

GENERAL INFORMATION

INSTALLATION DRAWINGS

SUBMERSIBLE ACCESSORIES

A. PANELS AND ACCESSORIES:

CONTROL PANELS - Submersible Non-Clogs & Effluent
STEALTH GRINDER CONTROL PANELS
STARTERS & CONTACTORS
ALARM/DISCONNECT PANEL
ALARMS
CAPACITOR/RELAY PACKS

B. BREAKAWAY FITTINGS

1¼" THRU 3" BAF, Standard & Non-Sparking, Vertical Discharge Pumps
PUMP STANDS
1¼" HYDROMATIC ADAPTER
2" HYDROMATIC ADAPTER
1¼" & 2" C-CHANNEL, MOVEABLES & INTERMEDIATES
3" BAF's Non-Sparking, Horizontal Discharge Pumps
4" BAF's
4" HYDROMATIC ADAPTER
4" & 6" FLYGT ADAPTER
6" BAF's
8" BAF's
INTERMEDIATE RAIL SUPPORTS

C. BASINS AND ACCESSORIES

BASINS, COVERS & ACCESSORIES
ACCESS DOORS
VALVES
LEVEL CONTROLS
JUNCTION BOXES
PUMP HOISTS

FILE: SIMPANEL

SCOPE: The pump manufacturer shall supply a completely self-contained simplex motor control panel. The control panel shall provide short circuit and overload protection for the pump.

ENCLOSURE: The simplex motor controls shall be housed in a NEMA 3R enclosure. The enclosure shall be formed of 14 gauge, G-90 galvanized steel, with all surfaces phosphatized, then finished inside and out with ANSI 61 gray polyester powder finish. A full width drip shield is formed into the top cap to prevent standing water from dripping into the interior when the door is opened. The door is mounted to the enclosure by means of a stainless steel continuous piano hinge with a stainless steel hinge pin. Removal of the door can be accomplished by removing the hinge pin. Captivated stainless steel screws hold the door in the closed position, and a hasp and staple are provided for padlocking. Weld nuts support the removable aluminum component mounting panel. The removable aluminum panel is to be drilled and tapped for component mounting. The enclosure shall have external mounting tabs for wall mounting. The enclosure conforms to the National Electrical Manufacturers' Association (NEMA) standard for type NEMA 3R (Raintight and Sleet/Ice Resistant) enclosures, and listed by Underwriters Laboratories and Canadian Standards Association.

INTERNAL COMPONENTS AND WIRING: A thermal magnetic circuit breaker shall be provided to protect the motor from short circuits and to serve as a motor branch circuit disconnect as required by the NATIONAL ELECTRICAL CODE (NEC).

A magnetic starter shall be provided for the pump motor. The starter shall be equipped with a three (3) pole bimetallic overload relay with ambient compensation and Class 10, quick trip heaters. Heaters must be properly sized for motor load. The overload relay shall provide the terminals for connection of the pump motor cable.

A control transformer shall be provided to supply 115 volts for the control circuit. The transformer shall be a continuous duty, machine tool type, sized to meet the load requirements of the control circuit. The transformer primary shall be connected to the load side of the circuit breaker. One side of the secondary winding shall be grounded to the component mounting panel.

A two (2) pole, 600 VAC, 30 ampere rated fuse block shall be provided for transformer primary winding; a one (1) pole, 250 VAC, 30 ampere fuse block will be provided for the secondary winding. Fuses shall be sized to protect the transformer in accordance with requirements of the NEC.

A terminal block shall be provided for connection of level controls and other control wiring as required for proper pump installation.

The control shall be equipped with a Hand-Off-Auto selector switch and an amber run light, mounted on an aluminum plate under cover of the enclosure door. The selector switch shall be a toggle type with screw terminals rated 250 VAC, three (3) amperes. The run light shall be 1/3 watt 115 volt neon type.

The control shall be wired in accordance with all applicable requirements of the NATIONAL ELECTRICAL CODE. Control wiring shall be sixteen (16) AWG red for control circuits and white for neutral grounded conductors. Power wiring shall be a minimum of 14 AWG black. Each conductor shall be numbered. The ends of all wires shall be tinned with 60/40 lead tin alloy solder. All wiring shall be performed in a neat and orderly manner.

Specifications

Duplex Versatrol Control Panel For Submersible Sewage & Effluent Pumps

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Control Panels & Accessories

FILE: DUPPANEL

SCOPE: The pump manufacturer shall supply a completely self-contained duplex motor control panel. The control panel shall provide short circuit and overload protection for the pumps. An alternator shall be provided to alternate the lead pump duty between the two pumps on successive cycles.

ENCLOSURE: The duplex motor controls shall be housed in a NEMA 3R enclosure. The enclosure shall be formed of 14 gauge, G-90 galvanized steel, with all surfaces phosphatized, then finished inside and out with ANSI 61 gray polyester powder finish. A full width drip shield is formed into the top cap to prevent standing water from dripping into the interior when the door is opened. The door is mounted to the enclosure by means of a stainless steel continuous piano hinge with a stainless steel hinge pin. Removal of the door can be accomplished by removing the hinge pin. Captivated stainless steel screws hold the door in the closed position, and a hasp and staple are provided for padlocking. Weld nuts support the removable aluminum component mounting panel. The removable aluminum panel is to be drilled and tapped for component mounting. The enclosure shall have external mounting tabs for wall mounting. The enclosure conforms to the National Electrical Manufacturers' Association (NEMA) standard for type NEMA 3R (Raintight and Sleet/Ice Resistant) enclosures, and listed by Underwriters Laboratories and Canadian Standards Association.

INTERNAL COMPONENTS AND WIRING: A thermal magnetic circuit breaker shall be provided to protect the motor from short circuits and to serve as a motor branch circuit disconnect as required by the NATIONAL ELECTRICAL CODE (NEC).

A magnetic starter shall be provided for the pump motor. The starter shall be equipped with a three (3) pole bimetallic overload relay with ambient compensation and Class 10, quick trip heaters. Heaters must be properly sized for motor load. The overload relay shall provide the terminals for connection of the pump motor cable.

A control transformer shall be provided to supply 115 volts for the control circuit. The transformer shall be a continuous duty, machine tool type, sized to meet the load requirements of the control circuit. The transformer primary shall be connected to the load side of the circuit breaker. One side of the secondary winding shall be grounded to the component mounting panel.

A two (2) pole, 600 VAC, 30 ampere rated fuse block shall be provided for transformer primary winding; a one (1) pole, 250 VAC, 30 ampere fuse block will be provided for the secondary winding. Fuses shall be sized to protect the transformer in accordance with requirements of the NEC.

An electromechanical automatic alternator shall be provided which will alternate the lead and lag pumps at the shut-off of each pumping cycle. The alternator circuitry shall provide means to start the lag pump in event the lead pump capacity is less than the inflow or the lead pump fails.

A terminal block shall be provided for connection of level controls and other control wiring as required for proper pump installation.

The control shall be equipped with a Hand-Off-Auto selector switch and an amber run light, mounted on an aluminum plate under cover of the enclosure door. The selector switch shall be a toggle type with screw terminals rated 250 VAC, three (3) amperes. The run light shall be 1/3 watt 115 volt neon type.

The control shall be wired in accordance with all applicable requirements of the NATIONAL ELECTRICAL CODE. Control wiring shall be sixteen (16) AWG red for control circuits and white for neutral grounded conductors. Power wiring shall be a minimum of 14 AWG black. Each conductor shall be numbered. The ends of all wires shall be tinned with 60/40 lead tin alloy solder. All wiring shall be performed in a neat and orderly manner.

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PUMPS & SYSTEMS

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Control Panels & Accessories

GENERAL:

A wall mounted control panel shall be supplied with each station. All control panels shall be UL Listed to meet Standard UL 508A. Each panel shall be constructed with a padlockable NEMA 4X fiberglass enclosure and utilize stainless steel hardware.

SIMPLEX CONTROL PANELS:

The control panel shall include as a minimum: circuit breakers, fuses, terminal strip, ground lug, capacitors when required, IEC rated motor starters, relays, alarm silence button mounted on enclosure, and internal push to run button.

HIGH WATER ALARM DEVICE(s):

Each control panel shall include a visual and audible, with silence, high water alarm device. Alarm circuit shall be separately fused from motor control circuit. The visual alarm shall be a red fluted lens mounted to the top of the enclosure in such a manner as to maintain rain-proof integrity. The 90db audible device shall be capable of being de-activated by means of a NEMA 4X silence button mounted on the exterior of the enclosure. Visual alarm will remain on as long as a high water condition exists in the basin. Both visual and audio alarms will automatically reset when the high water condition subsides.

Specifications

STEALTH™ Duplex, Wall Mount
For SGV, OGP & OGV Grinder Pumps

BARNES®

www.cranepumps.com

Control Panels & Accessories

GENERAL:

A wall mounted control panel shall be supplied with each station. All control panels shall be UL Listed to meet Standard UL 508A. Each panel shall be constructed with a padlockable NEMA 4X fiberglass enclosure and utilize stainless steel hardware.

DUPLEX CONTROL PANELS:

The control panel shall include as a minimum: circuit breakers, fuses, terminal strip, ground lug, capacitors when required, IEC rated motor starters, relays, alarm silence button mounted on enclosure, pump alternator, and internal push to run button for each pump. Controls for both pumps must be located in the same enclosure.

HIGH WATER ALARM DEVICE(s):

Each control panel shall include a visual and audible, with silence, high water alarm device. Alarm circuit shall be separately fused from motor control circuit. The visual alarm shall be a red fluted lens mounted to the top of the enclosure in such a manner as to maintain rain-proof integrity. The 90db audible device shall be capable of being de-activated by means of a NEMA 4X silence button mounted on the exterior of the enclosure. Visual alarm will remain on as long as a high water condition exists in the basin. Both visual and audio alarms will automatically reset when the high water condition subsides.

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Control Panels & Accessories

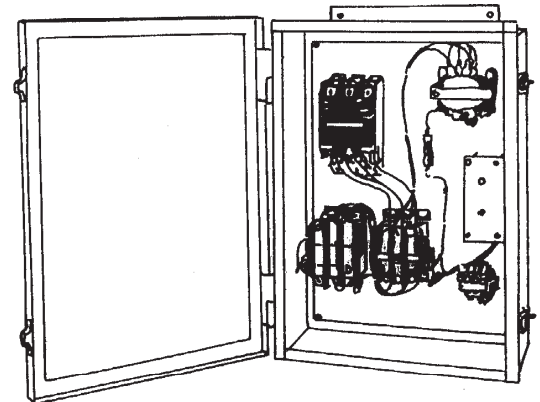
Specifications:

ENCLOSURE	NEMA 3R Raintight, Outdoor Mounting G-90 Galvanized Steel, Gray Polyester Powder Finish, Padlock Hasp/Staple with Captive Stainless Screws for Door Closure. Continuous Stainless Piano Hinge with Stainless Removable Pin. Aluminum Panel Drilled and Tapped, Machine Screw Mounted Components.
CIRCUIT BREAKER	For Short Circuit Protection
STARTER	Electromechanical
OVERLOAD RELAY	Bimetal Type, Ambient Compensated
HEATER ELEMENT	Class 10 Quick Trip, One Heater for Each Motor Phase.
SWITCH	Hand-Off-Automatic, 1/2 Inch NEMA 1
LIGHT	Pump Motor Run, 1/2 Inch NEMA 1
SUB PLATE	Switch and Light Mounting
TRANSFORMER	For 115 Volt Control on 3 Phase
FUSE	Control Transformer Primary When Used. Meet Requirements of NEC.
FUSE	Control Circuit, Meet Requirements of NEC.
TERMINAL STRIP	Box Lugs for Customer Wiring
WIRING	Color Coded to NEC Requirements; Black Power Wiring Red Numbered Control Wiring White Numbered Neutral Wiring Green Ground Wiring
ALTERNATOR	For Duplex ONLY, Automatic. Available in Sizes for .5 HP to 15 HP, 115 and 230 Volt AC, 1- Phase,.5HP to 200HP, 200, 230, 460 and 575 Volt AC, 3- Phase.All 230 volt panels are stamped "200/230 volts" and may be used throughout this voltage range. All components are "UL" Listed.

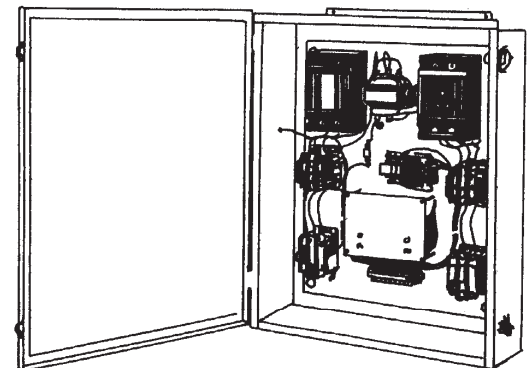
NOTES: 4.5 and 7.5 horsepower single phase panels are designed for use with Barnes Pumps special single phase models, 4SE4526L, 4SE4526HL, 4SE4524L, 4SE7524L & 4SE7524HL.

Optional Equipment Available See Pages 13 thru 16. UL 508 Label on Request.

SIMPLEX



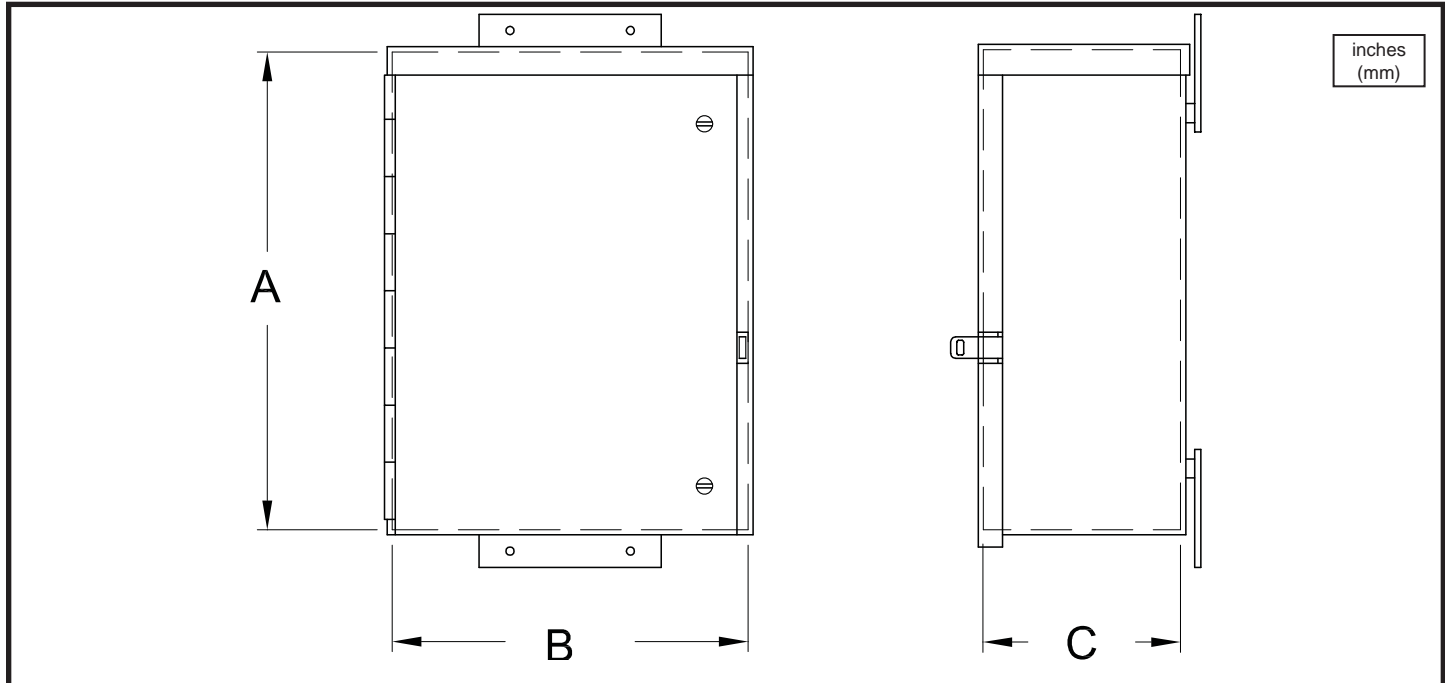
DUPLEX



Series: Simplex & Duplex

Single Phase: .5HP - 15HP
Three Phase: .5HP - 200HP

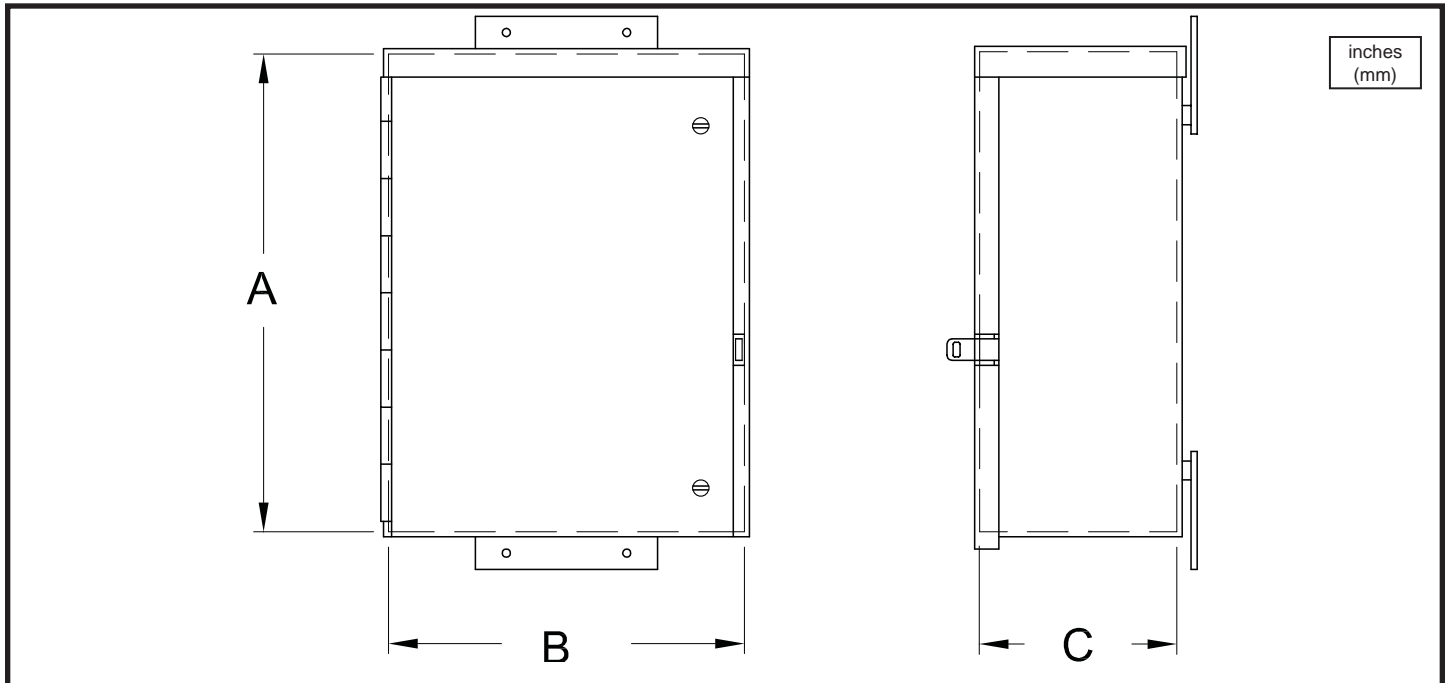
Control Panels & Accessories



HP	PH	VOLTS	SIMPLEX					DUPLEX				
			PART No.	WT. lbs	ENCLOSURE SIZE			PART No.	WT. lbs	ENCLOSURE SIZE		
					A	B	C			A	B	C
.5	1	115	065400	15	16 (406)	16 (406)	6 (152)	065600	68	20 (508)	16 (406)	6 (152)
.5, .75	1	230	065401	15	16 (406)	16 (406)	6 (152)	065601	68	20 (508)	16 (406)	6 (152)
1.0, 1.5	1	230	065402	20	16 (406)	16 (406)	6 (152)	065602	68	20 (508)	16 (406)	6 (152)
1.9, 2, 2.8, 3, 3.7	1	230	065403	30	16 (406)	16 (406)	6 (152)	065603	68	20 (508)	16 (406)	6 (152)
4.5	1	230	065404	40	20 (508)	16 (406)	6 (152)	065604	68	24 (610)	20 (508)	8 (203)
7.5	1	230	065405	50	20 (508)	16 (406)	6 (152)	065605	68	24 (610)	20 (508)	8 (203)
.5	3	200-230	065407	28	16 (406)	12 (305)	6 (152)	065607	73	24 (610)	20 (508)	8 (203)
.75	3	200-230	065408	28	16 (406)	12 (305)	6 (152)	065608	73	24 (610)	20 (508)	8 (203)
1.0	3	200-230	065409	28	16 (406)	12 (305)	6 (152)	065609	73	24 (610)	20 (508)	8 (203)
1.5	3	200-230	065410	28	16 (406)	12 (305)	6 (152)	065610	73	24 (610)	20 (508)	8 (203)
2.0	3	200-230	065411	28	16 (406)	12 (305)	6 (152)	065611	73	24 (610)	20 (508)	8 (203)
3.0	3	200-230	065412	28	16 (406)	12 (305)	6 (152)	065612	73	24 (610)	20 (508)	8 (203)
5.0	3	200-230	065413	28	16 (406)	12 (305)	6 (152)	065613	73	24 (610)	20 (508)	8 (203)
7.5	3	200-230	065414	28	16 (406)	12 (305)	6 (152)	065614	73	24 (610)	20 (508)	8 (203)
10	3	200-230	065415	28	16 (406)	12 (305)	6 (152)	065615	73	24 (610)	20 (508)	8 (203)
15	3	200-230	068009	29	20 (508)	16 (406)	6 (152)	068019	57	24 (610)	20 (508)	8 (203)
20	3	200-230	068010	34	20 (508)	16 (406)	6 (152)	068020	60	24 (610)	20 (508)	8 (203)
25	3	200-230	068011	34	20 (508)	16 (406)	6 (152)	068021	60	24 (610)	20 (508)	8 (203)
30	3	200-230	068012	39	24 (610)	20 (508)	8 (203)	068022	85	30 (762)	24 (610)	8 (203)
40	3	200-230	068013	46	24 (610)	20 (508)	8 (203)	068023	90	30 (762)	24 (610)	8 (203)

1. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.

Control Panels & Accessories



HP	PH	VOLTS	SIMPLEX						DUPLEX					
			PART No.	WT. lbs	ENCLOSURE SIZE			PART No.	WT. lbs	ENCLOSURE SIZE				
					A	B	C			A	B	C		
.5	3	460	065422	28	16 (406)	12 (305)	6 (152)	065622	73	24 (610)	20 (508)	8 (203)		
.75	3	460	065423	28	16 (406)	12 (305)	6 (152)	065623	73	24 (610)	20 (508)	8 (203)		
1.0	3	460	065424	28	16 (406)	12 (305)	6 (152)	065624	73	24 (610)	20 (508)	8 (203)		
1.5	3	460	065425	28	16 (406)	12 (305)	6 (152)	065625	73	24 (610)	20 (508)	8 (203)		
2.0	3	460	065426	28	16 (406)	12 (305)	6 (152)	065626	73	24 (610)	20 (508)	8 (203)		
3.0	3	460	065427	28	16 (406)	12 (305)	6 (152)	065627	73	24 (610)	20 (508)	8 (203)		
5.0	3	460	065428	28	16 (406)	12 (305)	6 (152)	065628	73	24 (610)	20 (508)	8 (203)		
7.5	3	460	065429	28	16 (406)	12 (305)	6 (152)	065629	73	24 (610)	20 (508)	8 (203)		
10	3	460	065430	28	16 (406)	12 (305)	6 (152)	065630	73	24 (610)	20 (508)	8 (203)		
15	3	460	068014	29	20 (508)	16 (406)	6 (152)	068024	57	24 (610)	20 (508)	8 (203)		
20	3	460	068015	29	20 (508)	16 (406)	6 (152)	068025	57	24 (610)	20 (508)	8 (203)		
25	3	460	068016	34	20 (508)	16 (406)	6 (152)	068026	60	24 (610)	20 (508)	8 (203)		
30	3	460	068017	46	20 (508)	16 (406)	6 (152)	068027	85	24 (610)	20 (508)	8 (203)		
40	3	460	068018	46	24 (610)	20 (508)	8 (203)	068028	85	24 (610)	20 (508)	8 (203)		
50	3	460	073192	57	24 (610)	20 (508)	8 (203)	073193	105	30 (762)	24 (610)	8 (203)		
60	3	460	082703	78	24 (610)	20 (508)	8 (203)	082712	136	30 (762)	24 (610)	8 (203)		
75	3	460	082704	84	24 (610)	20 (508)	8 (203)	082713	147	30 (762)	24 (610)	8 (203)		
85	3	460	082705	102	24 (610)	20 (508)	8 (203)	082714	176	36 (914)	30 (762)	10 (254)		
100	3	460	082706	102	30 (762)	24 (610)	8 (203)	082715	176	36 (914)	30 (762)	10 (254)		
125	3	460	082707	121	36 (914)	30 (762)	10 (254)	082716	212	48 (1219)	36 (914)	12 (305)		
135	3	460	082708	121	36 (914)	30 (762)	10 (254)	082717	212	48 (1219)	36 (914)	12 (305)		
150	3	460	082709	145	42 (1067)	30 (762)	12 (305)							
165	3	460	082710	360	60 (1524)	36 (914)	12 (305)							
200	3	460	082711	382	60 (1524)	36 (914)	12 (305)							

1. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.

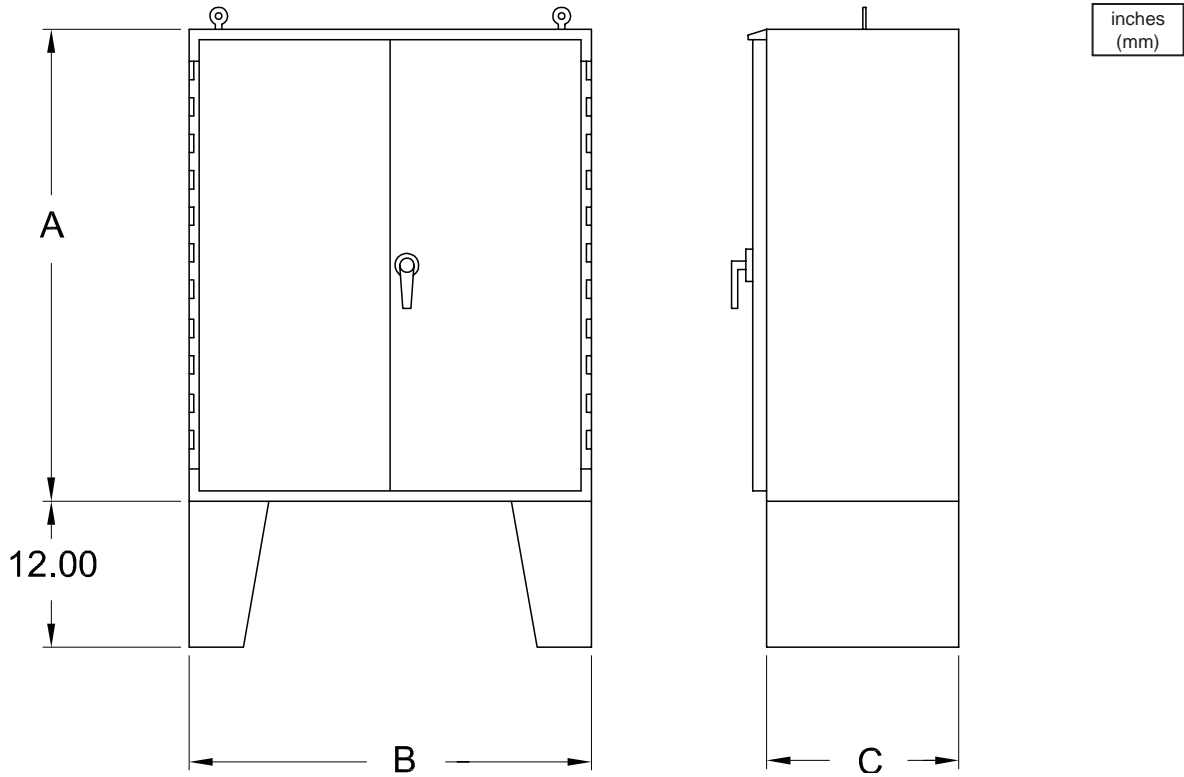
Versatrol Standard

NEMA 3R, Simplex & Duplex
For Submersible Sewage & Effluent Pumps

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Control Panels & Accessories



HP	PH	VOLTS	DUPLEX				
			PART No.	WT. lbs	ENCLOSURE SIZE		
					A	B	C
150	3	460	082718	456	60 (1524)	48 (1219)	12 (305)
165	3	460	082719	615	60 (1524)	60 (1524)	12 (305)
200	3	460	082720	843	72 (1829)	72 (1829)	12 (305)

1. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.

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CRANE
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PUMPS & SYSTEMS

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Control Panels & Accessories

Specifications:

ENCLOSURE	NEMA 3R Raintight, Outdoor Mounting G-90 Galvanized Steel, Gray Polyester Powder Finish, Padlock Hasp/Staple with Captive Stainless Screws for Door Closure. Continuous Stainless Piano Hinge with Stainless Removable Pin. Aluminum Panel Drilled and Tapped, Machine Screw Mounted Componets.
CIRCUIT BREAKER	For Short Circuit Protection
STARTER	Electromechanical
OVERLOAD RELAY	Bimetal Type, Ambient Compensated
HEATER ELEMENT	Class 10 Quick Trip, One Heater for Each Motor Phase.
SWITCH	Hand-Off-Automatic, 1/2 Inch NEMA 1
LIGHT	Pump Motor Run, 1/2 Inch NEMA 1
SUB PLATE	Switch and Light Mounting
FUSE	Control Transformer Primary When Used. Meet Requirements of NEC.
FUSE	Control Circuit, Meet Requirements of NEC.
TERMINAL STRIP	Box Lugs for Customer Wiring
WIRING	Color Coded to NEC Requirements; Black Power Wiring Red Numbered Control Wiring White Numbered Neutral Wiring Green Ground Wiring
ALTERNATOR	For Duplex ONLY, Automatic.

Provisions are made to connect the on-winding thermal overload in series with the contactor coil.

MUST add the following Options for compliance with Class I, Group D, Division 1 requirements:

- One Moisture Sensor per pump.
- One Moisture Sensor Test Circuit per pump.
- One Intrinsically Safe Relay per pump for ON-OFF, Duplex requires an additional on for Lag Start. Additional relays must be added for Alarms.

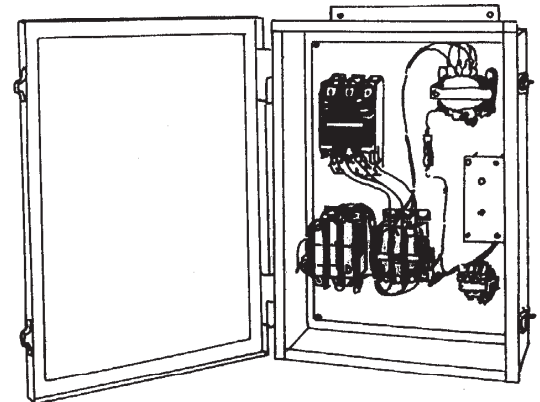
115 and 230 Volt AC, 1-Phase.

200, 230, 460 and 575 Volt AC, 3 - Phase.

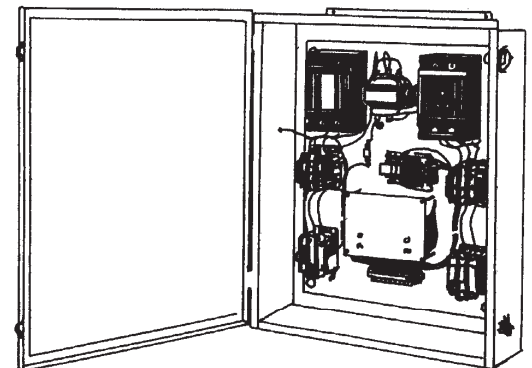
All 230 volt panels are stamped "200/230" volts" and may be used throughout this voltage range. All components are "UL" Listed.

Optional Equipment Available See Pages 13 thru 16.
UL 508 Label on Request.

SIMPLEX



DUPLEX



Series: Simplex & Duplex

Single Phase: 1.5HP - 5HP

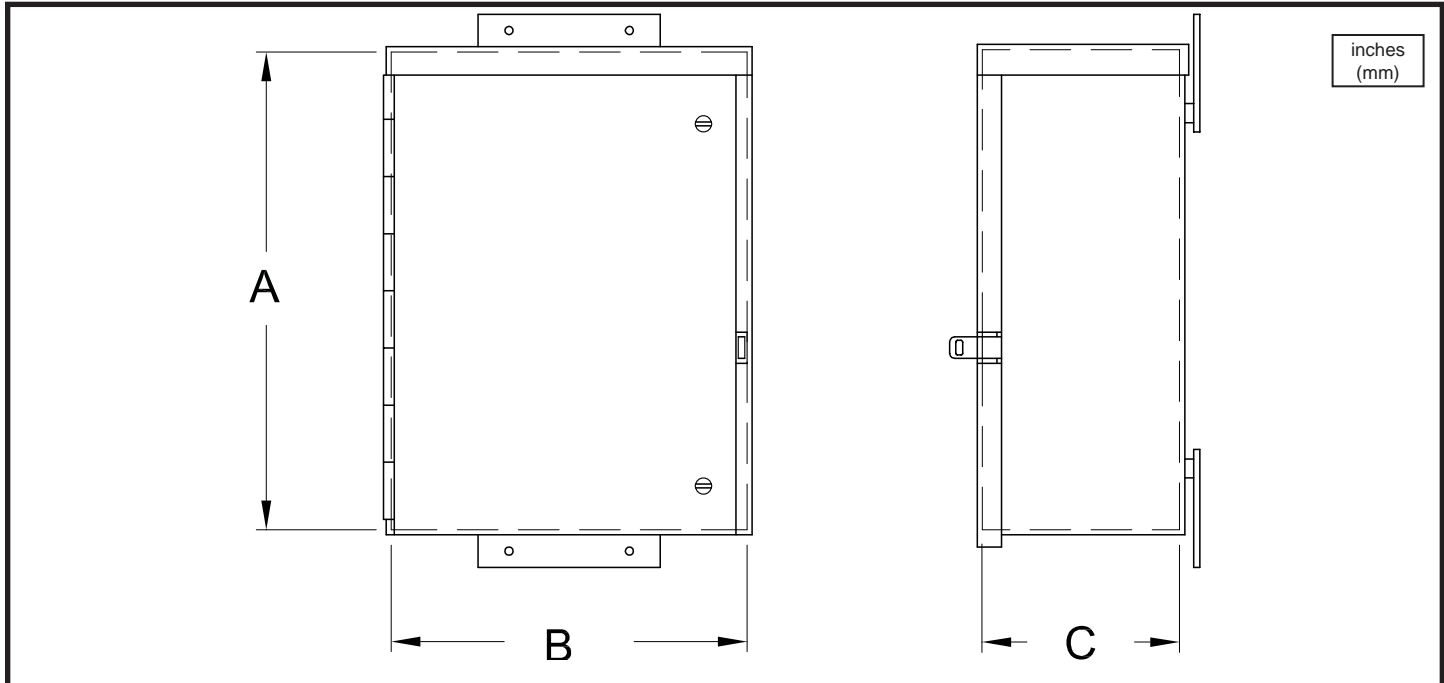
Versatrol Standard

NEMA 3R, 1 Phase, Simplex & Duplex
For Explosion Proof Submersible Sewage Pumps

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Control Panels & Accessories



HP	PH	VOLTS	SIMPLEX					DUPLEX				
			PART No.	WT. lbs	ENCLOSURE SIZE			PART No.	WT. lbs	ENCLOSURE SIZE		
					A	B	C			A	B	C
1.5	1	230	077883	37	20 (508)	16 (406)	6 (152)	077888	85	30 (762)	24 (610)	8 (203)
2.0	1	230	077884	37	20 (508)	16 (406)	6 (152)	077889	85	30 (762)	24 (610)	8 (203)
*3.0	1	230	*077885	37	20 (508)	16 (406)	6 (152)	*077890	85	30 (762)	24 (610)	8 (203)
3.0	1	230	077886	37	20 (508)	16 (406)	6 (152)	077891	85	30 (762)	24 (610)	8 (203)
5.0	1	230	077887	37	20 (508)	16 (406)	6 (152)	077892	85	30 (762)	24 (610)	8 (203)

1. These Part Numbers include the Moisture Sensor and Test Circuit as Standard.
2. * 1150 RPM pump only
3. For additional horsepower, voltages and phase, use part numbers on pages 4, 5 & 6 of this section.
4. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.
5. Specify pump model and/or full load amps when ordering.
6. Optional equipment available.

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CRANE®

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Control Panels & Accessories

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Enclosure Mounted 115V Alarm Options

Part No.	Description
064672	ALARM LIGHT in vapor-proof fixture with a 40-watt flashing red light (Shipped Loose).
064673	ALARM BELL is a weatherproof 4" vibrating bell which produces a 79db at 10 ft. with alarm silence switch and red high water indicator light that stays on until water goes down.
064674	ALARM HORN is a weatherproof 4" square vibrating horn which produces 96db at 10 ft. with alarm silence switch and red high water indicator light that stays on until water goes down.
073604	DRY CONTACTS FOR ALARM FUNCTION - is a D.P.D.T. relay rated at 10 amps, 250 volts. These contacts are not connected to a power source in the control panel, and are primarily used to operate telemetering and remote high water alarms.
075601	DIM GLOW ALARM may be used with alarm light. The light will glow dim during normal operation; during high water condition the alarm light will flash, and if so equipped, the audible alarm will sound. Note: Must be added to one of above alarm.

Enclosures

Standard enclosures will accept up to 4 PANEL MOUNTED options. For 5 to 8 PANEL MOUNTED options, use enclosures marked as OVERSIZE "A". For more than 12 PANEL MOUNTED options, consult factory.

064682	NEMA 4 ENCLOSURE for Simplex Versatrol Standard panels.
075608	NEMA 4 ENCLOSURE for Duplex Versatrol Standard panels.
075609	NEMA 4X, 3, & 12 SIMPLEX ENCLOSURE - Fiberglass
075610	NEMA 4X, 3, & 12 DUPLEX ENCLOSURE - Fiberglass.
075611	NEMA 4X SIMPLEX ENCLOSURE - Stainless Steel
075612	NEMA 4X DUPLEX ENCLOSURE - Stainless Steel
075613	NEMA 12 SIMPLEX ENCLOSURE - Steel.
075614	NEMA 12 DUPLEX ENCLOSURE - Steel.
075615	NEMA 3R OVERSIZED SIMPLEX ENCLOSURE - A.
075616	NEMA 3R OVERSIZED DUPLEX ENCLOSURE - A
075617	NEMA 4 OVERSIZED SIMPLEX ENCLOSURE - A
075618	NEMA 4 OVERSIZED DUPLEX ENCLOSURE - A.
075619	NEMA 4X, 3, 12 OVERSIZED SIMPLEX ENCLOSURE - A. Fiberglass
075620	NEMA 4X, 3, 12 OVERSIZED DUPLEX ENCLOSURE - A. Fiberglass
075621	NEMA 4X OVERSIZED SIMPLEX ENCLOSURE - A- Stainless Steel.
075622	NEMA 4X OVERSIZED DUPLEX ENCLOSURE - A- Stainless Steel.
075623	NEMA 12 OVERSIZED SIMPLEX ENCLOSURE - A - Steel
075624	NEMA 12 OVERSIZED DUPLEX ENCLOSURE - A- Steel.

Control Panels & Accessories

Enclosure Related Options

- 066361 **DEADFRONT DOOR** with inner door for Simplex Versatrol Standard panels.
- 066362 **DEADFRONT DOOR** with inner door for Duplex Versatrol Standard panels.
- 064690 **SERVICE LIGHT** - This option consists of a light socket controlled by a door switch, providing internal panel illumination during service work. The power for this light comes from the control circuit.
- 064678 **CONDENSATION PREVENTION HEATER** is a panel mounted 100 watt heater with thermostat and over-temperature control.

Service Entrance Options - Panel Mounted

All options listed as PANEL MOUNTED require additional enclosure volume and may require larger enclosure.

- 064683 **CONTROL CIRCUIT RECONNECT RELAY** 115 volt- The reconnect relay will transfer the control power from the pump 1 circuit breaker to the pump 2 circuit breaker in the event of the number one breaker tripping. This relay will hold the control voltage on the #2 circuit breaker until pump 1 breaker is reset.
- 064684 **CONTROL CIRCUIT RECONNECT RELAY**- same as above except 230 volt.
- 064685 **CONTROL CIRCUIT RECONNECT RELAY**- same as above except 460 volt.
- 036189 **LIGHTNING ARRESTOR** is connected to the incoming power lines and panel ground. This arrestor will reduce the chances of pump and control panel damage from voltage transient caused by lightning. This arrestor is for single phase.
- 058582 **LIGHTNING ARRESTOR** - same as above except for three phase.
- 064686 **UNDER VOLTAGE RELAY** - 115 volt, 1 phase
- 064687 **UNDER VOLTAGE RELAY** - 230 volt, 1 phase.
- 079847 **UNDER VOLTAGE RELAY** - 208 volt, 1 phase
- 064688 **PHASE FAILURE AND UNDER VOLTAGE RELAY**, 230 volt, 3 phase- This relay is connected to the primary power service to detect phase loss, improper phase rotation and under-voltage on one or all phases of the service. This relay will automatically turn off control under these conditions.
- 064689 **PHASE FAILURE AND UNDER VOLTAGE RELAY** - same as above except 460 volt 3 phase.

Master Circuit Breaker - Panel Mounted (No Operator)

Circuit Breakers count as one PANEL MOUNTED option, when added to control.

- 075605 **MASTER CIRCUIT BREAKER**- 115/230 volt Single phase.
- 075606 **MASTER CIRCUIT BREAKER**- 200/230 volt 3 phase.
- 075607 **MASTER CIRCUIT BREAKER**- 460 volt 3 phase.
- 082140 **CIRCUIT BREAKER ON TRANSFORMER PRIMARY** - 230 volt
- 082141 **CIRCUIT BREAKER ON TRANSFORMER PRIMARY**- 460 volt.

Control Panels & Accessories

Control Circuit Power Options

- 079841 **24 VOLT CONTROL CIRCUIT**- For use with controls containing control 115 VAC transformer. Where 24 VAC control is needed on PILOT DEVICE(S).
- 079842 **24 VOLT CONTROL ON FLOATS**- control equipment at 115 volt, requires an extra transformer @ 100VA.
- 082137 **24 VOLT CONTROL FOR 115 VOLT PANELS**- for 1/2 HP 115 volt. P/N 065400 & 065600

Circuit Breaker - Door Interlocks

NEMA 1 option, maybe self standing or used with sub door option.

- 075627 **DOOR INTERLOCK**- for 230 VAC circuit breaker, NEMA 1.
- 075628 **DOOR INTERLOCK**- for 460 VAC circuit breaker, NEMA 1.

Fused Disconnects with Door Mounted Operators

Options replacing existing circuit breakers require no additional enclosure space. Option chosen to be Master Fused Disconnect adds one option space to the enclosure.

- 079029 **FUSED DISCONNECT** is used to replace the motor circuit breaker sized for motor load and voltage with rotary disconnect handle, if required. 115/230 volt, 1 phase, 250 volt and 200/230 volt, 3 phase, 250 volt.
- 079030 **FUSED DISCONNECT** - same as above except for 460 volt, 3 phase, 600 volt.
- 075625 **DOOR INTERLOCK**- through inner door for fused disconnect.
- 075626 **DOOR INTERLOCK**- through outer door for fused disconnect.

Utility Transformers with Outlet - Panel Mounted

- 079027 **CONVENIENCE OUTLET** without power transformer. A 115 volt duplex outlet mounted on the inside of the panel enclosure for 15 amp max. utility use. NOTE: A 200 volt, 3 phase 4-wire service or 230 volt, 1 phase 3-wire service which produces 115 volts to neutral is required for this option. This option does not effect enclosure size.
- 064679 **CONVENIENCE OUTLET** With Transformer is a 115 volt duplex outlet mounted on the inside of the panel enclosure for 15 amp utility use, and has a 1.5 KVA power transformer connected to the primary line with fused secondary. (Requires Next Larger Oversize Enclosure).
- 075602 **CONVENIENCE OUTLET WITH TRANSFORMER**- same as above except with a 3.0 KVA power transformer. (Requires Next Larger Oversize Enclosure)
- 075603 **CONVENIENCE OUTLET WITH TRANSFORMER**- same as above except with a 5.0 KVA power transformer. (Requires Next Larger Oversize Enclosure)
- 064680 **GROUND FAULT SYSTEM** - a ground fault receptacle 115 and 230, NEMA 3R, with G.F.I.

Control Panels & Accessories

Panel Mounted Options

* Customer MUST define the function of this generic option.

- 064675 **MOISTURE SENSOR RELAY** with warning light. This relay is connected to two sensing probes in the pump seal chamber and will detect moisture in the pump and operate the warning light to indicate a failed seal. Use two of these for duplex panels.
- 085325 **MOISTURE SENSOR TEST CIRCUIT**, Light, Push-To-Test Seal Fail Relay, use with 064675
- 064676 **ELAPSED TIME METERS** indicate pump running time in hours and tenths of hours to a total of 99999.9 and is non-resettable. Use two for duplex, etc.
- 064681 **TEMPERATURE SENSOR RELAY** with warning light. Each control panel is equipped as standard equipment with terminals for temperature sensors. These thermostats are wired in line with the pump motor starter coil and will turn the motor off with temperature rise. Use two for duplex, etc.
- 064677 **PUMP SEQUENCE SELECTOR SWITCH** is provided to override the automatic alternator. This option is useful if it becomes necessary to remove one pump from the duplex system.
- 064403 **INTRINSICALLY SAFE RELAY**- This relay is a reduced voltage power supply that produces a low voltage and current to the float switches in the wet well. This relay has an internal reed relay to which is slaved a 10 amp power relay that operates the motor starters and high water alarm. (for Explosion Proof Applications). One required for simplex, two for duplex plus one for any alarm function.
- 075629 **SELECTOR SWITCH**- 2 position, oil tight. *
- 075630 **SELECTOR SWITCH**- 3 or 4 position, oil tight. *
- 075631 **TIMER**- Electronic (general purpose). *
- 075632 **TIMER**- 24 hour (general purpose).*
- 075633 **TIMER**- 7 day (general purpose).*
- 075634 **TIMER**- Motor driven, 5/10 hrs. to 60 hrs. *
- 075635 **AUXILIARY CONTACTS**- on motor control. *
- 075636 **AUXILIARY CONTACTS**- relay DPDT.*
- 075637 **PUSH BUTTON**- Nema 4 (user defined).*
- 075638 **NEMA 4 LIGHT**- (user defined).*
- 075639 **AMMETER**- Single phase with Current Transformer.
- 075640 **AMMETER**- Three phase with Current Transformer and phase selector switch.
- 625-01044 **INDUCTION RELAY** - 120/220

Control Panels & Accessories



PUMP SERIES:

R = SGV Series Grinders
 XR = XSGV Series Grinders
 O = OGP & OGV Series Grinders

PANEL MODEL:

101 thru 116, Simplex
 201 thru 216, Duplex

HORSEPOWER:

1 = 1HP
 2 = 2HP
 3 = 3HP
 5 = 5HP
 7 = 7.5HP

STEALTH -R -101 -2 1E -P

VOLTAGE:

0* = 200 Volt, 1 Phase, 60Hz
 1* = 120 Volt, 1 Phase, 60Hz
 2* = 240 Volt, 1 Phase, 60Hz
 3* = 240 Volt, 3 Phase, 60Hz
 4* = 480 Volt, 3 Phase, 60Hz
 5* = 600 Volt, 3 Phase, 60Hz
 6* = 200 Volt, 3 Phase, 60Hz

MOUNTING:

* = Wall Mount (STD)
 P = Poly Drywell Mount

(*) Left Blank

(*) If "E" - ESPS-200 Compliant.
 If Blank - Requires ESPS-200 wiring modification and/or kit.

IMPORTANT!

Drywell Panels are included in the Pre-Wired Basin Package

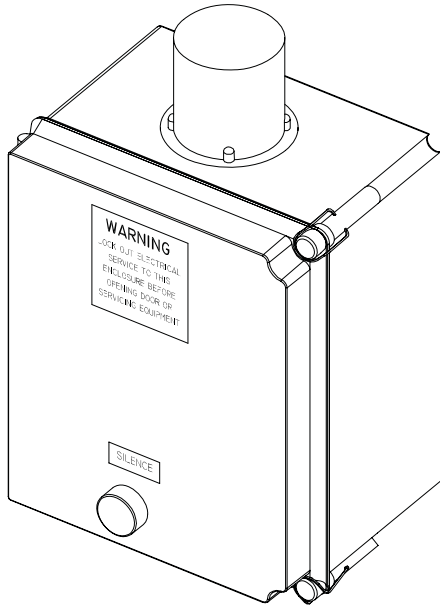
Stealth Control Panels

Simplex and Duplex, Wall Mounted Series
For SGV's, OGP, OGVF & OGVH Grinder Pumps

BARNES®

www.cranepumps.com

Control Panels & Accessories



Wall Mounted Series:

Stealth-R-100 & 200
Stealth-O-100 & 200

STEALTH™

CONTROL PANELS



File No. LR142177



Specifications:

R & O Series

Listed by Underwriters Laboratories, simplex and duplex pump control panels provide reliable grinder pump station operation and potential malfunction warning.

STANDARD FEATURES:

- UL 508A Listed
- NEMA 4X Fiberglass Enclosure
- Padlockable Latch
- Pump/Panel Circuit Breaker
- IEC Rated Motor Contactor
- Ambient Compensated Current Overload (R Panels Only, except for SGVF2022L and SGVH2022L, Overload for OGP, OGVF2022, OGVH2022, SGVF2022L, SGVH2022L, SGVF2002L and SGVH2002L Pumps located internally in the pump)
- Pump Start Pushbutton
- Individually Fused Circuits for Alarm and Control Components
- 25 Watt High Water Alarm Light with NEMA 4X Lens
- Pre-Installed Capacitor Kit (R Panels Only, Capacitor for OGP, OGVF & OGVH Pumps located internally in the pump)
- Terminal Strip and Ground Lug for Incoming Connections
- Pump Alternator (200 Series Duplex Panels Only)
- 90 db alarm horn with NEMA 4X silence pushbutton.

