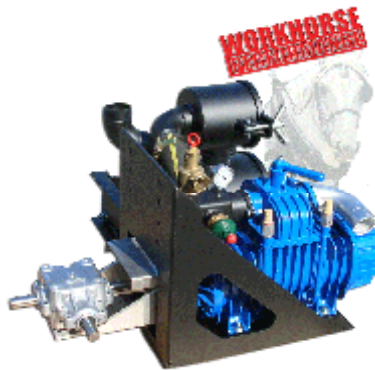


*New Addition!*

## Section 10 *\*Internet only*

# Vacuum Pumps & Accessories





*Werts Welding & Tank Service, Inc.*

**Supplying the tank trailer industry since 1957**

## **Vacuum Catalog**



**www.wertswelding.com**

***Call the branch nearest you for your parts needs!***

# Pump Specifications

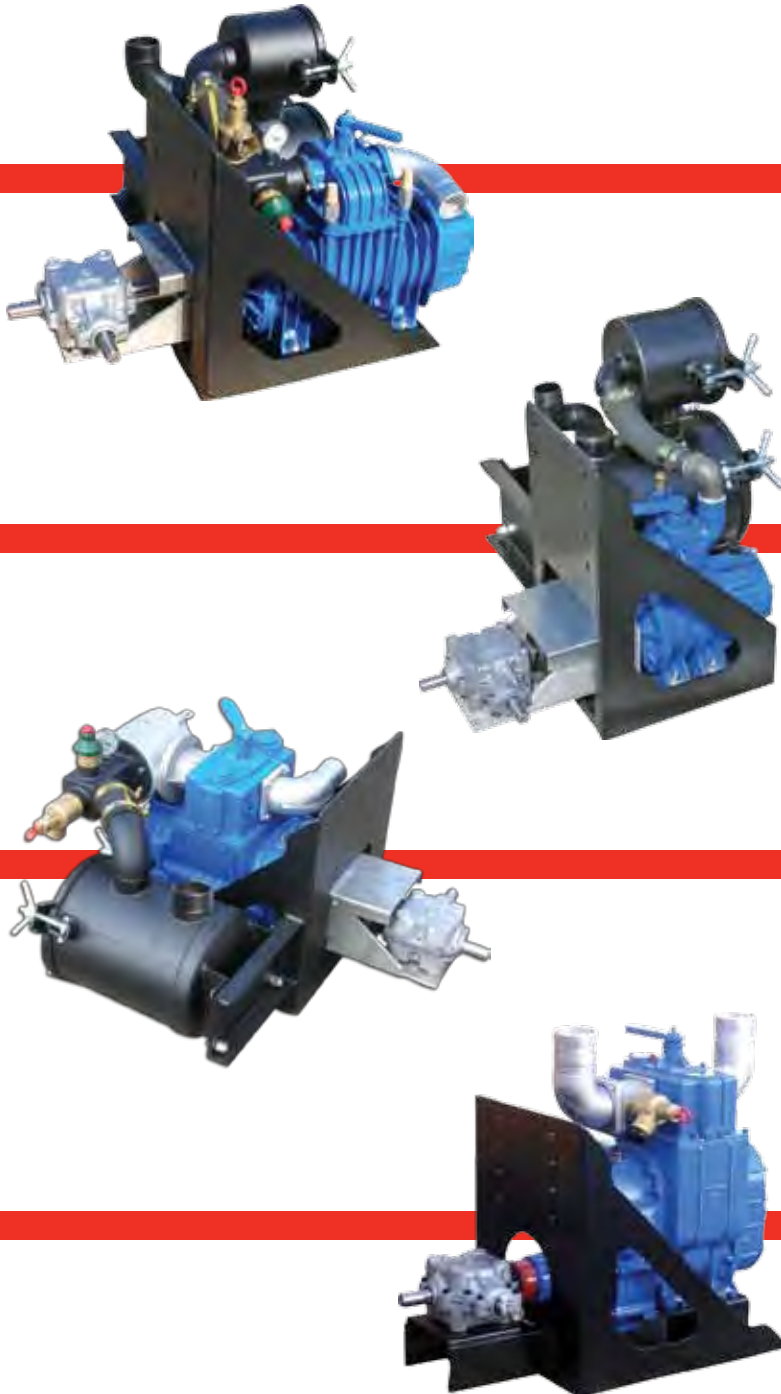
## Specifications

<i>Pump Description</i>	<i>CFM Free</i>	<i>CFM @ 18"</i>	<i>CFM 10 PSI</i>	<i>Rec. Speed</i>	<i>Max Speed</i>	<i>Vac. Cont.</i>	<i>HP</i>	<i>Weight</i>	<i>Hose Input</i>	<i>Hose Output</i>	<i>Torque Req.</i>
<b>Fruitland RCF370</b>	275	259		1400	1450	18	16	385	3	3	900
<b>Fruitland RCF500</b>	350	320		1400	1450	18	20	450	3	3	1125
<b>Jurop PN106</b>	388	311		1000	1100	18	18.5	419	3	3	1497
<b>Jurop PN84</b>	317	252		1000	1100	18	15	254	3	3	1182
<b>Jurop PNR102</b>	360	332		950	1000	18	22	381	3	3	1824
<b>Jurop PNR122</b>	430	395		950	1000	18	26	419	3 or 4	3 or 4	2156
<b>Jurop PNR142</b>	500	452		950	1000	18	28	562	4	4	2322
<b>Jurop LC300</b>	300	226		1000	1100	24	17	430	3	3	
<b>Jurop LC420</b>	425	324		1000	1100	25	23	462	3 or 4	3 or 4	
<b>Jurop PR150</b>	529	506		1000	1200	24	38	761	4	4	2994
<b>Jurop PR200</b>	735	712		1000	1200	24	53	981	4	4	4175
<b>Jurop PR250</b>	911	865		1000	1100	24	65	1168	6	6	5121
<b>Jurop R260</b>	363	304		1100	1200	18	18	397	3	3	1289
<b>Masport HXL2V</b>	75	67	65	1700	1250-1750	20	5	96	1.5	1.5	232
<b>Masport HXL3V</b>	112	102	97	1700	1250-1750	20	8	110	1.5	1.5	371
<b>Masport HXL4V</b>	137	115	125	1200	1100-1400	22	13	165	1.5	1.5	853
<b>Masport HXL75V</b>	196	152	184	1100	1250	22	15	265	2.5	2.5	1074
<b>Masport HXL75WV</b>	196	152	184	1100	1275	25	15	290	2.5	2.5	1074
<b>Masport HXL15V</b>	303	225	279	1100	1250	22	20	390	3	3	1432
<b>Masport HXL15WV</b>	303	225	279	1100	1275	25	20	390	3	3	1432
<b>Masport HXL20WV</b>	345	245	346	1100	1275	25	23	415	3	3	1647
<b>Masport HXL400</b>	400	350	356	1200	1400	25	28	335	3	3	1838
<b>Moro AC3</b>	247	194	e252	1000	1100	18	13	335	3	3	1024
<b>Moro AC4</b>	318	247	e323	1000	1100	18	15	395	3	3	1182
<b>Moro PM80</b>	350	260	330	1100	1100	18	15	401	3	3	1074
<b>Moro PM100</b>	460	370	440	1450	1500	18	22	480	4	4	1195
<b>NVE 367</b>	342	260	244	1250	1500	18	24	470	3	3	1513
<b>NVE 506</b>	452	381	389	1000	1150	18	25	515	4	4	1970
<b>NVE 466</b>	519	381	389	1000	1150	18	25	515	3 or 4	4	1970
<b>Wallenstein 753LNHRVO</b>	350		1150			30			3	3	2055
<b>Wittig SLS54</b>	191	180	e185	1450	1500	18	18	178	3	3	978
<b>Wittig RFL60</b>	235	230	e220	1450	1500	18	17	354	4	4	924
<b>Wittig RFL100</b>	412	376	e395	1450	1500	18	36	433	4	4	1956
<b>Wittig RFW150</b>	506	482	e500	1450	1500	24	48	546	4	4	2608
<b>Wittig RFW200</b>	730	694	e705	1450	1500	24	42-66	678	4	4	
<b>Wittig RFW260</b>	942	906	e915	1450	1500	24	86	791	4	4	4673

# Juro-Pak

**Complete package, we make it easy for you!**

Juro-Paks combine a high quality Jurop vacuum pump with a state-of-the-art Gearbox Auto Alignment and Shut-off Filter system, complete with powder coating and assembly.



## **Jurop R260**

364 CFM  
27.6" MAX VACUUM  
BALLAST PORT COOLING  
CONTINUOUS DUTY PUMPING  
AUTOMATIC LUBRICATION

## **Jurop PN23 & PN58**

CFM RANGE OF 92-230  
27.6" MAX VACUUM  
BALLAST PORT COOLING  
FORCED OIL LUBRICATION  
BUILT-IN RESERVOIR

## **Jurop LC420 Contender**

425 CFM  
27" MAX VACUUM  
WATER COOLED  
25" CONTINUOUS VACUUM  
BUILT-IN RESERVOIR  
BUILT-IN FINAL FILTER

## **Jurop DL140 Blower**

OIL & VANE FREE  
POLLUTION FREE  
21" CONTINUOUS VACUUM  
BUILT-IN 4-WAY VALVE



# Juro-Pak

## Complete package, we make it easy for you!

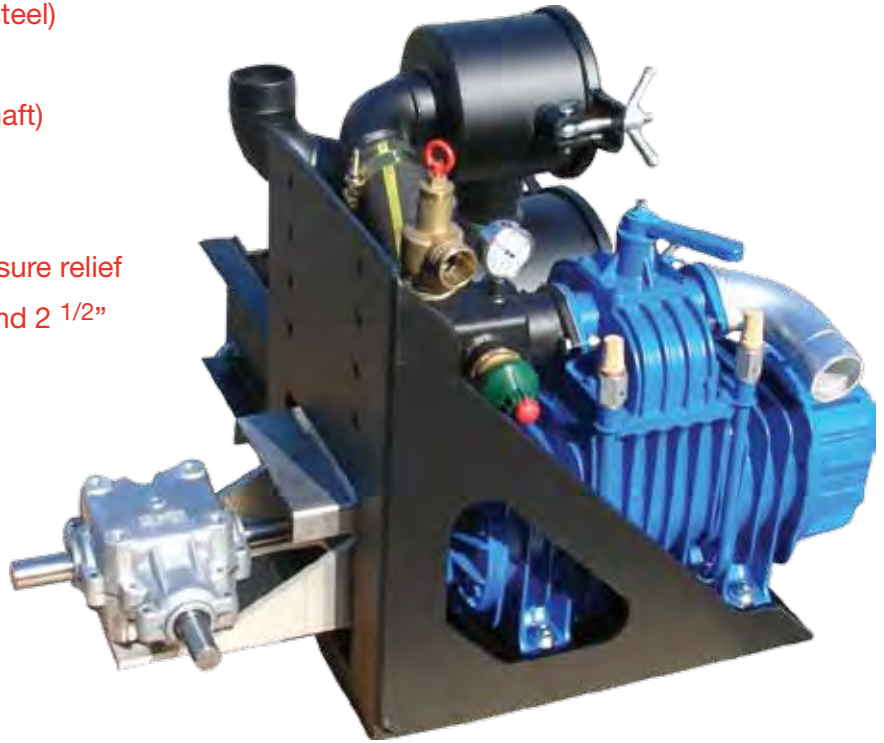
Juro-Paks combine the following components :

- Jurop vacuum pump
- Pump mounting stand (3/8" heavy duty steel)
- Aluminum auto-align bracket
- 3 shaft gearbox (400 series with 1 1/4" shaft)
- Horizontal secondary with 3" opening
- 3" final filter with reusable 55 mesh filter
- Vacuum pressure tree with 2" brass pressure relief valve, 1 1/2" brass vacuum relief valve, and 2 1/2" liquid filled vacuum pressure gauge
- Powder coating and assembly



### Filter Element

55 mesh wire  
stainless steel  
construction for high  
heat applications

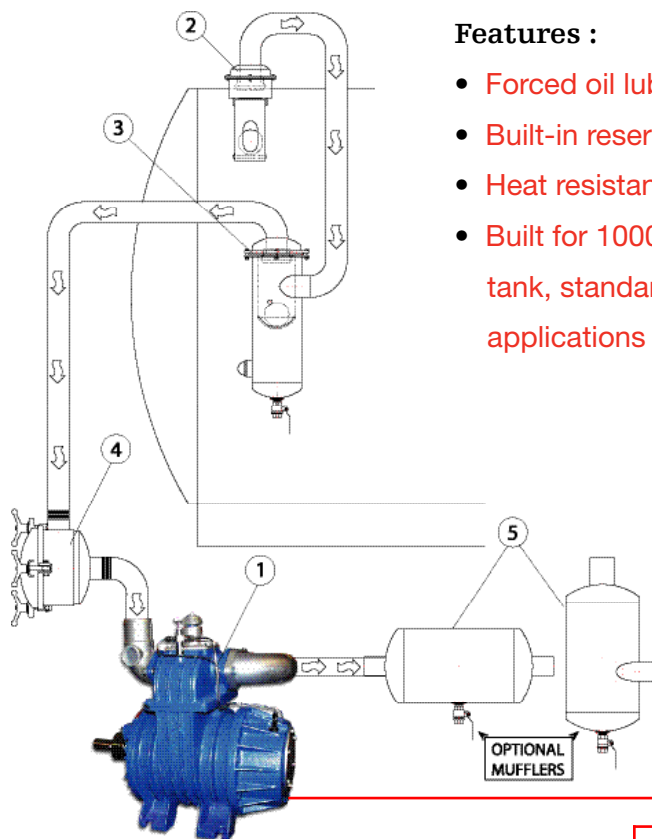


## Juro-Pak Units

Part Number	Description	CFM Rating
1004-0230	Juro-Pak PN23, 2" Fittings	92 CFM
1004-0330	Juro-Pak PN33, 2" Fittings	127 CFM
1004-0580	Juro-Pak PN58, 3" Fittings	230 CFM
1004-0580-2	Juro-Pak PN58, 2" Fittings	230 CFM
1004-0840	Juro-Pak PN84, 3" Fittings	317 CFM
1004-0102	Juro-Pak PNR102, 3" Fittings	360 CFM
1004-0260	Juro-Pak R260, 3" Fittings	363 CFM
1004-0260-HYD	Juro-Pak R260, Hydraulic, 3" Fittings	363 CFM
1004-0300	Juro-Pak LC300, 3" Fittings	300 CFM
1004-0300-HYD	Juro-Pak LC300, Hydraulic, 3" Fittings	300 CFM
1004-0420	Juro-Pak LC420, 3" Fittings	424 CFM
1004-0420-HYD	Juro-Pak LC420, Hydraulic, 3" Fittings	424 CFM

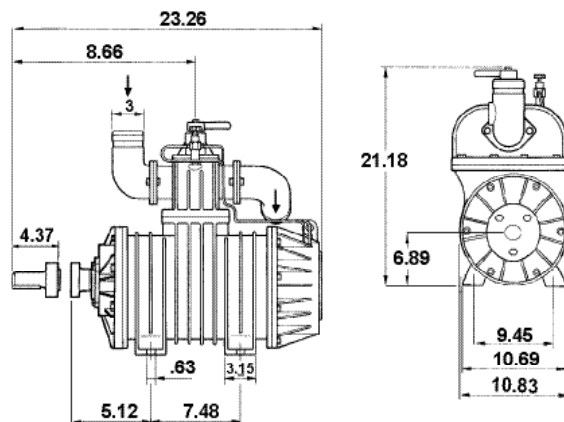
# Jurop PN58

## Vacuum Pump System



### Features :

- Forced oil lubrication
- Built-in reservoir
- Heat resistant Kevlar vanes
- Built for 1000-2500 gallon tank, standard duty applications



### PN58 Pump & Tank Components

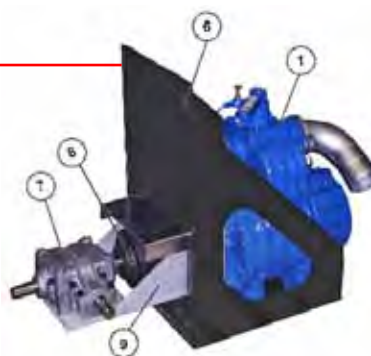
No.	Description	Part No.
1	Jurop PN58 Vacuum Pump	<b>PN58</b>
2	Steel Primary w/ 3" Opening	<b>1034-0001</b>
3	5 Gallon Secondary w/ 3" Opening	<b>1153-0000</b>
4	3" Final Filter, NPT Thread	<b>1007-1003</b>
5	3" Horizontal Oil Catch Muffler	<b>1001-0000</b>
Optional	Vacuum Pressure Tree, Flange X Shank w/ 2" Brass Pressure Relief Valve, 1.5" Brass Vacuum Relief Valve, & 2.5" Liquid Filled Vacuum Pressure Gauge	<b>1097-0010</b>

### Pump Drive System Components

No.	Description	Part No.
6	3/8" Steel Pump Mounting Stand	<b>1004-0005</b>
7	3 Shaft Gearbox (200 Series) w/ 1" Shaft	<b>1009-0000</b>
8	1" x 1 3/8" Size 8 Pump Coupling	<b>1005-0002</b>
9	Aluminum Auto Align Bracket	<b>1004-1004</b>

