



FLOAT SWITCHES, GRINDER & NON-CLOG PUMPS, & TRANSDUCERS

CATALOG Y

Liquid Level Control Floats	.	.	.	.	.	.	.	.	.	4-7
How to Order	.	.	.	.	.	.	.	.	.	4
Mercury Floats	.	.	.	.	.	.	.	.	.	4
Mechanical Floats	.	.	.	.	.	.	.	.	.	5
Installation Instructions	.	.	.	.	.	.	.	.	.	5
Vertical Floats	.	.	.	.	.	.	.	.	.	6
Twin Floats	.	.	.	.	.	.	.	.	.	7
Water Alarms	.	.	.	.	.	.	.	.	.	8-9
Indoor Tank Alarms	.	.	.	.	.	.	.	.	.	8
Outdoor Tank Alarms	.	.	.	.	.	.	.	.	.	9
Pump Control Panels	.	.	.	.	.	.	.	.	.	10
MDI Retrofits	.	.	.	.	.	.	.	.	.	11-13
E/One® (EOR)	.	.	.	.	.	.	.	.	.	11
Barnes 2HP	.	.	.	.	.	.	.	.	.	12
Barnes 5 HP	.	.	.	.	.	.	.	.	.	13
Custom Basic Package System	.	.	.	.	.	.	.	.	.	14-15
MDI Submersible Pumps	.	.	.	.	.	.	.	.	.	16-21
Grinder Pumps	.	.	.	.	.	.	.	.	.	16-19
2HP Internal Start.	.	.	.	.	.	.	.	.	.	16-17
2HP External Start	.	.	.	.	.	.	.	.	.	18-19
Non-Clog Pumps	.	.	.	.	.	.	.	.	.	20-21
Transducers.	.	.	.	.	.	.	.	.	.	22-23
Warranty & Contact Information	.	.	.	.	.	.	.	.	.	24

HOW TO ORDER

BASIC SWITCH SERIES

MERCURY

A - TS-1

1 AMP @ 120 VAC Pilot Duty 10°

B - WATS-1

1 AMP @ 120 VAC Pilot Duty 90°

C - TS-10

13 AMPS @ 120 VAC / 5 AMPS @ 240 VAC 10°

D - NATS-20

13 AMPS @ 120 VAC / 6 AMPS @ 240 VAC 30°

E - WATS-20

13 AMPS @ 120 VAC / 6 AMPS @ 240 VAC 90°

MECHANICAL

G - ½ H.P. 13/15 AMPS 90°

H - 1 and 2 H.P. 15 AMPS 90°

K - 10 AMPS Pilot Duty Narrow Angle Tetherless

L - 1 & 2 H.P. 25 AMPS 90°

N - 10 AMPS Pilot Duty Narrow Angle 35°

P - ½ H.P. Narrow Angle 25°

R - ½ H.P. Narrow Angle Tetherless

S - Small 5 AMPS 120/250 VAC 90°

X - Small 5 AMPS 120/250 VAC Narrow Angle 15°

FLOAT SIZE & STANDARD COLOR CODE

NORMALLY OPEN	NORMALLY CLOSED	BASIC SWITCH SERIES
S-SMALL MERCURY BLACK ABS ONLY	S-SMALL MERCURY BLACK ABS ONLY	A & B SERIES
M-MERCURY BLACK HIPS ONLY	B-MERCURY YELLOW HIPS ONLY	C, D, & E SERIES
F-SMALL MECHANICAL BLACK ABS ONLY	F-SMALL MECHANICAL BLACK ABS ONLY	S & X SERIES
DOUBLE THROW F-SMALL MECHANICAL BLACK ABS ONLY		
F-MECHANICAL BLACK HIPS & ABS	Y-MECHANICAL YELLOW W-MECHANICAL WHITE ABS ONLY	G, H, K, L, P & R SERIES
DOUBLE THROW G-MECHANICAL GREEN ABS ONLY		G, H, K, P & R SERIES
82°C/180°F R-MECHANICAL RED ABS ONLY	82°C/180°F B-MECHANICAL BLUE ABS ONLY	G, H, K, L, P & R SERIES
105°C/221°F T-MECHANICAL TEEL POLYCARB/ABS ONLY	105°C/221°F T-MECHANICAL TEEL POLYCARB/ABS ONLY	G, P & R SERIES

TERMINATION AND LABEL DESIGNATION

00 - Standard skive (See Fig 4)

Recognized: No Label

C1 - 120 VAC Series plug (See Fig 1)

Listed: Label on 6' min. cord

F1 - 120 VAC Series plug (See Fig 1)

Listed: Label on Float - 6' min. cord

R1 - 120 VAC Series plug (See Fig 1)

Recognized: No Label - 6' min. cord

C2 - 240 VAC Series plug (See Fig 2)

Listed: Label on 6' min. cord

F2 - 240 VAC Series plug (See Fig 2)

Listed: Label on Float - 6' min. cord

R2 - 240 VAC Series plug (See Fig 2)

Recognized: No Label - 6' min. cord

R3 - 3 Pin barrel plug (See Fig 3)

Recognized: No Label

F0 - Standard skive (See Fig 4)

Recognized: Label on Float

JGF10W1000 W

FLOAT MATERIAL

- 1 - High Impact Polystyrene for 60°C/140°F (HIPS)
- 2 - Acrylonitrile Butadiene Styrene for 82°C/180°F (ABS)
- 3 - ABS/Poly carbonate 105°C/221°F (PC/ABS) (Not UL or CSA approved)

CORD LENGTH

From 01 to 50 feet. Lengths are in even foot increments.

OPTIONAL

- B - Individually boxed
- W - External weighted
- C - Capillary Blocks
- T - Cable Tie Tether
- TC - Tether Clamp
- G - Gold Contacts (G Series only)

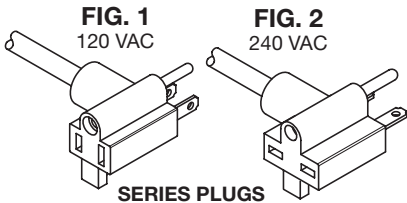
CORD TYPE AND MATERIAL

- Y - 18 Gauge - Chlorinated polyethylene CPE Jacketed (SJOW)
- W - 16 Gauge - Chlorinated polyethylene CPE Jacketed (SJOW)
- N - 16 Gauge - Chlorinated polyethylene Yellow CPE Jacketed (SJOOW)
- L - 16 Gauge - Chlorinated polyethylene Yellow CPE Jacketed (SOOW)
- X - 16 Gauge - Polyvinyl chloride PVC Jacketed (SJTOW)
- T - 16 Gauge - Teflon TFE Jacketed (Not UL or CSA approved cord)
- U - 14 Gauge - Chlorinated polyethylene CPE Jacketed (SJOW)
- P - 12 Gauge - Chlorinated polyethylene CPE Jacketed (SJOW)

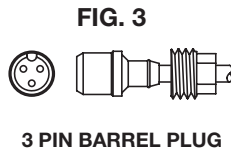
OPTIONAL PEAR FLOAT

Same MDI switch, larger pear shaped float. This option only comes in ABS plastic.

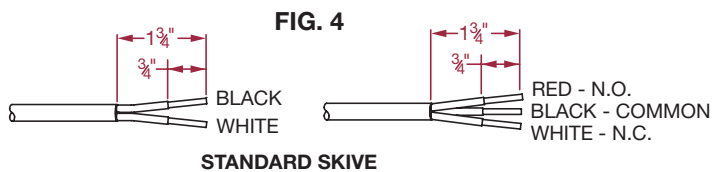
GOLD CONTACTS MECHANICAL FLOAT SWITCHES
INTRINSICALLY SAFE RATINGS: 160 µA TO 100 mA



SERIES PLUGS

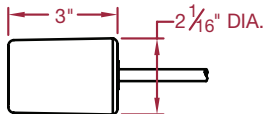


3 PIN BARREL PLUG



STANDARD SKIVE

Mercury Float Switches



A Series

10° Narrow Angle Operation
1 AMP @ 120 VAC

B Series

90° Operating Angle
1 AMP @ 120 VAC



FILE #E-93774

FILE #E-93774

FILE #LR 41198

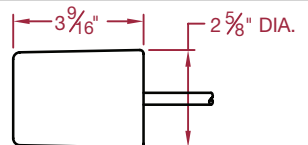
C Series

10° Narrow Angle Operation
13 AMPS @ 120 VAC
5 AMPS @ 240 VAC
with 16 GA. cord

D Series

30° Operating Angle
13 AMPS @ 120 VAC
6 AMPS @ 240 VAC
with 16 GA. cord

E Series (CSA Only)
90° Operating Angle
13 AMPS @ 120 VAC
6 AMPS @ 240 VAC
with 16 GA. cord

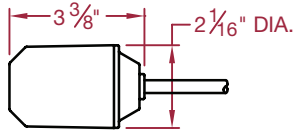


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Mechanical Float Switches (Mercury Free)



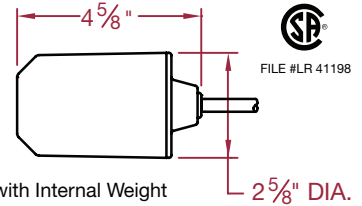
S Series
 90° Operating Angle
 5 AMPS @ 120/240 VAC
 5 AMPS @ 30 VDC

X Series
 15° Narrow Operating Angle
 5 AMPS @ 120/240 VAC
 5 AMPS @ 30 VDC

G Series
 90° Operating Angle
 1/2 H.P. @ 120/240 VAC
 15 AMPS @ 120/240 VAC w/ 14 GA. cord
 13 AMPS @ 120/240 VAC w/ 16 GA. cord
 58.8 AMPS overload

H Series
 90° Operating Angle
 1 H.P. @ 120 VAC
 2 H.P. @ 240 VAC
 15 AMPS @ 120/240 VAC
 96 AMPS overload

L Series
 90° Operating Angle
 1 H.P. @ 120 VAC
 2 H.P. @ 240 VAC
 25 AMPS @ 120/240 VAC



K Series
 Tetherless with Internal Weight
 Narrow Angle Operation
 10 AMPS @ 120/240 VAC
 1/4 H.P. @ 120/240 VAC
 34.8 AMPS overload

N Series
 35° Narrow Angle Operation
 10 AMPS @ 120/240 VAC
 1/4 H.P. @ 120/240 VAC
 34.8 AMPS overload

P Series
 25° Narrow Angle Operation
 1/2 H.P. @ 120/240 VAC
 15 AMPS @ 120/240 VAC w/ 14 GA. cord
 13 AMPS @ 120/240 VAC w/ 16 GA. cord
 58.8 AMPS overload

R Series
 Tetherless with Internal Weight
 Narrow Angle Operation
 1/2 H.P. @ 120/240 VAC
 15 AMPS @ 120/240 VAC w/ 14 GA. cord
 13 AMPS @ 120/240 VAC w/ 16 GA. cord
 58.8 AMPS overload

Gold Series Switch

Available in: **"G, N, & K" Series**
 Add the suffix "G" for Gold Plated Contacts.