OPTIONAL FEATURES:

- 7 Digit Elapsed Time Meter with meter running indicator.
- Transfer Switch with easy access reverse pin portable generator receptacle and weatherproof cover.
- Seal Leak Indication with 120 volt indicator lamp and terminals for 2 leak probe wires. (R Series only)

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CRANE®

A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Control Panels

VOLTAGE PHASE	2HP, OGP, OGVF/OGVH	2HP SGVF/SGVH	3HP SGV	5HP SGV	7.5HP SGV
101 - NEMA 4X Fiberglass Enclosure, Operating Controls, Alarm Light					
240/1	O-101-22 P/N: 113441	R-101-22 P/N: 113421	R-101-32 P/N: 110111	R-101-52 P/N: 113457	N/A
200/1	N/A	R-101-27 P/N: 110147	R-101-37 P/N: 110854	R-101-57 P/N: 110860	N/A
200/3	N/A	R-101-26 P/N: 113485	R-101-36 P/N: 113488	R-101-56 P/N: 113491	N/A
240/3	N/A	R-101-23 P/N: 110371	R-101-33 P/N: 110117	R-101-53 P/N: 110135	R-101-73 P/N: 110153
480/3	N/A	R-101-24 P/N: 110377	R-101-34 P/N: 110123	R-101-54 P/N: 110141	R-101-74 P/N: 110159
102 - NEMA 4X Fiberglass Enclosure, Operating Controls, Audio Alarm w/ Push Button Silence & Alarm Light					
240/1	O-102-22 P/N: 113442	R-102-22 P/N: 113422	R-102-32 P/N: 110112	R-102-52 P/N: 110130	N/A
200/1	N/A	R-102-27 P/N: 110148	R-102-37 P/N: 110855	R-102-57 P/N: 110861	N/A
200/3	N/A	R-102-26 P/N: 113486	R-102-36 P/N: 113489	R-102-56 P/N: 113492	N/A
240/3	N/A	R-102-23 P/N: 113458	R-102-33 P/N: 110118	R-102-53 P/N: 110136	R-102-73 P/N: 110154
480/3	N/A	R-102-24 P/N: 110378	R-102-34 P/N: 110124	R-102-54 P/N: 110142	R-102-74 P/N: 110160
103 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection & Alarm Light					
240/1	N/A	R-103-22 P/N: 113423	N/A	N/A	N/A
104 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Audio Alarm w/Push Button Silence & Alarm Light					
240/1	N/A	R-104-22 P/N: 113424	R-104-32 P/N: 110113	R-104-52 P/N: 110131	N/A
200/1	N/A	R-104-27 P/N: 110149	R-104-37 P/N: 110856	R-104-57 P/N: 110862	N/A
200/3	N/A	R-104-26 P/N: 113487	R-104-36 P/N: 113490	R-104-56 P/N: 113493	N/A
240/3	N/A	R-104-23 P/N: 110373	R-104-33 P/N: 110119	R-104-53 P/N: 110137	R-104-73 P/N: 110155
480/3	N/A	R-104-24 P/N: 110379	R-104-34 P/N: 110125	R-104-54 P/N: 110143	R-104-74 P/N: 110161
105 - NEMA 4X Fiberglass Enclosure, Operating Controls, Generator Receptacle & Alarm Light					
240/1	O-105-22 P/N: 113443	R-105-22 P/N: 113425	R-105-3X *	R-105-5X *	R-105-7X *
106 - NEMA 4X Fiberglass Enclosure, Operating Controls, Generator Receptacle, Audio Alarm w/Push Button Silence & Alarm Light					
240/1	O-106-22 P/N: 113444	R-106-22 P/N: 113426	R-106-3X *	R-106-5X *	R-106-7X *
107 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Generator Receptacle & Alarm Light					
240/1	N/A	R-107-22 P/N: 113427	R-107-3X *	R-107-5X *	R-107-7X *

VOLTAGE PHASE	2HP, OGP, OGVF/OGVH	2HP SGVF/SGVH	3HP SGV	5HP SGV	7.5HP SGV
108 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Generator Receptacle, Audio Alarm w/Push Button Silence & Alarm Light					
240/1	N/A	R-108-22 P/N: 113428	R-108-3X *	R-108-5X *	R-108-7X *
109 - NEMA 4X Fiberglass Enclosure, Operating Controls, Alarm Light & Elapsed Time Meter					
240/1	O-109-22 P/N: 113445	R-109-22 P/N: 113429	R-109-3X *	R-109-5X *	R-109-7X *
110 - NEMA 4X Fiberglass Enclosure, Operating Controls, Audio Alarm w/ Push Button Silence, Alarm Light & Elapsed Time Meter					
240/1	O-110-22 P/N: 113446	R-110-22 P/N: 113430	R-110-3X *	R-110-5X *	R-110-7X *
111 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Alarm Light & Elapsed Time Meter					
240/1	N/A	R-111-22 P/N: 113431	R-111-3X *	R-111-5X *	R-111-7X *
112 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection Audio Alarm w/Push Button Silence, Alarm Light & Elapsed Time Meter					
240/1	N/A	R-112-22 P/N: 113432	R-112-3X *	R-112-5X *	R-112-7X *
113 - NEMA 4X Fiberglass Enclosure, Operating Controls, Generator Receptacle, Alarm Light & Elapsed Time Meter					
240/1	O-113-22 P/N: 113447	R-113-22 P/N: 113433	R-113-3X *	R-113-5X *	R-113-7X *
114 - NEMA 4X Fiberglass Enclosure, Operating Controls, Generator Receptacle, Audio Alarm w/Push Button Silence, Alarm Light & Elapsed Time Meter					
240/1	O-114-22 P/N: 113448	R-114-22 P/N: 113434	R-114-3X *	R-114-5X *	R-114-7X *
115 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Generator Receptacle, Alarm Light & Elapsed Time Meter					
240/1	N/A	R-115-22 P/N: 113435	R-115-3X *	R-115-5X *	R-115-7X *
116 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Generator Receptacle, Audio Alarm w/Push Button Silence, Alarm Light & Elapsed Time Meter					
240/1	N/A	R-116-22 P/N: 11343	R-116-3X *	R-116-5X *	R-116-7X *
IMPORTANT! Control panel sizes and options will vary depending on contract specifications. When ordering control panels, use the Nomenclature Chart on page 1 for Model designation. (*) Consult factory for availability					

Stealth Control Panels

Wall Mount Series, R & O, Duplex for
OGP, OGVF, OGVH & SGV's



www.cranepumps.com

Control Panels

VOLTAGE PHASE	2HP, OGP, OGVF/OGVH	2HP SGVF/SGVH	3HP SGV	5HP SGV	7.5HP SGV
201 - NEMA 4X Fiberglass Enclosure, Operating Controls, Alarm Light					
240/1	O-201-22E P/N: 122283	R-201-22E P/N: 122291	R-201-32E P/N: 122320	R-201-52E P/N: 122335	N/A
200/1	N/A	R-201-20E P/N: 122307	R-201-30E P/N: 122319	R-201-50E P/N: 122334	N/A
200/3	N/A	R-201-26E P/N: 122308	R-201-36E P/N: 122321	R-201-56E P/N: 122336	N/A
240/3	N/A	R-201-23E P/N: 122309	R-201-33E P/N: 122322	R-201-53E P/N: 122337	R-201-73E P/N: 122349
480/3	N/A	R-201-24E P/N: 122310	R-201-34E P/N: 122323	R-201-54E P/N: 122338	R-201-74E P/N: 122350
202 - NEMA 4X Fiberglass Enclosure, Operating Controls, Audio Alarm w/ Push Button Silence & Alarm Light					
240/1	O-202-22E P/N: 122284	R-202-22E P/N: 122292	R-202-32E P/N: 122325	R-202-52E P/N: 122340	N/A
200/1	N/A	R-202-20E P/N: 122311	R-202-30E P/N: 122324	R-202-50E P/N: 122339	N/A
200/3	N/A	R-202-26E P/N: 122312	R-202-36E P/N: 122326	R-202-56E P/N: 122341	N/A
240/3	N/A	R-202-23E P/N: 122313	R-202-33E P/N: 122327	R-202-53E P/N: 122342	R-202-73E P/N: 122351
480/3	N/A	R-202-24E P/N: 122314	R-202-34E P/N: 122328	R-202-54E P/N: 122343	R-202-74E P/N: 122352
203 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection & Alarm Light					
240/1	N/A	R-203-22E P/N: 122293	N/A	N/A	N/A
204 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Audio Alarm w/Push Button Silence & Alarm Light					
240/1	N/A	R-204-22E P/N: 122294	R-204-32E P/N: 122330	R-204-52E P/N: 122345	N/A
200/1	N/A	R-204-20E P/N: 122315	R-204-30E P/N: 122329	R-204-50E P/N: 122344	N/A
200/3	N/A	R-204-26E P/N: 122316	R-204-36E P/N: 122331	R-204-56E P/N: 122346	N/A
240/3	N/A	R-204-23E P/N: 122317	R-204-33E P/N: 122332	R-204-53E P/N: 122347	R-204-73E P/N: 122353
480/3	N/A	R-204-24E P/N: 122318	R-204-34E P/N: 122333	R-204-54E P/N: 122348	R-204-74E P/N: 122354
205 - NEMA 4X Fiberglass Enclosure, Operating Controls, Generator Receptacle & Alarm Light					
240/1	O-205-22E P/N: 122285	R-205-22E P/N: 122295	R-205-3X *	R-205-5X *	R-205-7X *
206 - NEMA 4X Fiberglass Enclosure, Operating Controls, Generator Receptacle, Audio Alarm w/Push Button Silence & Alarm Light					
240/1	O-206-22E P/N: 122286	R-206-22E P/N: 122296	R-206-3X *	R-206-5X *	R-206-7X *
207 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Generator Receptacle & Alarm Light					
240/1	N/A	R-207-22E P/N: 122297	R-207-3X *	R-207-5X *	R-207-7X *

VOLTAGE PHASE	2HP, OGP, OGVF/OGVH	2HP SGVF/SGVH	3HP SGV	5HP SGV	7.5HP SGV
208 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Generator Receptacle, Audio Alarm w/Push Button Silence & Alarm Light					
240/1	N/A	R-208-22E P/N: 122298	R-208-3X *	R-208-5X *	R-208-7X *
209 - NEMA 4X Fiberglass Enclosure, Operating Controls, Alarm Light & Elapsed Time Meter					
240/1	O-209-22E P/N: 122287	R-209-22E P/N: 122299	R-209-3X *	R-209-5X *	R-209-7X *
210 - NEMA 4X Fiberglass Enclosure, Operating Controls, Audio Alarm w/ Push Button Silence, Alarm Light & Elapsed Time Meter					
240/1	O-210-22E P/N: 122288	R-210-22E P/N: 122300	R-210-3X *	R-210-5X *	R-210-7X *
211 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Alarm Light & Elapsed Time Meter					
240/1	N/A	R-211-22E P/N: 122301	R-211-3X *	R-211-5X *	R-211-7X *
212 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection Audio Alarm w/Push Button Silence, Alarm Light & Elapsed Time Meter					
240/1	N/A	R-212-22E P/N: 122302	R-212-3X *	R-212-5X *	R-212-7X *
213 - NEMA 4X Fiberglass Enclosure, Operating Controls, Generator Receptacle, Alarm Light & Elapsed Time Meter					
240/1	O-213-22E P/N: 122289	R-213-22E P/N: 122303	R-213-3X *	R-213-5X *	R-213-7X *
214 - NEMA 4X Fiberglass Enclosure, Operating Controls, Generator Receptacle, Audio Alarm w/Push Button Silence, Alarm Light & Elapsed Time Meter					
240/1	O-214-22E P/N: 122290	R-214-22E P/N: 122304	R-214-3X *	R-214-5X *	R-214-7X *
215 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Generator Receptacle, Alarm Light & Elapsed Time Meter					
240/1	N/A	R-215-22E P/N: 122305	R-215-3X *	R-215-5X *	R-215-7X *
216 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Generator Receptacle, Audio Alarm w/Push Button Silence, Alarm Light & Elapsed Time Meter					
240/1	N/A	R-216-22E P/N: 122306	R-216-3X *	R-216-5X *	R-216-7X *
IMPORTANT! Control panel sizes and options will vary depending on contract specifications. When ordering control panels, use the Nomenclature Chart on page 1 for Model designation. (*) Consult factory for availability					

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PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Specifications:

XR Series

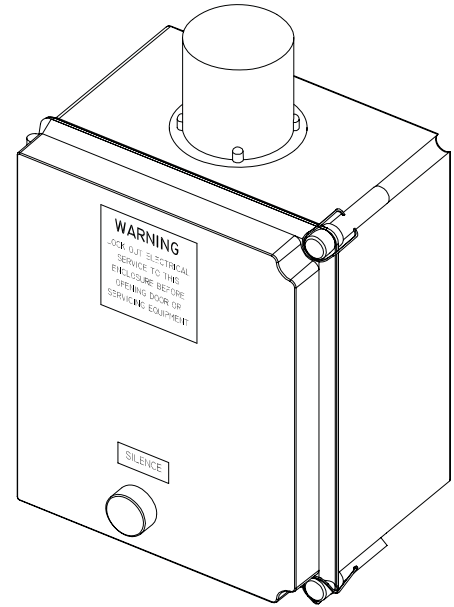
Listed by Underwriters Laboratories, simplex and duplex pump control panels provide reliable grinder pump station operation and potential malfunction warning.

STANDARD FEATURES:

- UL 508A Listed
- NEMA 4X Fiberglass Enclosure
- Padlockable Latch
- Pump/Panel Circuit Breaker
- IEC Rated Motor Contactor
- Ambient Compensated Current Overload
- Pump Start Pushbutton
- Individually Fused Circuits for Alarm and Control Components
- 25 Watt High Water Alarm Light with NEMA 4X Lens
- Pre-Installed Capacitor Kit
- Terminal Strip and Ground Lug for Incoming Connections
- Pump Alternator (200 Series Duplex Panels Only)
- Intrinsic Barriers
- 90 db alarm horn with NEMA 4X silence pushbutton.

OPTIONAL FEATURES:

- 7 Digit Elapsed Time Meter with meter running indicator.
- Transfer Switch with easy access reverse pin portable generator receptacle and weatherproof cover.
- Seal Leak Indication with 120 volt indicator lamp and terminals for 2 leak probe wires.



Wall Mounted Series:
Stealth-XR-100 & 200

STEALTH™

CONTROL PANELS



File No. LR142177



Stealth Control Panels

Simplex and Duplex, Wall Mounted Series
XR Series for XSGV Grinder Pumps



www.cranepumps.com

Control Panels

SIMPLEX				
VOLTAGE PHASE	2HP XSGV	3HP XSGV	5HP XSGV	7.5HP XSGV
104 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Audio Alarm w/Push Button Silence & Alarm Light				
240/1	XR-104-22 P/N: 111021	XR-104-32 P/N: 111025	XR-104-52 P/N: 111029	N/A
200/1	N/A	XR-104-37 P/N: 111024	XR-104-57 P/N: 111028	N/A
240/3	XR-104-23 P/N: 111022	XR-104-33 P/N: 111026	XR-104-53 P/N: 111030	XR-104-73 P/N: 111032
480/3	XR-104-24 P/N: 111023	XR-104-34 P/N: 111027	XR-104-54 P/N: 111031	XR-104-74 P/N: 111033
IMPORTANT! Control panel sizes and options will vary depending on contract specifications. When ordering control panels, use the Nomenclature Chart on page 13 for Model designation. (*) Consult factory for availability				

DUPLEX				
VOLTAGE PHASE	2HP XSGV	3HP XSGV	5HP XSGV	7.5HP XSGV
204 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, Audio Alarm w/Push Button Silence & Alarm Light				
240/1	XR-204-22 P/N: 113475	XR-204-32 P/N: 111038	XR-204-52 P/N: 111042	N/A
200/1	N/A	XR-204-37 P/N: 111037	XR-204-57 P/N: 111041	N/A
240/3	XR-204-23 P/N: 111035	XR-204-33 P/N: 111039	XR-204-53 P/N: 111043	XR-204-73 P/N: 111045
480/3	XR-204-24 P/N: 111036	XR-204-34 P/N: 111040	XR-204-54 P/N: 111044	XR-204-74 P/N: 111046
IMPORTANT! Control panel sizes and options will vary depending on contract specifications. When ordering control panels, use the Nomenclature Chart on page 13 for Model designation. (*) Consult factory for availability				

SECTION A
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PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Specifications:

R & O Series

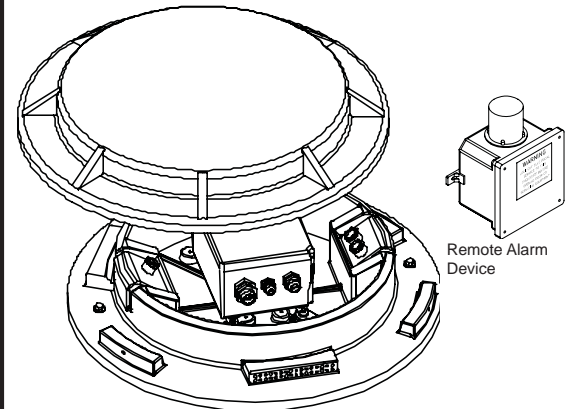
Listed by Underwriters Laboratories, simplex and duplex pump control panels provide reliable grinder pump station operation and potential malfunction warning.

STANDARD FEATURES:

- UL 508A Listed
- NEMA 4X Fiberglass Enclosure
- Padlockable Latch
- Pump/Panel Circuit Breaker
- IEC Rated Motor Contactor
- Ambient Compensated Current Overload (R Panels Only, except for SGVF2022L, SGVH2022L, SGVF2002L & SGVH2002L Overload for OGP, OGVF2022, OGVH2022, SGVF2022L, SGVH2022L, SGVF2002L & SGVH2002L Pumps located internally in the pump)
- Pump Start Pushbutton
- Individually Fused Circuits for Alarm and Control Components
- Weatherproof Alarm Box Containing Alarm Light and 90 db alarm Horn with NEMA 4X Silence Pushbutton and Suitable for Remote Mounting. Provided with Drywell Mounted Control Panels.
- Pre-Installed Capacitor Kit (R Panels Only, Capacitor for OGP, OGVF and OGVH Pumps located internally in the pump)
- Terminal Strip and Ground Lug for Incoming Connections

OPTIONAL FEATURES:

- 7 Digit Elapsed Time Meter with meter running indicator.
- Transfer Switch with easy access reverse pin portable generator receptacle and weatherproof cover.
- Seal Leak Indication with 120 volt indicator lamp and terminals for 2 leak probe wires. (R Series only)



Drywell Mount* Series: Stealth-R-100-P Stealth-O-100-P

(*) Drywell **NOT** included with panel.

STEALTH™

CONTROL PANELS

* IMPORTANT!

This page is for information use ONLY.
Drywell Panels and Drywells are included in the Pre-Wired basin package. Drywells and Drywell/panels assemblies **ARE NOT** sold separately.

Submersible Wastewater
Pump Association



File No. LR142177

Stealth Control Panels

Simplex, Drywell Mount Series
For 2HP SGV's, OGP & OGV Grinder Pumps



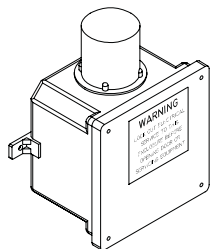
www.cranepumps.com

Control Panels

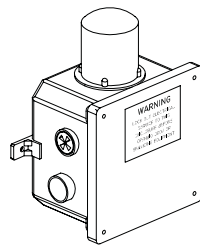
VOLTAGE PHASE	2HP, OGP, OGVF/OGVH	2HP SGVF/SGVH	REMOTE ALARM
101 - NEMA 4X Fiberglass Enclosure, Operating Controls with Remote Alarm Light			
240/1	O-101/2-22-P P/N: 113449	R-101/2-22-P P/N: 113437	Remote Alarm P/N: 102764
102 - NEMA 4X Fiberglass Enclosure, Operating Controls with Remote Audio Alarm w/Push Button Silence & Alarm Light			
240/1	O-101/2-22-P P/N: 113449	R-101/2-22-P P/N: 113437	Remote Alarm P/N: 102765A
103 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection with Remote Alarm Light			
240/1	N/A	R-103/4-22-P P/N: 113438	Remote Alarm P/N: 102764
104 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection, with Remote Audio Alarm w/Push Button Silence & Alarm Light			
240/1	N/A	R-103/4-22-P P/N: 113438	Remote Alarm P/N: 102765A
109 - NEMA 4X Fiberglass Enclosure, Operating Controls, Elapsed Time Meter with Remote Alarm Light			
240/1	O-109/10-22-P P/N: 113450	R-109/10-22-P P/N: 113439	Remote Alarm P/N: 1102764

VOLTAGE PHASE	2HP, OGP, OGVF/OGVH	2HP SGVF/SGVH	REMOTE ALARM
110 - NEMA 4X Fiberglass Enclosure, Operating Controls & Elapsed Time Meter with Remote Audio Alarm w/Push Button Silence, Alarm Light			
240/1	O-109/10-22-P P/N: 113450	R-109/10-22-P P/N: 113439	Remote Alarm P/N: 102765A
111 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection & Elapsed Time Meter with Remote Alarm Light			
240/1	N/A	R-111/12-22-P P/N: 113440	Remote Alarm P/N: 102764
112 - NEMA 4X Fiberglass Enclosure, Operating Controls, Seal Leak Detection & Elapsed Time Meter with Remote Audio Alarm w/Push Button Silence, Alarm Light			
240/1	N/A	R-111/12-22-P P/N: 113440	Remote Alarm P/N: 102765A
<p>IMPORTANT! Control panel sizes and options will vary depending on contract specifications. When ordering control panels, use the Nomenclature Chart on page 13 for Model designation.</p> <p>(*) Consult factory for availability</p> <p>See below for proper Remote Alarm Box.</p> <p>"R" panels used with SGVF, SGVH grinder pumps.</p> <p>"O" panels used with OGP, OGVF, OGVH grinder pumps.</p>			

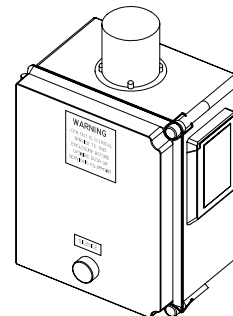
Remote Alarms (For use with Drywell Panels) (Panel and Remote Alarm Ordered Separately)



NEMA 4X Enclosure with Red Alarm Light
P/N: 102764



NEMA 4X Enclosure with Red Alarm Light and Audio Alarm Horn with Silence Push Button.
P/N: 102765A



NEMA 4X Enclosure with Red Alarm Light, Audio Alarm with Silence and Generator Receptacle.
P/N For OGVF/OGVH, OGP: 111666
P/N For SGVF/SGVH: 111583

SECTION A
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PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Control Panels & Accessories

Specifications:

The Simplex starter control is supplied in a NEMA Type I general purpose indoor enclosure to prevent accidental contact with enclosed equipment.

The enclosure is fabricated of 16 gauge steel. Hinged cover is held closed by flush latches. The standard finish is baked on ANSI 61 Gray Polyester Powder Coating inside and out over Phosphatized surfaces. White steel mounting plates support electrical components in the enclosure.

A two or three pole, ampere rated magnetic contactor will provide pump control. A normally open auxiliary interlock, rated 10 amperes, provides control use with one or two float switches or a single pressure switch. Contactor coil, float switches and other pilot devices operate at line voltage, with the exception of 460 volt controls which are supplied with a 115 volt control transformer.

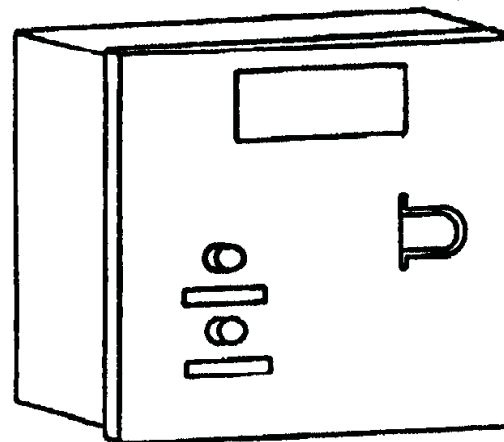
Motor overload protection is provided by one heater for each motor phase, ambient compensated overload with properly sized, quick trip heater(s). The overload relay will provide terminals for pump motor connection.

A terminal block is provided for customer connection of level switches or other pilot controls and/or a remote mounted alarm option.

The pump is controlled by a hand-off-auto toggle switch with spring return from the hand position to prevent pump damage.

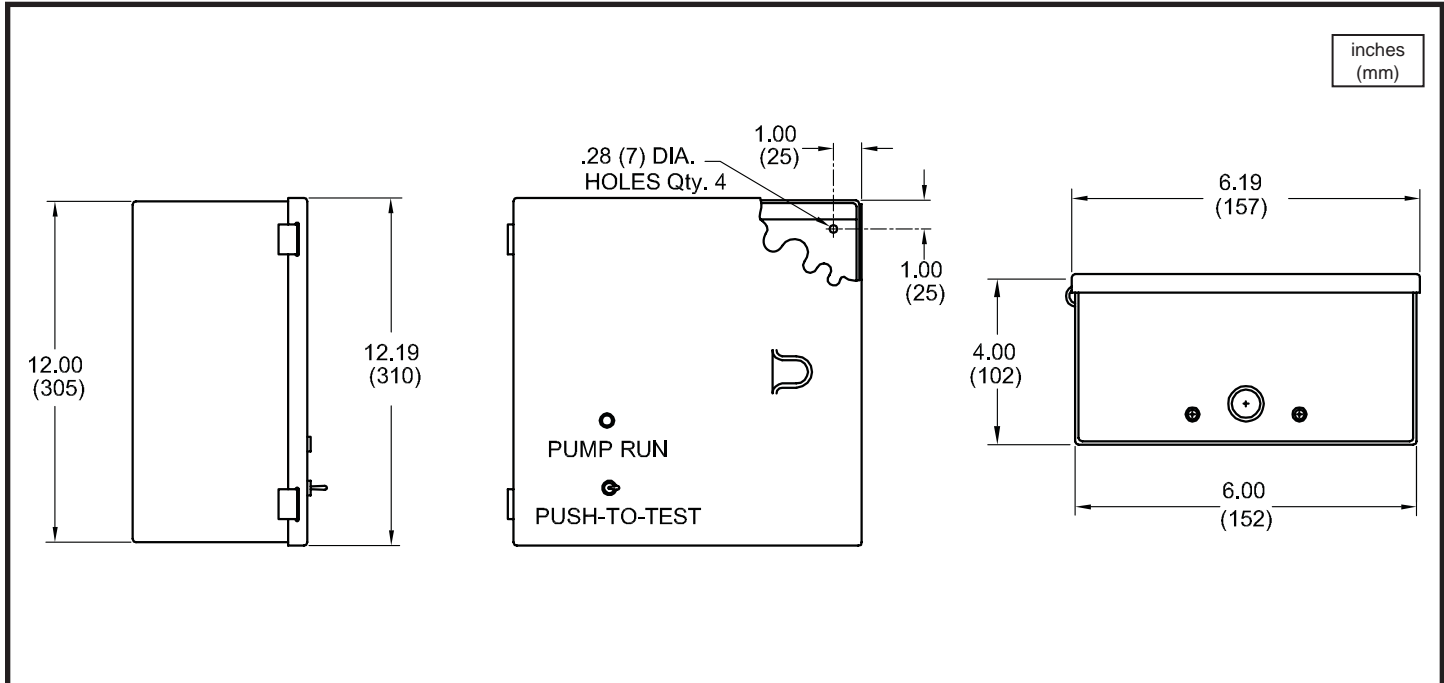
An amber run light is mounted through the enclosure side to indicate pump run operation.

Optional Equipment Available, See Page 31.



**Series: Simplex
1/4HP - 25HP**

Control Panels & Accessories



HP	PH	VOLTS	PART No.
.25 - 2	1	115	075660
.25 - 3	1	230	075661
.5 - 7.5	1	230	075662
.5 - 7.5	3	230	075663
10	3	230	075664
15 - 20	3	230	075665
25	3	230	075666

IMPORTANT!

1. Specify pump model and/or full load amps when ordering.
2. Optional equipment available.
3. Circuit Breaker **NOT** included.
4. **FOR INDOOR USE ONLY!**
5. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.

Control Panels & Accessories

Specifications:

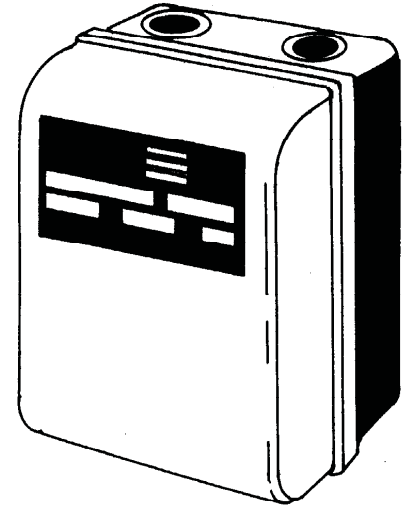
The Simplex pump contactor control is supplied in a NEMA Type I general purpose indoor enclosure to prevent accidental contact with the enclosed equipment.

The enclosure is formed of 16 gauge deep drawn steel with baked on gray epoxy paint. The enclosure will contain a two or three pole, amperage rated magnetic contactor for pump control. A normally open auxiliary interlock switch, rated 10 amperes minimum, provides control use with one or two float switches or a single pressure switch. Contactor coil, float switches and other pilot devices operated at line voltage (with the exception of 460 volt controls).

A terminal block is provided for customer connection of level switches, or other pilot controls, and/or a remote mounted alarm option.

A toggle switch provides hand-off-automatic operation with spring return from the hand to off position to prevent damage to pump. An amber run light is mounted through the enclosure side to indicate pump run operation.

For 230 volt, 1 phase operation, up to 3 HP.



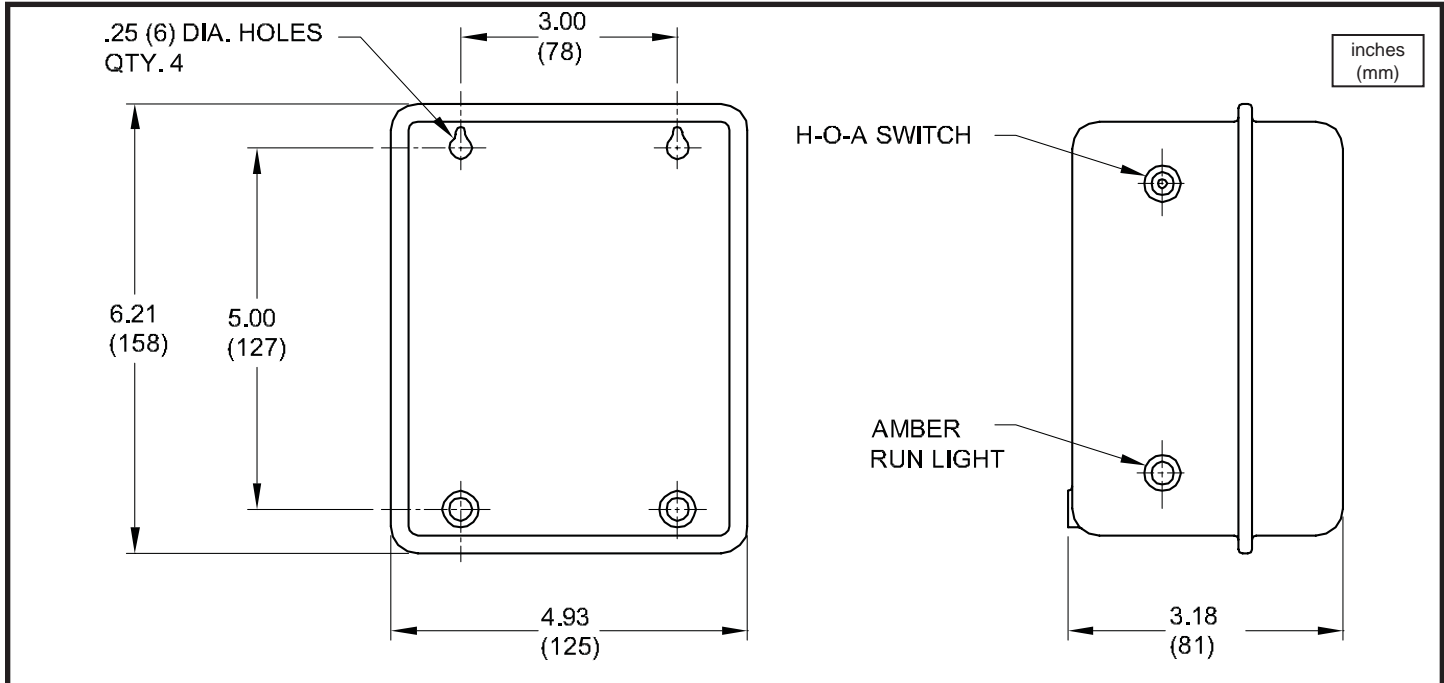
Series: Simplex

P/N: 065557, 115 volt

P/N: 065558, 230 volt

FOR INDOOR USE ONLY!

Control Panels & Accessories



HP	PH	VOLTS	PART No.
Up to 3	1	115	065557
Up to 3	1	230	065558

IMPORTANT!

1. Specify pump model and/or full load amps when ordering.
2. Circuit Breaker **NOT** included.
3. **FOR INDOOR USE ONLY!**

Control Panels & Accessories

Specifications:

The Simplex Contactors are recommended for systems requiring a permanent split-phase capacitor (PSC) or shaded pole motor driven pumps with internal thermal protection.

Supplied in a NEMA 1, indoor mounting steel enclosure, the control contains a 1/3 to 3 horsepower rated contactor for single phase motor control. The motor contactor is wired to a terminal block to provide control with 2 float switches, or a single pressure switch. Contactor coils, float switches and other pilot devices operate at line voltage.

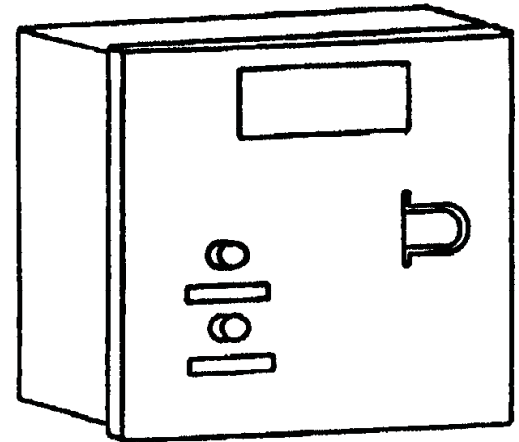
The hinged enclosure door mounts a Push-To-Test button and a Amber light, mounted next to the button to indicate pump operation.

Terminals and terminal blocks are provided for all customer connections, motor leads, float switches and other pilot devices, and incoming line power.

The indoor NEMA 1 enclosure is finished in a gray enamel coating, inside and out, over phosphatized steel.

Knock-outs are provided on the enclosure top and bottom for ease of installation. Mounting is provided through 4 holes through the rear of the enclosure.

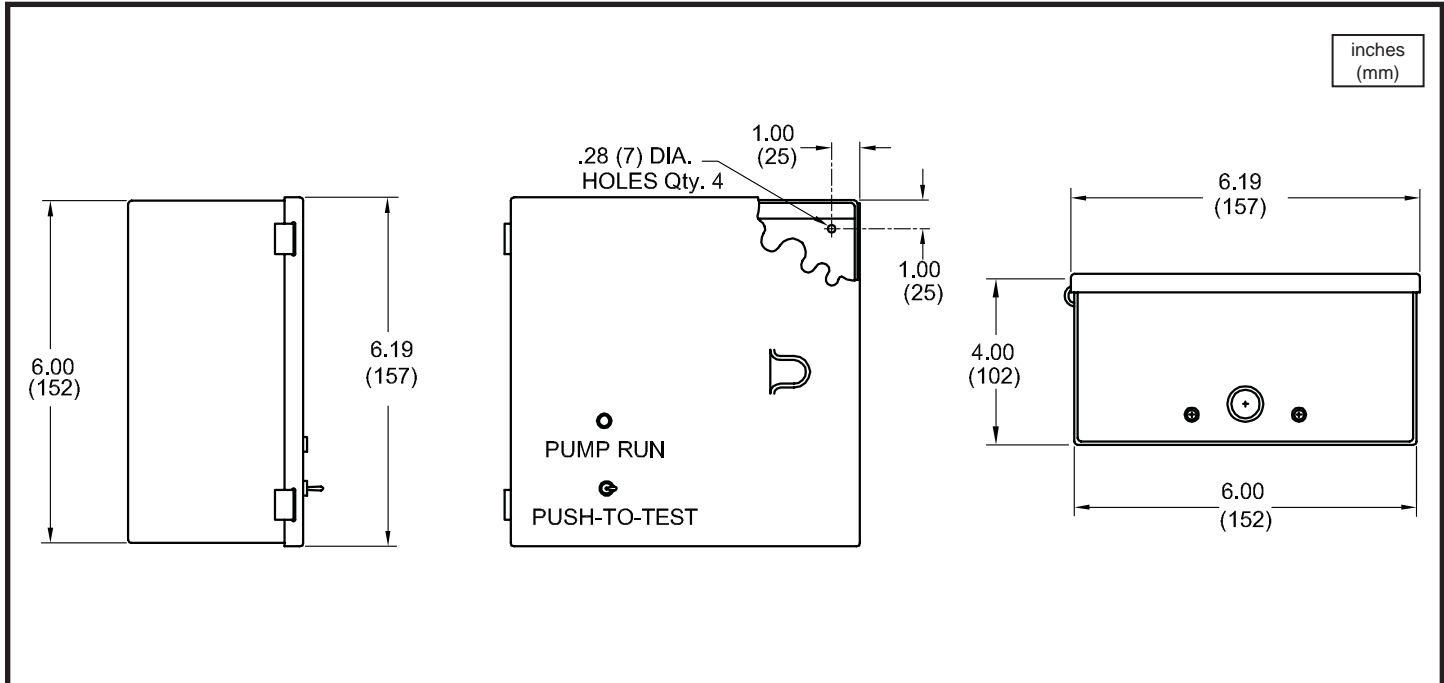
Optional Equipment Available, See Page 31



Series: Simplex - NEMA 1
1/3HP - 3HP, 115 & 230 Volt, 1 Phase

FOR INDOOR USE ONLY!

Control Panels & Accessories



HP	PH	VOLTS	PART No.
1/3 - 3	1	115	075657
1/3 - 3	1	230	075658

IMPORTANT!

1. Specify pump model and/or full load amps when ordering.
2. Optional equipment available.
3. Circuit Breaker **NOT** included.
4. **FOR INDOOR USE ONLY!**
5. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.

Control Panels & Accessories

Alarm Options - NEMA 1

PART No	DESCRIPTION
---------	-------------

082804	Alarm Light & Buzzer, Nema 1, 115 Volt
--------	--

085895	Alarm Light & Buzzer, Nema 1, 230 Volt
--------	--

082805	Alarm Light & Buzzer with silence Push Button, NEMA 1, 115 Volt
--------	---

085961	Alarm Light & Buzzer with silence Push Button, NEMA 1, 230 Volt
--------	---

082818	Alarm Light, NEMA 1, 115 Volt
--------	-------------------------------

085897	Alarm Light, NEMA 1, 230 Volt
--------	-------------------------------

085967	Alarm Buzzer, NEMA 1, 115 Volt
--------	--------------------------------

085896	Alarm Buzzer, NEMA 1, 230 Volt
--------	--------------------------------

085962	Alarm Buzzer with Silence Push Button, NEMA 1, 115 Volt
--------	---

085963	Alarm Buzzer with Silence Push Button, NEMA 1, 230 Volt
--------	---

NEMA 3 & 4 Options

082810 NEMA 3R Enclosure 10 x 8 x 4, steel with light gray polyester finish. - Simplex Contactor

082811 NEMA 3R Enclosure 12 x 12 x 6, steel with light gray polyester finish. - Duplex Contactor

082812 NEMA 3R Enclosure 12 x 12 x 6, steel with light gray polyester finish. - Simplex Starter

082813 NEMA 3R Enclosure 16 x 14 x 6, steel with light gray polyester finish. - Duplex Starter

082814 NEMA 4 Enclosure 10 x 8 x 6, steel with light gray polyester finish. - Simplex Contactor

082815 NEMA 4 Enclosure 12 x 12 x 6, steel with light gray polyester finish. - Duplex Contactor

082816 NEMA 4 Enclosure 14 x 12 x 6, steel with light gray polyester finish. - Simplex Starter

082817 NEMA 4 Enclosure 14 x 12 x 6, steel with light gray polyester finish. - Duplex Starter

075630 NEMA 3R or 4 Selector Switch- 3 position, door mounted.

075638 NEMA 3R or 4 Light- Door Mounted

Alarm / Disconnect Panel

1500 Series, Simplex
for Automatic Pumps

BARNES®

www.cranepumps.com

Control Panels & Accessories

Specifications:

Listed by Underwriters Laboratories, simplex pump alarm panel used with the ESPS-150 Level Control, UltraCAP² Basin Packages, or any other station using a OGP or OGV Series pump with a automatic level control.

Model 1500 P/N: 116742

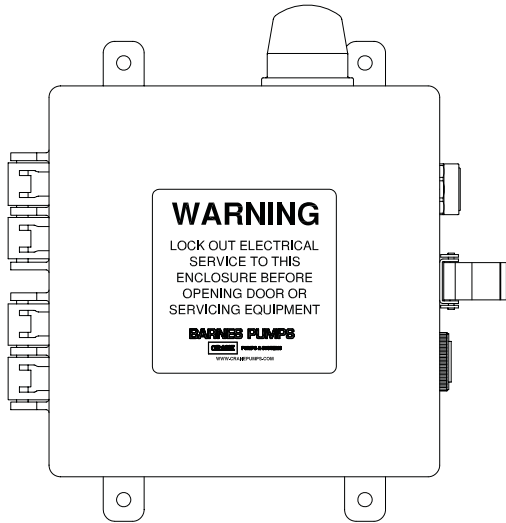
- 90 db Alarm Horn with pushbutton silence
- High Water Alarm Light
- 25 Amp pump circuit breaker and 10 Amp alarm circuit breaker
- NEMA 4X Enclosure
- Non-Metallic Enclosure
- Padlockable latch(s)
- 240 Volt single phase service

Model 1550 P/N: 111666

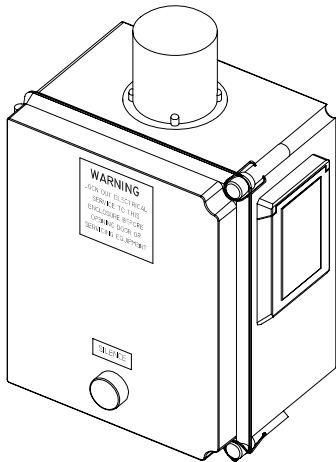
Includes the same base standard features as the 1500 series
Also Includes:

- Generator receptacle with automatic transfer switch
- NEMA code L14-30P Flanged Locking Receptacle
- 125/250 Volt, 3 Pole, 4 Wire
- 25 Amp pump circuit breaker and 3 Amp alarm circuit breaker

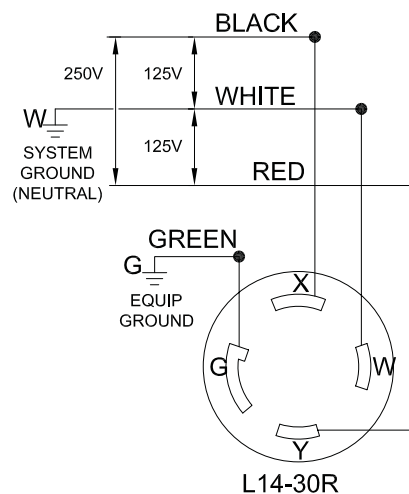
OPTIONAL EQUIPMENT..... 30 Ft. Generator Connection Cord, 12/4 SOW cord with NEMA L14-30R Locking Connector, Factory Installed and Tested P/N: 119962XC



Model: 1500
Alarm/Disconnect Panel:
P/N: 116742



Model: 1550
Alarm/Disconnect Panel with
Generator Receptacle:
P/N: 111666



Model: 1500
File No. E241592
Model: 1550
File No. LR142177

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DATE 1/06

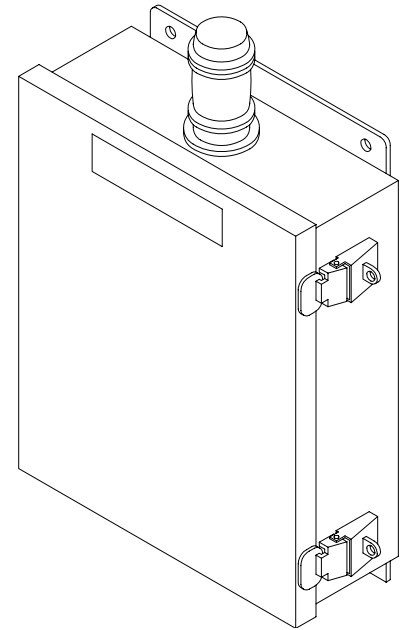
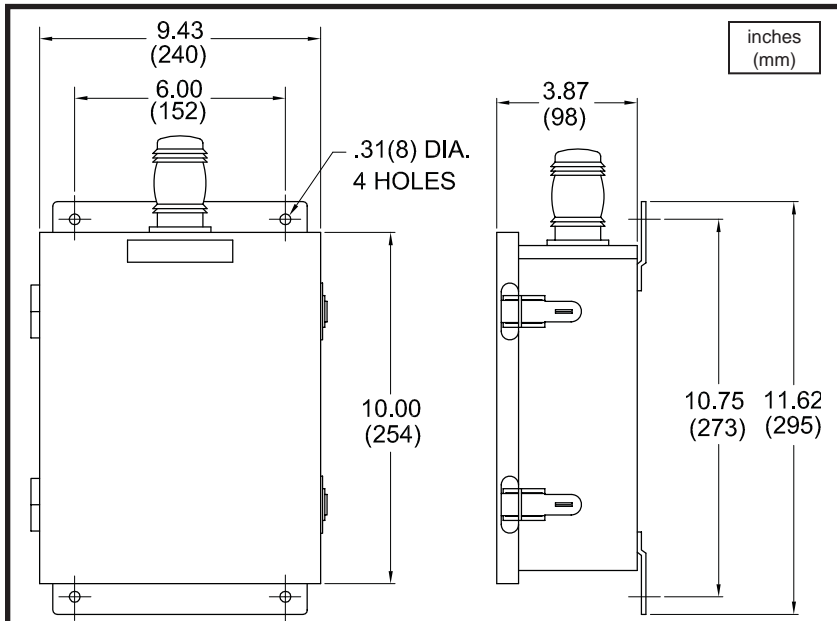
CRANE®

A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Control Panels & Accessories



P/N: 064691A

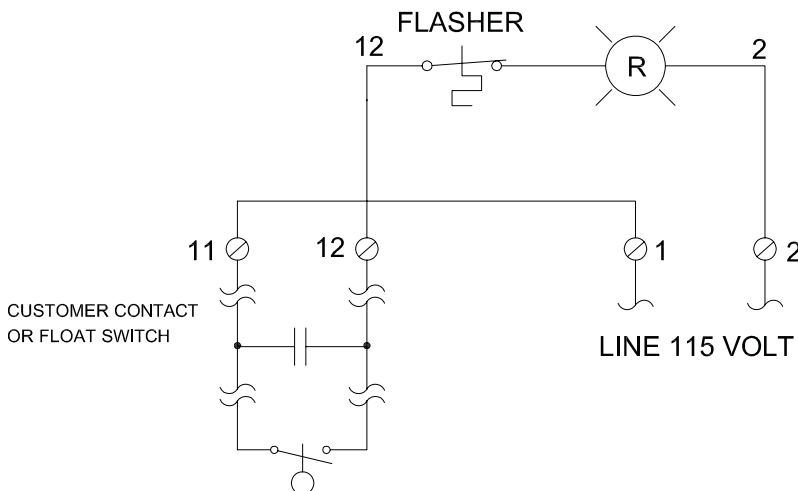
Specifications:

These oiltight and dust free Fiberglass enclosures which meet NEMA 3, 4X & 12, have corrosion resistant stainless steel piano hinges and latches with padlock hasp (padlocks furnished by others), silicone gaskets and integral mounting feet.

Weatherproof red lexon globe with 40 watt light bulb with flasher, 120 volt, that remains on until alarm condition is cleared.

Must add Dry Contacts P/N 073604 to control panel for remote alarm.

1. Connect Alarm Float or Contact to Terminals 11 & 12
2. Connect a good Earth Ground to Enclosure
3. Connect Line to Terminals 1 & 2
4. Alarm Contact is to be installed by Customer



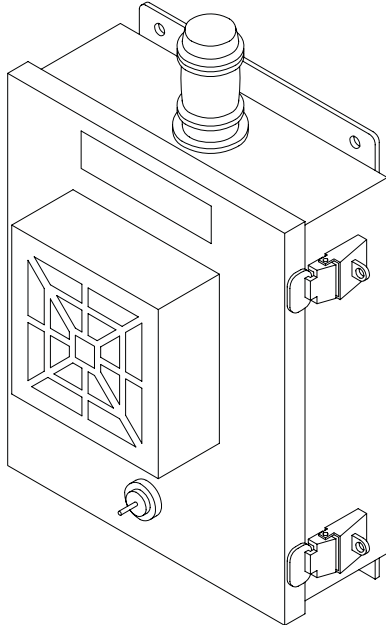
Alarms

Remote Alarm Light and Horn
NEMA 4X, 3 & 12

BARNES®

www.cranepumps.com

Control Panels & Accessories



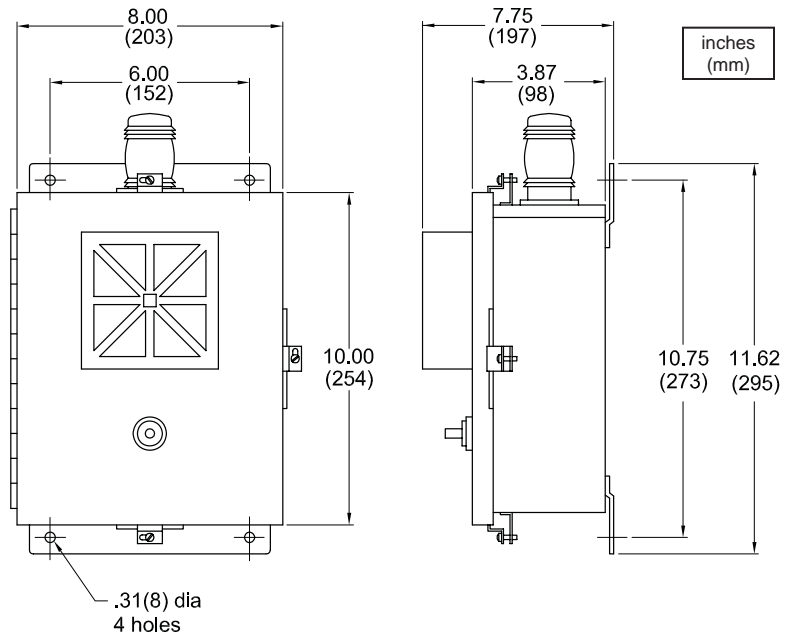
P/N: 064691E

Specifications:

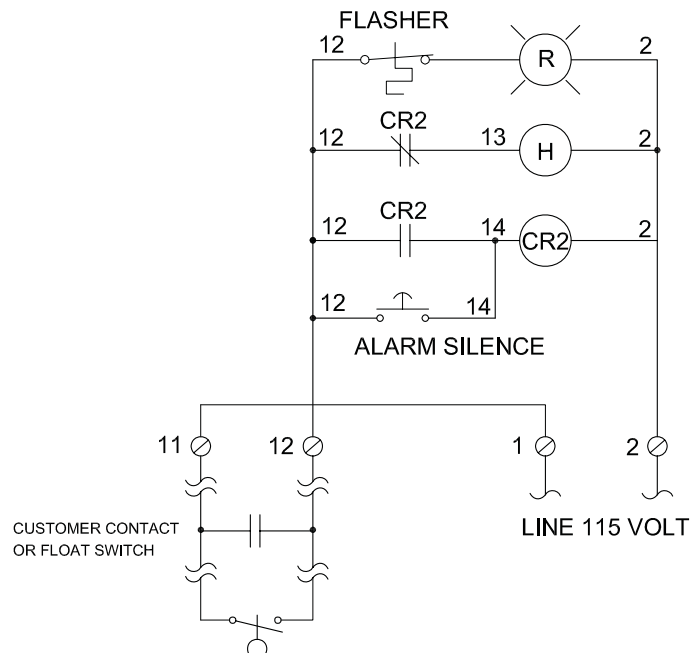
These oiltight and dust free Fiberglass enclosures which meet NEMA 3, 4X & 12, have corrosion resistant stainless steel piano hinges and latches with padlock hasp (padlocks furnished by others), silicone gaskets and integral mounting feet.