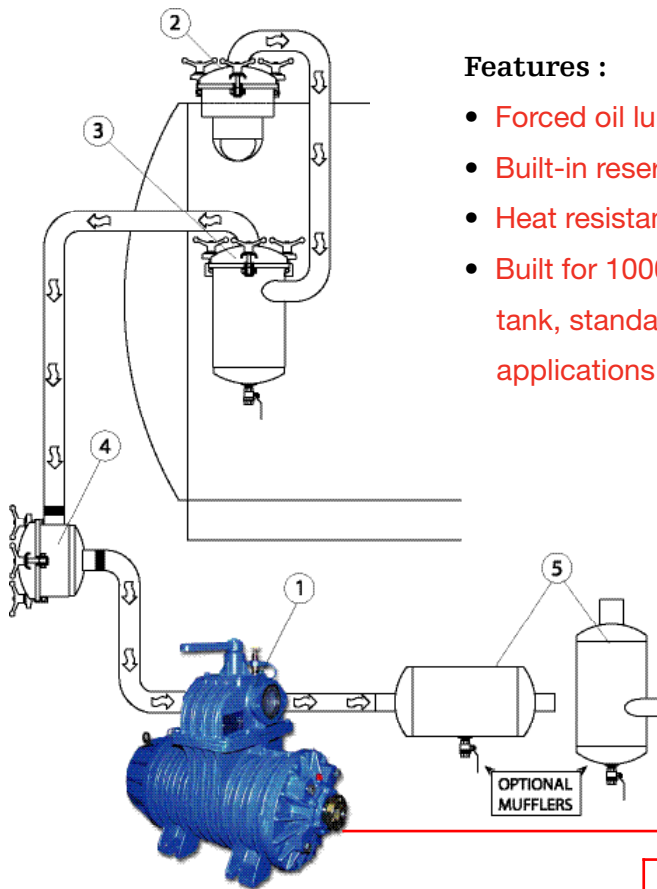
### Jurop PN58 Vacuum Pump with 1 3/8" Shaft

900-1300 RPM RANGE  
 27.6" - 92% MAX VACUUM  
 230 CFM AT FREE AIR  
 205 CFM AT 18'  
 21 PSI  
 9 HORSEPOWER  
 NOISE LEVEL AT 18" (60%) IS  
 77 db(A)  
 2.44 QT OIL TANK CAPACITY  
 WEIGHS 225 LBS



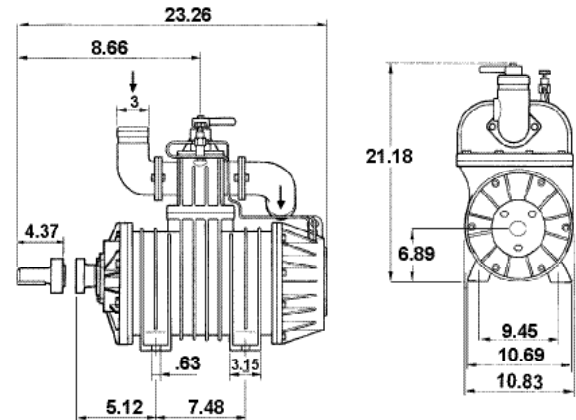
# Jurop PN84

## Vacuum Pump System



### Features :

- Forced oil lubrication
- Built-in reservoir
- Heat resistant Kevlar vanes
- Built for 1000-2500 gallon tank, standard duty applications



### PN84 Pump & Tank Components

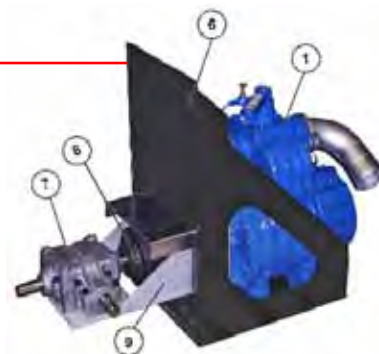
No.	Description	Part No.
1	Jurop PN84 Vacuum Pump	PN84
2	12" Low Profile Primary, 6" w/ 3" Opening	1014-0900
3	5 Gallon Secondary w/ 3" Opening	1153-0000
4	3" Final Filter, NPT Thread	1007-1003
5	3" Horizontal Oil Catch Muffler	1001-0000
Optional	Vacuum Pressure Tree, Flange X Shank w/ 2" Brass Pressure Relief Valve, 1.5" Brass Vacuum Relief Valve, & 2.5" Liquid Filled Vacuum Pressure Gauge	1097-0010

### Jurop PN84 Vacuum Pump with 1 3/8" Shaft

900-1300 RPM RANGE  
 27.6" - 92% MAX VACUUM  
 317 CFM AT FREE AIR  
 252 CFM AT 18'  
 21 PSI  
 15 HORSEPOWER  
 NOISE LEVEL AT 18" (60%) IS  
 81 db(A)  
 2.44 QT OIL TANK CAPACITY  
 WEIGHS 225 LBS

### Pump Drive System Components

No.	Description	Part No.
6	3/8" Steel Pump Mounting Stand	1004-0005
7	3 Shaft Gearbox (200 Series) w/ 1" Shaft	1009-0000
8	1" x 1 3/8" Size 8 Pump Coupling	1005-0002
9	Aluminum Auto Align Bracket	1004-1004



# R260 Juro-Pak

## Easy Bolt-N-Go Design!



The R260 Juro-Pak combines a Juro R260 Vacuum Pump with a state-of-the-art Gearbox Auto Alignment and Shutoff Filter System, complete with powder coating and assembly!

**R260 Juro-Pak :**

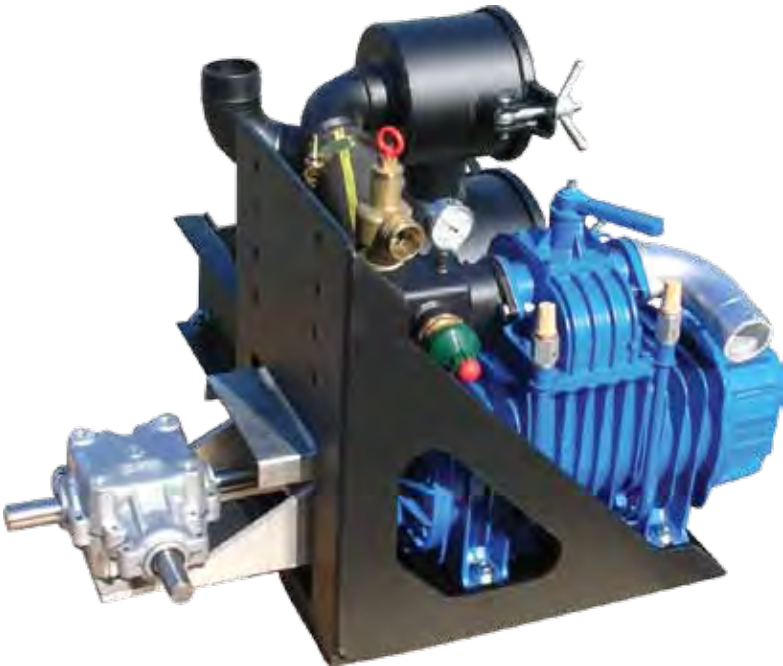
- Juro R260 Vacuum Pump
- Pump mounting stand made of 3/8" heavy duty steel
- Aluminum auto align bracket
- 3 shaft gear box (400 series) with 1 1/4" shaft
- 1 3/8" x 1 1/4" size 9 pump coupling
- Powder coating & assembly
- 10 gallon horizontal secondary with 3" opening
- 3" final filter with reusable 55 mesh filter
- Vacuum pressure tree with 2" brass pressure relief valve, 1 1/2" brass vacuum relief valve, and 2 1/2" liquid filled vacuum pressure gauge



**Vacuum Pressure Tree**



**Filter Element**  
55 mesh wire stainless steel construction for high heat applications



**Juro R260 Vacuum Pump**

364 CFM  
27.6" MAXIMUM VACUUM  
BALLAST PORT COOLING  
CONTINUOUS DUTY PUMPING  
AUTOMATIC LUBRICATION

R260 Juro-Pak		
Part No.	Description	L x W x H
1004-0260	R260 Juro-Pak	45.5" x 32" x 26.5"



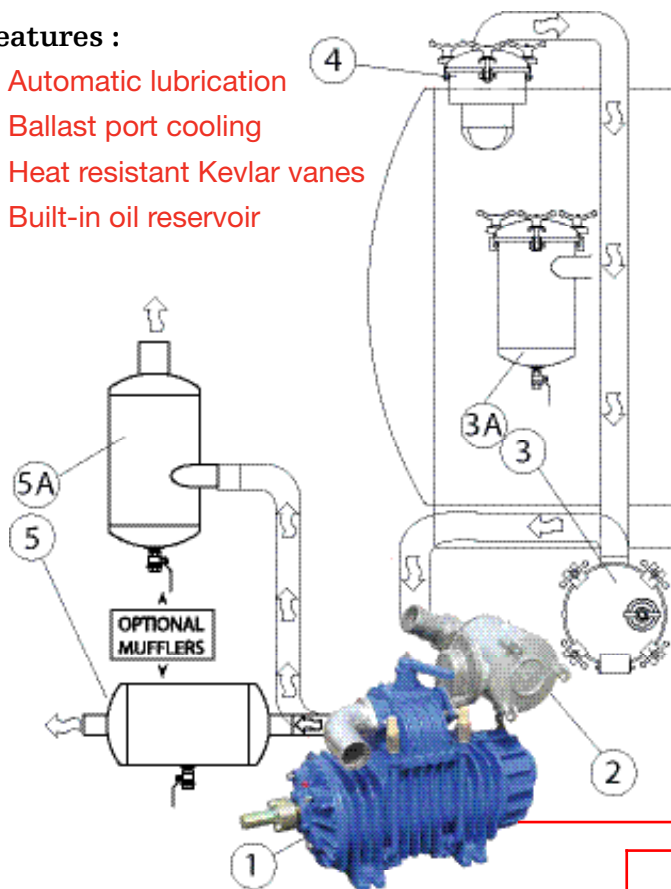
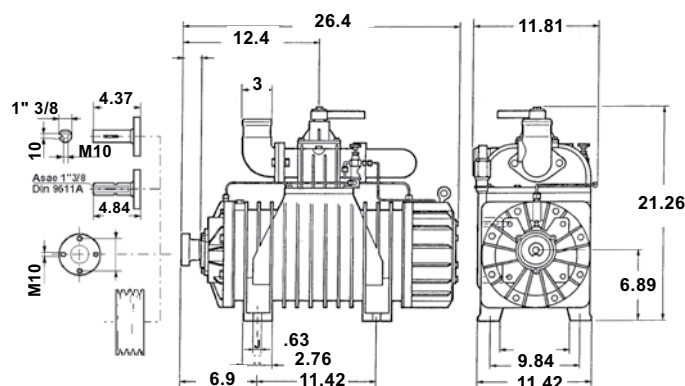
# Jurop R260

## Vacuum Pump System



### Features :

- Automatic lubrication
- Ballast port cooling
- Heat resistant Kevlar vanes
- Built-in oil reservoir



### R260 Pump & Tank Components

No.	Description	Part No.
1	Jurop R260 Vacuum Pump	<b>R260</b>
2	Jurop Alum. Final Filter w/ Mounting Flange	<b>185219N7B0</b>
3	10 Gallon Horizontal Secondary w/ 3" Open	<b>1008-0102</b>
4	12" Low Profile Primary, 6" w/ 3" Opening	<b>1014-0900</b>
5	3" Horizontal Oil Catch Muffler	<b>1001-0000</b>
Optional	Vacuum Pressure Tree, Flange X Shank w/ 2" Brass Pressure Relief Valve, 1.5" Brass Vacuum Relief Valve, & 2.5" Liquid Filled Vacuum Pressure Gauge	<b>1097-0010</b>

### Jurop R260 Vacuum Pump with 1 3/8" Shaft

900-1200 RPM RANGE  
 27.6" - 92% MAX VACUUM  
 MAX CONTINUOUS VAC - 18"  
 363 CFM AT FREE AIR  
 21 PSI  
 18 HORSEPOWER  
 NOISE LEVEL AT 18" (60%) IS  
 84 db(A)  
 2.44 QT OIL TANK CAPACITY  
 WEIGHS 397 LBS

### Pump Drive System Components

No.	Description	Part No.
6	3/8" Steel Pump Mounting Stand	<b>1004-0005</b>
7	3 Shaft Gearbox (400 Series) w/ 1 1/4" Shaft	<b>1006-0000</b>
8	1 3/8" x 1 1/4" Size 9 Pump Coupling	<b>1005-0006</b>
9	Aluminum Auto Align Bracket	<b>1004-1000</b>



# LC420 Juro-Pak

## Easy Bolt-N-Go Design!



The LC420 Juro-Pak combines a Juro LC420 Contender Vacuum Pump with a state-of-the-art Gearbox Auto Alignment and Shutoff Filter System, complete with powder coating and assembly!

**R260 Juro-Pak :**

- Juro LC420 Vacuum Pump
- Pump mounting stand made of 3/8" heavy duty steel
- Aluminum auto align bracket
- 3 shaft gear box (400 series) with 1 1/4" shaft
- 1 3/8" x 1 1/4" size 9 pump coupling
- Powder coating & assembly
- 10 gallon horizontal secondary with 3" opening
- 3" final filter with reusable 55 mesh filter
- Vacuum pressure tree with 2" brass pressure relief valve, 1 1/2" brass vacuum relief valve, and 2 1/2" liquid filled vacuum pressure gauge



**Vacuum Pressure Tree**



**Juro LC420 Vacuum Pump with 1 3/8" Shaft**

425 CFM AT CONTINUOUS DUTY AT DEEP VACUUM  
 25" CONTINUOUS DUTY  
 29 PSI  
 3" FITTINGS  
 WATER COOLED FROM TRUCK ENGINE  
 AUTO OIL LUBRICATION  
 BUILT-IN FINAL FILTER  
 ONE YEAR WARRANTY

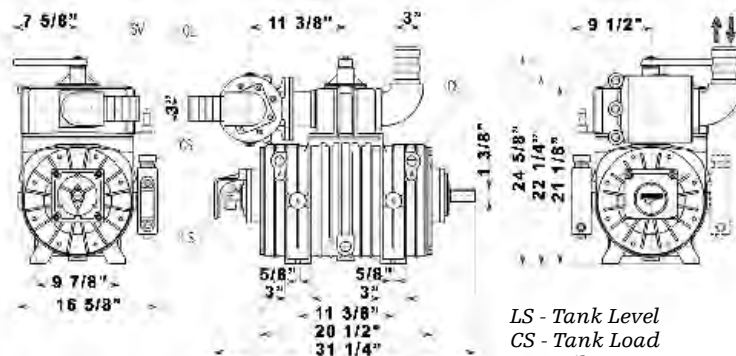
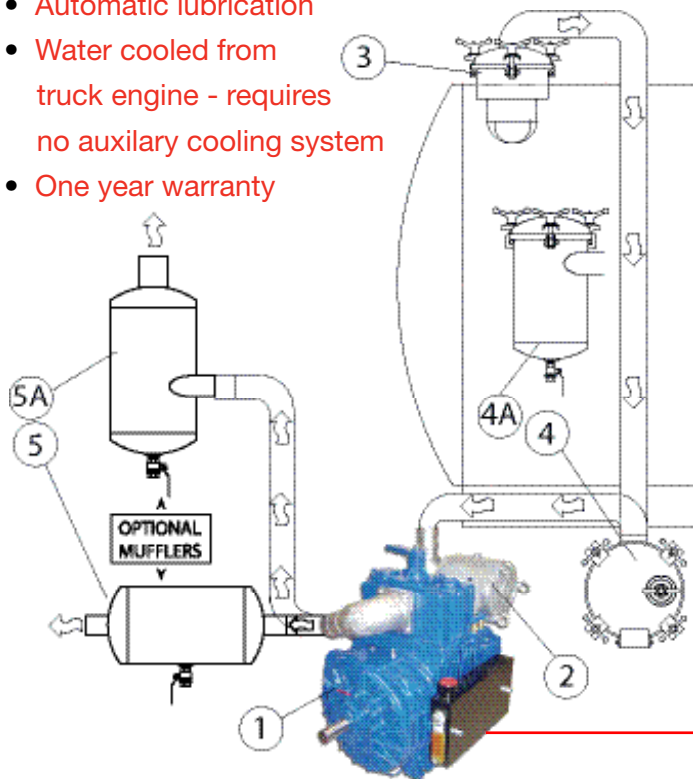
**LC420 Juro-Pak**

Part No.	Description	L x W x H
1004-0420	LC420 Juro-Pak	45.5" x 32" x 26.5"

# Jurop LC420 Contender Vacuum Pump System

## Features :

- Automatic lubrication
- Water cooled from truck engine - requires no auxiliary cooling system
- One year warranty



LS - Tank Level  
CS - Tank Load  
OL - Oilers  
CL - Vane Control

## LC420 Pump & Tank Components

No.	Description	Part No.
1	Jurop LC420 Contender Vacuum Pump	<b>LC420</b>
2	Final Filter Mounting Flange	<b>1445002900</b>
3	12" Low Profile Primary, 6" w/ 3" Opening	<b>1014-0900</b>
4	10 Gallon Horizontal Secondary w/ 3" Open	<b>1008-0102</b>
5	3" Vertical Oil Catch Muffler	<b>1002-0600</b>
Optional	Vacuum Pressure Tree, Flange X Shank w/ 2" Brass Pressure Relief Valve, 1.5" Brass Vacuum Relief Valve, & 2.5" Liquid Filled Vacuum Pressure Gauge	<b>1097-0010</b>