Example: GF2OW1000 G
 Good for 160 µA to 100 mA
 Same standard angles.

Commonly used in intrinsically safe equipment.

SKF Series

This includes our standard K Series float switch (internally weighted), with a longer 3" ROJ and 1/2" skive.

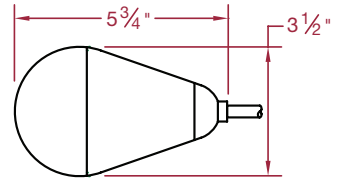
Features:

- SKF-5032-10 (10' Normally Open)
- SKF-5033-10 (10' Normally Closed)
- SKF-5034-10 (10' Double Throw)

"J" Package Option

"J" Package includes all series.

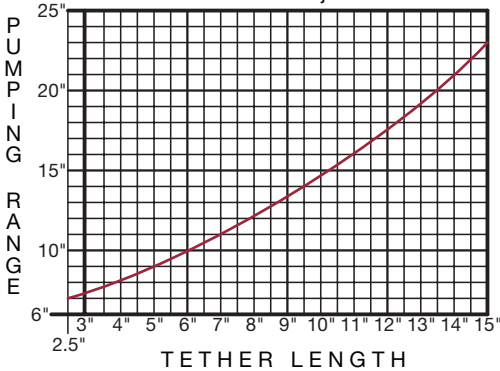
Add the optional **"J" Prefix** to any series



Installation Instructions

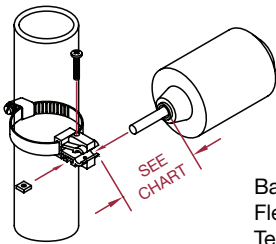
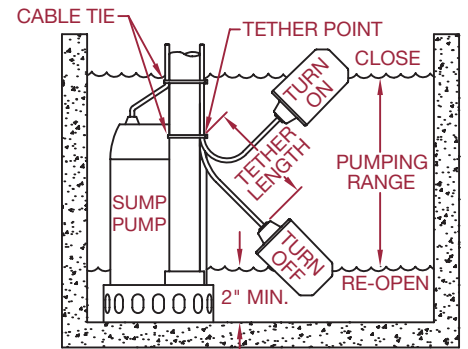
Tether Data

For CPE 16-2 SJOW jacketed cord



1. Attach cord, using a cable tie, to any convenient rigid surface as illustrated. This is known as the tether point. Do not tighten until both turn-on and turn-off levels are established.
2. To adjust greater distance between turn-on and turn-off, increase cord length between tether point and float. For less distance between turn-on and turn-off decrease cord.
3. Make sure the float is at least 2 inches above pump base, in the turn-off position, before tightening cable tie at the tether point.
4. Plug piggy-back switch cord (Series Plug) into grounded outlet, then plug into piggy-back switch cord, and check for proper operation.

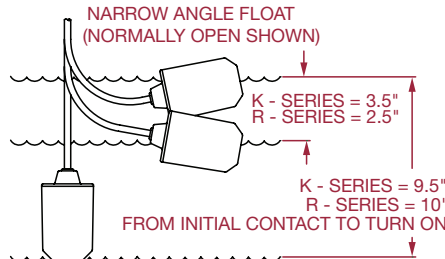
Typical Normally Open (Pump Down) Application



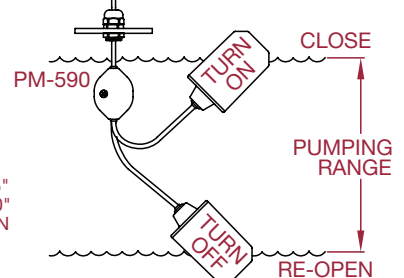
WIRE GAUGE	MINIMUM LENGTH
12-2	7 1/2 INCHES
14-3	5 INCHES
14-2	4 INCHES
16-3	4 INCHES
18-2, 18-3, 16-2	3 1/2 INCHES

Based on SJOW cord @ 65° F.
 Flexibility of wire varies
 Test in actual application to verify

TETHERLESS INTERNALLY WEIGHTED

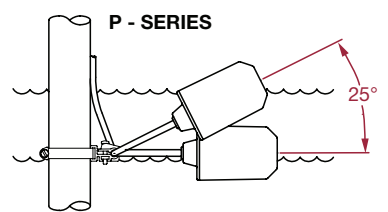
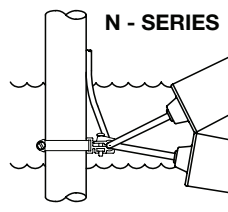


EXTERNAL WEIGHT



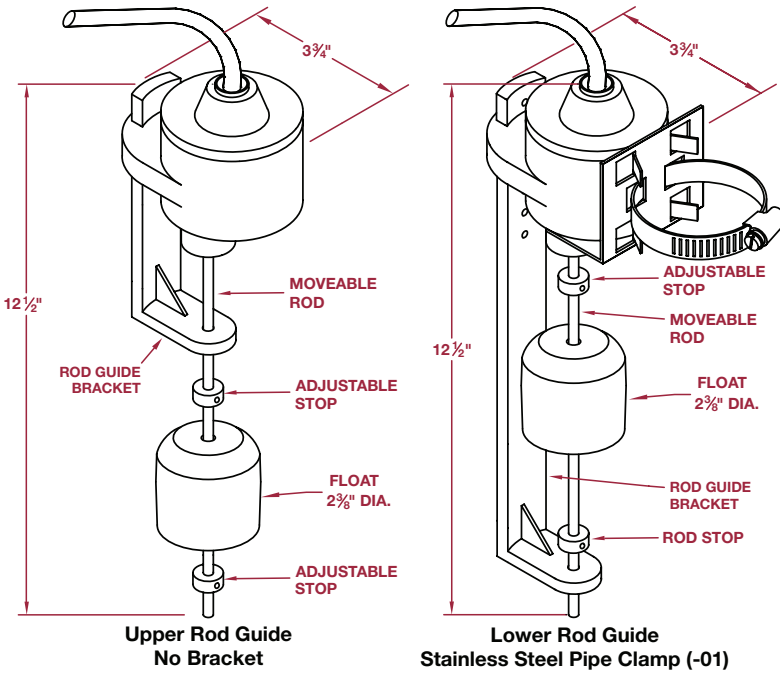
MDI Tether Clamp is a nice and simple way to mount your float switch to a pipe, either with a cable tie or pipe clamp. It can be used on 12-2 to 18-2 cords (14-3 to 18-3 with the 3 conductor cord).

- TC** (Includes the clamp, bolt and nut)
- TC-** (Includes the clamp, bolt, nut and 2" max. Pipe clamp)
- TC-** (Includes the clamp, bolt, nut and 3" max. pipe clamp)
- TC-** (Includes the clamp, bolt, nut and 14" cable tie)



NUMBERING SYSTEM

VS **01** - 012 03 R9 L - **01**
A B C D E F



Upper Rod Guide
Plastic Bracket (-02)



Lower Rod Guide
Stainless Steel Bracket (-01)

(Optional)

A - Contacts and Current

- Blank** - Standard switch (**CSA and UL**)
- O** - Normally Open (**Not CSA**)
- C** - Normally Closed (**Not CSA**)
- D** - Double Throw (**Not CSA**)
- O1** - Normally Open with 1 H.P @ 120 VAC
2 H.P. @ 240 VAC Relay (**Not CSA**)
- C1** - Normally Closed with 1 H.P @ 120 VAC
2 H.P. @ 240 VAC Relay (**Not CSA**)

B - Length of cord in inches (012 - 720)

C - Termination; Standards are:

- 00 - 1 3/4" ROJ & 3/4" Strip or Skive (Standard)
- R1 - Piggyback 120 VAC Component Recognized
- C1 - Piggyback 120 VAC W/ Listed Cord Label
- R2 - Piggyback 240 VAC Component Recognized
- C2 - Piggyback 240 VAC W/ Listed Cord Label
- R3 - 3-Pin Barrel Plug Component Recognized
- C3 - 3-Pin Barrel Plug W/ Listed Cord Label

D - Rod Length

- Rod length in inches (9" is standard)
- Rods available up to 24"

E - Rod Guide

- L - Lower rod guide
- U - Upper rod guide

(Optional)

- #### F - With or without Bracket, or mounting system
- 01 - Pipe Clamp & Stainless Steel Bracket
 - 02 - Pipe Clamp & Plastic Bracket

VS SERIES SUMP PUMP SWITCH

RATINGS: 13 AMPS / 1/2 H.P. @ 120/240 V 50/60 Hz.
 with Relay 15 AMPS @ 120/240 VAC 50/60 Hz.
 1 HP @ 120 VAC / 2 HP @ 240 VAC

PUMPING RANGE: Adjustable up to 6 inches (with standard 9" rod length).