Weatherproof alarm horn, 91db, 120 volt, alarm silencer push button and red 40 watt flashing light that remains on until alarm condition is cleared

Must add Dry Contacts P/N 073604 to control panel for remote alarm



1. Connect Alarm Float or Contact to Terminals 11 & 12
2. Connect a good Earth Ground to Enclosure
3. Connect Line to Terminals 1 & 2
4. Alarm Contact is to be installed by Customer



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DATE 2/05

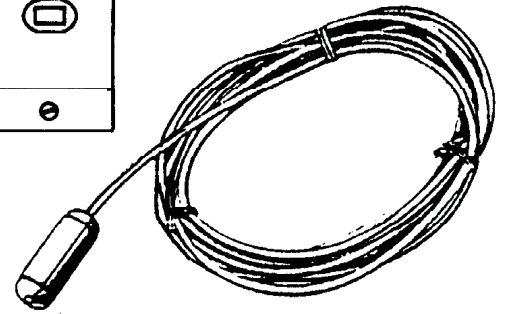
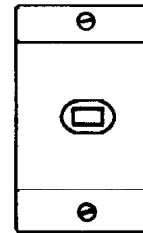
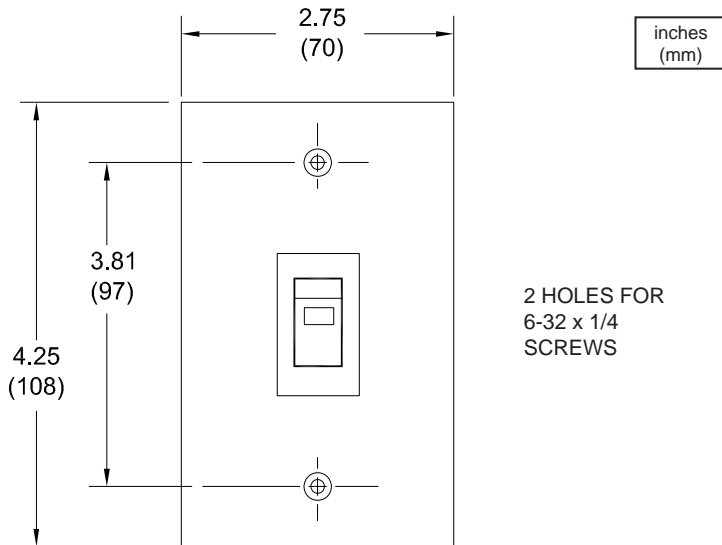
CRANE
A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Specifications:

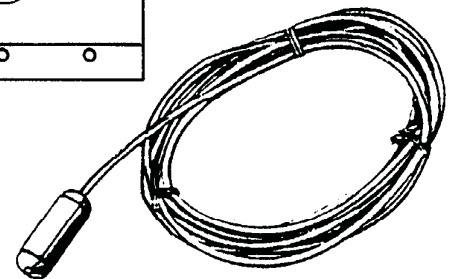
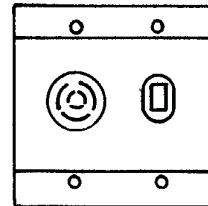
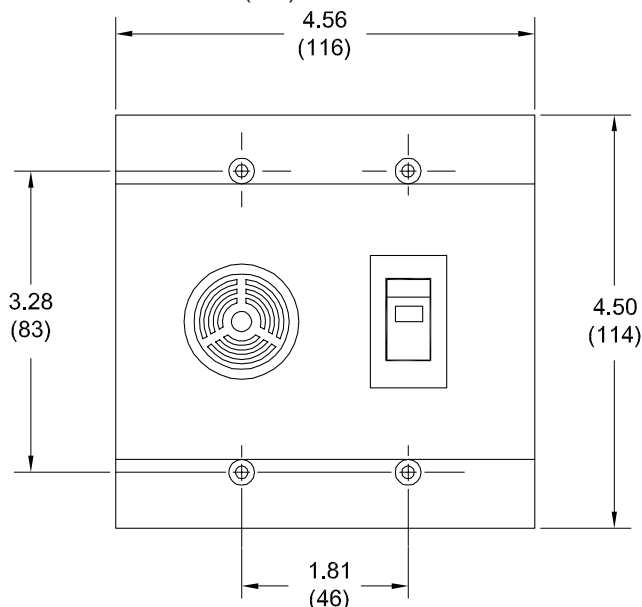
061486 High Water Alarm includes stainless steel wall plate with red jewel light and one mechanical level control with 10 ft. (3m) of 18/2 cord.



P/N: 061486

FOR INDOOR USE ONLY!

061487 High Water Alarm (Solid State) includes stainless steel wall plate, audible and visual alarm with silencer button and one mechanical level control with 10 ft. (3m) of 18/2 cord.



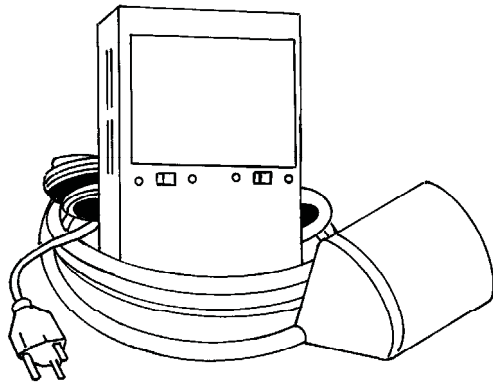
P/N: 061487

FOR INDOOR USE ONLY!

Control Panels & Accessories

Specifications

VOLTAGE..... Primary 120V, 50/60Hz with 6 ft. line cord.
WATTS 4.8 Watts Alarm Condition.
ENCLOSURE..... NEMA 1 metal enclosure with knock outs.
ALARM SWITCH CONNECTION TERMINAL:
 Low voltage class 2 wiring.
ALARM HORN 86db (A) at 10ft.(3M)
ALARM FLOAT..... High impact resistant PVC Housing,
 Mechanical tilt switch hermetically sealed with
 15ft. (5m) 18/2 SJOW water resistant
 neoprene (CPE) cord with pipe clamp.
TEMPERATURE RATING: 140°F (60°C)



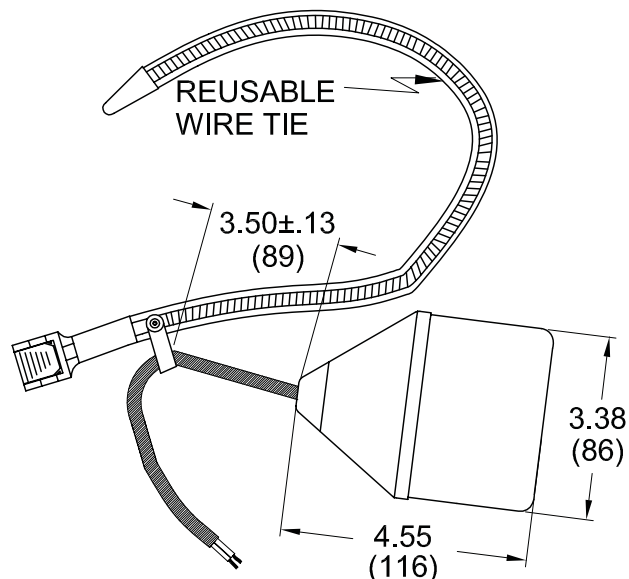
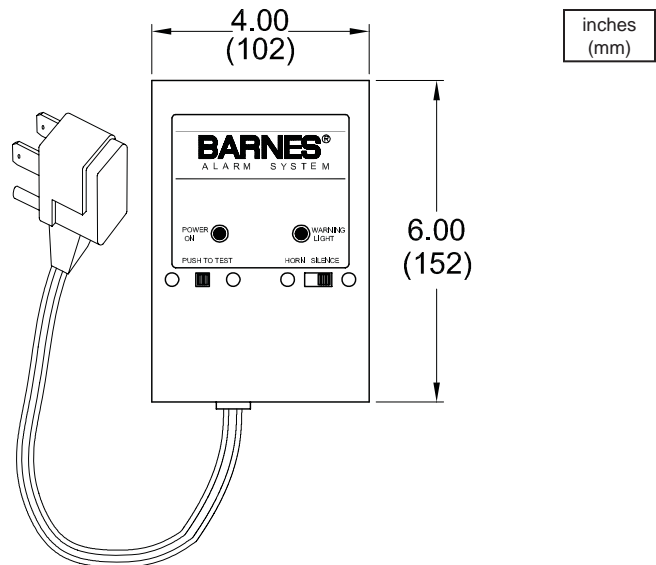
P/N: 126306, 120 Volt



Description

This Alarm System includes a NEMA 1 panel with red warning light, a green “power on” light, a push-to-test alarm button and a horn silence switch.

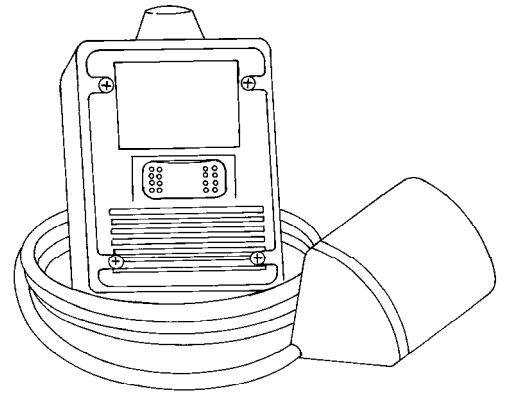
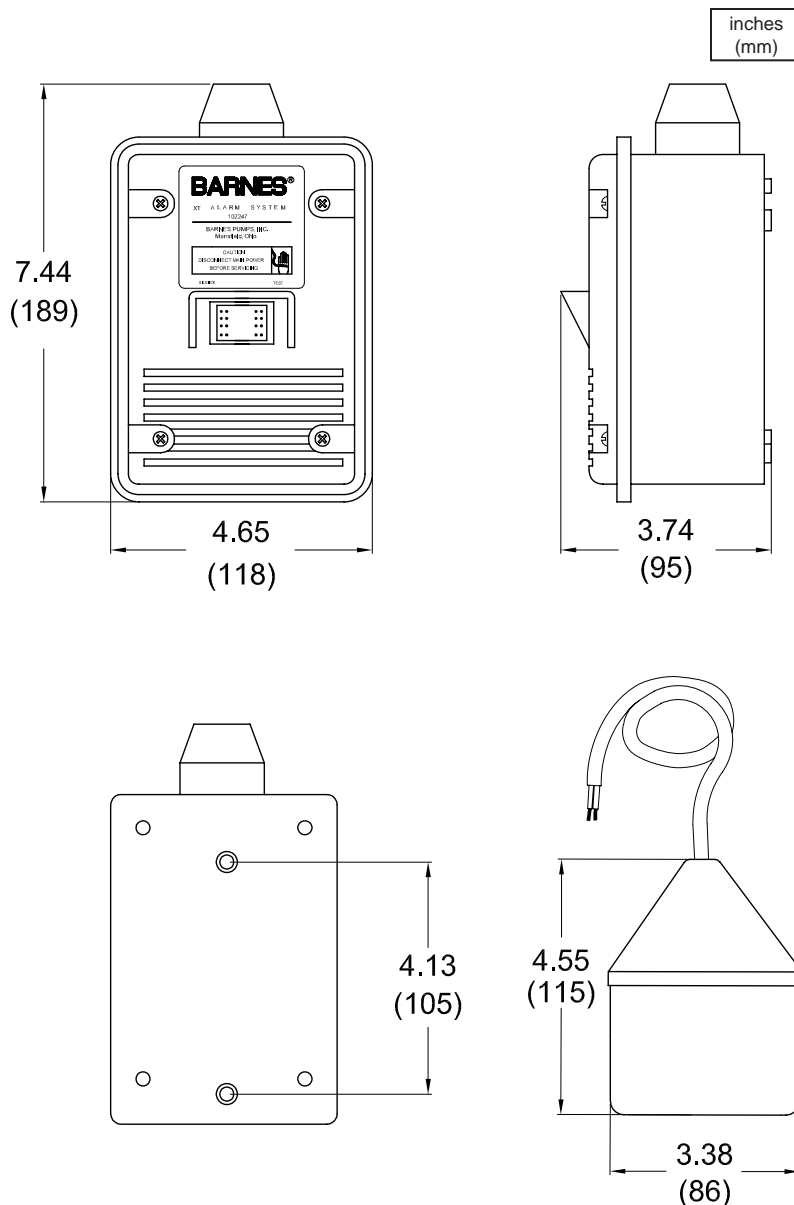
The liquid level alarm system is designed specifically for lift pump chambers and sump pump basins. The float switch is lowered into the tank and secured at the desired alarm level. When the liquid rises (high level alarm) or lowers (low level alarm), the float tips and activates a loud horn on the alarm panel. In addition, a red, solid-state warning light is activated. The horn can be turned off, but the warning light will remain on until the condition is remedied. An added green “power on” light assures that there is power to the alarm panel.



Control Panels & Accessories

Specifications:

VOLTAGE..... Primary 120V, 50/60Hz
ENCLOSURE..... Water-tight, Thermoplastic, Type 3R
ALARM HORN..... 85db (A) at 10ft.(3m)
ALARM LIGHT..... Top Mounted type 4X
ALARM FLOAT..... High impact resistant PVC Housing,
 Mechanical tilt switch hermetically sealed
 with 15ft. (5m) 18/2 SJOW water resistant
 neoprene (CPE) cord with pipe clamp.
TEMPERATURE RATING 140°F (60°C)



P/N: 126307, 120 Volt



Description

This Alarm System includes a water-tight panel with a top mounted Alarm light, a test/silence switch, a power on light and a 85db (A) alarm horn with a mercury float.

The liquid level alarm system is designed specifically for lift pump chambers and sump pump basins. The float switch is lowered into the tank and secured at the desired alarm level. When the liquid rises (high level alarm) or lowers (low level alarm), the float tips and activates the horn and light on the alarm panel.

Capacitor/Relay Packs

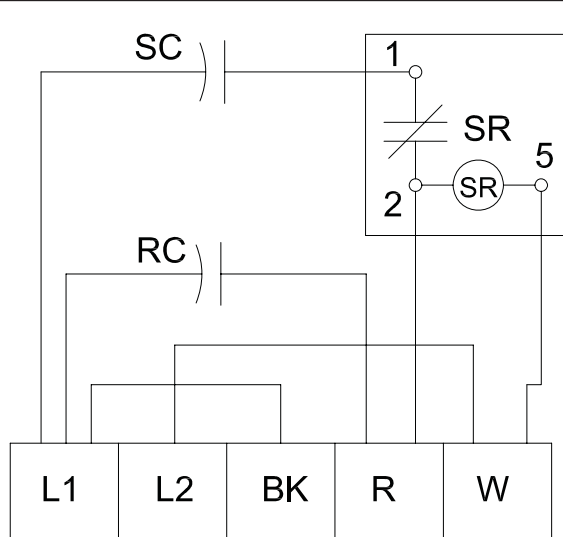
Plate Mounted

For Single Phase Pumps

BARNES®

www.cranepumps.com

Control Panels & Accessories



P/N's: 073301 - 073306

Specifications:

If other than BARNES panels are used with the following single phase pumps, the capacitor/relay pack must be used for warranty compliance.

Each Capacitor/Relay Pack includes:

- Mounting Plate, white, 8" (203mm) x 6" (152mm)
- Start Capacitor
- Run Capacitor
- Capacitor Mounts
- Start Relay
- Terminal Block
- Line Jumper wire
- Four Screws
- Components are mounted to plate and prewired

PART No.	PUMP MODEL	HP	VOLT	PHASE
073306	SGV2022L, SGVF, SGVH	2	240	1
073306A	SGVF & SGVH2002L	2	200	1
073302	SGV3002L, SGV3072L	3	200	1
073303	SGV3022L, SGV3072L	3	230	1
073304	SGV5002L	5	200	1
073305	SGV5022L, Prior to 05/2003	5	230	1
073305A	SGV5022L, After 05/2003	5	240	1
073301	4SE4526L	4.5	230	1
	4SE4524L	4.5	230	1
	4SE4526HL	4.5	230	1
	4SE7524L	7.5	230	1
	4SE7524HL	7.5	230	1

SECTION A
PAGE 38
DATE 4/09

CRANE®

A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Specifications:

Each BAF break away fitting consists of a cast iron base elbow which is bolted to the floor of the wet well, lower and upper guide rail supports and a cast iron moveable elbow with a sealing plate and o-ring. The discharge flange on the elbow base (ANSI B16.1) will mate with a standard 125lb. companion flange and gasket (supplied). The pump is connected to the moveable elbow through a stainless steel nipple supplied with each assembly.

The guide rails (supplied by customer) are attached to the base elbow at the lower end and a pipe spacer support bracket at the upper end. The guide rails are set in place by sliding the pipe over a stainless steel plug. Each plug has an o-ring to reduce noise and vibration. The guide rails serve only as a guide as they carry none of the pump weight. 1" (25mm) schedule 40 galvanized steel pipes should be used for guide rails.

An optional intermediate guide rail bracket is recommended for depths of 13 feet (4m) or more. See page 2.

The BAF's, 1212, 1220 & 2020 are for pumps up to 200 lbs (91kg) which do not generate in excess of 150 ft. TDH (45 Meters).

The BAF's, 2030 & 3030 is for pumps up to 250 lbs (114kg) which do not generate in excess of 150 ft. TDH (45 Meters).

One break away fitting is required per pump. (The S.S. Lifting bridle is included.)

Assemblies DO NOT include Pump, Discharge piping, Guide Rails, Lifting Chain, nor Gate Valve with Handle.

These items must be purchased separately.

Specifications: With Check Valve "CV" Series

In addition to standard features listed above, a commercially available ball Check Valve is supplied with each model. The valve is installed between the pump discharge flange and the inlet flange on the moveable elbow.

Specifications: Non-Sparking "NS" Series

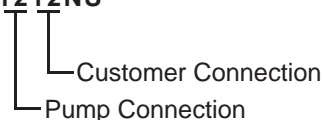
The "NS" series is similar in design to the standard version except it has a Bronze Moveable Elbow to prevent sparking.

Model Key: BAF - 1212NS

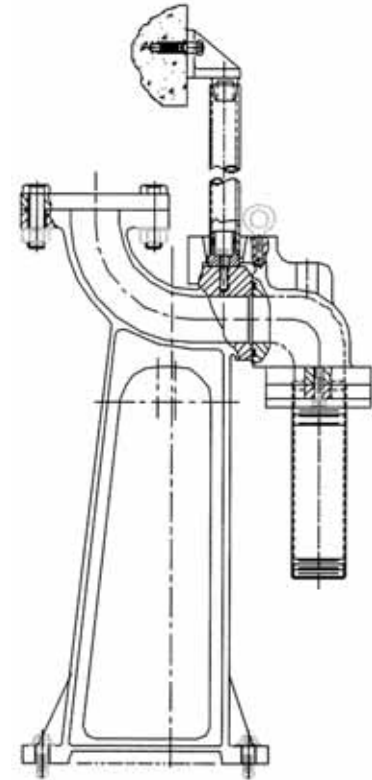
12 = 1 1/4"

20 = 2"

30 = 3"



For Submersible Sump, Sewage, Effluent & Grinder Pumps.



Models: Without Check Valve

STD P/N		"NS" P/N
127300	BAF - 1212	127303
127301	BAF - 1220	127311
127302	BAF - 2020	127312
127306	BAF - 2030	127305
127304	BAF - 3030	127314

Models: With Check Valve

STD P/N		"NS" P/N
127307	BAF - 1212CV	127310
127308	BAF - 1220CV	127313
127309	BAF - 2020CV	127315

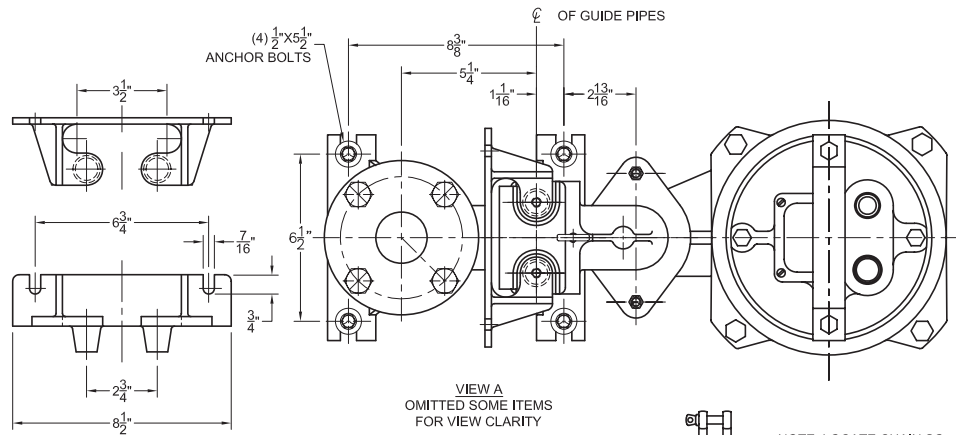
DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

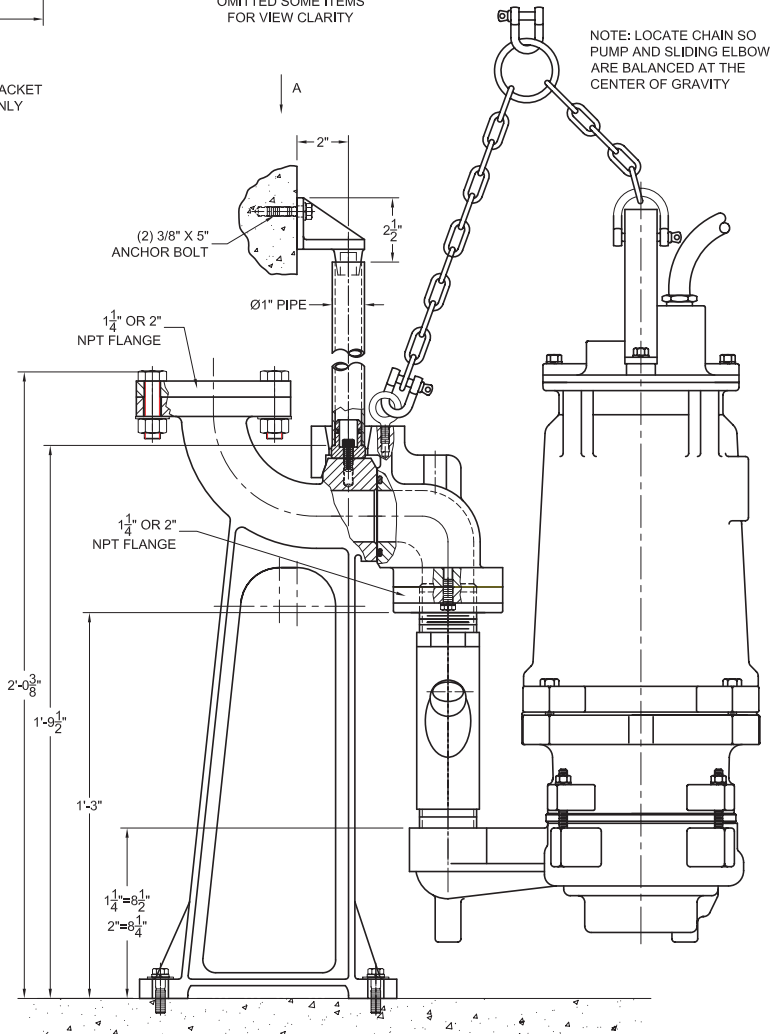
Break Away Fittings

BAF - 1212CV, 1220CV, 2020CV

inches
(mm)



UPPER GUIDE PIPE BRACKET
FOR REFERENCE ONLY



DIMENSIONS FOR REFERENCE ONLY

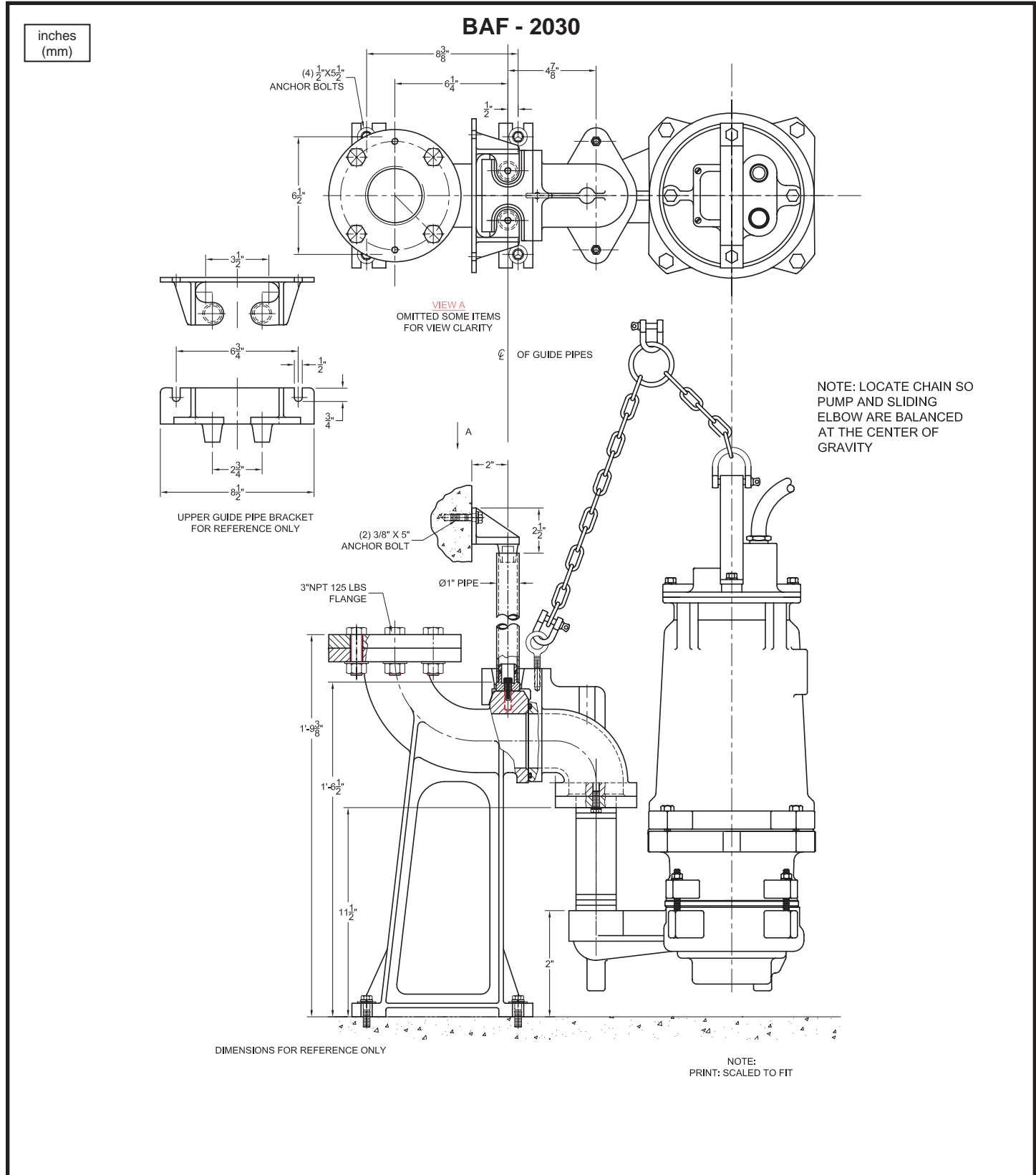
* The 1.25 x 2 is supplied with an ultra close adapter.
See page 6 for OPTIONAL Intermediate Supports.
NOTE: Lifting Chain sold separately.

If pump is not equipped with a removable discharge flange, the casing may need removal to install the check valve

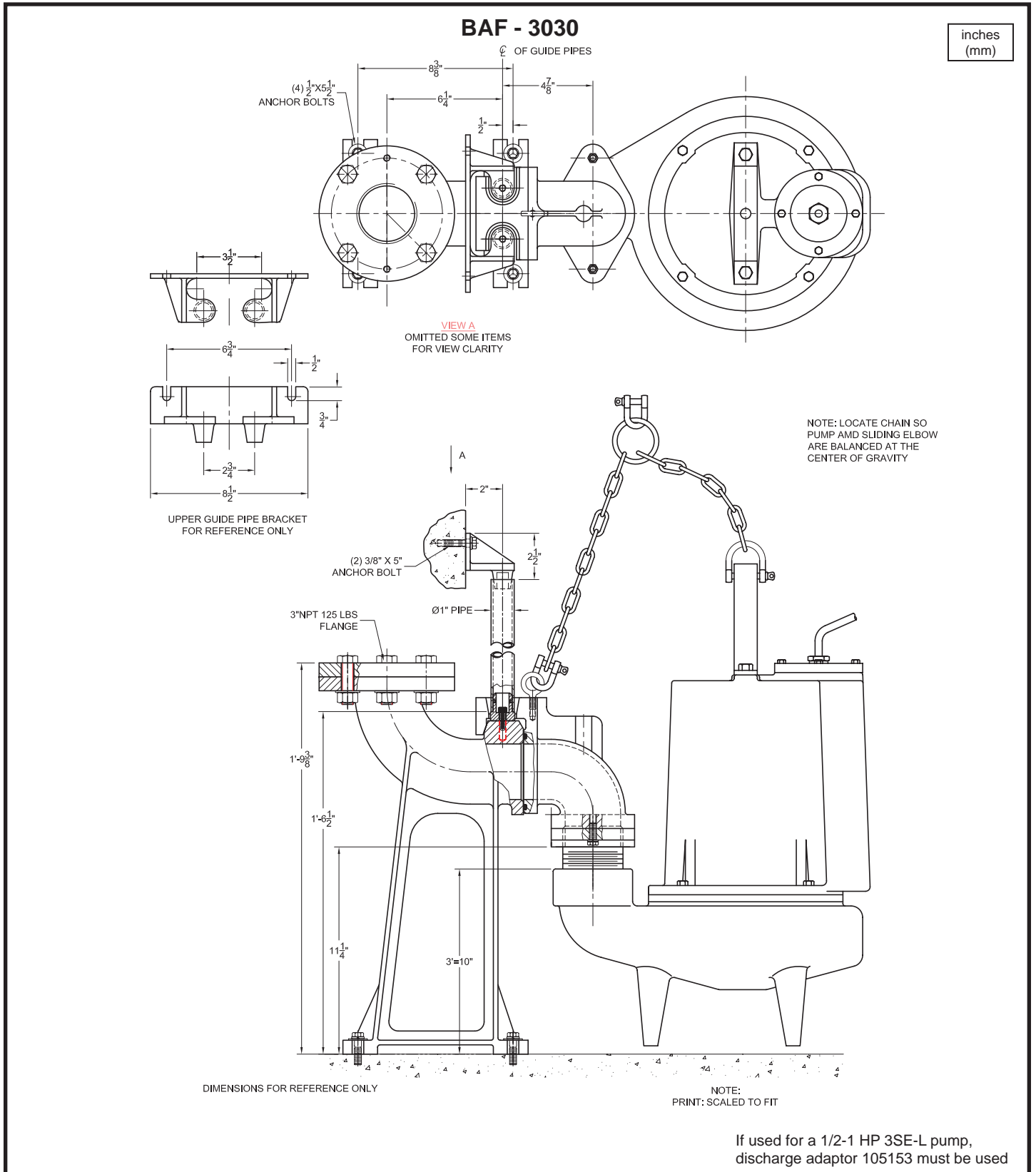
Break Away Fitting

2" x 3"

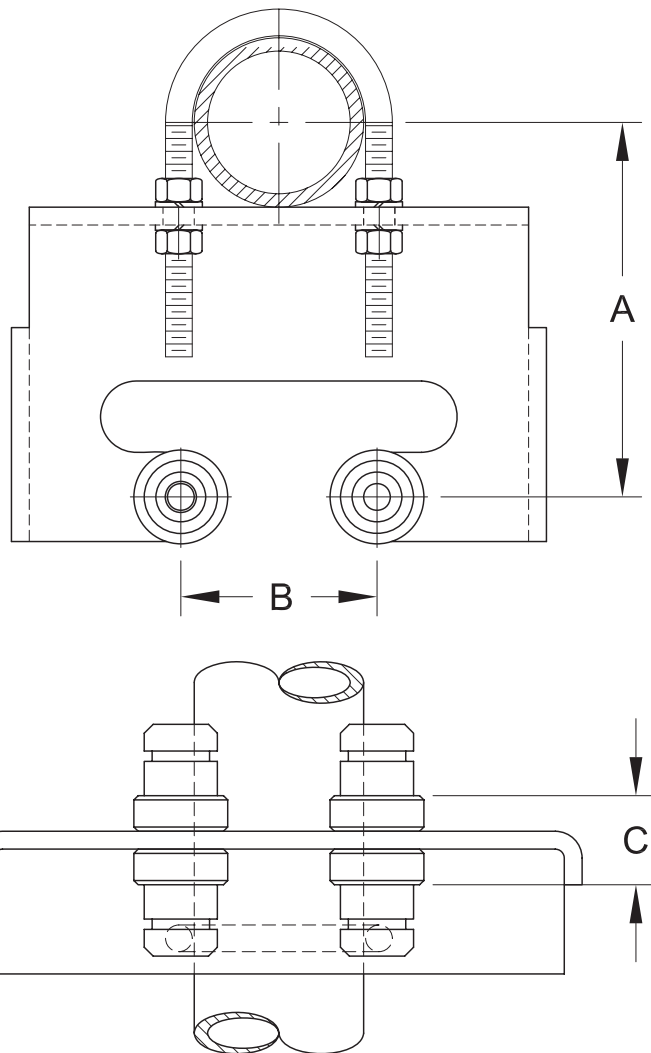
Break Away Fittings



Break Away Fittings



Break Away Fittings



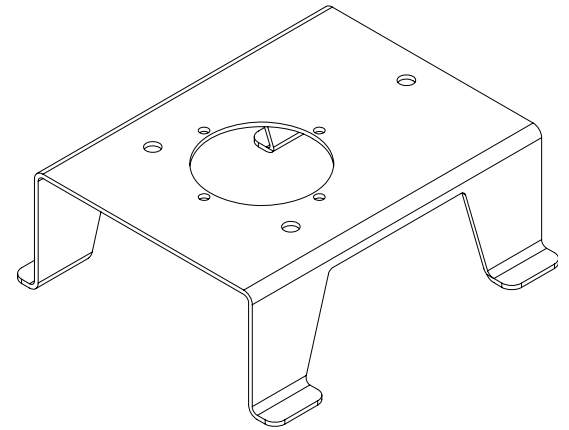
Stainless Steel Intermediate Rail Support Must be Ordered Separately				
BAF Model #	Intermediate Rail Support P/N	Dim "A"	Dim "B"	Dim "C"
BAF-1212	750940	5 ¹ / ₄ "	2 ³ / ₄ "	1 ¹ / ₄ "
BAF-1220	750941	5 ¹ / ₄ "	2 ³ / ₄ "	1 ¹ / ₄ "
BAF-2020	750941	5 ¹ / ₄ "	2 ³ / ₄ "	1 ¹ / ₄ "
BAF-2030	750944	6 ¹ / ₄ "	2 ³ / ₄ "	1 ¹ / ₄ "
BAF-3030	750944	6 ¹ / ₄ "	2 ³ / ₄ "	1 ¹ / ₄ "
BAF-1212CV	750940	5 ¹ / ₄ "	2 ³ / ₄ "	1 ¹ / ₄ "
BAF-1220CV	750941	5 ¹ / ₄ "	2 ³ / ₄ "	1 ¹ / ₄ "
BAF-2020CV	750941	5 ¹ / ₄ "	2 ³ / ₄ "	1 ¹ / ₄ "

Break Away Fittings

Specifications:

The Pump Support Stand is fabricated of 300 series stainless steel with rubberized pads on the feet to eliminate damaging the basin floor.

The Stand can be used with the 2HP SGVF, 2HP SGVH, OGVF, OGVH, OGP and SGPC Grinder pumps which supports the pump the required distance from the basin floor.



Pump Support Stand
P/N: 111182

Specifications:

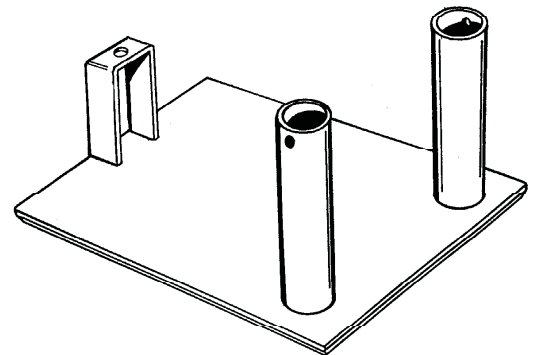
BASE PLATE 9" (229mm) x 6.60" (152mm) x .25 (6mm) Thk.
Steel

PAINT Black Epoxy Asphalt

HARDWARE Corrosion Resistant Steel

IMPORTANT!

For use with old generation SGV pump. part numbers: 105234 thru 105239.



Pump Stand (Old SGV)
P/N: 082305

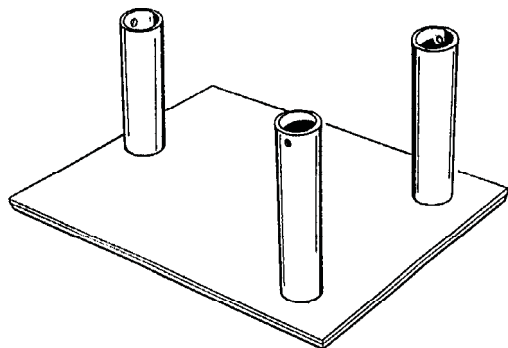
Pump Stand

3, 5 & 7.5 HP SGV Grinder Pump
For Rigid Pipe System

BARNES®

www.cranepumps.com

Break Away Fittings



Pump Stand
P/N: 082306

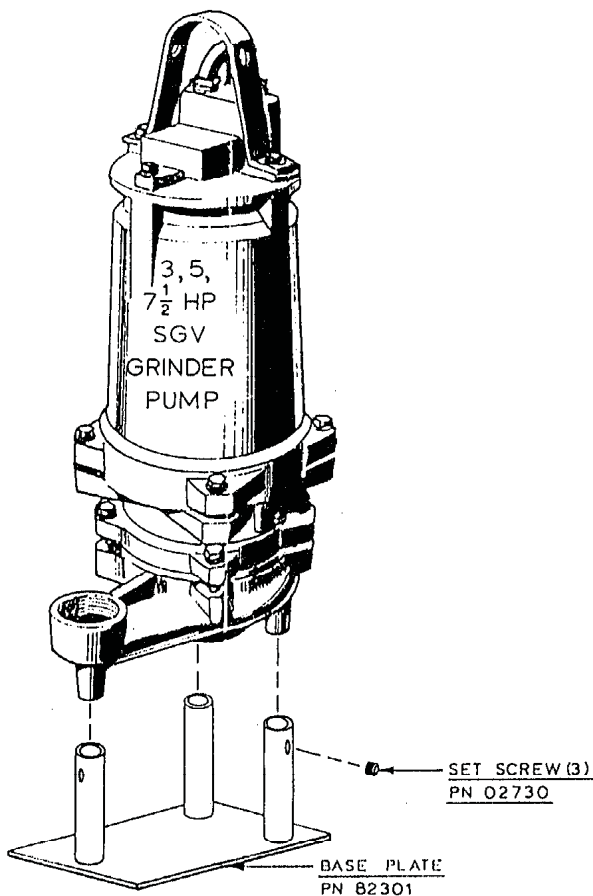
Specifications:

BASE PLATE 11.68" (297mm) x 7.62" (194mm) x .25" (6mm)
Thk. Steel
PAINT Black Epoxy Asphalt
HARDWARE Corroision Resistant Steel

Instructions:

1. Place three (3) set screws in legs of base plate but do not thread into openings.
2. Place pump legs into three (3) openings of base plate legs.
3. Making sure pump is level and remains approximately 4" (102mm) off bottom of basin, tighten three (3) set screws against sides of pump legs.
4. Assemble all necessary discharge piping, check valves, etc. (not furnished with stand) to the pump.
5. Attach lifting cable, chain or rope to pump lifting handle and lower pump into basin slowly. **DO NOT DROP!**

NOTE: Do Not use pump cables for lifting.



SECTION B
PAGE 8
DATE 4/05

CRANE
A Crane Co. Company

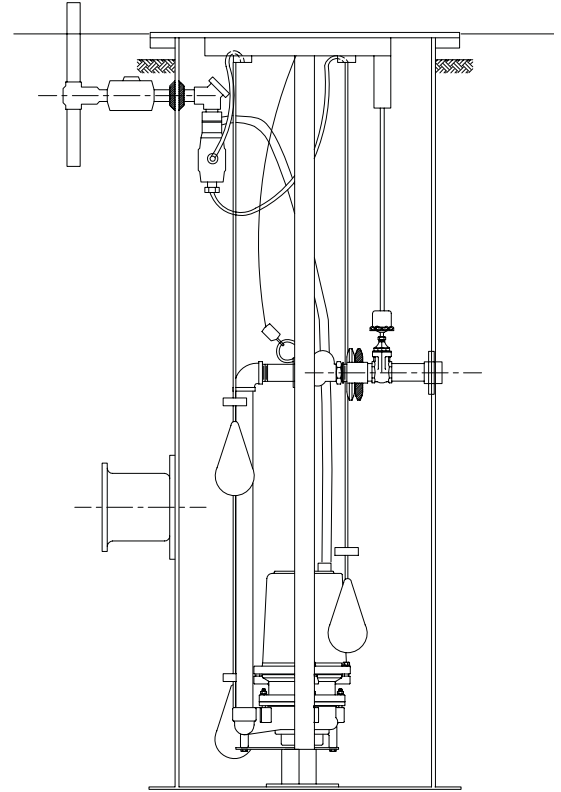
PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Specifications:

BRACKETStainless Steel
LOWER BRACKET.....Stainless Steel
HARDWAREStainless Steel

This 1 1/4" NPT adapter is used to adapt a BARNES 2HP SGV Grinder pump to a SPG/SPGL Hydromatic Rail System.



**1 1/4" NPT Hydromatic Adapter
P/N: 084913**

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

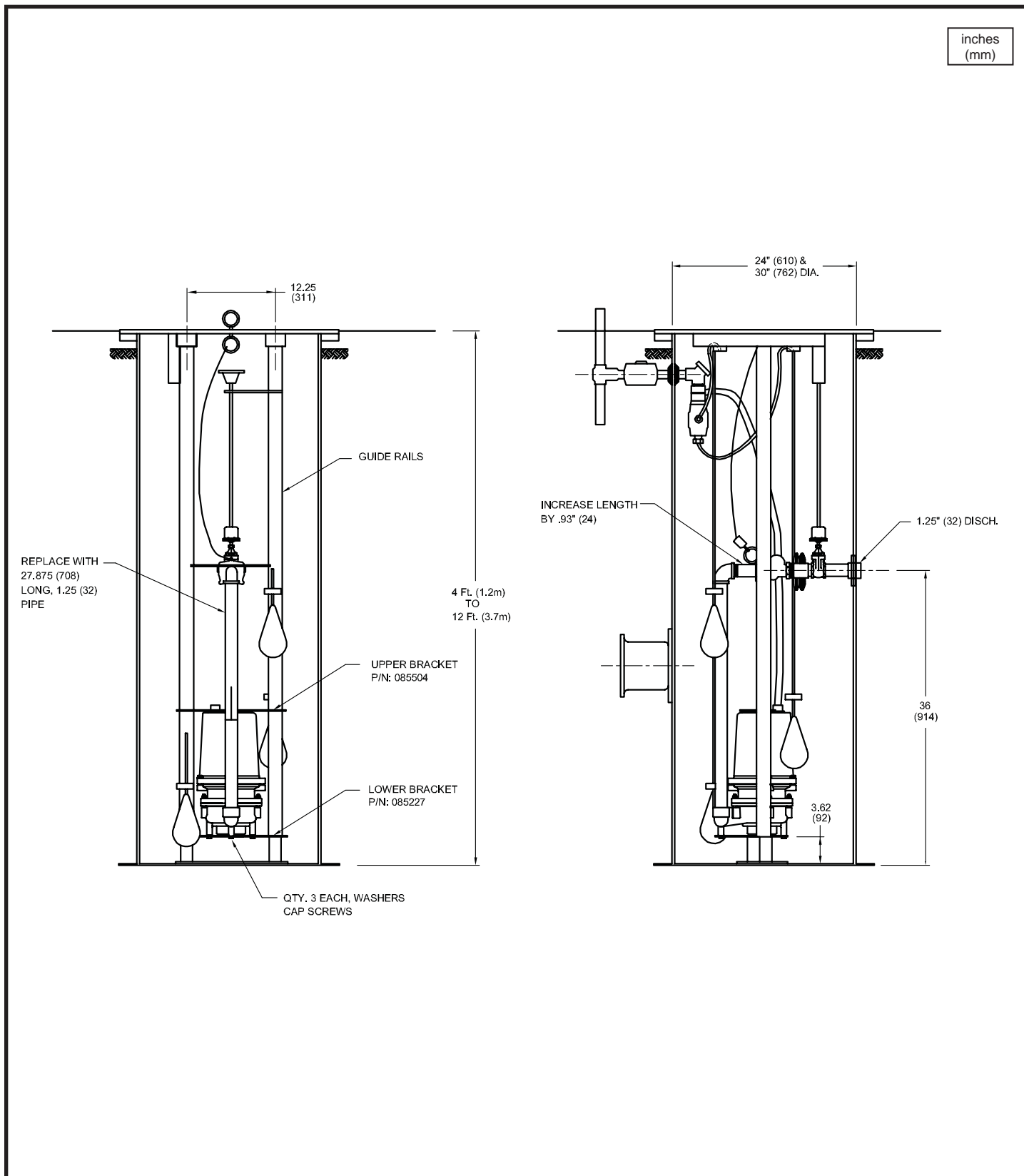
1 1/4" NPT Hydromatic Adapter

Barnes 2HP SGV Grinder Pump to
Hydromatic Break Away Fitting

BARNES®

www.cranepumps.com

Break Away Fittings



SECTION B
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DATE 4/05

CRANE
A Crane Co. Company

PUMPS & SYSTEMS

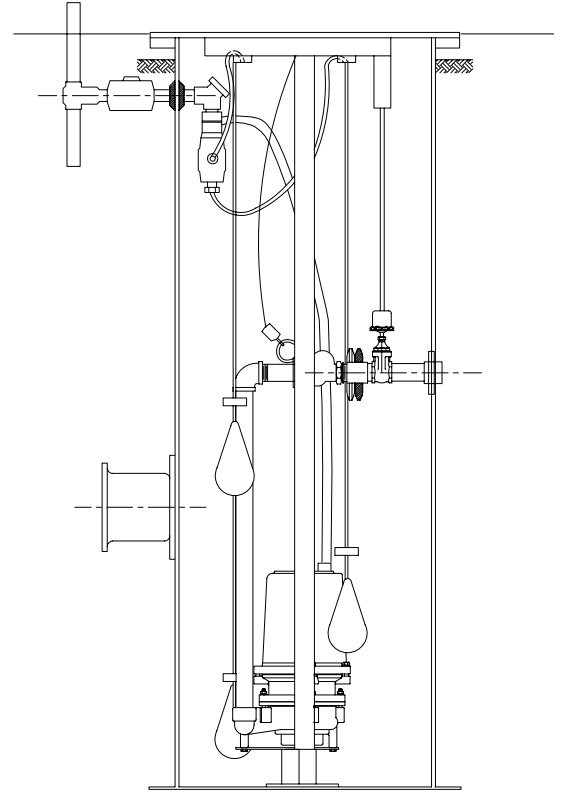
USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Specifications:

LOWER BRACKET.....Stainless Steel

HARDWAREStainless Steel

Used to install a BARNES 3, 5 & 7.5HP SGV Grinder pump to a Hydromatic SPGF Rail System utilizing the existing upper guide bracket, chain and ball check valve with sealing diaphragm.