## Jurop LC420 Vacuum Pump with 1 3/8" Shaft

1000-1300 RPM RANGE  
27" - 90% MAX VACUUM  
MAX CONTINUOUS VAC - 25"  
425 CFM AT FREE AIR  
29 PSI  
23 HORSEPOWER  
NOISE LEVEL AT 18" (60%) IS  
75-78 db(A)  
2.12 QT OIL TANK CAPACITY  
WEIGHS 462 LBS

## Pump Drive System Components

No.	Description	Part No.
6	3/8" Steel Pump Mounting Stand	<b>1004-0006</b>
7	3 Shaft Gearbox (400 Series) w/ 1 1/4" Shaft	<b>1006-0000</b>
8	1 3/8" x 1 1/4" Size 9 Pump Coupling	<b>1005-0006</b>
9	Aluminum Auto Align Bracket	<b>1004-1001</b>



# Troubleshooting

## for Jurop Vacuum Pumps

### The Pump is Overheating

<i>Cause</i>	<i>Remedy</i>
<ul style="list-style-type: none"> <li>Faulty lubrication</li> <li>Missing oil</li> <li>RPMs too high</li> <li>Operating time too long at too high vacuum rate</li> <li>Clogged filters on air injection system</li> <li>Exhaust port and/or check valve partly clogged</li> <li>Insufficient diameter of hoses</li> </ul>	<ul style="list-style-type: none"> <li>Check the oil pump</li> <li>Fill up the oil tank</li> <li>Reduce the pump speed</li> <li>Decrease the vacuum rate</li> <li>Clean the filters</li> <li>Remove crusts and scales</li> <li>Use recommended hose size</li> </ul>

### The Pump is Blocked

<i>Cause</i>	<i>Remedy</i>
<ul style="list-style-type: none"> <li>Broken vanes <ul style="list-style-type: none"> <li>+ due to foreign parts</li> <li>+ due to fault lubrication</li> </ul> </li> <li>Pump is frozen</li> <li>Damaged drive system</li> </ul>	<ul style="list-style-type: none"> <li>Change the vanes</li> <li>Clean filters/elements on the line</li> <li>Check the lubrication pump</li> <li>Warm up the pump</li> <li>Change the damaged parts</li> </ul>

### Reduced Performance

<i>Cause</i>	<i>Remedy</i>
<ul style="list-style-type: none"> <li>4-way valve is in neutral</li> <li>Worn vanes</li> <li>Leaking check valve</li> <li>Worn o-rings or seals</li> <li>Leaking gaskets or valves</li> <li>Clogged connecting pipeline</li> <li>Obstructed float ball or air filter</li> <li>Crusted up exhaust manifold</li> <li>Undersized hoses</li> <li>Rubber connection damaged or obstructed</li> </ul>	<ul style="list-style-type: none"> <li>Move handle against the pin</li> <li>Change the vanes</li> <li>Clean the check valve</li> <li>Change the o-rings or seals</li> <li>Change the damaged parts</li> <li>Change damaged hoses/pipes</li> <li>Dismantle and clean</li> <li>Dismantle and clean</li> <li>Use recommended size hose</li> <li>Change the connections</li> </ul>

### Abnormal Oil Consumption

<i>Cause</i>	<i>Remedy</i>
<ul style="list-style-type: none"> <li>Insufficient lubrication</li> <li>Excessive oil consumption</li> </ul>	<ul style="list-style-type: none"> <li>Adjust the oil pump flow</li> <li>Replace oil seals</li> </ul>



# Fruitland Vacuum Pumps

## Pumps and parts available!



RCF 1200 LUH



RCF 250 R



RCF 370 RS



RCF 800 LU



RCF 500 LUH

**Fruitland pumps are unsurpassed in quality and performance!**

- Fully automatic oil pumps - no adjustments necessary
- Belt, direct, or hydraulic drives
- Clockwise or counter-clockwise rotation
- Top or side four-way valves available
- Optional two-way filters
- Simple vane wear check ports

**Models available from 180-650 CFM**  
**Continuous Duty • Great Value • Easy maintenance**

# NVE 367 Challenger™

Our Challenger™ Series pumps are designed and built with the customer in mind resulting in dependable, high-performing pumps that are easy to install, operate, and service.



## NVE 367 Challenger™ :

- Superior cooling for extended operations in severe conditions
- Heavy duty roller bearings
- Slotted end plate bolt holes for crash protection
- Precision-pinned end plates
- 3-point oiling system
- Vane wear inspection port
- Exhaust gas temperature gauge
- Diesel flush port
- High-strength ductile iron housing
- Air-injected ballast port cooling for extended use in deep vacuum

## Dimensions

*Available in  
liquid cooled  
and fan cooled*


- 31 5/8" H x 13 1/2" W x 24 1/16" H
- Weight : 515 lbs



Also available in a MAX Pack!

## Specifications

RPM		Pressure (PSI)					Free Flow	Vacuum (inches of Mercury)				
		20	15	10	5	0	5	10	15	20	25	27
1150	HP	34	32	29	27	23	23	22	21	20	19	19
	CFM	282	291	301	331	357	248	338	331	310	282	244
1000	HP	29	27	24	23	20	20	19	16	15	14	14
	CFM	229	237	244	269	290	282	275	269	252	229	198
800	HP	25	23	20	18	15	15	14	14	13	12	12
	CFM	178	184	190	209	226	220	214	209	196	178	155

 Recommended setup for optimum performance

1500 RPM Intermittent Operation only

# NVE 506 Challenger™

Our Challenger™ Series pumps are designed and built with the customer in mind resulting in dependable, high-performing pumps that are easy to install, operate, and service.

## NVE 506 Challenger™ :

- Superior cooling for extended operations in severe conditions
- Heavy duty roller bearings
- Slotted end plate bolt holes for crash protection
- Precision-pinned end plates
- 3-point oiling system
- Vane wear inspection port
- Exhaust gas temperature gauge
- Diesel flush port
- High-strength ductile iron housing
- Air-injected ballast port cooling for extended use in deep vacuum



Also available in a MAX Pack!


## Dimensions

*Available in  
liquid cooled  
and fan cooled*

- 30 1/16" H x 17 1/16" W x 24 5/8" H
- Weight : 515 lbs

## Specifications

RPM		Pressure (PSI)						Free Flow	Vacuum (inches of Mercury)							
		25	20	15	10	5	0	3	6	9	12	15	18	21	24	27
1150	HP	49	43	36	27	25	18	20	21	22	23	24	25	25	28	29
	CFM	408	431	438	447	457	519	500	470	458	453	440	438	425	404	351
1000	HP	43	38	32	24	20	15	17	18	19	20	21	22	23	24	25
	CFM	355	375	381	389	398	452	435	409	399	394	390	381	370	352	306
800	HP	36	32	25	19	15	13	14	14	15	16	17	18	19	20	21
	CFM	302	319	324	331	342	385	374	348	339	333	331	324	315	303	242

 Recommended setup for optimum performance

1150 RPM Intermittent Operation only

# Masport® HXL400WV

## Vacuum Pump System

### Solid 6 Vane Rotor Design :

- Higher airflow efficiency
- Higher dead head vacuum
- Less vane wear
- Less cylinder wear
- Less noise
- Less vibration

### Liquid Cooled Design :

- Prevents winter freeze-ups
- Allows pump to operate at 25" Hg continuously
- Reliable operation under extreme hot or cold weather conditions

### Mechanical Oil Pump :

- Automatic oiling
- No adjustment required
- Delivers right amount of oil at all working levels

### End Thrust Protection :

- Prevents rotor-to-endcover contact created by direct PTO drive or misaligned belt drive systems

### End Thrust Protection :

- Prevents rotor-to-endcover contact created by direct PTO drive or misaligned belt drive systems

### Double End Shaft :

- Accommodates clockwise or counter clockwise drive systems

### Integral Valve :

- Allows pump to operate in vacuum and pressure mode

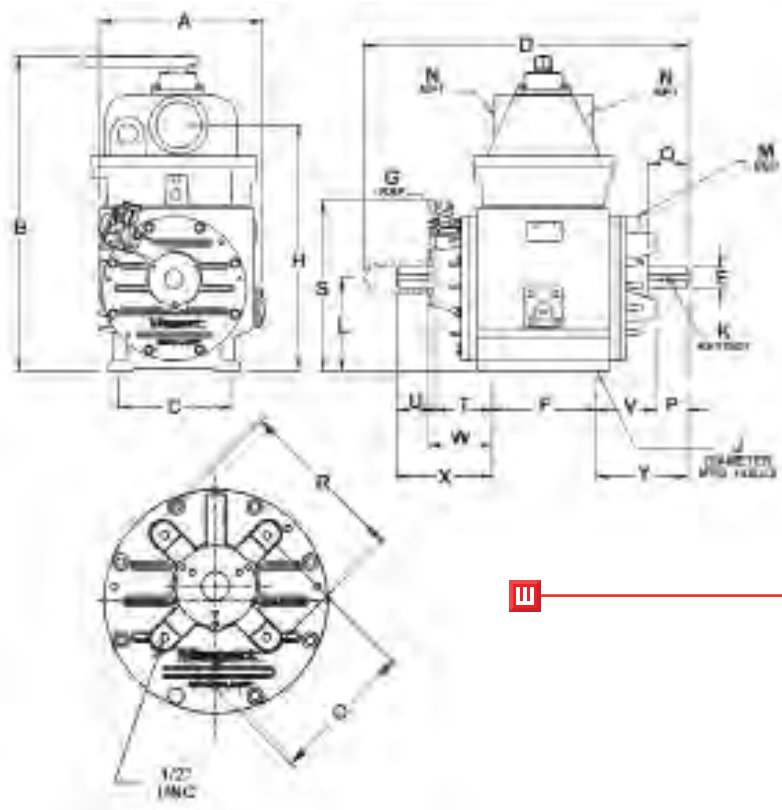
### Masport Quality & Performance :

- Achieve minimum 27" Hg (Intermittent)
- Bolt on half shafts
- Precise machining and assembly
- Heavy duty bearings
- Viton oil seals for longer service life
- Kevlar vanes are heat stabilized and machined with exacting tolerances for superior ruggedness and durability
- Easy to service
- Superior pump life

### Performance Warranty :

- One year warranty included

**Masport®**





# Masport® HXL400WV

## Performance Data

### Vacuum Performance Data

RPM	CFM	S.C.F.M. and A.C.F.M. at Vacuum											Mac Vac - "Hg	
			5	10	15	18	20	22	24	25	26	27	Continuous	Intermittent
1100	345	SCFM	269	204	150	120	100	80	57	47	35	25	25	27
		ACFM	323	306	300	300	300	300	300	282	263	250		
1275	400	SCFM	312	237	175	140	117	117	66	54	41	29	25	27
		ACFM	374	356	350	350	350	350	350	324	308	290		

### Pressure Performance Data

RPM	CFM	S.C.F.M. at P.S.I.G.							Maximum Pressure - P.S.I.G.	
		5	10	15	18	20	25	30	Continuous	Intermittent
1100	345	321	307	292	275	258	243	224	20	30
1275	400	372	356	339	319	300	282	264	20	30

### HP Required at P.S.I.G.

RPM	P.S.I.G.					
	5	10	15	20	25	30
1100	321	307	292	275	258	243
1275	372	356	339	319	300	282

### HP Required at "Hg

RPM	Vacuum "Hg		
	15	20	27
1100	321	307	292
1275	372	356	339

### Dimensions

	HXL400WV	HXL400WF
A	13 1/2"	13 1/2"
B	25 1/2"	16 1/2"
C	8 5/8"	8 5/8"
D	27 1/8"	27 1/8"
E	1 3/8"	1 3/8"
F	9 7/16"	9 7/16"
G	1/8"	1/8"
H	19 1/2"	n/a
J	9/16"	9/16"
K	5/16" x 5/16" x 2"	5/16" x 5/16" x 2"
L	7 7/16"	7 7/16"
M	1/4"	1/4"

	HXL400WV	HXL400WF
N	3"	2 1/2"
O	7 1/4"	7 1/4"
P	3 5/16"	3 5/16"
Q	3 13/16"	3 13/16"
R	8 1/2"	8 1/2"
S	12 1/2"	12 1/2"
T	4 9/16"	4 9/16"
U	3 7/16"	3 7/16"
V	5"	5"
W	5"	5"
X	8 1/4"	8 1/4"
Y	8 1/4"	8 1/4"

# Roper 3600 Series Pumps

## Applications

- Mixing, blending, recirculating, and transferring heavy, viscous materials in either a fixed or mobile transfer application.
- Ideal for gasoline, asphalt, molasses, ink, roofing compound, and oils.

## Features

- Heavy duty cast iron helical gear pumps
- Bi-directional, self-priming
- Differential pressures of up to 125 PSI
- Up to 468 GPM
- Can be built to operate up to 450°F
- Maintenance-free durability

## Options

- Through or angled ports; 2-sided or top and side configuration
- Threaded or flanged, tapped port connections
- Internal relief valve and integral gear reducer
- Outboard bearing depending on drive and seal arrangements
- Iron and carbon bearings, stainless steel gears and shafts, Delrin® Idler gear on the 48 model



## Key Features

### Characteristics

- Right angle port design
- Bi-directional rotation
- Iron or carbon bushing options
- Mechanical seal options

### Materials of Construction

- Cast iron housing
- Steel shaft
- Bronze bearings
- Hardened iron gears
- Delrin® Idler gears for the 32 and 43 models

*Delrin® is a registered trademark of E.I. duPont de Nemours Co. (Inc.).*

## Roper 3600 Series

Pump Model	Theoretical Capacity	Max Speed	Max Flow at Max Speed	Max Pressure	Port Connection
<b>3611/3711</b>	.11 GPR (416.4 CC/Rev)	750 RPM	82.5 GPM (18.6 M³/Hr)	125 PSI (8.6 Bar)	2" NPT
<b>4611/4711</b>	.11 GPR (416.4 CC/Rev)	750 RPM	82.5 GPM (18.6 M³/Hr)	125 PSI (8.6 Bar)	2" NPT
<b>3617/3717</b>	.17 GPR (643.5 CC/Rev)	750 RPM	127.5 GPM (28.8 M³/Hr)	125 PSI (8.6 Bar)	2" NPT
<b>4617/4717</b>	.17 GPR (643.5 CC/Rev)	750 RPM	127.5 GPM (28.8 M³/Hr)	125 PSI (8.6 Bar)	2" NPT
<b>3622/3722</b>	.22 GPR (832.8 CC/Rev)	750 RPM	165 GPM (37.2 M³/Hr)	125 PSI (8.6 Bar)	3" NPT
<b>4622/4722</b>	.22 GPR (832.8 CC/Rev)	600 RPM	165 GPM (37.2 M³/Hr)	125 PSI (8.6 Bar)	4" NPT
<b>3632/3732</b>	.32 GPR (1211.33 CC/Rev)	900 RPM	288 GPM (65.4 M³/Hr)	125 PSI (8.6 Bar)	3" NPT
<b>3635/3735</b>	.35 GPR (1324.89 CC/Rev)	600 RPM	222 GPM (50.4 M³/Hr)	125 PSI (8.6 Bar)	3" NPT
<b>3643/3743</b>	.43 GPR (1627.73 CC/Rev)	900 RPM	387 GPM (87.9 M³/Hr)	125 PSI (8.6 Bar)	3" NPT
<b>3648/3748</b>	.52 GPR (2195.53 CC/Rev)	900 RPM	468 GPM (106.2 M³/Hr)	125 PSI (8.6 Bar)	4" NPT
<b>3658/3758</b>	.58 GPR (2195.53 CC/Rev)	900 RPM	365 GPM (81.6 M³/Hr)	125 PSI (8.6 Bar)	4" NPT
<b>4658/4758</b>	.58 GPR (2195.53 CC/Rev)	600 RPM	365 GPM (79.2 M³/Hr)	125 PSI (8.6 Bar)	4" NPT

# Ametek ROTA-REEL®

## General application grounding/bonding reels

### Features

- Compact, lightweight
- Automatic retraction
- Weather resistant finish
- 100 amp alligator clamp termination

Hunter Spring Static Grounding/Bonding Reels can be used when combustible materials are transferred between carriers. For use where a discharge of static electricity could cause a spark and subsequent explosion, such as bulk stations, airports, terminals and refineries. Built for reliable performance, Rota-Reel grounding reels feature a SPIR'ATOR prestressed spiral spring for easy extension and automatic retraction. A pawl and ratchet permits you to lock the cable at any desired length. A simple tug on the cable unlocks the reel for smooth, steady retraction. The standard termination is a 100 amp alligator clamp. A ball stop on the cable assembly keeps the cable end within easy reach. Rota-Reel grounding reels feature a galvanized steel mounting base for installation in any position and a sturdy steel housing with a weather resistant finish to protect the reel from corrosion.



**NOTE:** Grounding and bonding during fuel handling operations can, at best, only prevent external electrical discharge in the presence of fuel vapor. It does not remove bulk charges from the fuel and cannot prevent internal explosions. To minimize the risk, the conductivity of the fuel should be increased.