MATERIALS: Enclosure and guide is ABS plastic.
 Float is black polypropylene

MOUNTING: Standard mounting holes for #8 screws on 2.06 inch centers are located under housing.

OPTIONAL Pipe mount bracket allows for mounting to standard size sump discharge piping.



FILE #E-93774



FILE #E-93774

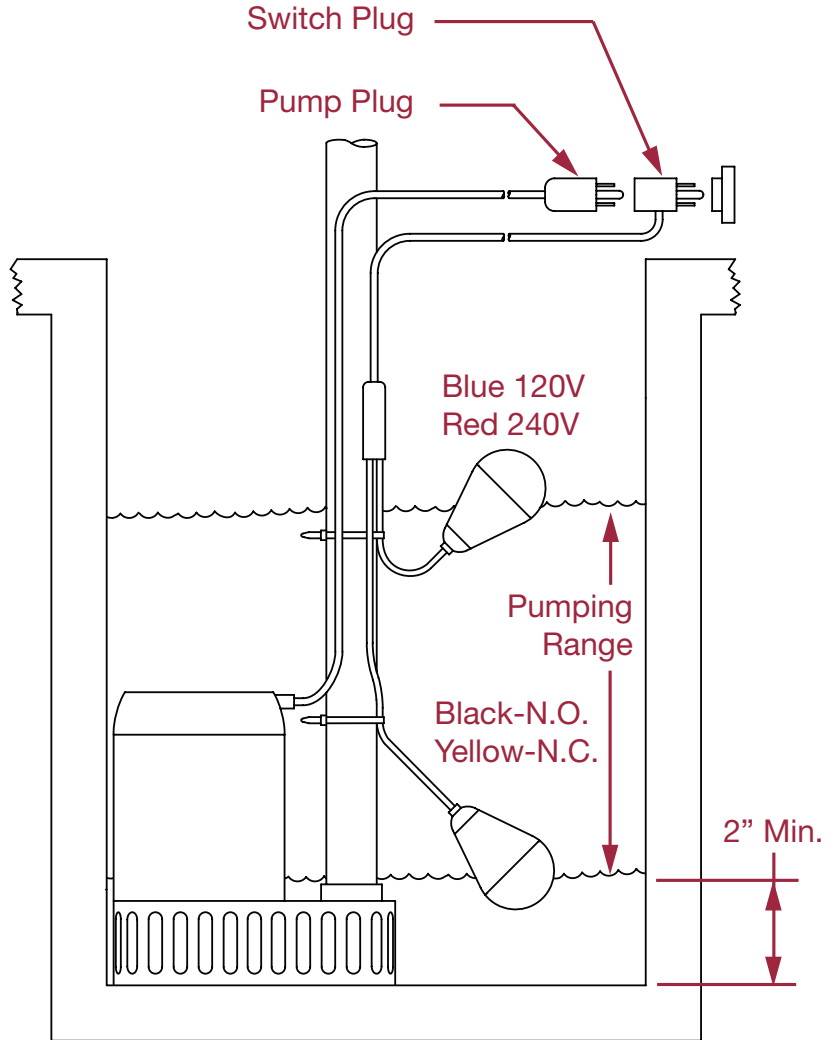


FILE #LR 41198

PRODUCT DESCRIPTION:

The Twin Float pump switch consists of two floats, each float contains our standard "JH" series switch. The boot contains a heavy-duty latching relay, which enables the floats to function together. The relay eliminates pump chatter in turbulent conditions.

The unit is well suited for narrow and deep sump pump pits. On the N.O. (pump down) model, the pump is turned on when activated by the top float switch. The pump stays on until the bottom float switch turns it off, this allows a pumping range of about 12 - 60" with the standard 060 (60" cord length on the bottom float). This can be extended almost indefinitely with longer cords.



Ratings:

15 AMPS @ 120 VAC
 1 H.P. @ 120 VAC
 OR
 15 @ 240 VAC
 2 H.P. @ 240 VAC

Standard colors:

Top float color indicates voltage
 Blue float - 120 VAC
 Red float - 240 VAC
 Bottom float color indicates action
 Graphite - Pump Down (Normally Open)
 Yellow - Pump Up (Normally Closed)

NUMBERING SYSTEM

JTF D - 060 - U 15 R1
 A B C D E

- A** - Switch Action
 D - Pump Down (Normally Open)
 U - Pump Up (Normally Closed)
- B** - Bottom Float Cord Length
 12" increments, min. length 12"
 060 is our standard 60" length
- C** - Cord Types (Currently 14 AWG only)
 U - 14 AWG CPE jacketed SJOW cord
- D** - Power Cord Length in Feet
- E** - Power Cord (14 AWG PVC)
 00 - Standard Skive
 R1 - 120 VAC, 15 AMP piggyback
 R2 - 240 VAC, 15 AMP piggyback

Indoor Tank Alarms

SP-3000 ALARM - BBLA INDOOR ALARM WITH XF2OY1500 MECHANICAL FLOAT

SP-3100 ALARM - BBLA INDOOR ALARM WITH AS2OY1500 MERCURY FLOAT



The BBLA alarm system is designed to monitor liquid levels in sump basins, holding tanks, lift stations tanks and many other non-potable water and wastewater applications. Comes individually boxed with Cable tie and Instruction sheet.

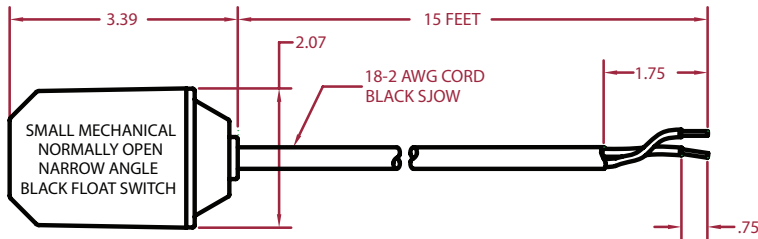
Auxiliary contacts with common, normally open and normally closed terminals are available behind a panel, on the lower right side, held in place by two #1 Phillips head screws. The barrier terminal screws are Phillips/Standard slot combo head type.

The BBLA is design to sound a piezo horn and illuminate a red light to notify of an alarm situation. There is a green line voltage power indicator light to show that the unit is functioning, as well as a silence switch to turn horn off while fixing the alarm (the red alarm light will remain on until the alarm conditions are remedied).

SPECIFICATIONS

- Dimensions 7" X 4" X 2 1/2"
- Enclosure NEMA 1 thermoplastic (external mounting feet)
- Horn 85 dB
- Weight 1 1/3 pounds
- Voltage Primary: 120 VAC, Secondary 12 VAC, 60 Hz (Alarm condition 2.5 Watts max)
- Power cord 6 feet 120 VAC (NEMA 5-15P)
- External block connection Float connection. DO NOT APPLY POWER! Class Two Output, 12 VAC
- Auxiliary contacts 120 VAC, 5 AMPS max 60 Hz
- Battery Back Up 9 Volt

XF2OY1500

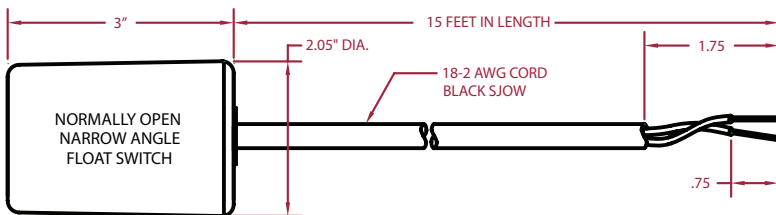


OPERATING ANGLE 15°: CONTACTS CLOSE @ 10° ABOVE HORIZONTAL.
CONTACTS OPEN @ 5° BELOW HORIZONTAL.

ELECTRICAL RATINGS: 5 AMP @ 120/240 VAC.
5 AMP @ 30 V.D.C.

FLOAT MATERIAL: A.B.S.

AS2OY1500



OPERATING ANGLE 10°: CONTACTS OPEN @ 5° BELOW HORIZONTAL.
CONTACTS CLOSE @ 5° ABOVE HORIZONTAL.

ELECTRICAL RATINGS: 1 AMP @ 120 VAC.

FLOAT MATERIAL: A.B.S.

Outdoor Tank Alarms

SP-4000 ALARM - OTA OUTDOOR ALARM WITH **NF2OW1500** MECHANICAL FLOAT

SP-4100 ALARM - OTA OUTDOOR ALARM WITH **CG2OY1500** MERCURY FLOAT



The OTA alarm system is designed to monitor liquid levels in sump basins, holding tanks, lift stations tanks and many other non-potable water and wastewater applications. Comes individually boxed with Cable tie and Instruction sheet.

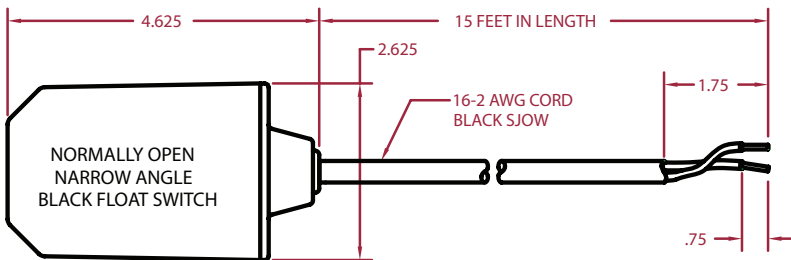
This alarm comes in a Type 4X nonmetallic enclosure with external mounting feet and a gasketed door for outdoor use. It has a large red illuminating beacon, front cover mounted piezo, with Test and Silence push button switches.

The OTA is design to sound an audible piezo horn and illuminate the red beacon light to notify of an alarm situation. There is a silence switch to turn the piezo horn off while fixing the alarm (the red alarm light will remain on until the alarm conditions are remedied).