2" NPT Hydromatic Adapter
P/N: 085480

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

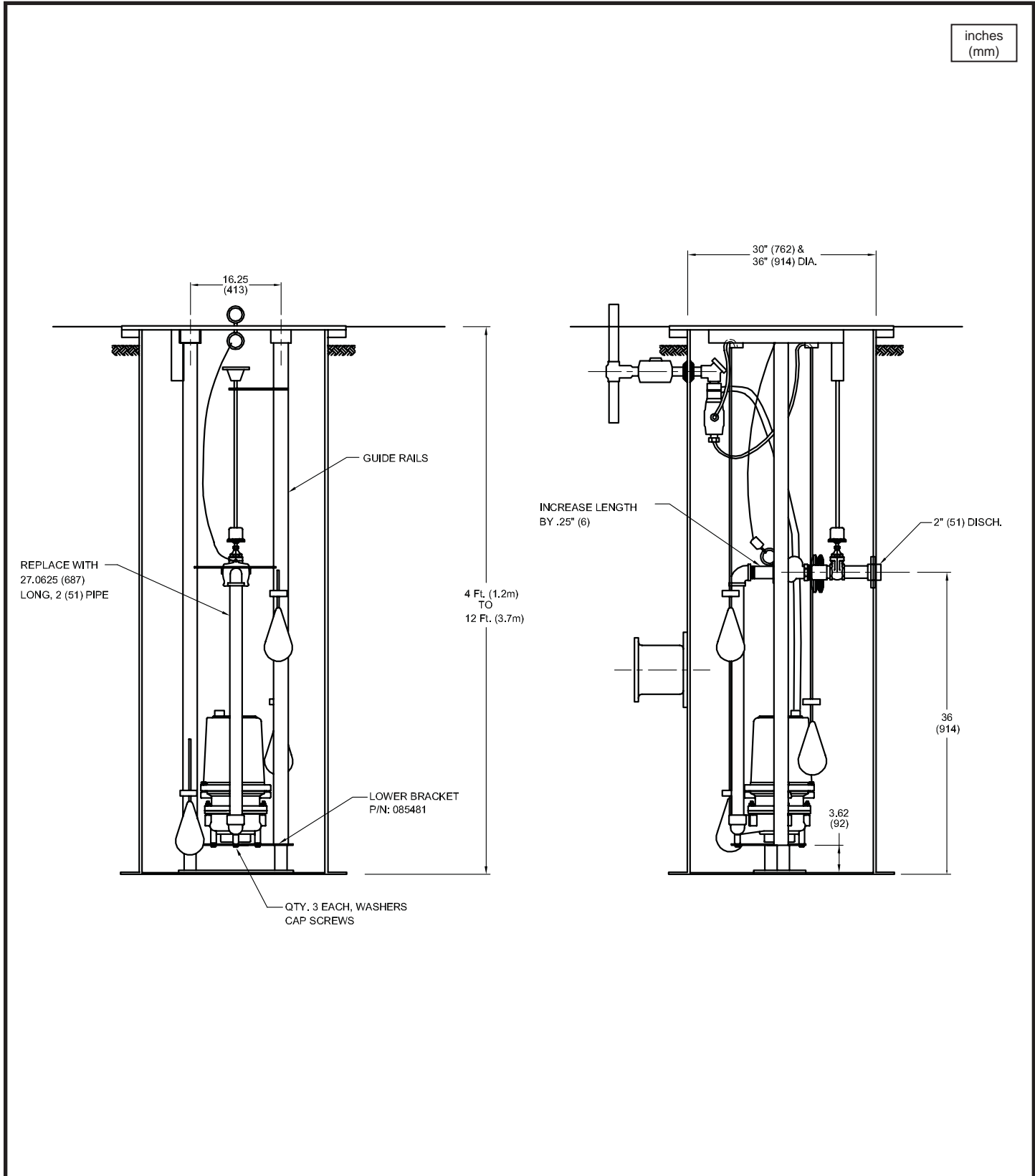
2" NPT Hydromatic Adapter

3, 5 & 7.5 HP SGV Grinder Pump To
Hydromatic SPGF, Break Away Fitting

BARNES®

www.cranepumps.com

Break Away Fittings



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CRANE®

A Crane Co. Company

PUMPS & SYSTEMS

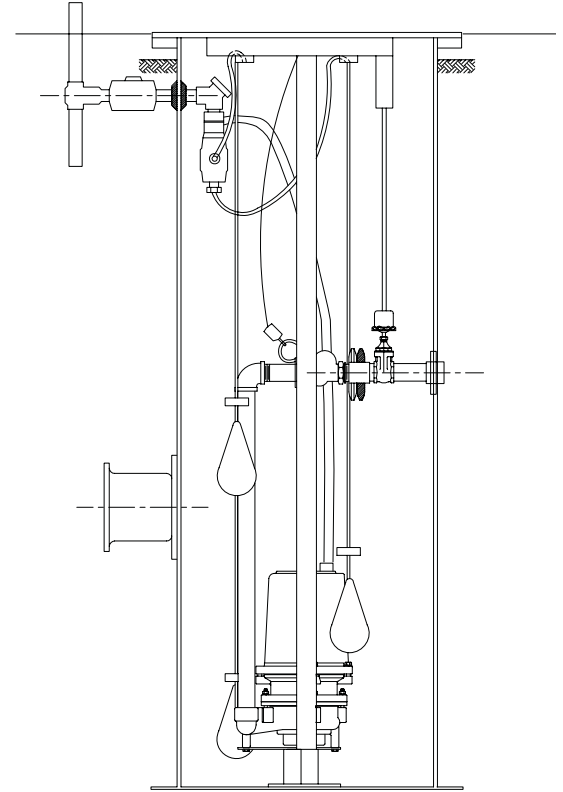
USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Specifications:

LOWER BRACKET.....Stainless Steel

HARDWAREStainless Steel

Used to install a BARNES 3, 5 & 7.5HP SGV Grinder pump to a Hydromatic SPGH Rail System utilizing the existing upper guide bracket, chain and ball check valve with sealing diaphragm.



2" NPT Hydromatic Adapter
P/N: 085059

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

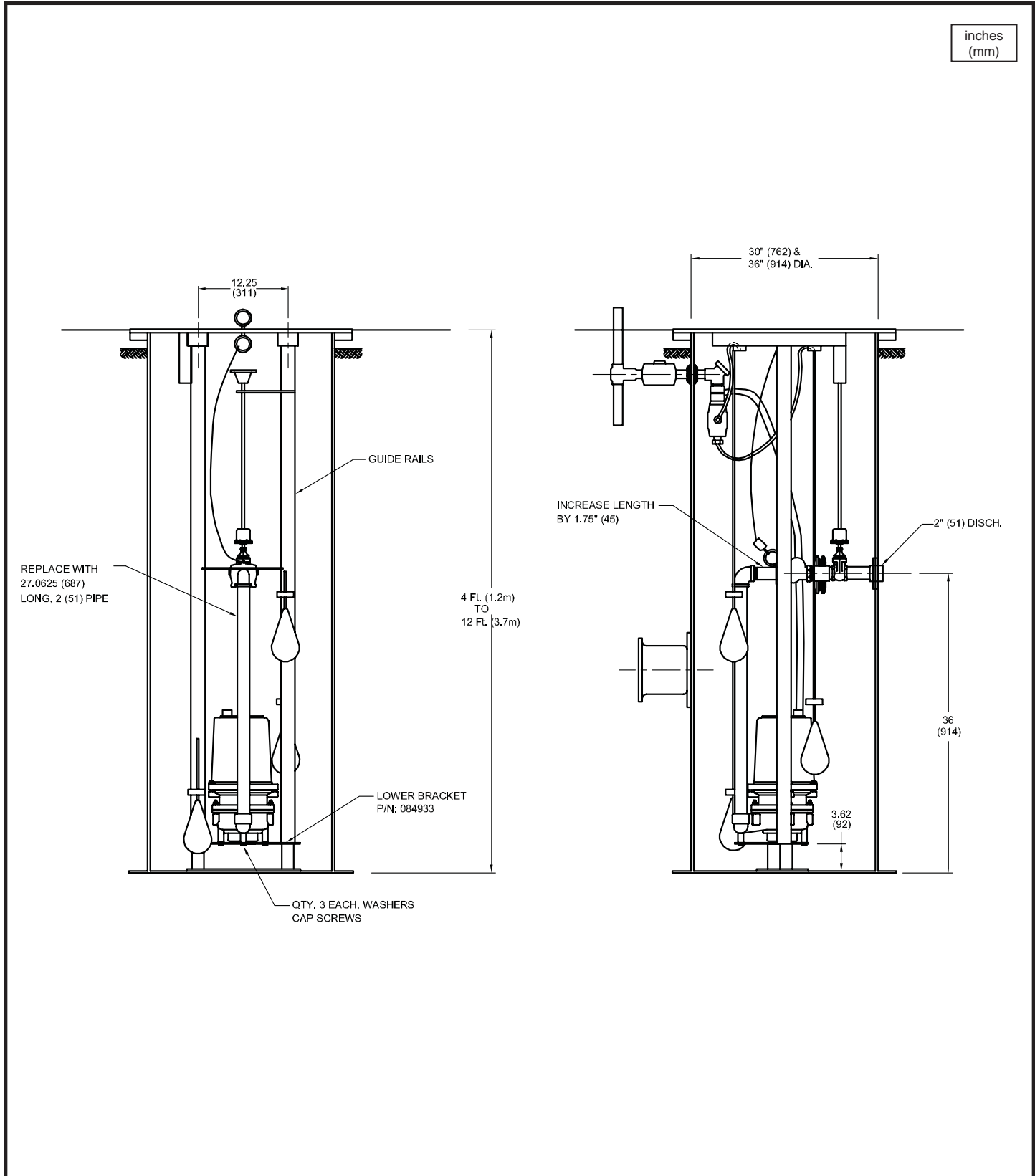
2" NPT Hydromatic Adapter

3, 5 & 7.5 HP SGV Grinder Pump To
Hydromatic SPGH, Break Away Fitting

BARNES®

www.cranepumps.com

Break Away Fittings



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DATE 4/05

CRANE®

A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Specifications:

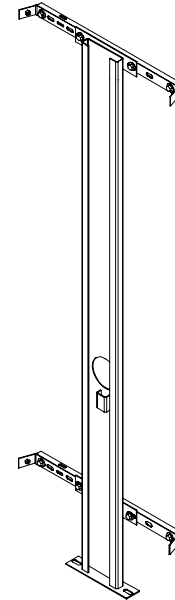
The "C" channel guide rail assembly is made of 300 series stainless steel. The guide rail mounts to the upper and lower horizontal brackets attached to the basin wall. The rail also rest on the bottom of the basin floor, The stainless steel guide rail supports the pump the required distance from the basin floor. Guide brackets (supplied with the Moveable Fitting Assembly) are attached to the pump for positioning of the unit on the guide rail during installation and removal.

The stationary of the hydraulically sealed discharge is powder coated machined cast iron. The stationary fitting has a fiber reinforced neoprene diaphragm clamped between the stainless steel rail and the stationary pressure vessel. The moveable fitting is held against the stationary fitting by the construction of the stainless steel rail, aligning the moveable fitting to the flexible diaphragm for proper sealing of the two surfaces.

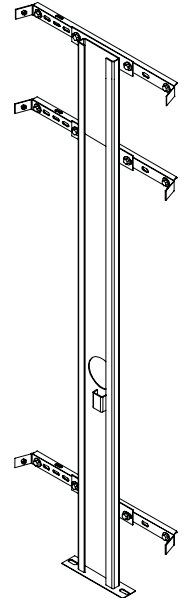
Each assembly includes:

- 300 Series Stainless Steel Guide Rail.
- 300 Series Stainless Steel Upper and Lower Support Brackets.
- Available for Basin Depths 48" to 156" (1.2m to 3.9m)
- 300 Series Stainless Steel Intermediate Support Brackets for Basin Depths 144" (3.7m) and greater.
- Powder Coated Cast Iron Stationary Fitting.
- Fiber Re-Inforced Neoprene Diaphragm.

Quantity of One (1) each for Simplex and Two (2) for Duplex.



SIMPLEX RAIL SHOWN



SIMPLEX RAIL WITH
INTERMEDIATE SUPPORT
FOR DEPTHS 144" (3.7M) AND
GREATER

**1 1/4" NPT Discharge
2" NPT Discharge**

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

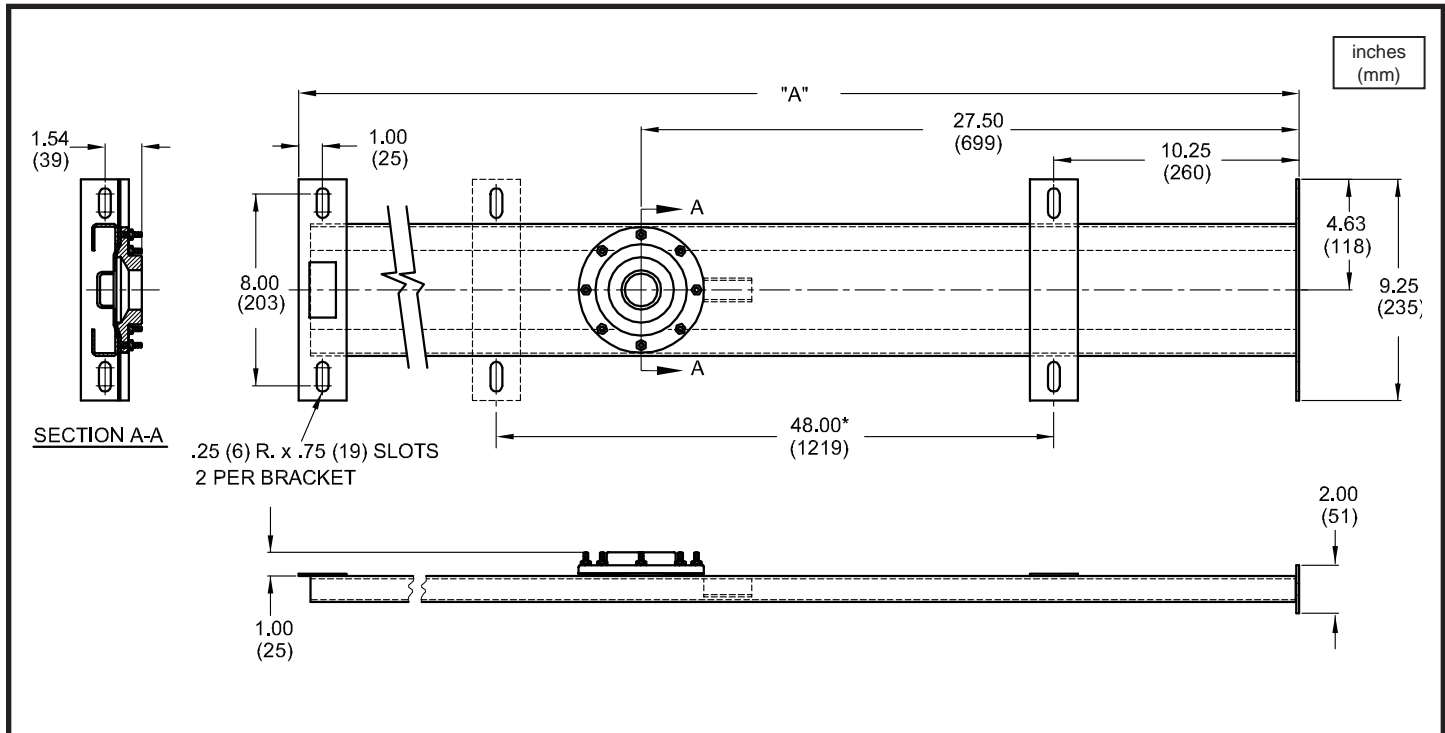
1 1/4" & 2" Break Away Fitting

With Stainless "C" Channel Guide Rails for
Concrete Installation, Standard and Non-Sparking

BARNES®

www.cranepumps.com

Break Away Fittings



"A" DIM	BASIN DEPTH	1.25" NPT PART NO.	2.00" NPT PART NO.	
48" (1219)	5.0 Ft. (1.5 m)	086352	086217	
54" (1372)	5.5 Ft. (1.7 m)	086353	086218	
60" (1524)	6.0 Ft. (1.8 m)	086354	086219	
66" (1676)	6.5 Ft. (2 m)	086355	086220	
72" (1829)	7.0 Ft. (2.1 m)	086356	086221	
78" (1981)	7.5 Ft. (2.3 m)	086357	086222	
84" (2134)	8.0 Ft. (2.4 m)	086358	086223	
90" (2286)	8.5 Ft. (2.6 m)	086359	086224	
96" (2438)	9.0 Ft. (2.7 m)	086360	086225	
102" (2591)	9.5 Ft. (2.9 m)	086361	086226	
108" (2743)	10.0 Ft. (3 m)	086362	086227	
114" (2896)	10.5 Ft. (3.3 m)	086363	086228	
120" (3048)	11.0 Ft. (3.4 m)	086364	086229	
126" (3200)	11.5 Ft. (3.5 m)	086365	086230	
132" (3353)	12.0 Ft. (3.7 m)	086366	086231	* Additional Mounting Bracket
138" (3505)	12.5 Ft. (3.8 m)	086367	086232	* Additional Mounting Bracket
144" (3658)	13.0 Ft. (4 m)	086368	086233	* Additional Mounting Bracket

Order One (1) Rail for Each Pump.

NOTE: For Upper & Lower Brackets and Intermediate Brackets see page 6.

NOTE: For Intermediate Rail Extension see page 7.

SECTION B
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CRANE
A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Break Away Fittings

Specifications:

The Moveable Fitting Assembly is used with the Stainless "C" Channel Guide Rails for field installation in concrete wet wells or basins.

STANDARD:

Each moveable assembly includes a stainless steel upper pump bracket with stainless hardware, stainless steel pipe nipples, cast iron flapper style check valve with integrated anti-siphon, and cast iron lower guide bracket.

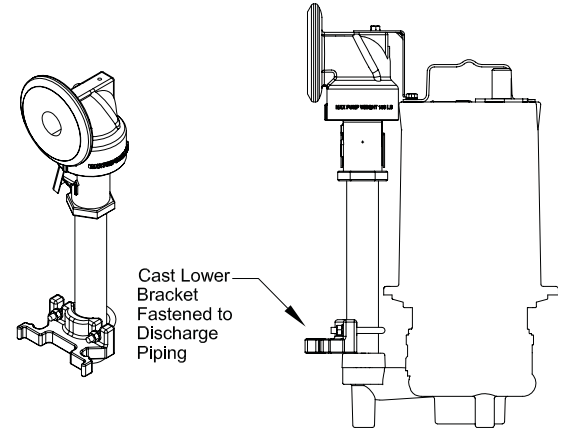
NON-SPARKING:

For Non-Sparking systems the upper and lower pump brackets and moveable fitting are of brass material. All hardware is stainless steel.

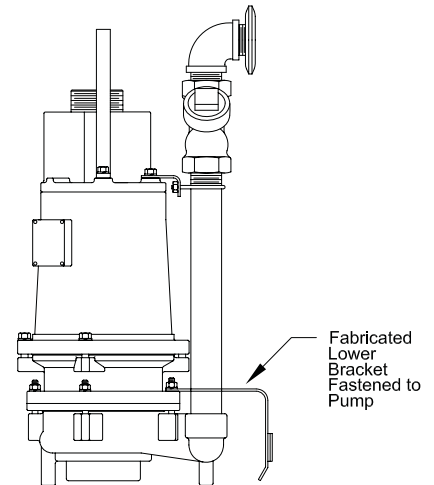
PUMP MODEL	TYPE	SIZE NPT	PART No. w/VALVE	PART No. w/o VALVE
SGV - 2 HP	A	1.25	116593B	079157J
SGV	A	2.00	116728B	079157F
OGV	A	1.25	116594B	
OGV-AU	A	1.25	116595B	
OGP	A	1.25	116596B	
OGP-AU	A	1.25	116597B	
XSGV*	B	1.25	083526	083526A
XSGV*	B	2.00	083527	083527A

Pump **NOT** Included, Moveable fitting factory assembled to pump when ordered with basin package.

(*) Discharge pipe has a 1/8" (3.2mm) Dia. hole (for anti-siphon function), 5" (127mm) from end nearest to volute and oriented towards the pump body.



TYPE: A
Standard Pumps



TYPE: B
Explosion Proof Pumps

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

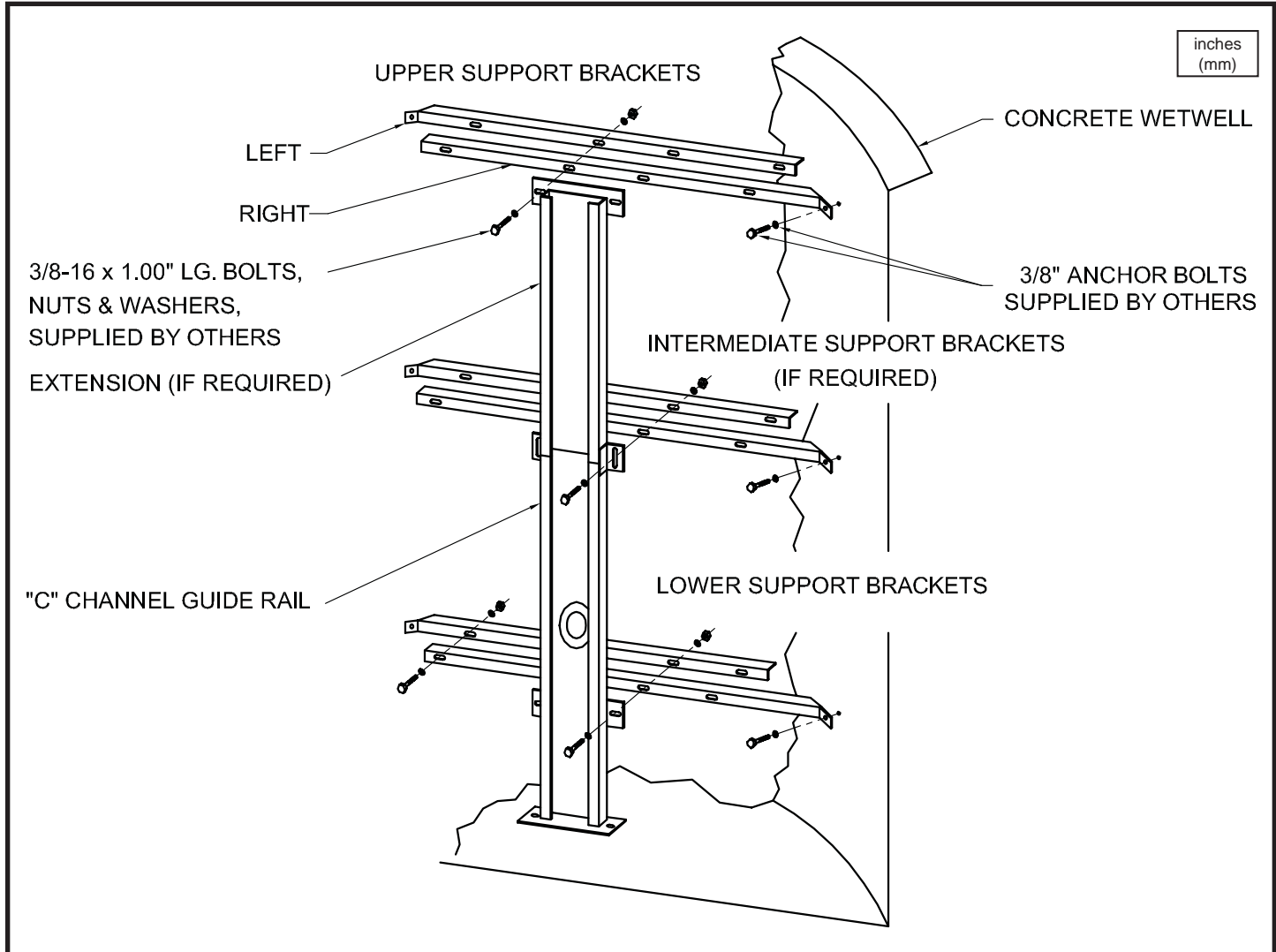
Rail Supports

For Stainless "C" Channel Rail System
Simplex and Duplex

BARNES®

www.cranepumps.com

Break Away Fittings



SIMPLEX			DUPLEX		
BASIN DIA	L.H. PART NO.	R.H. PART NO.		L.H. PART NO.	R.H. PART NO.
24 (610)	094797	094793		N/A	N/A
30 (762)	094798	094794		N/A	N/A
36 (914)	094799	094795		094792	094791
42 (1067)	094800	094796		094792A	094791A
48 (1219)	097840	097841		094792B	094791B
60 (1524)	098128	098127		094792C	094791C
72 (1829)	095719	095720		095050	095051

The Support Brackets are made of 14GA. 304 Stainless steel and can be used as Upper, Lower and Intermediate brackets.

Order a Left Hand and Right Hand in either Simplex or Duplex.

A.) The Upper support is to be positioned 12" (305mm) below the top of the wet well.

B.) Brackets for the Intermediate are used with INTERMEDIATE EXTENSION. See page 7.

C.) The Lower brackets are used if the "C" channel foot is **Not anchored** to the bottom of the wet well.

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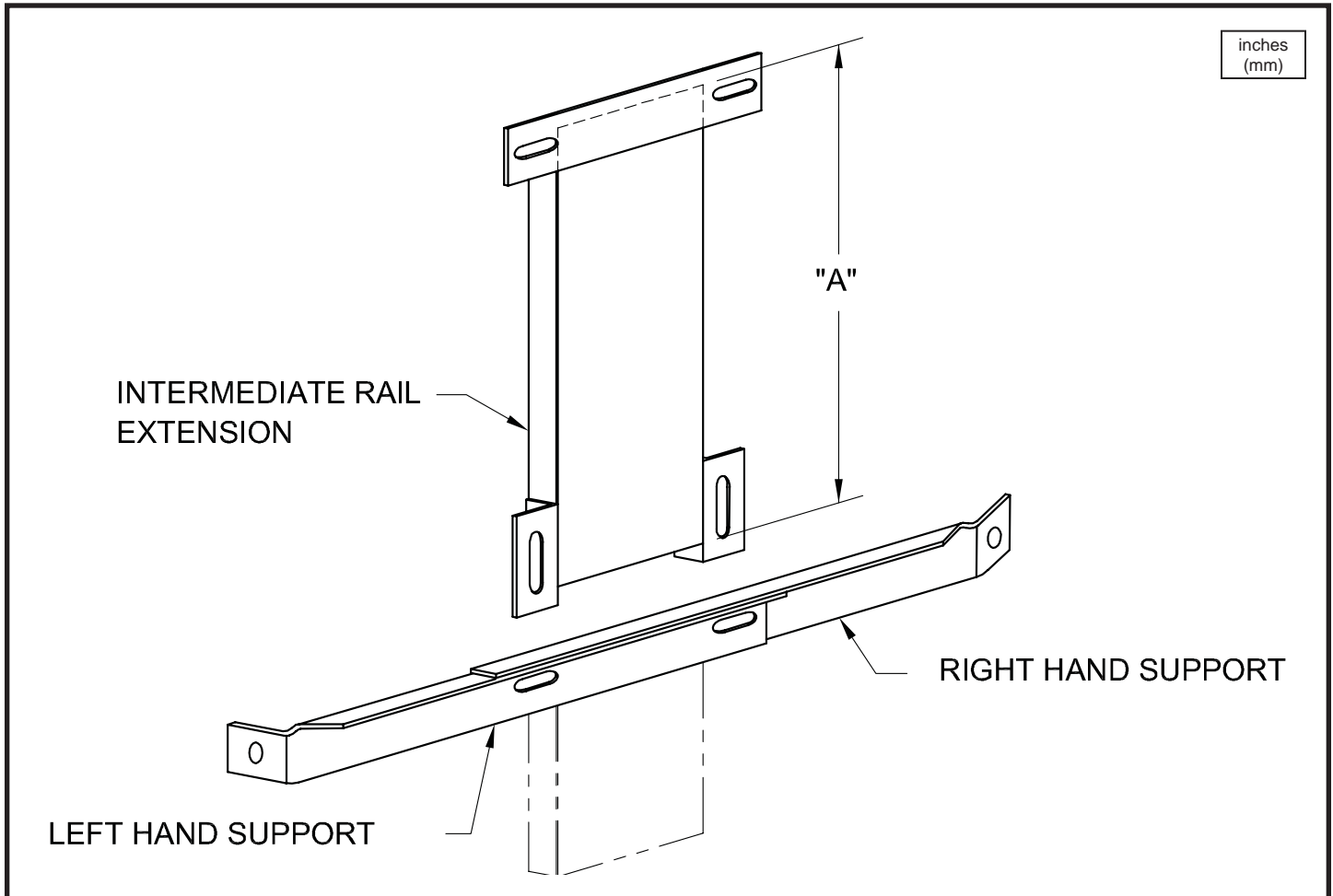
CRANE®

A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Break Away Fittings



EXTENSION

"A" DIM	PART NO.
24 (610)	086830
36 (914)	086830ED
48 (1219)	086830EE
60 (1524)	086830EF
72 (1829)	086830EG
84 (2134)	086830EH
96 (2438)	086830EJ
108 (2743)	086830EK
120 (3048)	086830EL
132 (3353)	086830EM

The Intermediate Guide Rail Extension are required for rails 168" (4267mm) and deeper. Support Brackets (see page 6) are required for rails 144" (3658mm) and deeper. Pump Center Distance for 36" (914mm) Dia. and 42" (1067mm) Dia. is 22" (559mm); 48" (1219mm) Dia. and 60" (1524mm) Dia. is 25.26" (642mm).

1. First select EXTENSION, quantity of one for Simplex and two for Duplex, making Dim. "A" at least half the depth of basin and the "C" channel rail with BAF the other half.
2. Next select Basin diameter, to determine part number for SUPPORTS (see page 6), quantity of one left hand and one right hand.

Break Away Fittings

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Specifications:

BAF-E3; Non-Sparking

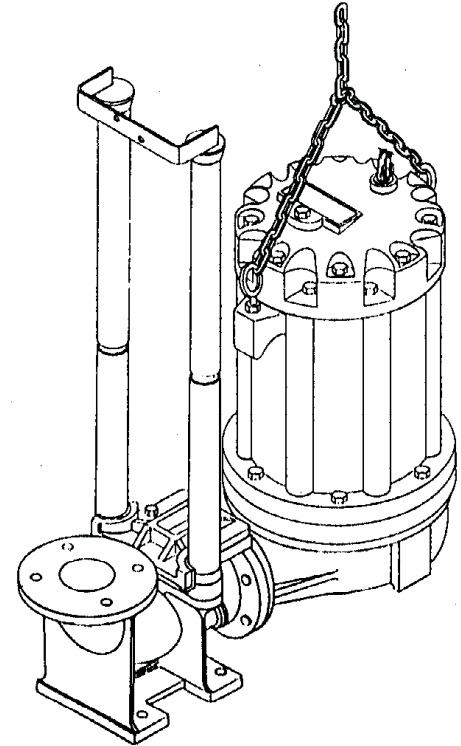
The stationary portion of the BAF consists of a specially designed cast iron base elbow which is bolted to a raised concrete pad of the wet well floor or to an optional steel base plate.

The pump bolts to the bronze moveable portion which is free to ride up and down the guide rails. An O-Ring is pressed into a dove-tailed groove on the tapered face of the moveable. The tapered faces of the moveable and base elbow allow for a positive mating of the O-Ring to base. This elastomer to cast iron contact assures a complete and positive seal which allows pumps to operate without hydraulic leakage, unlike units with metal to metal faces. These mating parts also allow a Non-Sparking joint which is required in Hazardous Locations.

The guide rails are attached to the base elbow at one end and to a stainless steel Guide Cap which is attached to the underside of the wet well cover at the other end. Both the Guide Cap assembly and the base elbow have cast iron plugs with O-Rings mounted in them which aid in locating the guide rails and in reducing noise and vibration of the guide rails.

The guide rails serve only to guide, they carry none of the pump weight. 1-1/2" (38mm) schedule 40 pipe should be used for guide rails. An intermediate guide pipe bracket should be used for depths of 13 feet (4M) or more.

For OPTIONAL information see Intermediate Rail Supports Section.



**Model: BAF-E3
N014-00035**

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

3" Break Away Fitting

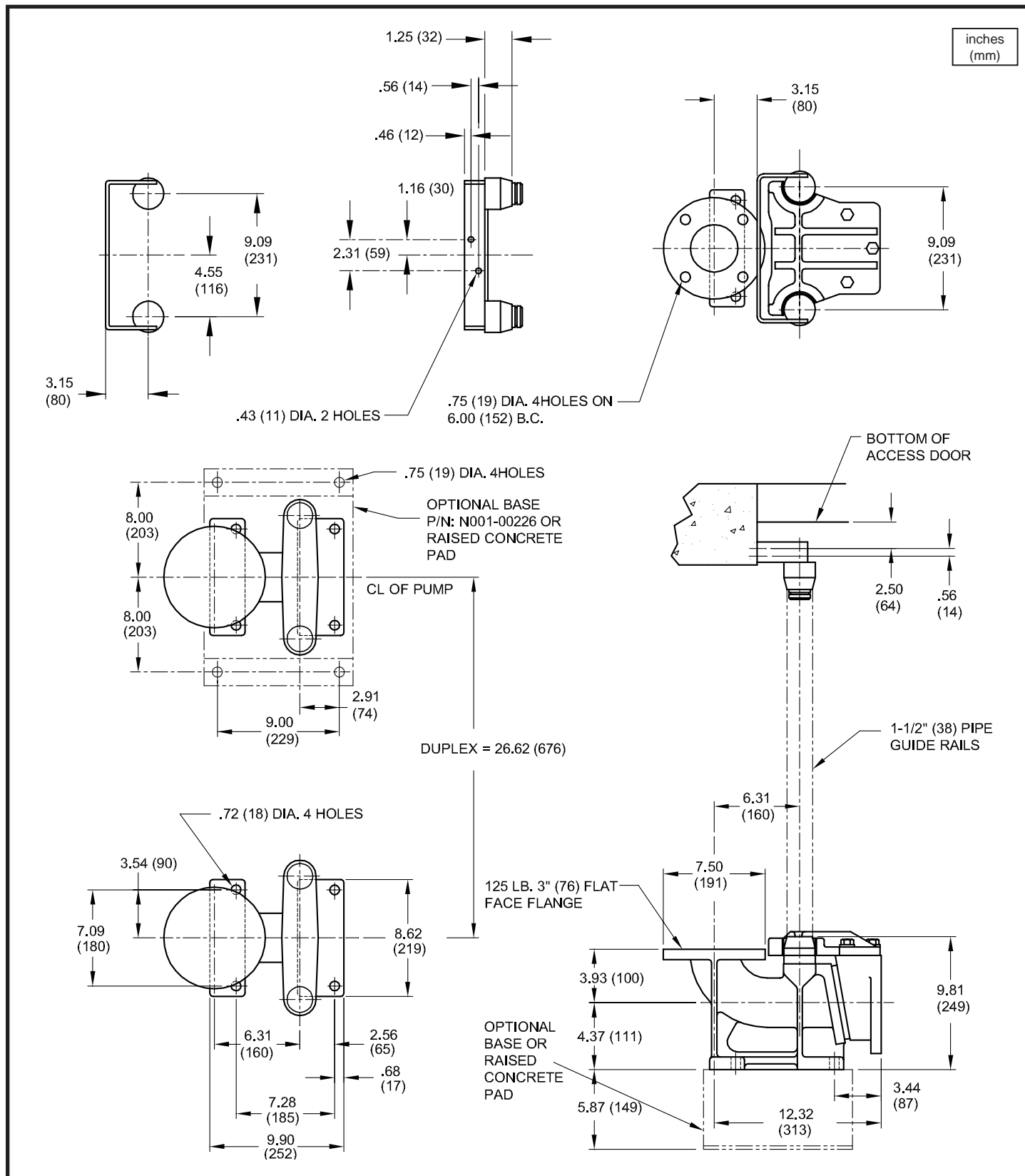
Non-Sparking

Models: BAF-E3

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Break Away Fittings



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CRANE
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PUMPS & SYSTEMS

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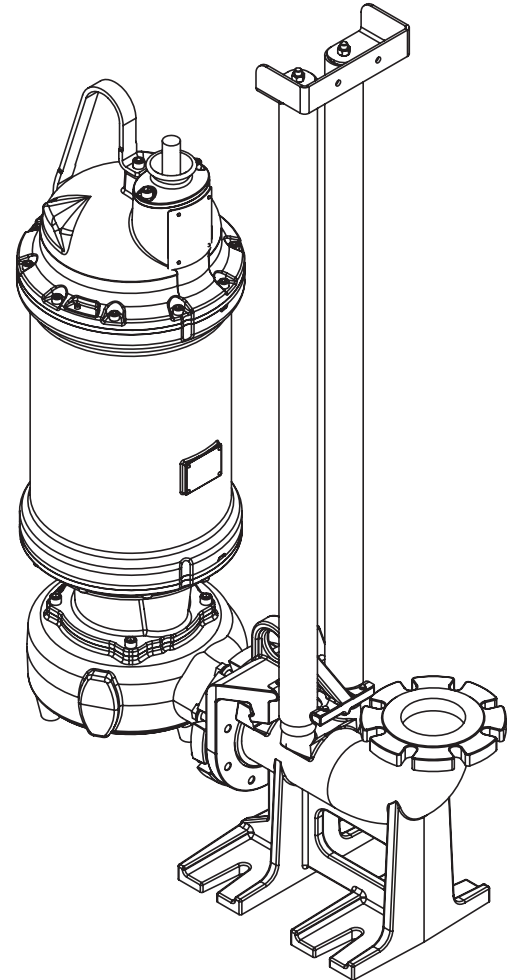
Specifications:

BAF 4x4 and 4x6: Non-Sparking

The stationary portion of the BAF consists of a specially designed cast iron base elbow which is bolted to the floor of the wet well. The pump bolts to the cast iron moveable portion which is free to ride up and down the guide rails. A gasket is installed into the moveable. The elastomer to cast iron contact assures a complete and positive seal which allows pumps to operate without hydraulic leakage, over wide range of discharge pressures.

The guide rails are attached to the base elbow at one end and to a stainless steel Guide Cap which is attached to the underside of the wet well cover at the other end. The Guide Cap assembly has elastomer plugs which aid in locating the guide rails and in reducing noise and vibration of the guide rails. The guide rails serve only to guide, they carry none of the pump weight. 2" (48mm) schedule 40 pipe should be used for guide rails. An intermediate guide pipe bracket should be used for depths of 13 feet (4M) or more.

For OPTIONAL information see Intermediate Rail Supports Section.



Model: BAF 4x4
P/N: 128281

Model: BAF 4x6
P/N: 128280

DESCRIPTION:

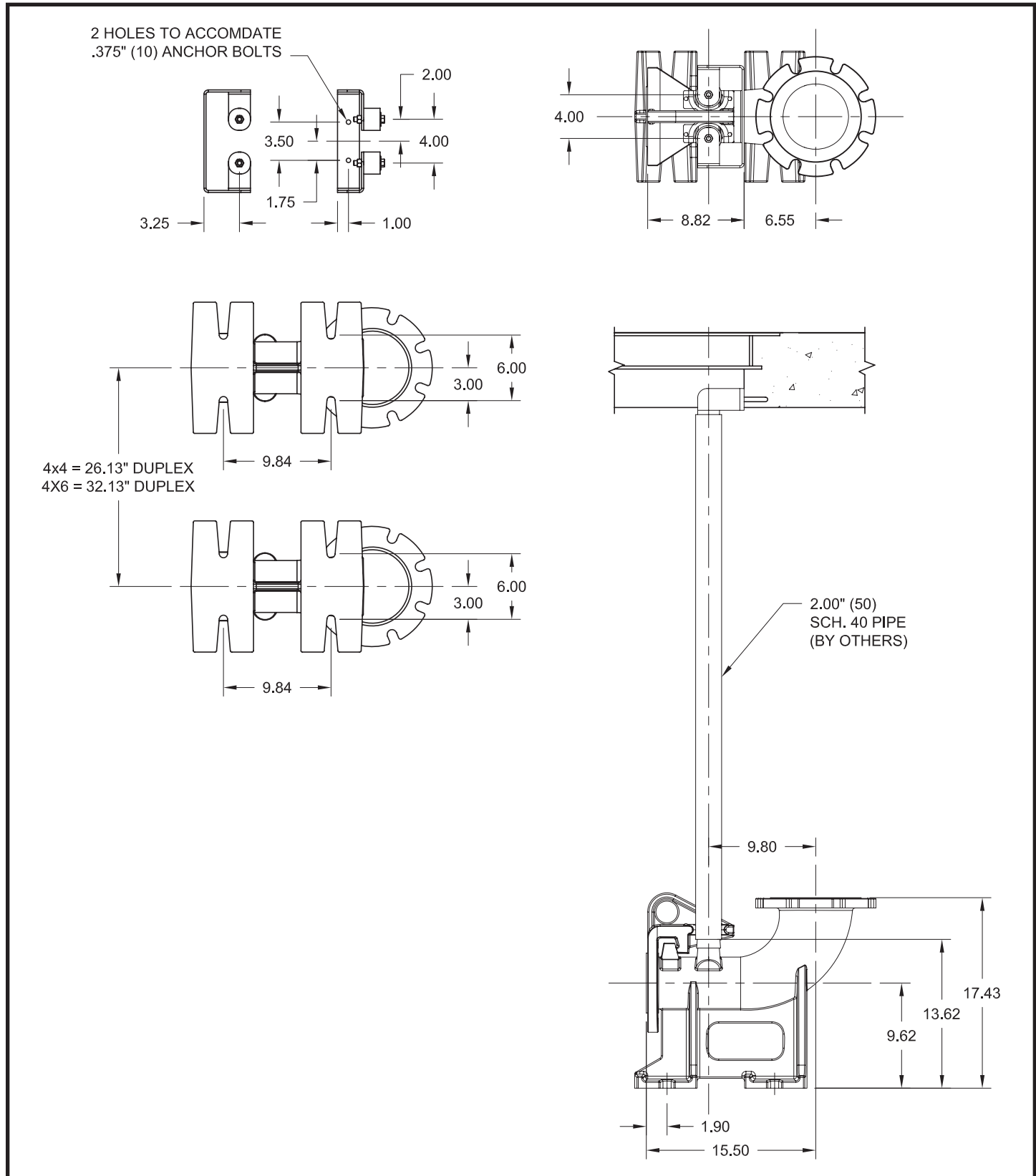
THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

4" Break Away Fitting

Models: BAF 4x4 and BAF 4x6

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Break Away Fittings



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CRANE
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PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Specifications:

BAF-4; Standard

The stationary portion of the BAF consists of a specially designed cast iron base elbow which is bolted to the floor of the wet well.

The pump bolts to the ductile iron moveable portion which is free to ride up and down the guide rails. An O-Ring is pressed into a dove-tailed groove on the tapered face of the moveable. The tapered faces of the moveable and base elbow allow for a positive mating of the O-Ring to base. This elastomer to cast iron contact assures a complete and positive seal which allows pumps to operate without hydraulic leakage, over wide range of discharge pressures.

The guide rails are attached to the base elbow at one end and to a stainless steel Guide Cap which is attached to the underside of the wet well cover at the other end. Both the Guide Cap assembly and the base elbow have cast iron plugs with O-Rings mounted in them which aid in locating the guide rails and in reducing noise and vibration of the guide rails.

The guide rails serve only to guide, they carry none of the pump weight. 1-1/2" (38mm) schedule 40 pipe should be used for guide rails. An intermediate guide pipe bracket should be used for depths of 13 feet (4M) or more.

BAF-E4; Non-Sparking

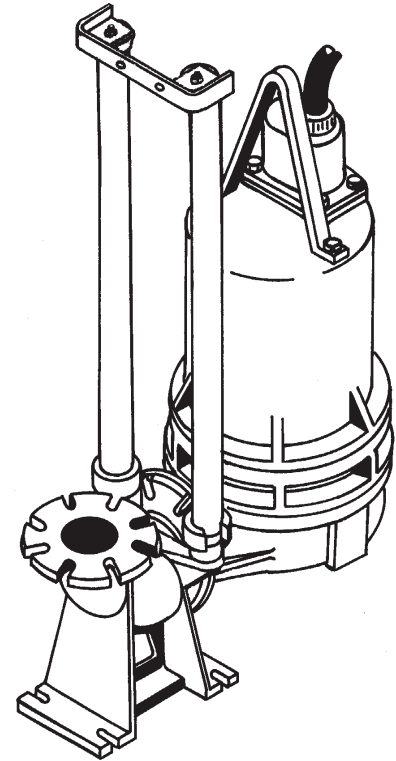
The stationary portion of the BAF consists of a specially designed cast iron base elbow which is bolted to the floor of the wet well.

The pump bolts to the bronze moveable portion which is free to ride up and down the guide rails. An O-Ring is pressed into a dove-tailed groove on the tapered face of the moveable. The tapered faces of the moveable and base elbow allow for a positive mating of the O-Ring to base. This elastomer to cast iron contact assures a complete and positive seal which allows pumps to operate without hydraulic leakage, over wide range of discharge pressures. These mating parts also allow a Non-Sparking joint which is required in Hazardous Locations.

The guide rails are attached to the base elbow at one end and to a stainless steel Guide Cap which is attached to the underside of the wet well cover at the other end. Both the Guide Cap assembly and the base elbow have cast iron plugs with O-Rings mounted in them which aid in locating the guide rails and in reducing noise and vibration of the guide rails.

The guide rails serve only to guide, they carry none of the pump weight. 1-1/2" (38mm) schedule 40 pipe should be used for guide rails. An intermediate guide pipe bracket should be used for depths of 13 feet (4M) or more.

For OPTIONAL information see Intermediate Rail Supports Section.



Model: BAF-4
P/N: 087315

Model: BAF-E4
P/N: 087316

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

4" Break Away Fitting

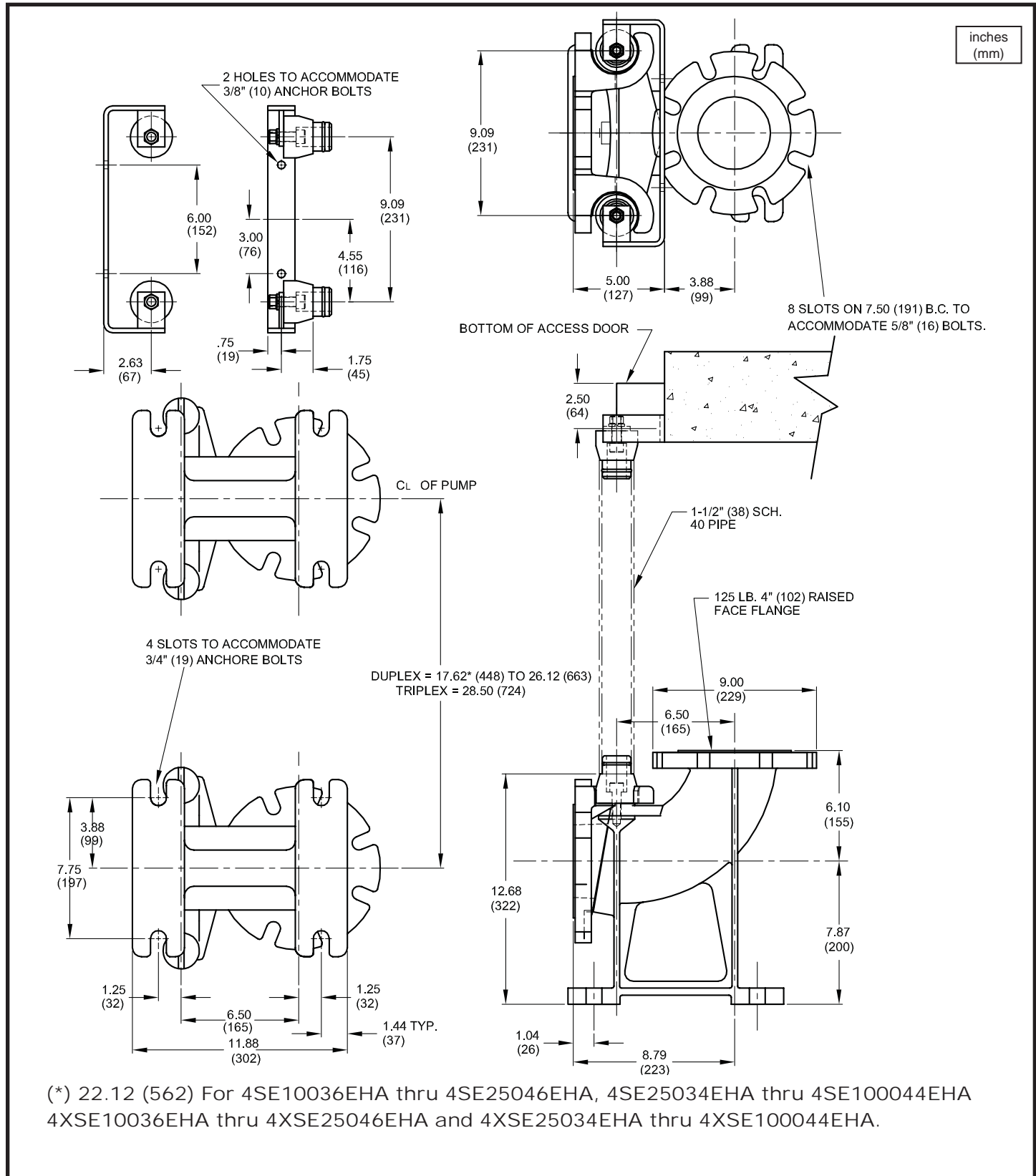
Standard and Non-Sparking

Models: BAF-4 & BAF-E4

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Break Away Fittings



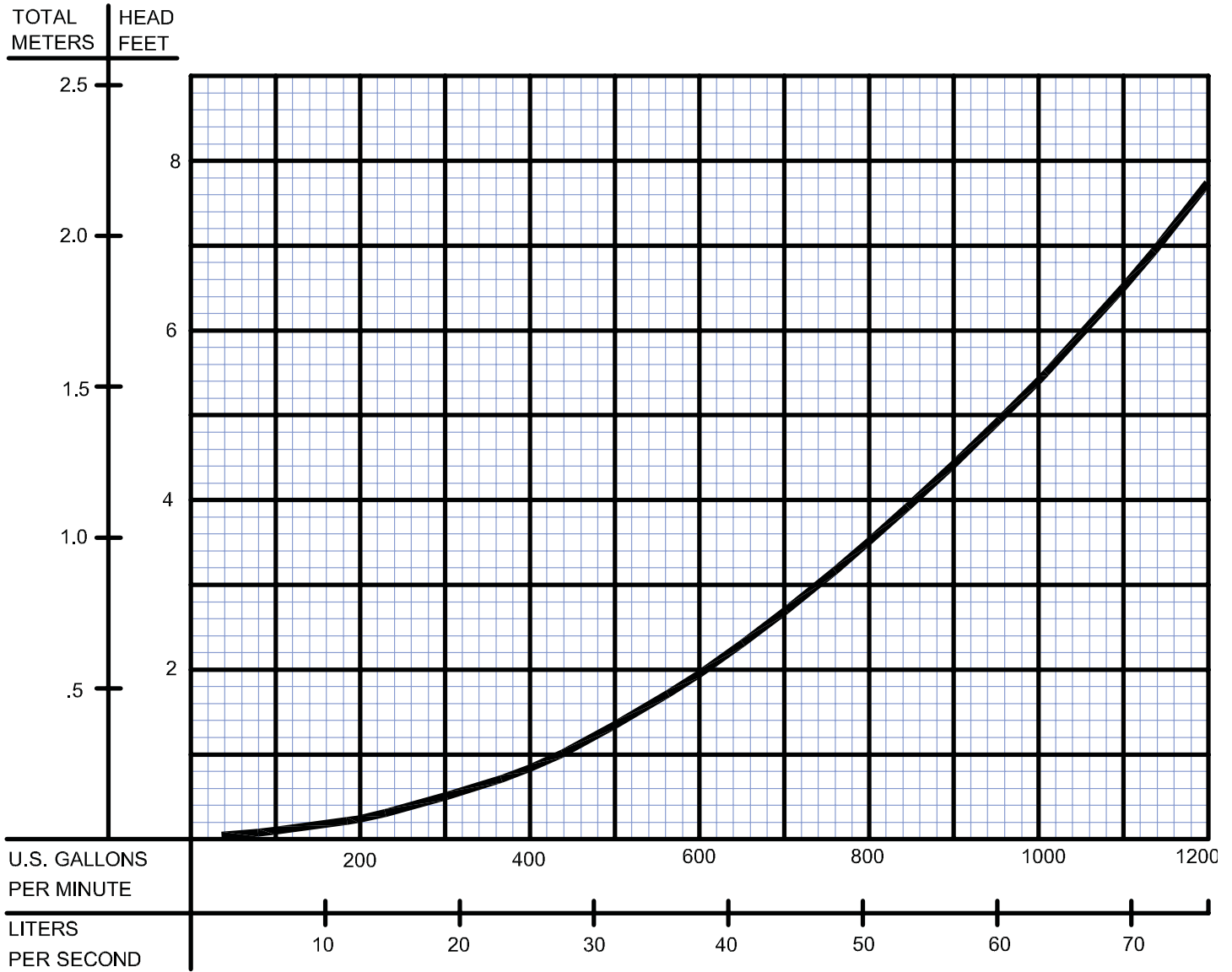
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CRANE
A Crane Co. Company

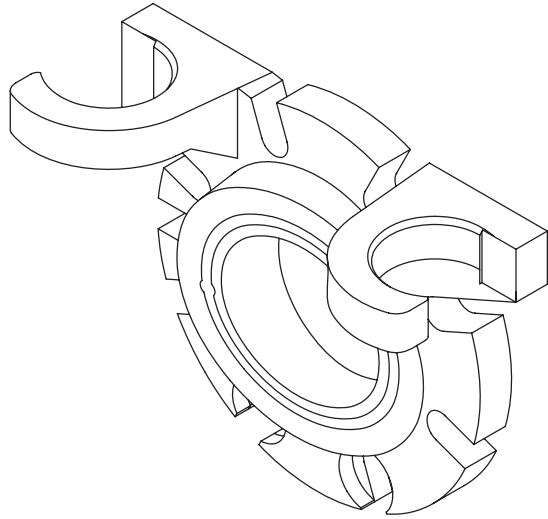
PUMPS & SYSTEMS

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Break Away Fittings



Break Away Fittings



Model: BAF-4
P/N: 087313

Model: BAF-E4
P/N: 087314

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

Specifications:

BAF-4; Standard Moveable

The pump bolts to the ductile iron moveable portion which is free to ride up and down the guide rails. An O-Ring is pressed into a dove-tailed groove on the tapered face of the moveable. The tapered faces of the moveable and base elbow allow for a positive mating of the O-Ring to base. This elastomer to cast iron contact assures a complete and positive seal which allows pumps to operate without hydraulic leakage, over wide range of discharge pressures.

