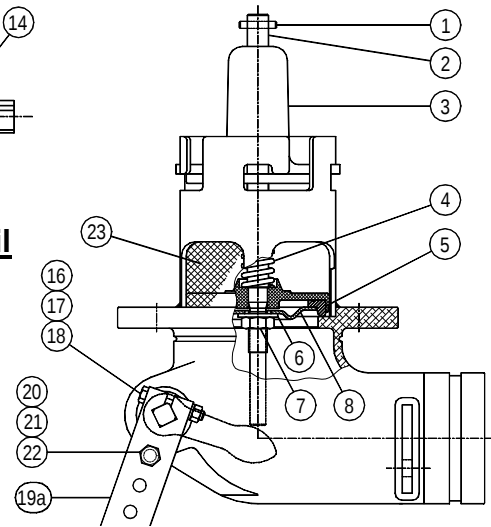
3" & 4" Flat Seat Aluminum



Air Operated



Stuffing Box Detail



Cable Operated

NO.	REQ.	DESCRIPTION	MATERIAL	PART NO.	
				3" VALVE	4" VALVE
1	1	Bail Pin 3/16 Dia. X 1"	Stnls 18-8	9Q5901	9Q5901
2	1	Stem & Disc Holder Assembly	Alum./Steel Zinc Plt.	**27773ZA ***27517ZA	17991CA / *17991SA
3	1	Bonnet	Aluminum	25074AL	25248AL
4	1	Spring	Steel "E" Coated	15196EY	15196EY/ *15196SS
5	1	Disc	Buna Urethane	19018BU	19017BU
			Viton	19018VT	19017VT
6	1	Lockwasher 1/2" external tooth	Stnls 410	9Q5916	9Q5918/ *9Q5916
7	1	Hex Nut 1/2-20UNF Thd.	Stnls 18-8	9Q5909	9Q5909
8	1	Disc Retainer Plate	Aluminum	15006AL	15051AL
9	1	Cam Retaining Ring	Stnls 316	9Q4933	9Q4933
10	1	Cam	Steel	19022MS	19022MS/ *19022SS
11	1	O-Ring (Cam Shaft)	Buna-N	19082BN	19082BN
			Viton	19082VT	19082VT
12	1	Retaining Ring-Gland	Stnls 316	9Q4968	9Q4968
13	1	Retaining Gland	Aluminum	19081AL	19081AL
14	1	Retaining Ring – Cam shaft	Stnls 316	9Q4970	9Q4970
15	1	Cam Shaft	Steel	27332ZC	27332ZC/ *27332SS
16	1	Bolt 1/4-20UNC x 1.75" lg.	Steel Zinc Plt.	9Q5825	9Q5825
17	1	Lockwasher 1/4"	Steel Zinc Plt.	9Q5845	9Q5845
18	1	Hex Nut 1/4-20UNC Thd	Steel Zinc Plt.	9Q5806	9Q5806
19a	1	Lever Arm - Cable	Steel "E" Coated	10587EY	10587EY
19b	1	Lever Arm - Air	Steel "E" Coated	18366EY	18366EY
20	1	Bolt 5/16-18UNC x 1" lg.	Steel Zinc Plt.	9Q5829	9Q5829
21	1	Lockwasher 5/16"	Steel Zinc Plt.	9Q5847	9Q5847
22	1	Hex Nut 5/16-18UNC Thd	Steel Zinc Plt.	9Q5808	9Q5808
23	1	Screen - Optional	Stnls 304	17644SL	17645SL
24	1	Air Cylinder Assembly	Aluminum	AC35005ALB	AC35005ALB

* Indicates Part No. for Valves with Stainless Trim

** Indicates Part No. for 90 Deg. Elbow

*** Indicates Part No. for Straight & Tee

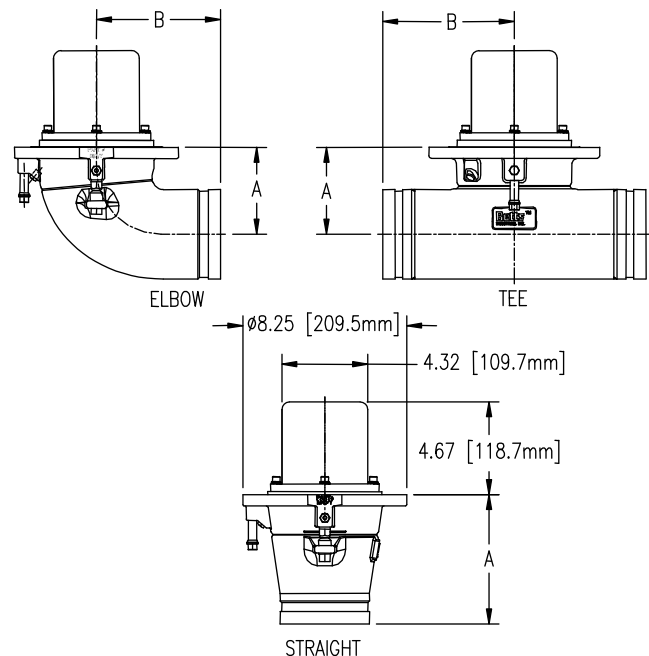
Emergency Valve

INTERNAL AIR

4" Aluminum Internal Air w/ 4" Air Cylinder

Betts internal air emergency valve meets HM183 requirements for an internal self-closing stop valve. Body is constructed of aluminum and incorporates a shear section that satisfies 49CFR178.345-8 tested per TTMA RP 84. The 1/8" NPT air inlet is designed to shear and close the valve in the event of an under-ride accident. A fusible plug is installed to dump air pressure if temperatures exceed 212°F.^{††} Valve uses Teflon[®] encapsulated seals for compatibility with a wide range of products. Other seal options are also available. Internal air cylinder saves space on exterior of valve providing maximum clearance for piping. Valve is equipped with stainless steel jackscrew that allows for manual operation in the event of an air system failure.

The Maximum Operating Pressure is defined as the maximum tank pressure that valve can open against w/ given air line pressure. Maximum Operating Pressure is 35 psi with 80 psi line pressure and 45 psi with 100 psi line pressure. The Valve MAWP is 35 psi [2.4 bar] and the Minimum Bursting Pressure is 140 psi [9.7 bar].



See section 30 Page 15B for 4" parts list.

Size	Assembly No.	Inlet Flange (4" Sump)		Outlet (4" TTMA)		Dimensions		Wt.	F _{b-max} Per TTMA RP86
		B.C	8 Holes	B.C.	8 Holes	A	B		
4" Straight Grooved	EV46919AL**	7.25" [184 mm]	.563" Dia. [14.3 mm]	4" GROOVED O.D. 4.5" [114.3 mm]		6.50" [165 mm]	N.A.	9.9 lb. [3.6 kg]	24,000 lb. [10,886 kg]
4" Straight Flanged	EV46920AL**			5.88" [149 mm]	.438" Dia. [11.1 mm]	6.50" [165 mm]	N.A.	10.4 lb. [3.9 kg]	
4" Elbow Grooved	EV46921AL**	7.25" [184 mm]	.563" Dia. [14.3 mm]	4" GROOVED O.D. 4.5" [114.3 mm]		4.38" [111.3 mm]	6.25" [158.8 mm]	10.6 lb. [4.0 kg]	44,400 lb. [20,140 kg]
4" Elbow Flanged	EV46922AL**			5.88" [149 mm]	.438" Dia. [11.1 mm]	4.38" [111.3 mm]	5.00" [127.0 mm]	10.9 lb. [4.1 kg]	
4" Tee Grooved	EV47226AL**	7.25" [184 mm]	.563" Dia. [14.3 mm]	4" GROOVED O.D. 4.5" [114.3 mm]		4.38" [111.3 mm]	6.63" [168.4 mm]	12.4 lb. [4.8 kg]	32,000 lb. [14,515 kg]
4" Tee Flanged	EV47067AL**			5.88" [149 mm]	.438" Dia. [11.1 mm]	4.38" [111.3 mm]	5.13" [130.3 mm]	12.7 lb. [4.9 kg]	

* Values shown are test values. Actual values may vary due to service conditions.

** Last two letters of part number designate seal material. See material table at right for seal options.

†† Fusible plug melts at 212°F [100°C]. If valve is subject to higher temperatures, the fusible plug must be relocated to isolate fusible from heat.

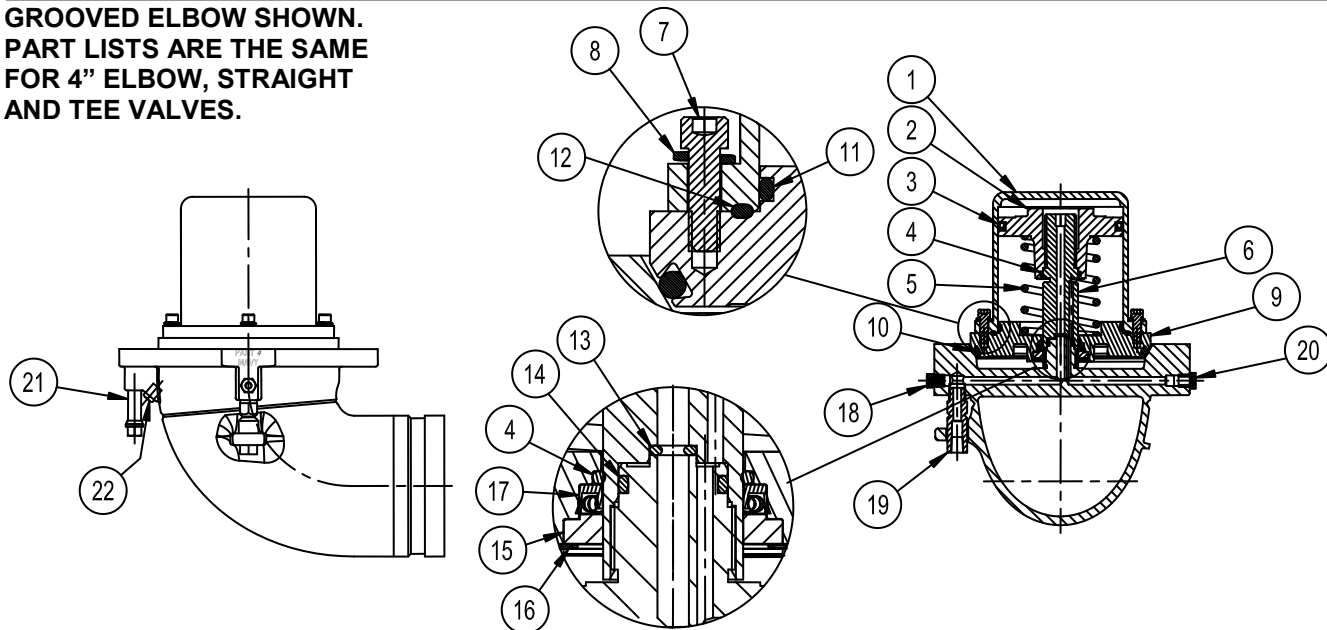
CAUTION: Valve must be properly installed and maintained. Never bottom load through emergency valve without first opening valve. Failure to do so may result in damage to the tank and/or valve.