SPECIFICATIONS

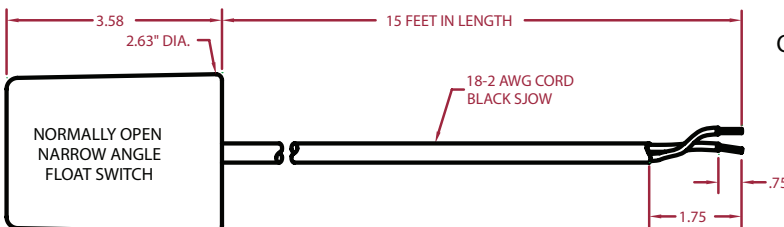
- Dimensions 8" X 4 1/2" X 4 1/4"
- Enclosure Type 4X nonmetallic enclosure rated for indoor or outdoor use
- Piezo Horn 85 dB
- Weight 2 pounds
- Voltage Primary: 120 VAC, Secondary 12 VAC, 60 Hz 6 Watts max.
- Power cord 6 feet 120 VAC (NEMA 5-15P)
- Float connection External block connection

NF2OW1500



OPERATING ANGLE: CONTACTS CLOSE @ 25° ABOVE HORIZONTAL.
CONTACTS OPEN @ 10° BELOW HORIZONTAL.
ELECTRICAL RATINGS: 1/4 H.P. 10 AMPS @ 120/240 VAC. 34.8 LRA
FLOAT MATERIAL: A.B.S.

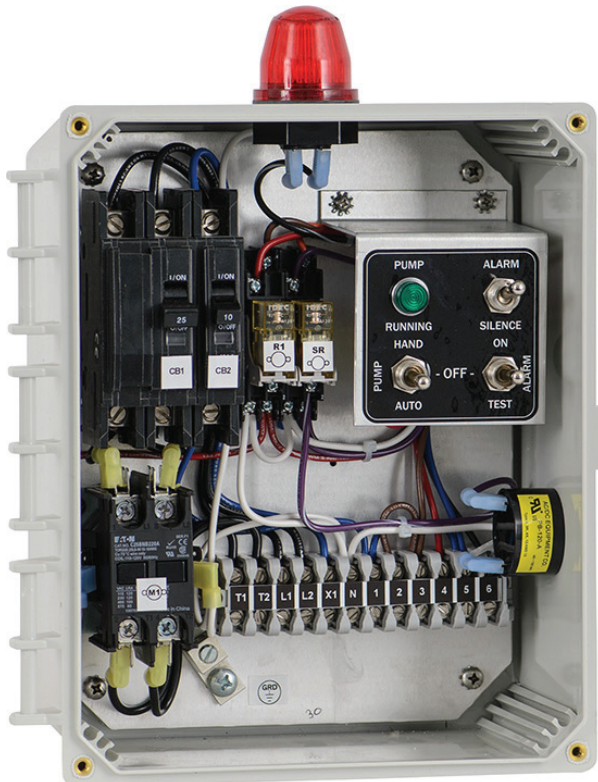
CG2OY1500



OPERATING ANGLE 10°: CONTACTS OPEN @ 5° BELOW HORIZONTAL.
CONTACTS CLOSE @ 5° ABOVE HORIZONTAL.
ELECTRICAL RATINGS: 10 AMP @ 120 VAC.
5 AMP @ 240 VAC.
FLOAT MATERIAL: A.B.S.

Features

- Flashing Red Alarm Light
- Amber Run Lights
- High Decibel Audible Alarm
- NEMA 4X Fiberglass Enclosure
- Stainless Piano Hinged Door
- Stainless Door Latches w/Padlock Hasp
- External Mounting Feet
- Alternating Relay/Override Circuit
- Non-Reversing Contactors
- "Hand/Off/Auto" Heavy Duty Toggles
- Alarm "On/Off/Test" Heavy Duty Toggle
- Field Wiring Terminal Strips
- Motor Circuit Breakers
- Control Circuit Breaker
- Individual 3 Amp Control/Alarm Circuit Fuses
- UL 508A Listing
- One Year Limited Warranty
- Custom Options Available



Applications Include

Starting & Stopping Pump for:

- Sump & Sewage Basins
- Septic Tanks & Aeration Systems
- Cisterns & Atmospheric Storage Tanks
- Chemical Solution Tanks

EOR



G2-21HI
Pump shown

The MDI Advantages:

- Fits into Existing System No Changes
- Eliminates Existing Problems
- Better Pump Performance More Flow
- Reduces Service Maintenance Issues
- Saves Money!

Turnkey Replacement Package

Fully Assembled

Simple Fast Installation

- Lower Into Place
- Latch Arm Over Pipe
- Plug Connector In

No Modifications to Existing System

Operates with same Control Panel

Superior Pump Performance

Reliable Operation

Heads from 130 to 186 feet

Pump Specifications:

EOR with G2-21HI

2 HP Dual Seal Grinder Pump

The recessed vortex impeller design of the G2-21HI grinder pump provides trouble free, non-overloading operation over the entire performance curve. The G2-21HI pump produces capacities to 20 gpm with heads to 130 feet.

For more detail see page 16

EOR with MHGS2-21

2 HP Dual Seal Grinder Pump

The semi-open contrifical design of the MHGS2-21 grinder pump provides trouble free, non-overloading operation over the entire performance curve. The MHGS2-21 pump produces capacities to 20 gpm with heads to 183 feet.

E/One® brand name or trademark are the property of Environment One Corporation and are referred to for descriptive purposes only.

2HP Grinder Pump Package



Turnkey Replacement Package
Fully Assembled
Simple Fast Installation
Just lower into place!

No Modifications to Existing System
Operates with same Control Panel
Superior Pump Performance
Reliable Operation

The MDI advantages:

- Fits into Existing System - No Changes
- Eliminates Existing Problems
- Better Pump Performance - More Flow
- Reduces Service/Maintenance Issues
- **Saves up to 20% on energy costs**

The Barnes Retrofit works with any of our 2HP grinder pumps.
For detailed specs please refer to any of the following:

115V 2HP Standard Head Internal Start G2-11SI (See Page 16)

208/230V 2HP Standard Head Internal Start G2-21SI (See Page 16)

208/230V 2HP High Head Internal Start G2-21HI (See Page 16)

208/230V 2HP Standard Head External Start G2-21SE (See Page 18)

208/230V 2HP High Head External Start G2-21HE (See Page 18)

5HP Grinder Pump Package



Turnkey Replacement Package
Fully Assembled
Simple Fast Installation
Just lower into place!

No Modifications to Existing System
Operates with same Control Panel
Superior Pump Performance
Reliable Operation

The MDI advantages:

- Fits into Existing System - No Changes
- Eliminates Existing Problems
- Better Pump Performance - More Flow
- Reduces Service/Maintenance Issues
- **Saves Money!**

Pump Specifications: G5-21HE
5 HP Dual Seal Grinder High Flow Pump
External Start Components - High Flow

The MDI G5-21HE series centrifugal grinder pumps easily handle residential, light commercial or industrial sanitary waste, reducing it to fine slurry. The G5-21HE pump is designed for use in pressure sewer applications or any piping network.

The recessed vortex impeller design of the G5-21HE grinder pump provides trouble free, non-overloading operation over the entire performance curve.

The modular design provides quick and easy serviceability. The hardened stainless steel grinder assembly provides many years of dependable operation.

The G5-21HE series pump features:
Strong Class F 5 HP motor, 208 / 230 volt, 1-phase
3 support bearings (upper / lower ball, sleeve)
Dual mechanical seals (silicon carbide)
Internal moisture protection

COMPLETE TURNKEY PACKAGES

- Pre-assembled
- Ready for Installation
- Quick, Easy, Convenient



BASINS

- Diameters to 120"
- Lengths to 28'