BAF-E4; Non-Sparking Moveable

The pump bolts to the bronze moveable portion which is free to ride up and down the guide rails. An O-Ring is pressed into a dove-tailed groove on the tapered face of the moveable. The tapered faces of the moveable and base elbow allow for a positive mating of the O-Ring to base. This elastomer to cast iron contact assures a complete and positive seal which allows pumps to operate without hydraulic leakage, over wide range of discharge pressures. These mating parts also allow a Non-Sparking joint which is required in Hazardous Locations.

For OPTIONAL information see Intermediate Rail Supports Section.

Specifications:

The Hydromatic adapter is used to adapt Barnes 4", 4.5 to 15 HP Non-Clog submersible pumps (as shown in Section 1D pages 29 thru 44) to Hydromatic rail system, replacing models S4HRC, S4MN, S4NRC, S4M, S4MRC, S4L or S4LRC.

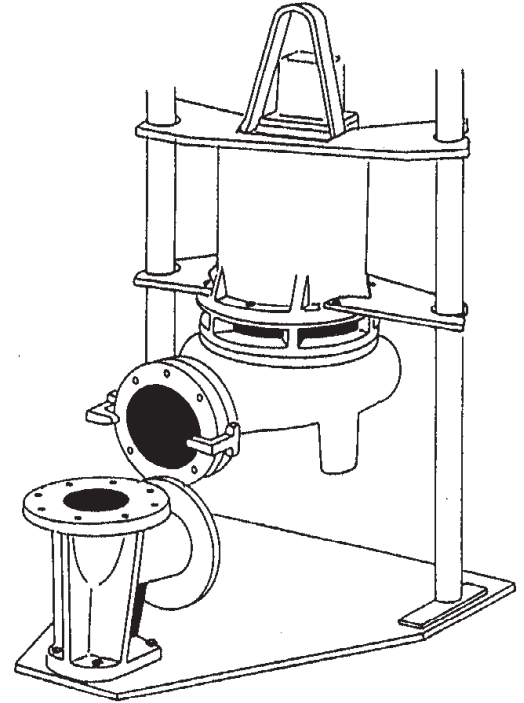
Instructions:

Before attaching the adapter brackets, drill and tap the feet of the Barnes pump, .75-10 UNC-2B x 1.25" (32mm) deep.

If replacing a model S4L or S4LRC, screw the 3.5" (89mm) long bolts into the feet so that the bottom of the bolts extend 2.25" (57mm) from the bottom of the feet.

If replacing models S4MRC, S4M, S4NRC, S4MN or S4HRC, screw the 2" (51 mm) long bolts into the feet so that the bottom of the bolts extend 1" (25mm) from the bottom of the feet.

Next attach the upper guide bracket to the top of the motor housing with the longer pipe guide extension to the left side of the pump discharge (when pump discharge is pointing away from you). Then attach the lower guide bracket (long one) to the left side of the motor housing at the point where the screws enter the motor housing. Attach the other lower guide bracket to the right side in the same manner. Now attach Hydromatic's existing sealing flange to the discharge of the Barnes pump and lower the unit into the basin.



Model: 4" Hydromatic Adapter
P/N: 083922

PART NO.	QTY.	DESCRIPTION
083923	1	Upper Guide Bracket
083925	1	Lower Right Bracket
083924	1	Lower Left Bracket
052698	3	Cap Screw 2" Long
052698D	3	Cap Screw 3.50" Long

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

4" & 6" FLYGT Retrofit Kits

Barnes Pump to Flygt Break Away Fitting

Models: FAP-4, FAP-6 & FAP-4x6

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Break Away Fittings



Specifications:

The Flygt Retrofit Kit includes everything needed to install a Barnes submersible pump into an existing Flygt station. Kits are available in 4" discharge, 4" x 6" discharge and 6" discharge. Included in the kit is an adapter board to easily convert the Flygt MiniCAS control unit to work with Barnes Moisture and Temperature sensors.

Instructions:

1. Check to be sure that all parts of the FAP adapter have been received.
2. Place gasket item (2) between pump discharge flange and adapter item (1).
3. Bolt adapter item (1) to pump discharge using bolts item (3) or (5), washer (6) if applicable and lockwasher item (4).
4. Place adapter over guide pipes and lower pump into position.

Moveable Fitting Kit with Sensor Relay

Model: FAP-4

P/N: 131315

Model: FAP-6

P/N: 131316

Model: FAP-4x6

P/N: 131317

(Adapts 4" Pump to 6" Flygt BAF)

Moveable Fitting Kit Only

Model: FAP-4

P/N: 131315A

Model: FAP-6

P/N: 131316A

Model: FAP-4x6

P/N: 131317A

Sensor Relay Kit

P/N: 131318

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

ITEM	FAP-4 PART NO.	FAP-6 PART NO.	FAP-4x6 PART NO.	QTY.	DESCRIPTION
1	077351	078234	078234B	1	Moveable Fitting
2	026859	001138	026859	1	Gasket
3	1-93-1	1-112-1	1-93-1	8	Cap Screw (SE)
4	20-24-1	20-16-1	20-24-1	8	Lockwasher (SE/SH)
5	1-95-1	N/A	1-95-1	8	Cap Screw (SH)
6	070320	N/A	070320	8	Flat Washer (SH)
7	131319	131319	131319	1	MiniCAS Adapter Board

131318 Sensor Relay



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CRANE®

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PUMPS & SYSTEMS

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Specifications:

BAF-6; Standard

The stationary portion of the BAF consists of a specially designed cast iron base elbow which is bolted to the floor of the wet well.

The pump bolts to the cast iron moveable portion which is free to ride up and down the guide rails. An O-Ring is pressed into a dove-tailed groove on the tapered face of the moveable. The tapered faces of the moveable and base elbow allow for a positive mating of the O-Ring to base. This elastomer to cast iron contact assures a complete and positive seal which allows pumps to operate without hydraulic leakage, over wide range of discharge pressures.

The guide rails are attached to the base elbow at one end and to a stainless steel Guide Cap which is attached to the underside of the wet well cover at the other end. Both the Guide Cap assembly and the base elbow have cast iron plugs with O-Rings mounted in them which aid in locating the guide rails and in reducing noise and vibration of the guide rails.

The guide rails serve only to guide, they carry none of the pump weight. 2" (51mm) schedule 40 pipe should be used for guide rails. An intermediate guide pipe bracket should be used for depths of 13 feet (4M) or more.

BAF-E6; Non-Sparking

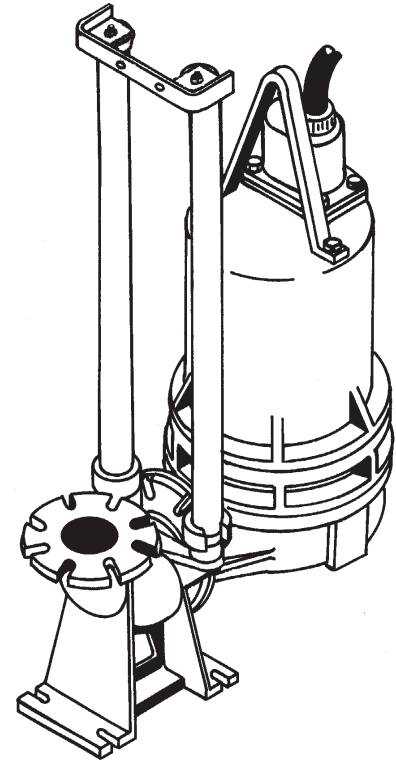
The stationary portion of the BAF consists of a specially designed cast iron base elbow which is bolted to the floor of the wet well.

The pump bolts to the bronze moveable portion which is free to ride up and down the guide rails. An O-Ring is pressed into a dove-tailed groove on the tapered face of the moveable. The tapered faces of the moveable and base elbow allow for a positive mating of the O-Ring to base. This elastomer to cast iron contact assures a complete and positive seal which allows pumps to operate without hydraulic leakage, over wide range of discharge pressures. These mating parts also allow a Non-Sparking joint which is required in Hazardous Locations.

The guide rails are attached to the base elbow at one end and to a stainless steel Guide Cap which is attached to the underside of the wet well cover at the other end. Both the Guide Cap assembly and the base elbow have cast iron plugs with O-Rings mounted in them which aid in locating the guide rails and in reducing noise and vibration of the guide rails.

The guide rails serve only to guide, they carry none of the pump weight. 2" (51mm) schedule 40 pipe should be used for guide rails. An intermediate guide pipe bracket should be used for depths of 13 feet (4M) or more.

For OPTIONAL information see Intermediate Rail Supports Section.



Model: BAF-6
P/N: 091550

Model: BAF-E6
P/N: 091551

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

6" Break Away Fitting

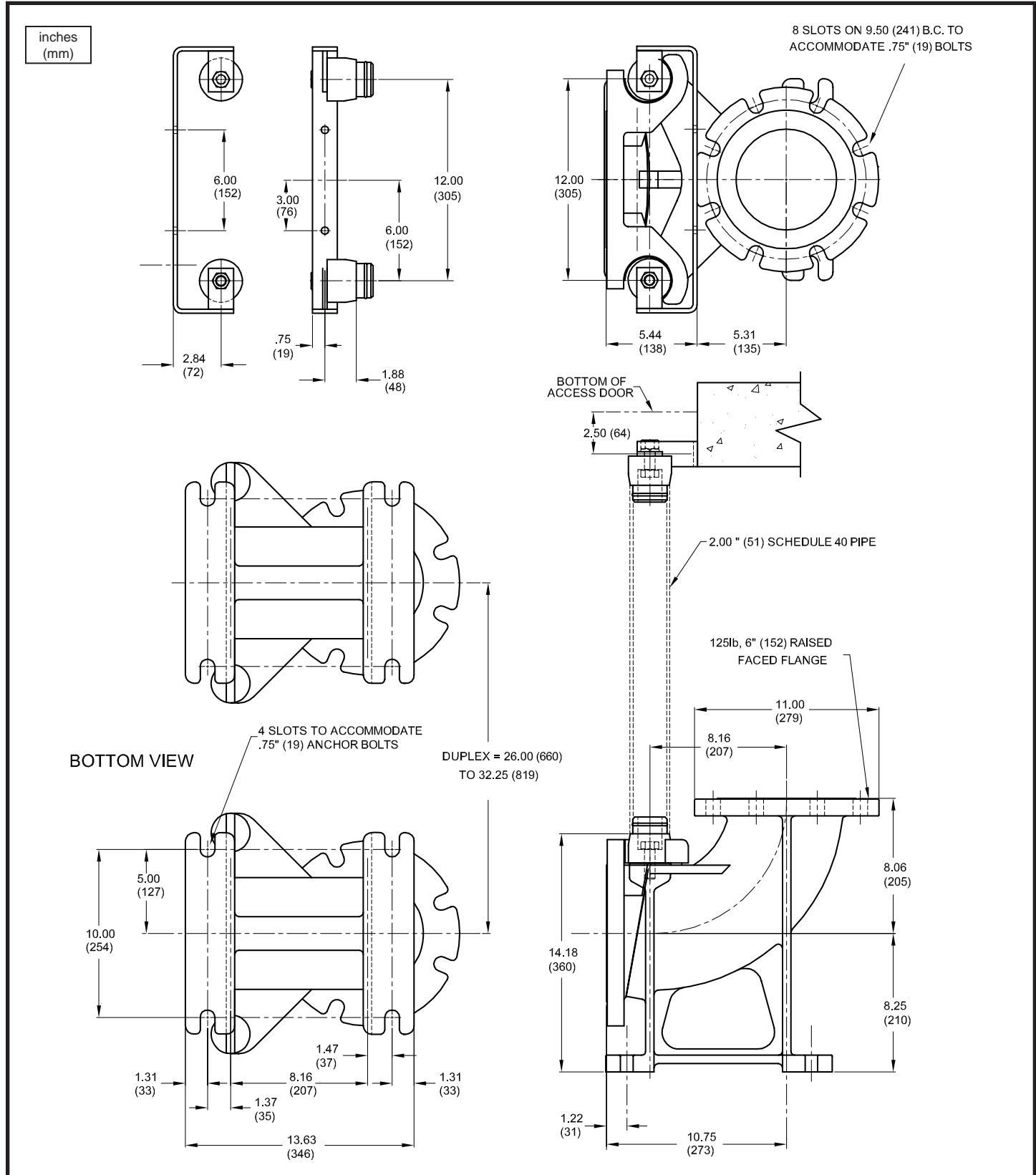
Standard and Non-Sparking

Models: BAF-6 & BAF-E6

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Break Away Fittings



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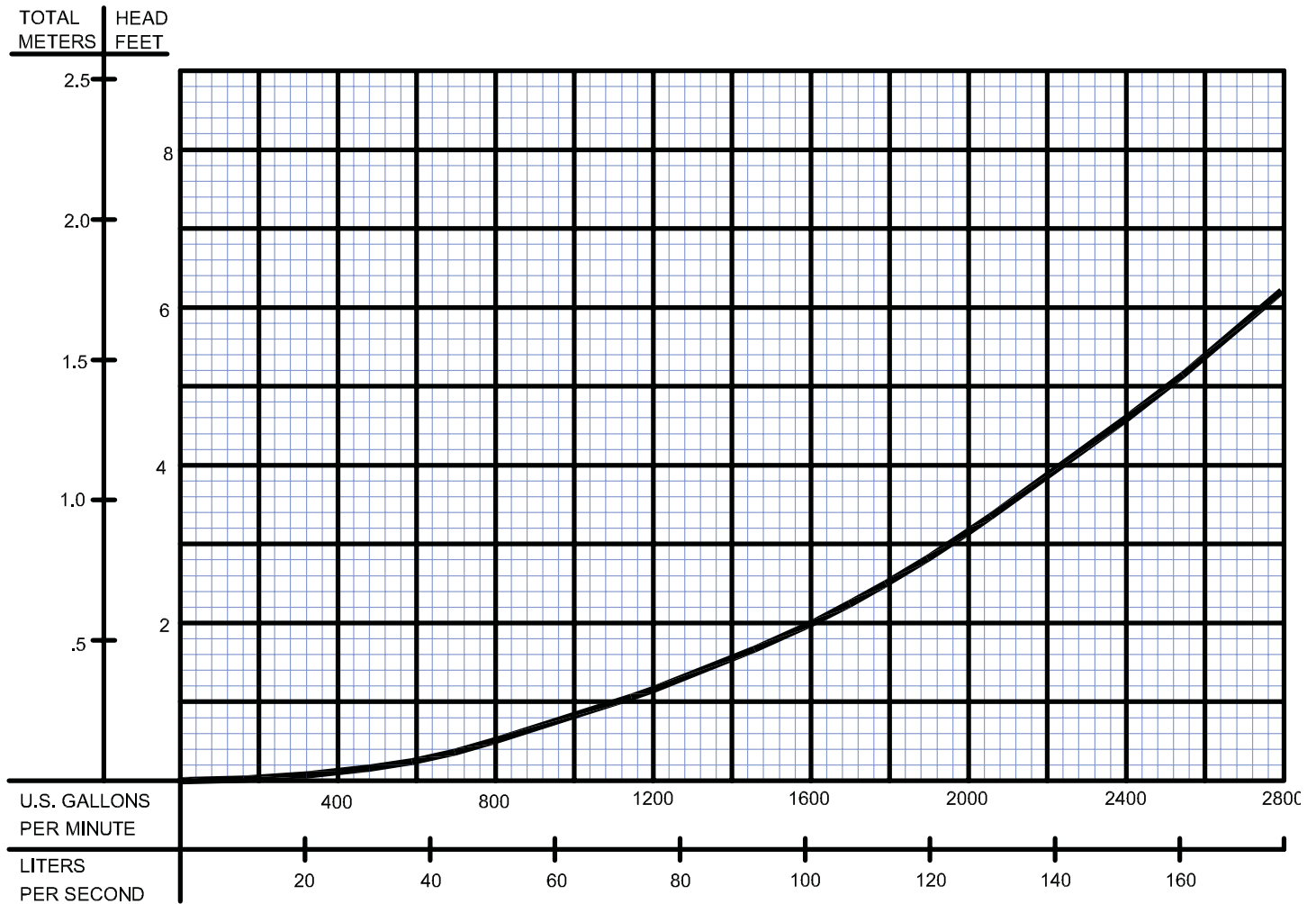
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Break Away Fittings



Break Away Fittings

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Specifications:

BAF-8; Standard

3" (76mm) Schedule 40 pipe should be used for guides. An intermediate guide pipe bracket should be used for pipe lengths of 20 feet (6M) or more. The stationary elbow is designed to be anchored to the floor of the wet well. A stainless steel sealing face on the elbow mates with a cast iron flange.

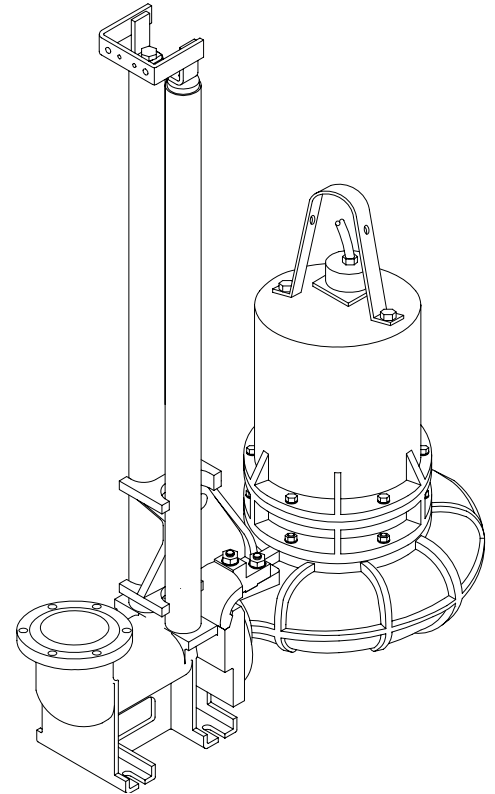
The pump bolts to the moveable bracket and is then free to ride up and down the guide rails which are attached to the base elbow at one end and the underside of the wet well cover at the other end. The guide rails serve only to guide, they carry none of the pump weight.

BAF-E8; Non-Sparking

3" (76mm) Schedule 40 pipe should be used for guides. An intermediate guide pipe bracket should be used for pipe lengths of 20 feet (6M) or more. The stationary elbow is designed to be anchored to the floor of the wet well. A brass sealing face on the elbow mates with a cast iron flange. A brass sheet is used on the stationary coupling at the moveable bracket stop.

The pump bolts to the moveable bracket, which has brass inserts that provide the Non-Sparking feature, and is then free to ride up and down the guide rails which are attached to the base elbow at one end and the underside of the wet well cover at the other end. The guide rails serve only to guide, they carry none of the pump weight.

For OPTIONAL information see Intermediate Rail Supports Section.



Model: BAF-8
P/N: 082110

Model: BAF-E8
P/N: 082110D

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

8" Break Away Fitting

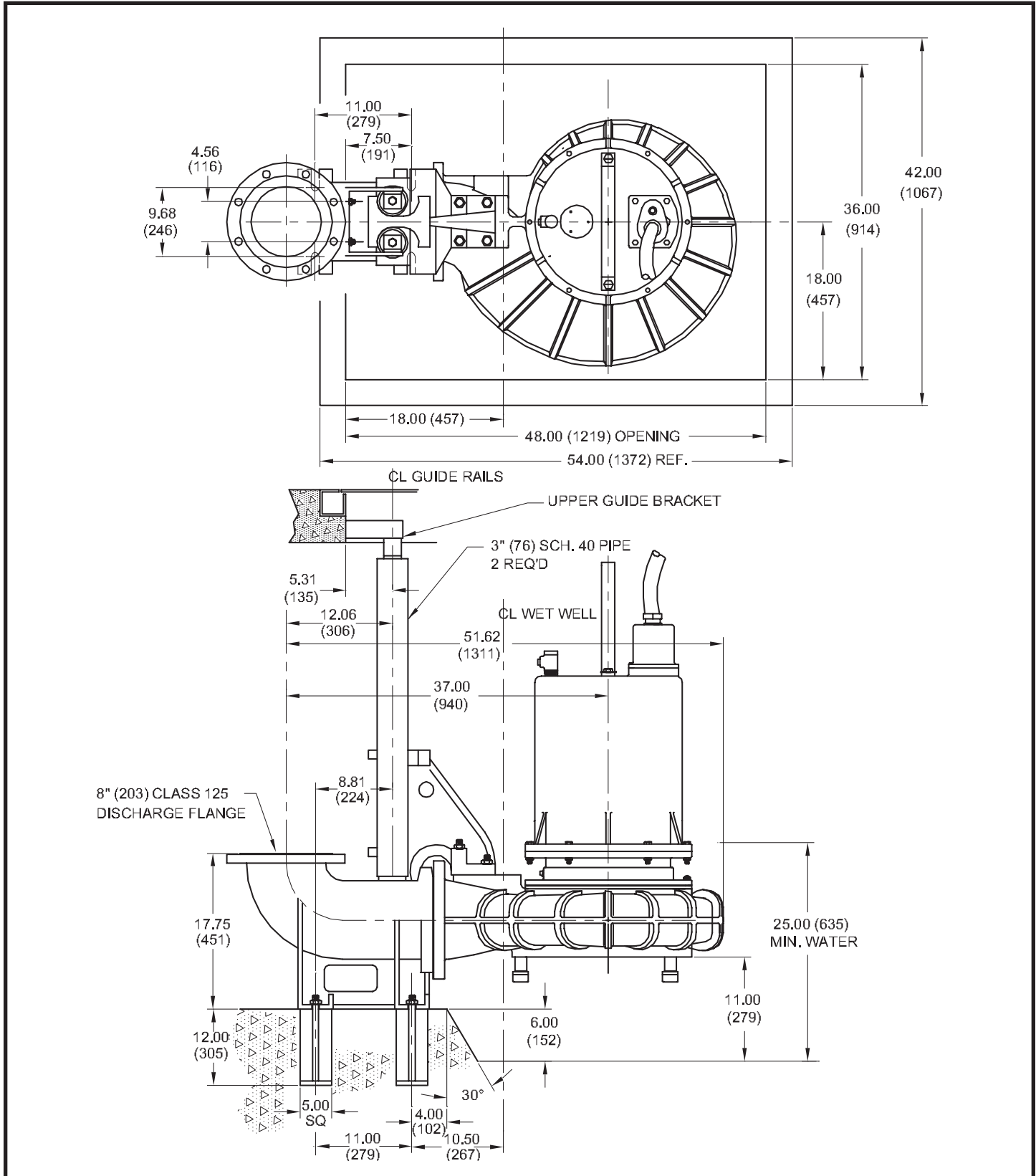
Standard and Non-Sparking

Models: BAF-8 & BAF-E8

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Break Away Fittings



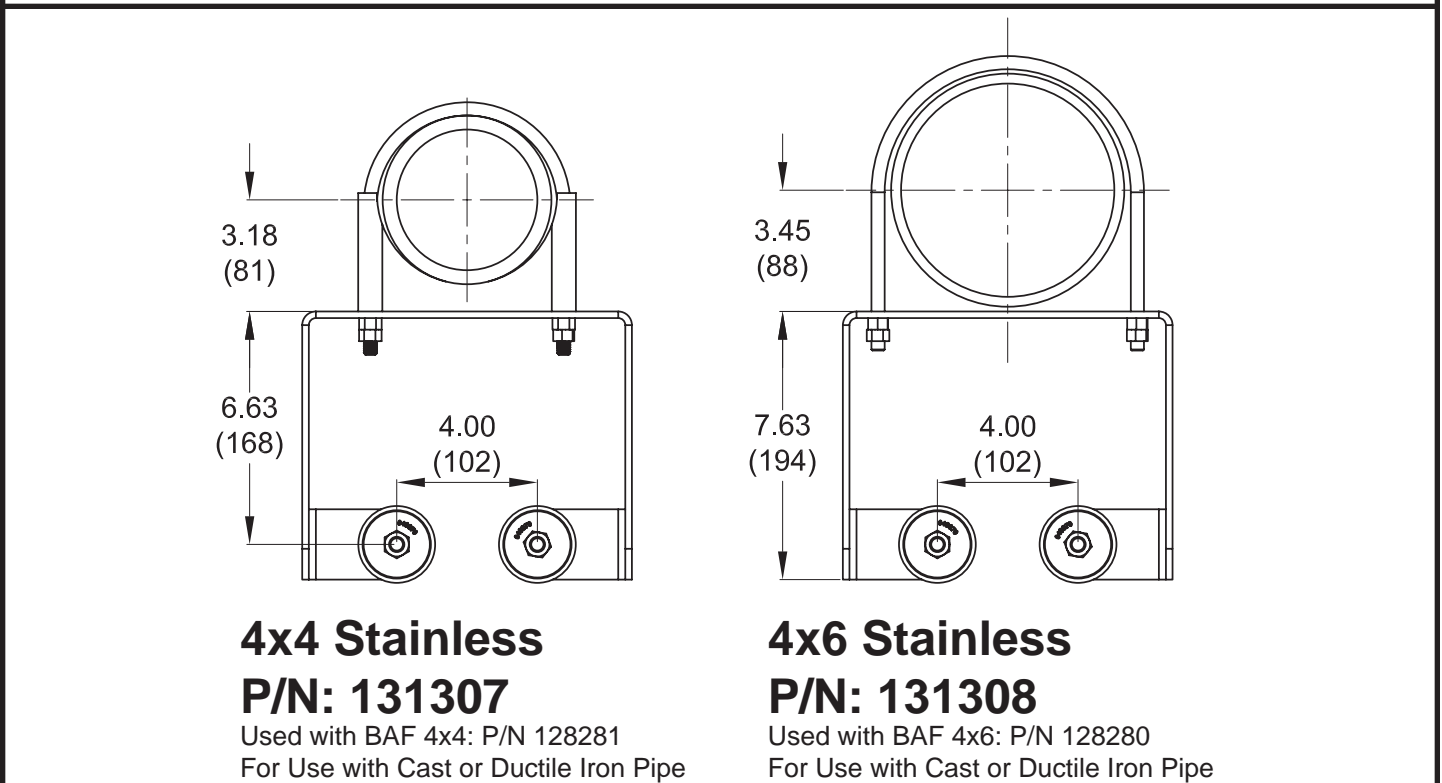
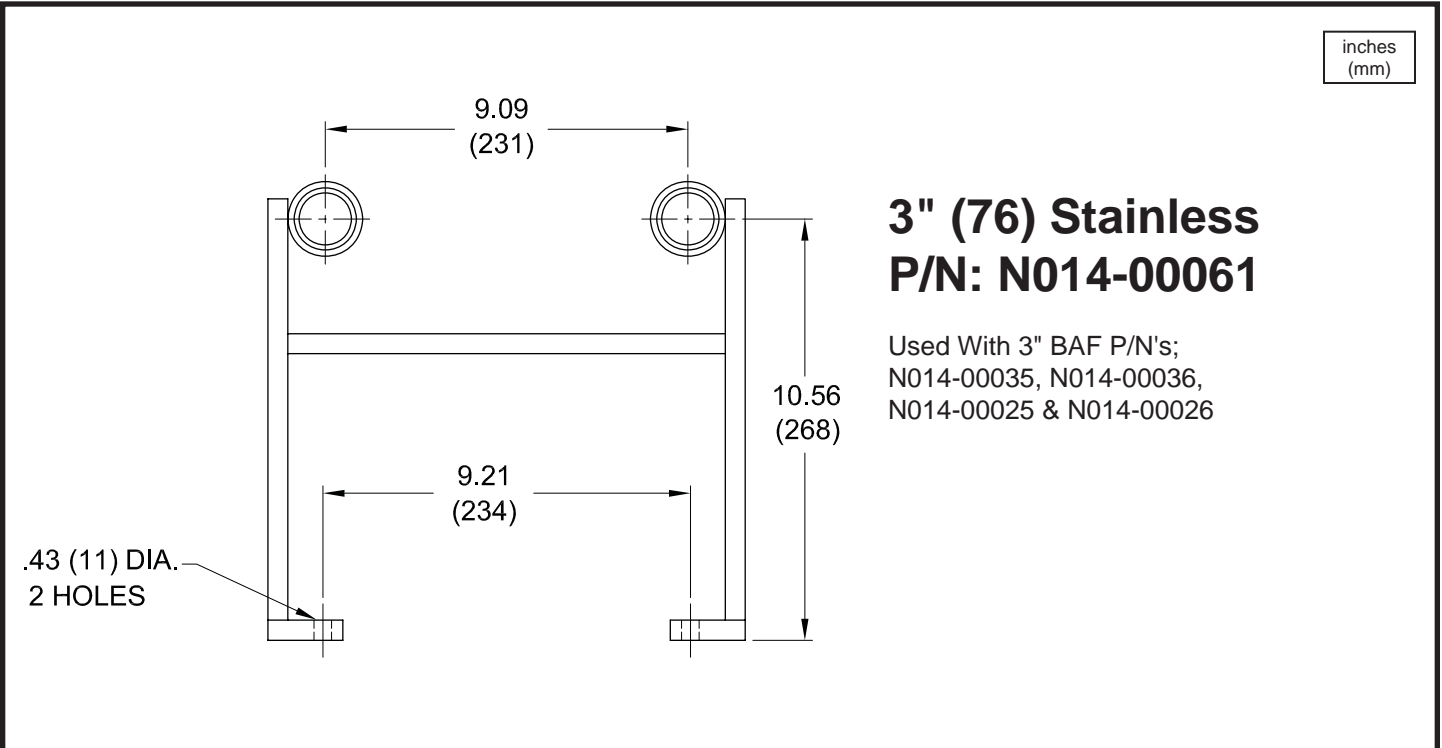
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CRANE
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PUMPS & SYSTEMS

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Break Away Fittings



The intermediate guide rail support is required for every 13 feet (14m) of guide rail.
Mount the intermediate between each section of guide rail pipe, by inserting each pipe over the nipples of the intermediate. Next secure the intermediate to the discharge piping. Be sure to keep the guide rails from warping and keep them parallel and perpendicular.

Break Away Fittings

4" (102) Stainless
P/N: 111432

For Steel Pipe [A = 4.50" (114) O.D.]
Used with BAF-4 P/N's; 087315 and 087316

For Cast Iron or Ductil Iron Pipe [A = 4.80" (121) O.D.]
Used with BAF-4 P/N's; 087315 and 087316

4" (102) Stainless with
6" (152) Pipe
P/N: 111433

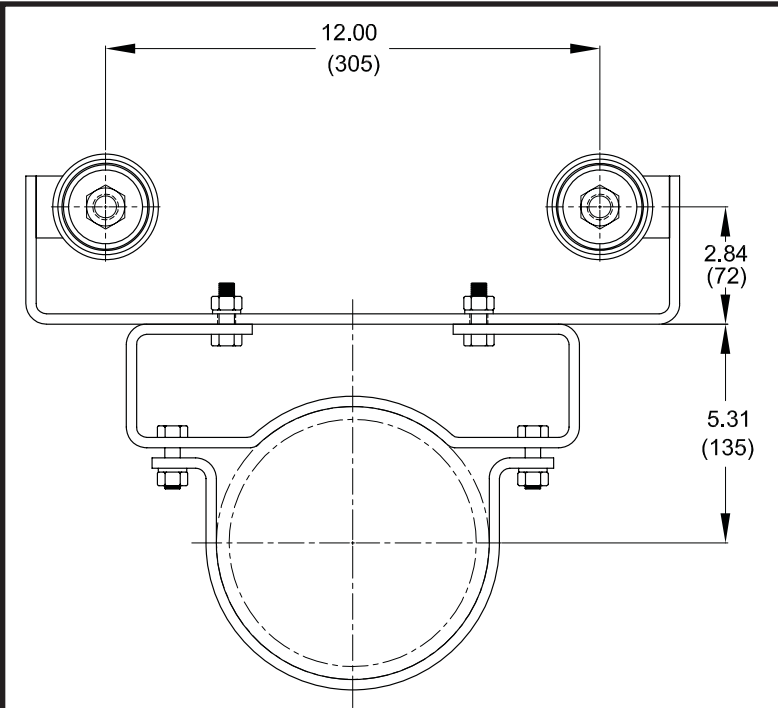
For Steel Pipe
A = 6.63" (168) DIA
B = 6.31" (160)
C = 0.25" (6.4)
Used with BAF-4 P/N's; 087315 and 087316

4" (102) Stainless with
6" (152) Pipe
P/N: 111433

For Cast Iron or Ductil Iron Pipe
A = 6.90" (175) DIA
B = 6.45" (164)
C = 0.52" (13)
Used with BAF-4 P/N's; 087315 and 087316

The intermediate guide rail support is required for every 13 feet (14m) of guide rail.
Mount the intermediate between each section of guide rail pipe, by inserting each pipe over the nipples of the intermediate. Next secure the intermediate to the discharge piping. Be sure to keep the guide rails from warping and keep them parallel and perpendicular.

Break Away Fittings



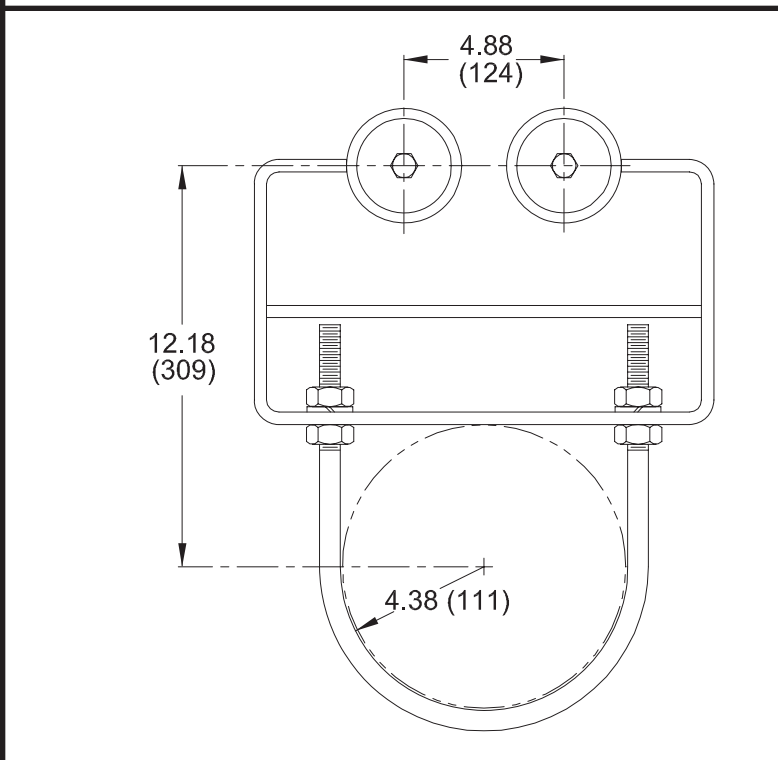
inches
(mm)

6" (152) Stainless P/N: 090108

For Steel Pipe [6.63" (168) O.D.]
Used with BAF-6 P/N's; 091550 and 091551

6" (152) Stainless P/N: 111434

For Cast Iron or Ductil Iron Pipe [6.90" (175) O.D.]
Used with BAF-6 P/N's; 091550 and 091551



8" (203) Steel P/N: 085034F

For Steel Pipe [8.62" (219) O.D.]
Used with BAF-8 P/N's; 082110 and 082110D

The intermediate guide rail support is required for every 13 feet (14m) of guide rail.
Mount the intermediate between each section of guide rail pipe, by inserting each pipe over the nipples of the intermediate. Next secure the intermediate to the discharge piping. Be sure to keep the guide rails from warping and keep them parallel and perpendicular.

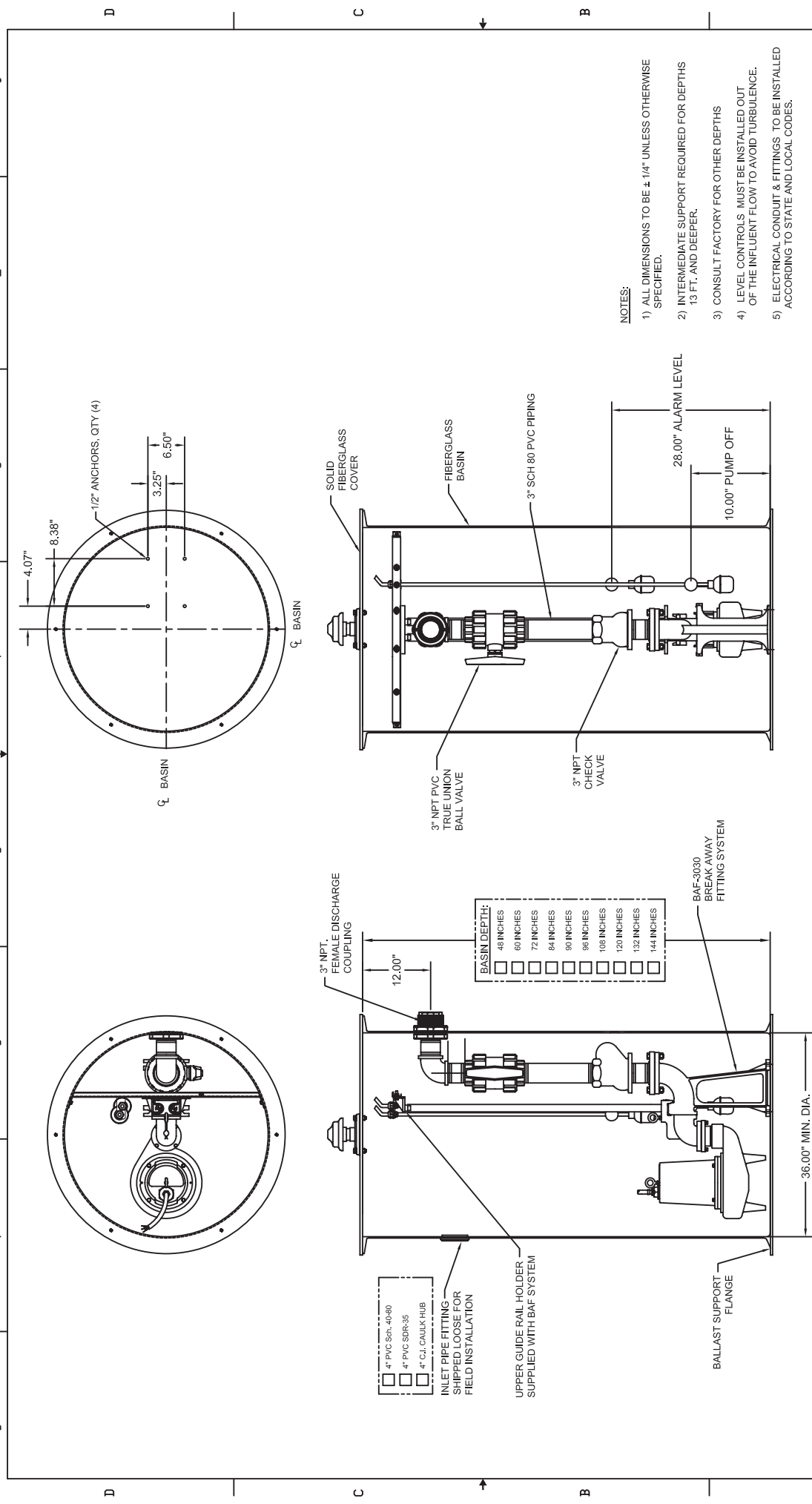
Break Away Fittings

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Drawing No.	Description
CD131245	Simplex, Basin, BAF-2020CV
CD131252	Simplex, Basin, BAF-3030
CD131256	Duplex, Basin, BAF-2020CV
CD131257	Duplex, Basin, BAF-3030

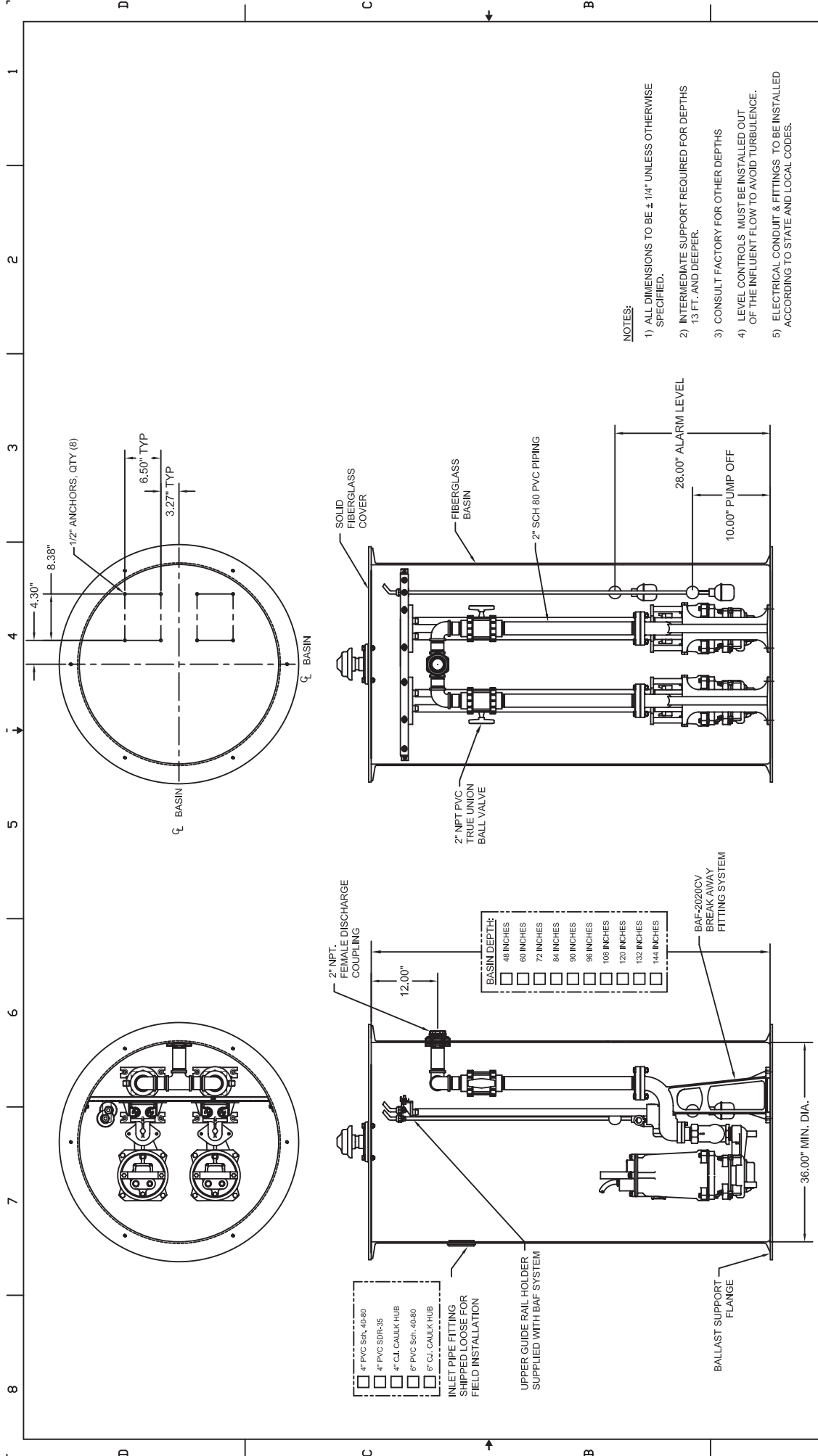
Break Away Fittings

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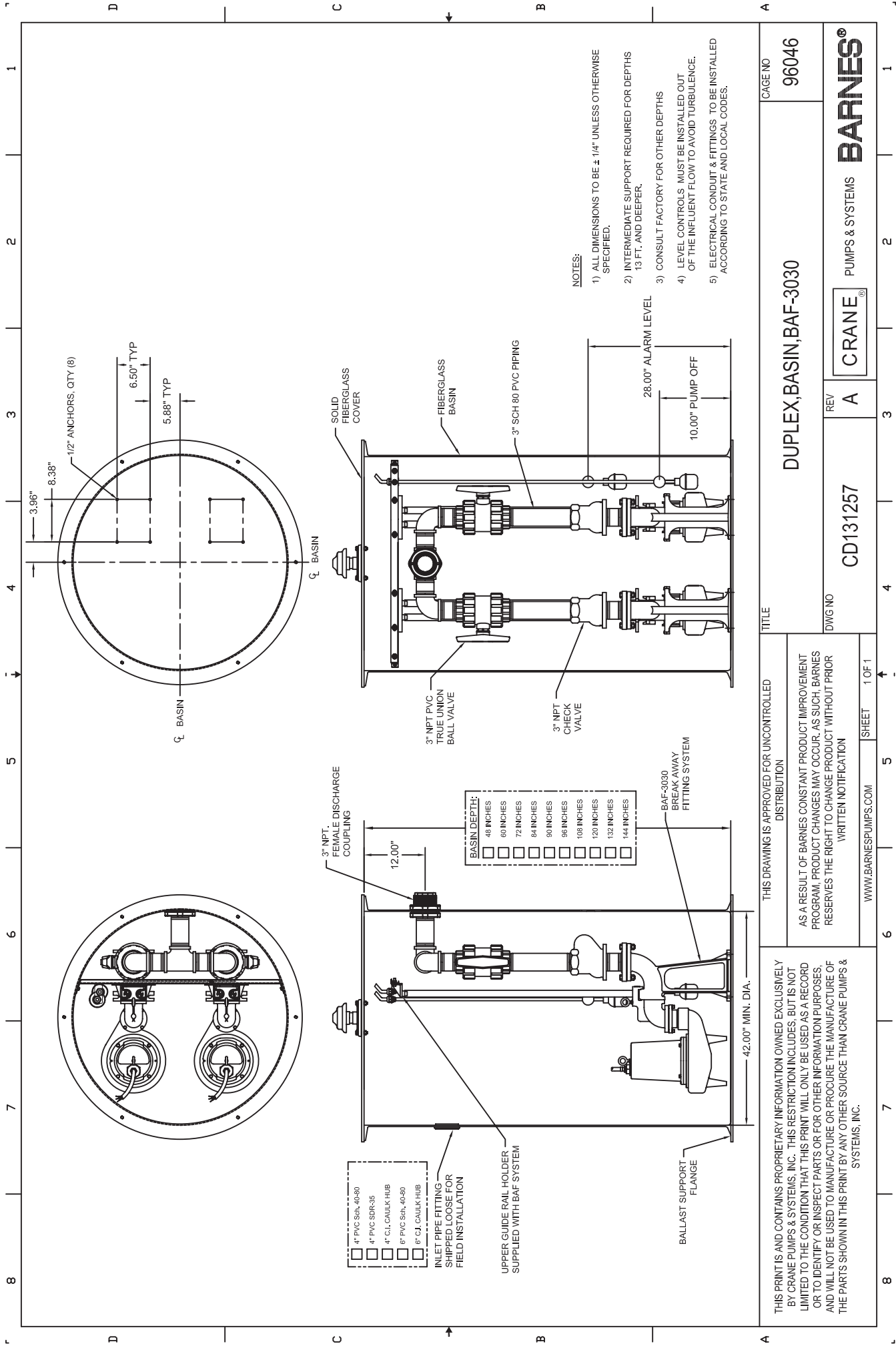
- NOTES:**
- 1) ALL DIMENSIONS TO BE ± 1/4" UNLESS OTHERWISE SPECIFIED.
 - 2) INTERMEDIATE SUPPORT REQUIRED FOR DEPTHS 13 FT. AND DEEPER.
 - 3) CONSULT FACTORY FOR OTHER DEPTHS
 - 4) LEVEL CONTROLS MUST BE INSTALLED OUT OF THE INFLUENT FLOW TO AVOID TURBULENCE.
 - 5) ELECTRICAL CONDUIT & FITTINGS TO BE INSTALLED ACCORDING TO STATE AND LOCAL CODES.

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<p>AS A RESULT OF BARNES CONSTANT PRODUCT IMPROVEMENT PROGRAM, PRODUCT CHANGES MAY OCCUR. AS SUCH, BARNES RESERVES THE RIGHT TO CHANGE PRODUCT WITHOUT PRIOR WRITTEN NOTIFICATION</p>		<p>SHEET 1 OF 1</p>		<p>1</p>	
<p>TITLE</p> <p>SIMPLEX BASIN, BAF-3030</p>		<p>REV</p> <p>A</p>		<p>DWG NO</p> <p>CD131252</p>	
<p>CAGE NO</p> <p>96046</p>		<p>CRANE®</p>		<p>PUMPS & SYSTEMS</p>	
<p>8</p>		<p>7</p>		<p>6</p>	
<p>7</p>		<p>6</p>		<p>5</p>	
<p>6</p>		<p>5</p>		<p>4</p>	
<p>5</p>		<p>4</p>		<p>3</p>	
<p>4</p>		<p>3</p>		<p>2</p>	
<p>3</p>		<p>2</p>		<p>1</p>	



- NOTES:**
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 - 3) CONSULT FACTORY FOR OTHER DEPTHS
 - 4) LEVEL CONTROLS MUST BE INSTALLED OUT OF THE INFLUENT FLOW TO AVOID TURBULENCE.
 - 5) ELECTRICAL CONDUIT & FITTINGS TO BE INSTALLED ACCORDING TO STATE AND LOCAL CODES.

<p>THIS PRINT IS AND CONTAINS PROPRIETARY INFORMATION OWNED EXCLUSIVELY BY CRANE PUMPS & SYSTEMS, INC. THIS RESTRICTION INCLUDES, BUT IS NOT LIMITED TO THE CONDITION THAT THIS PRINT WILL ONLY BE USED AS A RECORD OR TO IDENTIFY OR INSPECT PARTS OR FOR OTHER INFORMATION PURPOSES, AND WILL NOT BE USED TO MANUFACTURE OR PROCURE THE MANUFACTURE OF THE PARTS SHOWN IN THIS PRINT BY ANY OTHER SOURCE THAN CRANE PUMPS & SYSTEMS, INC.</p>		<p>THIS DRAWING IS APPROVED FOR UNCONTROLLED DISTRIBUTION AS A RESULT OF BARNES CONSTANT PRODUCT IMPROVEMENT PROGRAM. PRODUCT CHANGES MAY OCCUR. AS SUCH, BARNES RESERVES THE RIGHT TO CHANGE PRODUCT WITHOUT PRIOR WRITTEN NOTIFICATION</p>	
<p>TITLE DUPLEX, BASIN, BAF-2020CV</p>		<p>CAGE NO 96046</p>	
<p>DWG NO CD131256</p>		<p>REV A</p>	
<p>SHEET 1 OF 1</p>		<p>WWW.BARNESPUMPS.COM</p>	
<p>CRANE PUMPS & SYSTEMS, INC.</p>		<p>BARNES®</p>	



NOTES:

- 1) ALL DIMENSIONS TO BE ± 1/4" UNLESS OTHERWISE SPECIFIED.
- 2) INTERMEDIATE SUPPORT REQUIRED FOR DEPTHS 13 FT. AND DEEPER.
- 3) CONSULT FACTORY FOR OTHER DEPTHS
- 4) LEVEL CONTROLS MUST BE INSTALLED OUT OF THE INFLUENT FLOW TO AVOID TURBULENCE.
- 5) ELECTRICAL CONDUIT & FITTINGS TO BE INSTALLED ACCORDING TO STATE AND LOCAL CODES.