Part # Suffix	Description	Valve Temp. Range * ††
TS	Teflon product contact seals, nitrile interior seals, and polyurethane air piston seal.	-40°F to +220°F [-40°C to 104°C]
TS030	Teflon product contact seals, FKM "A" interior seals.	5°F to +400°F [-15°C to 204°C]
TS038	Teflon product contact seals, fluorosilicone interior seals, and polyurethane air piston seal.	-50°F to +220°F [-45°C to 104°C]
VB	FKM "BLT" product contact seals w/ polyurethane air piston seal.	-20°F to +220°F [-29°C to 104°C]
VF	FKM "GFLT-s" product contact seals w/ polyurethane air piston seal.	-20°F to +220°F [-29°C to 104°C]

Parts List

4" Internal Air Aluminum Emergency Valve w/ 4" Air Cylinder

GROOVED ELBOW SHOWN.
PART LISTS ARE THE SAME
FOR 4" ELBOW, STRAIGHT
AND TEE VALVES.



No.	Description	Req.	Material	Part No.
1	4" Air Cylinder	1	Alum. (356-T6)	36009AL
2	4" Piston	1	Alum. (319)	28174AL
3	4" U-Cup Seal	1	Polyurethane	75565PY
			Nitrile	75117BN
			FKM "A"	75117VT
4	Piston/Shaft O-Ring	2	Nitrile	3357BN
			FKM "A"	3357VT
			FKM "BLT"	3357VB
			FKM "GFLT-s"	3357VF
			Fluorosilicone	3357FS
5	Spring	1	Steel (E-Coated)	18222EY
6	Air Supply Shaft	1	Alum. Anodized	75090AL
7	Cap Screw	4	18-8 SS	9Q5822
8	Lock Washer	4	304 SS	9Q5844
9	4" O-Ring Holder	1	Alum. (319)	28178AL
10	4" Main Seat O-Ring	1	Tef-Sil	19935TS
			Nitrile	19935BN
			FKM "A"	19935VT
			FKM "BLT"	19935VB
			FKM "GFLT-s"	19935VF
11	O-Ring 4" Air Cylinder Bore	1	Nitrile	18134BN
			FKM "A"	18134VT
			FKM "BLT"	18134VB
			FKM "GFLT-s"	18134VF
			Fluorosilicone	18134FS

No.	Description	Req.	Material	Part No.
12	O-Ring 4" Face	1	Tef-Sil	18989TS
			Nitrile	75159BN
13	O-Ring Air Inlet Shaft	1	FKM "A"	75159VT
			FKM "BLT"	75159VB
			FKM "GFLT-s"	75159VF
			Fluorosilicone	75159FS
14	O-Ring Air Inlet Shaft Bore	1	Nitrile	75096BN
			FKM "A"	75096VT
			FKM "BLT"	75096VB
			FKM "GFLT-s"	75096VF
			Fluorosilicone	75096FS
15*	Bearing Ring	1	Graphite-PTFE	75656TR
	Bearing Ring Elevated-Temp. Valve			75656TR001
16	Retaining Ring	1	302 SS	9Q4993
17*	Shaft U-Cup Seal	1	PTFE/301 SS	75210SSTF
	Shaft U-Cup Seal Elevated-Temp. Valve			75430SLTP
18	Fusible Plug	1	Brass/Solder	FP15003BR
19	Air Inlet Flangible	1	Aluminum	75108AL
20	Breather Plug	1	Steel (Nic. Plt.)	9Z4895
21	Jack Screw	1	303 SS/Nitrile	75141SLBN
22	1/8" NPT Plug	1	316 SS	9V4921

* 75210SSTF and 75656TR must be used in standard and low-temperature (suffix 038) valves. 75430SLTP and 75656TR001 must be used in elevated-temperature (suffix 030) valves.

Seal Kit # EV75450ALTS038 (low temp.) includes : (3) 75565PY, (4) 3357FS -2, (11) 18134FS, (12) 18989TS, (13) 75159FS, (14) 75096FS, (15) 75656TR, (16) 9Q4993, (17) 75210SSTF & 75100AL (not shown).

Seal Kit # EV75450ALTS includes: (3) 75565PY, (4) 3357BN -2, (11) 18134BN, (12) 18989TS, (13) 75159BN, (14) 75096BN, (15) 75656TR, (16) 9Q4993, (17) 75210SSTS & 75100AL (not shown).

Seal Kit # EV75450ALTS030 (elevated temp.) includes : (3) 75117VT, (4) 3357VT -2, (11) 18134VT, (12) 18989TS, (13) 75159VT, (14) 75096VT, (15) 75656TR001, (16) 9Q4993, (17) 75430SLTP & 75100AL (not shown).

WARNING: Use only genuine BETTS INDUSTRIES INC. replacement parts. Substitute parts can impair the proper function of this product.

Betts

INDUSTRIES, INC. WARREN, PA.

Tel. (814) 723-1250 • Fax (814) 723-7030 • E-Mail: betts@bettsind.com • Web Site: www.bettsind.com

February 2011
Section 30 Page 13D

Emergency Valve

6" X 6" Cable Operated Aluminum

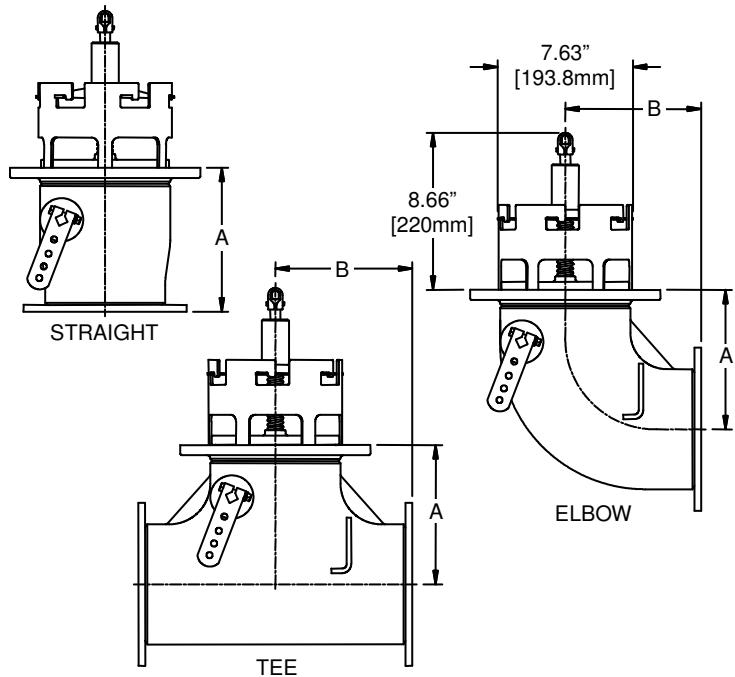
Betts 6" emergency valve meets HM183 requirements for an internal self-closing stop valve. Body is constructed of aluminum and incorporates a shear section that satisfies 49CFR178.345-8 tested per TTMA RP 84. The body, disc holder, and bonnet assembly come standard with a black epoxy-coat for added corrosion protection. The valve is available in a flanged or grooved outlet with available body configurations of straight, 90° elbow, or tee style. Valves supplied with universal lever arm with multiple mounting holes for versatile cable attachment. See catalog section 28 and 29 for mechanical operators and remote control lever.

The Maximum Operating Pressure is defined as the maximum tank pressure that valve can open against using a typical mechanical operator.

Maximum Operating Pressure[†]: 12 psi [.83 bar]

Valve MAWP: 25 psi [1.7 bar]

Minimum Bursting Pressure: 100 psi [6.9 bar]



See Section 30 Page 25B for 6"x6" parts list

Size	Assembly Number	Inlet Flange (6" Sump)		Outlet (6" TTMA)		Dimensions		Weight (lbs.).	F _{b-max} Per TTMA RP86
		B.C	Holes	B.C	Holes	A	B		
6 X 6 Straight	EV47055AY*	9.25" [235 mm]	12 Holes .59" Dia. [15 mm]	6" GROOVED		9.38" [238.3 mm]	N.A.	14.5lb. [6.58 kg]	21,690 lb. [9,838 kg]
	EV47056AY*	9.25" [235 mm]	12 Holes .59" Dia. [15 mm]	8.13" [206.4 mm]	12 Holes 7/16" Dia. [11.1 mm]	7.94" [201.7 mm]	N.A.	14.5lb. [6.58 kg]	
6 X 6 Elbow	EV47059AY*	9.25" [235 mm]	12 Holes .59" Dia. [15 mm]	6" GROOVED		7.69" [195.3 mm]	8.95" [227.3 mm]	17.3 lb. [7.82 kg]	27,041 lb. [12,265 kg]
	EV47060AY*	9.25" [235 mm]	12 Holes .59" Dia. [15 mm]	8.13" [206.4 mm]	12 Holes 7/16" Dia. [11.1 mm]	7.69" [195.3 mm]	7.51" [190.8 mm]	17.3 lb. [7.82 kg]	
6 X 6 Tee	EV47063AY*	9.25" [235 mm]	12 Holes .59" Dia. [15 mm]	6" GROOVED		7.69" [195.3 mm]	9.01" [228.9 mm]	19.8 lb. [8.96 kg]	27,041 lb. [12,265 kg]
	EV47064AY*	9.25" [235 mm]	12 Holes .59" Dia. [15 mm]	8.13" [206.4 mm]	12 Holes 7/16" Dia. [11.1 mm]	7.69" [195.3 mm]	7.62" [193.5 mm]	19.8 lb. [8.96 kg]	

* Last letters of part number designate seal material. See material table at right for seal options.

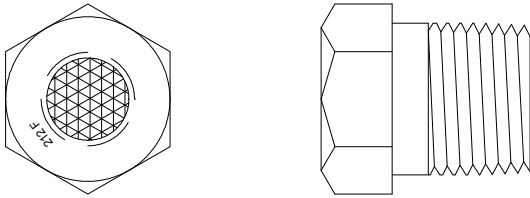
† All valves are test values. Actual values may vary due to service conditions.

Letter	Material	Temp. Range
BN	Nitrile	-40°F to +220° F [-40°C to 104°C]
VT	FKM	-20°F to +400° F [-29°C to 204°C]
TS	FEP (fluoropolymer) Encapsulated Silicone	-40°F to +400° F [-40°C to 204°C]

CAUTION: Valve must be properly installed and maintained. Never bottom load through emergency valve without first opening valve. Failure to do so may result in damage to the tank and/or valve.

FUSIBLE PLUG

Assy. No. **FP15003BR**

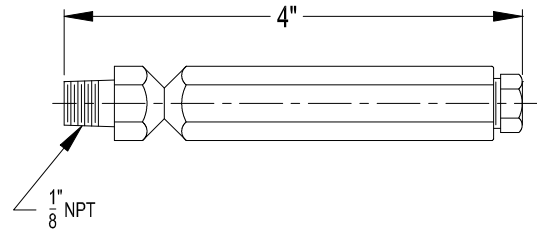


Thawing 220-225°F

Thawing of a plug dumps air and closes all emergency valves and air operated vents.

