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Wastewater Product Catalog

GOULDS WATER TECHNOLOGY
xylem

Wastewater systems

Accessories

Electrical

Elevator kits and components

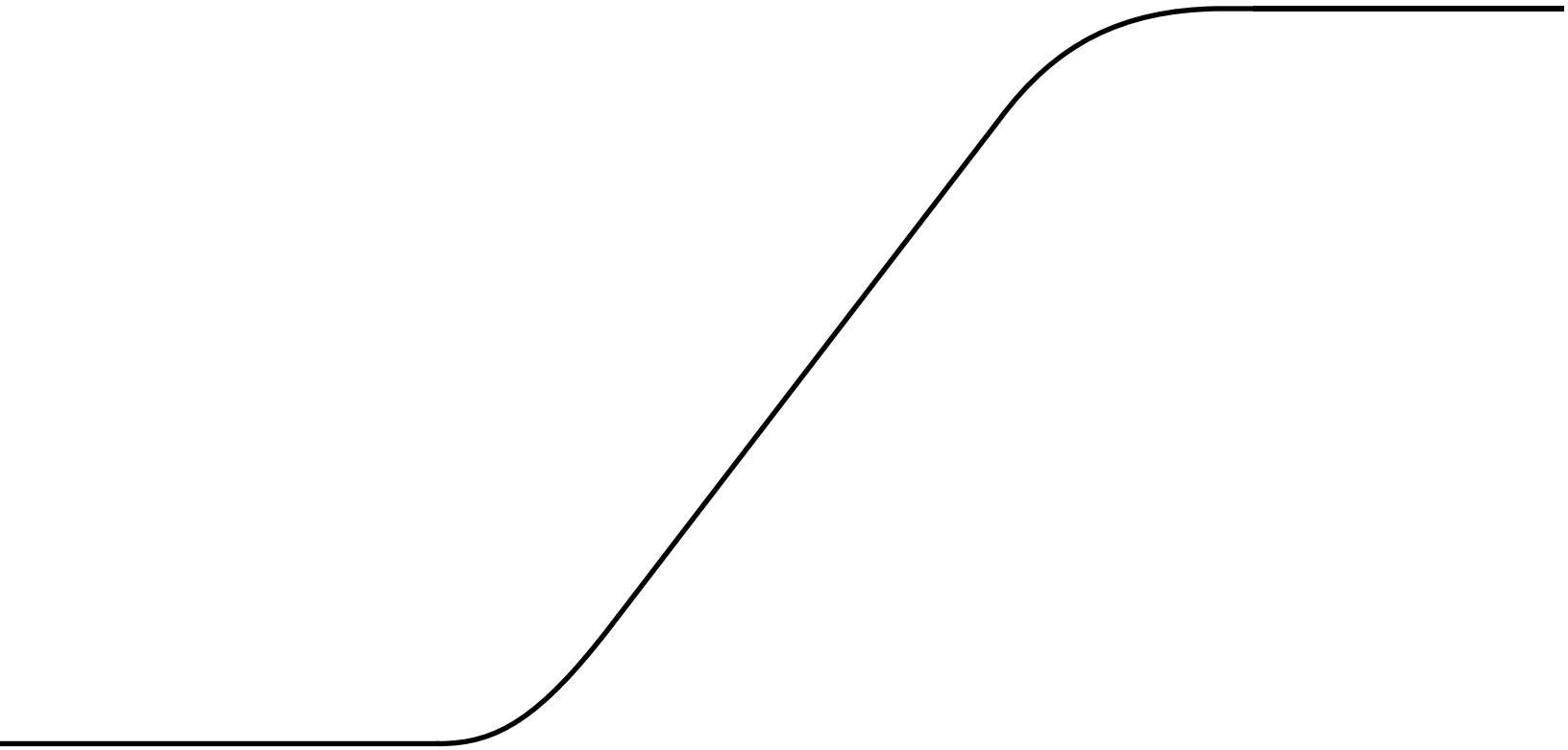
Floats and alarms

Basins and accessories

Fittings

Technical data

Sump pumps



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Let's Solve Water

TECHNICAL BROCHURE
BGSP0305 R3

GSP

CAST IRON SUMP AND EFFLUENT PUMPS

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

- Reliable mechanical switch coupled with solid float for dependable performance
- Oil-cooled motor permanently lubricated for extended service life and is powered for continuous operation
- Premium mechanical seal design provides superior protection against sand and abrasive damage (Silicon Carbide/Carbon/BUNA)
- Vortex impeller can handle solids up to ½" in size and resist clogging better than a traditional two-vane impeller
- Cast iron motor housing for optimal heat dissipation
- Corrosion resistant hardware for lifetime use
- Cast iron suction strainer encompasses entire base-designed to reduce debris entry (available on 0511 models)
- Built-in vent hole prevents air-binding with no added labor
- Upper and lower sleeve bearings
- Heavy duty, portable and compact unit
- Approved for Residential use (CSA/CUS Listed)
- Three (3) year standard warranty

APPLICATIONS

Specially designed for the following uses:

- Basement draining
- Water transfer
- Dewatering
- Filtered effluent

SPECIFICATIONS

- Discharge size: 1 ½" NPT
- Capacities: to 43 gpm
- Maximum head: 22 foot TDH
- Maximum solids handling: ½" spherical
- Impeller: vortex
- Temperature: 130° F (54° C)
- Mechanical seal: Silicon Carbide/Carbon/BUNA

MOTOR

- 1/3 hp, 115V, 60 Hz, single phase, 10 amps maximum, 1550 rpm
- ½ hp, 115V, 60 Hz, single phase, 8 amps maximum, 1550 rpm
- Automatic vertical float, manual float switch option
- Built-in thermal overload protection
- Oil filled design
- 1/3 hp power cord: Nine (9) foot standard length with NEMA 5-15P plug (automatic model also available with 25 foot power cord)
- ½ hp power cord: 15 foot standard length with NEMA 5-15P plug

AGENCY LISTINGS

Tested to UL778 CAN 22.2 by
CSA International (Canadian Standards Association)

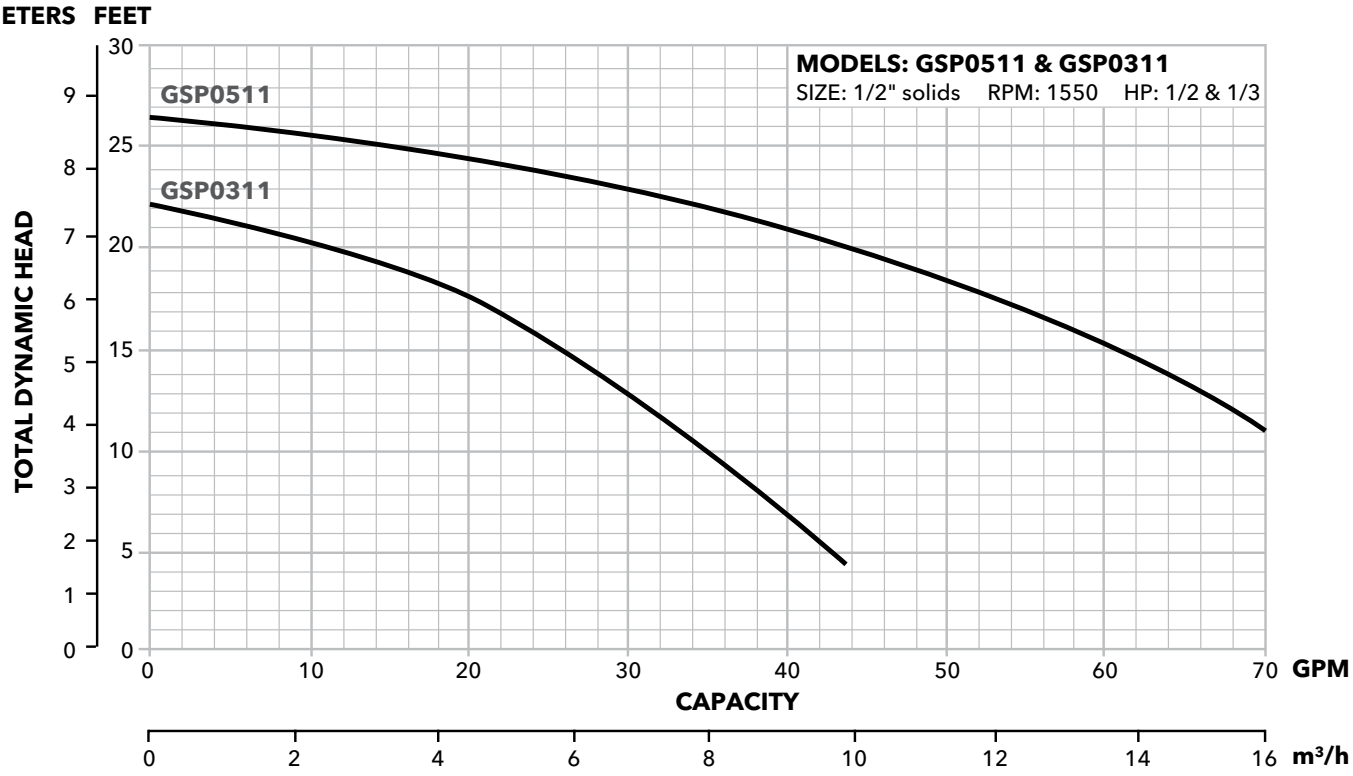
MATERIALS OF CONSTRUCTION

Part Name	Material
Impeller	Thermoplastic (Nylon)
Casing	Cast Iron Motor Housing
Base/Volute/Strainer	Cast Iron
Motor Adapter	Cast Iron
Mechanical Seal	Silicon Carbide/Carbon/BUNA
Cord and Current	18 AWG, SJTW
Mechanical Switch	cURus listed, 15A, 125V
Fasteners	Stainless Steel
Handle	Stainless Steel
Float Bracket	Stainless Steel

REPAIR PARTS

Part Description	Part No.	Part
GSP-SWITCH	9K701	Switch Assembly with Gasket and Hardware

PERFORMANCE CURVES



MODEL INFORMATION

Model	Part No.	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Minimum On Level	Minimum Off Level	Minimum Basin Diameter	Max. Solids Size	Shipping Weight
GSP	GSP0311	1/3	115	10	15A	1	Vertical	9'	1 1/2"	7 1/4"	3 1/2″	1'	1/2"	27 lbs
GSP	GSP0311M	1/3	115	10	15A	1	Not Supplied	9'	1 1/2"	–	–	1'	1/2"	27 lbs
GSP	GSP0311-25	1/3	115	10	15A	1	Vertical	25'	1 1/2"	7 1/4"	3 1/2"	1'	1/2"	28 lbs
GSP	GSP0511	1/2	115	8	15A	1	Vertical	15'	1 1/2"	8 1/2"	3″	1'	1/2"	38 lbs
GSP	GSP0511M	1/2	115	8	15A	1	Not Supplied	15'	1 1/2"	–	–	1'	1/2"	37 lbs

GSP0311 PERFORMANCE RATINGS

Total Head (feet of water)	GPM	GPH
5	42	2520
10	35	2100
15	26	1560
20	11	660

GSP0511 PERFORMANCE RATINGS

Total Head (feet of water)	GPM	GPH
10	71	4260
15	56	3360
20	38	2280
23	20	1200

DIMENSIONS

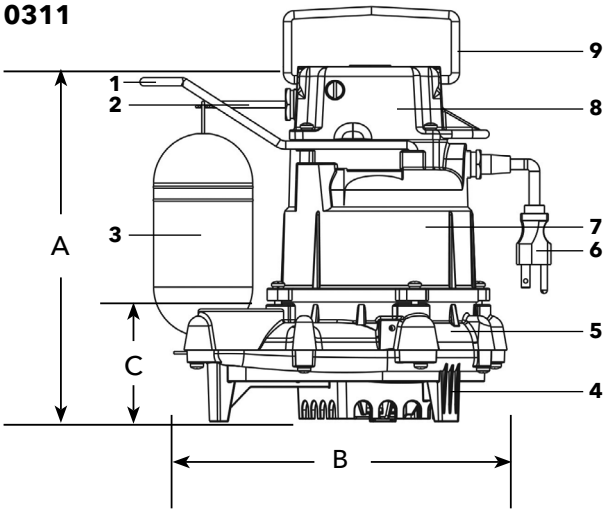
	A	B	C	D	E
GSP0311	10.2"	11.8"	3.25"	7.5"	11.8"
GSP0311M	10.2"	10.4"	3.25"	7.5"	10.4"
GSP0511	12"	10.6"	5"	7.4"	10.6"
GSP0511M	12"	9.4"	5"	7.4"	9.4"

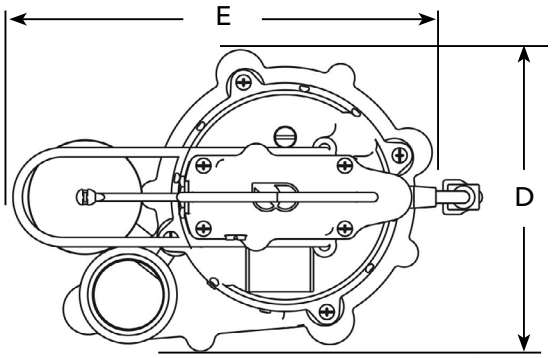
COMPONENTS

Item No.	Description
1	Float Bracket
2	Float Rod
3	Float
4	Base
5	Seal Housing

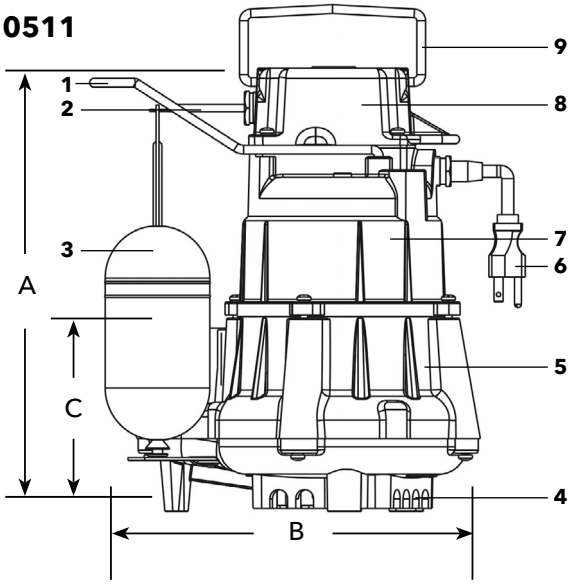
Item No.	Description
6	Plug
7	Motor Dome
8	Mechanical Switch Housing
9	Handle

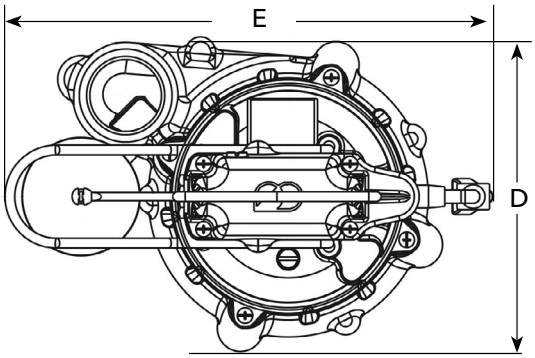
0311





0511





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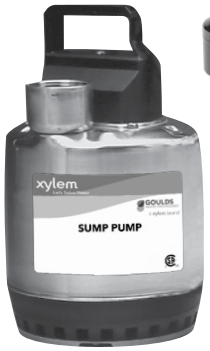
LSPO3AT

LSPO3AV



LSPO7

TECHNICAL BROCHURE
BLSP03 R2

LSP03/LSP07

SUBMERSIBLE SUMP PUMPS

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Corrosion-resistant construction

Stainless Steel motor casing and fasteners

Glass-filled thermoplastic impeller and casing

Upper and lower heavy duty ball bearing construction

Motor is permanently lubricated for extended service life and is powered for continuous operation. All ratings are within the working limits of the motor

Hard coated 400 series stainless steel shaft for improved corrosion resistance

Float switch is adjustable for various liquid levels. Easily removed for direct pump operation or switch replacement

Complete unit is lightweight, portable and easy to service

Available in manual and automatic versions. See next page for specific order numbers

A double labyrinth lip seal system protects the motor. It consists of three lip seals and a V-ring in addition to an impeller counterblade system which keeps solid particles away from the seal unit

APPLICATIONS

Specially designed for the following uses:

- Basement draining
- Water transfer
- Dewatering

SPECIFICATIONS

- Discharge size: 1 ½" NPT
- Capacities: to 57 GPM
- Maximum head: 34 feet TDH
- Maximum solids: ⅜" spherical
- Temperature: 104° F (40° C) maximum liquid temperature.
- Maximum pump submergence is 10 ft. for LSP03; 16 ft. for LSP07

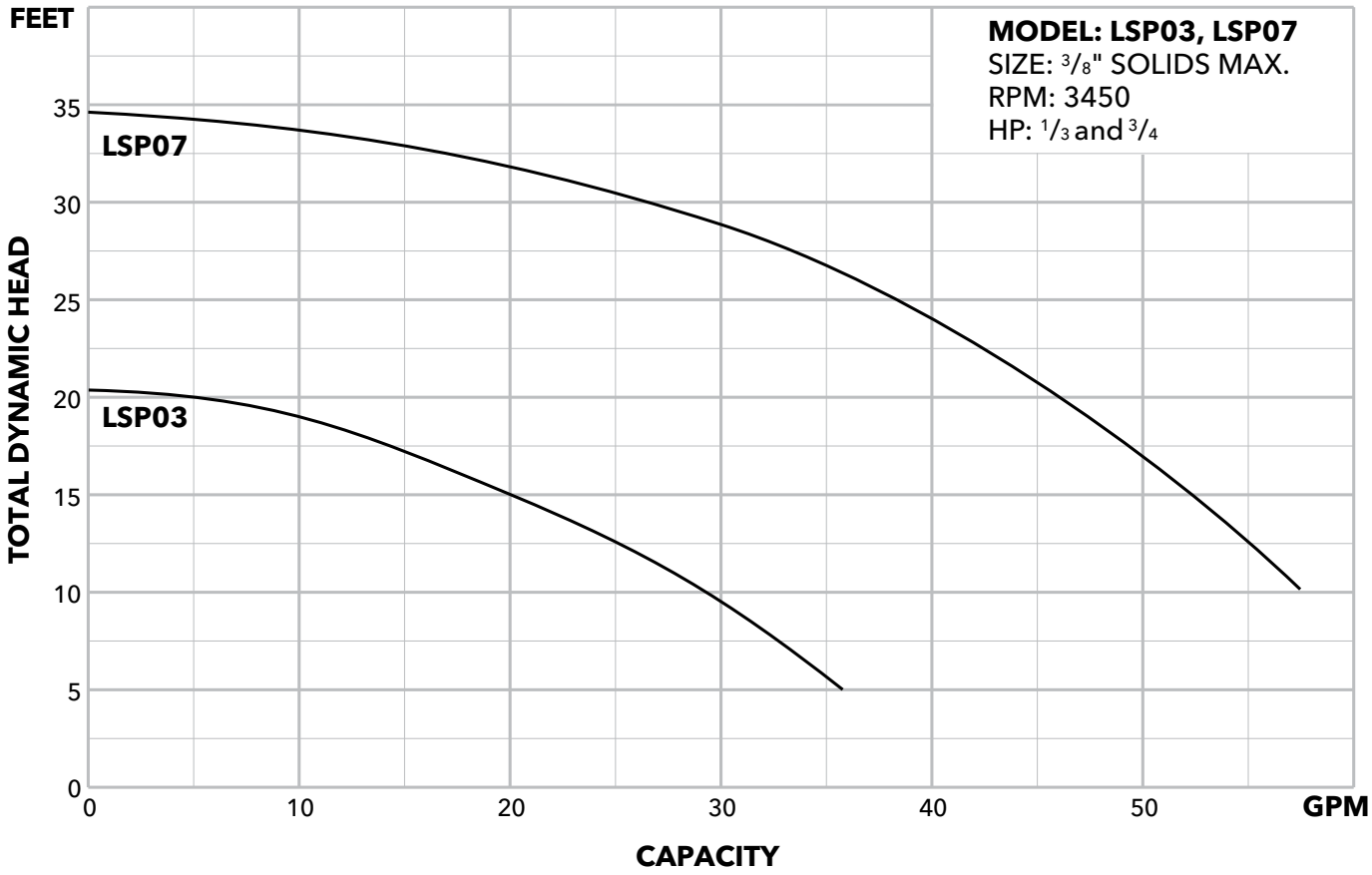
MOTOR

- Single phase, 3450 RPM, 60 Hz
  - LSP03, ⅓ HP, 115 V, 2.9 maximum amps
  - LSP07, ¾ HP, 115 V (7.1 amps) or 230 V (3.5 amps)
- Built-in thermal overload protection with automatic reset
- Permanent-split-capacitor type
- Class B insulation
- Stainless steel shaft
- Air filled design
- Power cord length: LSP03; 10 feet standard, 20 feet optional, LSP07; 20 feet