### Specifications

#### Length

- 700-50R: 50 ft
- 200-20R: 20 ft

#### Construction

- 3/32" diameter, 7"x7" galvanized carbon steel meeting MIL spec W-83420

#### Lifecycle

- Tested to 5000 cycles

#### Termination

- 100 amp alligator-type solid copper jaw grip (Mueller 21C, 4" length, 1 1/16" jaw opening, US Gov't Type PCL-1, Federal Spec W-C-440B)

#### Housing

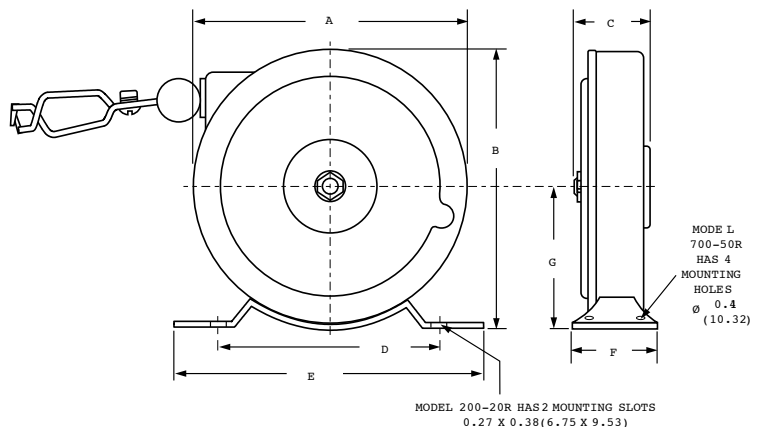
- Steel with red enamel

#### Weight

- 700-50R: 5.5 lbs
- 200-20R: 3.5 lbs

### Dimensions

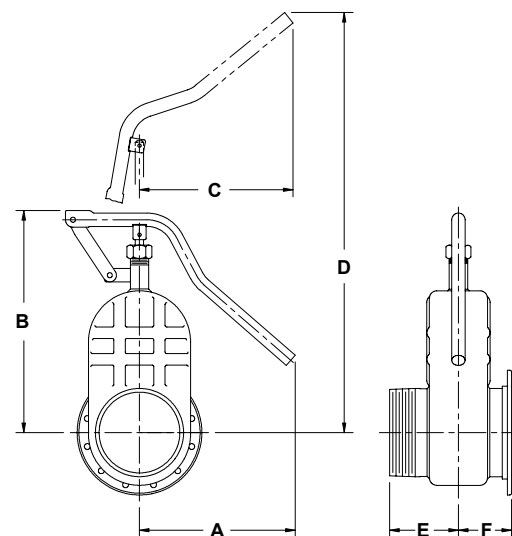
Model	A	B	C	D	E	F	G	
<b>750-50R</b>	7.84 (199.2)	7.81 (198.4)	2.13 (53.3)	7.88 (200)	8.75 (222.3)	2.38 (60.3)	3.97 (100.8)	in (mm)
<b>200-20R</b>	5.78 (146.8)	6.03 (153.2)	1.88 (47.6)	5.88 (149.2)	6.75 (171.5)	2 (50.8)	3.13 (79.4)	in (mm)



# Betts™ Sliding Valve

Quick opening, stainless steel gates,  
bubble tight seal!

The Betts™ Sliding Valve is an economical means of providing a quick opening, quick closing valve where high working pressure will not be encountered. All valves are standard with stainless steel gates which provide a bubble tight seal.



Available in 3", 4" and 6"

## TTMA Drilling

Size	Assembly No. Flanged x Flanged	Material	Wt.
3"	SV903 MSM	Steel	11.4
	SV903 SSM	316 Stainless	
4"	SV904 MSM	Steel	14.9
	SV904 SSM	316 Stainless	
6"	SV906 MSM	Steel	32.5
	SV906 SSM	316 Stainless	

Size	Assembly No. Flanged x Threaded	Material	Wt.
3"	SV913 MSM	Steel	10.9
	SV913 SSM	316 Stainless	
4"	SV914 MSM	Steel	14.1
	SV914 SSM	316 Stainless	
6"	SV916 MSM	Steel	30.0
	SV916 SSM	316 Stainless	

## ANSI Drilling

Size	Assembly No. Flanged x Flanged	Material	Wt.
3"	SV953 MSM	Steel	19.0
	SV953 SSM	316 Stainless	
4"	SV954 MSM	Steel	24.5
	SV954 SSM	316 Stainless	
6"	SV956 MSM	Steel	46.0
	SV956 SSM	316 Stainless	

Size	Assembly No. Flanged x Threaded	Material	Wt.
3"	SV963 MSM	Steel	15.0
	SV963 SSM	316 Stainless	
4"	SV964 MSM	Steel	20.0
	SV964 SSM	316 Stainless	
6"	SV966 MSM	Steel	40.0
	SV966 SSM	316 Stainless	

## Dimensions

Size	A	B	C	D	E	F
3"	9.5	11.625	9	19	3.1875	2.25*
4"	10	13	9	24	3.3125	2.625**
6"	8	17	14	26	5.0625	4

\* ANSI Dimension: 3.5

\*\* ANSI Dimension 2.625

### TTMA Flange

O.D.	B.C.	Holes	Thick
6.125	4.875	.4375 (8)	.1345
7.125	5.875	.4375 (8)	.1345
9.375	8.125	.4375 (12)	.1345

### ANSI Flange\*

O.D.	B.C.	Holes	Thick
7.5	6	.75 (4)	.5
8	7.5	.75 (8)	.5
11	9.5	.875 (8)	.5

\* Drilling dimensions only

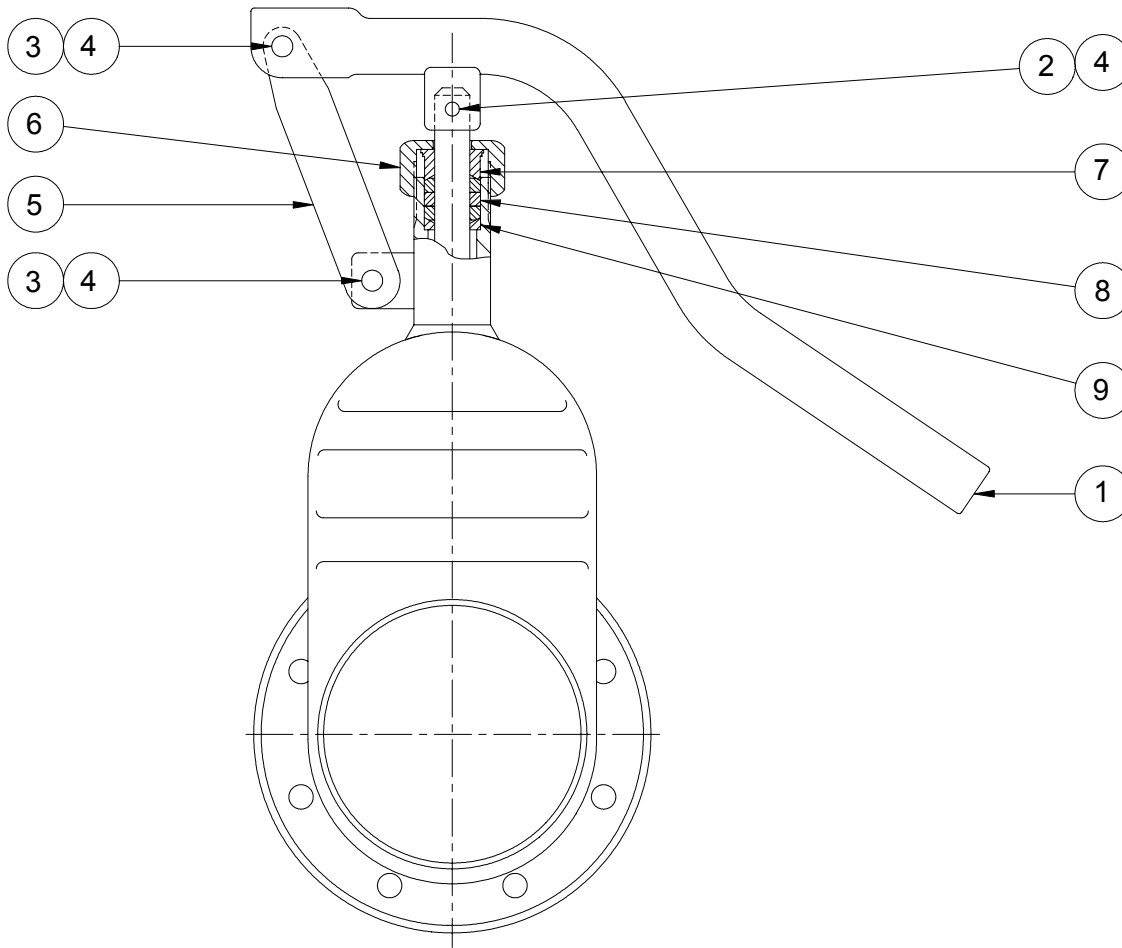
### Max Working Pressure

75 PSI
75 PSI
50 PSI



# Betts™ Sliding Valve

## Quick opening, stainless steel gates, bubble tight seal!



### Replacement Parts

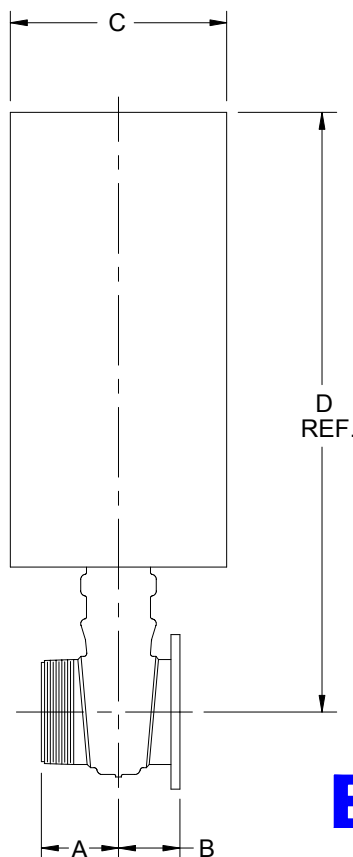
Location	Description	Req'd	Material	3" & 4" Valve Part No.	6" Valve Part No.
1	Handle	1	Steel "E" Coated	<b>35131EY</b>	<b>26764EY</b>
2	Clevis Pin (.25 x 1.25)	1	Steel Zinc Pit.	<b>9Q4728</b>	<b>9Q4728</b>
3	Clevis Pin-Link	2	Steel "E" Coated	<b>15757EY</b>	<b>15757EY</b>
4	Cotter Pin (3/32 x 3/4)	3	Brass	<b>9Q5865</b>	<b>9Q5865</b>
5	Link	1	Steel "E" Coated	<b>17446EY</b>	<b>17903EY</b>
6	Stuffing Box Nut	1	Aluminum	<b>15026AL</b>	<b>15026AL</b>
			304 Stainless Steel	<b>16026SL</b>	<b>15026SL</b>
7	Top Gland	1	316 Stainless Steel	<b>15220SS</b>	<b>15220SS</b>
8	Packing	Set	Non-Asbestos/Teflon	<b>15227NT</b>	<b>15227NT</b>
9	Bottom Gland	1	316 Stainless Steel	<b>15076SS</b>	<b>15076SS</b>

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

# Betts™ Sliding Valve

## Hydraulic operated, spring closed!

### US Patent No. 4,709,901



The Betts™ Hydraulically Operated Sliding Valve is standard with a stainless steel gate to provide a positive seal for pressure or vacuum service. Fusible and Frangible Plugs may be installed in the hydraulic system for remote and heat actuated closing.

**Available in 4" and 6"**

**CAUTION:** Do not attempt to disconnect or replace springs. Doing so could result in injury. Packing can be replaced and cylinders changed without disconnecting springs.

**Betts™** INDUSTRIES, INC.  
WARREN, PA

TTMA Drilling					ANSI Drilling				
Size	Material	Assembly No. Flanged x Flanged	Wt.	Assembly No. Flanged x Thread	Wt.	Assembly No. Flanged x Flanged	Wt.	Assembly No. Flanged x Thread	Wt.
4"	Steel	SV46206MSM	73	SV46214MSM	72.5	SV46235MSM	75	SV46219MSM	74.5
	316 SS	SV46206SSM		SV46214SSM		SV46235SSM		SV46219SSM	
6"	Steel	WV46207MSM	91	SV46215MSM	88.5	SV46233MSM	92.5	SV46220MSM	90
	316 SS	SV46207SSM		SV46215SSM		SV46233SSM		SV46220SSM	

Dimensions					TTMA Flange				ANSI Flange*				Max Working Pressure	
Size	A	B	C	D	O.D.	B.C.	Holes	Thick	O.D.	B.C.	Holes	Thick		
4"	3.3125	2.625*	9.375	25.875	6.625	5.875	.4375 (8)	.375	9	7.5	.75 (8)	.5	75 PSI	
6"	5.125	4	9.375	29.25	9	8.125	.4375 (12)	.5	11	9.5	.875 (8)	.5	75 PSI	

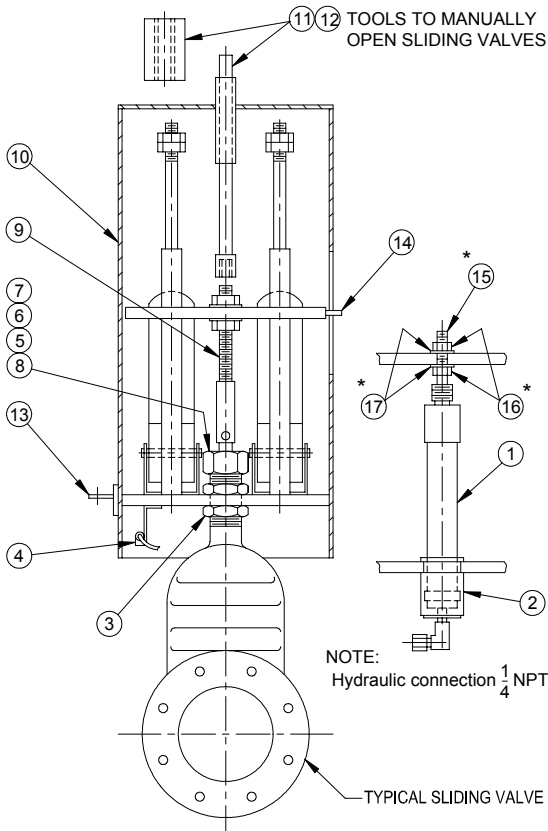
\* ANSI Dimension: 3.5

\* Drilling dimensions only

# Betts™ Sliding Valve

## Hydraulic operated, spring closed!

### US Patent No. 4,709,901



### Replacement Parts

Loc.	Description	Req	Material	3" & 4" Valve Part No.	6" Valve Part No.
1	Cylinder Assembly	2	Steel	18668MS	18656MS
2	Cylinder Support Asmbly	2	Steel "E" Coated	18398EY	18418EY
3	Jam Nut-Stuffing Box	2	304 SS	18384SL	18384SL
4	Bracket & "T" Assembly	1	Steel	18628MS	18628MS
5	Bottom Gland	1	316 SS	15076SS	15076SS
6	Packing Set	Set	Non-Asb/Tef	15227NT	15227NT
7	Top Gland	1	316 SS	15220SS	15220SS
8	Stuffing Box Nut	1	304 SS	15026SL	15026SL
9	Shaft Connector	1	Steel "E" Coated	18633EY	18633EY
10	Can Assembly	1	Steel "E" Coated	35081EY	35078EY
11	Nut-Manual Open Tool	1	Aluminum	18638AL	18638AL
12	Shaft-Manual Open Tool	1	Brass	27085BR	27085BR
13	Mounting Bracket	2	Steel "E" Coated	26995EY	26995EY
14	Indicator Pin	1	Steel	18422MS	18422MS
15	Cylinder Adjust Screw	2*	Steel	18397MS	18397MS
16	5/16-24 Hex Nuts	2*	Steel	9Q5808	9Q5808
17	5/16 Flat Washers	2*	Steel	9Q5846	9Q5846

#### PROCEDURE TO CHANGE HYDRAULIC CYLINDERS

Remove stroke indicator pin (#14), mounting bracket (#13), and can assembly (#10). Loosen two jam nuts holding cylinder shaft to top plate. Disconnect hydraulic tube from "T" assembly to cylinder. Pull cylinder assembly (#1) and cylinder support (#2) straight out to remove. Reverse procedure to install new cylinders.

#### PROCEDURE TO INSTALL NEW PACKING

Follow same procedure for changing hydraulic cylinder. Loosen the two nuts on shaft connector at top and bottom of plate. Remove the top nut and thread bottom nut down shaft connector as far as it will go. Remove nut and bolt used to fasten shaft connector (#9) to valve stem. Tap shaft connector up off valve stem, pull to side and down to remove. If Teflon sleeve is present inside top plate, leave on shaft when removing. Remove stuffing box nut (#8) with a 1 5/8" socket wrench. Remove top gland (#7) and repack stuffing box. Reverse procedure to reassemble.

#### REQUIRED ADJUSTMENT IF SEAL BECOMES LOOSE FROM USE

Loosen top nut only at center of plate. Tap shaft with "soft" hammer to firmly seat valve. Tighten bottom nut until there is 1.25" of space between the four post spacer and the underside of top plate. Retighten top nut and finish reassembling. *NOTE: Seat adjustment should be done when changing a cylinder or repacking the valve.*

#### PROCEDURE TO MANUALLY OPEN VALVE

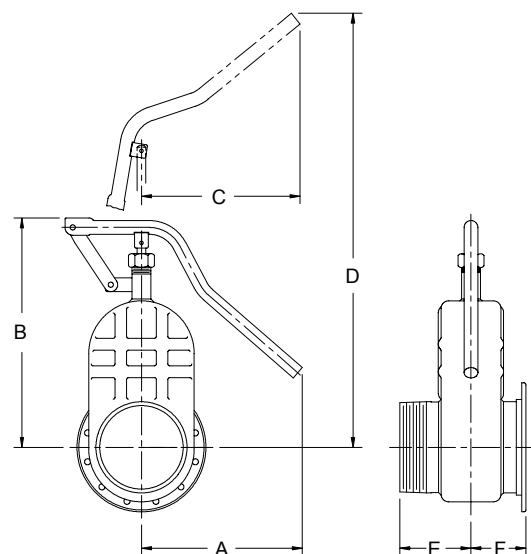
Remove plastic plug in top center of can assembly (#10). Position female thread end of shaft (#12) through hole and thread onto shaft connector (#9) approximately 1.75". Thread nut (#11) onto end of shaft and tighten until valve opens. Valve can be opened approximately 3".