FUSIBLE & FRANGIBLE PLUG

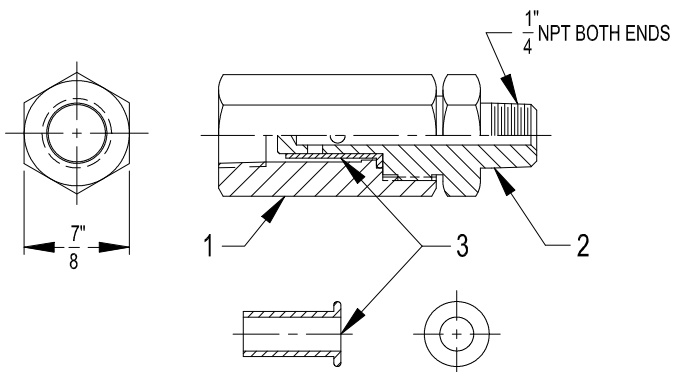
Assy. No. **FP15017BR**



Breaking of frangible device or thawing of plug dumps air and closes all emergency valves and air operated vents.

CHECK VALVE

Assy. No. **CK25107BR**

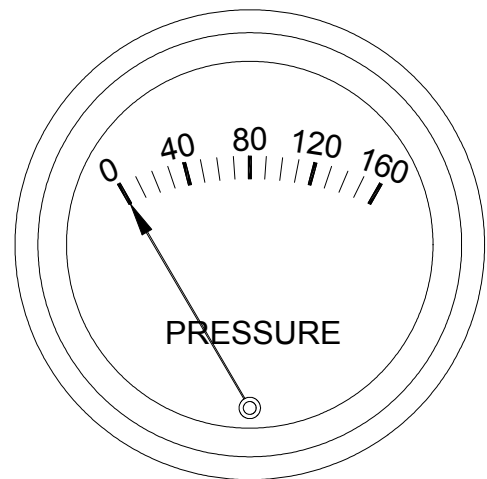


Used in conjunction with hand pump to check return air.

No.	Description	Req.	Part No.
1	Body	1	16896BR
2	Stem	1	16897BR
3	Sleeve	1	16007BN

PRESSURE GAUGE

Assy. No. **PG16349MS**



1/8" N.P.T. Fitting

Hydraulic Pump

- Stainless Steel Valve Block and Internal Components
- Horizontal or Vertical Mounting
- Tamper Resistant Pressure Relief
- Front and Side Outlet Ports

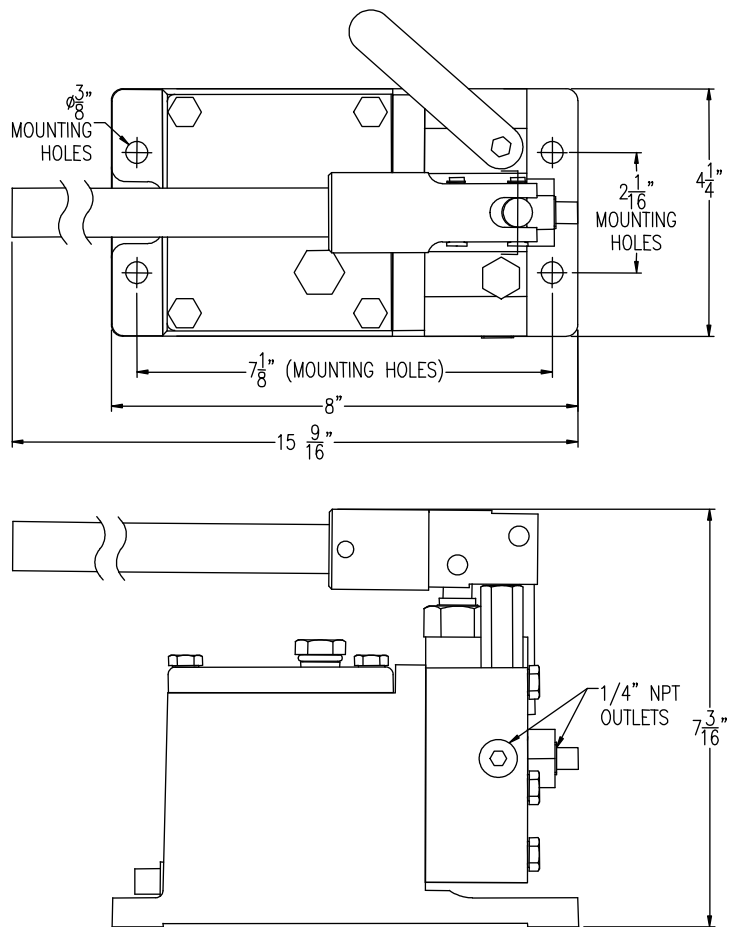
The Betts Hydraulic Pump HP46982ALSL is designed as a corrosion resistant, reliable hydraulic pump for use with any Betts hydraulically operated valve or vent. The pump head and internal parts are made of corrosion resistant stainless steel. The reservoir is made of aluminum with a durable E-coating.

1/4 NPT hydraulic connections are conveniently located at both the front of the pump and on the right side. A drain plug allows the reservoir to be drained without unbolting the pump.

Pump can be mounted horizontally or vertically with outlet end down.

The pump contains a tamper resistant pressure relief set to bypass at approximately 3,000 psi [207 bar].

See section 35 Page 3E for parts list



Assembly No.	Rated Pressure	Displacement per Stroke	Fluid Capacity*		Dry Weight
			Total**	Useable***	
HP46982ALSL	3000 psi [207 bar]	.43 in ³ [7 ml]	38 in ³ (21 oz) [620 ml]	25 in ³ (14 oz) [410 ml]	13 lb [6 kg]

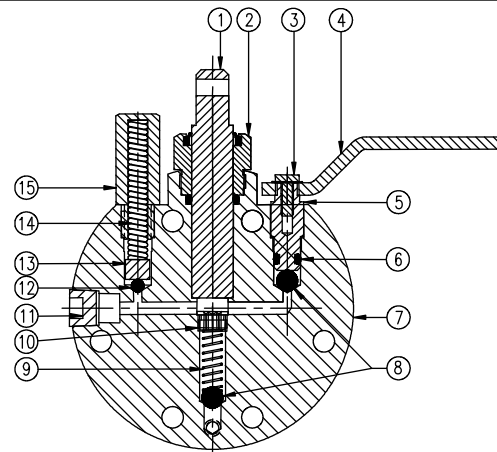
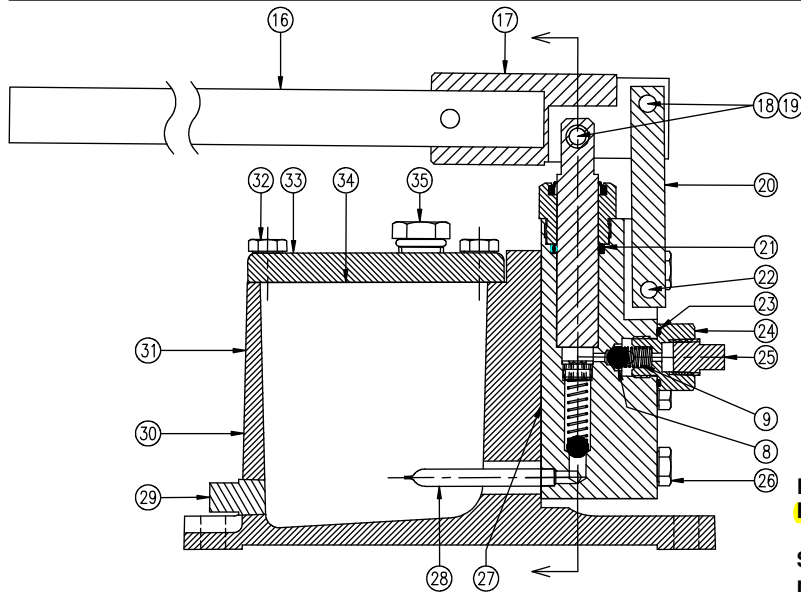
* Pumps are shipped dry with no hydraulic fluid.

** Total = amount of fluid to fill reservoir to within 1/4" of the cover plate (33).

*** Useable = amount of fluid to take 'Total' fluid down to just above the filter screen (28).

PARTS LIST

HYDRAULIC PUMP



REPAIR KIT TO REBUILD VALVE BLOCK ASSEMBLY
HP75359SL - Includes items – 1,2,6,8,12,21,23,27,28,34

See maintenance manual MM-HP001 for complete rebuilding instructions

No.	Description	Req.	Material	Part No.	No.	Description	Req.	Material	Part No.
1	Piston	1	303 Stainless	75233SL	19	E-Clip	2	Coated Steel	9Q4733A
2	Bushing/Wiper	1	Brass/Polyurethane	75239BR	20	Link	1	303 Stainless	75234SL
3	Release Handle Screw	1	304 Stainless	9Q4170	21	Piston Seal	1	Buna-N	17946BN
4	Pressure Release Handle	1	304 Stainless	75145SL	22	Pin	1	303 Stainless	9Q4950
5	Release Stem	1	304 Stainless	75236SL	23	Outlet O-ring	1	Buna-N	75584BN
6	Release Stem Seal	1	Buna-N	75254BN	24	Outlet	1	Brass	75583BR
7	Valve Block	1	303 Stainless	35965SL	25	1/4" NPT Pipe Plug	1	Plastic	9Z6145
8	Ø.313 Ball	3	440 Stainless	9Z8505	26	Valve Block Cap Screw	6	304 Stainless	9Q5975
9	Ball Spring	2	302 Stainless	75255SL	27	Head Gasket	1	Cellulose Fiber	75244CF
10	Spring Retainer	1	Brass	75298BR	28	Filter Screen	1	304 Stainless	75148SL
11	Auxiliary Outlet Plug	1	Brass	9V4925	29	Drain Plug	1	Brass	9V4914
12	Ø.188 Ball	1	440 Stainless	9Z8507	30	Reservoir	1	Aluminum E-Coat	46973ALEY
13	Bypass Plug	1	304 Stainless	75237SL	31	Priming Instructions	1	Vinyl	9Z4022
14	Bypass Spring	1	17-7PH Stainless	75256SL	32	Cover Cap Screw	4	304 Stainless	9Q5861
15	Bypass Cap	1	Brass	75238BR	33	Cover Plate	1	Aluminum E-Coat	75246ALEY
16	Handle	1	Galv. Steel	HP19165-01	34	Cover Gasket	1	Cellulose Fiber	75245CF
17	Beam	1	E-Coat Steel	75240EY	35	Vent Plug	1	Brass/Viton	75242BR
18	Clevis Pin	2	Zinc Plated Steel	9Q4733					

NOTE:

Most hydraulic failures can be attributed to the presence of dirt or foreign materials in the hydraulic system. It is imperative that all components are cleaned and that only new, clean fluid is used in the reservoir. Be sure that all fittings and lines are clean and free from dirt, filings and debris.

PUMP FILLING AND PRIMING INSTRUCTIONS:

- Pumps are shipped dry and must be filled and primed before use.
- Remove vent plug (35) and fill pump to within 1/4" of cover plate (33) with fluid.
- Loosen pressure release handle (4) and pump at least 10 full strokes to prime pump.
- Pause briefly at the bottom of each down stroke to allow air to bleed out of valve block (7).