DUPLEX BASIN, BAF-3030

TITLE: THIS DRAWING IS APPROVED FOR UNCONTROLLED DISTRIBUTION

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CAGE NO: 96046
 DWG NO: CD131257
 REV: A

CRANE PUMPS & SYSTEMS **BARNES**

WWW.BARNESPUMPS.COM SHEET 1 OF 1

Specifications:

Standard:

Basin construction is custom molded fiberglass reinforced polyester resin. The wall thickness shall be sufficient to withstand a water-saturated sand load of 120 lbs per cubic foot (1.9 gms/cu. cm) with a 1.5 safety factor.

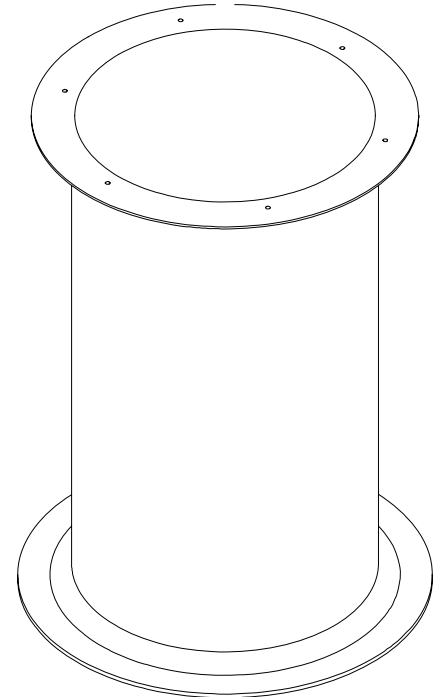
The Ballast support flange shall extend a minimum of 3" (76mm) on the radius of the basin. The flange is fiberglassed to the bottom of the basin. When secured properly to a concrete pad or pouring concrete over and around the flange, prevents the basin from rising, or floating out of the ground when empty as a result of static ground pressure. The basin will withstand a maximum temperature of 150°F (66°C).

OPTIONAL EQUIPMENT:

Inlet Hubs or Flexible pipe Fittings; Discharge Couplings; Electrical Conduit Couplings; Studs for mounting BAF's.

Non-Sparking:

Basins for Non-Sparking Systems, same as above except basins must have two (2) 1-1/2" or 2" NPT electrical couplings bolted to basin wall, for Simplex and Duplex has three couplings, 1-1/2" or 2" NPT, (See Page 6 for Coupling).



24" thru 72" Dia (.6m thru 1.8m)
48" thru 156" Depth (1.2m thru 3.9m)

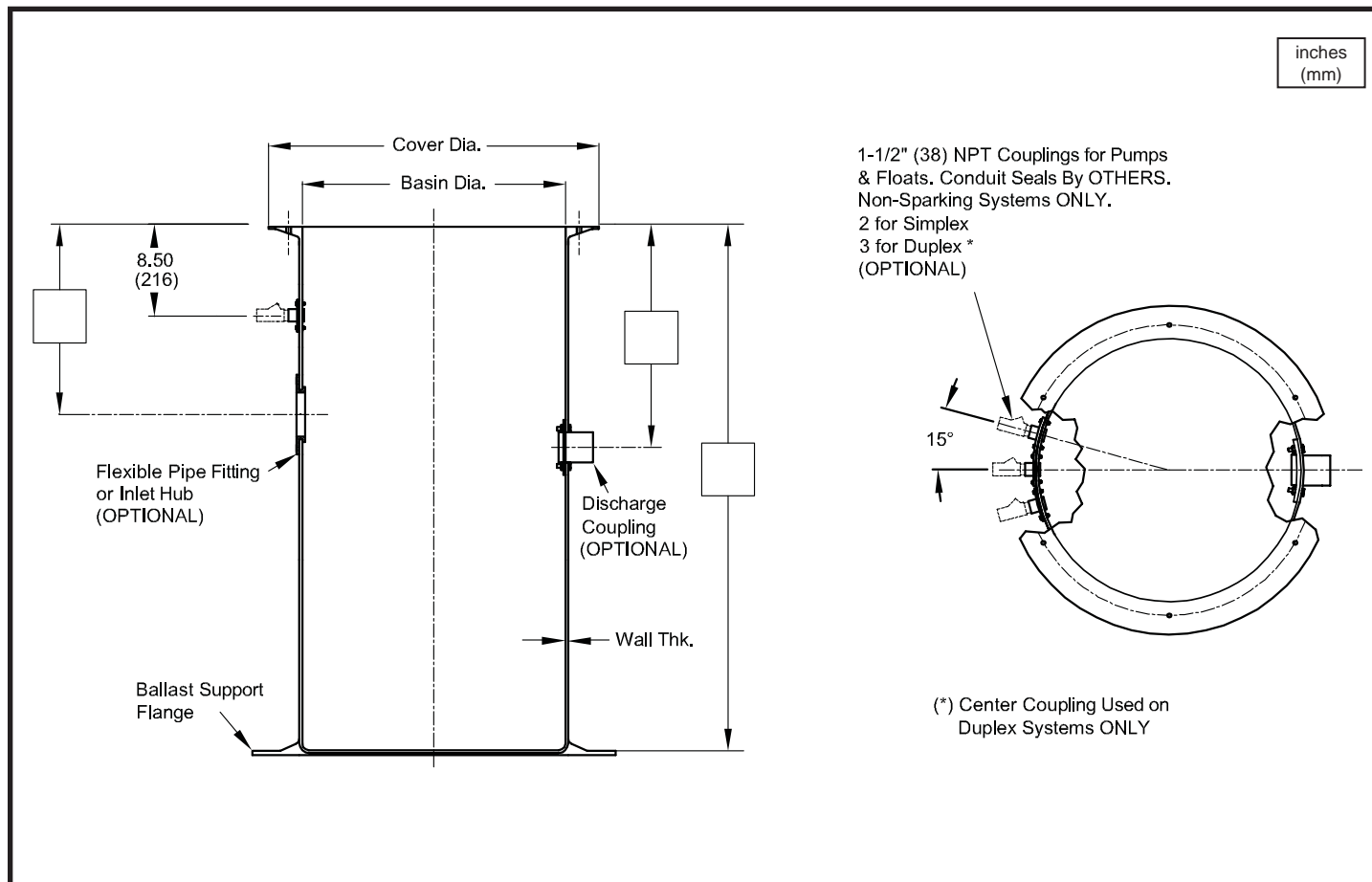
Fiberglass Basins

with Ballast Support Flange
24" Dia. thru 72" Dia. (.6m thru 1.8m)



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Basins & Accessories



PART NO.	BASIN INSIDE DIA.	BASIN INSIDE DEPTH	COVER DIA.	NOMINAL WALL THK.	CAPACITY APPROX. GALLONS (Liters)	SHIPPING WEIGHT IN LBS, (kg)
093982	24 (610)	48 (1219)	28 (711)	.19 (4.8)	94 (356)	51 (23)
094688	24 (610)	60 (1524)	28 (711)	.19 (4.8)	118 (447)	61 (28)
094689	24 (610)	72 (1829)	28 (711)	.19 (4.8)	141 (534)	71 (32)
093972	24 (610)	78 (1981)	28 (711)	.19 (4.8)	153 (579)	94 (43)
093954	24 (610)	84 (2134)	28 (711)	.25 (6.4)	165 (625)	100 (45)
093975	24 (610)	90 (2286)	28 (711)	.25 (6.4)	176 (666)	106 (48)
094690	24 (610)	96 (2438)	28 (711)	.25 (6.4)	188 (712)	112 (51)
097856	24 (610)	102 (3048)	28 (711)	.25 (6.4)	199 (753)	118 (54)
093989	24 (610)	108 (2743)	28 (711)	.25 (6.4)	211 (799)	124 (56)
097857	24 (610)	114 (2896)	28 (711)	.25 (6.4)	223 (844)	130 (59)
094691	24 (610)	120 (3048)	28 (711)	.25 (6.4)	235 (890)	136 (62)
097858	24 (610)	126 (3200)	28 (711)	.25 (6.4)	246 (931)	142 (64)
097859	24 (610)	132 (3353)	28 (711)	.25 (6.4)	258 (977)	148 (67)
098882	24 (610)	144 (3658)	28 (711)	.25 (6.4)	282 (1067)	160 (73)

Basin depths in 6 inch (152mm) increments up to 144 inches (3658mm), then in 12 inch (305mm) increments. Consult factory for other depths and configurations. Continued on next page

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PUMPS & SYSTEMS

A Crane Co. Company

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Basins & Accessories

PART NO.	BASIN INSIDE DIA.	BASIN INSIDE DEPTH	COVER DIA.	NOMINAL WALL THK.	CAPACITY APPROX. GALLONS (Liters)	SHIPPING WEIGHT IN LBS, (kg)
094614	30 (762)	36 (914)	34 (864)	.19 (4.8)	110 (416)	56 (25)
094003	30 (762)	48 (1219)	34 (864)	.19 (4.8)	147 (557)	78 (35)
094692	30 (762)	60 (1524)	34 (864)	.25 (6.4)	184 (697)	94 (43)
094693	30 (762)	72 (1829)	34 (864)	.25 (6.4)	220 (833)	114 (52)
094004	30 (762)	78 (1981)	34 (864)	.25 (6.4)	239 (905)	122 (55)
094005	30 (762)	84 (2134)	34 (864)	.25 (6.4)	257 (973)	160 (73)
094006	30 (762)	90 (2286)	34 (864)	.31 (7.8)	275 (1041)	170 (77)
094694	30 (762)	96 (2438)	34 (864)	.31 (7.8)	294 (1113)	180 (82)
097860	30 (762)	102 (2591)	34 (864)	.31 (7.8)	312 (1181)	190 (86)
094007	30 (762)	108 (2743)	34 (864)	.31 (7.8)	330 (1249)	200 (91)
094695	30 (762)	120 (3048)	34 (864)	.31 (7.8)	367 (1389)	233 (106)
097861	30 (762)	126 (3200)	34 (864)	.31 (7.8)	385 (1457)	243 (110)
097862	30 (762)	132 (3353)	34 (864)	.31 (7.8)	403 (1526)	254 (115)
097863	30 (762)	138 (3505)	34 (864)	.31 (7.8)	422 (1597)	265 (120)
098884	30 (762)	144 (3658)	34 (864)	.31 (7.8)	440 (1666)	312 (142)
094121	36 (914)	48 (1219)	40 (1016)	.19 (4.8)	212 (803)	98 (45)
094696	36 (914)	60 (1524)	40 (1016)	.25 (6.4)	264 (999)	116 (53)
094697	36 (914)	72 (1829)	40 (1016)	.25 (6.4)	317 (1200)	136 (62)
094122	36 (914)	78 (1981)	40 (1016)	.25 (6.4)	344 (1302)	160 (73)
094123	36 (914)	84 (2134)	40 (1016)	.25 (6.4)	370 (1401)	171 (78)
094124	36 (914)	90 (2286)	40 (1016)	.31 (7.8)	397 (1503)	205 (93)
094698	36 (914)	96 (2438)	40 (1016)	.31 (7.8)	423 (1601)	217 (98)
094125	36 (914)	108 (2743)	40 (1016)	.31 (7.8)	476 (1802)	242 (110)
094699	36 (914)	120 (3048)	40 (1016)	.31 (7.8)	529 (2003)	280 (127)
098881	36 (914)	144 (3658)	40 (1016)	.31 (7.8)	634 (2400)	372 (169)
094135	42 (1067)	48 (1219)	46 (1168)	.19 (4.8)	288 (1091)	116 (53)
094136	42 (1067)	60 (1524)	46 (1168)	.19 (4.8)	360 (1363)	138 (63)
094137	42 (1067)	72 (1829)	46 (1168)	.25 (6.4)	432 (1635)	168 (76)
094138	42 (1067)	78 (1981)	46 (1168)	.25 (6.4)	468 (1772)	187 (85)
094139	42 (1067)	84 (2134)	46 (1168)	.25 (6.4)	504 (1908)	200 (91)
094140	42 (1067)	90 (2286)	46 (1168)	.25 (6.4)	540 (2044)	211 (96)
094141	42 (1067)	96 (2438)	46 (1168)	.31 (7.8)	576 (2180)	224 (102)
094142	42 (1067)	108 (2743)	46 (1168)	.31 (7.8)	648 (2453)	248 (113)
094143	42 (1067)	120 (3048)	46 (1168)	.31 (7.8)	720 (2726)	307 (139)
098886	42 (1067)	132 (3353)	46 (1168)	.34 (8.6)	791 (2994)	340 (154)
098887	42 (1067)	144 (3658)	46 (1168)	.34 (8.6)	863 (3267)	370 (168)

Basin depths in 6 inch (152mm) increments up to 144 inches (3658mm), then in 12 inch (305mm) increments.
Consult factory for other depths and configurations.
Continued on next page

Fiberglass Basins

with Ballast Support Flange

24" Dia. thru 72" Dia. (.6m thru 1.8m)

BARNES®

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Basins & Accessories

PART NO.	BASIN INSIDE DIA.	BASIN INSIDE DEPTH	COVER DIA.	NOMINAL WALL THK.	CAPACITY APPROX. GALLONS (Liters)	SHIPPING WEIGHT IN LBS. (kg)
094714	48 (1219)	48 (1219)	54 (1372)	.19 (4.8)	376 (1423)	134 (61)
094700	48 (1219)	60 (1524)	54 (1372)	.19 (4.8)	470 (1779)	160 (73)
094701	48 (1219)	72 (1829)	54 (1372)	.25 (6.4)	564 (2135)	186 (84)
094239	48 (1219)	78 (1981)	54 (1372)	.25 (6.4)	611 (2313)	247 (112)
094713	48 (1219)	84 (2134)	54 (1372)	.25 (6.4)	658 (2491)	262 (119)
094240	48 (1219)	90 (2286)	54 (1372)	.25 (6.4)	705 (2669)	277 (126)
094702	48 (1219)	96 (2438)	54 (1372)	.25 (6.4)	752 (2847)	295 (134)
094241	48 (1219)	108 (2743)	54 (1372)	.31 (7.8)	846 (3203)	325 (147)
094703	48 (1219)	120 (3048)	54 (1372)	.31 (7.8)	940 (3558)	429 (195)
098889	48 (1219)	132 (3352)	54 (1372)	.34 (8.6)	1034 (3914)	465 (211)
098879	48 (1219)	144 (3658)	54 (1372)	.34 (8.6)	1128 (4270)	501 (227)
098891	48 (1219)	156 (3962)	54 (1372)	.34 (8.6)	1222 (4625)	540 (245)
094242	60 (1524)	48 (1219)	66 (1676)	.19 (4.8)	588 (2226)	176 (80)
094704	60 (1524)	60 (1524)	66 (1676)	.25 (6.4)	734 (2778)	208 (94)
094705	60 (1524)	72 (1829)	66 (1676)	.25 (6.4)	881 (3335)	240 (109)
094243	60 (1524)	78 (1981)	66 (1676)	.25 (6.4)	955 (3615)	315 (143)
094715	60 (1524)	84 (2134)	66 (1676)	.25 (6.4)	1028 (3891)	335 (152)
094716	60 (1524)	90 (2286)	66 (1676)	.25 (6.4)	1102 (4172)	360 (164)
094706	60 (1524)	96 (2438)	66 (1676)	.25 (6.4)	1175 (4448)	380 (172)
094717	60 (1524)	108 (2743)	66 (1676)	.31 (7.8)	1328 (5027)	415 (188)
094707	60 (1524)	120 (3048)	66 (1676)	.38 (9.5)	1469 (5561)	455 (206)
098892	60 (1524)	132 (3352)	66 (1676)	.38 (9.5)	1615 (6113)	600 (272)
098880	60 (1524)	144 (3658)	66 (1676)	.38 (9.5)	1762 (6669)	648 (294)
098893	60 (1524)	156 (3962)	66 (1676)	.38 (9.5)	1909 (7226)	812 (368)
098160	72 (1829)	84 (2134)	78 (1981)	.46 (11.7)	1481 (5606)	439 (199)
098161	72 (1829)	96 (2438)	78 (1981)	.46 (11.7)	1692 (6405)	523 (237)
098162	72 (1829)	108 (2743)	78 (1981)	.46 (11.7)	1904 (7207)	586 (266)
098163	72 (1829)	120 (3048)	78 (1981)	.46 (11.7)	2115 (8006)	748 (339)
098894	72 (1829)	132 (3352)	78 (1981)	.52 (13.2)	2327 (8808)	854 (387)
098164	72 (1829)	144 (3658)	78 (1981)	.52 (13.2)	2538 (9607)	920 (417)
098895	72 (1829)	156 (3962)	78 (1981)	.52 (13.2)	2749 (10406)	972 (441)

Basin depths in 6 inch (152mm) increments up to 96 inches (2438mm), then in 12 inch (305mm) increments. Consult factory for other depths and configurations.

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CRANE
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PUMPS & SYSTEMS

A Crane Co. Company

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Specifications:

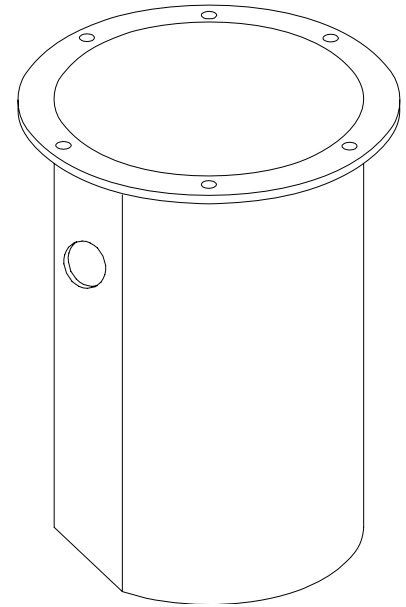
Poly Basin:

18" (457mm) Diameter x 30" (762mm) Depth polyethylene basin, impact resistant, rotationally molded, corrosion resistant. Comes with hole in basin to accommodate a 4" (102mm) Flexible Pipe Fitting 10.50" (267mm) from top of basin. Basin capacity is 30 gallons (114 liters), weight is 10.5 lbs (5kg) and a wall thickness of 3/16" (5mm).

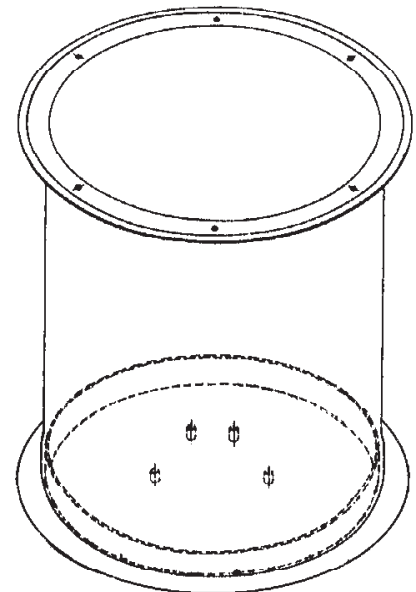
P/N: 076119

BAF Mounting Studs For Basin:

The studs are mounted in the bottom of the basin to mount Break Away Fittings. The studs are stainless steel and welded in a 1/4" (6mm) steel plate which another laminate of fiberglass is molded to the bottom to complete the basin construction. Studs are for Simplex or Duplex Installations. **MUST** Specify part number of BAF, and if it is Simplex or Duplex when ordering.

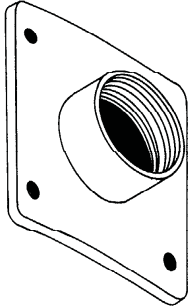


Poly Basin

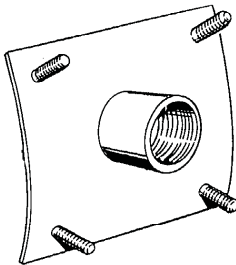


Mounting Studs

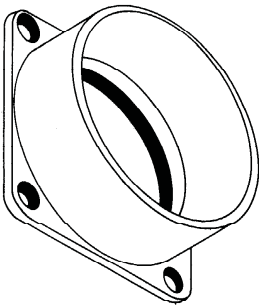
Basins & Accessories



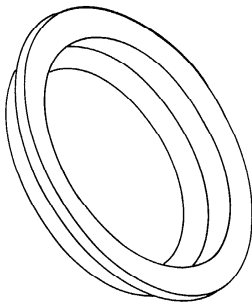
Electrical Conduit



Discharge Coupling



Inlet Hub



Flexible Pipe Fitting

Specifications:

Electrical Conduit Hub:

Bolt-On Hub. Constructed of glass filled nylon. Includes; gasket. stainless steel cap screws, sealing washers and hex nuts.

P/N:	Description:
078470	1-1/4" NPT Hub
078471	1-1/2" NPT Hub
078471D	2" NPT Hub

Discharge Coupling:

Stainless Steel Bolt-On Couplings Stainless

P/N:	Description
094790	1-1/4" NPT, Female
094801	1-1/2" NPT, Female
094802	2" NPT, Female
094964	2-1/2" NPT, Female
094965	3" NPT, Female

Cast Iron Inlet Hubs:

Cast iron inlet hubs are recommended for cast iron, ceramic, plastic or ductile iron gravity sewer pipe, designed to fit curvature of basin. Shipped loose for field installation. Includes gasket and four fasteners for mounting to basin.

P/N:	Description
063847	4" (102mm) Caulking Type
063848	6" (152mm) Caulking Type
063850	8" (203mm) Caulking Type

Flexible Pipe Fittings:

The Flexible Pipe fitting is super-tuff for weather and corrosion resistance. The fitting has superior vapor and water leakproof sealing ability. Shipped loose for field installation.

P/N:	Description
076149	4" (102mm) PVC, Sch. 40-80
075898	4" (102mm) PVC, SDR-35
076941*	6" (152mm) PVC, Sch. 40-80

(*) 6" Sch 40 inlet can only be used on 36" diameter and larger basins

Specifications:

Bug-Free Vent, 2" NPT:

The Bug-Free vent has a rustproof vinyl coating that resists gases, acids, alkalis, sun and weather. The vent is constructed of heavy 14 gauge top hat with a galvanized coupling and bronze screen. The screen area is 5.00 sq. in. (3226 sq. mm).

P/N: 075831

Flexible Discharge Couplings:

The Flexible Discharge Couplings are designed to dampen or suppress noise, absorb vibration (horizontal, vertical, angular), accommodate thermal expansion and stresses, and adjust or correct for misalignment in piping systems. The Flexible Couplings have the unique properties of metals; high strength and high resistance to temperature and corrosion. Each Coupling is equipped with an outer braid to prevent elongation under internal pressure. The braid is a tubular sheath of metal wires woven in a basket weave fashion. It is made to fit snugly over the hose, and is fastened to the ends of the hose. It is designed to be strong enough to withstand elongation for the full pressure rating of the hose.

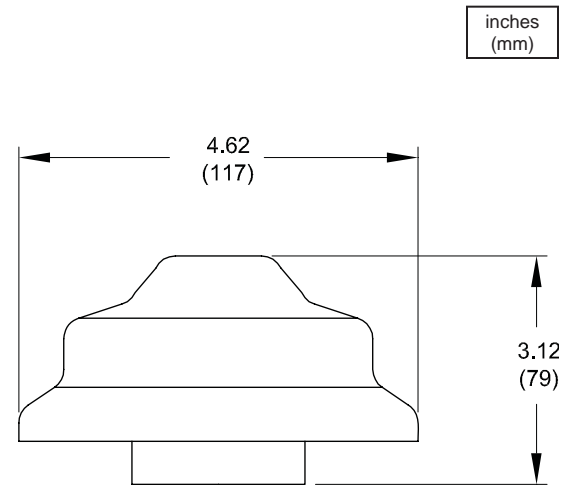
Inner Corrugated Hose: 300 Series Stainless Steel

Outer Braid: 300 Series Stainless Steel

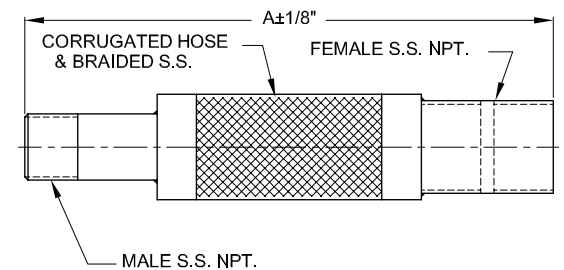
Maximum Permanent Offset From Center Line: 1/2" (13mm)

Maximum Intermittent Offset From Center Line: 1/4" (6.3mm)

PART NO.	PIPE NPT	"A" DIM ± .12" (3)	MAX. WORKING PRESS. @ 70°F (21°C)
100159	1.25	10 (254mm)	250 PSI (17.5 kg/cm ²)
100571	1.50	12 (305mm)	250 PSI (17.5 kg/cm ²)
100160	2.00	14 (356mm)	250 PSI (17.5 kg/cm ²)
100572	2.50	16 (406mm)	250 PSI (17.5 kg/cm ²)



Bug-free Vent 2" NPT



Flexible Discharge Couplings

Basin Covers

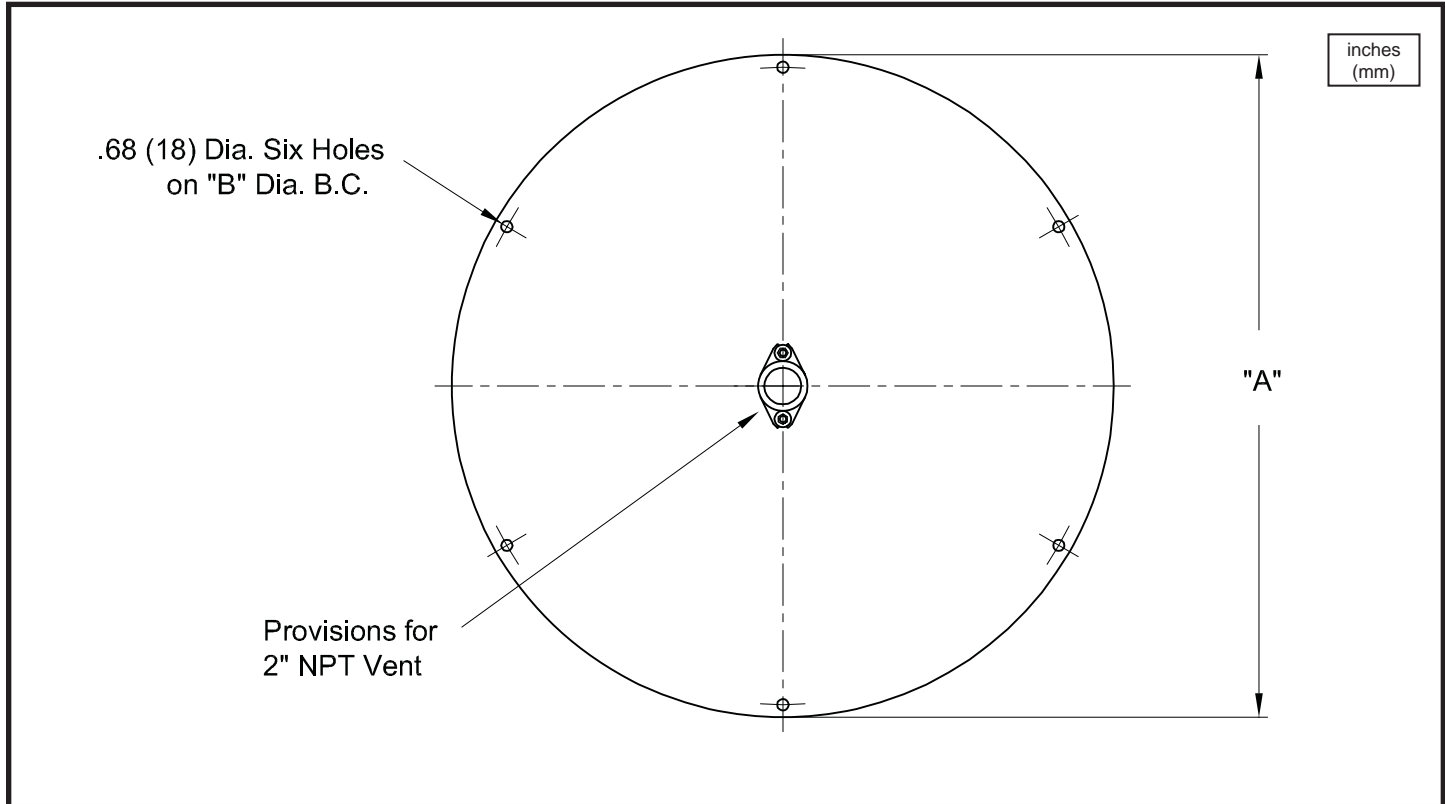
Fiberglass

For 24" Dia. thru 42" Dia. Basins

BARNES®

www.cranepumps.com

Basins & Accessories



PART NO. Fiberglass:	BASIN DIA.	COVER DIA. "A"	BOLT CIRCLE "B"	COVER THK.
094487	24 (610)	28 (711)	26.50 (673)	.37 (9)
094488	30 (762)	34 (864)	32.50 (826)	.37 (9)
094489	36 (914)	40 (1016)	38.50 (978)	.50 (13)
094017	42 (1067)	46 (1168)	44.50 (1130)	.50 (13)

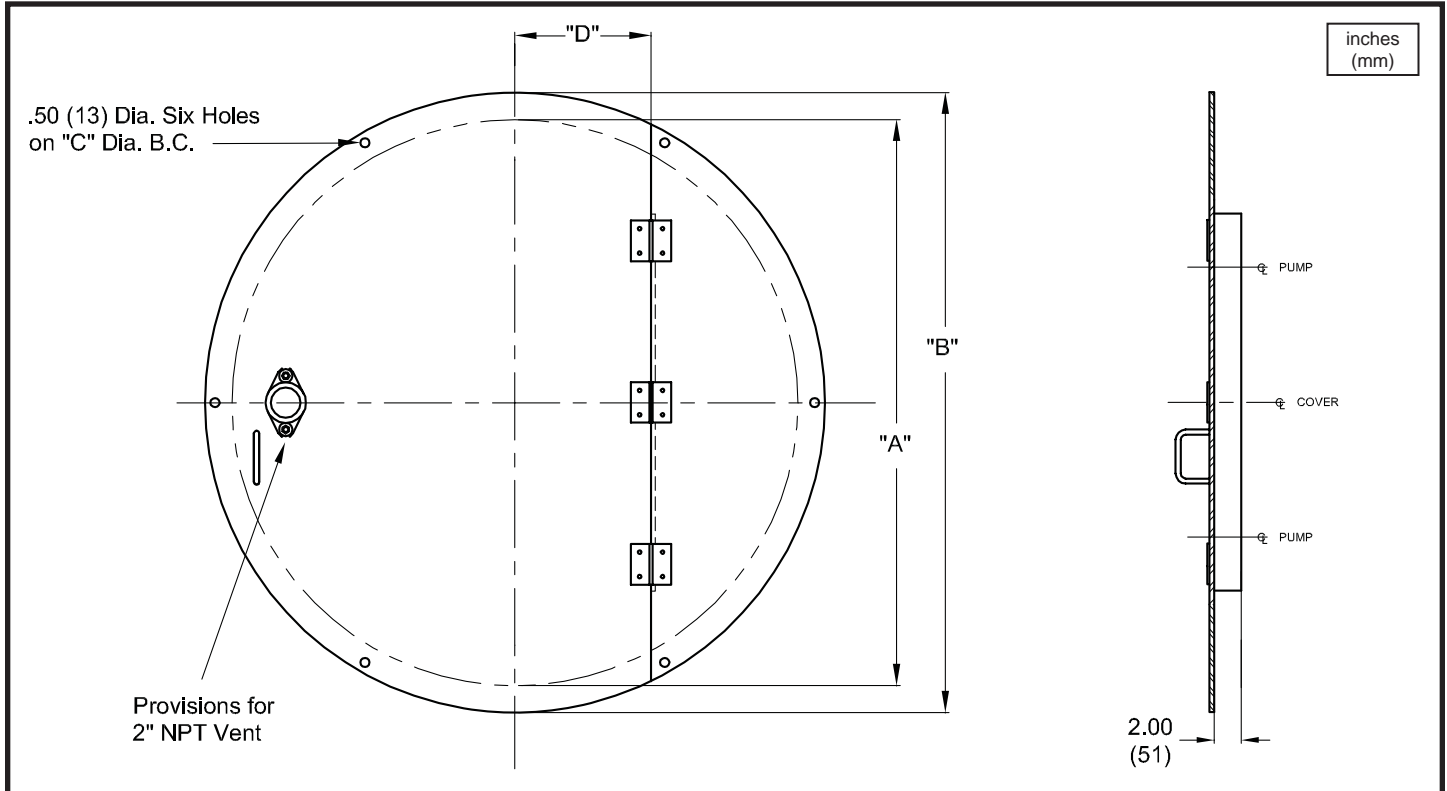
The Fiberglass Covers are of reinforced plastic and are grass green in color.
Covers have a load rating of 150 lbs/sq. ft. (732 kgs/sq. meter) minimum.

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CRANE
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PUMPS & SYSTEMS

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PART NO.	BASIN DIA. "A"	COVER DIA. "B"	BOLT CIRCLE "C"	"D"	COVER THK.
Steel:					
094708	36 (914)	40 (1016)	38.50 (978)	9.00 (229)	.37 (9)
094163	42 (1067)	46 (1168)	44.50 (1130)	10.12 (257)	.37 (9)
Aluminum:					
094709	36 (914)	40 (1016)	38.50 (978)	9.00 (229)	.25 (6)
094164	42 (1067)	46 (1168)	44.50 (1130)	10.12 (257)	.25 (6)

Basin covers have hinged access door, lifting handle, provisions for 2" NPT vent, stainless steel hinges and hardware. Covers have a load rating of 150 lbs/sq. ft. (732 kgs/sq. meter) minimum. Steel cover has Black Powder Coating.

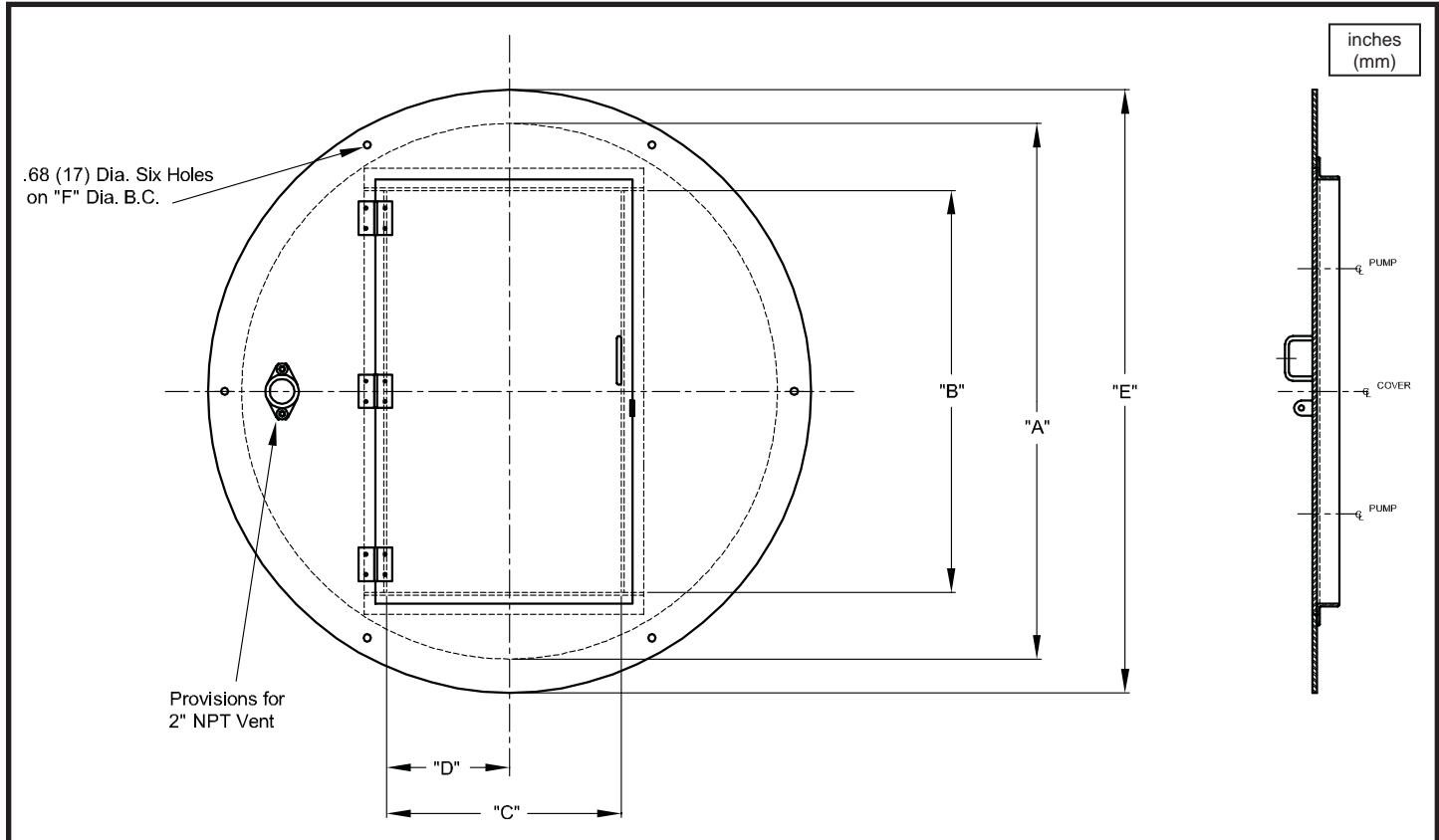
Basin Covers

Duplex, Steel & Aluminum, 48" & 60" for Pumps
on Stainless "C" Channel Rail Systems

BARNES®

www.cranepumps.com

Basins & Accessories



PART NO.	BASIN DIA. "A"	COVER DIA. "B"	BOLT CIRCLE "C"	"D"	DIA. "E"	B.C. "F"	COVER THK.
Steel:							
094165	48 (1219)	36 (914)	23 (584)	13.00 (330)	54 (1372)	51 (1295)	.37 (9)
094167	60 (1524)	36 (914)	23 (584)	8.90 (226)	66 (1676)	63 (1600)	.37 (9)
Aluminum:							
102720	48 (1219)	36 (914)	23 (584)	13.00 (330)	54 (1372)	51 (1295)	.37 (9)
109776	60 (1524)	36 (914)	23 (584)	8.90 (226)	66 (1676)	63 (1600)	.37 (9)

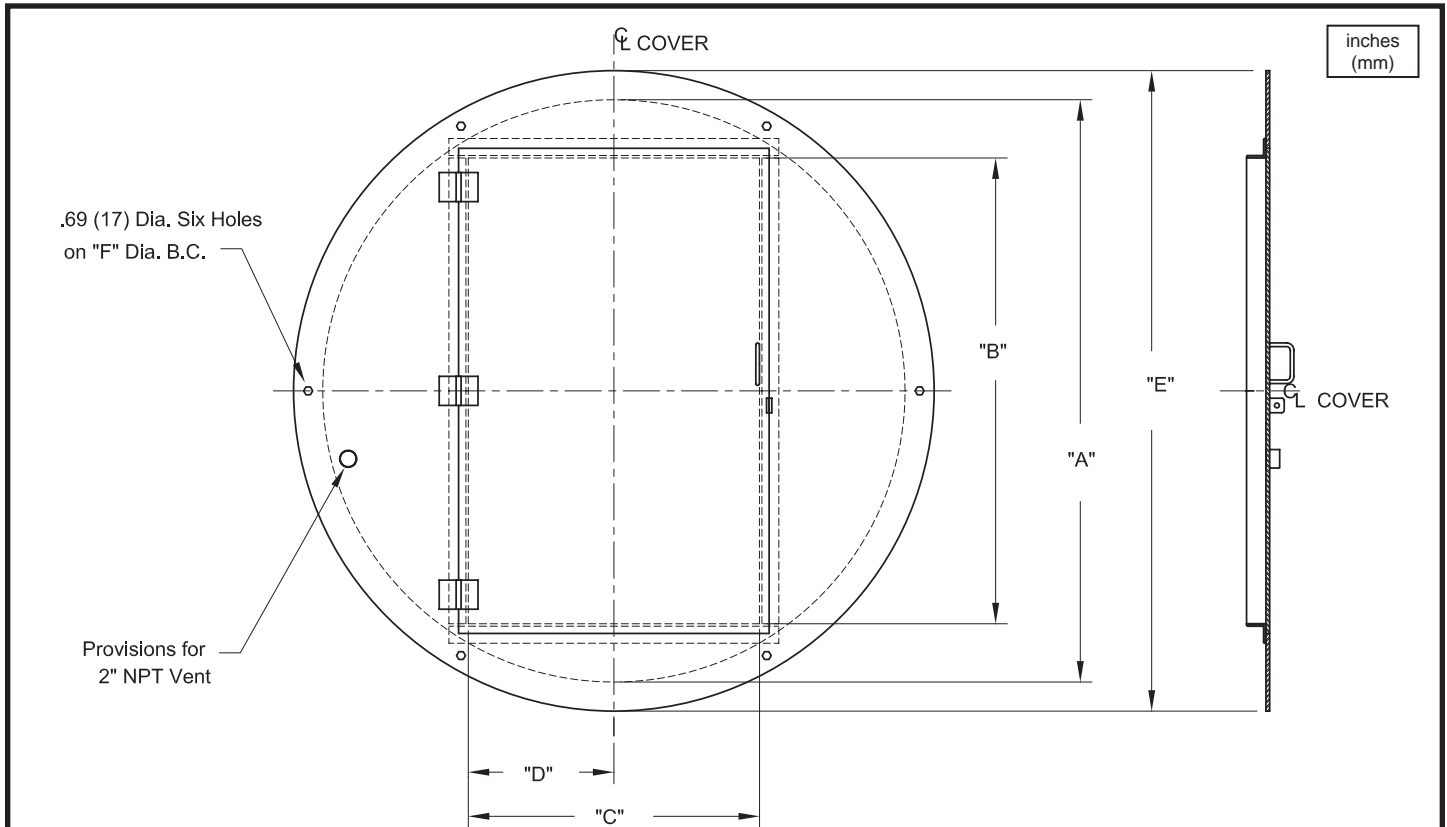
Basin covers have hinged access door, lifting handle, provisions for 2" NPT vent, stainless steel hinges and hardware. Covers have a load rating of 150 lbs/sq. ft. (732 kgs/sq. meter) minimum. Steel cover has Black Powder Coating.

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PART NO.	BASIN DIA. "A"	OPENING "B"	OPENING "C"	"D"	DIA. "E"	B.C. "F"	COVER THK.
101186	60 (1524)	48 (1219)	30 (762)	15 (381)	66 (1676)	63 (1600)	.37 (9)

Steel basin cover comes with hinged access door, lifting handle, locking tabs, stainless steel hinges and provisions for 2" NPT vent. Steel cover has Black Powder Coating. Covers have a load rating of 150 lbs/sq. ft. (732 kgs/sq. meter) minimum.

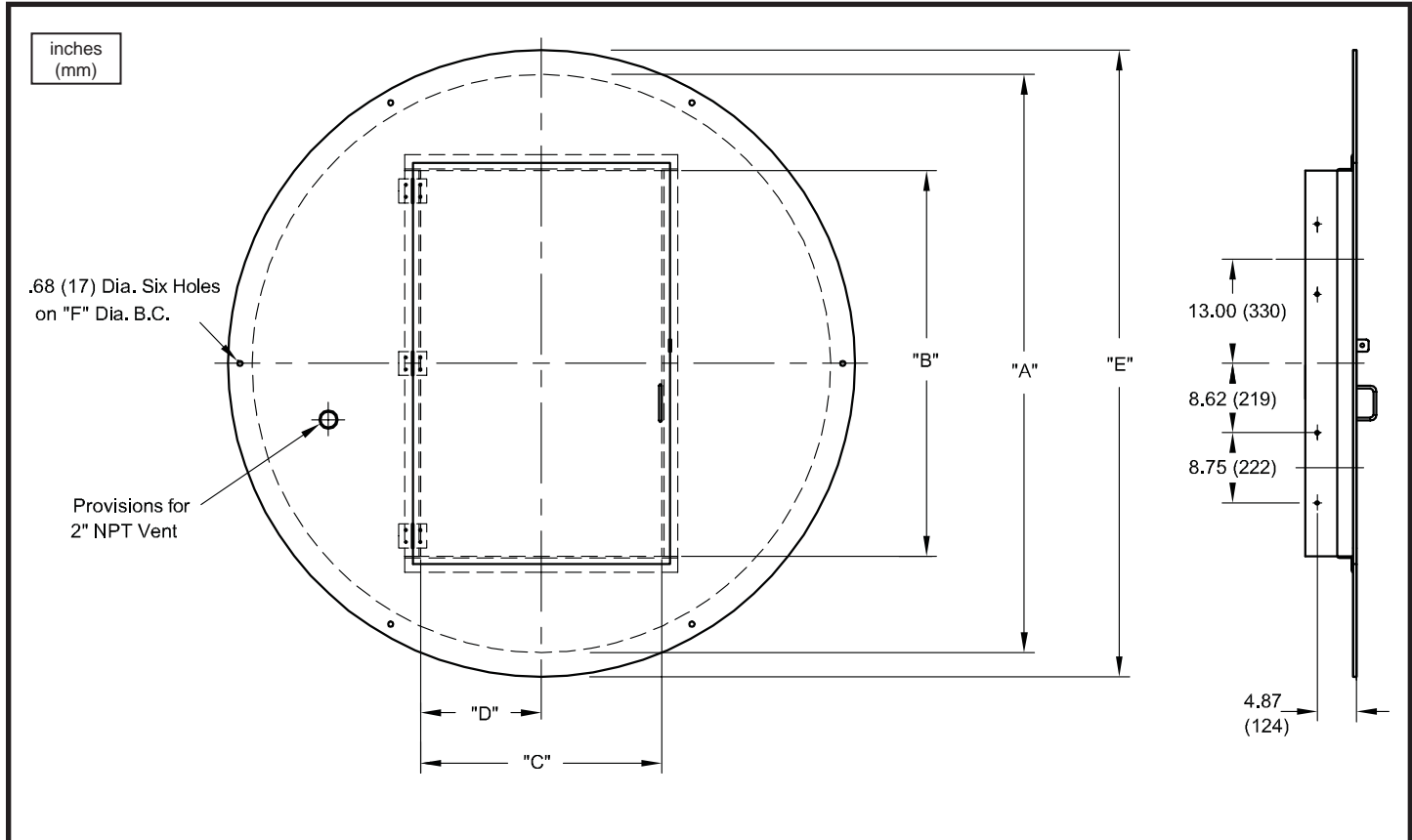
Basin Covers

Steel, Duplex
for BAF-4 and BAF-E4

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Basins & Accessories



PART NO.	BASIN DIA. "A"	COVER DIA. "B"	BOLT CIRCLE "C"	"D"	DIA. "E"	B.C. "F"	COVER THK.
076504	60 (1524)	48 (1219)	30 (762)	15 (381)	66 (1676)	63 (1600)	.25 (6)
074149	72 (1829)	48 (1219)	30 (762)	15 (381)	78 (1981)	75 (1905)	.37 (9)

Basin covers have hinged access door, lifting handle, locking tabs, provisions for 1-1/4" NPT vent, stainless steel hinges and hardware.

Covers have a load rating of 150 lbs/sq. ft. (732 kgs/sq. meter) minimum.

Steel cover has Black Powder Coating.

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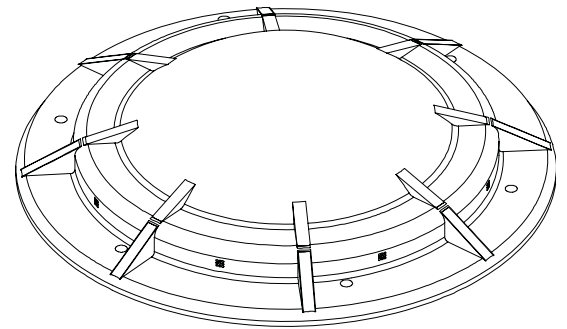
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Specifications:

The cover is a rugged, light weight rotomolded polyethylene grass green cover that is self-venting and engineered to fit all standard 24 inch (610mm) diameter and 30" Reduced basins.



Molded Polyethylene Basin Cover P/N: 101799

For use with 24" Dia. (610) and 30" (762)
Reduced Dia. Basins **ONLY**

Basins & Accessories

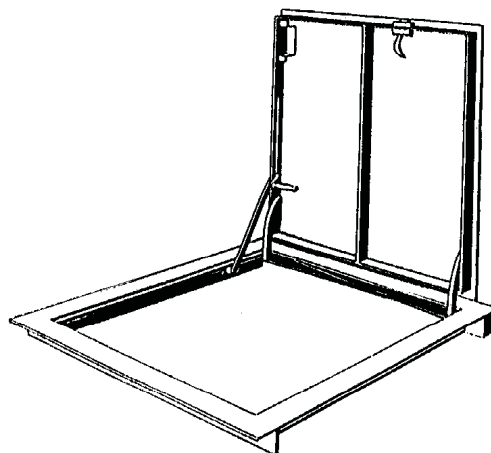
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Specifications:

The single door aluminum (6061T6) access cover is rigidly constructed to provide a 300 lb live load/Square foot (1465 kgs/sq. meter) rating. The frame is of an aluminum extrusion with a continuous door stop and grout lip integral to it. A collection trough with a 1-1/2" NPT drainage coupling located in the front corner shall be an integral part of the extruded frame, and provide the watertight integrity. The frame is of 1/4" (6mm) aluminum.