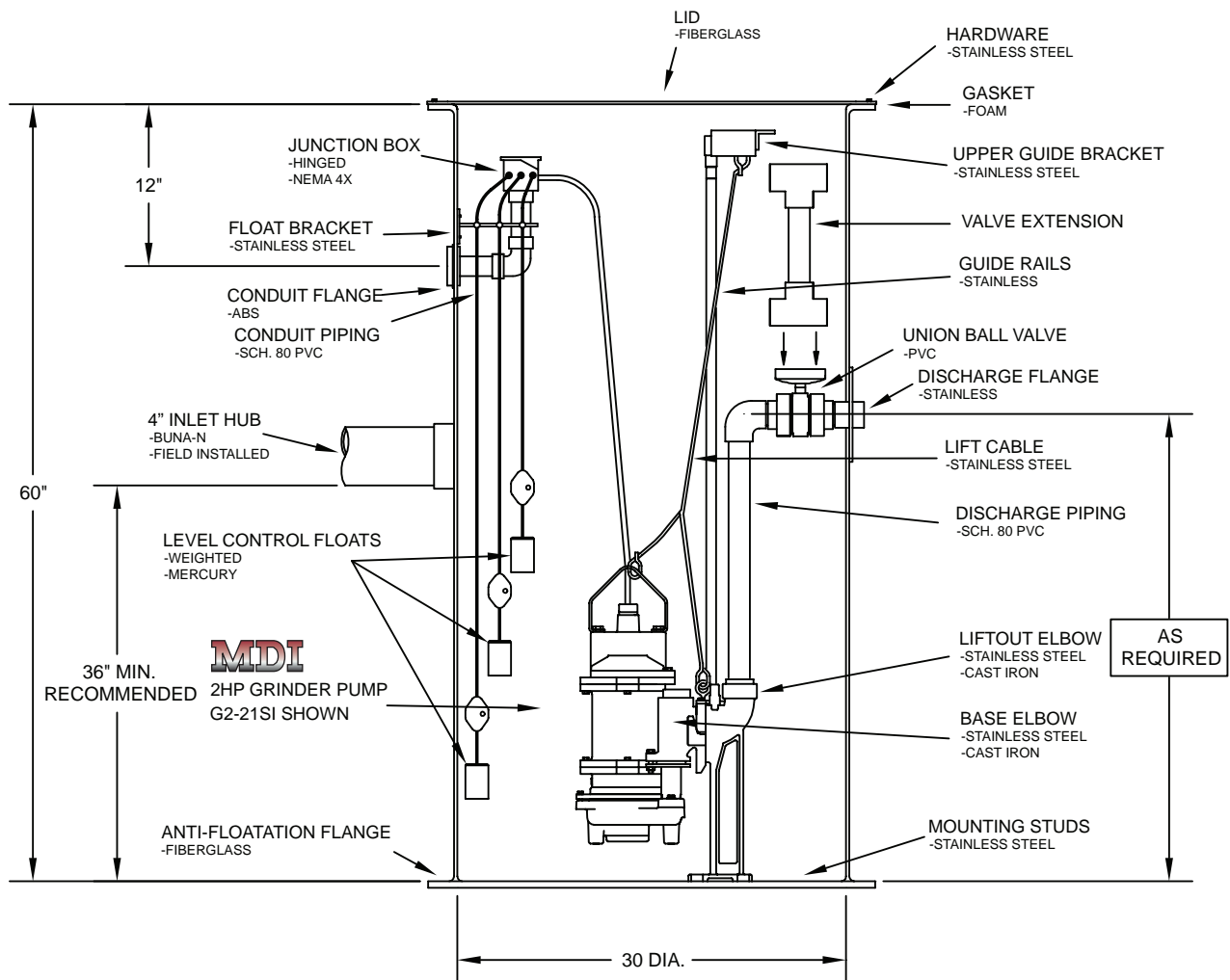
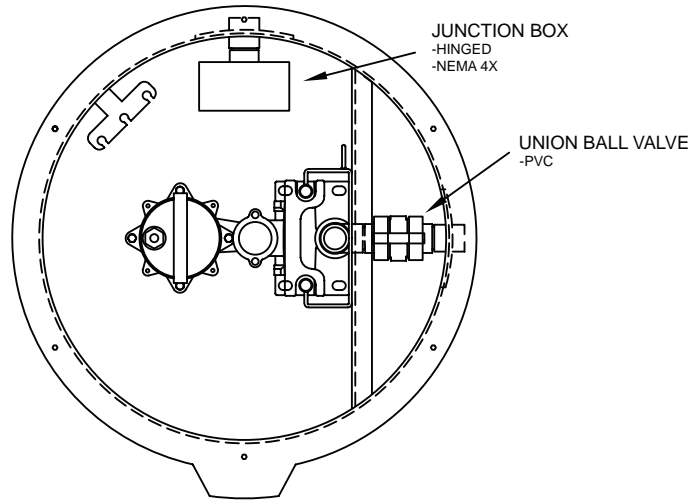
SYSTEMS

- Simplex
- Duplex

PACKAGES

- Pumps
- Controls
- Junction Box
- Floats
- Rail System
- Piping

- **Completely Assembled**
- **Quick & Simple Field Installation**
- **Saves Time & Money**
- **Fast Shipping Time**
- **Custom Built to Your Requirements**



Internal Start Components



The MDI grinder pumps easily handle residential, light commercial or industrial sanitary waste, reducing it to fine slurry. The **G2...I Series** pump is designed for use in pressure sewer applications or any piping network.

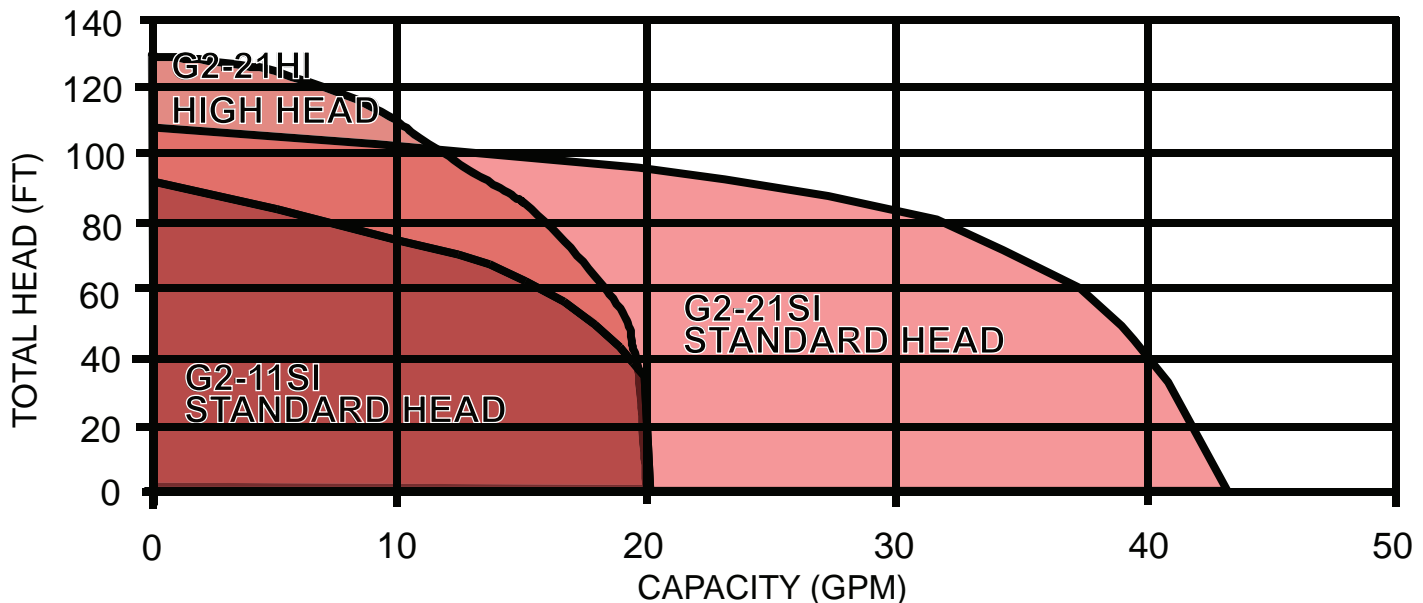
The recessed vortex impeller design of the **G2...I Series** grinder pump provides trouble free, non-overloading operation over the entire performance curve. The **G2...I Series** pump produces capacities up to 43 gpm with heads up to 130 feet.

The modular design provides quick access to the internal start capacitor kit. Hardened stainless steel grinder assembly and many quality features.

Some of the other **G2...I Series** pump features:

- **G2-11SI** - Strong, 2 HP, 115V motor @ 16.9 AMPS
- **G2-21SI (G2-21HI)** - Strong, 2 HP, 208/230V motor @ 14/12.8 AMPS
- **Internal start component** (no control box req'd)
- Potted cord cap assembly
- Dual silicon carbide shaft seals
- 3 Bearings
- Pressed in motor
- 27.5 x 8.25 x 10.75 with 1.25" NPT Removable Discharge Flange

Performance Curve



1. Triple Sealed Cable Entrance

Stainless steel strain relief cord grip with compression grommet protects outer cord jacket. Epoxy filled inner cord cap with individually soldered wires provide anti-wicking moisture protection to the motor even if power cable is cut or damaged.

2. Internal Start Kit

Start / Run capacitor with relay securely positioned in dry compartment. Rubber compression grommet for wire leads to motor prevents oil from entering chamber. 4 bolts quickly removes cord cap for easy servicing.

3. Modular Pump Design

Commonality of parts across the pump product line minimizes the amount of parts required for servicing. Heavy duty ASTM A48, Class 30 cast iron components.

4. Strong Motor

High torque for powerful and reliable pump operation. Pressed stator securely holds motor and efficiently transfers heat. Class F insulation with overload protection in oil filled chamber for cool operation and long motor life.

5. 3-Bearing Support

Motor / Pump shaft securely held with upper and lower ball bearing plus addition sleeve bearing in lower seal chamber. Long 50,000 hour B-10 bearing life.

6. Double Mechanical Seal Protection

Dual silicon carbide mechanical shaft seals provide twice the moisture protection for the motor. Dual seals are housed in a secondary oil filled seal chamber. Tougher silicon carbide seals better handles sand, grit and abrasive materials.

7. Non-Overloading Hydraulic Design

The recessed centrifugal impeller allows 100% performance curve operation from shut-off to maximum flow without damage to the pump or system. The recessed vortex impeller is out of the passageway of fluid flow, eliminating concerns of blockage or wear.

8. Proven Grinder Assembly

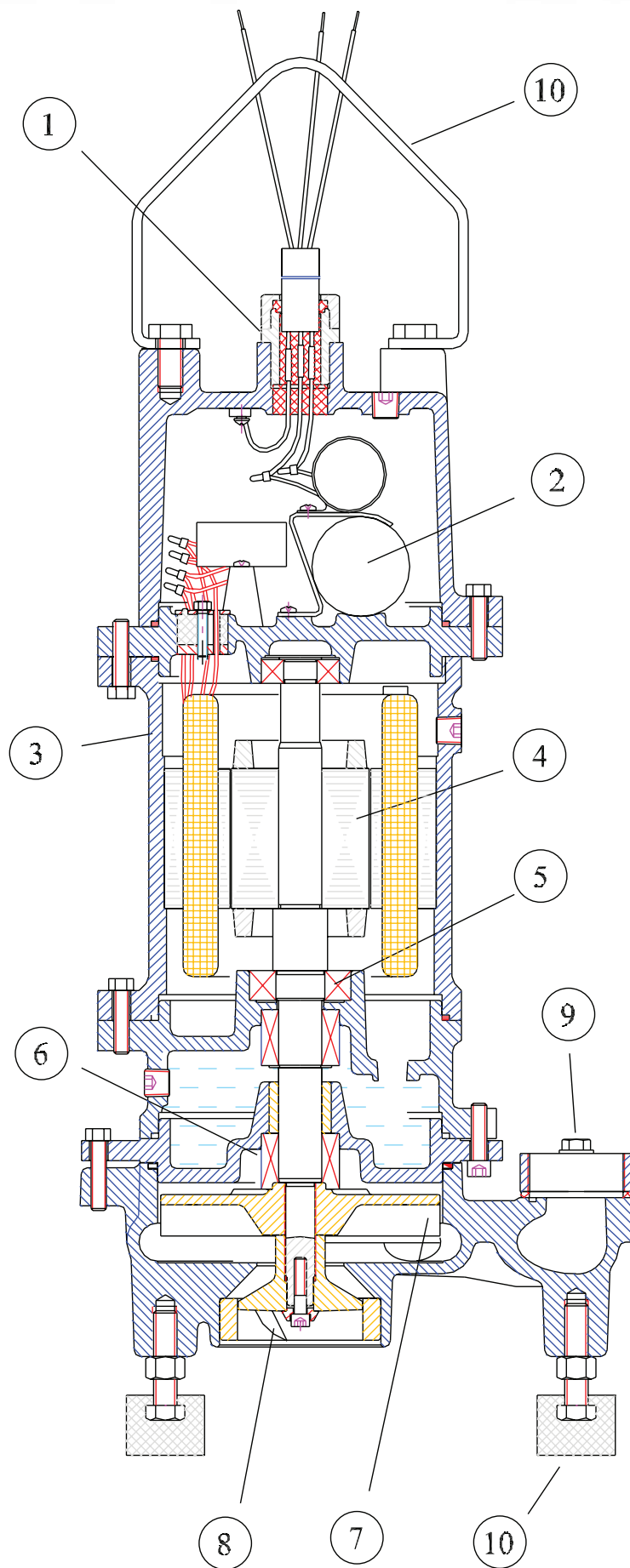
Hardened (Rockwell 56-60) stainless steel grinder assembly has 30+ years proven field experience. The reversible grinder ring and grinder impeller effectively reduces solids into a fine slurry, easily passable in a piping system without concerns of clogging. Highly efficient G2-11SI & G2-21HI 7,400 (G2-21SI 16,600) cuts per second.