AGENCY LISTINGS

Canadian Standards Association
File #LR114251

Underwriters Laboratories
File #83318



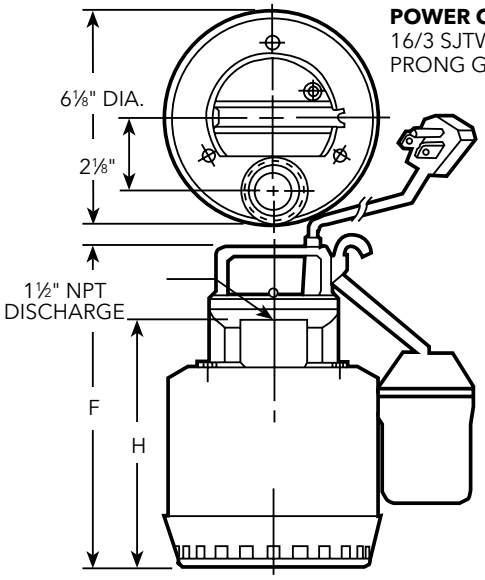
MODEL INFORMATION

Order No.	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Min. On Level	Min. Off Level	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs/kg
LSP0311	⅓	115	2.9	10	1	Plug / No Switch	10'	1½"	Manual	Manual	9"	⅜"	11 / 5
LSP0311A						Built-In Wide Angle			11"	5"	12"		
LSP0311AT						Piggyback Wide Angle			11"	5"	12"		
LSP0311AV						Piggyback Vertical			8.5"	2"	12"		
LSP0311F						Plug / No Switch	20'		Manual	Manual	9"		
LSP0311AF						Built-In Wide Angle			11"	5"	12"		
LSP0311ATF						Piggyback Wide Angle			11″	5"	12"		
LSP0711F	¾	115	7.1			Plug / No Switch	20'		Manual	Manual	9"		15 / 6.8
LSP0711AF						Built-In Wide Angle			12.5"	6.5"	12"		
LSP0711ATF						Piggyback Wide Angle			12.5"	6.5"	12"		
LSP0712F		230	3.5			Plug / No Switch			Manual	Manual	9"		
LSP0712AF						Built-In Wide Angle			12.5"	6.5"	12"		
LSP0712ATF						Piggyback Wide Angle			12.5"	6.5"	12"		

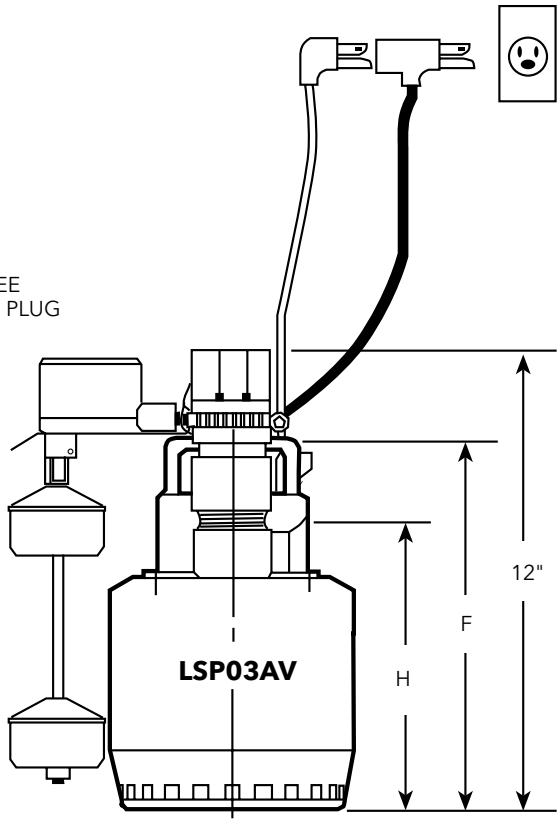
DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)

	F	H
LSP03	9¾	7⅝
LSP07	11¼	9⅛
LSP03AV	9¾	7⅝



POWER CORD:
16/3 SJTW WITH THREE
PRONG GROUNDING PLUG



FEATURES

Impeller: Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

Casing: Cast iron volute type for maximum efficiency. 2" NPT discharge.

Mechanical Seal: Silicon Carbide vs. Silicon Carbide sealing faces. Stainless steel metal parts, BUNA-N elastomers.

Shaft: Corrosion-resistant, stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel.

Temperature rating 200°F for continuous operation when fully submerged.

Capable of running dry without damage to components.

WEHT Series

Model 3885HT

SUBMERSIBLE HIGH TEMPERATURE SUMP PUMPS

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Specifically designed for the following uses:

- Boiler blow down, high temp condensate

SPECIFICATIONS

Pump

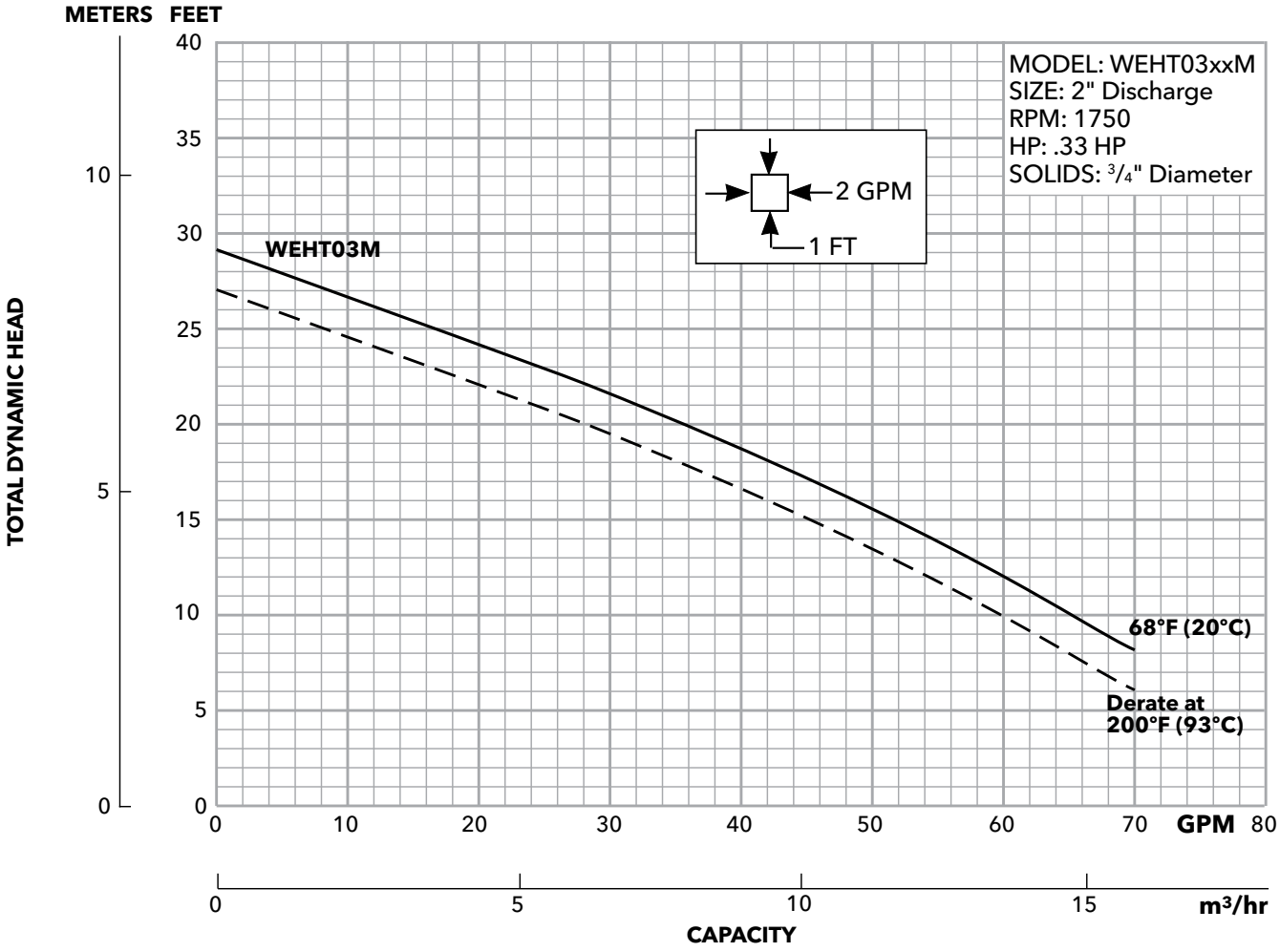
- Solids handling capabilities: ¾" maximum
- Discharge size: 2" NPT
- Capacities: up to 70 GPM
- Total heads: up to 27 feet TDH
- Temperature:
  200°F (93°C) continuous, fully submerged
- See order numbers on reverse side for specific HP, voltage and phase.
- Available with 1½" connection and high temp float if required. See model chart on page 3.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation

Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.
- SJOOW severe duty oil and water resistant power cords, rated for high temperature.
- Models have NEMA three prong grounding plugs.

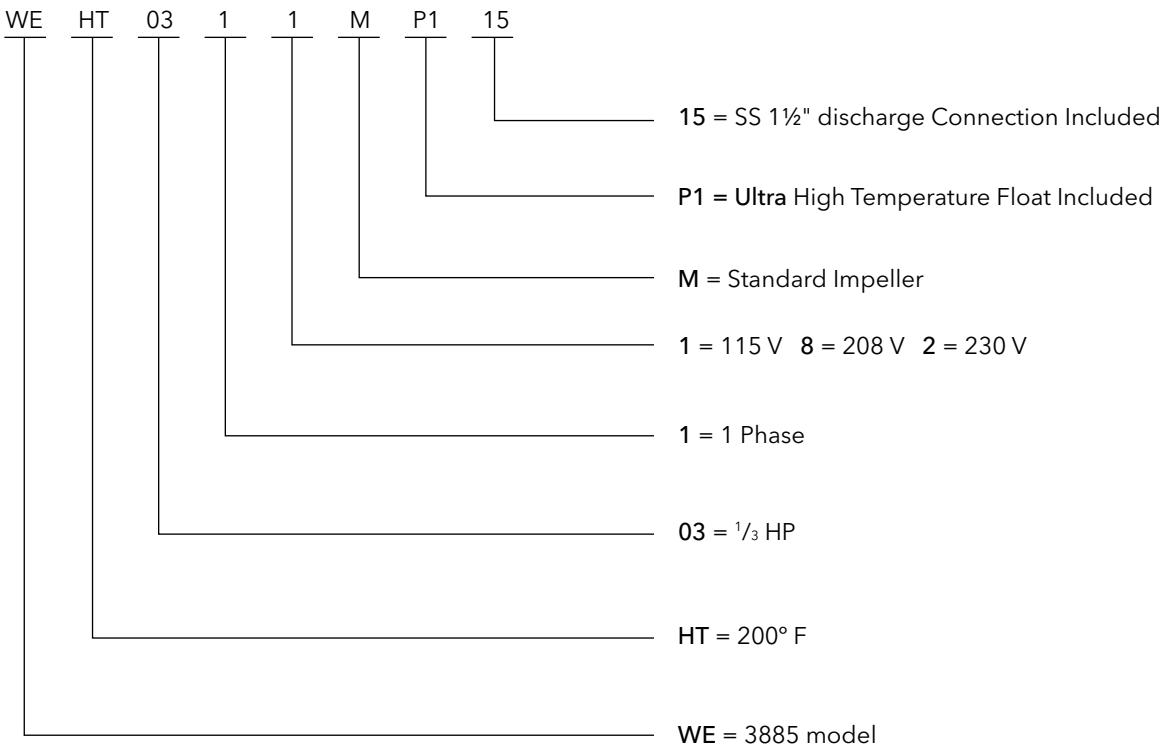


MODELS

Order Number	HP	Phase	Volts	RPM	Impeller Dia. (In.)	Max. Amps	LRA	KVA Code	Full Load Motor Eff.	Resistance		Wt. (Lbs.)	Operation	Discharge
										Start	Line-Line			
WEHT0311M	1/3	1	115	1750	5.38"	12	31.1	J	55	9.3	1.4	56	Manual	2"
WEHT0318M			208			7.3	19.5	K	51	9.1	4.2			
WEHT0312M			230			6.1	16.5	J	54	11.7	5.6			
WEHT0311M15			115			12	31.1	J	55	9.3	1.4			1½"
WEHT0318M15			208			7.3	19.5	K	51	9.1	4.2			
WEHT0312M15			230			6.1	16.5	J	54	11.7	5.6			
WEHT0311MP1			115			12	31.1	J	55	9.3	1.4		Automatic Float Included	2"
WEHT0318MP1			208			7.3	19.5	K	51	9.1	4.2			
WEHT0312MP1			230			6.1	16.5	J	54	11.7	5.6			
WEHT0311MP115			115			12	31.1	J	55	9.3	1.4			1½"
WEHT0318MP115			208			7.3	19.5	K	51	9.1	4.2			
WEHT0312MP115			230			6.1	16.5	J	54	11.7	5.6			

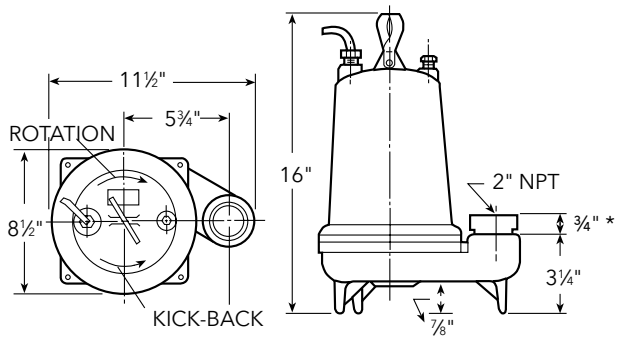
Accessory part numbers: A2SJRHT31 – 115V and A2SJRHT32 – 208 and 230V (ultra high-temperature float switch)

NOMENCLATURE



DIMENSIONS

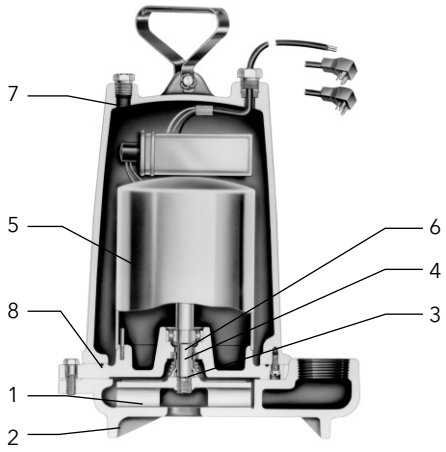
(All dimensions are in inches. Do not use for construction purposes.)



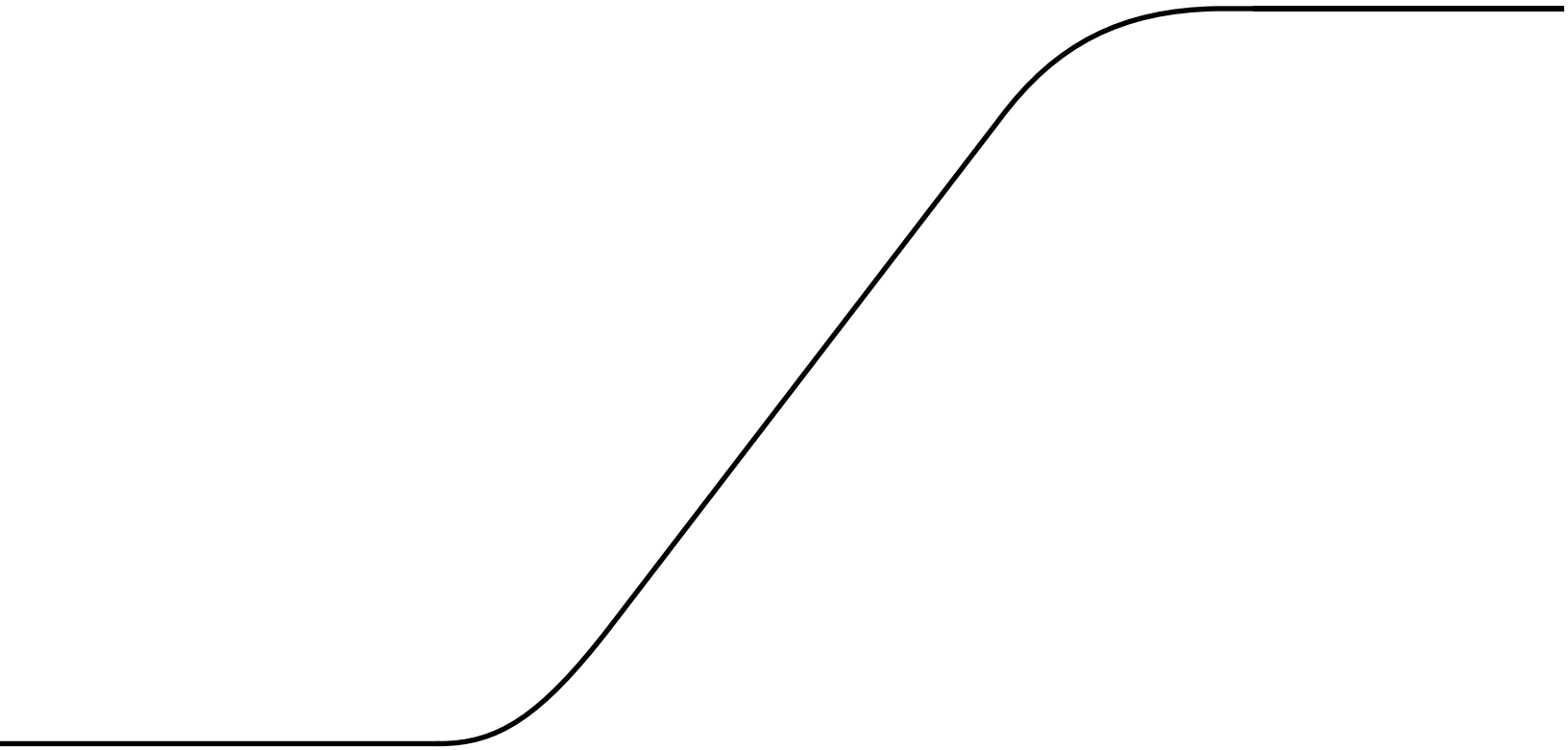
* 2" x 1½" adapter if used

COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring



Dewatering



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Let's Solve Water

TECHNICAL BROCHURE
B1DW R5

1DW

SUBMERSIBLE DEWATERING PUMP

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: AISI 304 SS open impeller

Diffuser Plate: AISI 304 SS with Polyurethane coating for maximum resistance to abrasion.

Casing: AISI 304 SS

Mechanical Seal: Silicon carbide sealing faces, all metal components of AISI type 300 stainless steel running in protected oil chamber.

Elastomers: BUNA-N

Shaft: AISI type 304 stainless steel high strength pump shaft with keyed and locking cap screw impeller fastening.

Motor: Air filled class F insulated design for continuous use.

Designed for Continuous Operation: Pump ratings are within the motor's working limits and can be operated continuously without damage.