- Recheck fluid level and reinstall vent plug (35).
- If pump fails to prime, follow these steps:
 - Ensure top of pump is clean, & free of dirt & debris.
 - Remove e-clip (19) and clevis pin (18) on top of stem (1).
 - Pull stem (1) out and fill stem cavity with same fluid in reservoir (30).
 - Reinstall stem (1), clevis pin (18) and e-clip (19).
 - Loosen pressure release handle (4) and pump at least 10 full strokes.

VERTICAL MOUNTING INSTRUCTIONS:

- Remove drain plug (29) and vent plug (35).
- Reinstall both but swap locations.
- Mount pump with outlet end down.

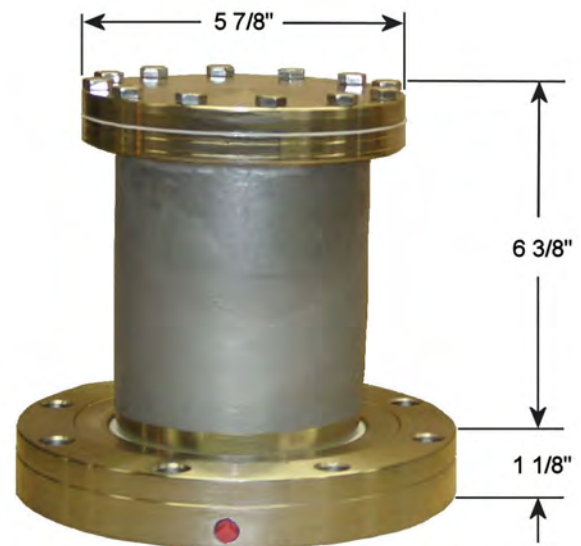
WARNING: Use only genuine BETTS INDUSTRIES, INC. replacement parts. Use of substitute parts can impair the proper function of this product and void all warranties.

Chemical Hydraulic Valve

INTERNAL VALVE

The Internal Chemical Hydraulic Valve is designed for use with a wide variety of chemicals. It is an internal self-closing stop valve, therefore it does not require under carriage crash protection. Available elbows are supplied with shear sections to meet 49CFR 178.345-8(a)(4). A heavy mounting flange is provided to insure a flat surface for a positive seal. A replaceable Teflon® seat and a replaceable stem are provided for ease in repairing a damaged valve.

The $\frac{1}{8}$ NPT Hydraulic connection is located on the outside of the mounting flange. 1,500 psi minimum hydraulic line pressure is required to operate the valve, but do not exceed 4,000 psi hydraulic line pressure. See section 35 page 3D & 3E for Betts Hydraulic Pump.



See section 35 Page 5D for parts list

Description	Assembly No.	Material *	Flange O.D.	Bolt Circle	Bolt Holes	Temp. Range	MAWP	Wt.
Internal Hydraulic Valve	CH47003SST	316 Stainless	$8 \frac{3}{16}$ "	$7 \frac{1}{4}$ "	$8 - \frac{9}{16}$ "	-40° F to +400° F	50	31#
	CH47003LHT	316 SS w/Hastelloy® trim**						

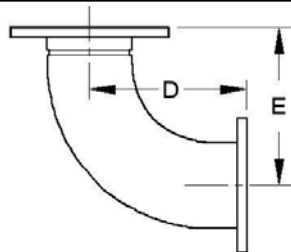
NOTE: A flat mounting surface must be provided for the valve. Recommended mounting pad with extended studs is MP19741LC found in Section 40 Page 1A.

* Material listing is for all wetted surfaces exposed to product during normal operation of valve.

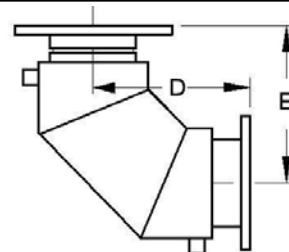
** Hastelloy® trimmed valve is an option that includes Hastelloy® C-22 overlay on the disc (5) in the area in contact with the seal (15). The Hastelloy® overlay reduces the potential of the disc pitting at the seat contact area.

Suffix "017" indicates Teflon Seat w/ Double Tef-Sil O-Ring.

Available Elbows



Standard Elbow



Steam Jacketed Elbow Steam Connections 3/4" NPT

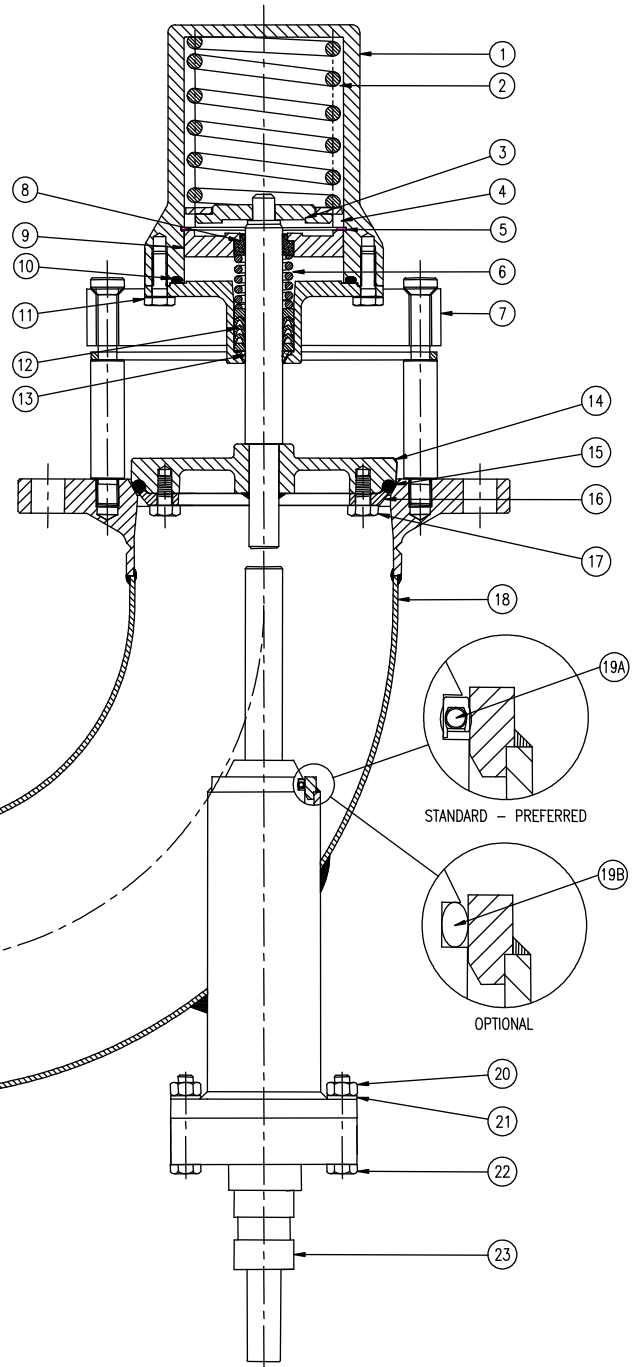
Size	Elbow Description	Elbow Assembly No.	Material	D	E	Inlet Flange			Outlet Flange			Wt.
						O.D.	B.C.	Holes	O.D.	B.C.	Holes	
4 x 3	90° Elbow	CH26165SS	316 SS	$4 \frac{1}{2}$ "	$4 \frac{3}{4}$ "	$8 \frac{3}{16}$ "	$7 \frac{1}{4}$ "	$8 - \frac{9}{16}$ "	$5 \frac{5}{8}$ "	$4 \frac{7}{8}$ "	$8 - \frac{7}{16}$ "	9.4#
4 x 3	90° Elbow w/Steam Jacket	CH26166SS	316 SS						$5 \frac{5}{8}$ "	$4 \frac{7}{8}$ "		13.7#
4 x 4	90° Elbow	CH16859SS	316 SS	$8 \frac{11}{32}$ "	$8 \frac{11}{32}$ "	$8 \frac{3}{16}$ "	$7 \frac{1}{4}$ "	$8 - \frac{9}{16}$ "	$6 \frac{5}{8}$ "	$5 \frac{7}{8}$ "	$8 - \frac{7}{16}$ "	11.8#
4 x 4	90° Elbow w/Steam Jacket	CH16826SS	316 SS						$6 \frac{5}{8}$ "	$5 \frac{7}{8}$ "		13.7#

Teflon Envelope Gasket G27229TF-MIL is recommended for use between valve and outlet elbow. See Section 40, Page 2A for dimensions.

PARTS LIST

QUICK CLEAN CHEMICAL HYDRAULIC VALVE

No.	Description	Req.	Material	Part No.
1	Spring Housing	1	316 Stainless	28244SS
2	Spring	1	316 Stainless	19413SS
3	Washer	1	316 Stainless	19083SS
4	Spring Washer	1	316 Stainless	75269SS
5	Retaining Ring	1	302 Stainless	9Q4923
6	Packing Spring	1	302 Stainless	19050SL
7	Spider	1	316 Stainless	28341SS
8	Spacer Sleeve	1	Teflon/Glass	18467TG
9	Bushing Holder	1	316 Stainless	75268SS
10	Base O-Ring	1	Tef. Encap. Sil.	75274TS
11	Retaining Screw	4	316 Stainless	9Q5822A
12	Packing Set	1	Teflon	8N2833
13	Wiper	1	Teflon/Glass	18172TG
14	Stem & O-ring Holder	1	316 Stainless	19254SS
15	Seat O-ring	1	Tef. Encap. Sil.	19033TS
16	Retainer Plate	1	316 Stainless	27443SS
17	Cap Screw 1/2"	4	316 Stainless	9Q4174
18	Body Assy - 4x4	1	316 Stainless	35826SS
	Body Assy - 4x3			35729SS
19A	Barrel Cap U-Cup Seal	1	TFM/Elgiloy	75494SLTF
19B	Barrel Cap O-Ring		Tef. Encap. Sil.	18858TS
20	Hex Nut 1/4-20NC	4	316 Stainless	9Q5805
21	Lockwasher 1/4"	4	316 Stainless	9Q5844
22	Cap Screw 1-1/2"	4	316 Stainless	9Q4919
23	Hyd. Actuator - 4x4	1	316 Stainless	35224SSTS
	Hyd. Actuator - 4x3			35233SSTS



- Spring Housing Assembly, 36054SSTS, includes items 1 through 13.
- Seal Kit for Spring Housing Assembly, **CH75549TF**, includes items 8, 10, 12, & 13.
- Consult maintenance manual MM-CH001 for Spring Housing Assembly repairs.
- Consult maintenance manual MM-CH002 for Valve repairs.

WARNING: Use only genuine BETTS INDUSTRIES, INC. replacement parts. Use of substitute parts can impair the proper function of this product and void all warranties.

Betts

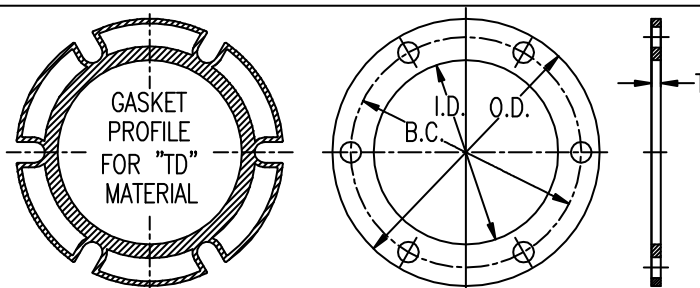
INDUSTRIES, INC. WARREN, PA.