# Betts™ Sliding Valve

## With replaceable O-ring seat

The Betts™ Sliding Valve is an economical means of providing a quick opening, quick closing valve where high working pressure will not be encountered. All valves are standard with stainless steel gates which provide a bubble tight seal.

**Available in 4" and 6"**



### TTMA Drilling

Size	Assembly No. Flanged x Flanged	Material	Wt.
4"	SV804 MSTs	Steel	14.9
	SV804 SSTs	316 Stainless	
6"	SV806MSTs	Steel	32.5
	SV806SSTs	316 Stainless	

Size	Assembly No. Flanged x Threaded	Material	Wt.
4"	SV814 MSTs	Steel	14.1
	SV814 SSTs	316 Stainless	
6"	SV816 MSTs	Steel	30.0
	SV816 SSTs	316 Stainless	

### ANSI Drilling

Size	Assembly No. Flanged x Flanged	Material	Wt.
4"	SV854 MSTs	Steel	24.5
	SV854SSTs	316 Stainless	
6"	SV856 MSTs	Steel	46.0
	SV856 SSTs	316 Stainless	

Size	Assembly No. Flanged x Threaded	Material	Wt.
4"	SV864 MSTs	Steel	20.0
	SV864 SSTs	316 Stainless	
6"	SV866 MSTs	Steel	40.0
	SV866 SSTs	316 Stainless	

### Dimensions

Size	A	B	C	D	E	F
4"	9.625	13	8.1875	24.437	3.3125	2.625*
6"	11.687	16.687	11.562	31.562	5.0625	4

\* ANSI Dimension: 3.4375

#### TTMA Flange

O.D.	B.C.	Holes	Thick
7.125	5.875	.4375 (8)	.1345
9.375	8.125	.4375 (12)	.1345

#### ANSI Flange\*

O.D.	B.C.	Holes	Thick
9	7.5	.75	.5
11	9.5	.875	.5

\* Drilling dimensions only

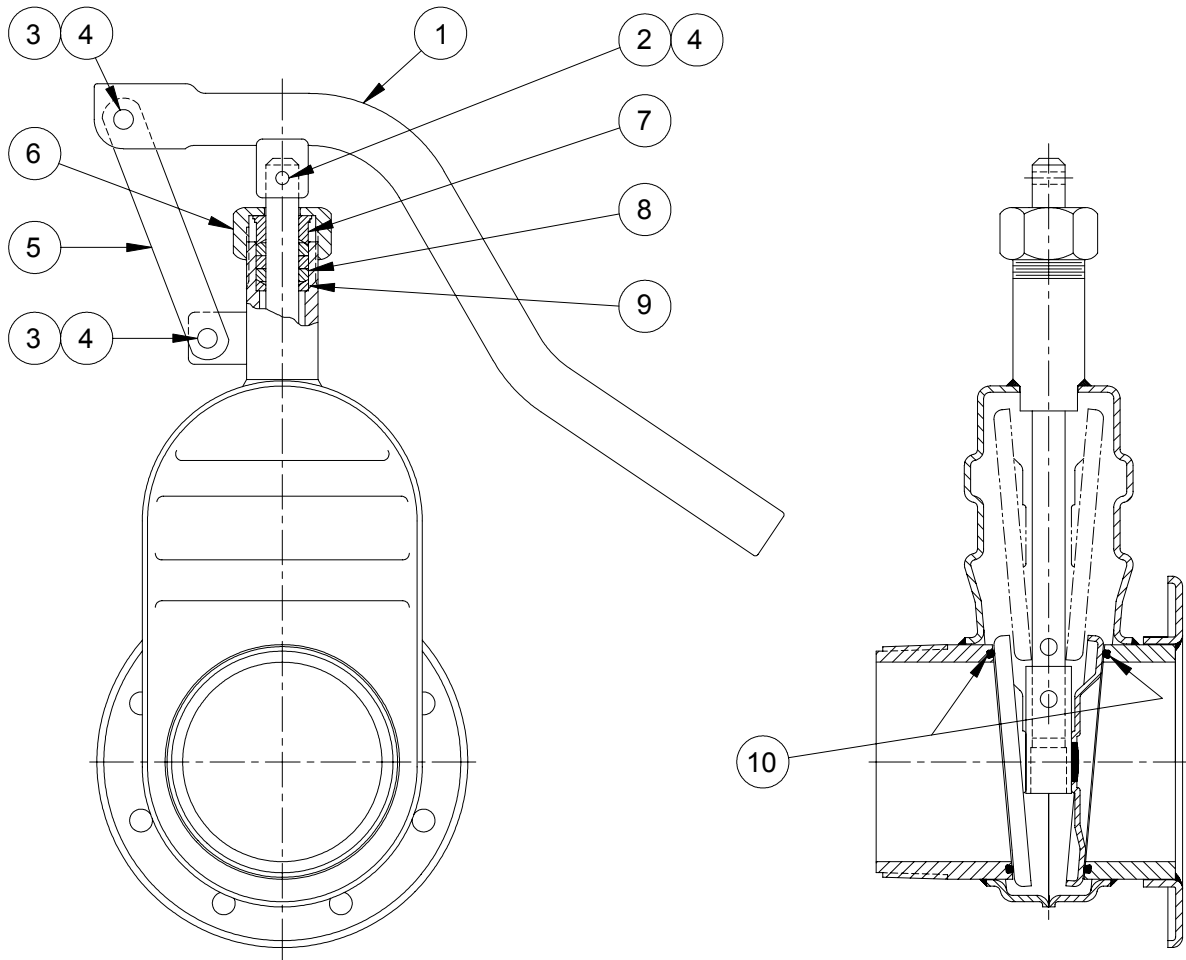
#### Max Working Pressure

75 PSI
50 PSI



# Betts™ Sliding Valve

## With replaceable O-ring seat



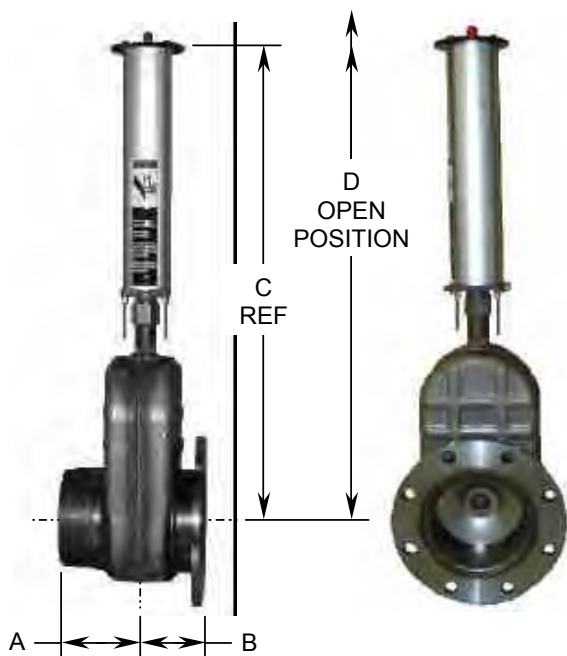
### Replacement Parts

Location	Description	Req'd	Material	4" Valve Part No.	6" Valve Part No.
1	Handle	1	Steel "E" Coated	<b>35131EY</b>	<b>26764EY</b>
2	Clevis Pin (.25 x 1.25)	1	Steel Zinc Pit.	<b>9Q4728</b>	<b>9Q4728</b>
3	Clevis Pin-Link	2	Steel	<b>15757MS</b>	<b>15757MS</b>
4	Cotter Pin (3/32 x 3/4)	3	Brass	<b>9Q5865</b>	<b>9Q5865</b>
5	Link	1	Steel "E" Coated	<b>19889EY</b>	<b>19900EY</b>
6	Stuffing Box Nut	1	Aluminum	<b>15026AL</b>	<b>15026AL</b>
			304 Stainless Steel	<b>15026SL</b>	<b>15026SL</b>
7	Top Gland	1	316 Stainless Steel	<b>15220SS</b>	<b>15220SS</b>
8	Packing	Set	Non-Asbestos/Teflon	<b>15227NT</b>	<b>15227NT</b>
9	Bottom Gland	1	316 Stainless Steel	<b>15076SS</b>	<b>15076SS</b>
10	O-ring	2	Tef-Sil	<b>19430TS</b>	<b>19428TS</b>

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

# Pneumatic Sliding Valve

## With replaceable O-ring seat



The Betts™ Pneumatic sliding valve is standard with 316 stainless steel gates and stem, and replaceable Teflon® encapsulated O-ring seats to provide a positive seal for pressure or vacuum service. A fusible plug is installed in air cylinder to dump air pressure in case of a fire.

The aluminum air cylinder has a working temperature range of -40°F to 250°F. The fusible plug is set to melt at 212°F. The valve body has a working temperature range of -40°F to 400°F. 90 PSI line pressure is required to fully open valve.

- **Air Open / Spring Close**
- **Teflon® Encapsulated Seats**
- **TTMA, ANSI, or Sump Flange**

TTMA Drilling						ANSI Drilling			
SizeMaterial		Assembly No. Flanged x FlangedWt.		Assembly No. Flanged x ThreadWt.		Assembly No. Flanged x FlangedWt.		Assembly No. Flanged x ThreadWt.	
4"	Steel	SV704MSTS	17	SV714MSTS	16	SV754MSTS	27	SV764MSTS	22
	316 SS	SV704SSTS		SV714SSTS		SV754SSTS		SV764SSTS	
6"	Steel	SV706MSTS	35	SV714MSTS	32	SV756MSTS	48	SV766MSTS	42
	316 SS	SV706SSTS		SV714SSTS		SV756SSTS		SV766SSTS	

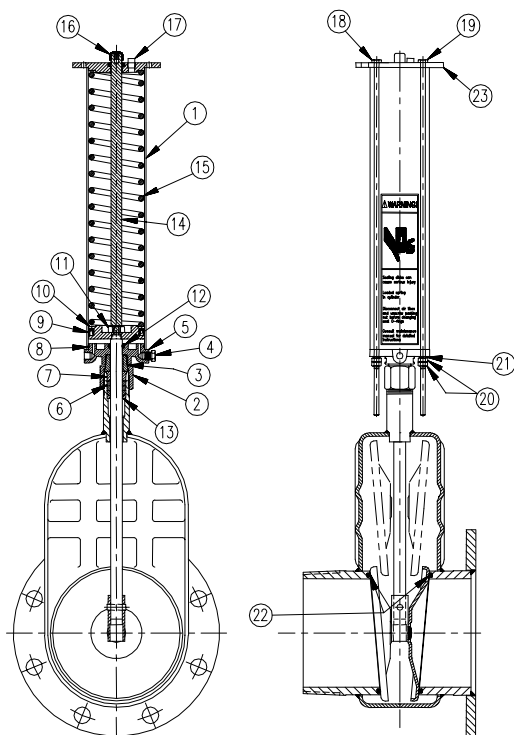
SizeMaterial		TTMA Flange x ANSI FlangeWt.		Sump Flange x TTMA FlangeWt.		Sump Flange x Sump FlangeWt.		Sump Flange x ANSI FlangeWt.	
4"	Steel	SV774MSTS	22	SV734MSTS	22	SV724MSTS	27	SV744MSTS	27
	316 SS	SV774SSTS		SV734SSTS		SV724SSTS		SV744SSTS	
6"	Steel	SV776MSTS	42	SV736MSTS	42	SV726MSTS	48	SV746MSTS	48
	316 SS	SV776SSTS		SV736SSTS		SV726SSTS		SV746SSTS	

Dimensions					TTMA Flange				ANSI Flange*				Sump Flange				Max Working Pressure
Size	A	B	C	D	O.D.	B.C.	Holes	Thick	O.D.	B.C.	Holes	Thick	O.D.	B.C.	Holes	Thick	
4"	3.3125	2.625*	26.875	31.875	7.125	5.875	.4375 (8)	.135	9	7.5	.75 (8)	.5	9	7.25	.625 (8)	.5	50 PSI
6"	5.0625	4	37.75	30.375	9.375	8.125	.4375 (12)	.135	11	9.5	.875 (8)	.5	11	9.25	.625 (12)	.5	50 PSI

\* ANSI and Sump Dimension: 3.5

\* Drilling dimensions only

# Pneumatic Sliding Valve



**CAUTION:** Air cylinder contains a loaded spring. Do not attempt to change seat O-rings without detaching air cylinder from valve body.

## Replacement Parts

Loc.	Description	Req	Material	3" & 4" Valve Part No.
1	Cylinder Tube	1	Alum-Hardcoat ID	<b>75202AL</b>
2	Packing Nut	1	303 SS	<b>75192SL</b>
3	Swivel Insert	1	303 SS	<b>75193SL</b>
4	Fusible Plug	1	Brass	<b>FP15003BR</b>
5	Cylinder Endplate	1	Aluminum	<b>75191AL</b>
6	Packing Set (3 pcs)	Set	Non-Asb/Teflon	<b>15227NT</b>
7	Top Glank	1	316 SS	<b>C15220SS</b>
8	Endplate O-Ring	1	Buna-N	<b>17666BN</b>
9	Piston Seal	1	Buna-N	<b>17669BN</b>
10	Piston	1	ALuminum	<b>75201AL</b>
11	Piston Nut	1	Steel Z.P.	<b>9Q5910</b>
12	Shaft Seal	1	Buna-N	<b>18066BN</b>
13	Bottom Gland	1	316 SS	<b>C15076SS</b>
14	Indicator Rod	1	Aluminum	<b>75249AL</b>
15	Main Spring	1	Steel "E" Coated	<b>75197EY</b>
16	Indicator Cap	1	Vinyl	<b>9Z6180</b>
17	Vent Plug	1	Brass	<b>9Z4895</b>
18	Short Tie Bolt	2	304 SS	<b>75230SL</b>
19	Long Tie Bolt	2	304 SS	<b>75230SL</b>
20	Hex Nut	8	Brass	<b>9Q5038</b>
21	Lock Washer	4	304 SS	<b>9Q5844</b>
22	Seat O-Ring (4" Valve)	2	Tef. Encap. Silicone	<b>19430TS</b>
	Seat O-Ring (6" Valve)			<b>19428TS</b>
23	Cylinder Endplate	1	Aluminum "E" Coat	<b>75200ALEY</b>

## INSTALLATION NOTES

To prevent fatigue in the air cylinder neck or rotation of the air cylinder, the air cylinder must be properly supported by bolting the air cylinder end plate (#23) to a rigid bracket directly connected to the same support member as the valve. When mounting valve, make sure there is sufficient clearance to allow the indicator pin to project beyond the air cylinder end plate and clearance for the air cylinder to be slid outward to change the valve seat O-rings.

## PROCEDURES TO CHANGE SEAT O-RINGS

Disconnect air line. Unscrew packing nut (#2). Open valve by pulling air cylinder away from valve. It may be necessary to use a small rubber hammer to tap lower air cylinder end plate (#5) to free the disks. **CAUTION:** Air cylinder must be completely detached prior to replacing O-rings or sever injury could result. Remove old O-rings and snap new O-rings into the grooves. Heating the new O-rings in hot water will ease installation. Close valve by pushing air cylinder back into the body. It may be necessary to use a rubber hammer to tap upper cylinder end plate (#23) to seat the disks. Screw packing nut into valve body.

## PROCEDURE TO ADJUST STEM PACKING

Valve stem packing should be checked on a weekly basis. Using a wrench or pliers, tighten packing nut (#2) to 25 ft-lbs. Do not over tighten. Check valve for proper functioning. If valve sticks or does not operate, loosen packing nut slightly and check operation again. Replace packing if necessary.

## PROCEDURE TO MANUALLY OPEN VALVE

Disconnect air line. Remove indicator cap (#16) and unscrew indicator pin (#14). Thread a piece of 5/16-18 all-thread rod at least 15" long through end plate (#23) and into valve stem. Put a flat washer over the all-thread rod against the end plate then screw a nut into the rod. Tighten nut to open valve. **CAUTION:** This technique is to be used only for emergencies. Do not use this technique to service valve.