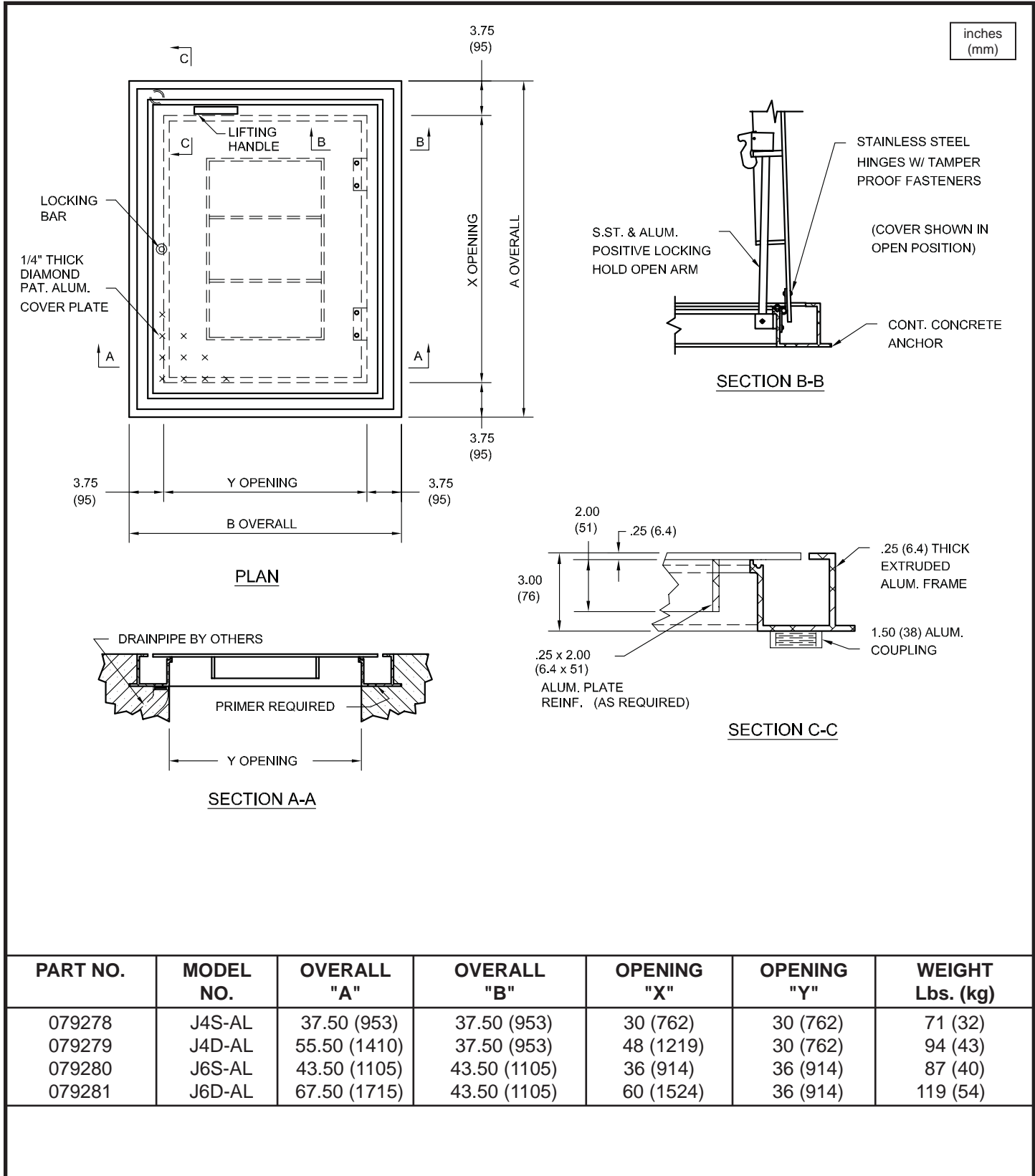
The hinged door is of aluminum tread plate, a minimum 1/4" (6mm) thick, with reinforcing aluminum flat bar. A lock tab for pad locking is provided for securing the door closed. A positive guided open door latch engages automatically when door is fully opened to 90 degrees. The hinges are of 316 stainless steel and attached with stainless steel hardware. The hinges are tamper proof from the outside. The open door latch must be released for closing. A retractable handle is provided on the outside of the door to assist opening and closing.

OPTIONAL EQUIPMENT: Recessed Padlock Hasp, Spring Assist with Slam Lock and Bituminous Coating (concrete exposed surfaces only).



Series: J-AL
300lb, Aluminum
Simplex & Duplex

Basins & Accessories



Specifications:

The single door aluminum (6061T6) access cover is rigidly constructed to provide a 300 lb live load/Square foot (1465 kgs/sq. meter) rating. The frame is of an aluminum extrusion with a continuous door stop and grout lip integral to it. The frame also includes a continuous aluminum angle support for the aluminum structural members of the door and must be totally embedded in the concrete slab, including the angle supports, to maintain the H20 rating. The frame is of 1/4" (6mm) aluminum.

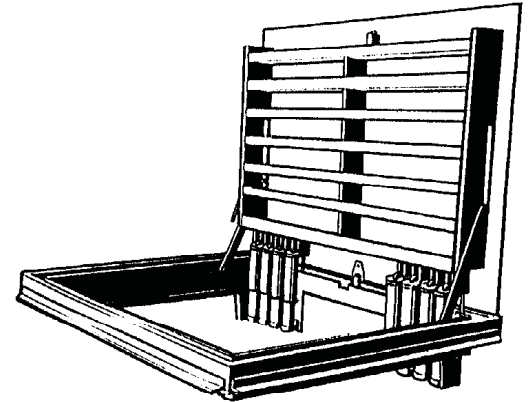
The hinged door is of aluminum tread plate, a minimum 1/4" (6mm) thick. The door must be reinforced with aluminum structural channel members a maximum of 6" (152mm) on center designed to rest directly on the frame support angles when closed. The combination of the tread plate with the structural channels, the frame with the support angles and the encapsulation in the concrete slab provide the H20 rating.

The H20 rating is suitable for off street locations such as driveways, parking lots, etc., and is not intended for areas of high density fast moving traffic.

The hinges are of 316 stainless steel and attached with stainless steel hardware. The hinges are tamper proof from the outside. The open door latch must be released for closing. A lifting handle is provided on the outside of the door to assist opening and closing and will retract flush with the door when not in use. A interior stainless steel slam lock with an interior operating handle and a removable exterior key handle is provided for locking.

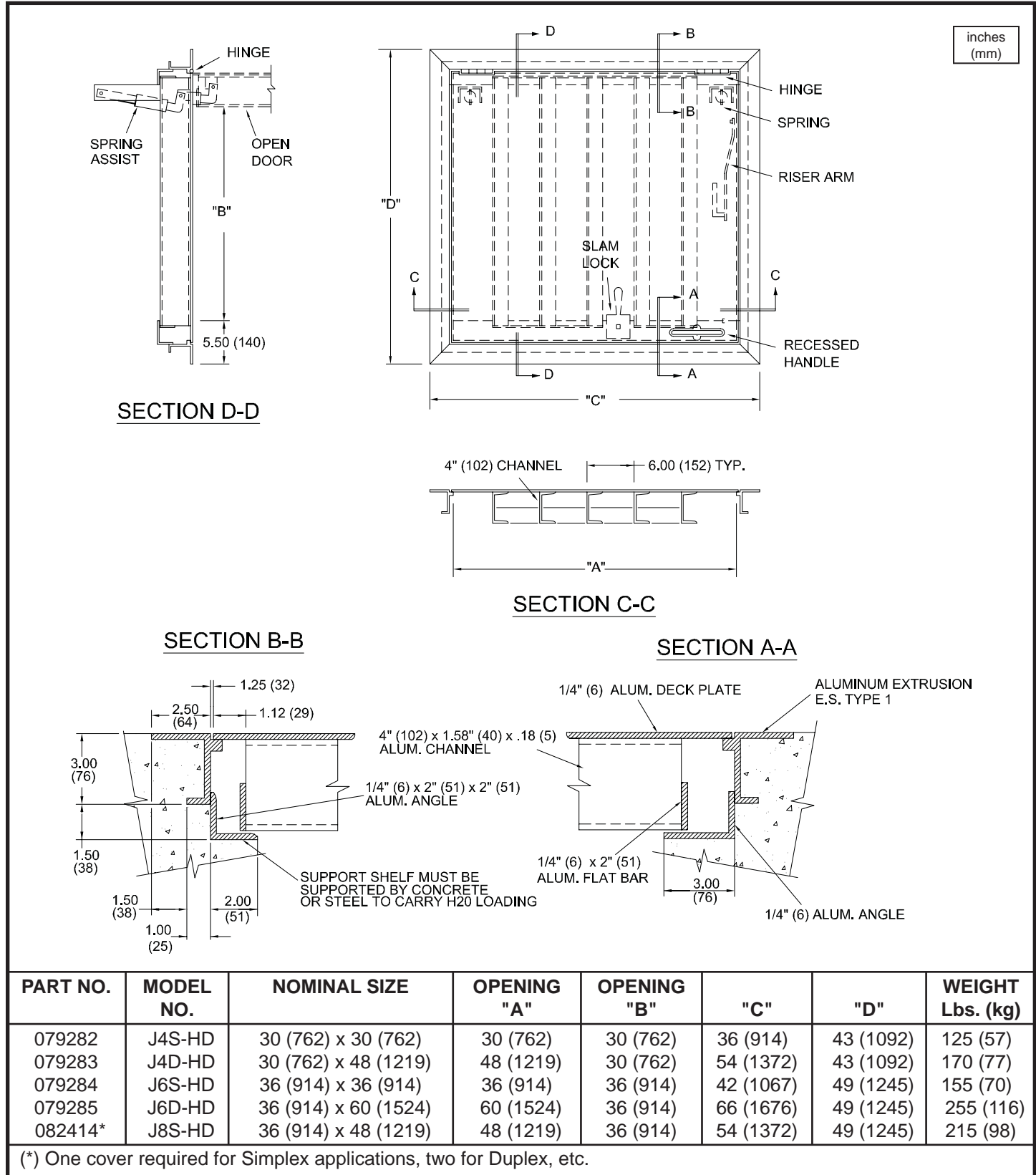
The access cover door shall have stainless steel spring assist mechanisms on the door to aid in opening. Each spring unit mounting brackets are rigidly welded to the frame. The spring unit is attached to the mounting bracket and the door with pivot bolts to provide free operation. The number of units per door shall be sufficient to require a maximum of 50lbs. (23kg) of lift to accomplish initial door opening.

OPTIONAL EQUIPMENT: Recessed Padlock Hasp, and Bituminous Coating (concrete exposed surfaces only).



**Series: J-HD, Aluminum
H20, 16,000lb,
Simplex & Duplex**

Basins & Accessories



Specifications:

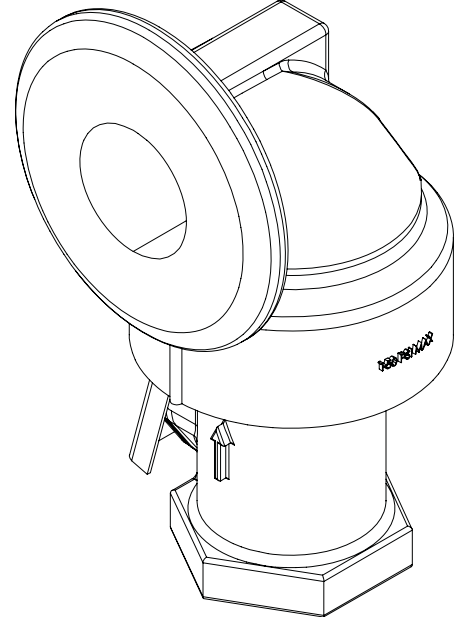
HOUSING ASTM Class 30 Cast Iron, Powder Coated
FLAPPER Nitrile, Nylon Reinforced
TEMPERATURE: 160°F (71°C) continuous
PRESSURE RATING 150 Lbs./Sq. In.(10.6 kgs/sq. cm)

FEATURES:

- Works in BARNES standard "C" Channel Rail
- Full port check with minimum head loss
- 18" static head requirement for minimum seat
- Valve includes integrated anti-siphon
- 300 series stainless steel hardware
- Integrated upper moveable fitting
- Resilient seat flapper
- Quiet operation
- No maintenance
- Vertical position mounting

APPLICATIONS:

Waste water or residential sewage, liquid manure, etc.

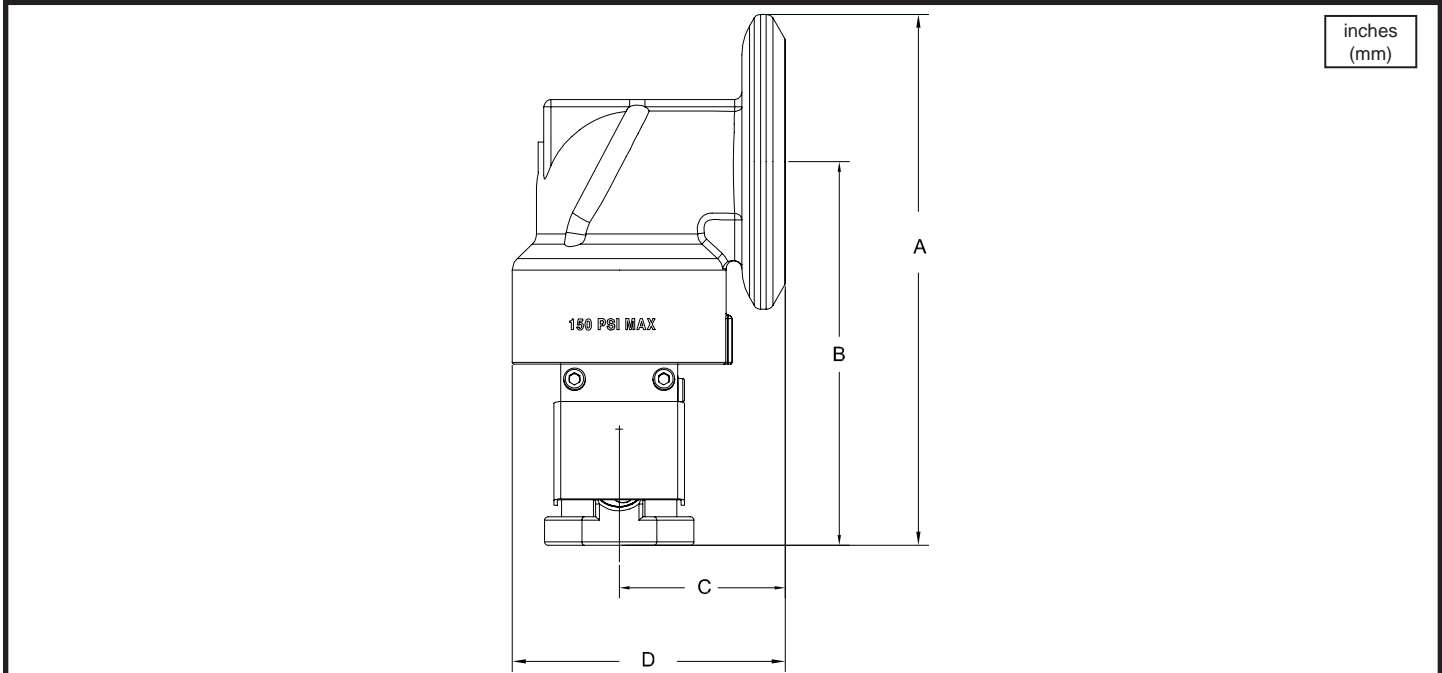


**Cast Iron Flap Style Check Valve/Upper
Moveable Fitting**
1¼" P/N: 112354
2" P/N: 115254

Flap Style Check Valve /Upper Moveable

1 1/4" and 2", For use with "C" Channel Rails

Basins & Accessories



SIZE NPT	PART NO	A	B	C	D	WEIGHT LBS
1 1/4"	112354	9.23 (234)	6.39 (162)	2.89 (73)	4.74 (120)	13.0 (5.9kg)
2"	115254	10.18 (259)	7.65 (194)	3.06 (78)	5.34 (136)	14.7 (6.7kg)

Specifications:

1¼" & 2", Cast Iron

HOUSING ASTM Class 30 Cast Iron
BALL Natural Rubber
PLUG..... Schedule 40 PVC
TEMPERATURE 150°F (51°C) and a potential peak of 100°C.
PRESSURE TEST..... 100 Lbs./Sq. In.(7.0 kgs/sq. cm).

P/N: 1¼" NPT 077881
P/N: 2" NPT 077882

1¼" & 2" NPT, PVC

HOUSING PVC
BALL Nitrile or Buna-N
PLUG..... PVC
TEMPERATURE 150°F (51°C)
PRESSURE TEST..... 100 Lbs./Sq. In.(7.0 kgs/sq. cm).

P/N: 1¼" NPT 085448
P/N: 2" NPT 089874

4" & 6" Flanged, Cast Iron

HOUSING ASTM Cast Iron
SEAL..... Natural Rubber
BALL Natural Rubber Covered Hollow Iron
HARDWARE 18-8 Stainless Steel
ACCESS PLATE ASTM Class 30 Cast Iron
TEMPERATURE 176°F (80°C)
PRESSURE TEST..... 125 Lbs./Sq. In.(8.8 kgs/sq. meter).

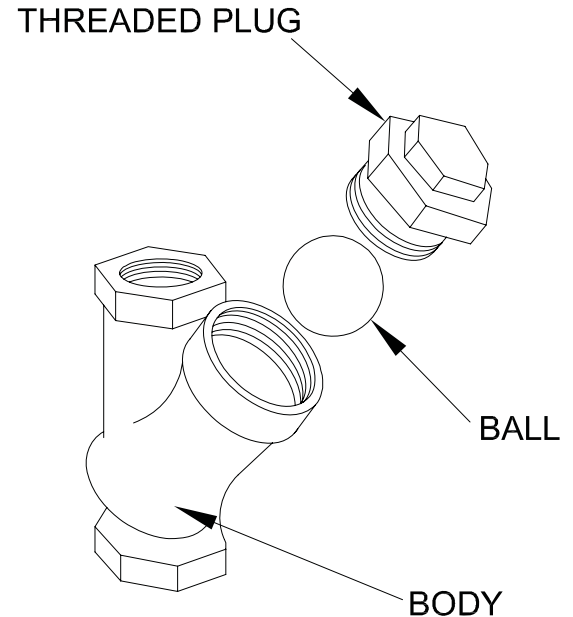
P/N: 4" 077689
P/N: 6" 077690

FEATURES:

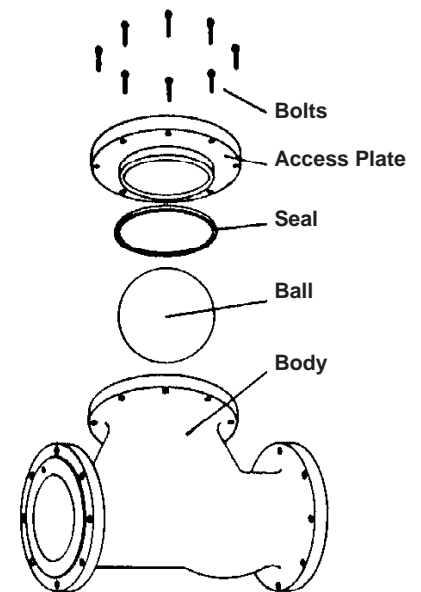
- Works both vertically and horizontally (in the latter case, place the "bulge" in the "up" position, thus the ball returns to its seat by the pull of gravity).
- Ball has sufficient weight to seat tightly and moves freely to open.
- Low headlosses as the ball is set completely to one side at a maximum rate of flow
- Works in silence.
- No maintenance.
- Easy dismantling.
- Supplied with clean out port and plug.

APPLICATIONS:

Waste water or fluids of varying viscosity, liquid manure, etc.



Ball Check Valves
1¼" & 2" NPT, Cast Iron & PVC



Ball Check Valves
4" & 6" Flanged, Cast Iron

Ball Check Valves

1 1/4" & 2" NPT, Cast Iron

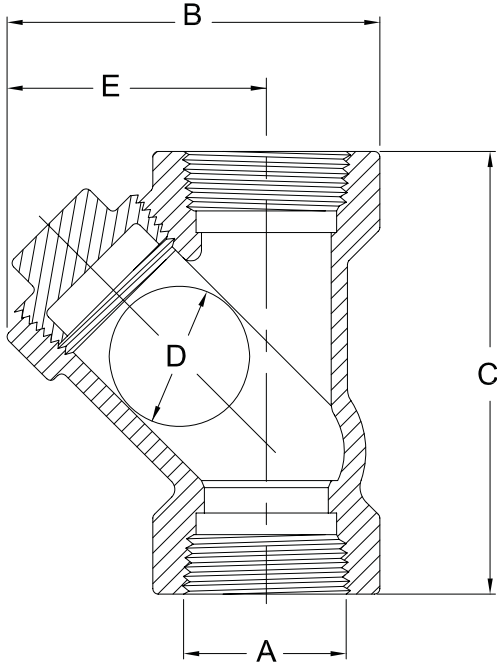
1 1/4" & 2" NPT PVC

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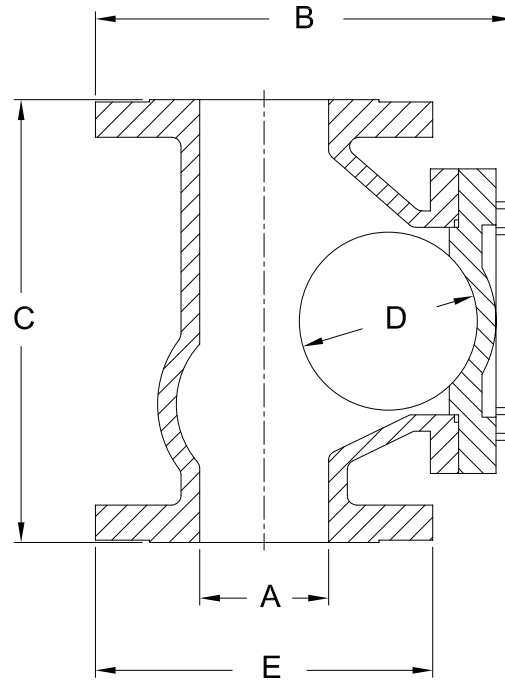
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Basins & Accessories

1-1/4" & 2" NPT Ball Valves



4" & 6" Flanged Ball Valves



SIZE A	PART NO	MATERIAL	WIDTH B	LENGTH C	BALL DIA D	E	BOLT CIRCLE	WEIGHT LBS
1 1/4" NPT	077881	Cast Iron	4.50 (114)	5.00 (127)	1.62 (41)	3.00 (76)	N/A	4.5 (2.0kg)
1 1/4" NPT	085448	PVC	4.50 (114)	5.63 (143)	1.50 (38)	-----	N/A	1.0 (0.46kg)
2" NPT	077882	Cast Iron	6.00 (152)	6.87 (175)	2.50 (64)	4.25 (107)	N/A	9.0 (4.1kg)
2" NPT	089974	PVC	6.50 (165)	7.06 (179)	2.50 (64)	-----	N/A	1.5 (0.68kg)
4" Flange	077689	Cast Iron	11.12 (282)	11.81 (300)	4.75 (121)	9.00 (229)	7.50 (191)	65 (30kg)
6" Flange	077690	Cast Iron	15.68 (398)	16.56 (421)	7.25 (184)	11.00 (279)	9.50 (241)	132 (60kg)

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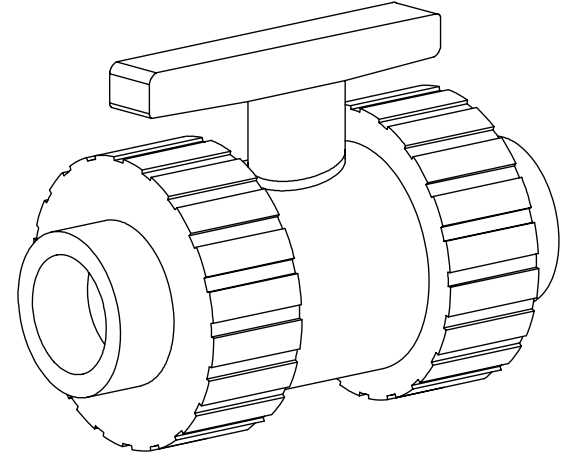
Specifications:

True Union Ball Valves:

The True Union Ball Valves are manufactured of Type I Schedule 80 PVC, (Cell Classification 12454-B) with EPDM O-rings for superior chemical and corrosion resistance. These valves are rated at 150 PSI, (10.6 kgs/sq. cm) non-shock, with a maximum operating pressure at 73°F (23°C). The valves are of quick disconnect design for maintenance and can be repairable to the component level, also full port bore, 1/4 turn, leak tight shut-off and are listed by NSF for use in portable water service.

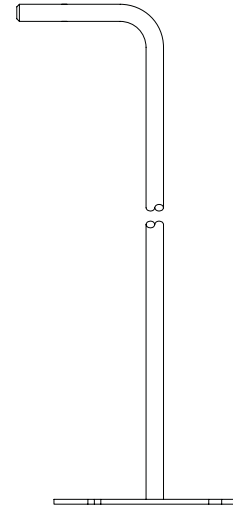
Extension Handle:

Made from 3/8" (10mm) diameter 300 series stainless steel and can be used with 1¼" NPT and 2" NPT true union ball valves.



True Union Valves

1¼" NPT P/N: 085115
2" NPT P/N: 089873



Extension Handles

P/N's: 094780 thru 094788

True Union Ball Valves

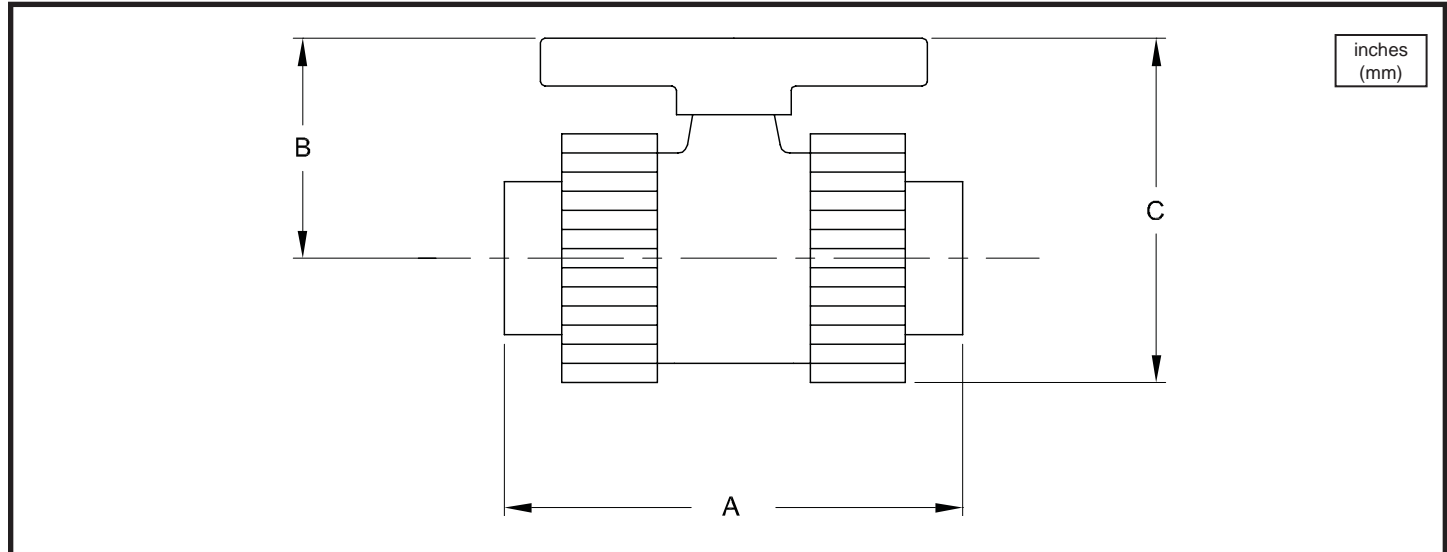
1 1/4" NPT & 2" NPT

Extension Handles for basin depths 48" thru 120" (1.2 thru 3m)

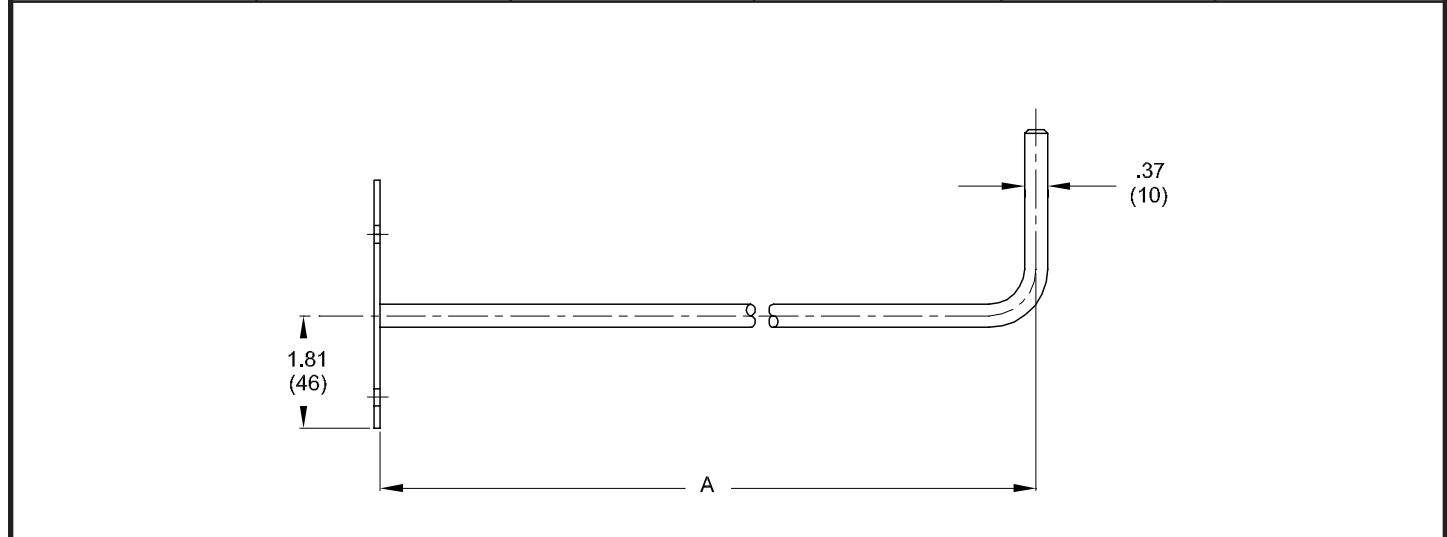
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PART NO.	NOMINAL SIZE	A	B	C	WEIGHT LBS. (kg)
085115	1-1/4" NPT	7.00 (178)	3.03 (77)	3.97 (101)	2.0 (1)
089873	2" NPT	7.38 (188)	4.25 (108)	5.25 (133)	5.5 (2.5)



PART NO.	BASIN DEPTH	LENGTH "A"
094780	42 (1219)	12 (305)
094781	60 (1524)	24 (610)
094782	72 (1829)	26 (914)
094783	78 (1981)	42 (1067)
094784	84 (2134)	48 (1219)
094785	90 (2286)	54 (1372)
094786	96 (2438)	60 (1524)
094787	108 (2743)	72 (1829)
094788	120 (3048)	84 (2134)

PART NO.	BASIN DEPTH	LENGTH "A"
097868	132 (3353)	96 (2438)
097003	144 (3658)	108 (2743)
095287	156 (3962)	120 (3048)
097327	168 (4267)	132 (3353)
098090	180 (4572)	144 (3658)
098091	192 (4877)	156 (3962)
099191	204 (5182)	168 (4267)

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CRANE
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PUMPS & SYSTEMS

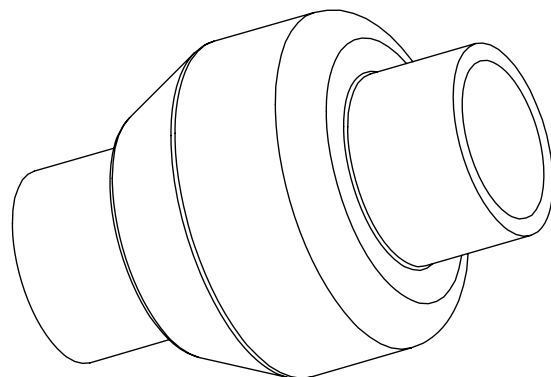
A Crane Co. Company

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Specifications:

The Swing Check Valve is made of high-impact Sch. 40 PVC type II material which is useful in systems where fluid is corrosive or contains debris, industrial waste disposal, sewage, etc. The EPDM swing gate lifts to provide unobstructed flow. There are no internal metallic parts to corrode. Only 1/2 pound back pressure is required for complete closure. Swing Check flow loss is insignificant due to full port design. Complies with all applicable ASTM & ANSI standards.

Swing Check is not recommended to be installed with outlet side angled down or facing down.



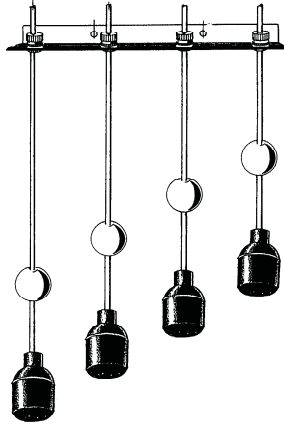
Swing Check Valves:

1¼" P/N: 085116

1½" P/N: 084132

2" P/N: 101241

Basins & Accessories

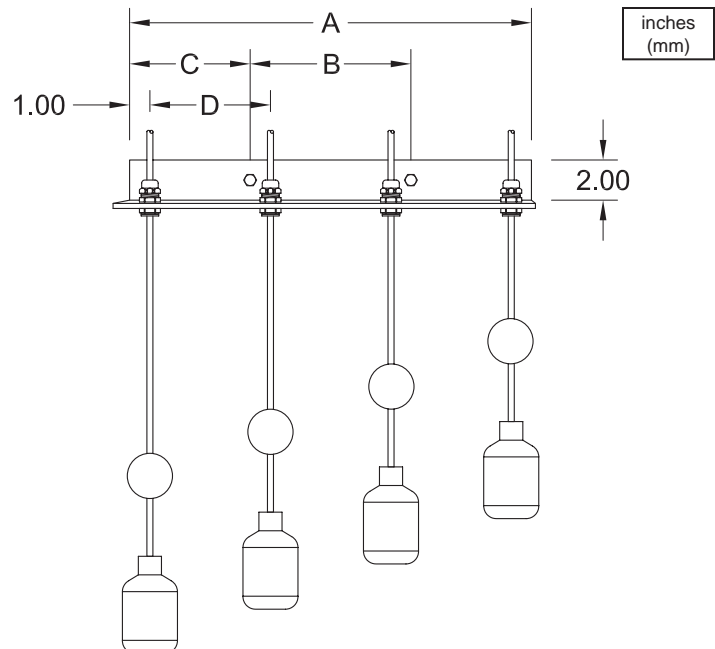


Cable Rack
P/N: 059720

Specifications:

Cable rack to include, Cord Grips, Conduit Lock Nuts 1/2-14, and Qty. 2 Corrosion Resistant Cap Screws 5/16-18 x 1" (25mm) Long. Steel Cable rack has an Asphalt Bituminous Coating.

PART NO	MATERIAL	THK.	QTY FLOATS	A DIM	B DIM
059720	STEEL	.25 (6)	4	20 (508)	6 (152)
059720G	STEEL	.25 (6)	5	26 (660)	9 (229)
059720E	STAINLESS	.25 (6)	4	20 (508)	6 (152)



Specifications:

CORD: *Material* 16-2 SJOW Water-resistant.
Size32 Dia. (8mm) x 15ft. (5M) Long. with Piggy-Back Plug

SWITCH & HOUSING Impact resistant, PVC

FLOAT STOP Neoprene

LIFT ROD Injection Molded Acetal Plastic.

MOUNTING BRACKET PVC

CLAMP Plastic

TEMPERATURE RATING: 125°F (52°C)

SWITCH Snap Acon

SWITCH RATING 120 Volt, 13 AMPS Max. Running Current
230 Volt, 12 AMPS Max. Running Current
60 AMPS Max. Starting Current
1/2HP @ 115 Volts AC, 1HP @ 230 Volts AC

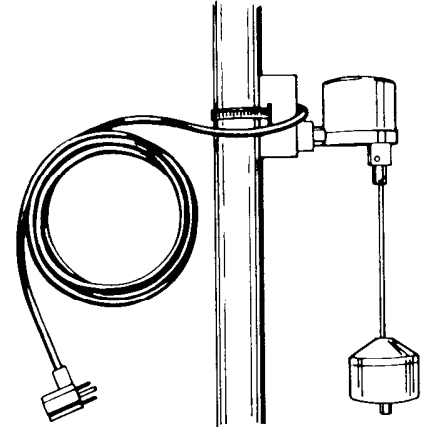
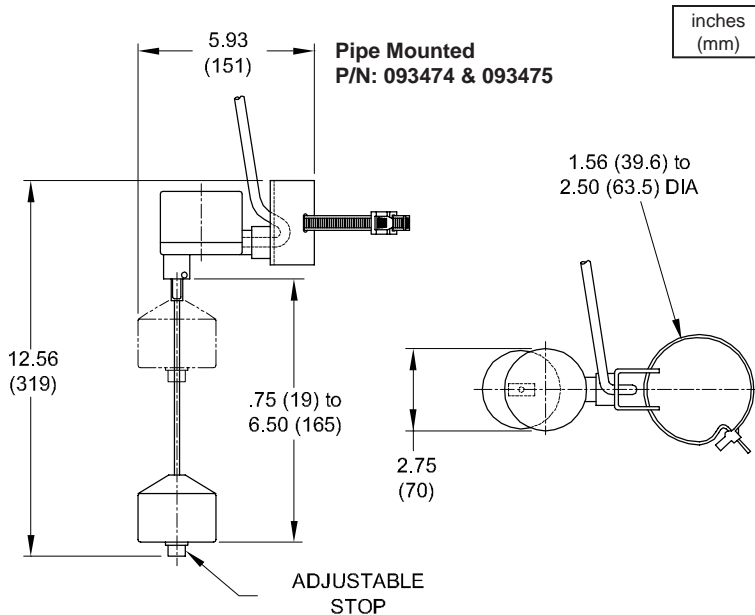
PUMPING RANGE: Adjustable, 3/4 (19mm) to 6-1/2 (165mm).

The Vertical Level Control is designed to operate in applications with limited space and is available in pump down model only. The Vertical Level Control is not sensitive to turbulence. The plug may be removed for direct wiring and may be used in either 120V or 230V applications within specified amp range.

PART NUMBER	VOLTS	CORD LENGTH	INSTALLATION
093474	120	15 ft. (5m)	Pipe Mounted
093475	230	15 ft. (5m)	Pipe Mounted
113647*	120	10 ft. (3m)	SP Pump Bracket Mount
113647A*	120	20 ft. (6m)	SP Pump Bracket Mount

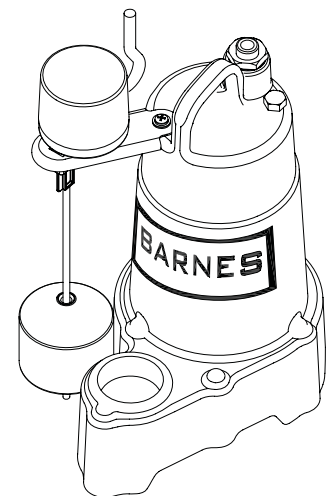
IMPORTANT!

- This Level Control must be used only with pumps equipped with integral thermal overload protection.
- (*) Includes SP Pump mounting bracket.



P/N's: **093474**
 093475
 113647

With Pump Bracket Mount
P/N: 113647 & 113647A



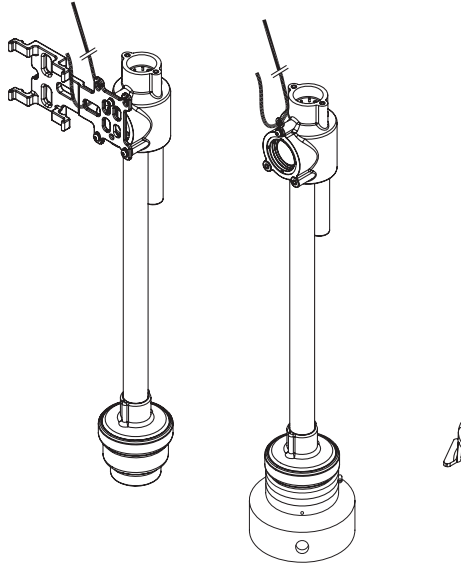
Level Controls

ESPS-100, ESPS-200 and ESPS-150
Simplex, Duplex and Automatic Simplex

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Basins & Accessories



ESPS-200 SHOWN

ESPS Level Controls

ESPS-100 P/N: 121675-M
ESPS-150 P/N: 121676-M
ESPS-200 P/N: 121677-M

This product may be covered by one or more of the following patents and other patent(s) pending:
US Patent 7,578,657



PATENT PENDING



File No. E242537

Specifications:

HOUSING.....Chlorinated Polyvinyl Chloride (CPVC)

DIAPHRAGMS.....Buna N

TEMPERATURE RATING.....140°F (60°C) Continuous

PRESSURE SWITCH.....Snap Acting Diaphragm

SWITCH RATING:

Non-Automatic.....3A @ 240 Volts AC, 1 Phase

Automatic.....18A @ 240 Volt AC, 1 Phase

THERMAL CUTOUT:

SWITCH.....Bimetallic, Snap Acting, Auto-Reset

MOUNTING.....Powder Coated Cast Iron bracket, For

use with Barnes C-channel rail.

Buna for free standing base

SIMPLEX: *Two Switches*.....On/Off and High Water Alarm

DUPLEX: *Three Switches*.....Pump 1 On/Off, Pump 2 On and High Water Alarm

SIMPLEX AUTOMATIC:

Two Switches..... On/Off, High Water Alarm, Solid State Relay

CORD.....Type SOW - 8 ft. (2.4m), 15 ft. (4.6m), 30 ft. (9m), 50 ft. (15m), 75 ft. (22.8m), 100 ft. (30.5m), No Cord

Non-Automatic.....18/5

Automatic.....14/5

DESCRIPTION:

Diaphragm pressure switches, hermetically sealed within a protective CPVC casing. Thermal protection provided by automatic resetting, heat-sensing thermal cutout switch. Pressure Switches terminate into Barnes® exclusive custom molded quick connector plug for sealing and strain relief.

Versatile design available in three versions:

Simplex Manual, Model ESPS-100

Duplex Manual, Model ESPS-200

Simplex Automatic, Model ESPS-150 (NO control panel required)

complete with internal solid state pump start relay.

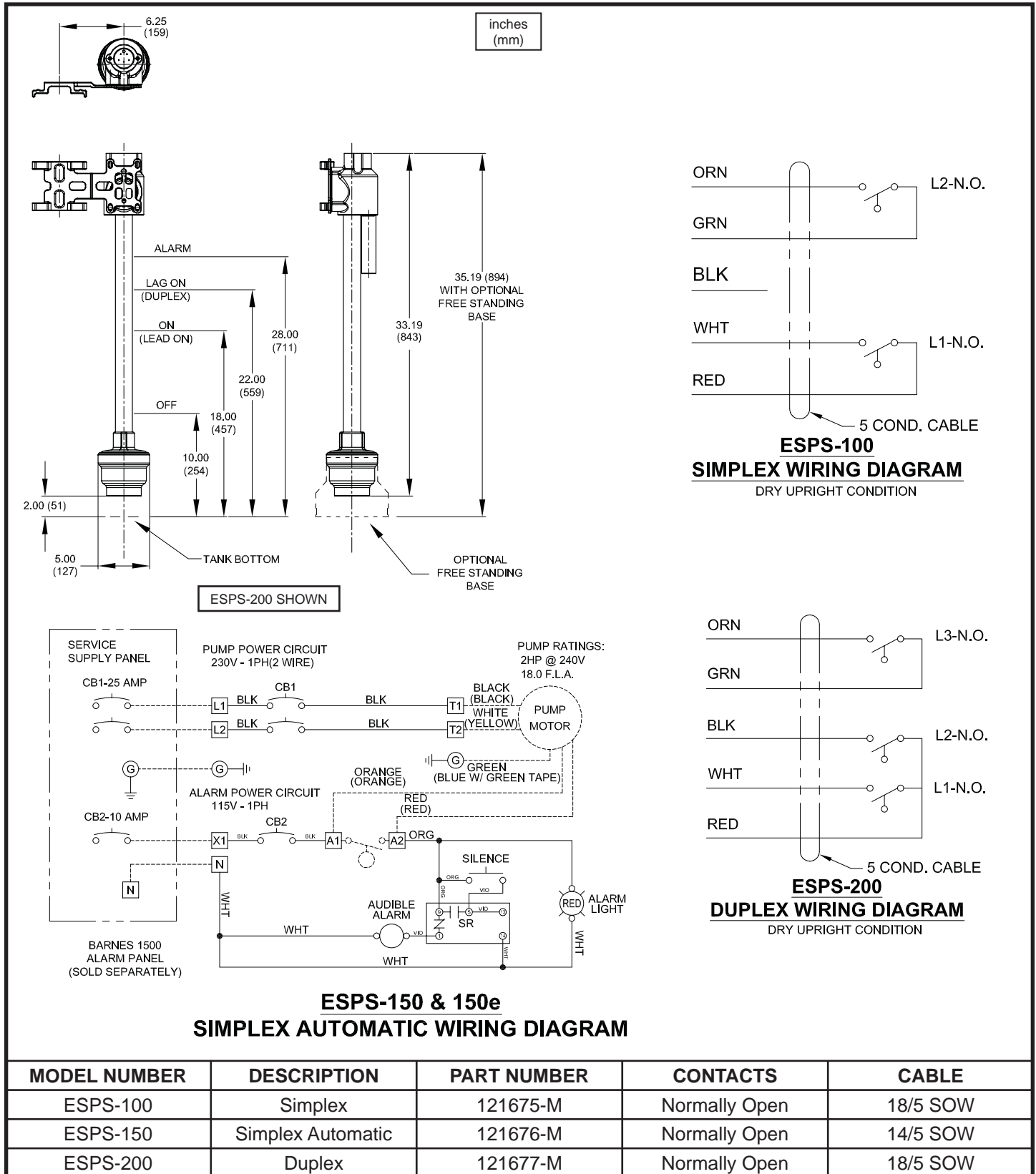
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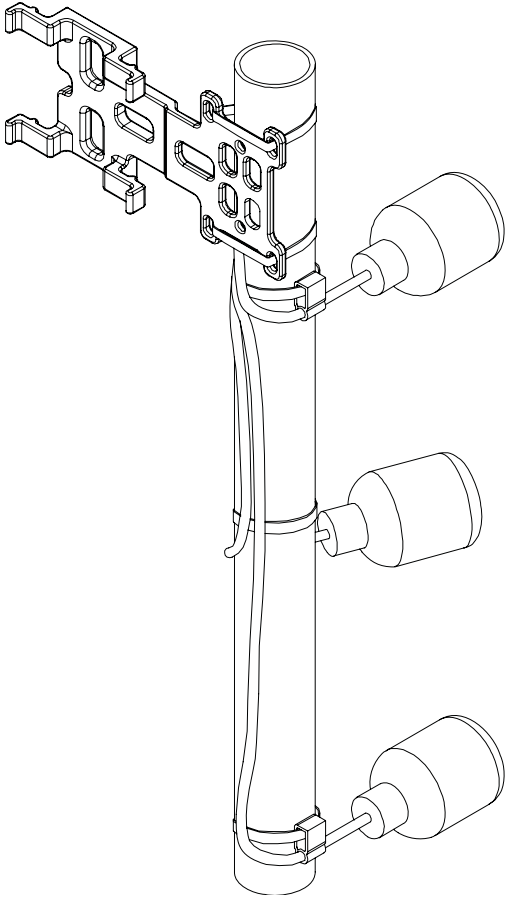
Level Controls

FloatTREE™ Simplex and Duplex
for Barnes "C" Channel Rail System



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Basins & Accessories



FloatTREE

The universal mounting bracket allows the FloatTREE to be located on either side of the "C" channel rail for ease of installation around existing inlets or other obstructions.

Specifications:

The Mercury Level Controls are pilot duty devices which control the function of motor load devices, such as contactors, motor starters, and power relays, to automatically cycle a pump or pumps. They can also be used for alarm signaling devices. The FloatTREE consists of mercury level controls potted together and terminating into one 5 wire color coded cable for simplex or 8 wire color coded cable for duplex.

Qty. 3 floats for Simplex: Pump Off, Pump On, Alarm.
Qty. 4 floats for Duplex, Pump Off, Pump 1 On, Pump 2 On, Alarm.

FloatTREE:

Simplex: Cord 18/5 SJOW, .36 (9.1mm) Dia
Mounting Clip, ABS/Nylon
Duplex: Cord 18/8 SOW, .51 (13mm) Dia.
Mounting Clamp, 300 Series Stainless Steel

FLOAT HOUSING Polypropylene

FLOAT

TEMPERATURE RATING 60° C

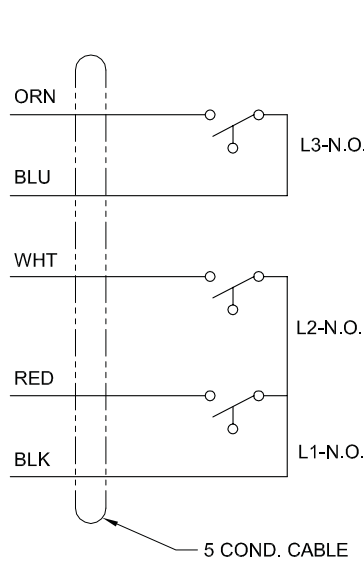
FLOAT SWITCH Mercury, Narrow Angle, Horizontal

FLOAT SWITCH RATING 4.5A @ 115VAC RES
2.25A @ 230VAC RES

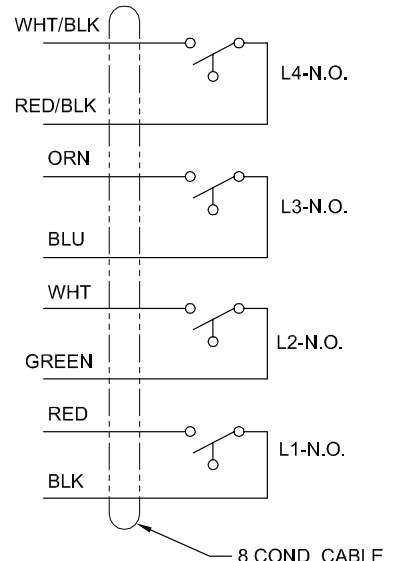
POLE PVC

Simplex:
Part No. Depth
116960 48" - 72"
116961 78" - 144"
116962 150" - 240"

Duplex:
Part No. Depth
116966 48" - 72"
116967 78" - 144"
116968 150" - 240"



SIMPLEX WIRING DIAGRAM
DRY CONDITION



DUPLEX WIRING DIAGRAM
DRY CONDITION



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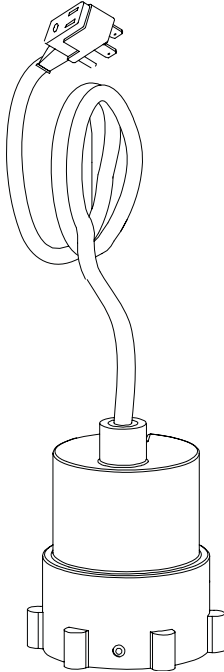


A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

Basins & Accessories



**P/N: 116670
115360A**

Specifications:

- CORD:** *Material*..... 16-2 SJTW, Nylon with .12 Dia. Vent
 Size..... .38 Dia.(9.7mm)
- PLUG**..... Male & Female (Piggy-Back), with Vent and Ground.
- HOUSING**..... Black, Molded Polypropylene
- SWITCH RETAINER** Polypropylene
- CLAMP** 1. Clip, Stainless Steel (Pump Mtg.)
 2. Bracket, Stainless Steel (Pump Mtg.)
 3. Adjustable Clamp, 1-3/4 (45mm) to 5" (127mm)(Pipe Mtg.)
- HARDWARE** Stainless Steel
- SWITCH DIAPHRAGM** Oil Resistant Buna-N
- SWITCH** Snap Action, Normally Open
- SWITCH RATING**..... 10.5 Amp @ 120 Volt AC

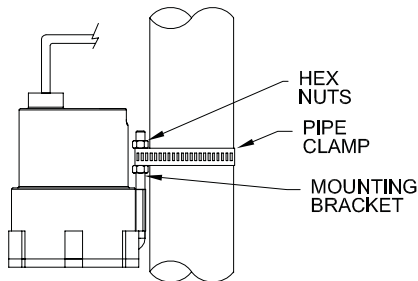
Diaphragm Switches are Pressure operated that turn on at 11.50" (292.1mm) head (from bottom of housing) and off at 3.50" (88.9mm) head. For mounting on pumps with and without mounting ears and pipe mounted.