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March 2009
Section 35 Page 7B

TTMA FLANGE & SUMP GASKETS

Betts flange gaskets are available in a variety of compounds in order to satisfy a wide range of service requirements. The full-face gaskets are ideal for low-torque sealing applications on sumps, valve flanges and piping flanges. Bolt-hole patterns are in accordance with TTMA recommended practice.



Style	Size	Part #	I.D.	O.D.	B.C.	# of Holes	Hole Dia.
Piping Flange Gasket	2"	RGA201*_*	2.63" [66.7 mm]	4.50" [114.3 mm]	3.75" [95.3 mm]	6	.44" [11.2 mm]
		RGA202TF	2.25" [57.2 mm]				
		RGA202TF-MIL					
	3"	RGA301*_*	3.75" [95.2 mm]	5.63" [142.9 mm]	4.88" [123.8 mm]	8	.44" [11.2 mm]
		RGA302TF	3.25" [82.6 mm]				
		RGA302TF-MIL	3.37" [85.6 mm]				
	4"	RGA401*_*	4.75" [120.7 mm]	6.63" [168.3 mm]	5.88" [149.2 mm]	8	.44" [11.2 mm]
		RGA402TF	4.31" [109.5 mm]				
		RGA402TF-MIL	4.38" [111.3 mm]				
	5"	RGA501CB	5.56" [141.2 mm]	7.75" [196.9 mm]	7.00" [177.8 mm]	12	.44" [11.2 mm]
	6"	RGA601*_*	6.69" [169.7 mm]	9.00" [228.6 mm]	8.13" [206.4 mm]	12	.44" [11.2 mm]
		RGA602TF	6.06" [153.9 mm]				
RGA602TF-MIL							
8"	RGA801CB	8.13" [206.4 mm]	10.88" [276.2 mm]	10.13" [257.2 mm]	16	.44" [11.2 mm]	
12"	RGA1201CB	12.81" [325.4mm]	15.75" [400.1 mm]	14.5" [368.3 mm]	8	.63" [15.8 mm]	
Drain Sump Gasket	3"	G15181*_*	5.00" [127mm]	7.25" [184.2 mm]	6.25" [158.8 mm]	6	.56" [14.2 mm]
		G75344TF	4.75" [120.7 mm]				
		G75344TF-MIL	5.00" [127.0 mm]				
	4"	G15266*_*	6.13" [155.6mm]	8.25" [209.6 mm]	7.25" [184.2 mm]	8	.56" [14.2 mm]
		G75346TF	5.81" [147.6 mm]				
		G75346TF-MIL	6.00" [152.4 mm]				
	6"	G25507*_*	8.25" [209.6mm]	10.25" [260.4 mm]	9.25" [235 mm]	12	.56" [14.2 mm]
		G28292TF	7.75" [196.97 mm]				
		G28292TF-MIL	8.13" [206.5 mm]				
Special Drain Sump	Special * 4"	G27229*_*	4.50" [114mm]	8.25" [209.6 mm]	7.25" [184.2 mm]	8	.56" [14.2 mm]
		G28296TF-MIL	4.25" [108mm]				

Material Code	Material Description	Thickness (T)	Temp. Range
CB	Cork Buna	.09" [2.3 mm] Note: 8" & 12" Sump = .13" [3.3 mm]	14 to 231 °F (-10 to 110 °C)
BN	Nitrile (Buna-N)	.125" [3.2 mm]	-40 to 230 °F (-40 to 110 °C)
VB	FKM Type B (Viton® B)	.125" [3.2 mm]	-20 to 400 °F (-29 to 204 °C)
NA	Non-Asbestos Aramid fibers w/ NBR binder	.09" [2.3 mm]	-65 to 750 °F (-54 to 399 °C)
TD	PTFE w/ Inorganic Fillers (One piece solid gasket)	.063" [1.6 mm]	-350 to 520 °F (-212 to 271 °C)
TF	Slit Style PTFE Envelope w/ Non-asbestos Core	.17" [4.3 mm]	-65 to 400 °F (-54 to 204 °C)
TF-MIL	Mil Style PTFE Envelope w/ Non-asbestos Core	.17" [4.3 mm]	-65 to 400 °F (-54 to 204 °C)

* Special 4" Drain Sump Gasket used for connection between outlet of Internal Hydraulic Valve and shear elbow.

** Insert material code at end of part number to designate gasket material. Depending on gasket size, all materials may not be available.

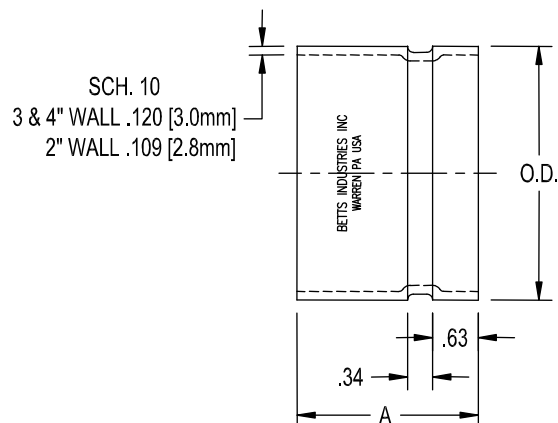
Note: Dependent on the specific material, OD tolerance .38" and thickness tolerance .04". To achieve maximum sealing capability, proper star pattern tightening sequence must be followed. PTFE gaskets require re-torque after initial installation.

Adapters

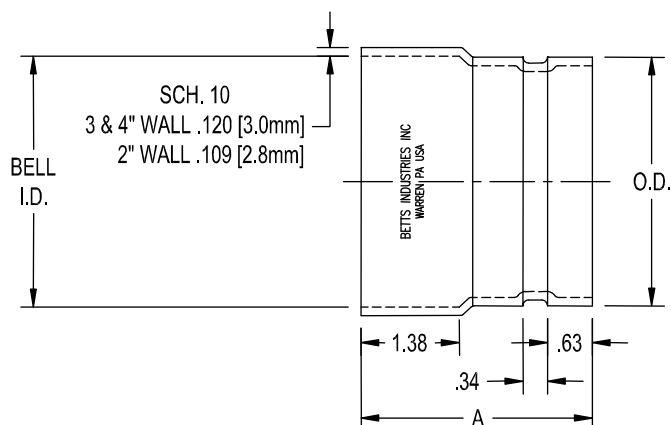
Betts seamless adapters are designed for use on cargo tanks and satisfy a wide variety of piping needs. The belled and grooved adapters offer flexibility and versatility to accommodate even the most difficult fit-ups. With no weld seam, the adapter is clean and leak free.

Seamless fittings are manufactured in accordance with API recommended practice 1004 with a minimum burst pressure of 4 times the MAWP per 49CFR178.345-9(b).

GROOVED ADAPTERS



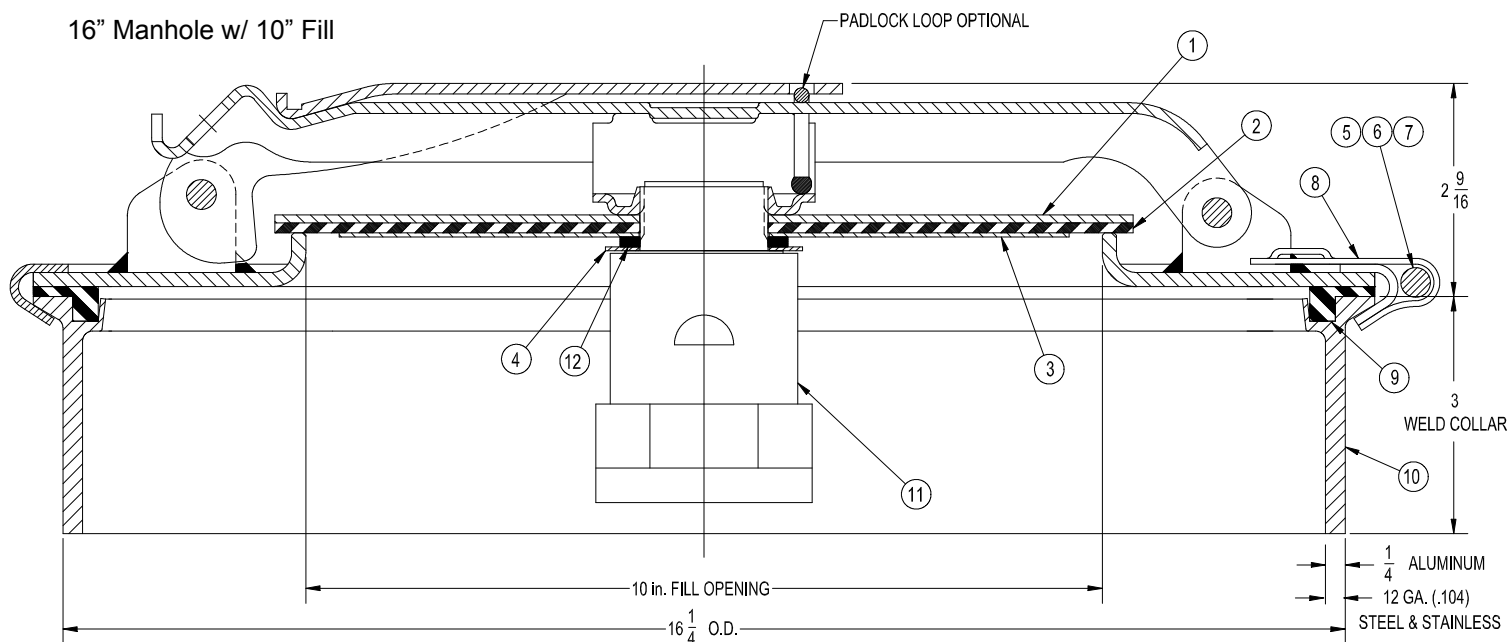
BELLED & GROOVED



Pipe Size	Style	Material	Part No.	Weight lb. [kg]	A in. [mm]	O.D. in. [mm]	Bell I.D. in. [mm]	MAWP lb. [kg]
2"	Grooved	6063 Alum.	G2AL	.19 [.09]	2.50 [63.5]	2.38 [60.5]	N/A	200 [13.8]
		Steel	G2MS	.55 [.25]				
	Belled & Grooved	6063 Alum.	BG2AL	.25 [.12]	3.25 [82.6]		2.41 [61.2]	
		Steel	BG2MS	.72 [.33]				
3"	Grooved	6063 Alum.	G3AL	.33 [.15]	2.50 [63.5]	3.50 [88.9]	N/A	200 [13.8]
		Steel	G3MS	.95 [.43]				
	Belled & Grooved	6063 Alum.	BG3AL	.42 [.19]	3.25 [82.6]		3.53 [89.7]	
		Steel	BG3MS	1.21 [.55]				
4"	Grooved	6063 Alum.	G4AL	.42 [.19]	2.50 [63.5]	4.50 [114.3]	N/A	175 [12.1]
	Belled & Grooved	6063 Alum.	BG4AL	.54 [.24]	3.25 [82.6]		4.53 [115.1]	