# Brass Valves

## Pressure and Vacuum Relief Valves

### Brass Pressure Valves

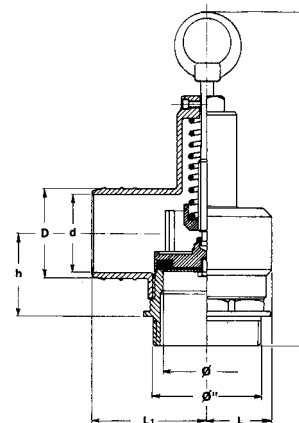


#### Features

- Durable brass construction
- Sizes range from 1.25"-2"
- Pressure range of 155-300 CFM
- Fully adjustable

#### Dimensions

	1.25"	1.5"	2"
Ø"	1.26"	1.57"	1.9"
d	1.3"	1.46"	1.7"
D	1.54"	1.73"	1.93"
h	1.8"	1.93"	2.01"
H	7.7"	7.7"	7.7"
L	1.1"	1.18"	1.42"
L1	1.13"	2.36"	2.52"



### Brass Pressure Valves

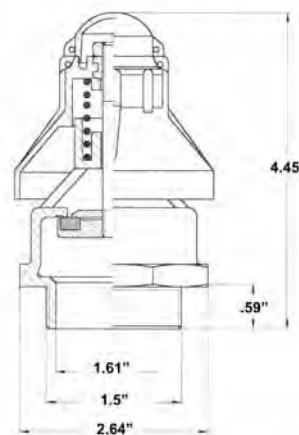
Part Number	Description	Weight
PRV-125	1.25" Brass Pressure Valve (155 CFM)	2 lbs
PRV-150	1.5" Brass Pressure Valve (230 CFM)	2 lbs
PRV-200	2" Brass Pressure Valve (300 CFM)	3 lbs
1050-0001 MZ	Replacement Ring	n/a



### Brass Vacuum Relief Valves

#### Features

- Durable brass construction
- Available in 1.5" size
- Rated at 370 CFM flow
- Adjustable



### Brass Vacuum Relief Valves

Part Number	Description	Weight
VPV-150	1.5" Brass Vacuum Relief Valve (379 CFM)	1 lb
1035-0001 MZ	Replacement Cap	n/a

# Brass Valves

## Valve Settings

### Pressure Valve Settings

After having released the anti-rotation screw (pos. 1) it is sufficient to wheel the upper ring (pos. 3) to increase (clockwise rotation) or decrease (anti-clockwise rotation) the setting pressure.

When you have reached the desired pressure, you must verify that the arrow on the stem (pos. 2) lines up to the anti-rotation screw (pos. 1). On the contrary it is necessary to wheel lightly the upper ring till you reach the exact correspondence. At last you have to screw completely the anti-rotation screw (pos. 1) and the setting is completed.

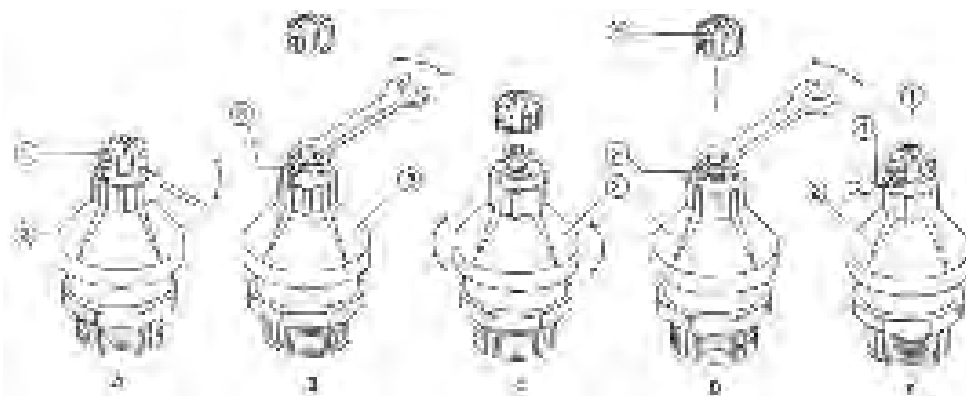
**ATTENTION:** When setting is over, please verify that the stem can wheel, but can only slide vertically. **DO NOT REPLACE** for no motivations, the standard anti-rotation screw with other types or blocking systems; use exclusively Metaltecnica spare parts.



• **10 PSI Max**

*In case of lack of directions from the Customer, the safety valves are delivered without settings. In this case the setting will be done by the person who installs the valve according to the below stated proceedings.*

### Vacuum Relief Settings



- **Liquid Cooled - 22"**
- **Air Cooled - 18"**

and turn counter-clockwise to reduce it. During this operation, it is necessary to avoid the rotation of the stem acting with a screwdriver in the special incision that you find in the stem.

**A)** Take off cover (1) from the adjusting bell (2) by using the point of a screwdriver in the special incision.

**B)** Loosen the stop set nut (3) by firmly holding the adjusting bell (2).

**C)** Regulate the pressure on the spring by turning the adjusting bell (2). Turn clockwise to increase the pressure

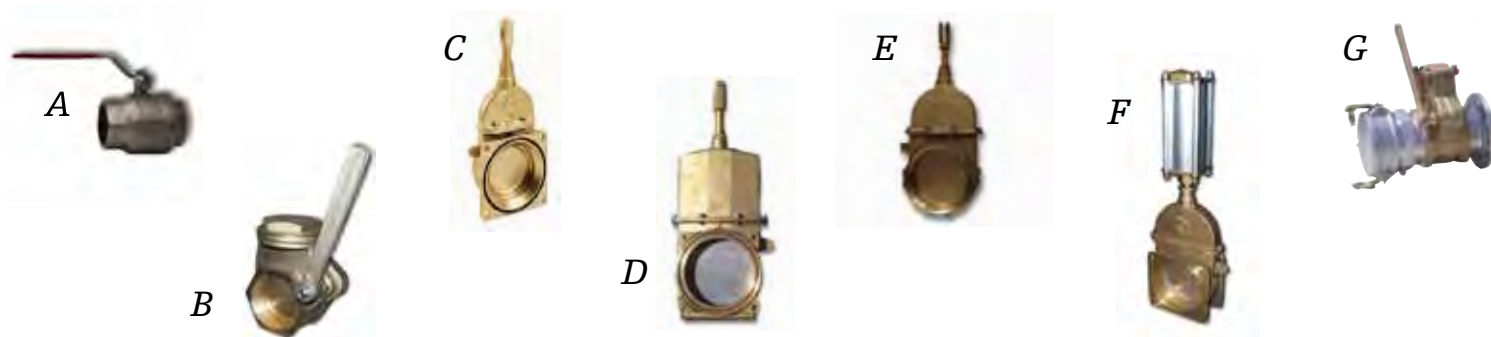
**D)** As soon as the regulation is completed, screw the stop set nut again (3) by firmly holding the adjusting bell (2). The set nut must be screwed with a screwing torque of 10 nm (at last). Insert the cover (1) with pressure on the adjusting bell (2).

**E)** Put the setting-seal by tying with a wire (4) the cover (1) and the adjusting bell (2), and apply the plumbing.



# Brass Valves

## Reference Sheet



### A - Brass Ball Valve (Female NPT x Female NPT, Full Open Port)

Part Number	Description	Wt.
VLV-2008	2" w/ Female NPT x Female NPT	8 lbs
VLV-38	3" w/ Female NPT x Female NPT	11 lbs
VLV-48	4" w/ Female NPT x Female NPT	20 lbs
VLV-1-8	1" w/ Female NPT x Female NPT	1.5 lbs

### B - Brass Lever Valve (Quick Opening)

Part Number	Description	Wt.
1039-0000 MZ	2" w/ Female NPT x Female NPT	4 lbs
1040-0000 MZ	3" w/ Female NPT x Female NPT	9 lbs
1041-0000 MZ	4" w/ Female NPT x Female NPT	15 lbs
1060-0000 MZ	1" w/ Female NPT x Female NPT	23 lbs

### C - 4 Bolt Flange X Female NPT Brass Piston Valve

Part Number	Description	Wt.
2003-0060 MZ	4" w/ Flange x Female NPT	13 lbs
2003-0061 MZ	4" w/ Flange x Female NPT w/ Air Cylinder	21 lbs
2002-0060 MZ	6" w/ Flange x Female NPT	20 lbs
2002-0061 MZ	6" w/ Flange x Female NPT w/ Air Cylinder	28 lbs
2002-0062 MZ	6" w/ Flange x Female NPT w/ Hyd. Cylinder	28 lbs

### D - 4 Bolt Flange X Female NPT Brass Piston Valve

Part Number	Description	Wt.
2104-0000 MZ	4" w/ 4 Bolt Flange, SS Disc, 60 PSI Rating	15 lbs
2104-1000 MZ	4" w/ 4 Bolt Flange, SS Disc, Air Cylinder	22 lbs
2104-1001 MZ	4" w/ 4 Bolt Flange, SS Disc, Hyd. Cylinder	22 lbs
2106-0000 MZ	6" w/ 4 Bolt Flange, SS Disc, 60 PSI Rating	23 lbs
2106-1000 MZ	6" w/ 4 Bolt Flange, SS Disc, Air Cylinder	31 lbs
2106-1001 MZ	6" w/ 4 Bolt Flange, SS Disc, Hyd. Cylinder	31 lbs

### E - Brass Piston Valve (Female NPT x Female NPT)

Part Number	Description	Wt.
1045-0000 MZ	4" w/ Female NPT x Female NPT	13 lbs
1045-0010 MZ	4" w/ Female NPT x Female NPT, Air Cylinder	21 lbs
1045-0011 MZ	4" w/ Female NPT x Female NPT, Hyd. Cylinder	21 lbs
1046-0000 MZ	6" w/ Female NPT x Female NPT	20 lbs
1046-0010 MZ	6" w/ Female NPT x Female NPT, Air Cylinder	29 lbs
1046-0011 MZ	6" w/ Female NPT x Female NPT, Hyd. Cylinder	29 lbs
2001-0000 MZ	4" w/ BSPT Female x BSPT Female Threads	13 lbs
2000-0000 MZ	6" w/ BSPT Female x BSPT Female Threads	20 lbs

### F - Brass Piston Valve (4 Bolt Flange x 4 Bolt Flange)

Part Number	Description	Wt.
2003-0000 MZ	4" w/ 4 Bolt Flange x Flange	13 lbs
2003-0010 MZ	4" w/ 4 Bolt Flange x Flange w/ Air Cylinder	21 lbs
2003-0011 MZ	4" w/ 4 Bolt Flange x Flange w/ Hyd. Cylinder	21 lbs
2002-0000 MZ	6" w/ 4 Bolt Flange x Flange	19 lbs
2002-0010 MZ	6" w/ 4 Bolt Flange x Flange w/ Air Cylinder	28 lbs
2002-0011 MZ	6" w/ 4 Bolt Flange x Flange w/ Hyd. Cylinder	28 lbs
2008-0000 MZ	8" w/ 4 Bolt Flange x Flange	40 lbs
2008-1000 MZ	8" w/ 4 Bolt Flange x Flange w/ Air Cylinder	50 lbs
2008-1001 MZ	8" w/ 4 Bolt Flange x Flange w/ Hyd. Cylinder	50 lbs

### G - TTMA Lever Valve Flange Assembly (for Alum. Tanks)

Part Number	Description
1040-1000 MZ	3" TTMA Lever Flange Assembly
Assembly: Flange (30TTANPT), Coupling (30F), Dust Cap (30DC), Lever Valve (1040-0000 MZ)	
1041-1000 MZ	4" TTMA Lever Flange Assembly
Assembly: Flange (40TTANPT), Coupling (40F), Dust Cap (40DC), Lever Valve (1041-0000 MZ)	
1060-1000 MZ	6" TTMA Lever Flange Assembly
Assembly: Flange (60TTANPT), Coupling (60F), Dust Cap (60DC), Lever Valve (1060-0000 MZ)	

# Pump Drive Components

## Couplings and Gearboxes

The pump coupling is located between the pump and the gearbox. It is designed as a safety measure in that it will shear in the event of a pump seizure. It protects both the pump and the gearbox.

### Vacuum Pump Couplings

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>Build your own coupling!</b>		
<b>CPLW-916</b>	1" Flange Size 9 with .25" Keyway	8.5 lbs
<b>CPLW-920</b>	1.25" Flange Size 9 with .25" Keyway	8.5 lbs
<b>CPLW-922-2</b>	1.375" Flange Size 9 with 5/16" Keyway	8.5 lbs
<b>CPLW-1020</b>	1.25" Flange Size 10 with .25" Keyway	38 lbs
<b>CPLW-1022-2</b>	1.375" Flange Size 10 with 5/16" Keyway	34 lbs
<b>CPLW-8SJE</b>	Size 8 EPDM Rubber Protection Sleeve	1 lb
<b>CPLW-9JE</b>	Size 9 EPDM Rubber Protection Sleeve	1 lb
<b>CPLW-10SJE</b>	Size 10 EPDM Rubber Protection Sleeve	3 lbs
<b>More sizes available. Call for details.</b>		



**Flex Coupler**

This heavy duty constructed 3-shaft gearbox is made to accomodate CW or CCW rotation of the vacuum pump. It features bi-rotational angle drive, heavy duty gears, and a 1" or 1.25" output shaft.



### 3-Shaft Gearboxes

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>GBX-20-3</b>	3-Shaft Gearbox 1-1 Ratio, 400 Series with 1.25" Shaft	29 lbs
<b>1006-1500</b>	3-Shaft Gearbox 1-1.5 Ratio, 400 Series with 1.25" Shaft	29 lbs
<b>GBX-20-321</b>	3-Shaft Gearbox 1-2 Ratio, 400 Series with 1.25" Shaft	29 lbs
<b>GBX-16-3</b>	3-Shaft Gearbox 1-1 Ratio, 200 Series with 1" Shaft	13 lbs
<b>1009-1500</b>	3-Shaft Gearbox 1-1.5 Ratio, 200 Series with 1" Shaft	13 lbs
<b>GBX-6-321</b>	3-Shaft Gearbox 2-1 Ratio, 200 Series with 1" Shaft	13 lbs

# Kanaflex Hose

**NOTE:** This hose was not designed for bulk handling such as unloading of rail cars.



## Features

- Lightweight and flexible
- External helix provides for easy drag
- Resistant to agricultural chemicals

## 300 EPDM (temperature range: -40° to 140° F)

I.D.	O.D.	Pitch	Min. Bend Radius	Working Pressure	Bursting Pressure	Vacuum Rating	Weight
1"	1.34"	.3"	1.9"	50 PSI	220 PSI	29.8 in/Hg	.23 lbs/ft
1.25"	1.65"	.33"	3.2"	50 PSI	220 PSI	29.8 in/Hg	.34 lbs/ft
1.5"	1.84"	.35"	3.2"	50 PSI	220 PSI	29.8 in/Hg	.4 lbs/ft
2"	2.43"	.39"	5.2"	50 PSI	190 PSI	29.8 in/Hg	.67 lbs/ft
2.5"	2.94"	.56"	5.6"	50 PSI	190 PSI	29.8 in/Hg	.92 lbs/ft
3"	3.52"	.59"	7.1"	43 PSI	150 PSI	29.8 in/Hg	1.1 lbs/ft
4"	4.61"	.65"	11"	38 PSI	140 PSI	29.8 in/Hg	1.84 lbs/ft
6"	6.69"	.87"	20"	23 PSI	100 PSI	28 in/Hg	3.07 lbs/ft

Heavy duty liquid suction hose for use in construction dewatering, liquid waste, cesspool cleaning, septic handling, agricultural applications, and marine use.

Constructed of durable EPDM rubber with a polyethylene helix, smooth bore, and corrugated O.D.



## Features

- Lightweight and flexible
- Static dissipating with no grounding wire
- Extremely abrasion resistant

## 180 AR (temperature range: -40° to 140° F)

I.D.	O.D.	Pitch	Min. Bend Radius	Working Pressure	Bursting Pressure	Vacuum Rating	Weight
1.25"	1.57"	.33"	2"	45 PSI	150 PSI	29.8 in/Hg	.31 lbs/ft
1.5"	1.82"	.35"	2"	45 PSI	150 PSI	29.8 in/Hg	.37 lbs/ft
2"	2.35"	.39"	2.5"	40 PSI	130 PSI	29.8 in/Hg	.5 lbs/ft
2.5"	2.87"	.56"	2.5"	35 PSI	115 PSI	29.8 in/Hg	.88 lbs/ft
3"	3.5"	.59"	3"	35 PSI	115 PSI	29.9 in/Hg	1.1 lbs/ft
3.5"	4.11"	.64"	4"	30 PSI	100 PSI	29.9 in/Hg	1.35 lbs/ft
4"	4.63"	.65"	4.5"	30 PSI	100 PSI	29.8 in/Hg	1.77 lbs/ft
5"	5.63"	.87"	5"	30 PSI	100 PSI	28 in/Hg	2.47 lbs/ft
6"	6.73"	.87"	9.2"	30 PSI	100 PSI	28 in/Hg	3.08 lbs/ft
7"	7.83"	.87"	14"	30 PSI	100 PSI	27 in/Hg	4.10 lbs/ft
8"	9.04"	.91"	15"	30 PSI	100 PSI	27 in/Hg	5.65 lbs/ft
10"	11.26"	1"	30"	28 PSI	80 PSI	25 in/Hg	8.88 lbs/ft
12"	13.39"	1.18"	40"	25 PSI	80 PSI	25 in/Hg	10.43 lbs/ft

Heavy duty abrasion resistant suction hose for vacuum trucks or handling abrasives such as crushed rock, sand, pea gravel, cement powder, dry fertilizer, iron ore, and grains. Constructed of SBR rubber blended with static carbon, with a rigid black PVC helix, smooth bore, and corrugated O.D.