9. Easy Piping Connection

Removable 1-1/4" NPT connection flange for simple and easy connection to discharge piping.

10. Accessories Included

Stainless steel lifting handle and anti-vibration rubber mounting feet are included with the pump.



External Start Components



The MDI grinder pumps easily handle residential, light commercial or industrial sanitary waste, reducing it to fine slurry. The **G2-21SE (G2-21SE)** pump is designed for use in pressure sewer applications or any piping network.

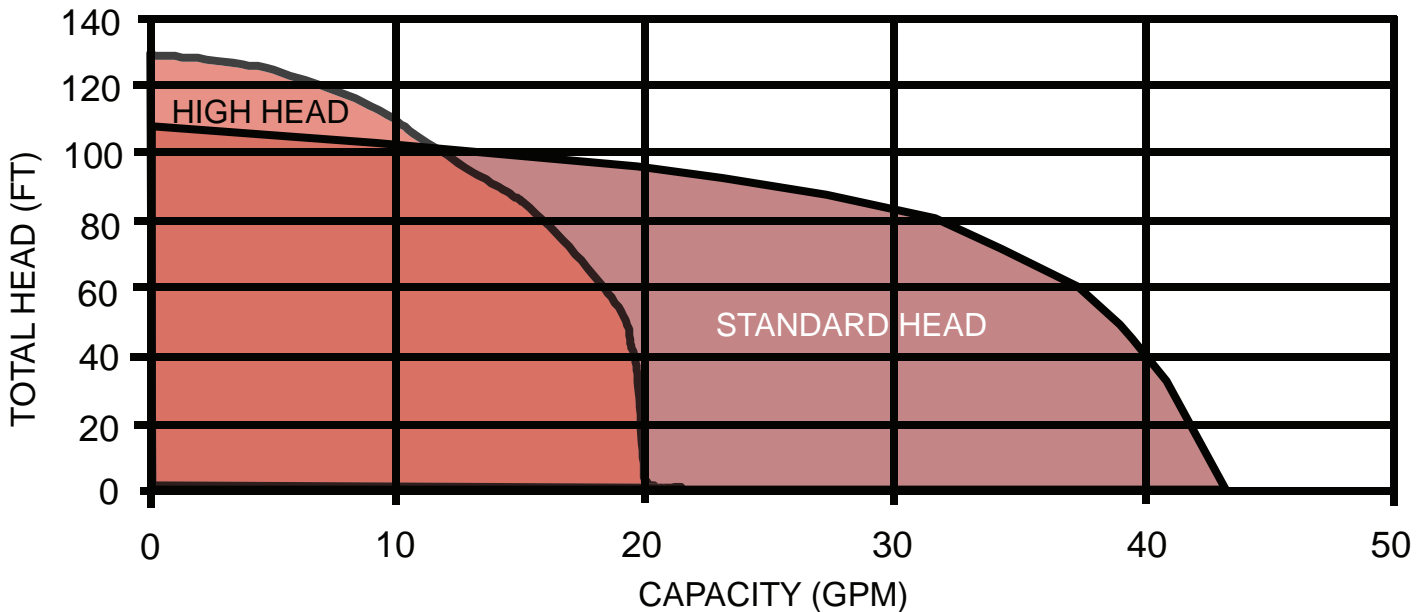
The recessed vortex impeller design of the **G2-21SE (G2-21SE)** grinder pump provides trouble free, non-overloading operation over the entire performance curve. The **G2-21SE** pump produces capacities to 43 gpm with heads to 106 feet (**G2-21HI** produces 20 gpm to 130 gpm).

The **G2-21SE (G2-21SE)** grinder pump retrofits into many existing competitor pump installations. The **G2-21SE (G2-21SE)** pump operates with the same control panel and installation piping / rail system.

Some of the other **G2-21SE (G2-21SE)** series pump features:

- Interchangeable into competitor installations
- Dual mechanical seals (silicon carbide)
- Class H motor, internal overload protection
- 3 Bearing shaft support
- Internal moisture detection
- Strong, 2 HP motor 208V @ 14 AMPS / 230V @ 12.8 AMPS

Performance Curve



1. Triple Sealed Cable Entrance

Stainless steel strain relief cord grip with compression grommet protects outer cord jacket. Epoxy filled inner cord cap with individually soldered wires provide anti-wicking moisture protection to the motor even if power cable is cut or damaged.

2. Modular Pump Design

Commonality of parts across the pump product line minimizes the amount of parts required for servicing. Heavy duty ASTM A48, Class 30 cast iron components.

3. Strong Motor

High torque for powerful (208/230v) and reliable pump operation. Pressed stator securely holds motor and efficiently transfers heat. Class F insulation with overload protection in oil filled chamber for cool operation and long motor life.

4. 3-Bearing Support

Motor / Pump shaft securely held with upper and lower ball bearing plus addition sleeve bearing in lower seal chamber. Long 50,000 hour B-10 bearing life.

5. Double Mechanical Seal Protection

Dual silicon carbide mechanical shaft seals provide twice the moisture protection for the motor. Dual seals are housed in a secondary oil filled seal chamber. Tougher silicon carbide seals better handles sand, grit and abrasive materials.

6. Moisture Detection

Seal leak probe signals alarm in control panel for scheduled maintenance.

7. Non-Overloading Hydraulic Design

The recessed centrifugal impeller allows 100% performance curve operation from shut-off to maximum flow without damage to the pump or system. The recessed vortex impeller is out of the passageway of fluid flow, eliminating concerns of blockage or wear.

8. Proven Grinder Assembly

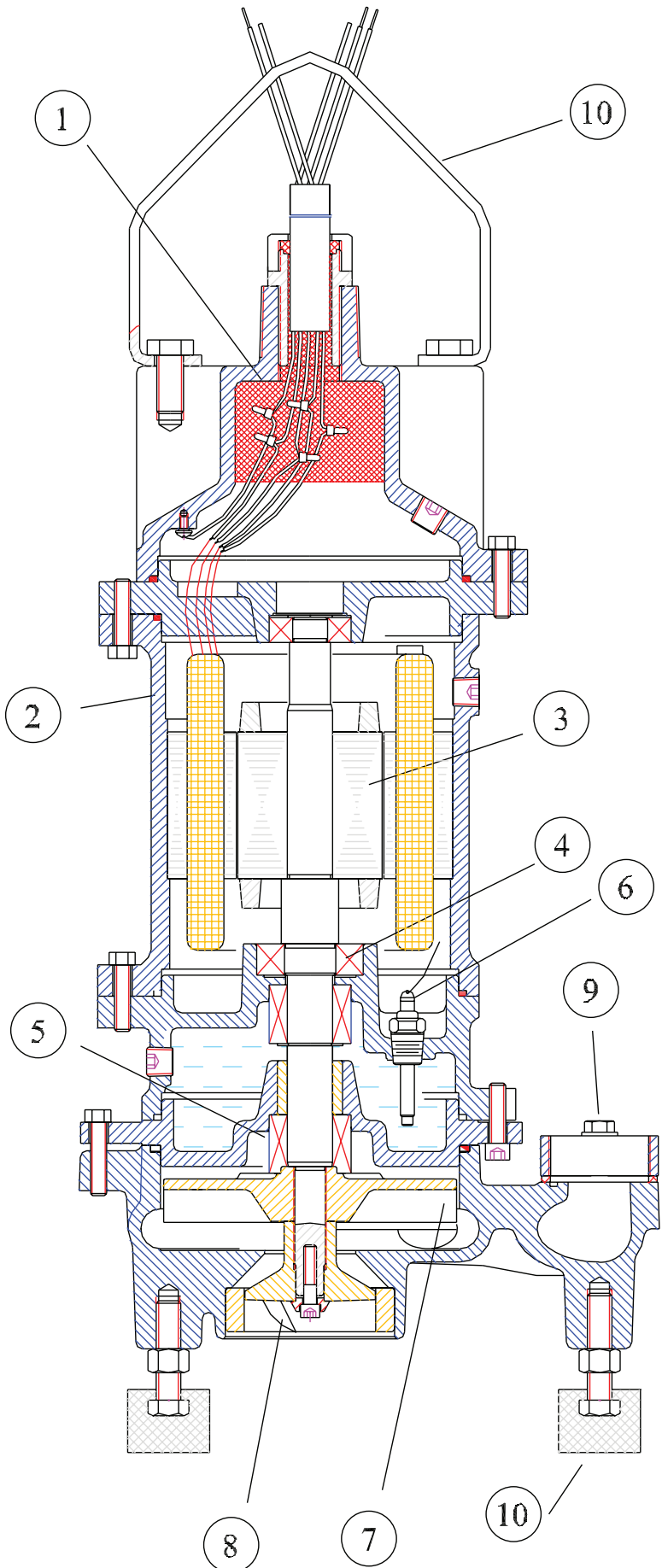
Hardened (Rockwell 56-60) stainless steel grinder assembly has 30+ years proven field experience. The reversible grinder ring and grinder impeller effectively reduces solids into a fine slurry, easily passable in a piping system without concerns of clogging. Highly efficient 16,600 (G2-21HI 7,400) cuts per second.