PARTS LIST

16" Manhole w/ 10" Fill



No.	Description	Material	Part No.
1	Fill Cover	Steel	3021MS
		Steel Zinc Plt.	3021ZC
		Stnls 304	3021SL
		Stnls 316	3021SS
2	Fill Gasket	Bethane	3024BU
		Viton	3024VT
		Wh. Hypalon	3024WH
		Non-Asbestos	3024NA
		Teflon	3024TF
3	Retainer	Steel	3213MS
		Aluminum	3213AL
		Stnls 304	3213SL
		Stnls 316	3213SS
4	Shim Washer	Steel	3023MS
		Aluminum	3023AL
		Stnls 316	3023SS
5	Bolt-Clamp	Steel Zinc Plt.	3029ZC
		Stnls 304	3029SL
6	Nut-Clamp 3/8 -16 Thd.	Brass	3030BR
		Stnls 304	9Q5809
7	Washer-Clamp	Steel Zinc Plt.	3031ZC
		Stnls 304	3031SL

No.	Description	Material	Part No.
8	Clamping Ring	Steel	3028MS
		Steel Zinc Plt.	3028ZC
		Stnls 304	3028SL
9	Manhole Gasket Channel Type	B	Buna-N
		V	Viton
		W	Wh. Hypalon
		T	Teflon Env. w/ Wh. Hypalon
10	Manhole Collar Channel Type	Steel	3057MS
		1/4 Aluminum	3057AE
		Stnls 304	3057SL
		Stnls 316	3057SS
11	Vent Assembly	Alum./Stnls	6238AL
12	Gasket	Buna-N	3716BN

Gasket Maximum Temperature

Bethane	250°F
Viton	400°F
White Hypalon	250°F
Teflon	400°F
Teflon Envelope w/ White Hypalon Insert	250°F
Non-Asbestos	350°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. 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.

WARNING Use only genuine Betts Industries Inc. replacement parts. Use of substitute parts can impair the proper functioning of this product.



16" PAF 406-98 MANHOLE

With Integral Relief Valve/10" Fill

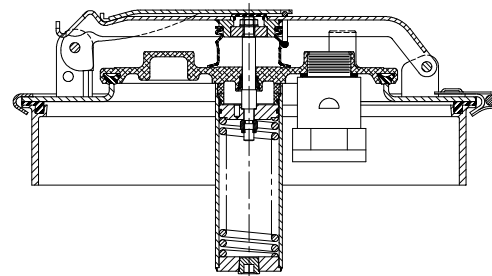
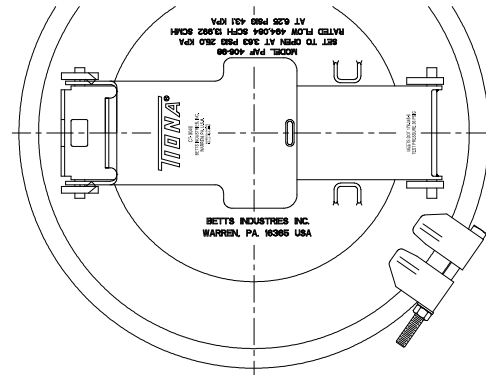
INTEGRAL RELIEF VALVE/10" FILL

LESS THAN 1 LITER LEAKAGE

SET PRESSURE ADJUSTMENT

INCREASED FLOW RATE

SECONDARY SAFETY LATCH



MODEL L816-STANDARD
MODEL L842-SELF LATCHING

Pressure Relief Valve setting 3.63 psig
Rated Pressure Actuated Emergency Venting: 494,084 cu. ft. free air per hour @ 6.25 psig
Rated Liquid Flow Capacity 1335 gpm @ 5.0 psig

PAF manholes with integral latch style surge suppression relief valves are designed for use on DOT406 and replacement on MC306 specification cargo tanks. Manholes are certified and marked in accordance with 49CFR178.345-5 with a test pressure of 36 psig. Manhole covers are 7 gage steel or stainless and are secured to the tank weld collar with a clamp ring and bolt which can be easily removed to provide access into the tank.

The integral 10" Relief Valve provides emergency pressure relief and meets the 1 liter surge leakage limit imposed by 49CFR178.345-10(b)(3)(ii). The relief valve also serves as a 10" latch style fill which can be easily opened to provide access for filling the tank or for inspection. Relief valves contain an adjustment feature to allow for fine tuning of set pressure in the field. Other standard features include a heavy duty clamp ring, secondary safety latch and model 6496ALB pressure-vacuum vent mounted in the 10" relief valve cover.

Manholes are available with a self-latching feature that allows the 10" relief valve/fill cover to drop and securely latch upon movement of the tank if the cover is inadvertently left open. For self-latching model substitute L742 for L716 in assembly number.

Cover Plate	Relief Valve	Clamping Ring, Bolt, Washer, Strongback, & Latch	Clamping Ring Nut	Normal Vent	Wt. (lb.)	Assembly No.
Steel Zinc Plt.	Alum.	Steel Zinc Plt.	Brass	Alum.	24.2	PPVL716BXB
Stnls 304	Alum.	Stnls 304	Stnls 304	Alum.	24.7	PPVL716CXB
Stnls 316	Alum.	Stnls 304	Stnls 304	Alum.	24.7	PPVL716DXB

Note: Manhole assemblies, as listed above, have Buna-N gaskets (suffix "B"). For variation in gasketing change last letter of assembly number as follows.

Suffix "V" indicates Viton collar gasket & Viton 10" fill gasket

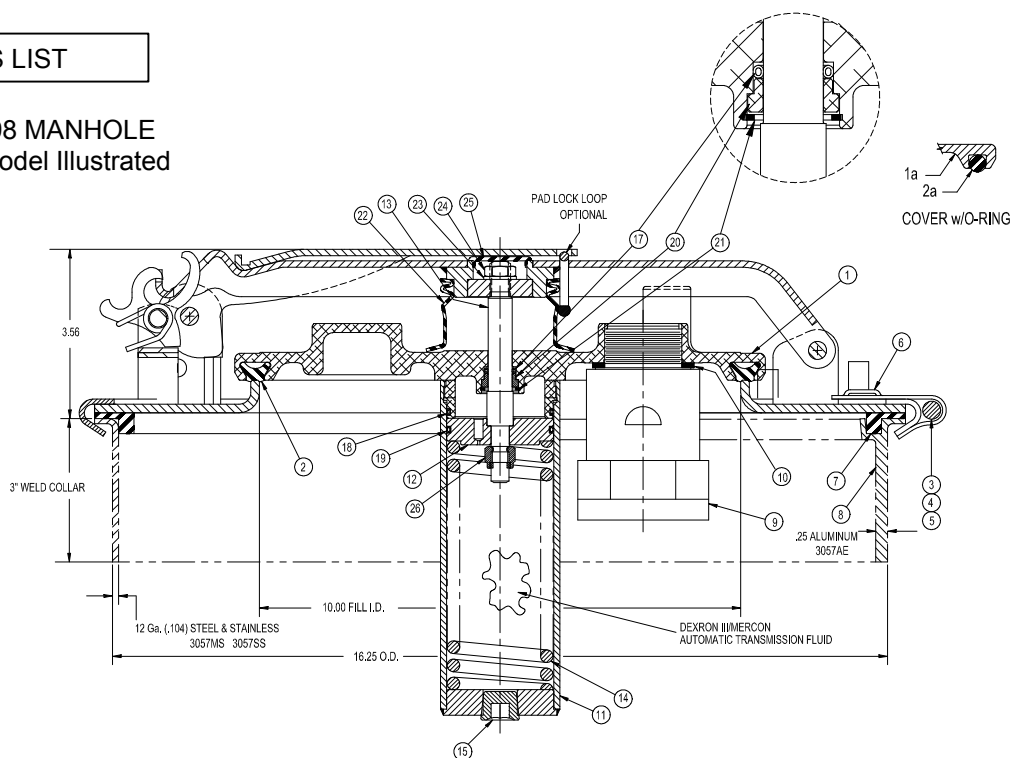
Suffix "W" indicates White Hypalon collar gasket & White Hypalon 10" fill gasket

Suffix "T" indicates Teflon envelope collar gasket & Tef-Sil 10" fill o-ring

Manhole collars are available in aluminum, steel, and stainless steel. Please see parts page for correct numbers. When welding collars to tank, care should be exercised to insure collar remains flat and round.

PARTS LIST

16" PAF 406-98 MANHOLE Self-Latching Model Illustrated



No.	Description	Material	Part No.
1	Fill Cover	Alum/E-Coated	8297ALEY
1a	Fill Cover (O-Ring Grvd.)	Alum/E-Coated	8297ALEY389
2	Gasket - Integral Relief Valve	Buna-N	3119BN
		Viton	3119VT
		Wh. Hypalon	3119WH
2a	O-Ring	Tef-Sil	3902TS
3	Bolt-Clamp Ring	Steel Zinc Plt.	3029ZC
		Stnls 304	3029SL
4	Nut-Clamp Ring	Brass	3030BR
		Stnls 304	9Q5809
5	Washer-Clamp Ring	Steel Zinc Plt.	3031ZC
		Stnls 304	3031SL
6	Clamping Ring	Steel	3028MS
		Steel Zinc Plt.	3028ZC
		Stnls 304	3028SL
7	Manhole Gasket Channel Type	Buna-N	3559BN
		Viton	3559VT
		Wh. Hypalon	3559WH
		Teflon Env. w/ Wh. Hypalon	3025TF
8	Manhole Collar Channel Type	Steel	3057MS
		Aluminum	3057AE
		Stnls 304	3057SL
		Stnls 316	3057SS

No.	Description	Material	Part No.
9	Vent Assembly	Aluminum	6496ALB
10	Gasket	Buna-N	3716BN
11	Cylinder Assembly	Aluminum	6657AL
12	Piston	Aluminum	6654AL
13	Stem	Stnls 304	6688SL
14	Spring	Steel	4122MS
15	$\frac{1}{2}$ " NPT Plug Zinc Plt.	Steel Zinc Plt.	9V4907
17	Stem O-Ring -112	Buna-N	4118BN
18	Cylinder O-Ring -137	Buna-N	4015BN
19	Piston O-Ring -137	Tef-Sil	4015TS
20	O-Ring Retainer	Alum/E-Coated	4117ALEY
21	Retainer Ring	Stnls 304	9Q4961
22	Bellows	EPDM	4020EPDM
23	Lockwasher Ext. Tooth $\frac{1}{16}$ "	Stnls 304	9Q5961
24	Nut Hex $\frac{1}{16}$ x20	Stnls 304	9Q5960
25	Plastic Plug	Polyethylene	9Z6163
26	$\frac{3}{8}$ -16 Hex Nut w/ Insert	Steel Zinc Plt.	9Q5896

Gasket Maximum Temperature

Buna-N (Nitrile)	250°F
Viton	400°F
White Hypalon	250°F
Teflon-Silicone	400°F
Teflon Envelope w/ White Hypalon Insert	250°F

Replace oil cylinder using Automatic Transmission Fluid Dexron III/Mercon, SAE 5W-20 with viscosity of 177 SUS at 100°F and a pour point of no greater than -45°F.