# Level Indicators & Gauges



## Features

- Internal o-rings for positive shutoff
- Installation requires no welding
- External grease fittings
- Available with plastic or stainless steel float ball
- External indicator arrow

## Load Level Indicators

Part Number	Description	Dimensions	Weight
1091-0021	O-ring Style Load Level Indicator w/ 6" Plastic Float Ball	57.5" x 9.5"	10 lbs
1091-0022	O-ring Style Load Level Indicator w/ 6" Stainless Steel Float Ball	57.5" x 9.5"	12 lbs

## Features

- 0-30" Vacuum & 0-30 PSI
- Standard dial gauge
- Heavy duty clear lens
- .25" male NPT bottom fittings
- 2.5" or large 4" dial on liquid filled gauges



Standard Gauge

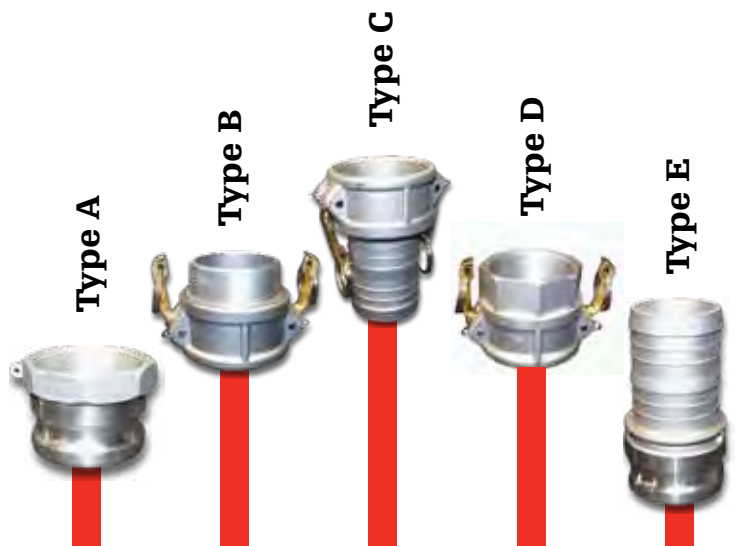


Liquid Filled Gauge

## Vacuum Pressure Gauges

Part Number	Description	Weight
1025-0001	4.5" Standard Vacuum Pressure Gauge (0-30 PSI)	1 lb
1026-0000	2.5" Liquid Filled Vacuum Pressure Gauge (0-30 PSI)	1 lb
1027-0000	4" Liquid Filled Vacuum Pressure Gauge (0-30 PSI)	2 lbs

# Aluminum Couplings



*Part Number Description*

## Type A (Male w/ Female Threads)

<b>20 A AL</b>	2" Type A (Male w/ Female Threads)
<b>30 A AL</b>	3" Type A (Male w/ Female Threads)
<b>40 A AL</b>	4" Type A (Male w/ Female Threads)
<b>60 A AL</b>	6" Type A (Male w/ Female Threads)

## Type B (Female w/ Male Threads)

<b>20 B AL</b>	2" Type B (Female w/ Male Threads)
<b>30 B AL</b>	3" Type B (Female w/ Male Threads)
<b>40 B AL</b>	4" Type B (Female w/ Male Threads)
<b>60 B AL</b>	6" Type B (Female w/ Male Threads)

## Type C (Female w/ Hose Shank)

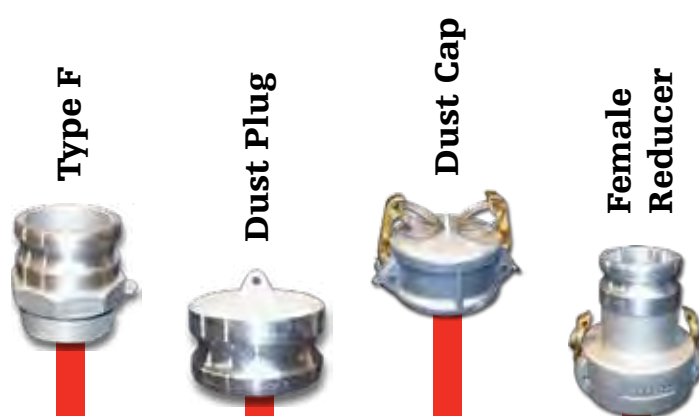
<b>20 C AL</b>	2" Type C (Female w/ Hose Shank)
<b>30 C AL</b>	3" Type C (Female w/ Hose Shank)
<b>40 C AL</b>	4" Type C (Female w/ Hose Shank)
<b>60 C AL</b>	6" Type C (Female w/ Hose Shank)

## Type D (Female w/ Female Threads)

<b>20 D AL</b>	2" Type D (Female w/ Female Threads)
<b>30 D AL</b>	3" Type D (Female w/ Female Threads)
<b>40 D AL</b>	4" Type D (Female w/ Female Threads)
<b>60 D AL</b>	6" Type D (Female w/ Female Threads)

## Type E (Male w/ Hose Shank)

<b>20 E AL</b>	2" Type E (Male w/ Hose Shank)
<b>30 E AL</b>	3" Type E (Male w/ Hose Shank)
<b>40 E AL</b>	4" Type E (Male w/ Hose Shank)
<b>60 E AL</b>	6" Type E (Male w/ Hose Shank)



*Part Number Description*

## Type F (Male w/ Male Threads)

<b>20 F AL</b>	2" Type F (Male w/ Male Threads)
<b>30 F AL</b>	3" Type F (Male w/ Male Threads)
<b>40 F AL</b>	4" Type F (Male w/ Male Threads)
<b>60 F AL</b>	6" Type F (Male w/ Male Threads)

## Dust Plug (Male)

<b>20 W AL</b>	2" Dust Plug (Male)
<b>30 W AL</b>	3" Dust Plug (Male)
<b>40 W AL</b>	4" Dust Plug (Male)
<b>60 W AL</b>	6" Dust Plug (Male)

## Dust Cap (Female)

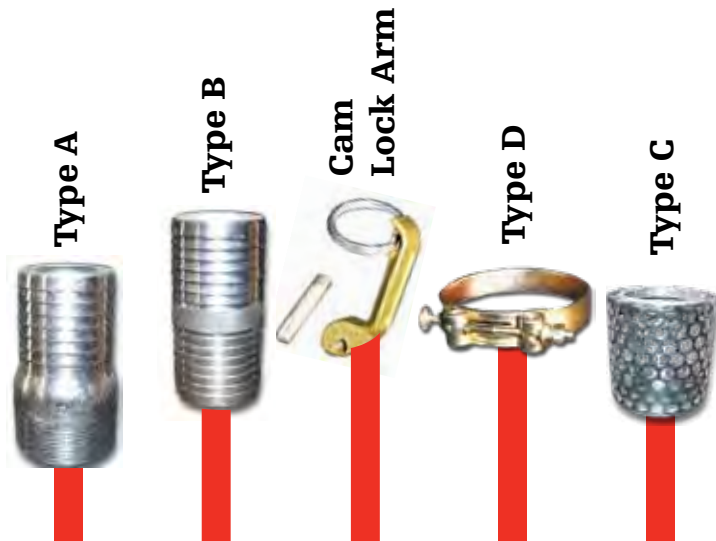
<b>20 V AL</b>	2" Dust Cap (Female)
<b>30 V AL</b>	3" Dust Cap (Female)
<b>40 V AL</b>	4" Dust Cap (Female)
<b>60 V AL</b>	6" Dust Cap (Female)

## Female Reducer

<b>30CX20A</b>	3" Female x 2" Male Reducer
<b>40CX20A</b>	4" Female x 3" Male Reducer
<b>60CX40A</b>	6" Female x 4" Male Reducer



# Coupling Accessories



Part Number Description

## Combination Nipple Shank x Male NPT \*

<b>HAA4</b>	1" Aluminum	<b>HAPS4</b>	1" Steel
<b>HAA6</b>	1.5" Aluminum	<b>HAPS6</b>	1.5" Steel
<b>HAA8</b>	2" Aluminum	<b>HAPS8</b>	2" Steel
<b>HAA12</b>	3" Aluminum	<b>HAPS12</b>	3" Steel
<b>HAA16</b>	4" Aluminum	<b>HAPS16</b>	4" Steel

## Hose Mender Shank x Shank \*

<b>HCPS8</b>	2" Hose Mender (Shank x Shank)
<b>HCPS12</b>	3" Hose Mender (Shank x Shank)
<b>HCPS16</b>	4" Hose Mender (Shank x Shank)
<b>HCPS24</b>	6" Hose Mender (Shank x Shank)

## Replacement Cam Lock Arm

<b>HB20</b>	2" Replacement Cam Lock Arm
<b>HB30</b>	3" Replacement Cam Lock Arm
<b>HB30</b>	4" Replacement Cam Lock Arm
<b>HB60</b>	6" Replacement Cam Lock Arm

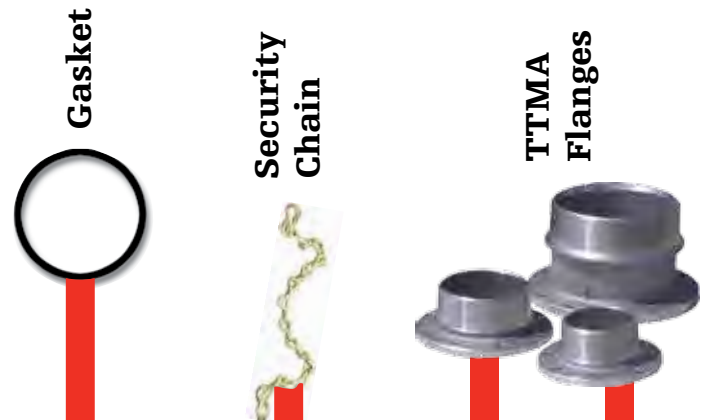
## Super Heavy Duty T-Bolt Hose Clamp

<b>STCB275</b>	2" Heavy Duty T-Bolt Hose Clamp
<b>STCB375</b>	3" Heavy Duty T-Bolt Hose Clamp
<b>STCB475</b>	4" Heavy Duty T-Bolt Hose Clamp
<b>STCB600</b>	6" Heavy Duty T-Bolt Hose Clamp

## Round Hole Strainer

<b>SHS40</b>	4" Round Hole Strainer
<b>SHS60</b>	6" Round Hole Strainer

\* Indicates that item is zinc plated steel



Part Number Description

## Replacement Gasket

<b>B05F</b>	2" Replacement Gasket
<b>B07F</b>	3" Replacement Gasket
<b>B08F</b>	4" Replacement Gasket
<b>B010</b>	6" Replacement Gasket

## Security Chain

<b>S52</b>	12" Security Chain
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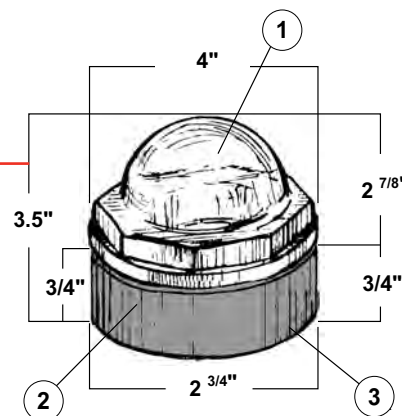
## Pipe Thread x TTMA Flange

<b>FT2AL</b>	2" Male NPT x TTMA Flange, Aluminum
<b>FT2MS</b>	2" Male NPT x TTMA Flange, Mild Steel
<b>FT32AL</b>	3" Male NPT x TTMA Flange, Aluminum
<b>FT3MS</b>	3" Male NPT x TTMA Flange, Mild Steel
<b>FT4AL</b>	4" Male NPT x TTMA Flange, Aluminum
<b>FT4MS</b>	4" Male NPT x TTMA Flange, Mild Steel
<b>FH2AL</b>	2" Female NPT x TTMA Flange, Aluminum
<b>FH2MS</b>	2" Female NPT x TTMA Flange, Mild Steel
<b>FH3AL</b>	3" Female NPT x TTMA Flange, Aluminum
<b>FH3MS</b>	3" Female NPT x TTMA Flange, Mild Steel
<b>FH4AL</b>	2" Female NPT x TTMA Flange, Aluminum
<b>FH4MS</b>	2" Male NPT x TTMA Flange, Mild Steel

# Vacuum Tank Sight Eyes

## 2", 3", & 5" Sizes Available

- Steel, Aluminum, or Stainless Steel Design
- Extra Thick Weldable Base
- Removeable Glass or Plastic Lens
- O-ring Style Seal
- High Impact Plastic Hand Wheel

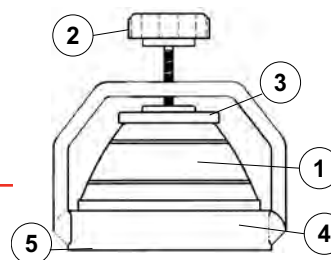
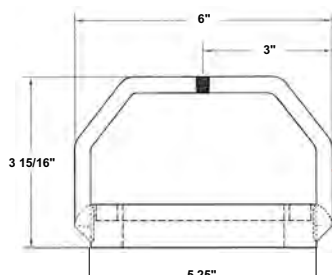


### Complete Sight Eyes

Part Number	Description	Wt.
1093-0000	2" Plastic Sight Eye, Complete, 70 PSI	.5 lbs
1093-0001	3" Plastic Sight Eye, Complete, 70 PSI	1.25 lbs
1092-0000	5" Glass Sight Eye, Complete, Steel, 70 PSI	5 lbs
1092-0100	5" Glass Sight Eye, Complete, Alum., 70 PSI	2.5 lbs
1093-0008	2" 304 SS Sight Eye, Complete, 70 PSI	.5 lbs
1093-0009	3" 304 SS Sight Eye, Complete, 70 PSI	1.14 lbs

### 2" & 3" Sight Eye Replacement Parts

No.	Part No.	Description
1	1093-0002	2" Glass & O-Ring
1	1093-0003	3" Glass & O-Ring
2	1093-0004	2" Weldment Base
2	1093-0005	3" Weldment Base
2	1093-0010	2" Stainless Steel Weldment Base
2	1093-0011	3" Stainless Steel Weldment Base
3	1093-0006	2" O-Ring
3	1093-0007	3" O-Ring



### 5" Steel Sight Eye Replacement Parts

No.	Part No.	Description	Weight
1	1092-0001-NS	New Style 5" Glass Bowl	.5 lbs
2	1092-0002	5" Sight Eye Hand Wheel	.25 lbs
3	1092-0003-NS	New Style 5" Sight Eye Plate	.29 lbs
4	1092-0004	5" Sight Eye Steel Weldment	3 lbs
5	1083-0000	5" Sight Eye Gasket	.06 lbs

### 5" Aluminum Sight Eye Replacement Parts

No.	Part No.	Description	Weight
1	1092-0001-NS	New Style 5" Glass Bowl	.5 lbs
2	1092-0002	5" Sight Eye Hand Wheel	.25 lbs
3	1092-0003-NS	New Style 5" Sight Eye Plate	.29 lbs
4	1092-0026	5" Sight Eye Alum. Weldment	3 lbs
5	1083-0000	5" Sight Eye Gasket	.06 lbs

# 2" & 3" Mufflers

## Easy access for cleaning muffler



### 3" & 4" Mufflers

<i>Part Number</i>	<i>Description</i>
<b>1002-0200</b>	2" Vertical Oil Catch Muffler (130 CFM) w/ 2" Tube In, 2" Tube Out
<b>1002-0400</b>	3" Vertical Oil Catch Muffler (400 CFM) w/ 3" Female NPT on Top & Side
<b>1002-0600</b>	3" Vertical Oil Catch Muffler (600 CFM) w/ 3" Tube In, 4" Tube Out

### Oil Catch Muffler Accessories

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1001-0005</b>	3" Breather Cap	1 lb
<b>1001-0006</b>	4" Breather Cap	2.25 lbs
<b>1002-0610</b>	Muffler Stack, 4" I.D. & Clamp	5 lbs
<b>1053-0001</b>	2" NPT Weldable Pipe Nipple	1 lb
<b>1051-0001</b>	3" NPT Weldable Pipe Nipple	3 lbs
<b>1052-0001</b>	4" NPT Weldable Pipe Nipple	5 lbs
<b>1002-0004</b>	4" Muffler Clamp	.75 lbs
<b>1002-0003</b>	4" x 18" Muffler Stack	3.5 lbs

# Hatches & Manways



## 12" Hatch (3 Wing Nut)

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1010-0050</b>	12" Hatch w/ 6" Steel Neck, .25" Base	40 lbs
<b>1010-0054</b>	12" Hatch w/ 12" Steel Neck, .25" Base	58 lbs
<b>1010-0056</b>	12" Stainless Hatch w/ 6" 304 SS Neck, .25"	40 lbs
<b>1010-0057</b>	12" Stainless Hatch w/ 12" 304 SS Neck, .25"	58 lbs
<b>1010-0058</b>	12" Stainless Hatch w/ 6" 6061 Alum. Neck, .25" Base	28 lbs

Features mild steel, aluminum, or stainless steel construction; gasket-in-lid design; weldable base is .25" steel, stainless steel, or aluminum; standard neck lengths of 6" or 12"; neck available in steel, stainless steel, or aluminum;



## 17" Manway (4 Wing Nut)

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1010-0060</b>	17" Manway w/ 6" Neck, 4 Wing Nut Lid, .25" Base	56 lbs
<b>1010-0064</b>	17" Manway w/ 12" Neck, 4 Wing Nut Lid, .25" Base	82 lbs

Features mild steel construction; gasket-in-lid design; weldable base is .25" steel; standard neck lengths of 6" or 12"



## 20" Manway (5 or 6 Wing Nut)

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1010-7000</b>	20" Manway w/ 6" Neck, 6 Wing Nut Lid, .25" Base	74 lbs
<b>1010-7400</b>	20" Manway w/ 12" Neck, 6 Wing Nut Lid, .25" Base	100 lbs
<b>1010-7003</b>	20" Manway 2/ 6" Neck, 5 Wing Nut Lid, LHH, .25" Base	73 lbs

Features mild steel construction; gasket-in-lid design; weldable base is .25" steel; standard neck lengths of 6" or 12"



## 20" Aluminum Manway (6 Wing Nut)

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1010-9008</b>	20" SS Manway w/ 6" Alum. Neck (Gasket-In-Lid), .25" Alum. Base	51 lbs
<b>1010-9010</b>	20" SS Manway w/ 12" Alum. Neck (Gasket-In-Lid), .25" Alum. Base	60.5 lbs
<b>1010-9032</b>	20" SS Manway w/ 6" SS Neck (Gasket-In-Lid), .25" SS Base	72 lbs
<b>1010-9033</b>	20" SS Manway w/ 12" SS Neck (Gasket-In-Lid), .25" SS Base	99.75 lbs