Bearings: Upper and lower heavy duty ball bearing construction.

APPLICATIONS

Specifically designed for the following uses:

- Handling dirty waters
- Draining ditches and pits
- Excavating in the building trades
- Water transfer
- Industrial water drainage or transfer

SPECIFICATIONS

Pump:

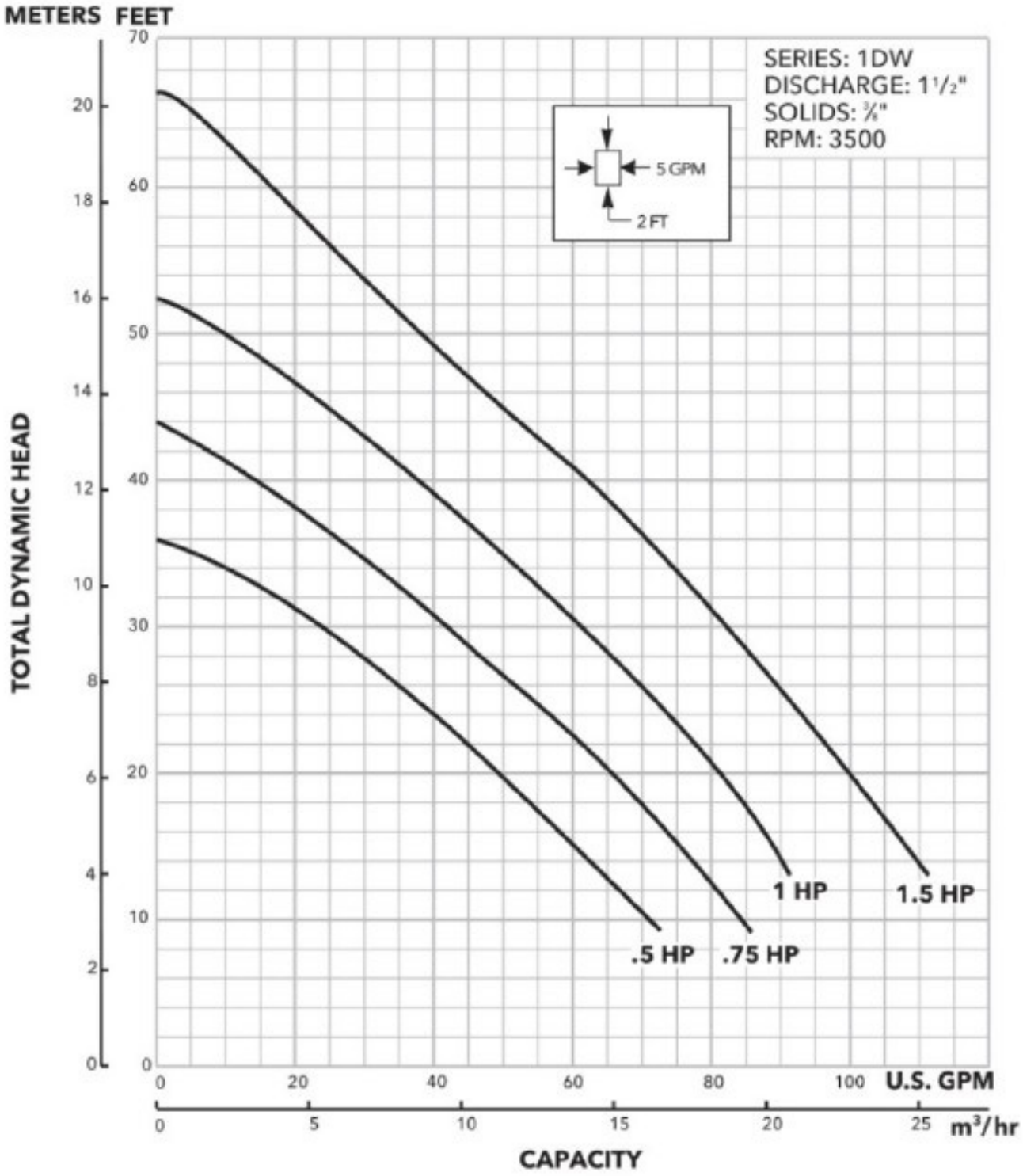
- Discharge size: 1½" NPT
- Capacities: up to 110 GPM
- Total heads: up to 66 feet TDH
- Maximum solids: ⅜" spherical
- Mechanical seal: Silicon carbide rotary/silicon carbide stationary, 300 series stainless steel metal parts, BUNA-N elastomers.
- Maximum submergence: 23'
- Temperature limit: 120°F (50°C) maximum
- Fasteners: 300 series stainless steel.

Motor:

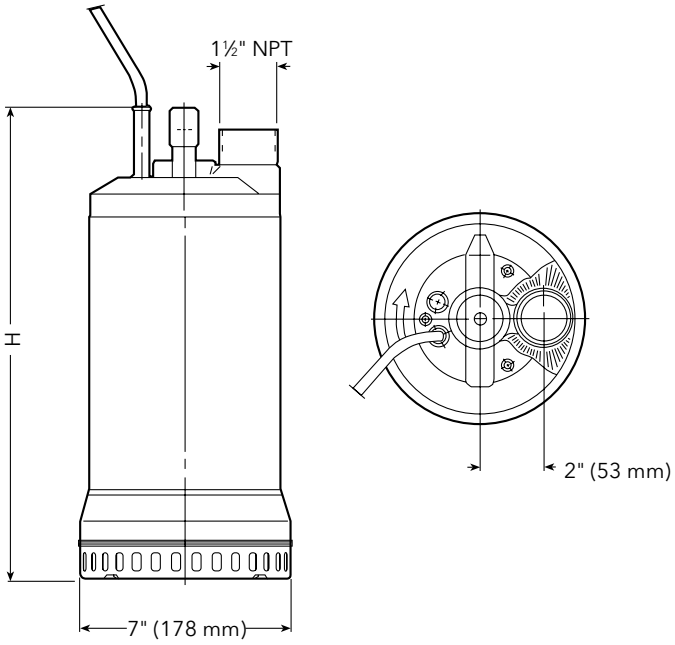
- Single phase: 60 Hz, 3500 RPM, ½ HP, 115 and 230 V; ¾ and 1 HP, 230 V only.
- Three phase: 60 Hz, 3500 RPM, ½ to 1½ HP, 230 or 460 V.
- Built-in thermal overload protection with automatic reset on single phase models.
- Three phase: Overload protection must be provided in starter unit with three phase pumps.
- Power cord: ½ HP 30' cord; all other HP's 20' cord
- Class F insulation

AGENCY LISTINGS **(Three phase only)**

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549


METERS FEET
TOTAL DYNAMIC HEAD
SERIES: 1DW
DISCHARGE: 1½"
SOLIDS: ¾"
RPM: 3500
5 GPM
2 FT
1 HP
1.5 HP
.5 HP
.75 HP
U.S. GPM
m³/hr
CAPACITY

DIMENSIONS



Series	HP	Phase	Dimensions in inches (mm)	Discharge Size
			H	
1DW	½	1	14⅛ (363)	1½"
		3	13⅜ (348)	
	¾	1	15⅛ (383)	
		3	14⅛ (363)	
	1	1	15⅞ (403)	
		3	15⅛ (383)	
	1½	3	15⅞ (403)	

MECHANICAL DATA

Order Number	HP	Volts	Phase	Maximum Amps	RPM	Weight (Lbs.)
1DW51C0EA	½	115	1	10.3	3450	29
1DW51C1EA		230		4.5		
1DW51C3EA			3	2.5		27
1DW51C4EA		460		1.3		
1DW51D1EA	¾	230	1	5.7		32
1DW51D3EA			3	3.6		29
1DW51D4EA		460		1.8		
1DW51E1EA	1	230	1	6.3		38
1DW51E3EA			3	4.0		33
1DW51E4EA		460		2.0		
1DW51F3EA	1½	230	3	5.6		37
1DW51F4EA		460		2.7		

Component	Material
Pump body and motor casing	Stainless steel (AISI 304)
Outer sleeve	Stainless steel (AISI 304)
Impeller	Stainless steel (AISI 304)
Motor Shaft	Stainless steel (AISI 304)
Suction strainer	Stainless steel (AISI 304)
Front diffuser plate	Stainless steel (AISI 304) coated with polyurethane elastomer
Lower mechanical seal	Silicon carbide/silicon carbide
Upper lip seal	Nitrile rubber
Handle	Stainless steel (AISI 304) coated with polyacetalic resin

AGENCY LISTINGS **(Three phase only)**

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

xylem
Let's Solve Water

TECHNICAL BROCHURE
B2DW R5

2DW

SUBMERSIBLE DEWATERING PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Polyurethane for wear and corrosion resistance.

Adjustable Discharge: Discharge can be installed for either vertical or horizontal installation using only 2 screws.

Diffuser: Polyurethane for wear and corrosion resistance.

Mechanical Seal: Dual seals for double leakage protection, outer seal – silicon carbide.

Rubber Liner: Protects against wear around impeller.

Bottom Strainer: Made of impact absorbing EPDM rubber, suction holes allow for low pump down.

APPLICATIONS

Specifically designed to remove water from:

- Drainage ditches
- Trenches
- Basements
- Manholes
- Excavating drainage in the building trades

SPECIFICATIONS

Pump:

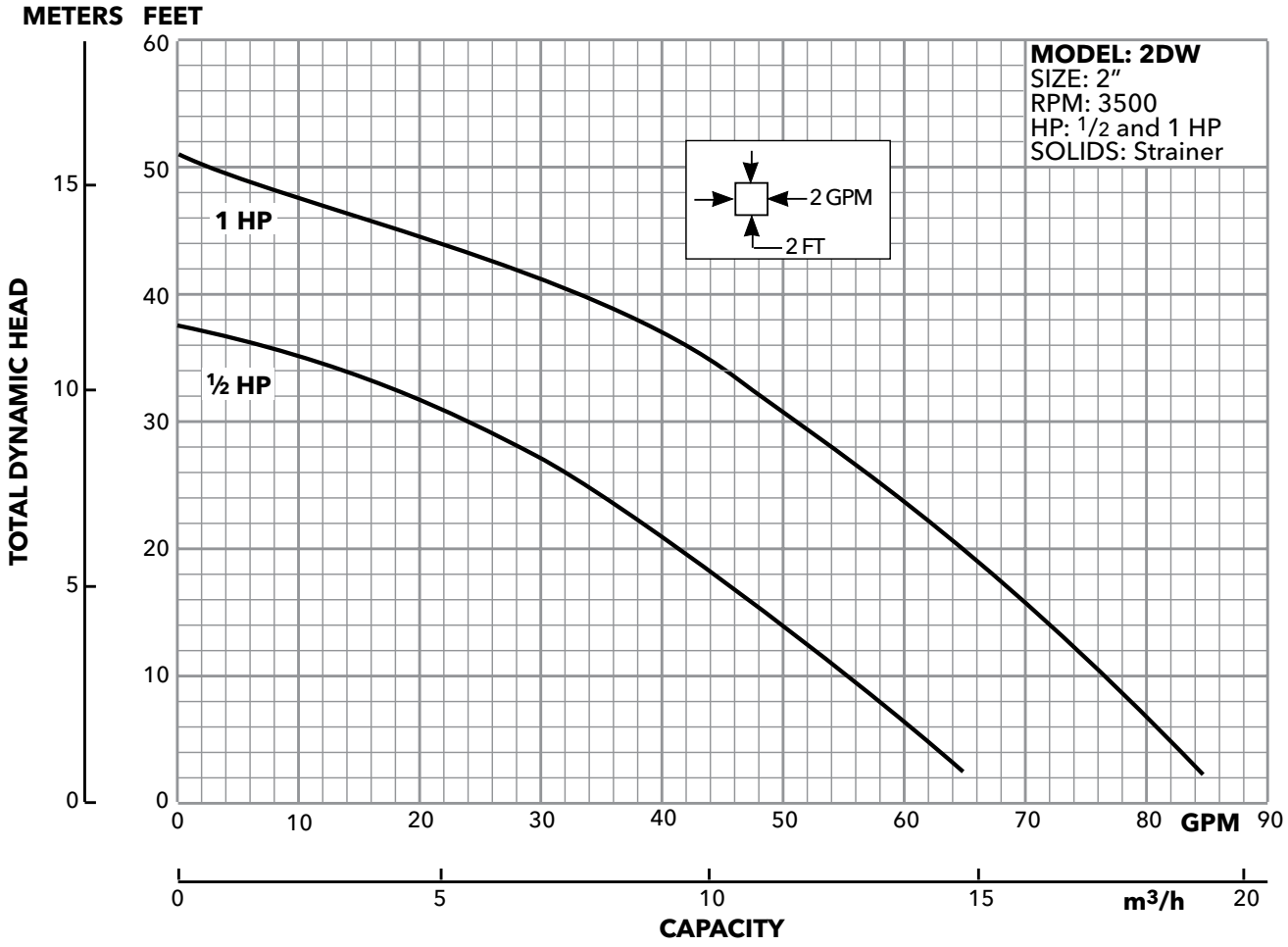
- Discharge size: 2" NPSM threaded hose coupling design, can be rotated
- Capacities: up to 84 GPM
- Total heads: up to 51 feet
- Maximum solids: any particles passing through strainer
- Mechanical seals: outer seal – silicon carbide, inner seal – carbon ceramic
- Temperature limit: 95°F (35° C) maximum
- Depth of immersion: 16.5 feet (5m) maximum

Motor:

- Single phase: 3500 RPM, ½ HP and 1 HP, 115 and 230 V, 60 Hz
- Built-in starter with full overload and temperature protection.
- Class F insulation.
- Air filled design.
- Upper and lower heavy duty ball bearing construction.
- Power cord: 50 feet.

AGENCY LISTINGS

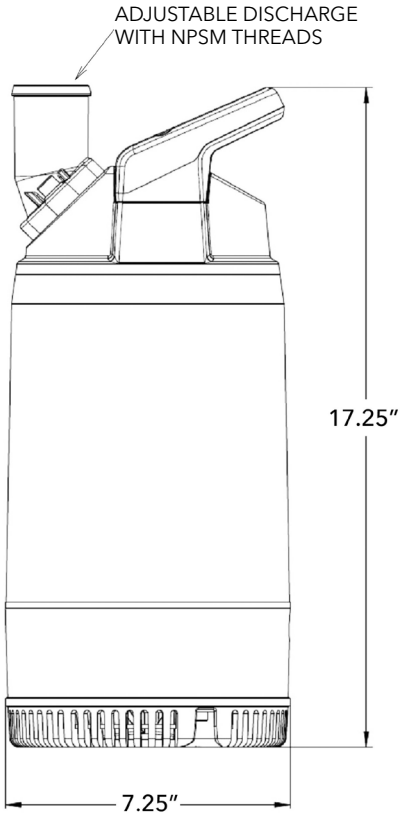
Tested to UL778 and CSA 22.2 108 standards by Canadian Standards Association.
NRTL File #LR13533



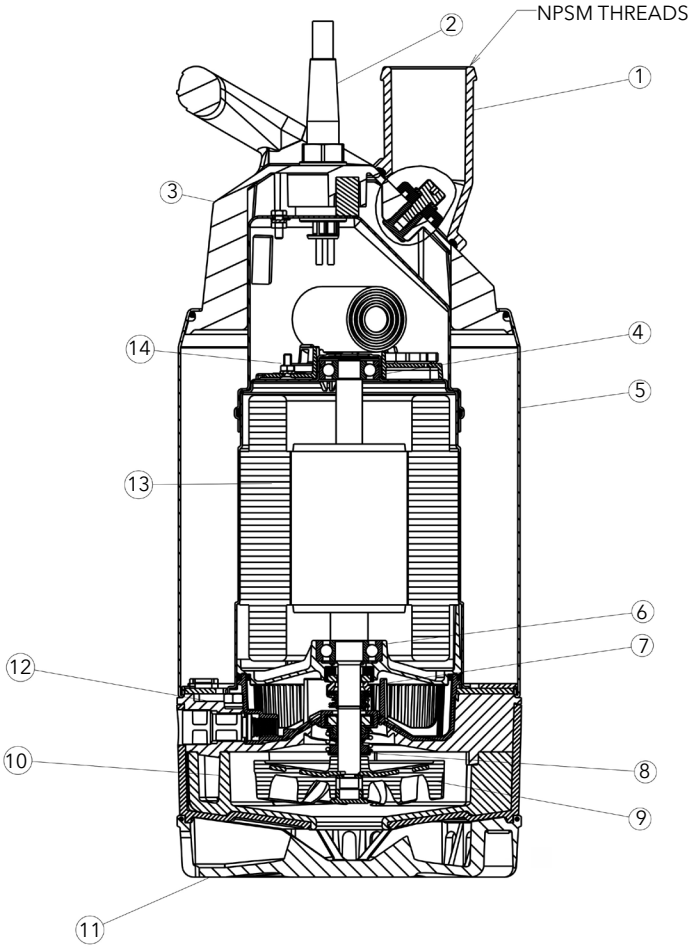
MODEL INFORMATION

Order No.	HP	Volts	Phase	Maximum Amp	RPM	Height (in.)	Weight (lbs.)
2DW0511	½	115	1	5.5	3500	17.25	26
2DW0512		230		2.9			
2DW1011	1	115		9.8			32
2DW1012		230		4.9			

DIMENSIONS

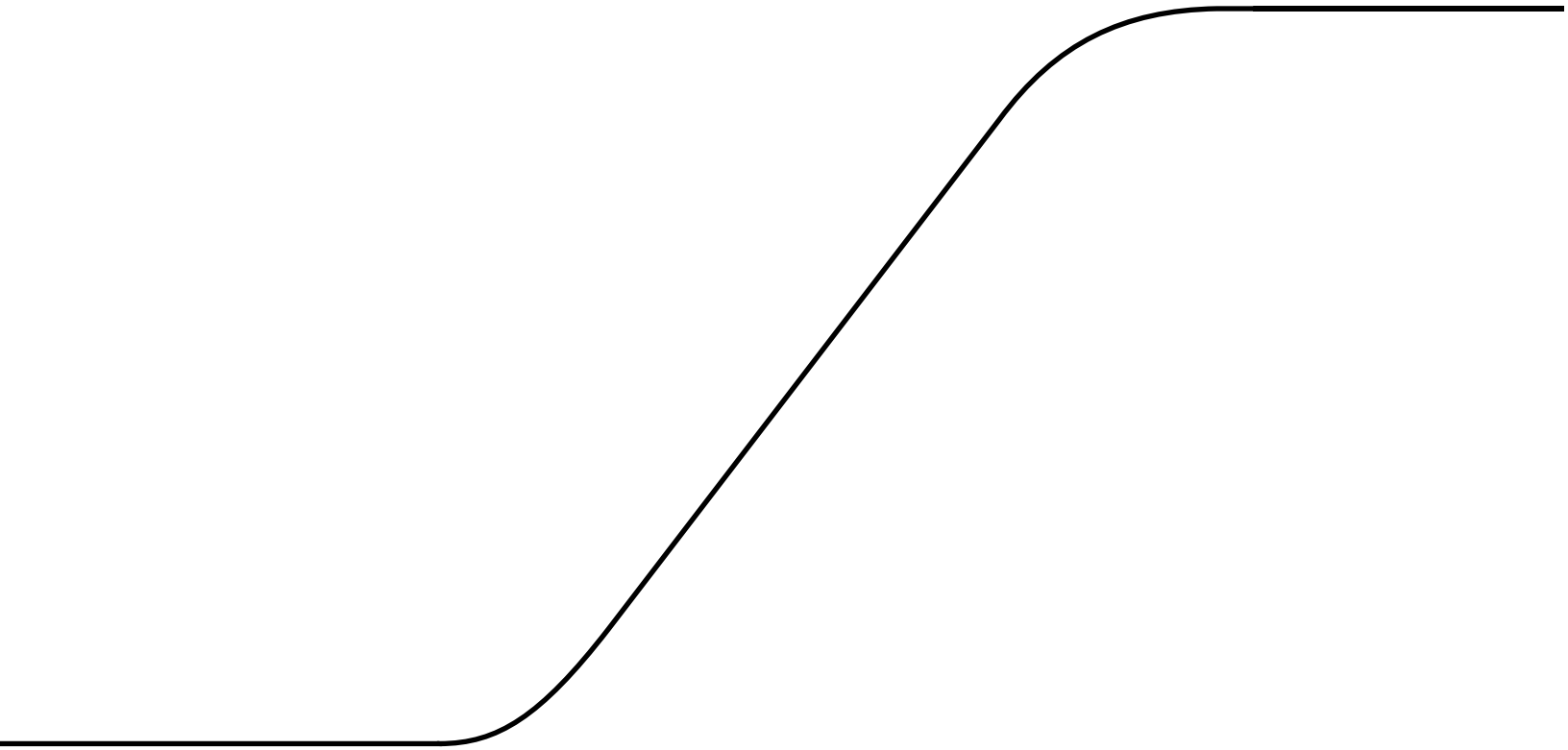


COMPONENTS



Item No.	Description
1	Discharge
2	Power cord
3	Handle/cover
4	Support bearing
5	Pump casing
6	Main bearing
7	Inner mechanical seal
8	Outer mechanical seal
9	Impeller
10	Suction cover/diffuser
11	Strainer
12	Oil plug
13, 14	Motor