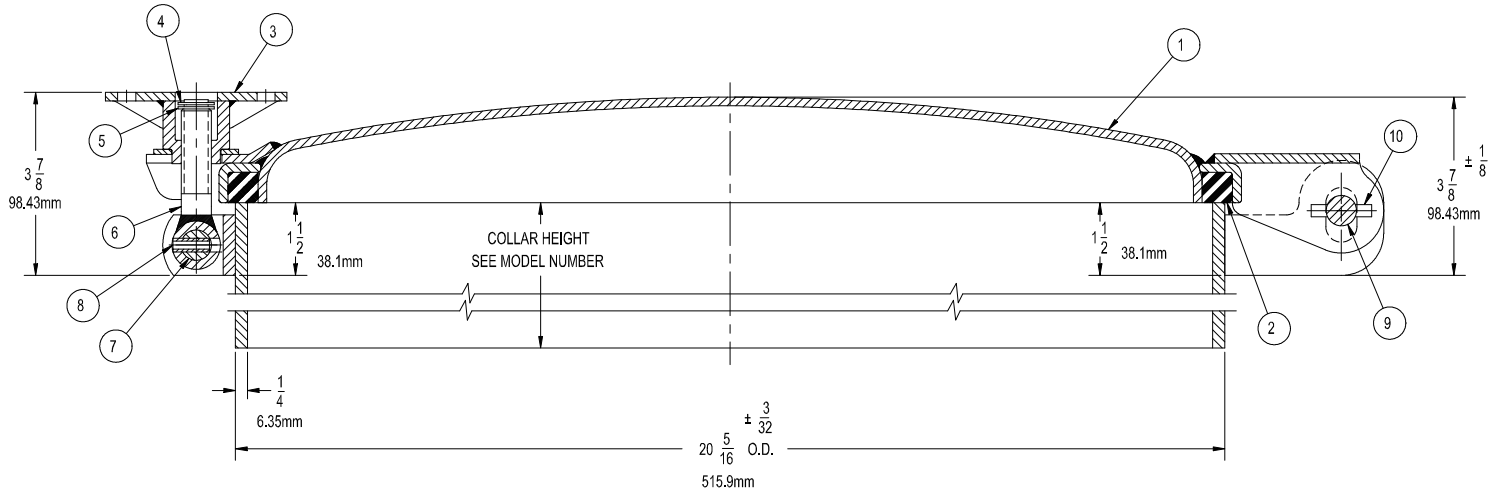
MAINTENANCE: Manhole assemblies should be inspected with sufficient frequency to insure 10" Integral Relief Valve functions properly. Any worn, damaged or missing parts must be replaced. Gaskets should be replaced if their effectiveness to insure a liquid tight seal is impaired in any way. Replacement gaskets must be compatible with products carried.

WARNING Consult PAF406-98 maintenance manual prior to disassembly of this relief valve.

Use only genuine Betts Industries Inc. replacement parts. Use of substitute parts can impair the proper functioning of this product.

PARTS LIST

20" (508mm) FULL OPENING MANHOLE



No.	Description	Material	Part No.
1	Cover	Steel	6381MS
		Stnls 316L	6381LC
2	Gasket*	B Buna-N	3513BN
		V Viton	3513VT
		W White Hypalon	3513WH
		E White Non-Asbestos with Teflon Suspensoid (Woven)	3513NT

*Gasket Maximum Temperature

Buna-N (Nitrile)	250°F
Viton	400°F
White Hypalon	250°F
White Non-Asbestos with Teflon Suspensoid	500°F

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.

No.	Description	Material	Part No.
3	Wing Nut	Stnls 304	3576SL
4	Snap Ring	Stnls 304	9Q4933
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	9Q8593
9	Hinge Pin	Stnls 304	3618SL
10	Roll Pin-Hinge Pin	Stnls 304	9Q8594

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.

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.

WARNING Use only genuine Betts Industries Inc. replacement parts. Use of substitute parts can impair the proper functioning of this product.

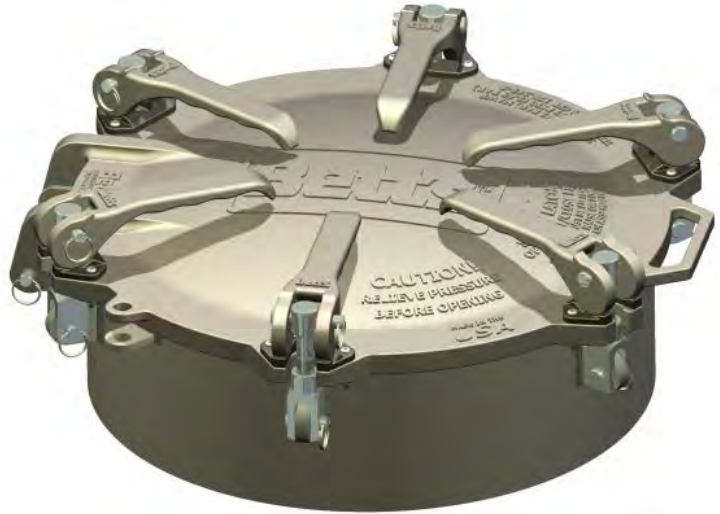
20" CAM-LATCH MANHOLE

35 psi (2.4 bar) MAWP

Betts Industries' Cam-Latch Manhole offers a high-quality, robust design able to meet the stringent requirements of the transportation and processing industries. Whether it is for railcar or over-the-road, liquid or dry bulk, this manhole fills the requirement.

Manhole Specification

Model 8555 is a 20" full opening cam-latch manhole equipped with a quick opening cast aluminum cover which has a lift handle, two padlock tabs and replaceable nylon wear saddles. Six smooth-operating aluminum latches attached to robust 5/8" swingbolts are secured to the collar utilizing a single lug design. The hold-downs are adjustable to create a positive seal between the cover and collar. The cover incorporates innovative safety latches on each side of the handle. These safety latches will not swing off the cover until the cover is lifted slightly off the collar and residual tank pressure is relieved ensuring a stuck cover will not over-ride the safety mechanism. Manhole meets requirements of 49CFR §178.345-5 and §178.347-3.



MODEL 8555

See Section 92 Page 1B for parts list.

Part Number	Materials of Construction			Weight	Collar Height ‡	Gasket ‡
	Hardware	Weld Collar	Cover and Cam Levers			
8555ABF-6	Zinc Plated Steel	Aluminum	Aluminum	41 lb (18.6 kg)	6" (152 mm)	White FDA Nitrile (Buna-N)
8555ACF-6	Stainless Steel		Aluminum			
8555SBF-6	Zinc Plated Steel	Steel	Aluminum	60 lb (27.2 kg)		
8555SCF-6	Stainless Steel		Aluminum			
8555CBF-6	Zinc Plated Steel	304 Stainless	Aluminum			
8555CCF-6	Stainless Steel		Aluminum			

Technical Specifications

Design Pressure *		Test Pressure *	Design Temperature	
Internal MAWP	External MAWP		Minimum	Maximum
35 psi (2.4 bar)	14.7 psi (1.0 bar)	53 psi (3.65 bar)	-40°F (-40°C)	250°F (121°C)

Letter	Material
F	White FDA Nitrile (Buna-N)
V	Black FKM (Viton®)
Q	Fluorosilicone

‡ Alternate collar height available by designating 4, 8, or 10 as last number of part number.

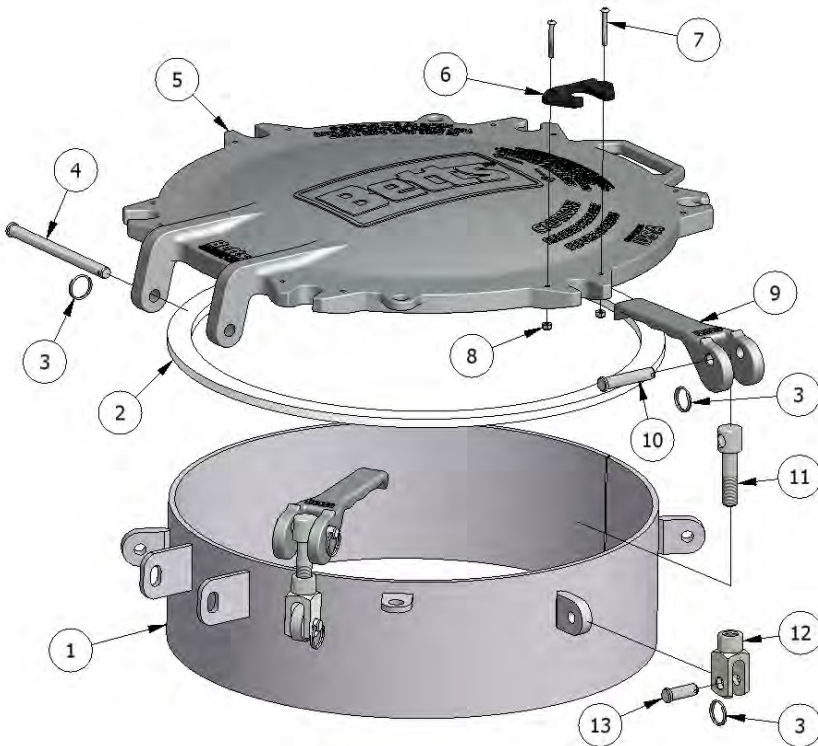
‡‡ Alternate gasket material available. See table at right.

* Tests were conducted and ratings determined using white nitrile gasket.

Note: During welding of 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.

Parts List

20" CAM-LATCH MANHOLE



MAINTENANCE: Manhole assemblies should be inspected with sufficient frequency and due regard to the products carried.

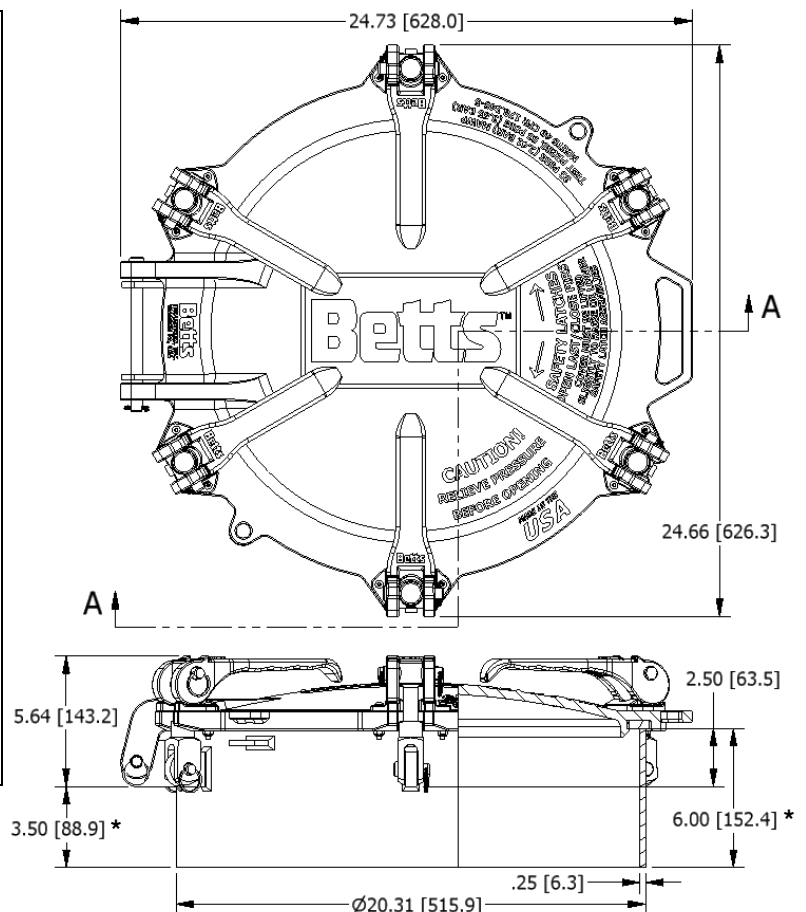
- Inspect safety latches to insure they function properly. A properly functioning safety latch will not swing off the cover unless cover is lifted slightly off of the collar. Replace cover, clevis, latch, or wear saddle as needed.
- Inspect collar for corrosion or damage that could impair the strength or ability of manhole to seal.
- Inspect hardware for corrosion or damage that could reduce the strength of the hold-downs. Replace as needed.
- Replace worn or damaged gasket with a material compatible with products being carried.