Features a stainless steel lid available with stainless steel or aluminum neck; gasket-in-lid design; base is .25" stainless steel or aluminum; standard neck lengths of 6" or 12"; neck available in steel, stainless steel, or aluminum

# Hatches & Manways

## 21" Manway (5 Wing Nut)

Part Number	Description	Weight
<b>Left Hand Hinge Type</b>		
1010-0024	21" Manway w/ 6" Neck, 5 Wing Nut Lid, .25" Base	76 lbs
1011-0024	21" Manway w/ 12" Neck, 5 Wing Nut Lid, .25" Base	105 lbs
<b>Right Hand Hinge Type</b>		
1010-0027	21" Manway w/ 6" Neck, 5 Wing Nut Lid, .25" Base	76 lbs
1011-0027	21" Manway w/ 12" Neck, 5 Wing Nut Lid, .25" Base	105 lbs



Features mild steel construction; gasket-in-lid design; weldable base is 21.25" O.D.; standard neck lengths of 6" or 12"; .25" steel construction; right or left hinge models available

## 21" Manway (6 Wing Nut)

Part Number	Description	Weight
1010-0020	21" Manway w/ 6" Neck, 6 Wing Nut Lid, .25" Base	56 lbs
1010-0021	21" Manway w/ 12" Neck, 6 Wing Nut Lid, .25" Base	82 lbs



Features mild steel construction; gasket-in-lid design; weldable base is .25" steel; standard neck lengths of 6" or 12"; 3/16" steel construction; right or left hinge models available

## 36" Manway (8 Wing Nut)

Part Number	Description	Weight
1012-0000	36" Manway w/ 6" Neck, 8 Wing Nut Lid, .25" Base	56 lbs
1013-0000	36" Manway w/ 12" Neck, 8 Wing Nut Lid, .25" Base	82 lbs



Features mild steel construction; gasket-in-lid design; weldable base is .25" steel; standard neck lengths of 6" or 12"

## 20" Aluminum Manway (6 Cam Levers)

Part Number	Description	Weight
1010-0030	20" Manway w/ 6" Alum. Neck, 6 Cam Lever Lid	40 lbs
1010-3012	20" Manway w/ 12" Alum. Neck, 6 Cam Lever Lid	55 lbs
1010-0031	20" Manway w/ 6" 304 SS Neck, 6 Cam Lever Lid	50 lbs
1010-0035	20" Manway w/ 6" Mild Steel Neck, 6 Cam Lever Lid	50 lbs
1010-0037	20" Manway w/ 12" Mild Steel Neck, 6 Cam Lever Lid	71 lbs



Features mild steel construction; gasket-in-lid design; weldable base is 21.25" O.D.; standard neck lengths of 6" or 12"; .25" steel construction; right or left hinge models available



# Primary Shutoffs



## 2", 3", & 4" MZ Primary Shutoff

Part Number	Description	Weight
<b>1162-0000 MZ</b>	2" Primary Shutoff, 282 CFM, Steel Weld Collar	11 lbs
<b>1162-1000 MZ</b>	2" Alum. Primary Shutoff, 282 CFM, Alum. Weld Collar	11 lbs
<b>1163-0000 MZ</b>	3" Primary Shutoff, 282 CFM, Steel Weld Collar	19 lbs
<b>1164-0000 MZ</b>	4" Primary Shutoff, 423 CFM, Steel Weld Collar	32 lbs

Features brass construction available with aluminum or steel weld collar; available in 2", 3", & 4" sizes; double ball stops all bypass.



## Steel Primary Shutoff

Part Number	Description	Weight
<b>1033-0001</b>	Steel Primary w/ 2" Opening, 130 CFM	19 lbs
<b>1034-0001</b>	Steel Primary w/ 3" Opening, 250 CFM	23 lbs

Features mild steel construction; 6 bolt flange design; weldable base is 6.5" O.D.; 4" stainless steel float ball for positive shutoff; available with 2" or 3" openings; corrosion resistant stainless steel bolt



## 12" Primary Shutoff

Part Number	Description	Weight
<b>1014-0000</b>	12" Primary w/ 6" Neck & 3" Opening, 450 CFM	57 lbs
<b>1014-0012</b>	12" Primary w/ 6" Neck & 4" Opening, 525 CFM	60 lbs
<b>1014-0015</b>	12" Primary w/ 6" Neck & 6" Threaded Opening, 950 CFM	60 lbs

Features mild steel construction; gasket-in-lid design; easy access; heavy duty zinc plated hardware; clamp-on ball seat; standard neck lengths of 6" or 12"; 6" stainless steel float ball; 8" stainless steel ball cage



## 12" Low Profile Primary Shutoff

Part Number	Description	Weight
<b>1014-0900</b>	12" Low Profile Primary, 6" Neck, 3" Pipe w/ Opening, 450 CFM	60 lbs
<b>1014-0901</b>	12" Low Profile Primary, 6" Neck, 3" NPT Threads, 450 CFM	61 lbs
<b>1014-0910</b>	12" Low Profile Primary, 6" Neck, 4" Pipe w/ Opening, 525 CFM	66 lbs
<b>1014-0911</b>	12" Low Profile Primary, 6" Neck, 4" NPT Threads, 525 CFM	67 lbs
<b>1014-0914</b>	12" Low Profile Primary, 6" Neck, 4" Pipe w/ Opening, Includes 10" Ball Cage & 8" Stainless Steel Float Ball, 950 CFM	77 lbs

Features mild steel construction; minimizes overall vacuum tank height (only 7.25" tall); weldable base is 12.25" O.D.; standard neck length of 6"; positive shutoff with 6" or 8" stainless steel float ball; easy access design; heavy duty zinc plated hardware

# Primary Shutoffs

## 12" Alum. Low Profile Primary Shutoff

Part Number	Description	Weight
<b>1014-1907</b>	12" Alum. Primary, 6" 6061 Alum. .25" Neck, 2" Hose Connection	28 lbs
<b>1014-1908</b>	12" Alum. Primary, 6" 304 SS .25" Neck, 2" Hose Connection	40 lbs
<b>1014-1910</b>	12" Alum. Primary, 6" Steel .25" Neck, 2" Hose Connection	40 lbs
<b>1014-1913</b>	12" Alum. Primary, 6" 6061 Alum. .25" Neck, 3" Hose Conn., 450 CFM	28 lbs
<b>1014-1914</b>	12" Alum. Primary, 6" 304 SS .25" Neck, 3" Hose Conn., 450 CFM	40 lbs
<b>1014-1916</b>	12" Alum. Primary, 6" Steel .25" Neck, 3" Hose Conn., 450 CFM	40 lbs
<b>1014-1918</b>	12" Alum. Primary, 6" 6061 Alum. .25" Neck, 4" Hose Conn., 525 CFM	28 lbs
<b>1014-1919</b>	12" Alum. Primary, 6" 304 SS .25" Neck, 4" Hose Conn., 525 CFM	40 lbs
<b>1014-1921</b>	12" Alum. Primary, 6" Steel .25" Neck, 4" Hose Conn., 525 CFM	40 lbs



Features mild steel, aluminum, or stainless steel construction; only 7.25" tall; positive shutoff; easy access for quick clean out; 6" stainless steel float ball; available with 2", 3" & 4" hose connections; aluminum, steel, or stainless steel neck

## 20" Primary Shutoff (6" Neck)

Part Number	Description	Weight
<b>1010-0017</b>	20" Primary w/ 6" Neck, 3" Opening, 550 CFM	92 lbs
<b>1010-0018</b>	20" Primary w/ 6" Neck, 4" Opening, 550 CFM	92 lbs



Features mild steel construction; gasket-in-lid design; 3" or 4" openings available; heavy duty zinc plated hardware; standard neck length of 6"; 6" stainless steel float ball; 8" stainless steel ball cage

## 20" Primary Shutoff (12" Neck)

Part Number	Description	Weight
<b>1010-7403</b>	20" Primary w/ 12" Neck, .25" Base w/ 3" Side Open, 550 CFM	117 lbs
<b>1010-7404</b>	20" Primary w/ 12" Neck, .25" Base w/ 4" Side Open, 550 CFM	117 lbs



Features mild steel construction; gasket-in-lid design; 3" or 4" openings available; heavy duty zinc plated hardware; standard neck length of 12"; 6" stainless steel float ball; 8" stainless steel ball cage

## 20" Aluminum Primary Shutoff

Part Number	Description	Weight
<b>1010-9015</b>	20" SS Primary w/ 6" Alum. Neck, 3" NPT, 550 CFM	92 lbs



Features aluminum and stainless steel construction; gasket-in-lid design; 304 stainless steel head; heavy duty zinc plated hardware; base available in aluminum or stainless steel; 6" stainless steel float ball; 8" stainless steel ball cage

# Secondary Shutoffs



## 2" & 3" MZ Secondary Shutoff

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1147-0000 MZ</b>	2" Plastic Secondary Shutoff, 247 CFM	9 lbs
<b>1148-0000 MZ</b>	3" Plastic Secondary Shutoff, 353 CFM	9 lbs

Features heavy duty nylon plastic construction; 2" or 3" size fittings; maximum working pressure of 70 PSI; equipped with a .75" ball valve drain, bowl manufactured from clear mackrolon material



## 2, 4 & 5 Gallon Secondary Shutoff

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1151-0000</b>	2 Gallon Secondary Shutoff, 2" Opening	21 lbs
<b>1151-0015</b>	2 Gallon Secondary Shutoff, 1.5" Threads	22 lbs
<b>1152-0000</b>	4 Gallon Secondary Shutoff, 3" Opening	39 lbs
<b>1153-0000</b>	5 Gallon Secondary Shutoff, 3" Opening	40 lbs

Features mild steel construction; rubber-shutoff seat; 4" stainless steel float ball; durable 2" sight eye; 1" ball valve



## 10 & 12 Gallon Secondary Shutoff

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1008-0019</b>	10 Gallon Secondary Shutoff, 3" Opening	83 lbs
<b>1008-0017</b>	10 Gallon Secondary Shutoff, 3" NPT	83 lbs
<b>1008-0013</b>	12 Gallon Secondary Shutoff, 4" Opening	97 lbs
<b>1008-0015</b>	12 Gallon Secondary Shutoff, 4" NPT	105 lbs

Features mild steel construction; gasket-in-lid design; heavy duty zinc plated hardware; 6" stainless steel float ball; 8" stainless steel ball cage; deflection chute prevents bypass into vacuum pump and stops premature shutoff



## Cyclone Secondary Shutoff

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1008-0700</b>	12 Gallon Cyclone Secondary Shutoff, 3" Openings, 500 CFM	95 lbs
<b>1008-0704</b>	12 Gallon Cyclone Secondary Shutoff, 4" Openings, 800 CFM	95 lbs
<b>1008-0720</b>	28 Gallon Cyclone Secondary Shutoff, 6" Openings, 1500 CFM	136 lbs

Features mild steel construction; 500-636 CFM; secondary moisture trap; easy access for quick clean out; 6" stainless steel float ball; all welded steel construction; no secondary bypass

# Secondary Shutoffs

## Aluminum Secondary Shutoff

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1008-0300</b>	10 Gallon Aluminum Secondary Shutoff w/ 3" Hose Barb Connection on Top and 3" NPT on One Side	54 lbs
<b>1008-0304</b>	10 Gallon Aluminum Secondary Shutoff w/ 4" Hose Barb Connection on Top and 4" NPT on One Side	54 lbs
<b>1008-0302</b>	10 Gallon Aluminum Secondary Shutoff w/ Stainless Steel Lid & Ball Cage with 3" Opening	59 lbs
<b>1008-0306</b>	10 Gallon Aluminum Secondary Shutoff w/ Stainless Steel Lid & Ball Cage with 4" Opening	59 lbs

Features aluminum construction; easy access for quick clean out; 3" or 4" hose connections; 6" stainless steel float ball



## 10 Gallon Horizontal Secondary Shutoff

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1008-0102</b>	10 Gallon Horizontal Secondary, 3" Opening, 400 CFM	109 lbs

Features mild steel construction; gasket-in-lid design; 3 wing nuts for easy access; 1" ball valve drain; under-the catwalk installation; dual rear mounting brackets; 6" stainless steel float ball; 3" rubber shutoff seat; heavy duty ball cage



## 14 Gallon Horizontal Secondary Shutoff

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1008-0063</b>	14 Gallon Horiz. Secondary w/o Sight Eye, 3" Opening, 700 CFM	104 lbs
<b>1008-0060</b>	14 Gallon Horiz. Secondary, 3" Opening, 700 CFM	109 lbs
<b>1008-0062</b>	14 Gallon Horiz. Secondary w/o Sight Eye, 4" Opening, 700 CFM	106 lbs
<b>1008-0061</b>	14 Gallon Horiz. Secondary, 4" Opening, 700 CFM	111 lbs

Features mild steel construction; gasket-in-lid design; 4 wing nuts for easy access; 1" ball valve drain; compact size; dual rear mounting brackets; 6" stainless steel float ball & clamp-on seat; 4" rubber shutoff seat; heavy duty ball cage, 5" sight eye & heavy duty zinc plated hardware



## Port-A-Trap 2 Gallon Secondary Shutoff

<i>Part Number</i>	<i>Description</i>	<i>Weight</i>
<b>1008-0501</b>	Port-A-Trap 2 Gallon Horiz. Secondary, 1.5" Opening, 250 CFM	39 lbs
<b>1008-0500</b>	Port-A-Trap 2 Gallon Horiz. Secondary, 2" Opening, 250 CFM	39 lbs

Features mild steel construction; gasket-in-lid design; 2 wing nuts for easy access; 1" ball valve drain; under-the-catwalk installation; dual rear mounting brackets; 4" stainless steel float ball; 3" rubber shutoff seat; heavy duty ball cage



# Shutoff & Manway Parts



Wing Nut



Washer



Hinge Pin



Eyebolt



Round Gasket



Clevis Pin



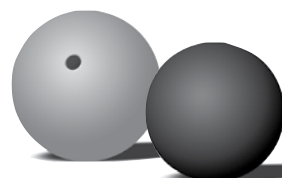
Roll Pin



Square Gasket



Rubber Seats



Float Balls

Part Number	Description	Weight
<b>Manway Parts</b>		
1010-0001	5/8" Zinc Plated Wing Nut	2 lbs
1010-0003	Zinc Recessed Washer	.188 lbs
1021-0000-B	5/8" x 5" Zinc Plated Eyebolt	.8 lbs
1021-0000-P	Zinc Plated Clevis Pin	.19 lbs
1021-0000-R	Zinc Plated Roll Pin	.06 lbs
1021-0000-HP	Hinge Pin	.44 lbs
<b>Replacement Gaskets</b>		
1021-0100	5/8" Square Gasket (sold per foot)	.33 lbs
1021-0101	5/8" Square Gasket Viton (sold per foot)	.46 lbs
1021-0010	3/8" Round Gasket (sold per foot)	.12 lbs
1019-0009	Gasket for 12" Hatch, Final Filter, Primary - Gasket in Neck	1.25 lbs
1019-0008	Gasket for 12" Hatch, Gasket in Lid	1.25 lbs
1019-0010	Gasket for 17" Manway	1.5 lbs
1010-3919	Gasket for 20" Aluminum Manway	1.75 lbs
1019-0011	Gasket for 20" Manway	2 lbs
1010-0009	Gasket for 21" Manway	2 lbs
1019-0012	Gasket for 25" Manway	2.5 lbs
1012-0005	Gasket for 36" Manway	3.25 lbs
1033-1000	Gasket for 2" & 3" Steel Primary	.25 lbs
1151-0100	Gasket for 2 Gallon Secondary	.5 lbs
1153-1000	Gasket for 4-5 Gallon Secondary	.5 lbs
1008-6400	Gasket for 14 Gallon Secondary	1.5 lbs
<b>Float Balls</b>		
1074-0000	3" Stainless Steel Float Ball	.5 lbs
1075-0000	4" Stainless Steel Float Ball	1 lbs
1076-0000	6" Stainless Steel Float Ball	3 lbs
1076-0002	6" Stainless Steel Float Ball w/ 5/16" Hole	3 lbs
1076-0003	8" Stainless Steel Float Ball	5 lbs
1076-0004	8" Stainless Steel Float Ball w/ 1/2" Hole	5 lbs
1076-0015	8" Stainless Steel Float Ball w/ 5/8" Spud Nut	5 lbs
1077-0000	3" Rubber Float Ball	.5 lbs
1078-0000	4" Rubber Float Ball	1 lb
1079-0000	3" Plastic Float Ball	.25 lbs
1080-0000	4" Plastic Float Ball	.5 lbs
1091-0003	6" Plastic Float Ball w/ 5/16" Hole (Foam Filled)	3 lbs
<b>Rubber Shutoff Ball Seats</b>		
1089-0000	3" Rubber Seat (Fits 3" O.D. Pipe w/ Flare)	.5 lbs
1090-0000	3.5" Clamp-on Rubber Seat (Fits 3.5" O.D. Pipe)	1 lbs
1089-0001	4" Rubber Seat (Fits 4.5" O.D. Pipe)	2 lbs
1089-0003	6" Rubber Seat (Fits 6 5/8" O.D. Pipe)	2 lbs
1090-0001	Clamp for 1090-0000 Seat	.1 lbs
1089-0002	Clamp for 1089-0001 Seat	.1 lbs





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