Effluent



xylem
Let's Solve Water

TECHNICAL BROCHURE
BGFESER R5

FEATURES

Impeller: Cast iron, with dual vanes. Balanced for smooth operation

Casing: Cast iron volute type for maximum efficiency. 1.5" or 2" NPT discharge (with included adapter)

Mechanical Seal: Silicon Carbide vs. Silicon Carbide sealing faces. Stainless steel metal parts, BUNA-N elastomers

Shaft: Corrosion-resistant, stainless steel. Threaded design

Fasteners: 300 series stainless steel

Capable of running dry without damage to components

Designed for continuous operation when fully submerged

Available in automatic and manual models

GFE Series

CAST IRON EFFLUENT PUMPS

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Specifically designed for the following uses:

- Homes, farms, trailer courts, motels, schools, hospitals, small business, effluent systems

SPECIFICATIONS

Pump

- Solids handling capabilities: ¾" maximum
- Discharge size: 1.5" or 2" NPT (with included adapter)
- Capacities: up to 100 GPM
- Total heads: up to 85 feet TDH
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer
- Class B insulation

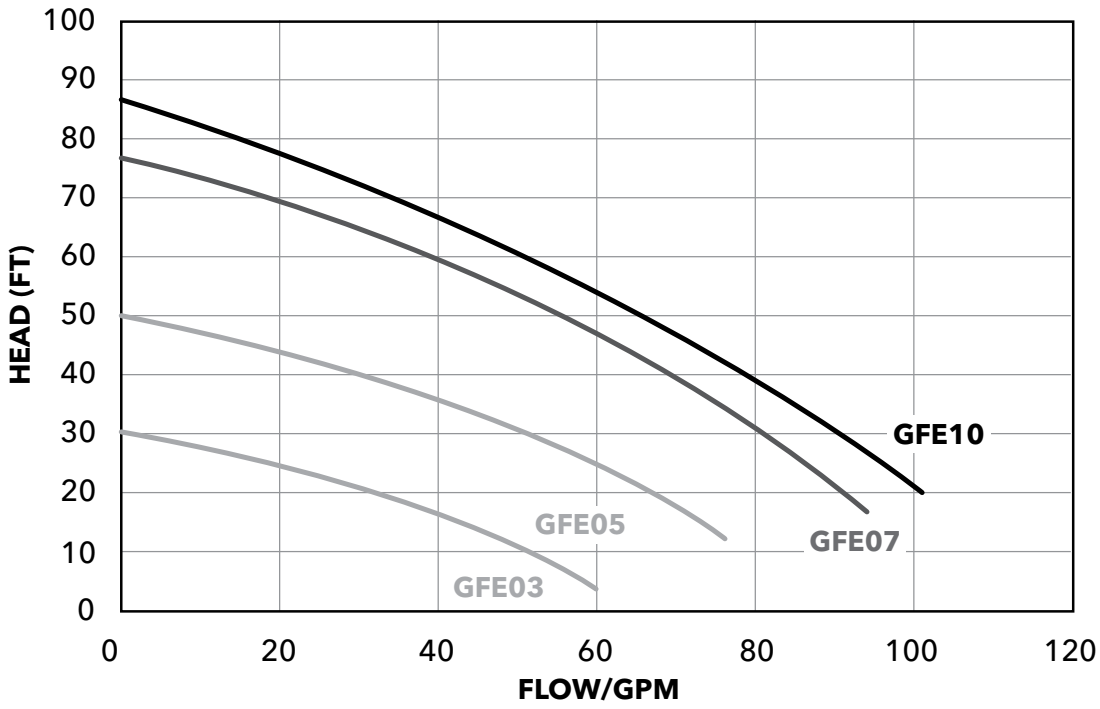
Single phase (60 Hz):

- Capacitor start motors for maximum starting torque
- Built-in overload with automatic reset
- SJTOW severe duty oil and water resistant power cords
- All models have NEMA three prong grounding plugs
- Designed for continuous operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged
- Bearings: Upper and lower heavy duty ball bearing construction
- Power cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'.30' cord is available on some models
- O-ring: Assures positive sealing against contaminants and oil leakage

AGENCY LISTINGS

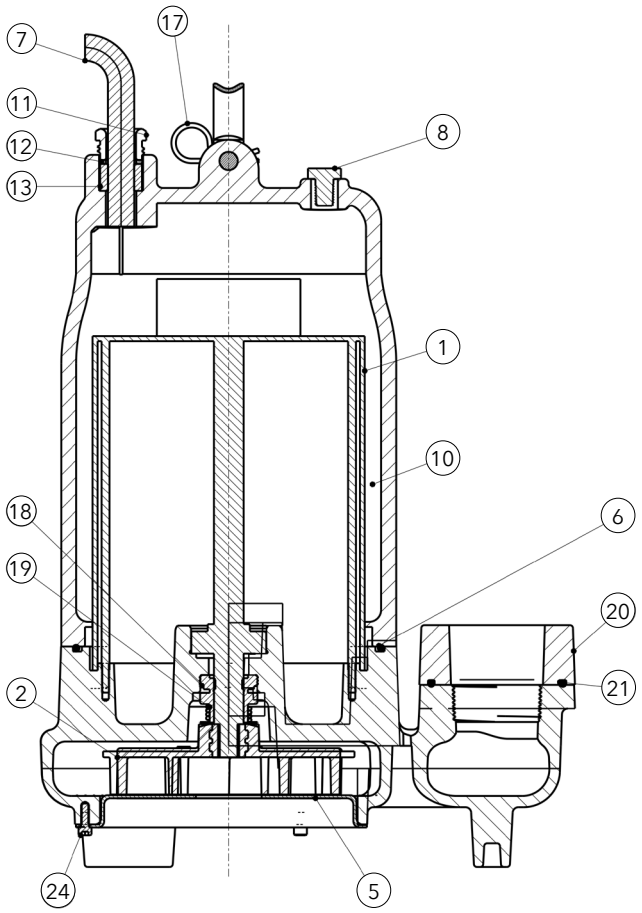
Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association

HEAD COMPARISON



COMPONENTS

Item No.	Description
1	Motor
2	Impeller
3	Motor Cover
4	Casing
5	Impeller Cover
6	O-ring
7	Cord
8	Pipe Plug
9	Hex Cap Screws
10	Insulating Oil
11	Gland Nut
12	Washer
13	Strain Relief Packing
14	Handle
15	Handle Pin
16	Washer
17	Hair Pin
18	Mechanical Seal
19	Mechanical Seal
20	2" Adaptor
21	Adaptor O-Ring
22	Hex Cap Screw
23	Mono-Vane Impeller
24	Machine Screw

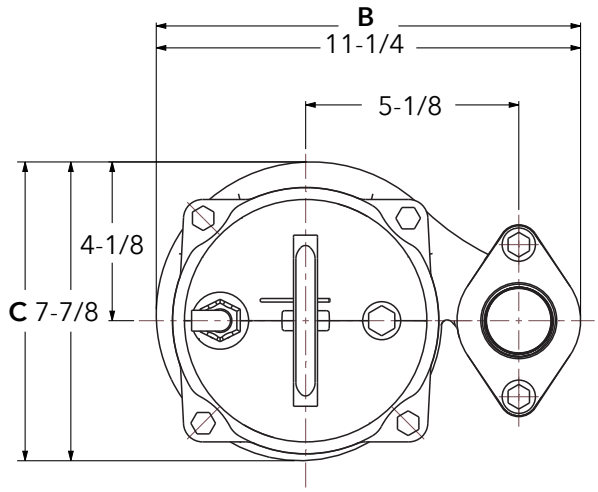


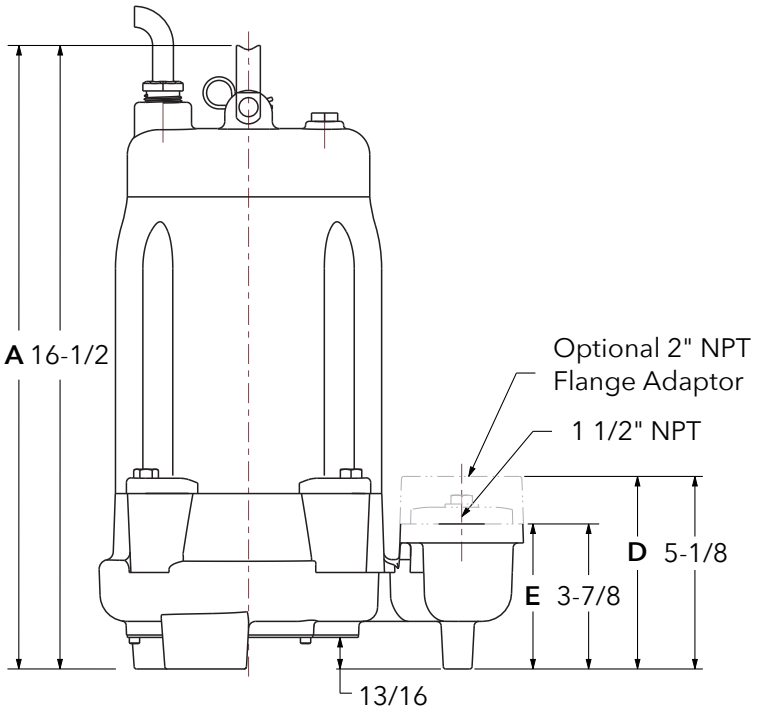
PRODUCT SPECIFICATIONS

Part No.	HP	Volts	Max. Amps	Locked Rotor Amps	Min. Circuit Breaker	Phase	RPM	Impeller Diameter (in.)	Float Switch Style	Cord Length (ft.)	Power Cable Size	Discharge Connection (in.)	Max. Solids Size	Shipping Weight (lbs.)
GFE0311	1/3	115	12.5	46.0	15A	1	3400	3	Piggyback	20'	14/3	1.5" or 2" NPT	3/4"	64
GFE0311M				46.0				3	Not Supplied					
GFE0511	1/2		14.5	46.0				3.56	Piggyback					64.5
GFE0511M				46.0				3.56	Not Supplied					
GFE0712	3/4	230	10	27.5				4.32	Piggyback	20'				67.5
GFE0712M				27.5				4.32	Not Supplied					64.5
GFE0712M 30				27.5				4.32		30'				
GFE1012	1		12.5	36.2				4.67	Piggyback	20'				65
GFE1012M				36.2				4.67	Not Supplied					
GFE1012 30				36.2				4.67	Piggyback	30				68

DIMENSIONS

	A	B	C	D	E
All Models	16 ½"	11 ¼"	7 7/8"	5 1/8"	3 7/8"





K-SERIES

- NEMA 4X dead front outdoor rated enclosure
- Red LED alarm beacon
- HOA selector switch
- Field wiring terminal block
- Single phase models handle 120, 208 and 230V service
- Three phase models handle 200, 230 and 460V service
- Requires separate control/alarm power feed
- See brochure “BCPKSDPANELS” for additional information

STANDARD SERIES

- NEMA 4X outdoor rated enclosure
- Red alarm beacon
- HOA selector switch
- Through door pump run light(s)
- Through door alarm test and horn silence button
- Single phase models handle 120, 208 and 230V service
- Three phase models handle 200, 230, 460 and 575V service
- Accepts single or dual power feed
- See Brochure BCP3 and BCP4 for additional information on simplex and duplex models

TECHNICAL BROCHURE
B20AE R1

FEATURES

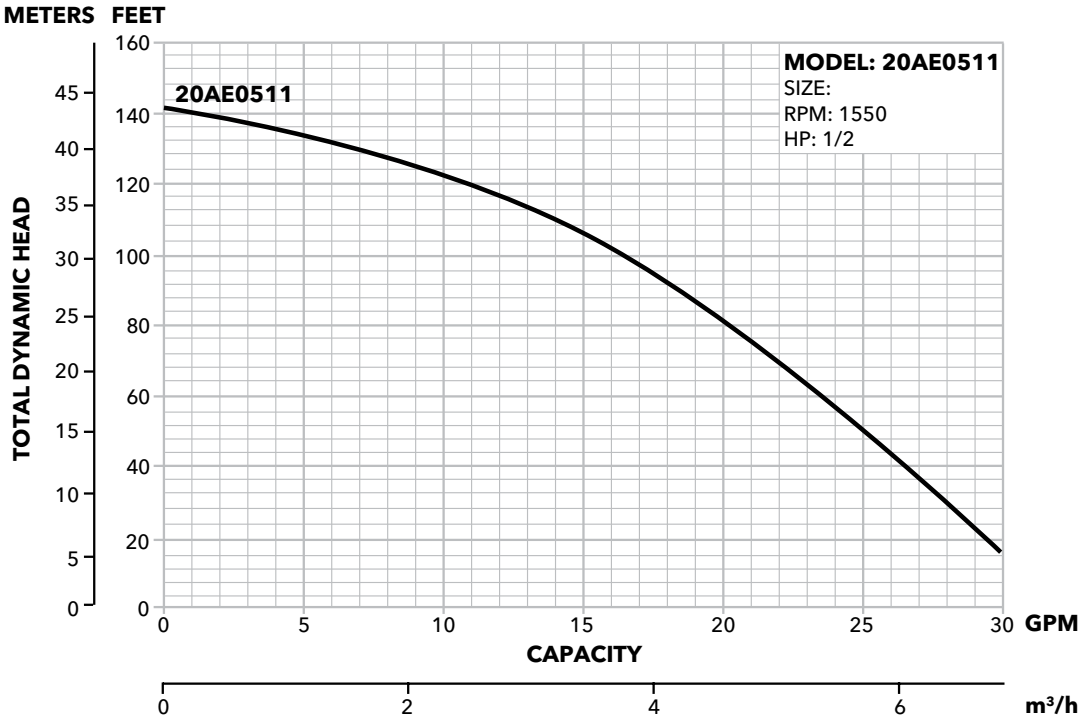
- Durable pump construction made of stainless steel with thermoplastic reinforcement
- Industry-leading drawdown of 4½"
- Approved for Residential use: CSA/CUS Listed
- Built-in thermal overload protection with automatic reset
- Pump base accepts a 3" pipe to assist with height adjustments
- Discharge head with stainless steel insert
- Built-in check valve and capacitor

20AE

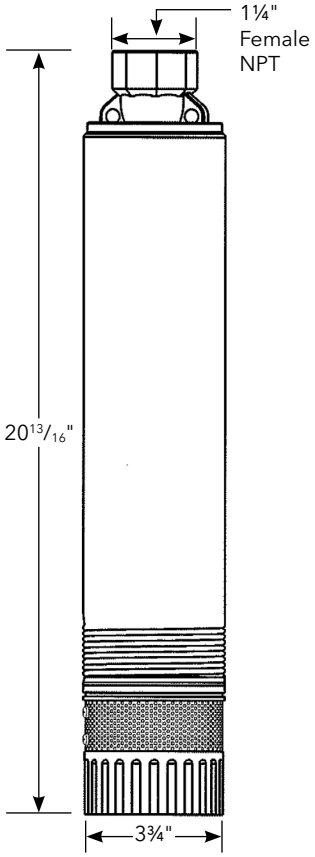
4" AEROBIC STAINLESS STEEL
SUBMERSIBLE EFFLUENT PUMP

GOULDS WATER TECHNOLOGY
a xylem brand

PERFORMANCE CURVE



DIMENSIONS



APPLICATIONS

On-site filtered effluent, cistern

PERFORMANCE RATINGS

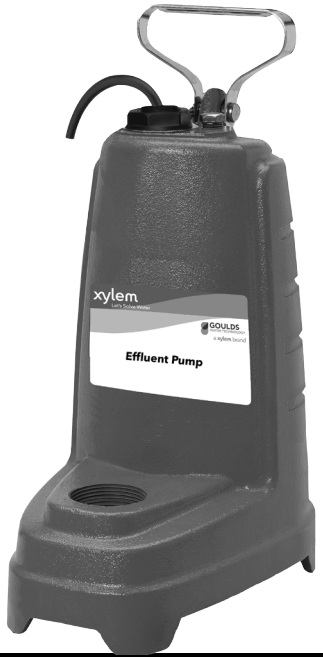
Head	Flow
16	30
45	26
80	20
110	14
135	4.4
142	0

PRODUCT SPECIFICATIONS

Model	20AE
Part No.	20AE0511
HP	½
Volts	115
Amps	9.5
Phase	1
Cord Length	10'
Drawdown	4½"
Capacity	Up to 20 GPM
Discharge Size	1¼"
Switch Type	Manual

xylem
Let's Solve Water

TECHNICAL BROCHURE
BPE R3



PE

SUBMERSIBLE EFFLUENT PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

- Corrosion resistant construction
- Cast iron body
- Thermoplastic impeller and cover
- Upper sleeve and lower heavy duty ball bearing construction
- Motor is permanently lubricated for extended service life
- Powered for continuous operation
- All ratings are within the working limits of the motor
- Quick disconnect power cord, 20' standard length, heavy duty 16/3 SJTW with 115 or 230 volt grounding plug
- Complete unit is heavy duty, portable and compact
- Mechanical seal is carbon, ceramic, BUNA and stainless steel
- Stainless steel fasteners

APPLICATIONS

Specially designed for the following uses:

- Mound Systems
- Effluent/Dosing Systems
- Low Pressure Pipe Systems
- Basement Draining
- Heavy Duty Sump/Dewatering

SPECIFICATIONS

Pump – General:

- Discharge: 1½" NPT
- Temperature: 104°F (40°C) maximum, continuous when fully submerged.
- Solids handling: ½" maximum sphere.
- Automatic models include a float switch.
- Manual models available.
- Pumping range: see performance chart or curve.