Refer to maintenance manual MM-CL001 for more detailed instructions.

No.	Description	Req.	Material	Part No.
1	Weld Collar Assem. (6" High)	1	Alum. 5454	6916AL-6
2	Gasket	1	White Nitrile(FDA)	4383WB
			Black FKM	4383VT
			Fluorosilicone	4383FS
3	Circle Cotter	13	302 Stainless	9Q5010
4	Hinge Pin	1	Steel (Zc. Plt.)	9Q4757
			303 Stainless	4401SL
5	Manhole Cover	1	Alum.	8552AL-BETTS
6	Wear Saddle	6	Nylon	6907NY
7	Cap Screw	12	18-8 Stainless	9Q5075
8	Lock Nut	12	18-8 Stainless	9Q5085
9	Cam Latch	6	Alum.	6910AL
10	Latch Pin	6	Steel (Zc. Plt.)	9Q4753
			17-4 Stainless	9Q4754
11	5/8 Swing Bolt	6	Steel (Zc. Plt.)	4381ZC
			304 Stainless	4381SL
12	5/8 Clevis	6	Steel (Zc. Plt.)	4382ZC
			304 Stainless	4382SL
13	Clevis Pin	6	Steel (Zc. Plt.)	9Q4751
			17-4 Stainless	9Q4752
Replacement Wear Saddle Kit (Items 6, 7, & 8)			Nylon/SS	6907NY-KIT
Replacement Latch Kit (Items 3, 6, 7, 8, 9, 10, 11, 12 & 13)			Steel (Zc. Plt.)	4402ALZC
			Stainless	4402ALSL

WARNING: Use only genuine BETTS INDUSTRIES INC. replacement parts. Substitute parts can impair the proper function of this product.

* Dimensions vary dependent on collar height.



Betts

INDUSTRIES, INC. WARREN, PA.

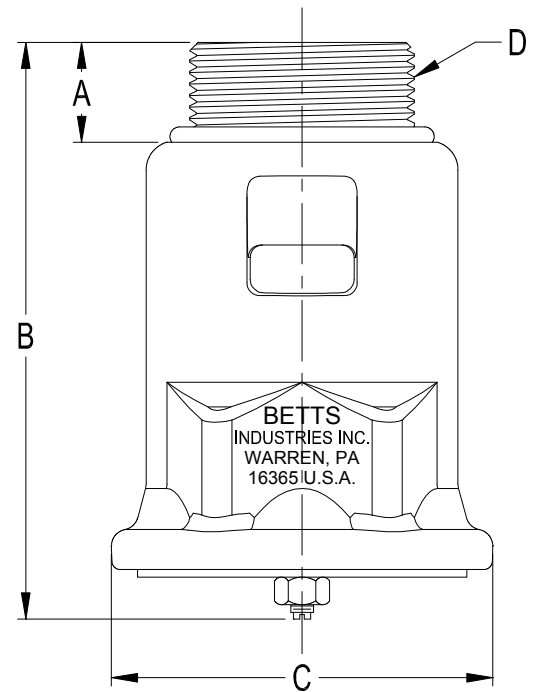
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Nov. 2011
Section 92 Page 1B

- Dual Purpose Vent
- Roll Over Protection
- Compact Design
- Interior Mount

A normal vent designed for use on MC306 & DOT406 cargo tanks. Model 6496 has a pressure setting per 178.346-3(b)(2) of “not less than 1 PSIG” and a vacuum setting per 178.346-3(c)(2) “no more than 6 ounces” which allows for efficient recovery of vapors during closed system loading and off-loading. Unique roll over protection retains product at any attitude of rollover. Vent is flow tested and marked.

NOTE: While normal vents provide limited vapor venting during loading/unloading, it is recommended that positive vapor valves (typically air operated) be provided when loading/unloading with the manhole closed. If positive vapor valves are not used, insure normal vent is functioning properly or open manhole cover before beginning loading/unloading. Failure to do so may result in head reversals or other tank failure.



See Section 95 Page 1D for parts list and maintenance instructions.

Description	Assembly No.	Body Mat'l	Set Pressure**		Flow Capacity		Dimensions				Wt. (lbs).				
			Pressure (psig)	Vacuum (psig)	Out-breathing	In-breathing	A	B	C	D (Threads)					
FVA MC306 Normal Vent	6238AL*	Alum.	0.8 to 1.0	0.25 to 0.375	1,750 CF @ 3 psi	3,350 CFH @ 1 psi	.72"	4.16"	2.75"	1 ⁵ / ₈ -12UN	1.0 lb.				
	6238SL*	303 SS									2.5 lb.				
PPV DOT406 Normal Vent	6496AL*	Alum.	1.0 to 1.5	0.25 to 0.375	1,200 CFH @ 3 psi	3,350 CFH @ 1 psi					.72"	4.16"	2.75"	1 ⁵ / ₈ -12UN	1.0 lb.
	6496SL*	303 SS													2.5 lb.

Letter	Mat'l	Temp. Range
B	Buna-N	-40°F to +220°F
V	Viton®	-20°F to +400°F
EP	EPDM (Black)	-40°F to +260°F

* Add letters to part number to designate seal material. See material table at right for designation.

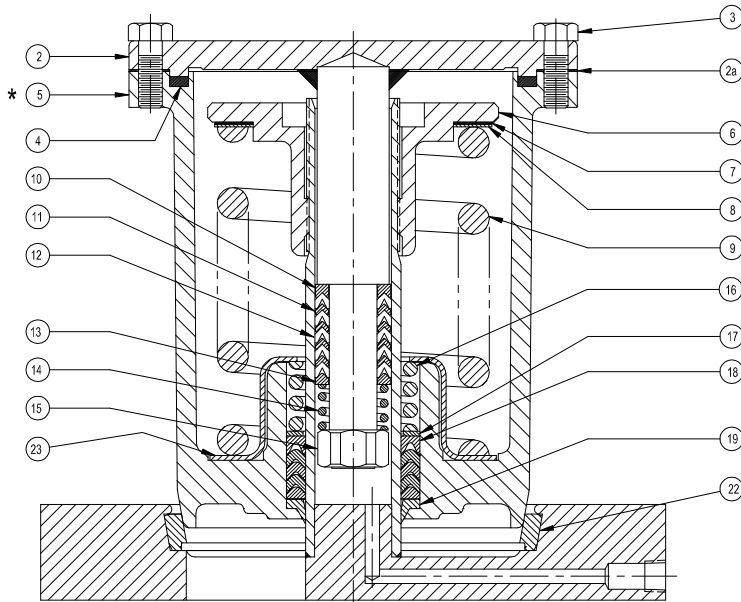
** Proper maintenance is required to ensure effective performance of normal vent. Dust, dirt, or residue will reduce the ability of the vent to hold required set-pressure.

Obsolete Section

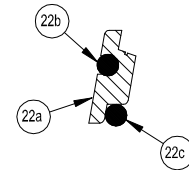
Replacement Parts Only

Internal Chemical Hydraulic Valve

Replaced with New Designs (See Section 28)



PLEASE NOTE: All parts may not be available do to limited supply and may be discontinued without notice.



Seat w/ O-rings

* 27996LC Includes items 5, 16 & 23

Replacement Kit of Teflon Parts

CH17827TF-Includes items 2a,4,7,12,18,19 & 22

CH19030TF-Includes items 2a,4,7,12,18,19 & 22a

Assembly Part Numbers

CH45843SST - Internal Chemical Hydraulic Valve

No.	Description	Req.	Material	Part No.
2	Cover Assembly	1	316 Stnls	17294SS
2a	Gasket	1	Teflon	19720TF
3	Cap Screw	12	316 Stnls	9Q3305
4	Gasket	1	Teflon	17295TF
5	Disc Assembly	1	316 Stnls	27996LC
6	Spring Retainer	1	316 Stnls	25887SS
7	Shim-Spring	1	Teflon	16867TF
8	Shim-Spring	1	Stnls	16866SL
9	Shim-Spring	1	316 Stnls	16890SS
10	Female Adapter-Piston	1	304 Stnls	16732SL
11	Separator Rings-Piston	4	304 Stnls	15628SL
12	Packing Rings-Piston	Set	Teflon	15634TF

No.	Description	Req.	Material	Part No.
13	Male Adapter-Piston	1	304 Stnls	15629SL
14	Spring-Piston	1	316 Stnls	15652SS
15	Retainer Nut-Piston	1	304 Stnls	15630SL
16	Spring-Stuffing Box	1	316 Stnls	19616SS
17	Follower Washer-Stuffing Box	1	316 Stnls	19594SS
18	Packing Rings-Stuffing Box	Set	Teflon	15759TF
19	Wiper	1	Teflon	15862TF
22	Replaceable Seat	1	Teflon	16644TF
22a	Replaceable Seat w/ O-Rings	1	Tef-Sil	18897TFTS
22b	Seat O-Ring only	1	Tef-Sil	18246TS
22c	O-Ring	1	Tef-Sil	18834TS
23	Retainer-Packing	1	316 Stnls	19446SS

INSTALLATION INSTRUCTIONS

Install valve to a flat mounting surface. Connect hydraulic line to 1/8 NPT connection on O.D. of seat flange leaving fitting loose. Operate pump until all air is bled from system. Tighten fitting. Check all connections for leaks. Refill pimp reservoir.

MAINTENANCE INSTRUCTIONS

TO REPLACE TEFLON SEAT: Loosen cap screws No.3 and remove cover assembly No.2. Spring Retainer No.6 can now be unscrewed with spanner wrench to unload spring No.9. Valve is designed so spring will be unloaded before retainer is completely unscrewed from stem. Remove disc assembly No.5. DO NOT pry under sealing edge of disc assembly. It is recommended that a new set of packing No.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 Packing Retainer, Stuffing Box Spring and Follower Washer No's. 23,16 & 17. Install new set of packing and replace Part No's. 23,16 & 17. Use care not to damage packing on threads when replacing disc assembly. With disc assembly removed from stem, remove damaged teflon seat No.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.

We suggest the use of NEVER-SEEZ anti-seize and lubricating compound or equal on all threads.