FOR USE ON:
Discharge pipe or pump mounted on units with FLA less than 10.5 @ 120 Volts AC

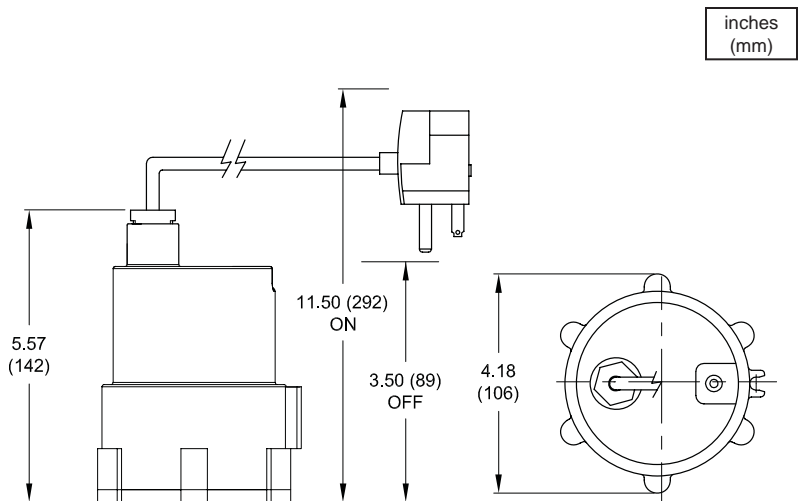
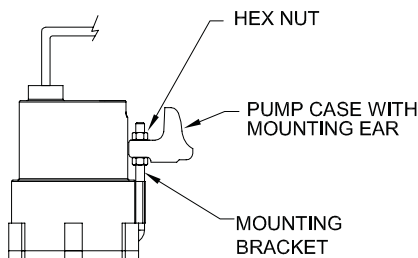
PART NUMBER	CORD LENGTH	WHERE USED
116670	15 FT. (4.6m)	BP314, SEV412, EHV412*
115360A	10 Ft. (3m)	SP Pump Series



PIPE MOUNTED



PUMP MOUNTED



Specifications:

CORD: Material 14-2 SJOW, 41 Strand x #30, 90°C Dry, 60°C Wet
Size37 (8mm) Dia. x (See Chart for Length)

HOUSING: Material Polypropylene
Color Normally Open - Black

CLAMP Pipe Mounted, Stainless Steel with Polypropylene Saddle, 1" (25) to 3" (76)

TEMPERATURE RATING 200°F (93°C)

SWITCH Mechanical, Snap Action

SWITCH RATING 15 Amps @ 115 Volts AC, 1 Phase
15 Amps @ 230 Volts AC, 1 Phase

Description:

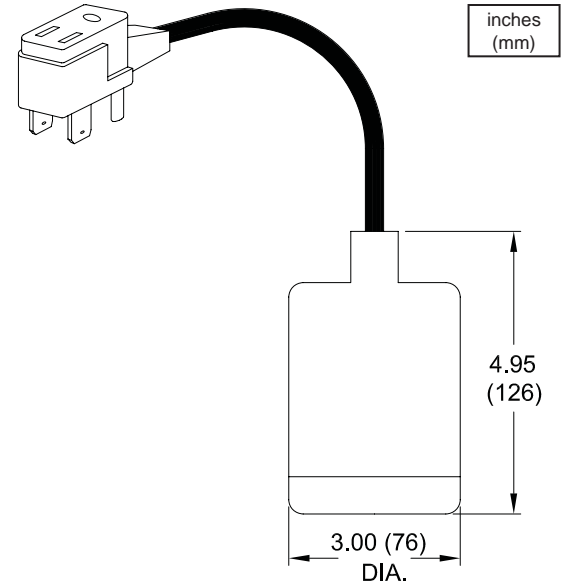
Part Number 090269 and 090270 Level Controls are available in Pipe Mounted Configuration with a 115 volt molded on Male and Female Piggy-Back Plug w/Ground on the 090269 and a 230 volt molded on plug on 090270. Cable lengths are of 15 (5M), 25 (8M), 30 (9M) and 50 feet (15M).

The unit has a piggy-back plug attached to the cord, allowing the user to plug the pump plug directly into it, and then plug the entire unit into a 115 volt or 230 volt grounded outlet. The Wide Angle Level Control is furnished with an adjustable strap for mounting to the pump discharge pipe. Standard units are preset at the factory, but can easily be adjusted to various pump down cycles by shortening or lengthening the cord length at the pivot point.

The Mechanical level control is a direct acting switch, it uses a metal cylinder sliding back and forth in a tube to actuate a snap-action switch.

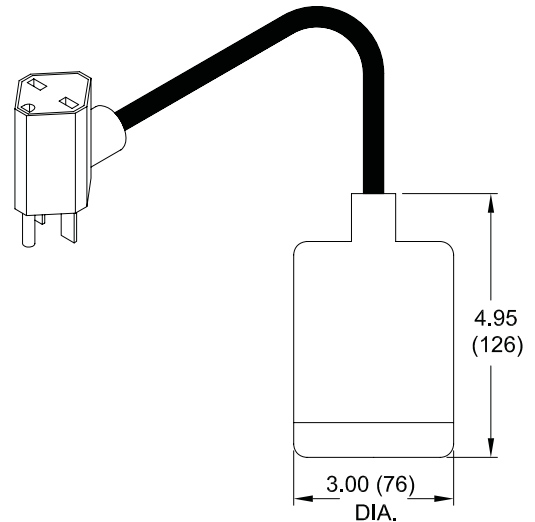
PART NUMBER	CORD LENGTH	TYPE INSTALLATION	CONTACTS
090269	15 ft. (5m), 25 (8m), 30 (9m) & 50 ft. (15m)	Pipe Mounted 115 Volt	Open
090270	15 ft. (5m), 25 (8m), 30 (9m) & 50 ft. (15m)	Pipe Mounted 230 Volt	Open

STATE CORD LENGTH AT TIME OF ORDERING.



115 Volt

P/N: 090269



230 Volt

P/N: 090270

Specifications:

CORD: P/N 125150: 18/2 SJOW
P/N 125151: 16/2 SJOW

PLUG..... 125 VAC NEMA 5-15 Piggy-Back Plug

FLOAT..... Polypropylene for use in water & sewage up to 140° (60° C).

WATER DEPTH..... Maximum 30' (9m), 13 PSI

SWITCH Snap Action, Normally Open

CLAMP..... Stainless Steel Construction. Range: 1" to 3" Dia.

MOUNTING SADDLE ABS/Nylon

SWITCH COMPONENT ELECTRICAL RATINGS:

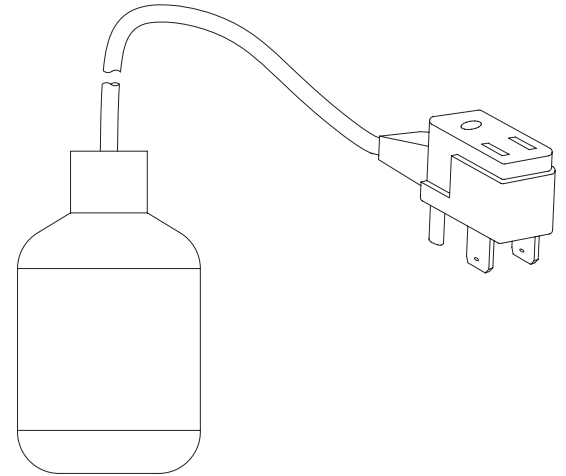
P/N 125150, 125 VAC:..... Maximum Electrical Load: 10.0 Amps
Maximum Starting Current: 60.0 Amps
Minimum Electrical Load: 100.0 Milliamps @ 12 VAC

P/N 125151, 125 VAC:..... Maximum Electrical Load: 13.0 Amps
Maximum Starting Current: 78.0 Amps
Minimum Electrical Load: 100.0 Milliamps @ 12 VAC

ELECTRICAL CONFIGURATION:
..... Normally Open

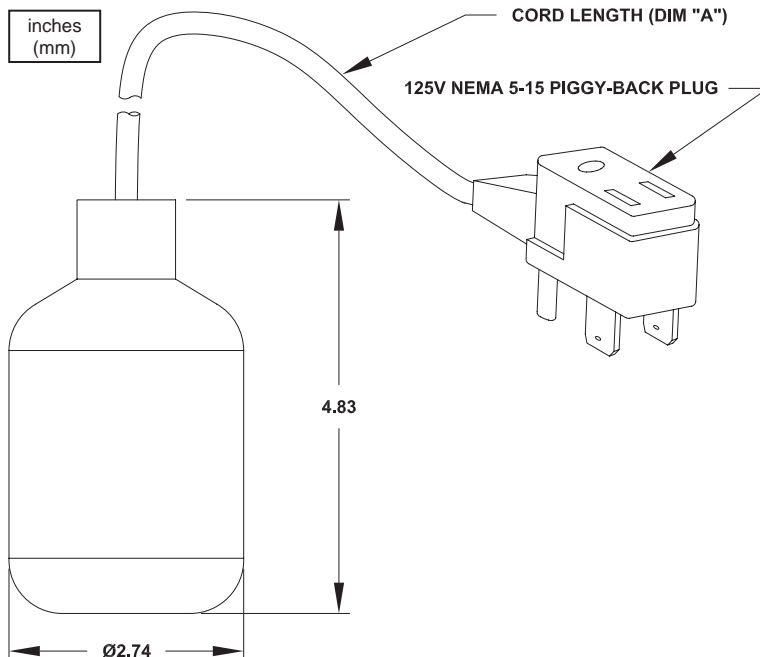
COLOR..... Black

PACKING Pack Float Assembly, Clamp, Saddle & Instruction Sheet in Individual Carton.

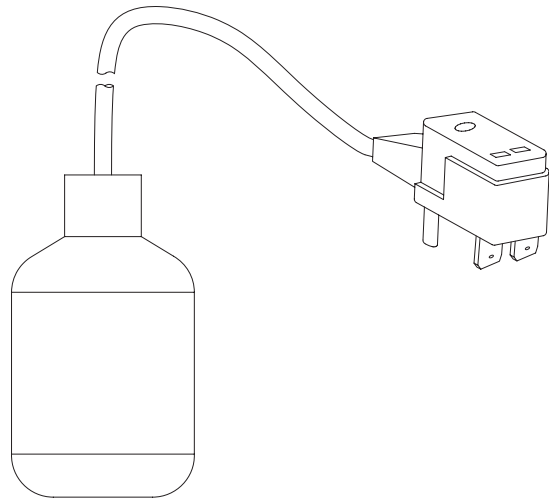


P/N: 125150
125151

PART NUMBER	CORD LENGTH	TYPE INSTALLATION	CONTACTS
125150	10', 20', 30'	Pipe Mounted 125 Volt	OPEN
125151	15', 20', 30', 50'	Pipe Mounted 125 Volt	OPEN



Basins & Accessories



P/N: 125152
125154

Specifications:

CORD: P/N 125152:16/2 SJOW
P/N 125154:14/2 SJOW

PLUG:.....240 VAC NEMA 6-15 Piggy-Back Plug

FLOAT: P/N 125152:Polypropylene for use in water & sewage up to 140° (60° C).
P/N 125154:PVC for use in water & sewage up to 140° (60° C).

WATER DEPTH.....Maximum 30' (9m), 13 PSI

SWITCHSnap Action, Normally Open

CLAMP.....Stainless Steel Construction. Range: 1" to 3" Dia.

MOUNTING SADDLEABS/Nylon

SWITCH COMPONENT ELECTRICAL RATINGS:

P/N 125152, 240 VAC:Maximum Electrical Load: 13.0 Amps
Maximum Starting Current: 78.0 Amps
Minimum Electrical Load: 100.0 Milliamps

P/N 125154, 240 VAC:Maximum Electrical Load: 15.0 Amps
Maximum Starting Current: 85.0 Amps
Minimum Electrical Load: 100.0 Milliamps

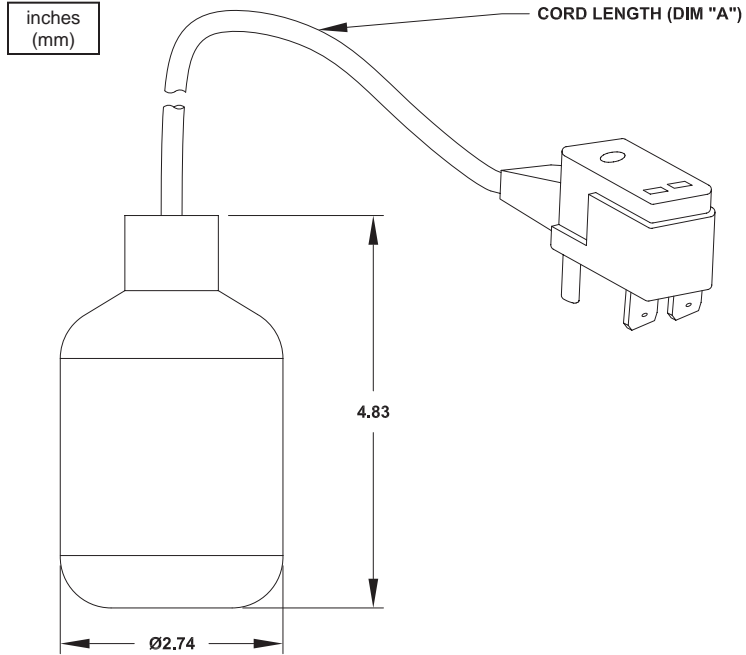
ELECTRICAL CONFIGURATION:
.....Normally Open

COLOR: P/N 125152:Black
P/N 125154:Grey

LOGONone

PACKINGPack Float Assembly, Clamp, Saddle & Instruction Sheet in Individual Carton.

PART NUMBER	CORD LENGTH	TYPE INSTALLATION	CONTACTS
125152	15', 20', 30', 50'	Pipe Mounted 240 Volt	OPEN
125154	15', 20', 30', 50'	Pipe Mounted 240 Volt	OPEN



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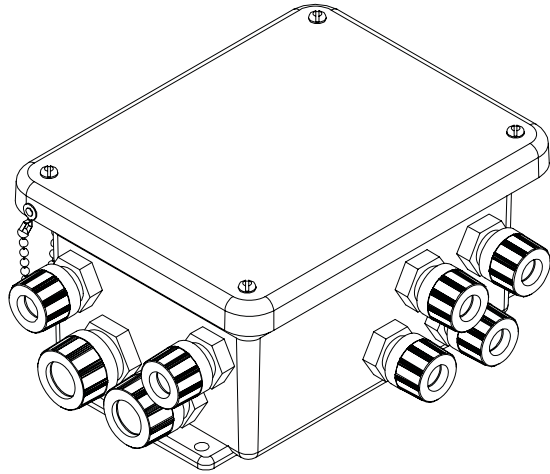
Junction Box

NEMA 6, Duplex, SGV & OGV Grinders
For use with Floats or FloatTREE & Direct Burial Cable

BARNES®

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Basins & Accessories



Junction Box, NEMA 6, Duplex
P/N's: 109301, 109302, 109305,
109306, 095692, 105383

Specifications:

The Duplex Junction Box and all connections have a NEMA 6 Rating to protect against occasional submersion and is used in conjunction with U.L. listed water-tight connectors suitable for use with U.L. listed Direct Burial Cable.

BOX & COVER Constructed of Impact-Resistant, Nonconductive, Fiberglass Reinforced Polyester with Stainless Steel Screws
GASKET Neoprene
CHAIN Stainless Steel
CORD GRIPS Non-Metallic, Valox with Neoprene type Grommet
RECOGNITION UL Listed 508

PART No.	DESCRIPTION
109301	For SGV*2022L & OGV/OGP with FloatTREE/ESPS-200
109302	For OGP & OGV*2022 with Indiv. Floats
109305	SGV w/sensor (no 5HP/1PH) with FloatTREE/ESPS-200
109306	SGV w/sensor (no 5HP/1PH) with Indiv. Floats
095692	For 5HP/1PH SGV with Indiv. Floats
105383	For 5HP/1PH SGV with FloatTREE/ESPS-200



File No. E151564

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CRANE®

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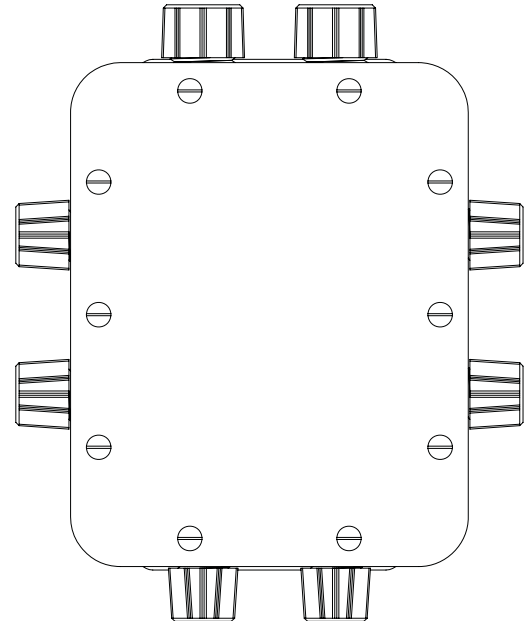
PUMPS & SYSTEMS

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Specifications:

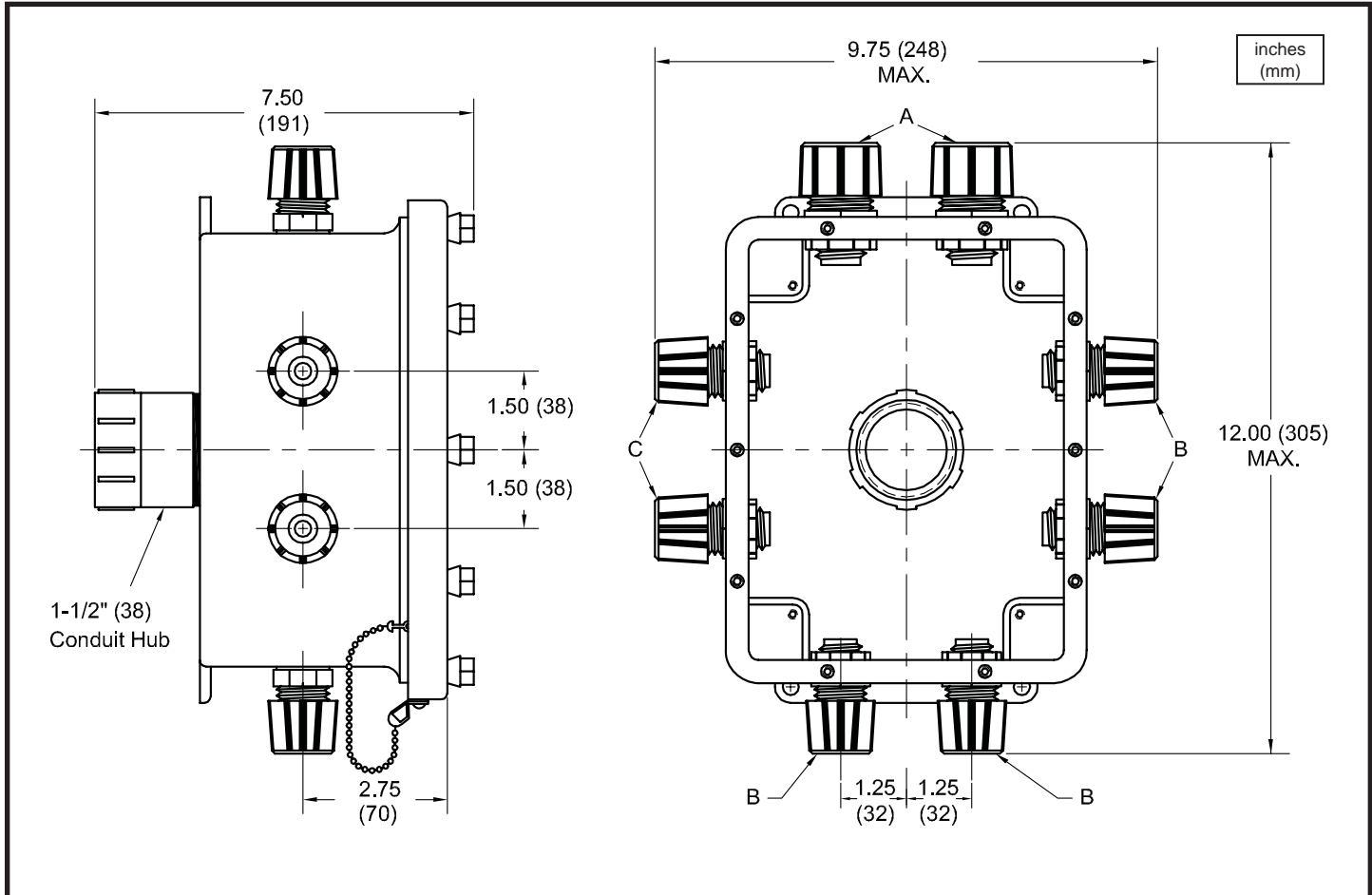
Duplex Junction Box and all connections have a NEMA 4X Rating to protect against accidental submersion, for combining all pump and level control cables. The box and all connections are water-tight and are capable of withstanding an external liquid pressure of 10 PSI. Included are individual corrosion resistant and liquid-tight cable connectors constructed of thermoplastic with neoprene bushing and sealing ring.

BOX	Constructed of self-extinguishing molded fiberglass with a minimum wall thickness of 3/16 (5mm)
COVER	8 (203) x 6 (152) x 4.37 (111) Attached with captive stainless steel fasteners with fiberglass encapsulated heads
GASKET	Neoprene
CHAIN	Stainless Steel
CORD GRIPS	Non-Metallic, Valox with Neoprene type Grommet
RECOGNITION	UL Listed 508



**Junction Box, NEMA 4X, Duplex
P/N's: 076622, 076627, 076628,
078158 & 085808**

Basins & Accessories



PART NO.	PUMP CABLE QTY. 2 "A"	FLOAT CABLE QTY. 4 "B"	CONTROL CABLE QTY. 2 "C"
076622	.625 (16) - .750 (19)	.250 (6) - .312 (8)	.437 (11) - .500 (13) *
076627	.625 (16) - .750 (19) *	.250 (6) - .312 (8)	Not Used
076628	.750 (19) - .875 (22)	.250 (6) - .312 (8)	.437 (11) - .500 (13)
078158	.375 (10) - .437 (11)	.250 (6) - .312 (8)	Not Used
085808	.500 (13) - .625 (16)	.250 (6) - .312 (8)	.437 (11) - .500 (13)

(* Extra grommet and washer supplied for range .500 (13mm) to .625 (16mm).

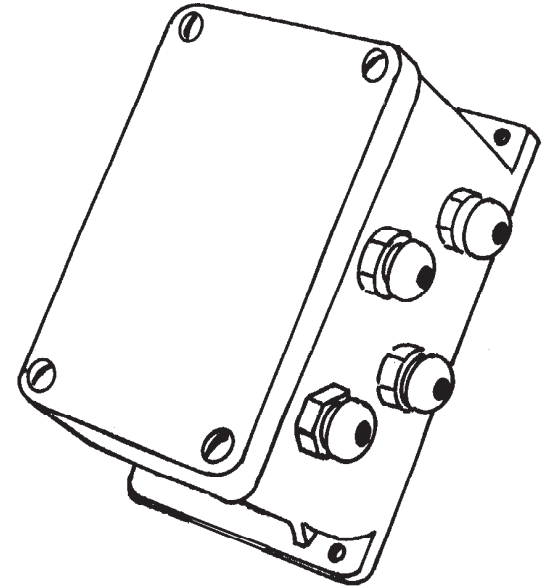
Specifications:

NEMA 4X watertight junction box for "INTRINSIC" level control cables in Class I, Groups C & D, Division 1 Locations, used in conjunction with a NEMA 7 junction box for pump and control cables. The box and all connections are watertight and are capable of withstanding an external liquid pressure of 10 PSI. Included are individual corrosion resistant and liquid-tight cable connectors constructed of thermoplastic with neoprene bushing and sealing ring.

- BOX**..... Constructed of a flame retardant ultra-violet resistant, foam Noryl, with minimum wall thickness of 1/4" (6mm), inside Dim.
5 (127mm) x 3.5 (89mm) x 3 (76mm) molded mounting feet and brass inserts
- COVER**..... Hinged, with four 304 stainless steel screws. Hot Stamped with;
"INTRINSIC SAFETY WIRING"
- GASKET**..... Cellulose-NBR blend
- CORD GRIPS**..... Non-Metallic, Valox with Neoprene type Grommet
- RECOGNITION** UL Listed 508

IMPORTANT !

This Junction Box **MUST** be used with a conduit Sealing Fitting.



**NEMA 4X, Simplex & Duplex
P/N's: 087551 & 087552**



File No. E151564

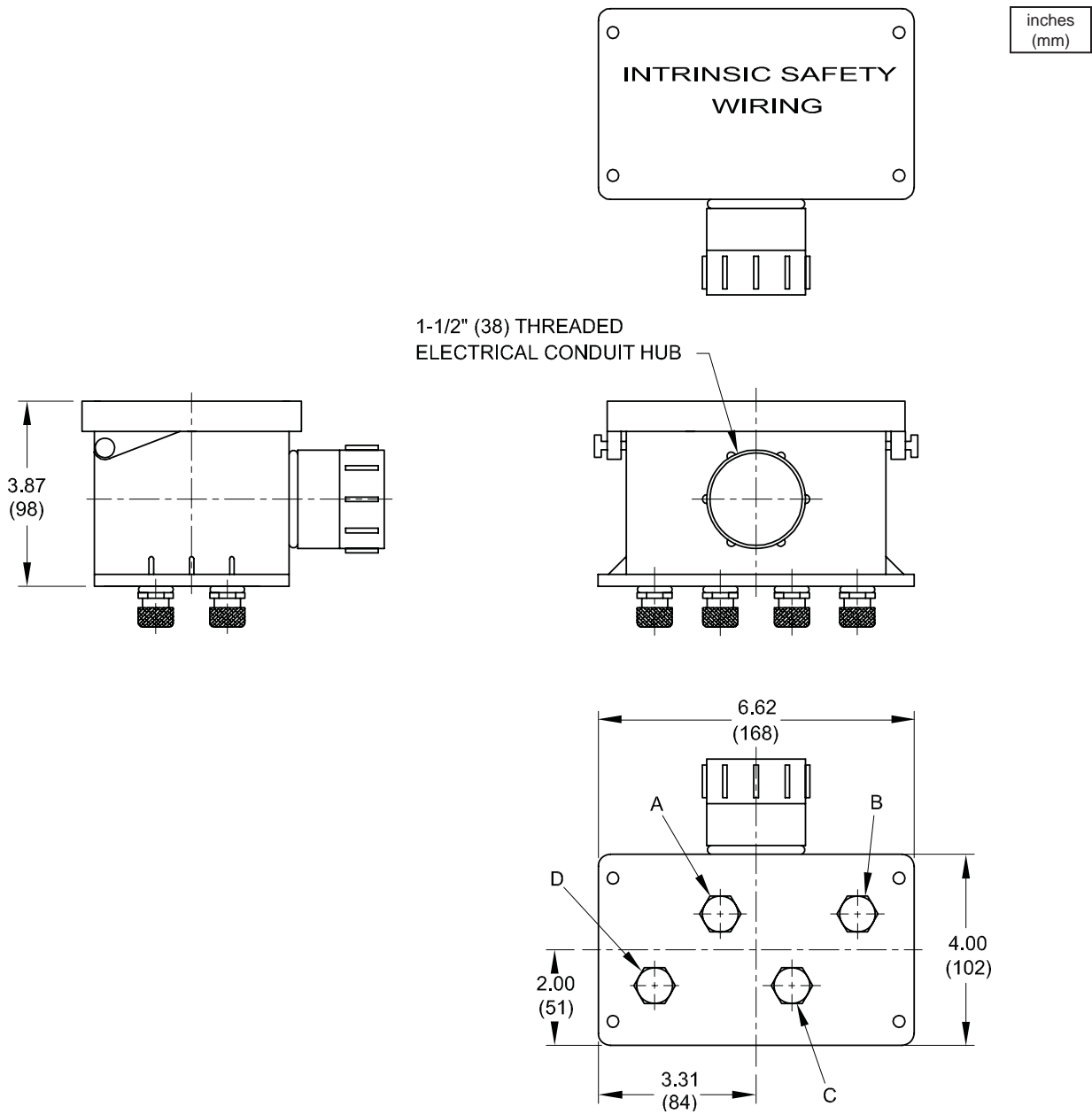
Junction Box

NEMA 4X, Simplex & Duplex for Intrinsically Safe Level Controls in Class I, Groups C & D, Division 1 Locations

BARNES®

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Basins & Accessories



PART NO.	DESCRIPTION	FLOAT "A"	FLOAT "B"	FLOAT "C"	FLOAT "D"
087551	Simplex	.250 (6) - .312 (8)	.250 (6) - .312 (8)	.250 (6) - .312 (8)	Not Used
087552	Duplex	.250 (6) - .312 (8)	.250 (6) - .312 (8)	.250 (6) - .312 (8)	.250 (6) - .312 (8)

IMPORTANT!

These junction boxes are used in conjunction with a NEMA 7 junction box for pump and control cords. This Junction Box **MUST** be used with a conduit Sealing Fitting.

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CRANE
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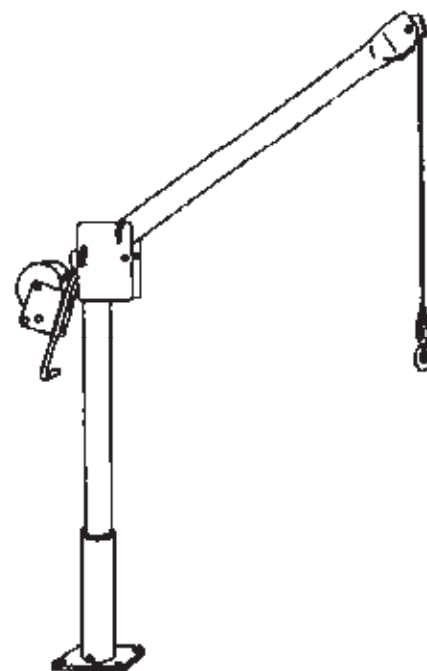
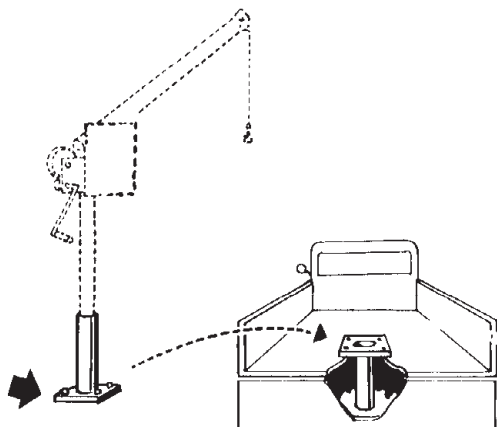
Specifications:

CABLE	With Snap Hook
<i>Length</i>	36 ft. (11M)
<i>Diameter</i>	3/16 in. (5mm)
<i>Material</i>	Stainless Steel
LOAD RATING	500 lbs. (227kg)
MAXIMUM LIFT	62 in. (1575mm)
	(Varies with size of the load)
MAXIMUM REACH	43 in. (1092mm)
ROTATION	Boom rotates 360° for horizontal load movement.
BOOM	Angle adjusts to 2 positions, and folds down for storage.
MOUNTING BOLTS	3/8 in. (10mm)
OPTIONAL EQUIPMENT	Additional bases, P/N: 076104.

In a typical application, one base is installed at each pump station, the hoist is designed to be moved from pump station to pump station, to raise and lower Submersible Grinder or Effluent Pumps **ONLY**.

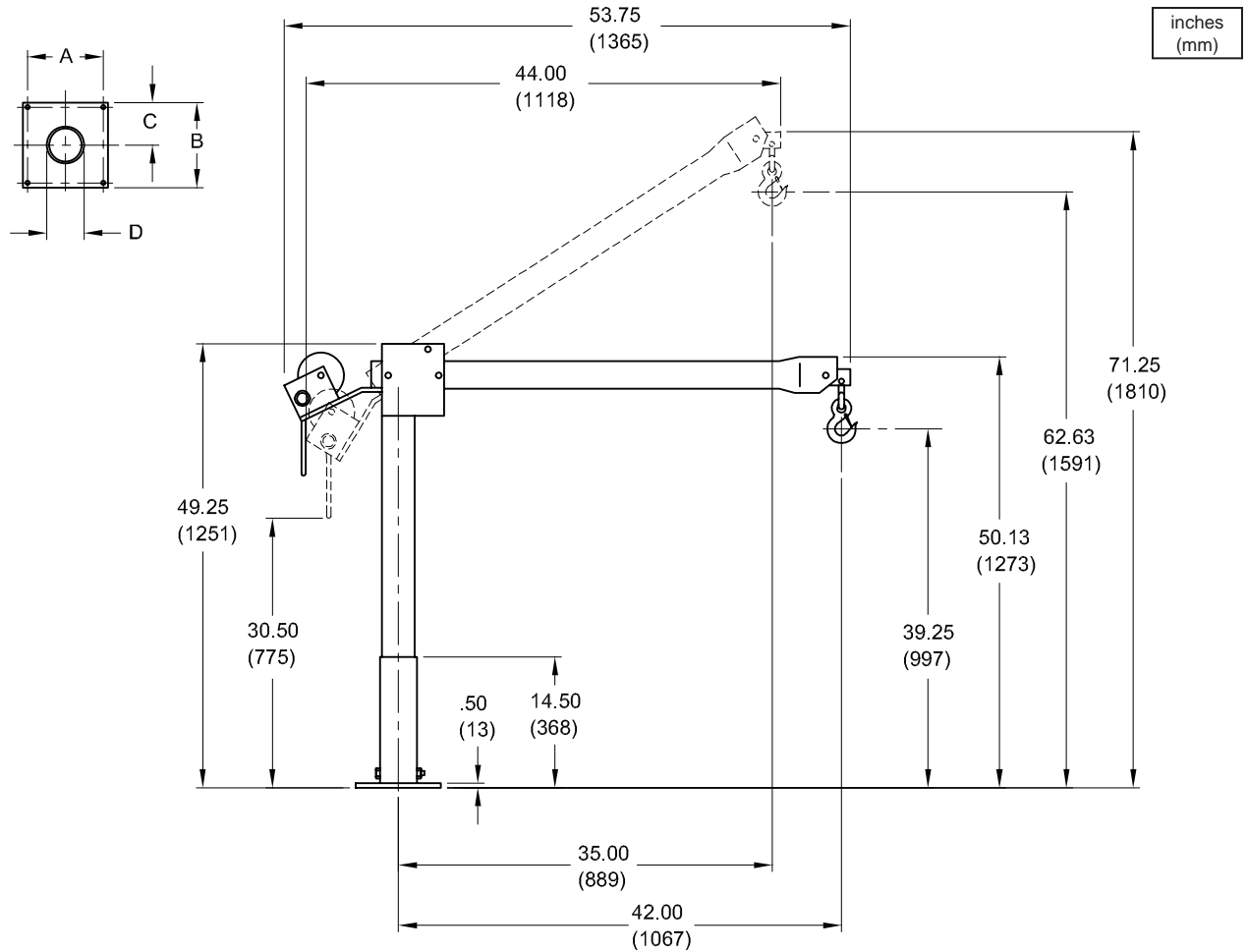
Hand winch features machine cut spur gears for long life, large diameter drum to help minimize cable wear, equipped with a disc brake for load control, boom rotates on rollers and Nylatron bearing sleeve in base. Base mounts to floor or truck bed, can be installed upright or recessed.

Mast, boom and base have a fusibond electrostatic finish; fasteners and pins are stainless steel, winch and sheaves are iridescent dichromate plated.



Pump Hoist
P/N: 075469

Basins & Accessories



PART No.	A	B	C	D	CRANE WEIGHT	BASE WEIGHT
075469	7.50 (191)	8.00 (203)	4.00 (102)	4.00 (102)	87 (40 kg)	14 (6.4 kg)

Specifications:

- CABLE** With Stainless Steel Eye Hook and swagged ball fitting
Length 36 ft. (11m)
Diameter 1/4 in. (6mm)
Material Stainless Steel
- ROTATION** Crane rotates 360° on a pin and sleeve bearing in the base. Handle on boom makes rotation easy load movement.
- BOOM** Adjustable, telescopes to 4 different lengths and adjust in height while under load with ratchet style screw-jack.
- OPTIONAL EQUIPMENT** Additional bases, (pedestal-094433, socket, or wall mount), Materials, *Cable lengths and *two part line kit for up to 2000lb capacity.

In a typical application, one pedestal base is installed at each pump station, the hoist is designed to be moved from pump station to pump station, to raise and lower submersible pumps.

Disc Brake Handle attached to the winch, gives control of the load for both lifting and lowering operations.

Spur gear hand winch with Quick Disconnect cable anchor allows operator to attach or remove cable.

Corrosion Resistant finish with electrostatic powder coating and corrosion resistant fasteners.

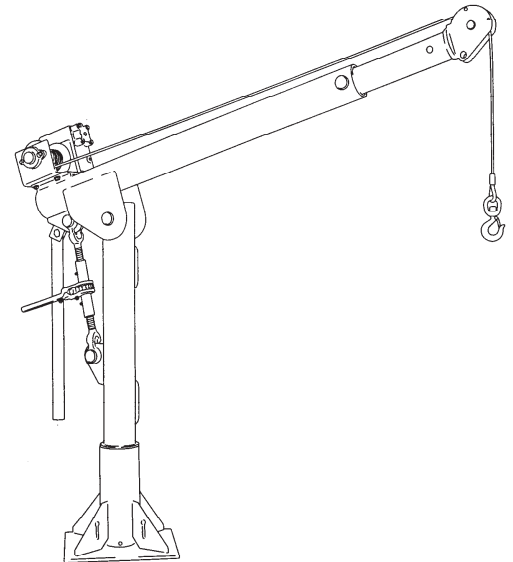
IMPORTANT INFORMATION !

Load rating will vary with wire rope length, boom position, and single or two part line configuration. Consult Factory for additional Performance Characteristics.

Base installation is purchaser's responsibility. Barnes recommends consulting a civil engineer or other qualified professional.

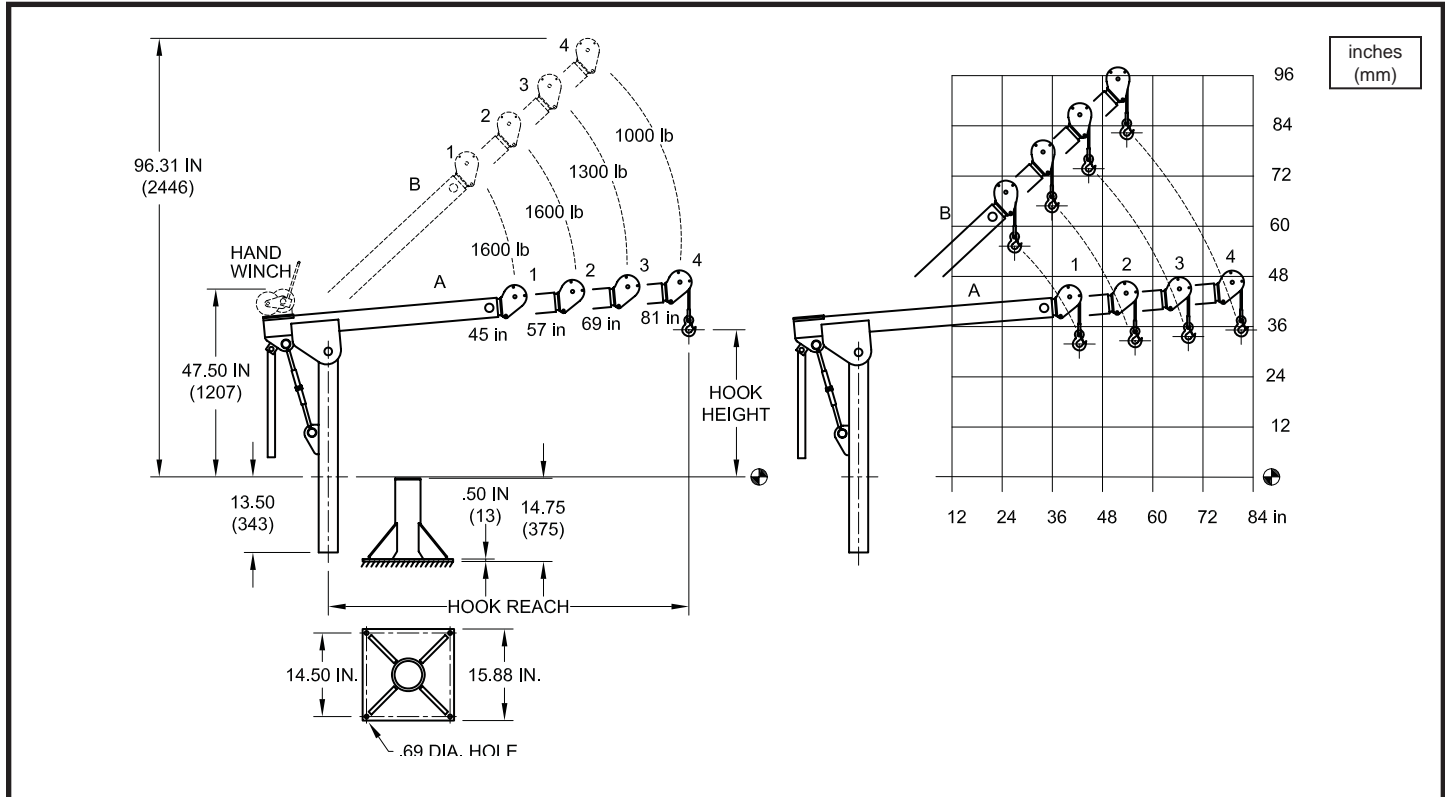
It is the owner's or operator's responsibility to determine the suitability of the equipment to its intended use. Study all applicable codes, manuals, and regulations. Be sure to read the Owner's Manual supplied with the equipment before operating it.

Crane is designed to lift rated capacity **ONLY**, if lifted weight binds or is seized, discontinue using crane until obstruction is eliminated.



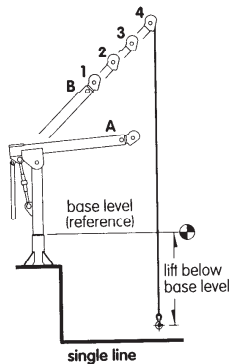
Pump Hoist
P/N: 079024

Basins & Accessories



PART No.	BOOM POSITION	HOOK REACH	HOOK HEIGHT	CRANE WEIGHT	BASE WEIGHT
079024	A-1	45 (1143)	28 (711)	300 (136 kg)	66 (30 kg)
	B-1	28 (711)	57 (1448)		
	A-2	57 (1448)	28 (711)		
	B-2	36 (914)	65 (1651)		
	A-3	69 (1753)	28 (711)		
	B-3	45 (1143)	74 (1880)		
	A-4	81 (2057)	28 (711)		
	B-4	53 (1346)	82 (2083)		

For lift below base level: at A1 add 2 ft. to B1, at A2 add 2 ft. to B2, at A3 add 3 ft. to B3, at A4 add 4 ft. to B4



PERFORMANCE CHARACTERISTICS		
Single Line		
12 - 20 feet of lift below base level		
Boom Position	Load Rating lbs. (kg)	Lift Below Base Level ft. (m)
B-1	1300 (590)	23 (7)
B-2	1300 (590)	21 (6.4)
B-3	1300 (590)	19 (5.8)
B-4	1000 (454)	17 (5.2)

Consult Factory for other Performance Characteristics

Specifications:

Lifting Chain:

.18" Dia. (4.6mm) 300 Series Stainless Steel Lifting Chain, 830lb. (376kg) Working Load. 3750lb. (1701kg) Breaking Strength.

PART No.	LENGTH
097273	32" (813mm)
097275	44" (1118mm)
097277	56" (1422mm)
097279	62" (1575mm)
097281	68" (1727mm)
097283	74" (1880mm)
097285	80" (2032mm)
097287	92" (2337mm)
097289	104" (2642mm)
102104	128" (3251mm)
102541	140" (3556mm)
102542	152" (3861mm)

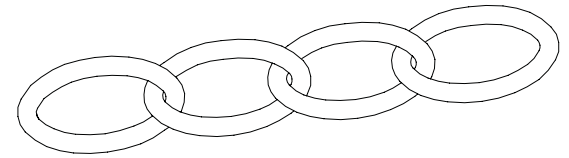
Lifting Cable:

- 074874 1/8" (3mm) Stainless Steel Lifting Cable, 2100lb. (953kg) Breaking Strength, for 60" (1524mm) thru 72" (1829mm) basin depths.
- 074878 1/8" (3mm) Stainless Steel Lifting Cable, 2100lb. (953kg) Breaking Strength, for 78" (1981mm) thru 96" (2438mm) basin depths.
- 074882 1/8" (3mm) Stainless Steel Lifting Cable, 2100lb. (953kg) Breaking Strength, for 102" (2591mm) thru 120" (3048mm) basin depths.
- 074886 1/8" (3mm) Stainless Steel Lifting Cable, 2100lb. (953kg) Breaking Strength, for 126" (3200mm) thru 144" (3658mm) basin depths.

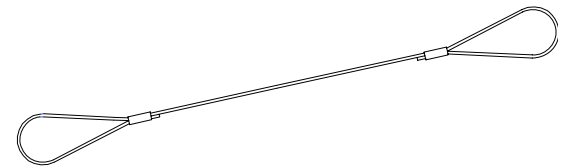
Lifting Rope:

1/2" (13mm) Tuff line polypropylene rope, 3 strand twisted, breaking strength 3780 lbs. (1715kg) Safe working load is 1/5 breaking strength. Weight: .028 lbs per foot (.04kgs/meter).

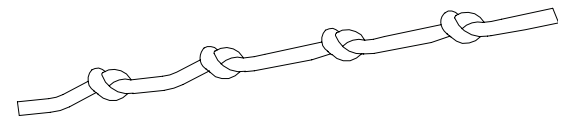
P/N: 093973 10 ft. (3m) of rope with knots in 12 inch (305mm) increments.



CHAIN



CABLE



ROPE

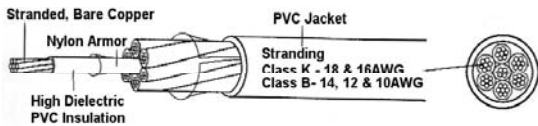
Basins & Accessories

Specifications:

Conforming to Article 318 "Cable Trays" and Article 340 "Power & Control Cable type TC" of the 1984 National Electrical Code, and Subject 1277 of Underwriters Laboratories Inc. Rated 600 volts, continuous use at 90°C dry and 75°C wet. UL file # E60749. Specifically approved for direct burial, wet or dry locations, for installations in trays, wireways, troughs, channels, ducts and conduit. Designed for control, power, lighting, etc. Recognized for use in Class 1, Division 2 hazardous locations. Tray Cable to meet UL83 for THHN, THWN.Type TC, THHN, THWN (TEFN).

- P/N: 098118 10/4, 7 Strands/Conductor
Cable Dia.45 - .50", (11.4mm) - (12.7mm).
- P/N: 102197 10/5, 7 Strands/Conductor
Cable Dia.58 - .59", (14.7mm) - (15mm).
- P/N: 104060 12/3, 7 Strands/Conductor
Cable Dia.38, (9.6mm)
- P/N: 110816 12/4, 7 Strands/Conductor
Cable Dia.41 - .43", (10.4mm) - (10.9mm)
- P/N: 104061 12/5, 7 Strands/Conductor
Cable Dia.45 - .47", (11.4mm) - (11.9mm)
- P/N: 103591 12/7, 7 Strands/Conductor
Cable Dia.49 - .50", (12.4mm) - (12.7mm).
- P/N: 100204 18/4, 16 Strands/Conductor
Cable Dia.31" - .34", (7.9mm) - (8.6mm)
- P/N: 096555 18/6, 16 Strands/Conductor
Cable Dia.35 - .37", (8.9mm) - (9.4mm)
- P/N: 101726 18/8, 16 Strands/Conductor
Cable Dia.39 - .46", (9.9mm) - (11.7mm)
- P/N: 101727 18/10, 16 Strands/Conductor
Cable Dia.43 - .47", (10.9mm) - (11.9mm)
- P/N: 098117 18/12, 16 Strands/Conductor
Cable Dia.43 - .50", (10.9mm) - (12.7mm)

DO NOT SUBSTITUTE!



Direct Burial Cable

CONDUCTOR COLOR CODE		
CONDUCTOR NUMBER	BASE COLOR	STRIPE COLOR
1	BLACK	-----
2	RED	-----
3	BLUE	-----
4	ORANGE	-----
5	YELLOW	-----
6	BROWN	-----
7	RED	BLACK
8	BLUE	BLACK
9	ORANGE	BLACK
10	YELLOW	BLACK
11	BROWN	BLACK
12	BLACK	RED

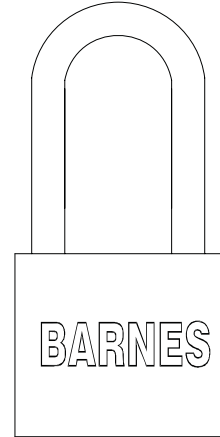
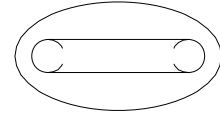
Specifications:

The Padlock has a brass body with a .25 (6.4mm) diameter by .88 inches (22.4mm) long or 2.00 inches (50.8mm) long, brass shackle. All locks are keyed alike.

Used on Grinder/Effluent Basin Packages in Section 3E.

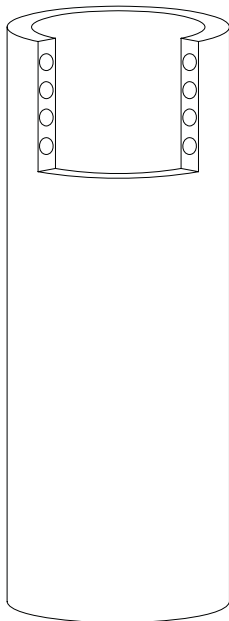
P/N: 102567 - 0.88" (22.4mm) Shackle

P/N: 102568 - 2.00" (50.8mm) Shackle



Brass Padlocks
P/N: 102567, 102568

Basins & Accessories



Flexible Discharge Hose

Specifications:

The Flexible Discharge Hose is constructed of type P, EPDM material, black in color jacketing. Reinforced synthetic fabric with helix wire. The Hose Has A 1.25 inch (32mm) ID, With A Temperature Range Of -40°F to 180°F (4.4°C to 82°C) And A Working Pressure of 150 PSI (10.6 kgs/sq. cm).

Comes with Stainless Steel 1-1/4" FNPT Fittings on each end.

*For use with 1-1/4" NPT Grinder Pumps and Pump Stand Part Number 111182 or equal.

PART No.	LENGTH (Overall)	*BASIN DEPTH
112169	34" (864mm)	48" (1219mm)
112169A	46" (1168mm)	60" (1524mm)
112169B	58" (1473mm)	72" (1829mm)
112169C	70" (1778mm)	84" (2134mm)
112169D	82" (2082mm)	96" (2438mm)