PE41 Pump:

- Maximum capacity: 61 GPM
- Maximum head: 29' TDH

PE51 Pump:

- Maximum capacity: 70 GPM
- Maximum head: 37' TDH

MOTOR

General:

- Single phase, 60 Hz, 115 and 230 volts
- Built-in thermal overload protection with automatic reset
- Class B insulation
- Oil-filled design
- High strength carbon steel shaft

PE41 Motor:

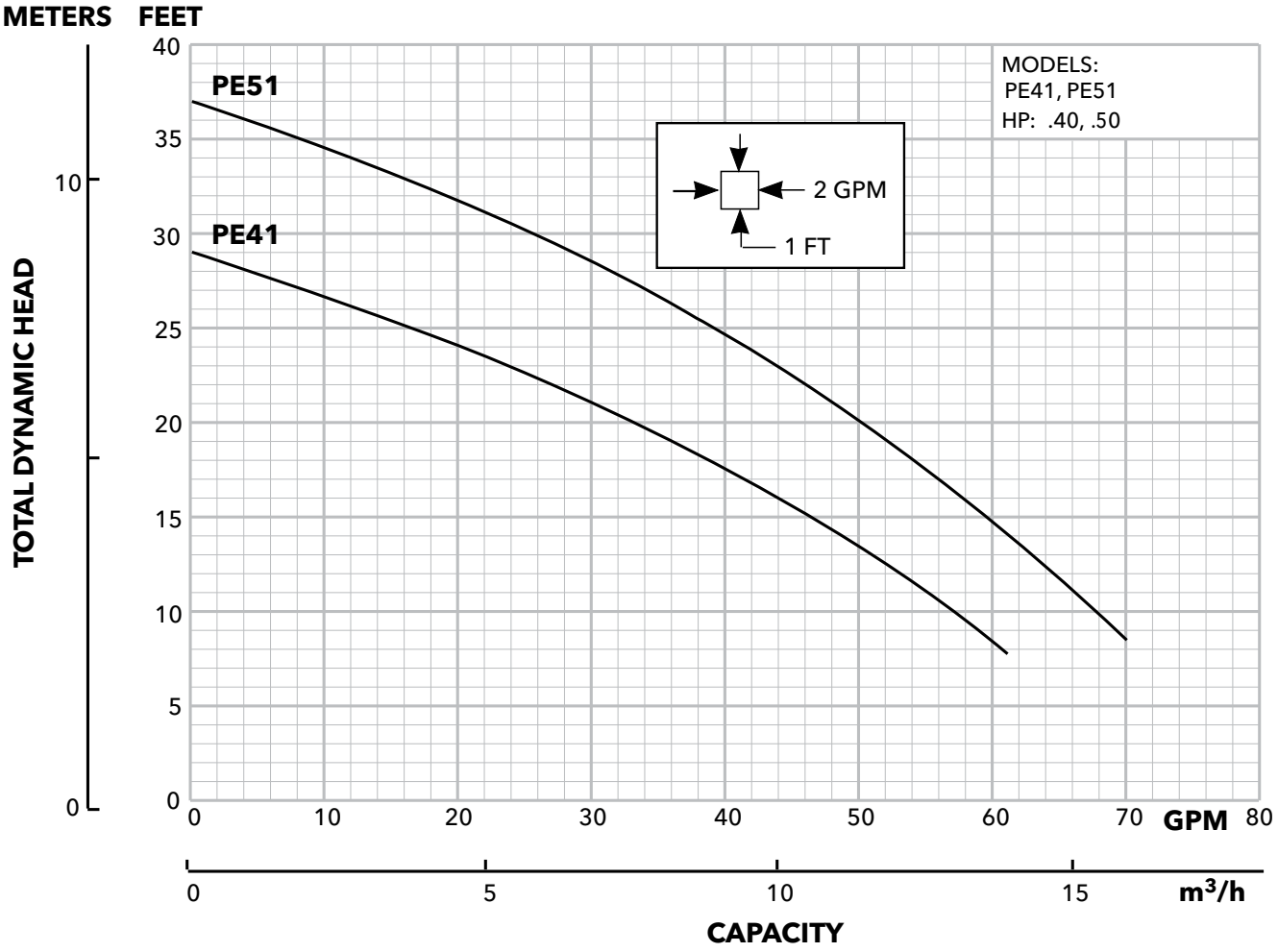
- .40 HP, 3400 RPM
- 115 and 230 volts
- PSC design

PE51 Motor:

- .50 HP, 3400 RPM
- 115 and 230 volts
- PSC design

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549



PUMP INFORMATION

Order No.	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs/kg
PE41M	0.4	115	7.5	15	1	Manual / No Switch	20'	1.5"	18"	.5"	31 / 14.1
PE41P1						Piggyback Float Switch					
PE42P1		230	3.7	10		Piggyback Float Switch					
PE51M	0.5	115	9.5	20		Manual / No Switch					
PE51P1						Piggyback Float Switch					
PE52M		230	4.7	10		Manual / No Switch					

PERFORMANCE RATINGS

PE41

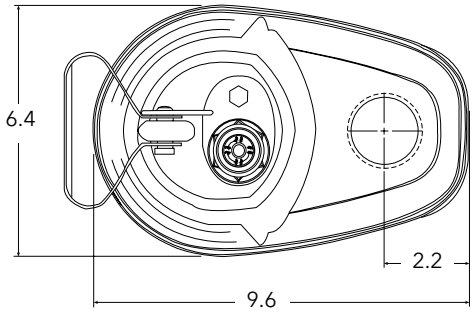
Total Head (feet of water)	GPM
8	61
10	57
15	46
20	33
25	16

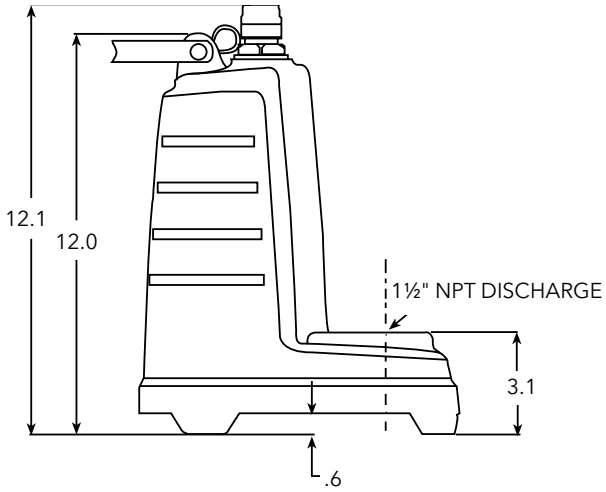
PE51

Total Head (feet of water)	GPM
10	67
15	59
20	50
25	39
30	26
35	8

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)





TECHNICAL BROCHURE
B3871 R2

EP04 & EP05 Series

Model 3871

SUBMERSIBLE EFFLUENT PUMPS

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

EP04 Impeller: Thermoplastic semi-open design with pump out vanes for mechanical seal protection.

EP05 Impeller: Thermoplastic enclosed design for improved performance.

Casing and Base: Rugged thermoplastic design provides superior strength and corrosion resistance.

Motor Housing: Cast iron for efficient heat transfer, strength, and durability.

Motor Cover: Thermoplastic cover with integral handle and float switch attachment points.

Power Cable: Severe duty rated oil and water resistant.

Bearings: Upper and lower heavy duty ball bearing construction.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

APPLICATIONS

Specifically designed for the following uses:

- Effluent systems
- Homes
- Farms
- Heavy duty sump
- Water transfer
- Dewatering

SPECIFICATIONS

- Solids handling capability: ¾" maximum.
- Capacities: up to 60 GPM.
- Total heads: up to 31 feet.
- Discharge size: 1½" NPT.
- Mechanical seal: carbon-rotary/ceramic-stationary, BUNA-N elastomers.
- Temperature:
  104° F (40° C) continuous
  140° F (60° C) intermittent.
- Class B Insulation
- Fasteners: 300 series stainless steel.
- Capable of running dry without damage to components.

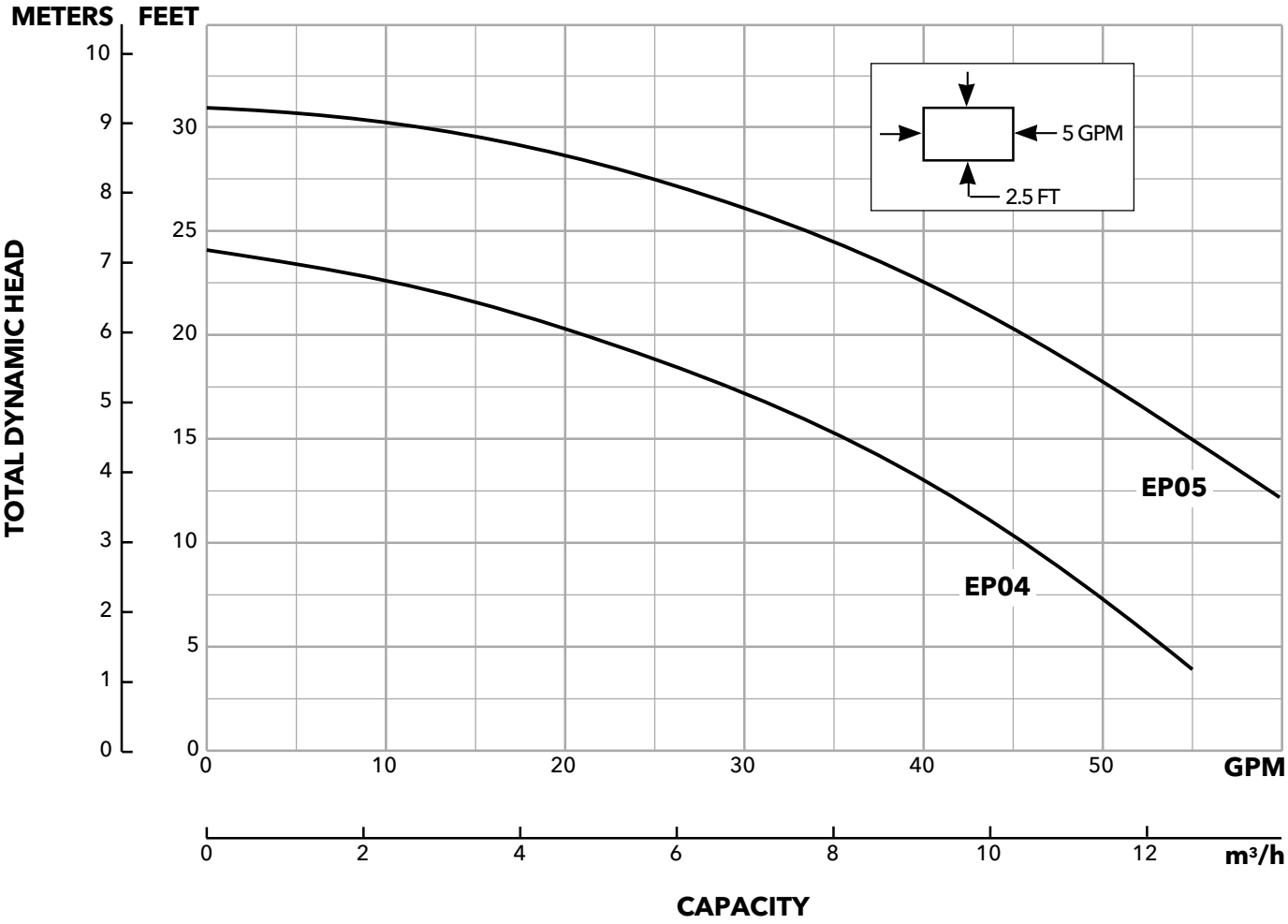
Motor:

- EP04 Single phase: 0.4 HP, 115 or 230 V, 60 Hz, 1550 RPM, built in overload with automatic reset.
- EP05 Single phase: 0.5 HP, 115 V or 230V, 60 Hz, 1550 RPM, built in overload with automatic reset.
- Power cord: 10 foot standard length, 16/3 SJTW with three prong grounding plug. Optional 20 foot length, 16/3 SJTW with three prong grounding plug (standard on EP05).
- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer.

Available for automatic and manual operation. Automatic models include Mechanical Float Switch assembled and preset at the factory.

PERFORMANCE RATINGS

Total Head (ft. of water)	Gallons Per Minute	
	EP04	EP05
5	53	–
10	46	62
15	36	55
20	21	46
25	0	33
30	–	11

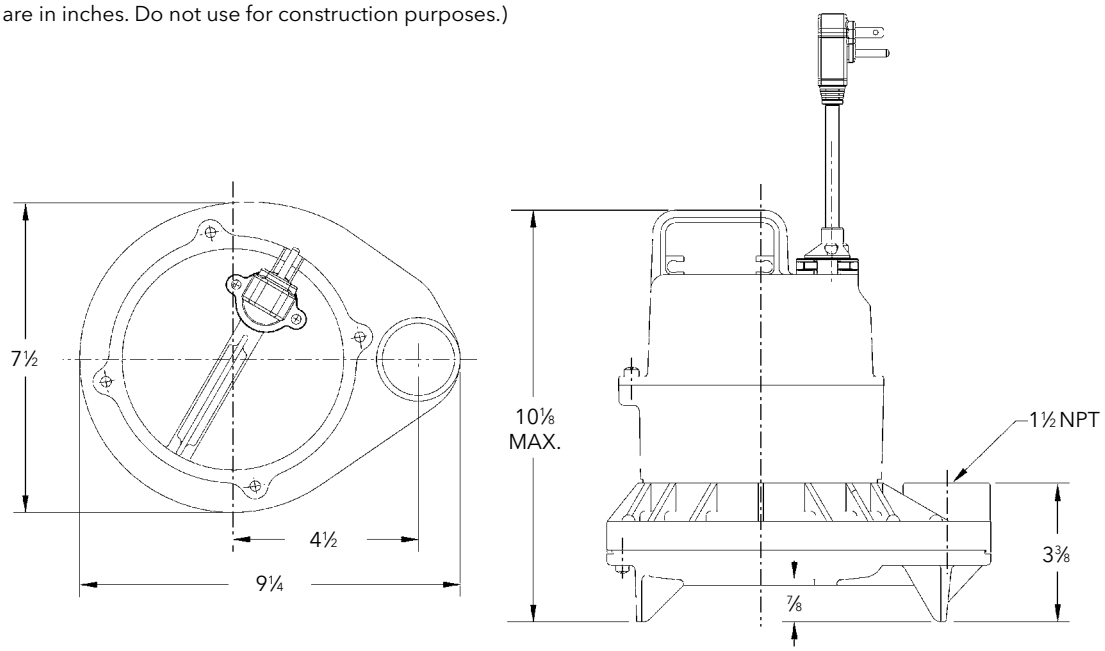


MODEL INFORMATION

Order Number	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Minimum On Level	Minimum Off Level	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs.kg
EP0411	.4	115	12	20	1	Plug / No Switch	10'	1½"	Manual	Manual	15"	¾"	20 / 9.1
EP0411A						Piggyback / Wide-Angle	10'		12"	6"			21 / 9.5
EP0411F						Plug / No Switch	20'		Manual	Manual			20 / 9.1
EP0411AC						Piggyback / Wide-Angle	20'		12"	6"			21 / 9.5
EP0412		230	6	10		Plug / No Switch	10'		Manual	Manual			20 / 9.1
EP0412F						Plug / No Switch	20'		Manual	Manual			20 / 9.1
EP0511F	.5	115	13	20		Plug / No Switch	20'		Manual	Manual			22 / 10
EP0511AC						Piggyback / Wide-Angle	20'		12"	6"			23 / 10.4
EP0512F		230	6.5	10		Plug / No Switch	20'		Manual	Manual			22 / 10

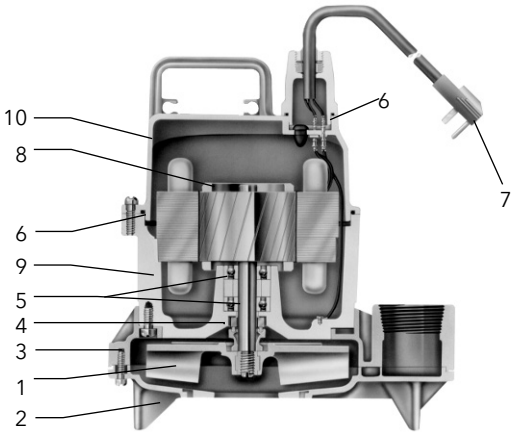
DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



COMPONENTS

Item No.	Description
1	Impeller
2	Base
3	Pump casing
4	Mechanical seal
5	Ball bearings
6	O-rings
7	Power cord
8	Oil filled motor
9	Motor housing/stator assembly
10	Motor cover



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Let's Solve Water

TECHNICAL BROCHURE
B3885 R4

WE Series
Model 3885

SUBMERSIBLE EFFLUENT PUMPS

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

Casing: Cast iron volute type for maximum efficiency. 2" NPT discharge.

Mechanical Seal: Silicon Carbide vs. Silicon Carbide sealing faces. Stainless steel metal parts, BUNA-N elastomers.

Shaft: Corrosion-resistant, stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

Extended Warranty available for residential applications.

APPLICATIONS

Specifically designed for the following uses:

- Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

SPECIFICATIONS

Pump

- Solids handling capabilities: ¾" maximum
- Discharge size: 2" NPT
- Capacities: up to 140 GPM
- Total heads: up to 128 feet TDH
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on ⅓ – 1½ HP models.
- Class F insulation on 2 HP models.

Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.
- SJTOW or STOW severe duty oil and water resistant power cords.
- ⅓ – 1 HP models have NEMA three prong grounding plugs.
- 1½ HP and larger units have bare lead cord ends.

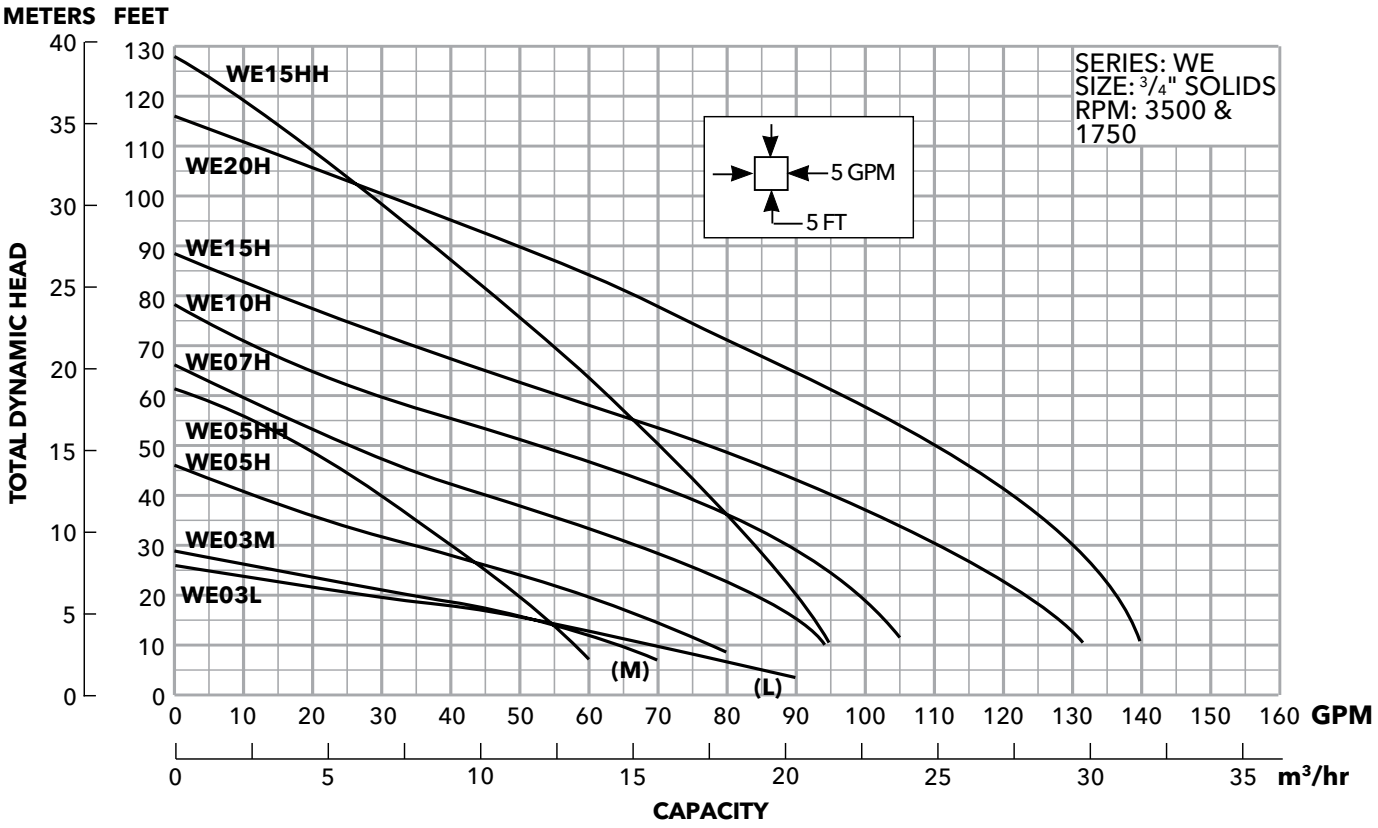
Three phase (60 Hz):

- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

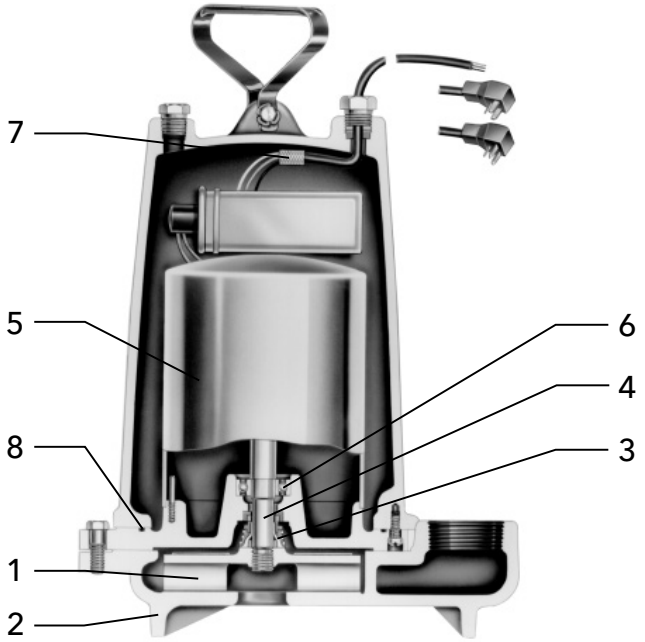
Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association File #LR38549

CURVES



COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring



MODELS

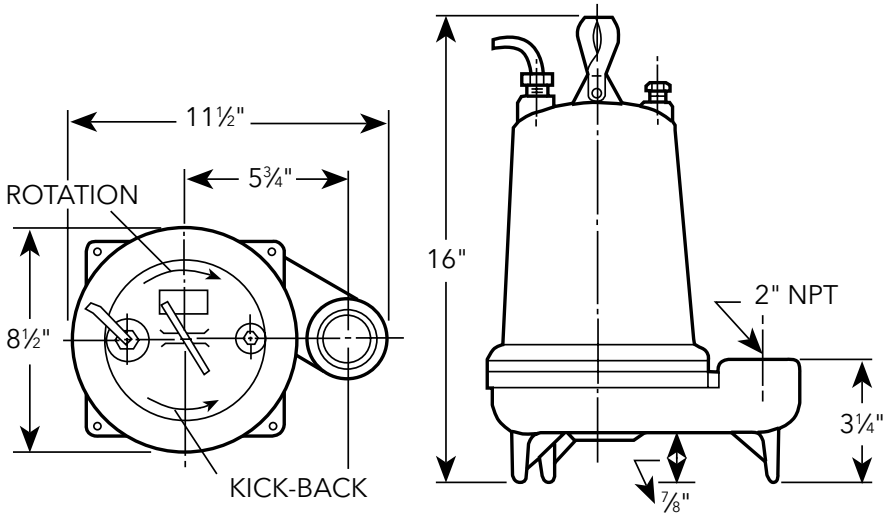
Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency %	Resistance		Power Cable Size	Weight (lbs.)
										Start	Line-Line		
WE0311L	0.33	1	115	1750	5.38	10.7	30.0	M	54	11.9	1.7	16/3	56
WE0318L			208			6.8	19.5	K	51	9.1	4.2		
WE0312L			230			4.9	14.1	L	53	14.5	8.0		
WE0311M			115			10.7	30.0	M	54	11.9	1.7		
WE0318M			208			6.8	19.5	K	51	9.1	4.2		
WE0312M			230			4.9	14.1	L	53	14.5	8.0		
WE0511H	0.5	1	115	3450	3.56	14.5	46.0	M	54	7.5	1.0	14/3	60
WE0518H			208			8.1	31.0	K	68	9.7	2.4	16/3	
WE0512H			230			7.3	34.5	M	53	9.6	4.0		
WE0538H		3	200			4.9	22.6	R	68	NA	3.8	14/4	
WE0532H			230			3.3	18.8	R	70	NA	5.8		
WE0534H			460			1.7	9.4	R	70	NA	23.2		
WE0537H			575			1.4	7.5	R	62	NA	35.3		
WE0511HH		1	115		3.88	14.5	46.0	M	54	7.5	1.0	14/3	
WE0518HH			208			8.1	31.0	K	68	9.7	2.4	16/3	
WE0512HH			230			7.3	34.5	M	53	9.6	4.0		
WE0538HH		3	200			4.9	22.6	R	68	NA	3.8	14/4	
WE0532HH			230			3.6	18.8	R	70	NA	5.8		
WE0534HH			460			1.8	9.4	R	70	NA	23.2		
WE0537HH			575			1.5	7.5	R	62	NA	35.3		
WE0718H	0.75	1	208		4.06	11.0	31.0	K	68	9.7	2.4	14/3	70
WE0712H			230			10.0	27.5	J	65	12.2	2.7		
WE0738H		3	200			6.2	20.6	L	64	NA	5.7	14/4	
WE0732H			230			5.4	15.7	K	68	NA	8.6		
WE0734H			460			2.7	7.9	K	68	NA	34.2		
WE0737H			575			2.2	9.9	L	78	NA	26.5		
WE1018H	1	1	208		4.44	14.0	59.0	K	68	9.3	1.1	14/3	
WE1012H			230			12.5	36.2	J	69	10.3	2.1		
WE1038H		3	200			8.1	37.6	M	77	NA	2.7	14/4	
WE1032H			230			7.0	24.1	L	79	NA	4.1		
WE1034H			460			3.5	12.1	L	79	NA	16.2		
WE1037H			575			2.8	9.9	L	78	NA	26.5		
WE1518H	1.5	1	208		4.56	17.5	59.0	K	68	9.3	1.1	14/3	80
WE1512H			230			15.7	50.0	H	68	11.3	1.6		
WE1538H		3	200			10.6	40.6	K	79	NA	1.9	14/4	
WE1532H			230			9.2	31.7	K	78	NA	2.9		
WE1534H			460			4.6	15.9	K	78	NA	11.4		
WE1537H			575			3.7	13.1	K	75	NA	16.9		
WE1518HH		1	208		5.50	17.5	59.0	K	68	9.3	1.1	14/3	
WE1512HH			230			15.7	50.0	H	68	11.3	1.6		
WE1538HH		3	200			10.6	40.6	K	79	NA	1.9	14/4	
WE1532HH			230			9.2	31.7	K	78	NA	2.9		
WE1534HH			460			4.6	15.9	K	78	NA	11.4		
WE1537HH			575			3.7	13.1	K	75	NA	16.9		
WE2012H	2	1	230		5.38	18.0	49.6	F	78	3.2	1.2	14/3	83
WE2038H		3	200			12.0	42.4	K	78	NA	1.7	14/4	
WE2032H			230			11.6	42.4	K	78	NA	1.7		
WE2034H			460			5.8	21.2	K	78	NA	6.6		
WE2037H			575			4.7	16.3	L	78	NA	10.5		

PERFORMANCE RATINGS (gallons per minute)

Order No.		WE-03L	WE-03M	WE-05H	WE-07H	WE-10H	WE-15H	WE05HH	WE15HH	WE-20H
Total Head Feet of Water	**HP**	⅓	⅓	½	¾	1	1½	½	1½	2
	RPM	1750	1750	3500	3500	3500	3500	3500	3500	3500
	5	86	–	–	–	–	–	–	–	–
	10	70	63	78	94	–	–	58	95	–
	15	52	52	70	90	103	128	53	93	138
	20	27	35	60	83	98	123	49	90	136
	25	5	15	48	76	94	117	45	87	133
	30	–	–	35	67	88	110	40	83	130
	35	–	–	22	57	82	103	35	80	126
	40	–	–	–	45	74	95	30	77	121
	45	–	–	–	35	64	86	25	74	116
	50	–	–	–	25	53	77	–	70	110
	55	–	–	–	–	40	67	–	66	103
	60	–	–	–	–	30	56	–	63	96
	65	–	–	–	–	20	45	–	58	89
	70	–	–	–	–	–	35	–	55	81
	75	–	–	–	–	–	25	–	51	74
	80	–	–	–	–	–	–	–	47	66
	90	–	–	–	–	–	–	–	37	49
	100	–	–	–	–	–	–	–	28	30

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



PUMP-TO-PANEL PART NUMBERS

Pump	HP	Phase	Voltage	Amps	Simplex Panel	Duplex Panel
WE0311L	0.33	1	115	10.7	C4S10020	C4D10020
WE0318L	0.33	1	208	6.8	C4S10020	C4D10020
WE0312L	0.33	1	230	4.9	C4S10020	C4D10020
WE0311M	0.33	1	115	10.7	C4S10020	C4D10020
WE0318M	0.33	1	208	6.8	C4S10020	C4D10020
WE0312M	0.33	1	230	4.9	C4S10020	C4D10020
WE0511H	0.5	1	115	14.5	C4S10020	C4D10020
WE0518H	0.5	1	208	8.1	C4S10020	C4D10020
WE0512H	0.5	1	230	7.3	C4S10020	C4D10020
WE0538H	0.5	3	200	4.9	C4S34063	C4D34063
WE0532H	0.5	3	230	3.3	C4S32540	C4D32540
WE0534H	0.5	3	460	1.7	C4S31625	C4D31625
WE0537H	0.5	3	575	1.4	C4S31625	C4D31625
WE0511HH	0.5	1	115	14.5	C4S10020	C4D10020
WE0518HH	0.5	1	208	8.1	C4S10020	C4D10020
WE0512HH	0.5	1	230	7.3	C4S10020	C4D10020
WE0538HH	0.5	3	200	4.9	C4S34063	C4D34063
WE0532HH	0.5	3	230	3.6	C4S32540	C4D32540
WE0534HH	0.5	3	460	1.8	C4S31625	C4D31625
WE0537HH	0.5	3	575	1.5	C4S31625	C4D31625
WE0718H	0.75	1	208	11	C4S10020	C4D10020
WE0712H	0.75	1	230	10	C4S10020	C4D10020
WE0738H	0.75	3	200	6.2	C4S36310	C4D36310
WE0732H	0.75	3	230	5.4	C4S34063	C4D34063
WE0734H	0.75	3	460	2.7	C4S32540	C4D32540
WE0737H	0.75	3	575	2.2	C4S31625	C4D31625
WE1018H	1	1	208	14	C4S10020	C4D10020
WE1012H	1	1	230	12.5	C4S10020	C4D10020
WE1038H	1	3	200	8.1	C4S36310	C4D36310
WE1032H	1	3	230	7	C4S36310	C4D36310
WE1034H	1	3	460	3.5	C4S32540	C4D32540
WE1037H	1	3	575	2.8	C4S32540	C4D32540
WE1518H	1.5	1	208	17.5	C4S10020	C4D10020
WE1512H	1.5	1	230	15.7	C4S10020	C4D10020
WE1538H	1.5	3	200	10.6	C4S31016	C4D31016
WE1532H	1.5	3	230	9.2	C4S36310	C4D36310
WE1534H	1.5	3	460	4.6	C4S34063	C4D34063
WE1518HH	1.5	1	208	17.5	C4S10020	C4D10020
WE1512HH	1.5	1	230	15.7	C4S10020	C4D10020
WE1538HH	1.5	3	200	10.6	C4S31016	C4D31016
WE1532HH	1.5	3	230	9.2	C4S36310	C4D36310
WE1534HH	1.5	3	460	4.6	C4S34063	C4D34063
WE1537HH	1.5	3	575	3.7	C4S32540	C4D32540
WE1537H	1.5	3	575	3.7	C4S32540	C4D32540

SERIES "CORE 4" CONTROL PANELS

Series “Core 4” Control Panels provide outstanding, automatic, liquid level control to help manage and maintain pump operation for a variety of effluent, sewage, and water transfer applications.

FEATURES

- Rugged, NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion
- Solid-state control board displays float status for ease of installation and trouble-shooting
- Hinged door with lockable stainless-steel latch for safe operation indoors and out
- Through-door mounted alarm test switch ensures proper operation of the alarm circuit without the need to open the panel
- Panel can be wired for a single power feed and control circuit, or the control circuit can be wired to a separate power supply to ensure alarm integrity in case of a tripped pump breaker
- Top-mounted, high intensity, flashing red light provides 360° visibility
- Auxiliary alarm contacts provided for remote alarm connection
- Field wiring diagram, panel schematic and installation instructions included
- Entire unit is UL and CUL listed

PRODUCT SPECIFICATIONS

- Hand-off-automatic (H-O-A) pump selection switch(es)
- On-off control circuit switch
- Float switches:
  - o Normally open (pump down) mechanical float switches with 20’ cords
  - o Simplex panels (three switches)
  - o Duplex panels (four switches)
- Duplex panels include alternation
- NEMA 4X:
  - o Flashing red alarm light
  - o Fiberglass enclosure with gasketed, hinged door and stainless-steel hardware
  - o Alarm horn (95db)
- Solid state printed circuit control board with float indicator lights
- Auxiliary alarm dry contact
- Elapsed time meter(s)
- Cycle counter(s)
- Single Phase
  - o Field adjustable for 115 or 230V, 60Hz
- Three Phase
  - o Field adjustable for 208/230/460/575 V, 60 Hz
  - o 115V control circuit transformer
  - o Adjustable motor overload protectors

xylem
Let's Solve Water

TECHNICAL BROCHURE
B2ED R5

FEATURES

Impeller: Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

Casing: Cast iron volute type for maximum efficiency. 2" NPT discharge.

Dual Mechanical Seals

- Lower: SILICON CARBIDE VS. SILICON CARBIDE sealing faces. Stainless steel metal parts, BUNA-N elastomers.
- Upper: CARBON VS. CERAMIC sealing faces. Stainless steel metal parts, BUNA-N elastomers.

Seal Sensor Probe: Located in oil-filled chamber. If pumpage should begin to leak past lower seal it indicates to pump control panel a fault has occurred. **Requires optional Seal Fail Circuit in the control panel.**

Shaft: Corrosion resistant, stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

2ED

SUBMERSIBLE EFFLUENT PUMP – DUAL SEAL WITH SEAL SENSOR PROBE

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Specifically designed for the following uses:

- Farms
- Trailer courts
- Effluent systems
- Motels
- Schools
- Hospitals
- Industry

SPECIFICATIONS

Pump:

- Solids handling capabilities: ¾" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 130 GPM.
- Total heads: up to 128 feet TDH.
- Temperature: 104° F (40° C) continuous, 140° F (60° C) intermittent.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class F insulation

Single phase:

- Built-in overload with automatic reset.
- All single phase models feature capacitor start motors for maximum starting torque.
- ⅓ HP – 16/3 SJTOW with 115 V or 230 V
- ½ HP – 16/3 SJTOW with 230 V
- ½ HP – 14/3 SJTOW with 115 V

Three phase:

- Overload protection must be provided in starter unit.
- ½-1½ HP – 14/4 STOW with bare leads.

- **Designed for Continuous Operation:** Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- **Bearings:** Upper and lower heavy duty ball bearing construction.
- **Power and Control Cable:** Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. 20 foot standard with optional lengths available.
- **O-ring:** Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

NOMENCLATURE DESCRIPTION

1st, 2nd and 3rd Character – Discharge Size and Type
2ED = 2" discharge, ¾" solids handling, dual seal with seal fail probe in pump

4th Character – Mechanical Seals
5 = silicon carbide/silicon carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (standard)
3 = silicon carbide/tungsten carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (optional)

5th Character – Cycle/RPM
1 = 60 Hz/3500 RPM
2 = 60 Hz/1750 RPM

6th Character – Horsepower
B = ⅓ HP D = ¾ HP F = 1½ HP
C = ½ HP E = 1 HP

7th Character – Phase/Voltage/Enclosure
0 = single phase, 115 V 4 = three phase, 460 V
1 = single phase, 230 V 5 = three phase, 575 V
2* = three phase, 200 V 8 = single phase, 208 V
3 = three phase, 230 V *only available for 1.5HP

8th Character – Impeller Diameter
A = 4.56", 1.5 HP E = 5.38" ① .33 HP Std Casing
B = 4.44", 1 HP F = 5.38" ② .33 HP Low head casing
C = 4.06", .75 HP G = 5.5" 1.5 HP High head impeller
D = 3.56", .5 HP H = 3.88" .5 HP High head impeller
① E code signifies a standard casing.
② F code signifies a lower head/higher flow casing.
E & F = Same impellers used with (2) different casings.

9th Character – Cord Length (Power and Sensor)
A = 20' (standard) F = 50'
D = 30' J = 100'

10th Character – Options
B = Bronze impeller
E = Epoxy paint
F = Both epoxy paint and bronze impeller

Last Character – Option
H = Pilot duty thermal sensors **(3 phase only!!)**

MODELS AND MOTOR INFORMATION

Order Number	HP	Phase	Volts	RPM	Impeller Dia. (in.)	Code	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Motor Eff. %	Resistance Start	Line-Line	Power Cable Size	Weight (lbs.)
2ED52B0FA	.33	1	115	1750	5.38	F	10.7	30.0	M	54	11.9	1.7	16/3	62
2ED52B8FA	.33	1	208	1750	5.38	F	6.8	19.5	K	51	9.1	4.2	16/3	62
2ED52B1FA	.33	1	230	1750	5.38	F	4.9	14.1	L	53	14.5	8.0	16/3	62
2ED52B0EA	.33	1	115	1750	5.38	E	10.7	30.0	M	54	11.9	1.7	16/3	62
2ED52B8EA	.33	1	208	1750	5.38	E	6.8	19.5	K	51	9.1	4.2	16/3	62
2ED52B1EA	.33	1	230	1750	5.38	E	4.9	14.1	L	53	14.5	8.0	16/3	62
2ED51C0DA	.5	1	115	3450	3.56	D	14.5	46.0	M	54	7.5	1.0	16/3	85
2ED51C8DA	.5	1	208	3450	3.56	D	8.1	31.0	K	68	9.7	2.4	16/3	85
2ED51C1DA	.5	1	230	3450	3.56	D	7.3	34.5	M	53	9.6	4.0	16/3	85
2ED51C3DA	.5	3	230	3450	3.56	D	3.3	18.8	R	70	NA	5.8	14/4	85
2ED51C4DA	.5	3	460	3450	3.56	D	1.7	9.4	R	70	NA	23.2	14/4	85
2ED51C5DA	.5	3	575	3450	3.56	D	1.4	7.5	R	62	NA	35.3	14/4	85
2ED51C0HA	.5	1	115	3450	3.88	H	14.5	46.0	M	54	7.5	1.0	16/3	85
2ED51C8HA	.5	1	208	3450	3.88	H	8.1	31.0	K	68	9.7	2.4	16/3	85
2ED51C1HA	.5	1	230	3450	3.88	H	7.3	34.5	M	53	9.6	4.0	16/3	85
2ED51C3HA	.5	3	230	3450	3.88	H	3.6	18.8	R	70	NA	5.8	14/4	85
2ED51C4HA	.5	3	460	3450	3.88	H	1.8	9.4	R	70	NA	23.2	14/4	85
2ED51C5HA	.5	3	575	3450	3.88	H	1.5	7.5	R	62	NA	35.3	14/4	85
2ED51D8CA	.75	1	208	3450	4.06	C	11.0	31.0	K	68	9.7	2.4	14/3	97
2ED51D1CA	.75	1	230	3450	4.06	C	10.0	27.5	J	65	12.2	2.7	14/3	97
2ED51D3CA	.75	3	230	3450	4.06	C	5.4	15.7	K	68	NA	8.6	14/4	97
2ED51D4CA	.75	3	460	3450	4.06	C	2.7	7.9	K	68	NA	34.2	14/4	97
2ED51D5CA	.75	3	575	3450	4.06	C	2.2	9.9	L	78	NA	26.5	14/4	97
2ED51E8BA	1	1	208	3450	4.44	B	14.0	59.0	K	68	9.3	1.1	14/3	99
2ED51E1BA	1	1	230	3450	4.44	B	12.5	36.2	J	69	10.3	2.1	14/3	99
2ED51E3BA	1	3	230	3450	4.44	B	7.0	24.1	L	79	NA	4.1	14/4	99
2ED51E4BA	1	3	460	3450	4.44	B	3.5	12.1	L	79	NA	16.2	14/4	99
2ED51E5BA	1	3	575	3450	4.44	B	2.8	9.9	L	78	NA	26.5	14/4	99
2ED51F8AA	1.5	1	208	3450	4.56	A	17.5	59.0	K	68	9.3	1.1	14/3	99
2ED51F1AA	1.5	1	230	3450	4.56	A	15.7	50.0	H	68	11.3	1.6	14/3	99
2ED51F2AA	1.5	3	200	3450	4.56	A	10.6	40.6	K	79	NA	1.9	14/4	99
2ED51F3AA	1.5	3	230	3450	4.56	A	9.2	31.7	K	78	NA	2.9	14/4	99
2ED51F4AA	1.5	3	460	3450	4.56	A	4.6	15.9	K	78	NA	11.4	14/4	99
2ED51F5AA	1.5	3	575	3450	4.56	A	3.7	13.1	K	75	NA	16.9	14/4	99
2ED51F8GA	1.5	1	208	3450	5.50	G	17.5	59.0	K	68	9.3	1.1	14/3	99
2ED51F1GA	1.5	1	230	3450	5.50	G	15.7	50.0	H	68	11.3	1.6	14/3	99
2ED51F2GA	1.5	3	200	3450	5.50	G	10.6	40.6	K	79	NA	1.9	14/4	99
2ED51F3GA	1.5	3	230	3450	5.50	G	9.2	31.7	K	78	NA	2.9	14/4	99
2ED51F4GA	1.5	3	460	3450	5.50	G	4.6	15.9	K	78	NA	11.4	14/4	99
2ED51F5GA	1.5	3	575	3450	5.50	G	3.7	13.1	K	75	NA	16.9	14/4	99