9. Easy Piping Connection

Removable 1-1/4" NPT connection flange for simple and easy connection to discharge piping.

10. Accessories Included

Stainless steel lifting handle and anti-vibration rubber mounting feet are included with the pump.



M4V - 4" Discharge

2 VANE ENCLOSED IMPELLER

- Efficient operation, non-clogging
- Most energy efficient design
- Pump-out vanes, prevents material build-up
- Pressure balance on shaft seal for long life
- Positive pumping action through impeller

STRONG PERFORMANCE

- Ideal for higher flows, lower heads
- Operate to shut-off head without damage
- Non-overloading performance curve

LONG SERVICE LIFE

- Dual silicon carbide shaft seals
- Low motor operation temperatures
- Continuously lubricated bearings
- Premium ball bearing construction
- Epoxy potted cord entry



LOW MAINTENANCE

- Easily replaceable impeller wear ring restores original pump performance
- Unobstructed impeller passageway
- Grit-resistant silicon carbide shaft seals
- Large, 3" diameter solids handling
- High service factor motor handles tough electrical operating conditions

Capabilities:

Flowsto 500 GPM
 Headsto 65 Feet
 HP Range3, 5, & 7.5 HP
 Voltage Options200 / 230 / 460 volt, 1 or 3 phase
 Discharge Connections ... 4" ANSI 150 lb Horizontal Flange
 Motor Speed1750 rpm
 Solids Handling3"
 Impeller2 Vane, Enclosed, Dynamically Balanced
 Minimum 1.15 Motor Service Factor

M4R - 4" Discharge

RECESSED IMPELLER

- Handles stringy and fibrous materials
- Passes larger solids
- Pumps heavier solids concentrations
- Ideal for grit and abrasive solids
- Pumping via vortex action
- Solids do not pass through impeller
- Virtually impossible to clog

LONG SERVICE LIFE

- Dual silicon carbide shaft seals
- Low motor operation temperatures
- Continuously lubricated bearings
- Premium 3 bearing construction
- Epoxy potted cord entry



LOW MAINTENANCE

- No wear components
- Recessed impeller out of passageway
- Grit-resistant silicon carbide shaft seals

STRONG PERFORMANCE

- Ideal for higher heads, lower flows
- Operate to shut-off head without damage
- Non-overloading performance curve

Capabilities:

Flowsto 600 GPM
 Headsto 92 Feet
 HP Range3, 5, & 7.5 HP
 Voltage Options200 / 230 / 460 volt, 1 or 3 phase
 Discharge Connections ... 4" ANSI 150 lb Horizontal Flange
 Motor Speed3450 rpm
 Solids Handling3"
 ImpellerRecessed, Vortex
 Minimum 1.15 Motor Service Factor

M4RC - 4" Discharge

PUMPS STRINGY FIBEROUS WASTE

- Recessed impeller out of passageway
- Solids can not get caught
- Pump-out vanes, prevent material build-up
- Completely open volute flow

HANDLES ALL OPERATING CONDITIONS

- Ideal for long pumping distances
- Handles challenging terrain conditions
- Entire performance curve
- No cavitation or vibration
- Adjusts to changing pumping conditions
- Operates near shut-off and / or wide open flow



LOW MAINTENANCE

- Unobstructed impeller passageway
- Grit-resistant silicon carbide shaft seals
- High service factor motor handles tough electrical operating conditions
- Recessed impeller minimizes radial bearing load, significantly increasing bearing life]

Capabilities:

Flowsto 750 GPM
 Headsto 260'
 HP Range15 to 40 HP
 Discharge Connections ... 4" ANSI 150 lb
 Motor Speed3450 rpm
 Solids Handling3"
 Minimum 1.15 Motor Service Factor

M4VL - 4" Discharge

HEAVY DUTY 4" NON-CLOG SERIES

- Handles aggressive pumping applications
- Strong pumping capacities
- Centerline volute discharge
- Smooth, quiet operation

STRONG PERFORMANCE

- Ideal for higher flows
- Positive pumping action through impeller
- Pump-out vanes, prevent material build-up
- Non-overloading performance curve

LONG SERVICE LIFE

- Dual silicon carbide shaft seals
- Low motor operation temperatures
- Continuously lubricated bearings
- Premium ball bearing construction
- Epoxy potted cord entry



LOW MAINTENANCE

- Easily replaceable impeller wear ring restores original pump performance
- Unobstructed impeller passageway
- Grit-resistant silicon carbide shaft seals
- Large, 3" diameter solids handling
- High service factor motor handles tough electrical operating conditions

Capabilities:

Flows to 1200 GPM
 Heads to 105 Feet
 HP Range 7.5 - 20 HP
 Voltage Options 208 / 230 / 460 volt, 3 phase
 Discharge Connections 4" ANSI 150 lb Horizontal Flange
 Motor Speed 1150 / 1750 rpm
 Solids Handling 3"
 Minimum 1.15 Motor Service Factor

MH Series - Large 6-24" Discharge

The pumps are equipped with high efficiency, inverter duty rated, Class H insulation motors. Electrical features include a fully automatic alarm protection system and liquid level control system, protecting the motor from water, oil, phase loss, overheating and grounding.

The MH Series non-clog pumps are designed for demanding services such as wastewater, municipal sewage treatment plants, storm water, industrial, commercial and a wide range of water handling applications.

The MH Series pumps feature a self-contained cooling jacket system, circulating impeller, heat exchanger plate and liquid refrigerant with a high boiling point (195 degree C). Standard construction allows for submersible and dry pit installations.

Capabilities:

Flows to 150'
 Heads to 20,000 GPM
 HP 50 to 350 HP
 Discharge Connections 6-24" Discharge
 Voltage Options 208/230/460 3-Phase
 Minimum 1.15 Motor Service Factor

ACCESSORIES

- Lift-out base elbow assemblies
- Guide rail system / components
- Engineered control panels



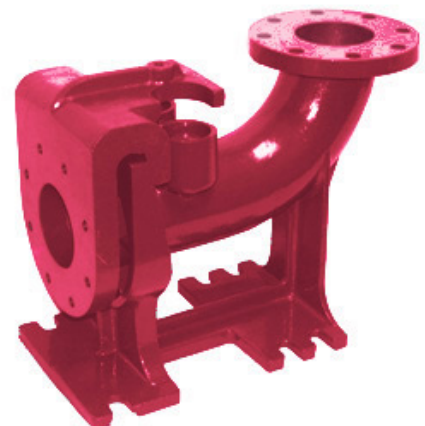
ML4 - 4 & 6" Lift Out Rail System

- 4" or 6" 150lb. ANSI Flange (Pump Connection Discharge)
- 1-1/2" or 2" Guide Rails for 4" or 2" Guide Rails only for 6"
- Rated For Pumps up to 2,000 lb.
- Dimensionally interchangeable with Flygt

MDI 4" Base elbow assemblies feature a rugged ductile iron construction with durable power coating for corrosion resistance.

The MDI ML4 Base Elbow Assembly is available in 3 options:

- Metal to Metal design with stainless steel Break-away ring
- BUNA-N Sealing / Break-away Ring
- Heavy Duty Rubber Gaskets



Perfect for Sewage, Sludge and Slurries



Features / Benefits

- Durable cage design with large diameter 316 SS diaphragm seal that is nonclogging and damage resistant to floating solids
- Incorporates lightning and surge protection utilizing dual arrestor technology, grounded to case, eliminating both power supply surges and lightning ground strike transients (surge protection is not guaranteed and is not covered by warranty) on PBLT2 models
- Maintenance free filter eliminates particulate or water droplets from entering and damaging the transducer
- UL approved intrinsically safe on PBLTX models for use in hazardous locations when used with proper barrier
- Excellent chemical compatibility for wide application use
- NPT connection allows the unit to be rigidly installed in a pipe/conduit, or the addition of a A-625 hanging loop for attaching a chain for pulling out of the installation

Applications

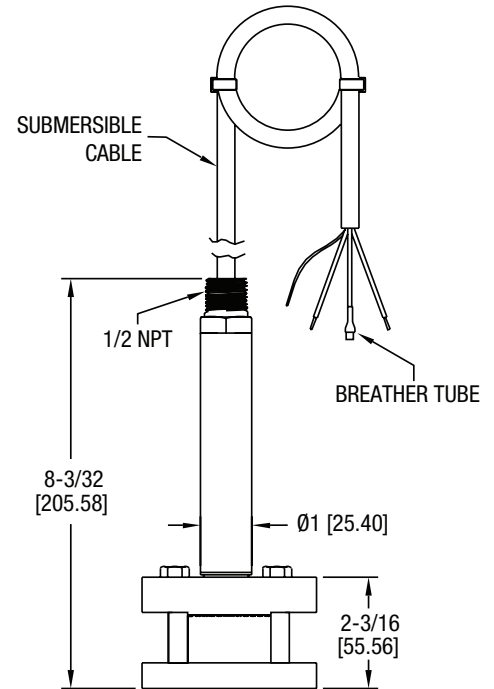
- Wastewater
- Sludge pits, clarifiers, digesters
- Alum tanks
- Chemical storage tanks
- Oil tanks
- Lime slurry
- Sumps
- Reservoirs

Description

The SERIES PBLT2 & PBLTX Submersible Level Transmitters are manufactured for years of trouble free service in the harshest applications. This Series measures the height of liquid above the position in the tank referenced to atmospheric pressure. The transmitter consists of a piezoresistive sensing element, encased in a 316 SS housing with cage and large diameter 316 SS diaphragm seal.