APPLICATION DATA

Maximum Solid Size	¾"
Minimum Casing Thickness	5⁄16"
Casing Corrosion Allowance	⅛"
Maximum Working Pressure	55 PSI
Maximum Submergence	50 feet
Minimum Submergence	Fully submerged for continuous operation
	6" below top of motor for intermittent operation
Maximum Environmental Temperature	40°C (104°F) continuous operation
	60°C (140°F) intermittent operation

CONSTRUCTION DETAILS

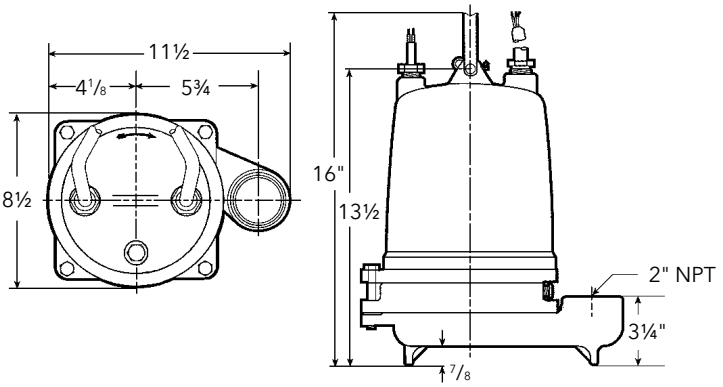
Power Cable – Type	16/3, type SJTOW: single phase, ⅓ HP 115V or 230 & ½ HP 230V
	14/3, type STOW: single phase, ½ HP (115V only), ¾ & 1 1/2 HP
	14/4, type STOW: all three phase
Sensor Cable – Type	16/2, type SJTOW: seal sensor only
	16/4, type SJTOW: optional seal/heat sensor
Motor Cover	Gray Cast Iron – ASTM A48 Class 30
Bearing Housing	Gray Cast Iron – ASTM A48 Class 30
Seal Housing	Gray Cast Iron – ASTM A48 Class 30
Casing	Gray Cast Iron – ASTM A48 Class 30
Impeller	Gray Cast Iron – ASTM A48 or Cast Bronze – ASTM B584 C87600
Motor Shaft	AISI 400 Series Stainless Steel
Motor Design	NEMA 48 Frame, oil filled with Class F Insulation
	Capacitor Start - Single Phase
Motor Overload Protection	Single Phase: on winding thermal overload protection
	Three Phase: require ambient compensated Class 10, quick trip overloads in the control panel.
Motor Seal Fail (Moisture) Detection	Seal fail sensor in an oil-filled seal chamber. Connect to an optional relay in control panel.
Optional Motor Thermal Protection	Normally closed on-winding thermostats open at 275° F (135 °C) and close at 112° F (78° C). Require terminal connection in the control panel.
External Hardware	300 Series Stainless Steel
Impeller Type	Semi-opened with pump out vanes on back shroud
Oil Capacity – Seal Chamber	10 ounces
Oil Capacity – Motor Chamber	4.0 quarts

STANDARD PARTS

Ball Bearing	Upper	Single row ball – SKF™ 6203-2Z
	Lower	Single row ball – SKF™ 6203-2Z
Mechanical Seals – Standard	Upper	Carbon/Ceramic; Type 16
	Lower	Silicon Carbide/Silicon Carbide; Type 16
Mechanical Seals – Optional Lower		Silicon Carbide/Tungsten Carbide; Type 16
O-Ring – Stuffing Box		BUNA-N, AS 568A-163
O-Ring – Motor Cover		BUNA-N, AS 568A-166

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)

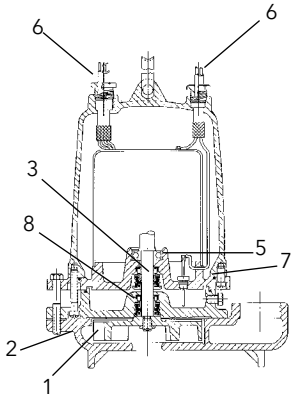


MATERIALS OF CONSTRUCTION

Item No.	Part Name	Material	
		Standard	Optional
1	Impeller	1003	1179
2	Castings	1003	
3	Shaft–threaded	400 Series SS	
4	Fasteners	300 Series SS	
5	Ball bearings	Steel	
6	Power cable	STOW, 20 feet	Additional lengths
	Seal sensor cable		
7	O-ring	BUNA-N	

8	Outer Mech. Seal	Service	Rotary	Stationary	Elasto-mers	Metal Parts
	OPT	Heavy duty	Silicon Carbide	Tungsten Carbide	BUNA-N	300 Series SS
	STD	Mild abrasives	Silicon Carbide		BUNA-N	300 Series SS

Material Code	Engineering Standard
1003	Cast iron – ASTM A48 Class 30
1179	Silicon bronze – ASTM B584 C87600



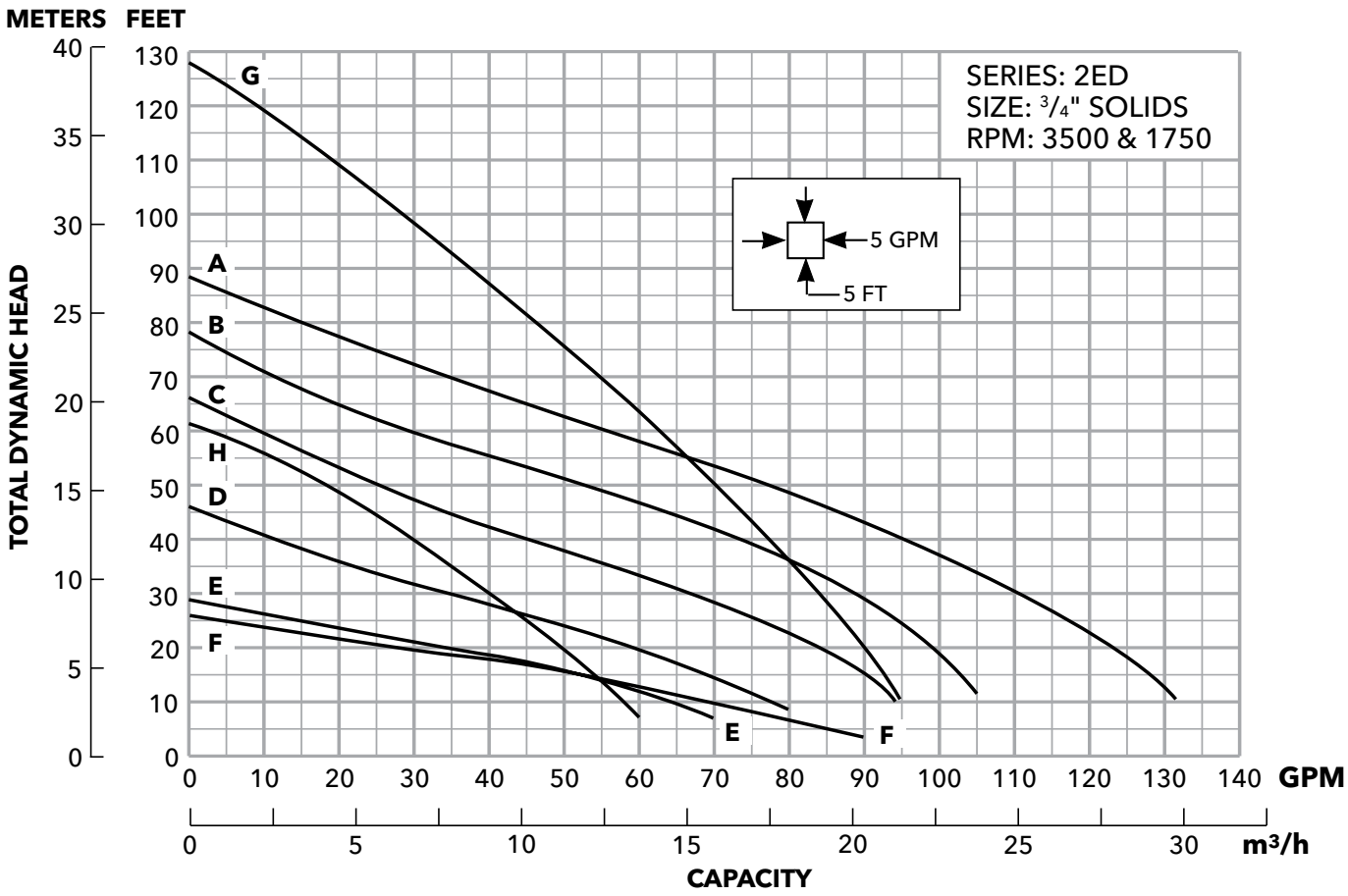
2ED Submersible Effluent Pump

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

Impeller and Curve Code	Impeller Diameter	Motor HP Rating
A	4.56"	1.5
B	4.44"	1
C	4.06"	.75
D	3.56"	.5
E①	5.38"	.33
F②	5.38"	.33
G	5.50"	1.5
H	3.88"	.5

① E code signifies a standard casing. ② F code signifies a lower head/higher flow casing.

E & F = Same impellers used with (2) different casings.



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Let's Solve Water

TECHNICAL BROCHURE
BBLASTER R4

BLASTER®

FILTERED EFFLUENT PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Designed for pumping filtered effluent from processed septic systems only.

Powered for Continuous Operation: All ratings are within the working limits of the motor as recommended by the motor manufacturer. Pump can be operated continuously without damage to the motor.

Metal Parts are Stainless Steel: AISI types 301 and 304 are corrosion resistant, non-toxic and non-leaching.

Non-Metallic Parts: Impellers and diffusers are constructed of glass filled polycarbonate or Noryl, engineered composites. Both materials are corrosion and effluent resistant.

Discharge Head: Engineered composite material for superior strength and corrosion resistance. Loops for safety line molded into head.

- Built/in check valve screws into discharge head from the top, easily removed for drain-back systems or replacement without disassembling the pump. spring loaded, o-ring poppet design for positive seal in all conditions.

Motor Adapter: Engineered composite material with high rigidity to provide accurate alignment of liquid end to motor. Generous space for removal of motor mounting nuts with regular open-end wrench.

Bowls: Stainless steel for strength and abrasive resistance.

120" 3 wire jacketed motor lead standard.

Stainless Steel Casing: Polished stainless steel is strong, attractive and corrosion resistant.

Hex Shaft Design: Six sided shaft for positive impeller drive.

Inlet Strainer: Molded suction strainer built into motor adapter.

Engineered Polymer Bearings: The proprietary, engineered polymer bearing material is extremely strong and highly resistant to abrasion and wear. The enclosed design upper bearing is mounted in a durable Noryl bearing spider for excellent abrasion resistance.

Warranty: Three (3) years.

NEMA Goulds Water Technology® Motor:

- Corrosion resistant stainless steel construction.
- Built-in surge arrestor is provided on single phase motors.
- Stainless steel splined shaft.
- Hermetically sealed windings.
- Replaceable motor lead assembly.
- UL 778 recognized.
- NEMA mounting dimensions.

Agency Listings: All complete pump/motor assemblies are UL778 and CSA listed. All 4" Motors are UL778 recognized.

All models have ⅛" diameter bypass in discharge head to ensure venting on start up.

③ See curves and note.

AGENCY LISTINGS

Underwriters Laboratories
File no. E174426

Canadian Standards Association
File no. 38549

ORDER NUMBER CODE

8EB 05 2 2 J

EB Pump Series
8EB 33EB
12EB 55EB
20EB

Horsepower Code
05 = ½ HP
07 = ¾ HP
10 = 1 HP
15 = 1½ HP

Phase
2 = 1 phase, 2-wire

Voltage
1 = 115 V 2 = 230 V

120" jacketed lead - standard

SPECIFICATIONS

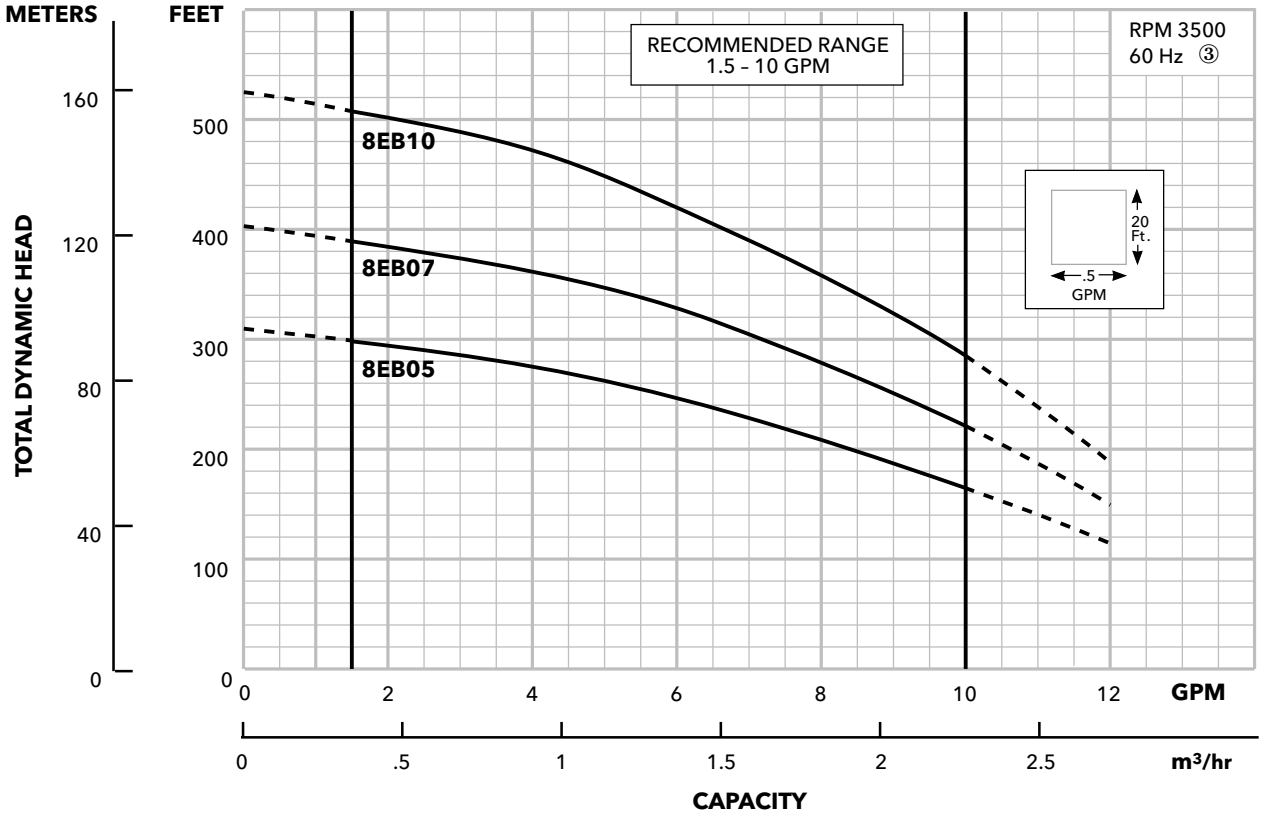
Model	Flow Range GPM	Horsepower Range	Best Efficiency GPM	Discharge Connection	Maximum Solids Size	Rotation ①
8EB	1.5 – 10	½ – 1	7	1¼	1/16" dia.	CCW
12EB	3 – 16	½ – 1½	10	1¼	1/16" dia.	CCW
20EB	6 – 28	½ – 1½	18	1¼	1/16" dia.	CCW
33EB	10 – 50	½ – 1½	33	1¼	1/16" dia.	CCW
55EB	20 – 80	½ – 1½	55	1¼	1/16" dia.	CCW

① Rotation is counterclockwise when observed from pump discharge end.