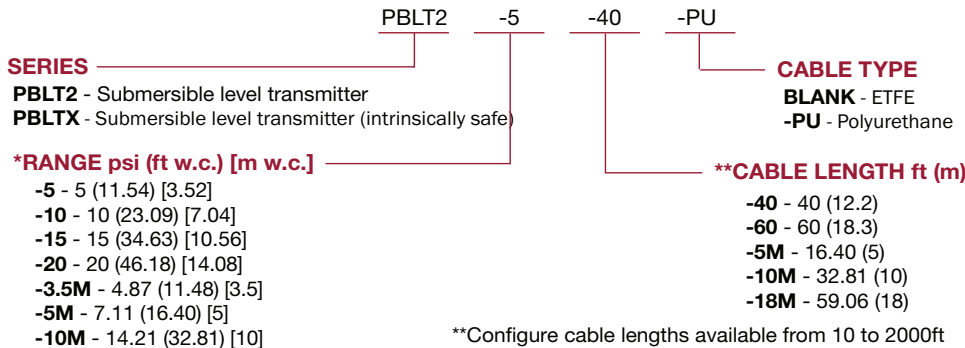
Specifications

Service	Compatible liquids.
Wetted Materials	316 SS, 316L SS, epoxy, cable: ETFE or polyurethane.
Accuracy	±0.25% FS (includes linearity, hysteresis, and repeatability)*.
Temperature Limit	PBLT2: 0 to 200°F (-18 to 93°C); PBLTX: 0 to 176°F (18 to 80°C).
Compensated Temperature Range	PBLT2: 0 to 180°F (-18 to 82°C); PBLTX: 0 to 176°F (18 to 80°C).
Thermal Effect	±0.02% FS/°F.
Pressure Limit	2X FS.
Power Requirement	PBLT2: 13 to 30 VDC, PBLTX: 10 to 28 VDC.
Output Signal	4 to 20 mA DC, two wire.
Response Time	50 ms.
Loop Resistance	900 Ω.
Electrical Connection	Wire pigtail.
Mounting Orientation	Suspended in tank below level being measured.
Electrical Protection	PBLT2: Lightning and surge protection, PBLTX: none.
Weight	4.3 lb (2.0 kg).
Agency Approvals	PBLT2: CE, PBLTX: CE, cULus intrinsically safe for Class I, Div. 1, Groups A, B, C, & D; Class II, Dev. 1, Groups E, F, & G; Class III, Div. 1. **
*Configured ranges below 5 psi (11.54 ft w.c.) (3.52 m w.c.) ±1% FS accuracy	
**Up to 196 ft (59.5 m) for ETFE cable; Up to 333 ft (101.5 m) for polyurethane cable	



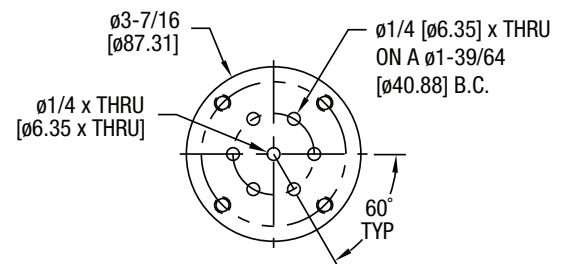
How to Order

Use the **bold** characters from the chart below to construct a product code.

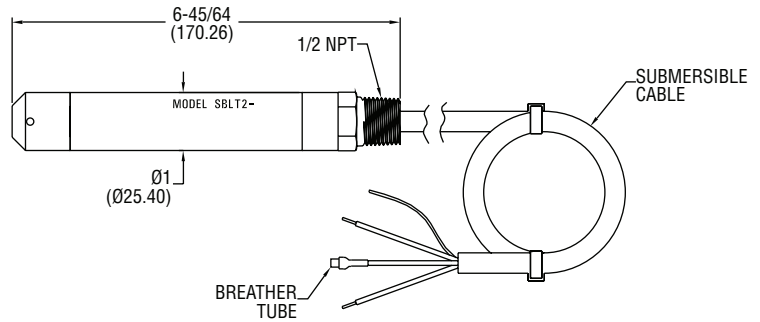


**Configure cable lengths available from 10 to 2000ft (3 to 610 m)

*Additional pressure ranges available, consult factory



Perfect for Ground Waters and Wells



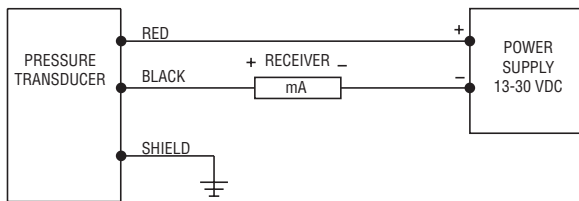
The SBLT2 Submersible Level Transducer is manufactured for years of trouble free service. The transmitter consists of a piezoresistive sensing element, encased in a 316 SS housing. Superior lightning and surge protection utilizing dual arrestor technology, grounded to case, eliminating both power supply surges and lightning ground strike transients (surge protection is not guaranteed and is not covered by warranty). Bullet nose design protects diaphragm from damage. Comes equipped with a 270-pound tensile strength, shielded, vented cable. Ventilation tube in the cable automatically compensates for changes in atmospheric pressure above the tank.

Applications

Well monitoring; Ground water monitoring; Environmental remediation; Surface water monitoring; Down hole; Water Tanks.

Electrical Installation

An external power supply delivering 13-30 VDC with minimum current capability of 40 mA DC (per transmitter) is required to power the control loop. See figure below for connection of the power supply, transmitter and receiver.



The maximum receiver load resistance (RLmax) for the DC power supply voltage (Vsup) is expressed by the formula:

$$RL_{max} = \frac{V_{sup} - 13V}{0.02A}$$

Shielded cable is recommended for control loop wiring.

Intrinsically Safe Approval:

Change model number from SBLT2 to SBLTX

Custom ranges or Cable Lengths - Contact MDI

Specifications

Service: Compatible liquids.

Wetted Materials: 316 SS, 316L SS, epoxy adhesive;

Cable: Polyether polyurethane or ETFE;

Bullet Nose: PVC.

Accuracy: ±0.25% of full scale.

Temperature Limit: 0 to 150°F (-18 to 66°C).

Compensated Temperature Range: 0 to 140°F (-18 to 60°C).

Thermal Effect: Less than ±0.02%/°F.

Pressure Limit: 2X full scale.

Power Requirement: 13 to 30 VDC.

Output Signal: 4 to 20 mA DC, 2-wire.

Response Time: 50 ms.

Max. Loop Resistance: 850 ohms at 30 VDC.

Electrical Connections: Wire pigtail.

Mounting Orientation: Suspended in tank below level being measured.

Weight: 2.2 lb (1.0 kg).

Electrical Protection: Lightning and surge protection.

WARNING:

A voltage potential between the ground wire of the unit and the ground of other equipment can lead to electrolytic corrosion. Always ensure the grounding system provides an equipotential between the transmitter and the earthing ground connection. Avoid using the power system protective ground since this will often have a significant potential difference to the transmitter ground. Also note that dissimilar metals in the ground system may cause electrolysis corrosion of the transmitter or other components in the ground system.

During installation, connect a voltmeter or ammeter between the shield ground wire and the grounding connection. If there is a measurable voltage or current electrolytic corrosion may be a serious possibility. If there is a potential difference then some isolation system will be required. Improper grounding may lead to damage or poor signal integrity.

Model	Range psi (ft w.c.) [m w.c.]	Cable Length ft (m)	Cable Type
SBLT2-5-40-ETFE	5 (11.54) [3.52]	40 (12.2)	ETFE
SBLT2-10-40-ETFE	10 (23.09) [7.04]	40 (12.2)	ETFE
SBLT2-15-60-ETFE	15 (34.63) [10.56]	60 (18.3)	ETFE
SBLT2-20-60-ETFE	20 (46.18) [14.08]	60 (18.3)	ETFE
SBLT2-5-40	5 (11.54) [3.52]	40 (12.2)	Polyurethane
SBLT2-10-40	10 (23.09) [7.04]	40 (12.2)	Polyurethane
SBLT2-15-60	15 (34.63) [10.56]	60 (18.3)	Polyurethane
SBLT2-20-60	20 (46.18) [14.08]	60 (18.3)	Polyurethane
SBLT2-3.5M-5M	4.97 (11.48) [3.5]	16.40 (5)	Polyurethane
SBLT2-5M-10M	14.21 (32.81) [10]	32.81 (10)	Polyurethane
SBLT2-10M-18M	25.58 (59.06) [18]	59.06 (18)	Polyurethane

WARRANTY

MDI Inc., warrants its products to be free from defects in material or workmanship (length varies depending on product), and will replace any units with such defects. Warranty is void if units are improperly applied. All repairs are to be done by MDI in their facility. The purchaser is responsible for pump removal and re-installation. MDI Inc. shall not be liable for any consequential, incidental, or contingent damages whatsoever. The forgoing Warranty is exclusive to MDI products and in lieu of all other express or implied Warranties, including but not limited to the implied Warranties of merchantability and fitness for a particular purpose.



We can cross-reference any competitors products. Over 125 years experience in the business.

**To recycle used Mercury floats, contactors, & switches
Return to or Contact MDI Inc.
1-800-634-4077 or www.mdius.com**

**Post Office Box 710 - U.S. 12 East - Edwardsburg, Michigan 49112-0710
PHONE (269) 663-8574 - FAX (269) 663-2924
1-800-MDI-4077 - 1-800-634-4077
www.mdius.com**