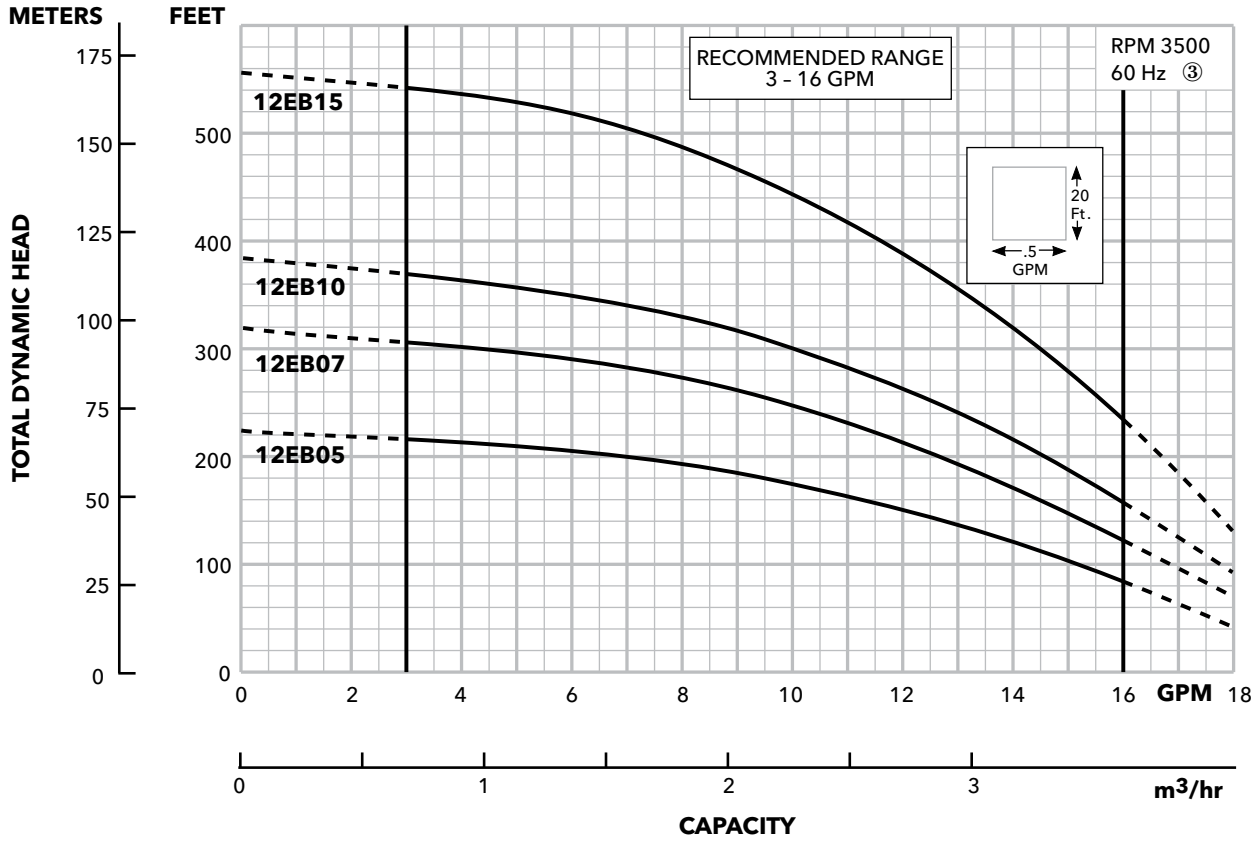
"EB" SERIES MATERIALS OF CONSTRUCTION

Part Name	Material
Discharge Head	Glass Filled Eng. Composite
Check Valve Poppet	Delrin
Check Valve Seal	BUNA, FDA compliant
Check Valve Retaining Ring	AISI 302 SS
Bearing Spider – Upper	Noryl®/ GFN2
Bearing	Proprietary Eng. Polymer
Shaft Retaining Ring	AISI 301 SS
Diffuser	Lexan® / Noryl®
Impeller	Noryl® / GFN2
Bowl	AISI 304 SS
Shim	AISI 304 SS
Inlet Strainer	Glass Filled Eng. Composite
Screws – Cable Guard	AISI 304 SS
Motor Adapter	Glass Filled Eng. Composite

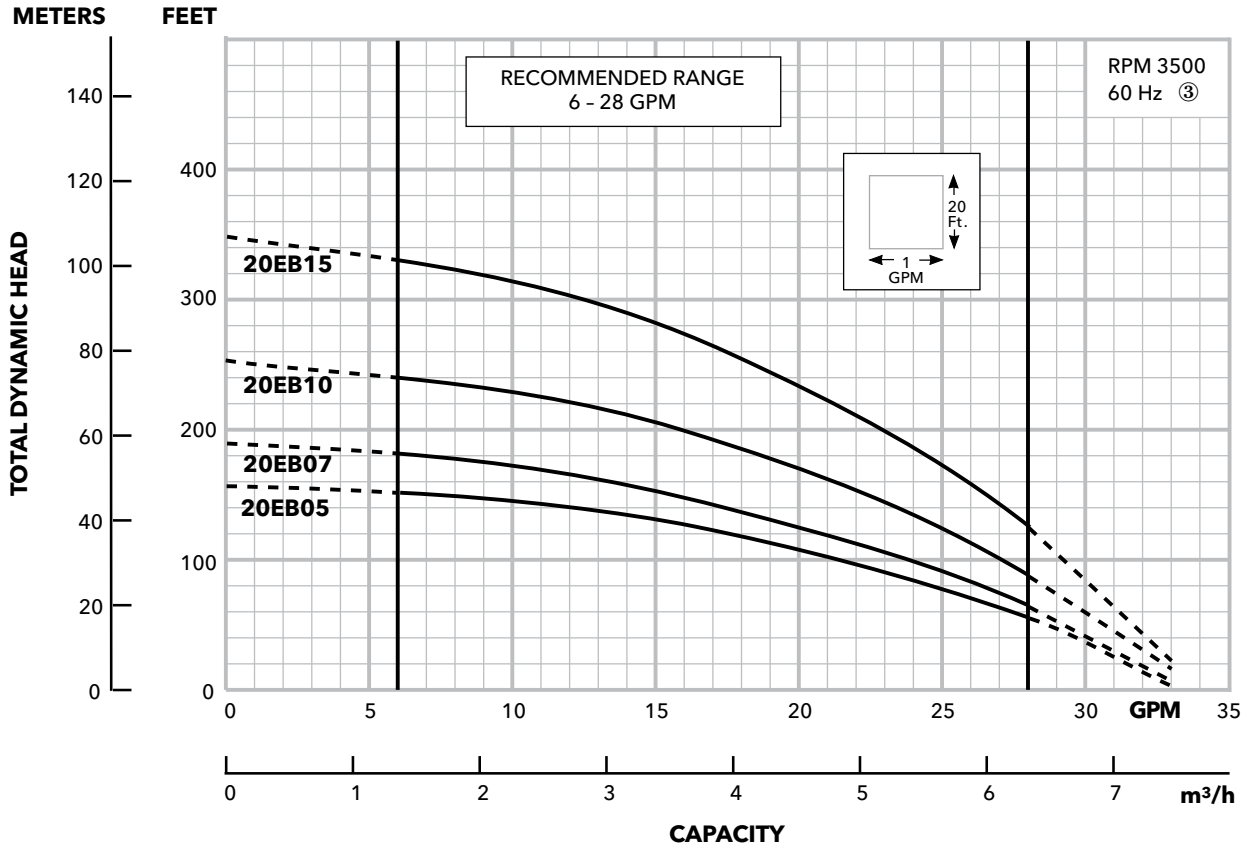
MODEL 8EB



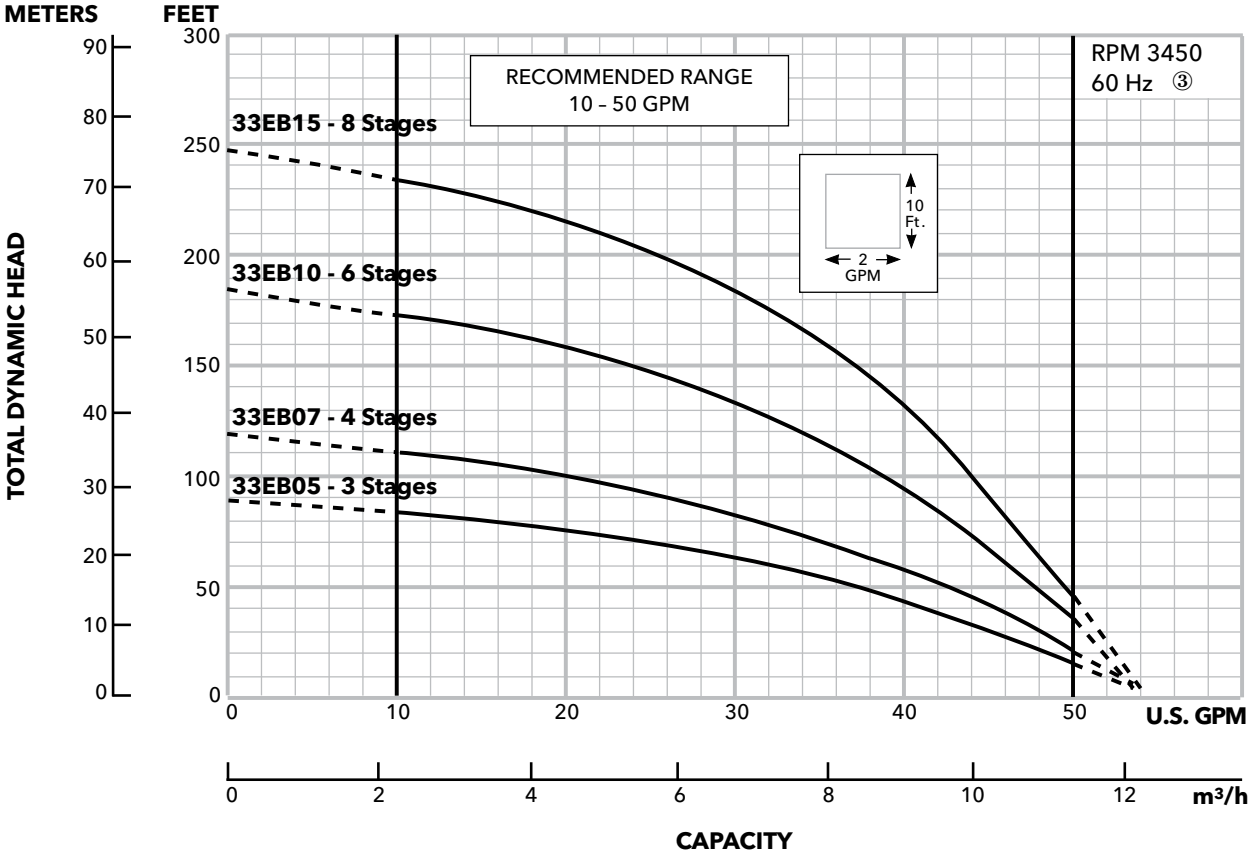
MODEL 12EB



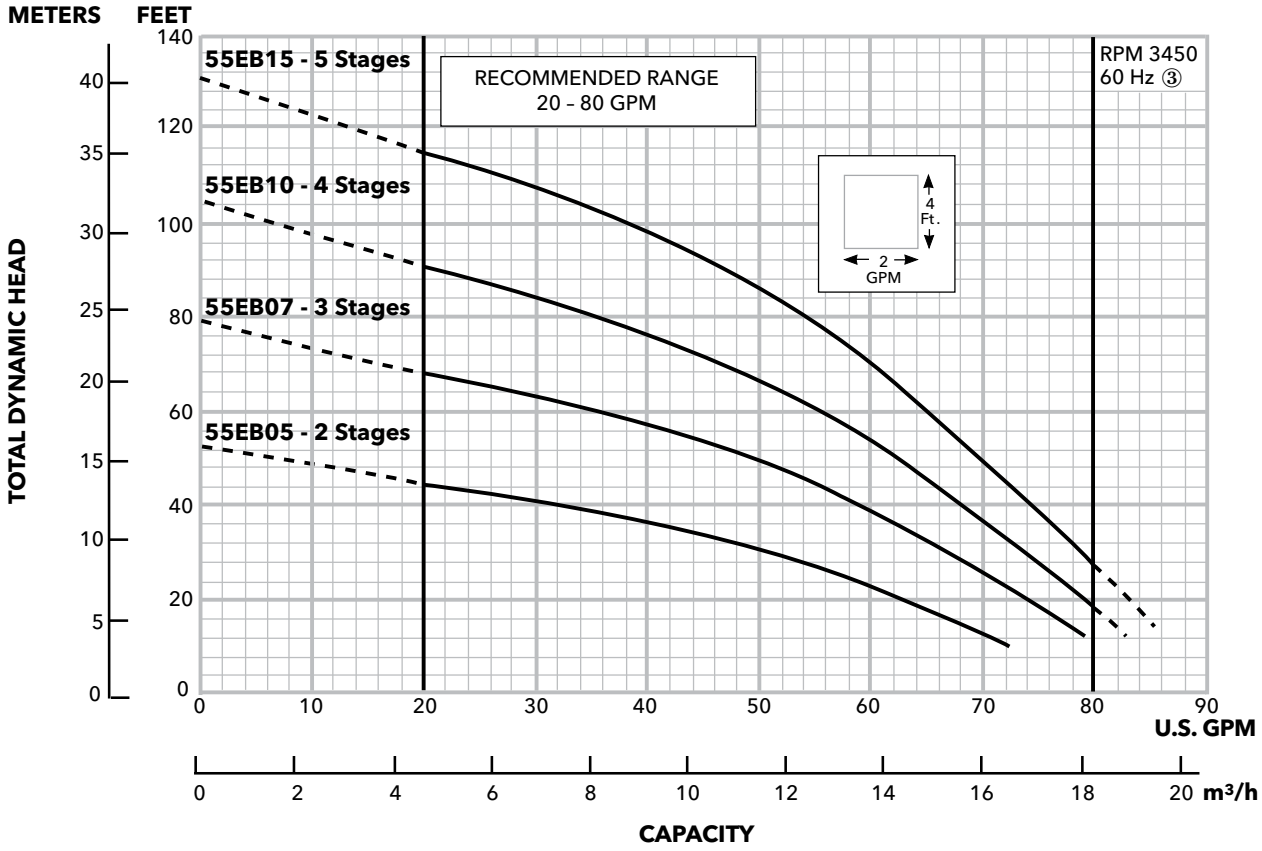
MODEL 20EB

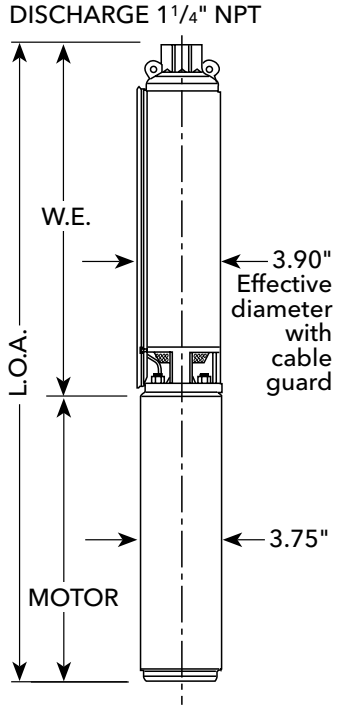


MODEL 33EB



MODEL 55EB


METERS
FEET
TOTAL DYNAMIC HEAD
55EB15 - 5 Stages
55EB10 - 4 Stages
55EB07 - 3 Stages
55EB05 - 2 Stages
RECOMMENDED RANGE
20 – 80 GPM
RPM 3450
60 Hz ③
4 Ft.
2 GPM
U.S. GPM
m³/h
CAPACITY


DISCHARGE 1¼" NPT
W.E.
L.O.A.
3.90" Effective diameter with cable guard
3.75"
MOTOR

DIMENSIONS AND WEIGHTS

8EB

Order Number	HP	Phase	Stages	Length (inches)			Weight (lbs.)		
				W.E.①	CP Motor	L.O.A.②	W.E.	CP Motor	Total
8EB0522J, 8EB0521J	½	1	10	13.3	11.0	24.3	5	19	24
8EB0722J	¾	1	13	15.4	12.4	27.8	6	23	29
8EB1022J	1	1	17	18.3	13.3	31.6	8	25	33

12EB

Order Number	HP	Phase	Stages	Length (inches)			Weight (lbs.)		
				W.E.①	CP Motor	L.O.A.②	W.E.	CP Motor	Total
12EB0522J, 12EB0521J	½	1	7	11.0	11.0	22.0	4	19	23
12EB0722J	¾	1	10	13.0	12.4	25.4	5	23	28
12EB1022J	1	1	12	14.4	13.3	27.7	6	25	31
12EB1522J	1½	1	17	17.9	14.9	32.8	8	29	37

20EB

Order Number	HP	Phase	Stages	Length (inches)			Weight (lbs.)		
				W.E.①	CP Motor	L.O.A.②	W.E.	CP Motor	Total
20EB0522J, 20EB0521J	½	1	5	9.6	11.0	20.6	3	19	22
20EB0722J	¾	1	6	11.3	12.4	23.7	4	23	27
20EB1022J	1	1	8	13.0	13.3	26.3	5	25	30
20EB1522J	1½	1	11	15.5	14.9	30.4	6	29	35

33EB

Order Number	HP	Phase	Stages	Length (inches)			Weight (lbs.)		
				W.E.①	CP Motor	L.O.A.②	W.E.	CP Motor	Total
33EB0522J, 33EB0521J	½	1	3	11.0	11.0	22.0	4	19	23
33EB0722J	¾	1	4	12.2	12.4	24.6	5	23	28
33EB1022J	1	1	6	14.7	13.3	28.0	6	25	31
33EB1522J	1½	1	8	17.1	14.9	32.0	7	29	36

55EB

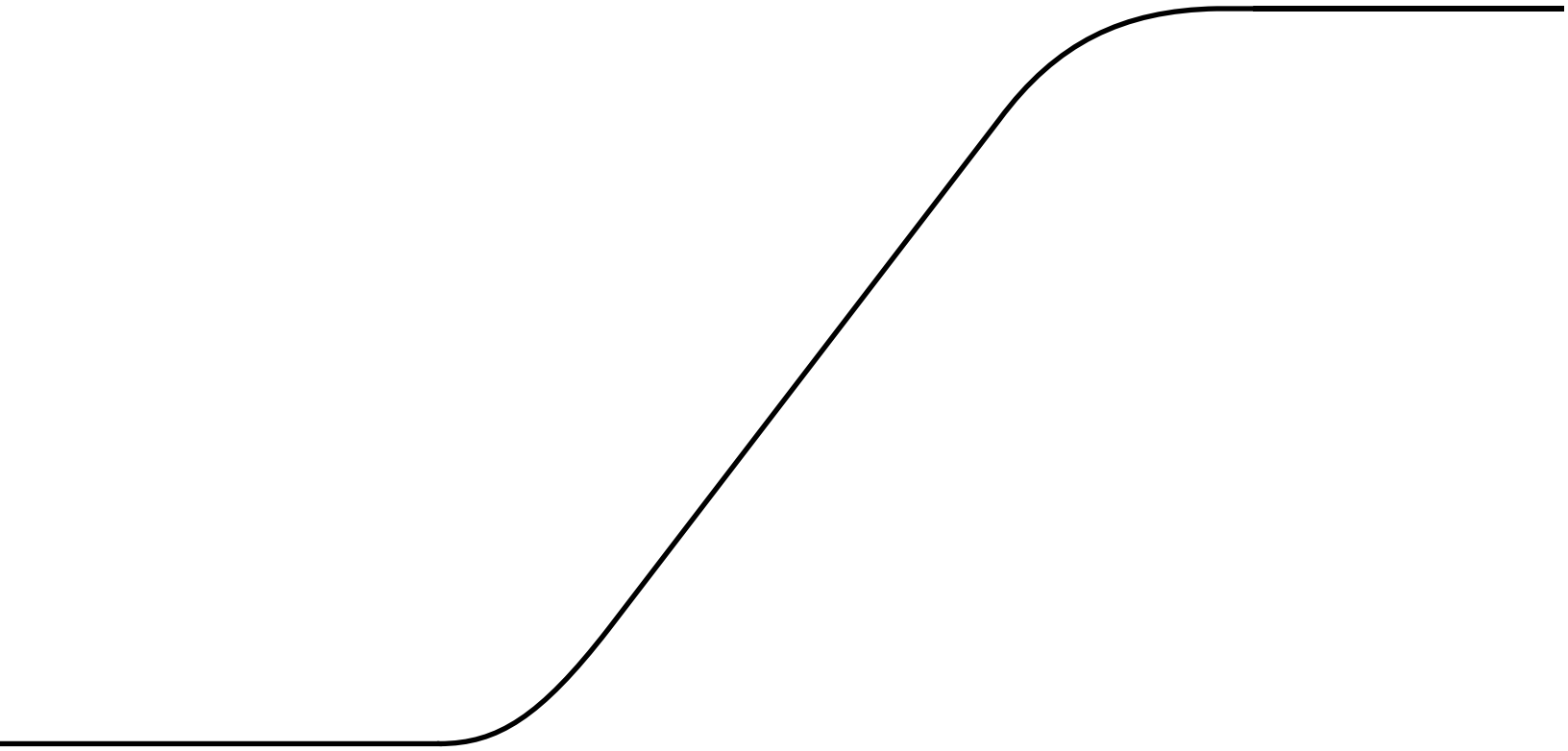
Order Number	HP	Phase	Stages	Length (inches)			Weight (lbs.)		
				W.E.①	CP Motor	L.O.A.②	W.E.	CP Motor	Total
55EB0522J, 55EB0521J	½	1	2	11.4	11.0	22.4	4	19	23
55EB0722J	¾	1	3	13.5	12.4	25.9	5	23	28
55EB1022J	1	1	4	15.5	13.3	28.8	6	25	31
55EB1522J	1½	1	5	17.6	14.9	32.5	8	29	37

① W.E. = water end or pump without motor.

② L.O.A. = length of assembly – complete pump – water end and Goulds Water Technology® motor.

③ Performance curves are based on running pumps without ⅛" discharge head weephole. Actual performance will be slightly lower unless weep hole is plugged.

2" Sewage pumps



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Let's Solve Water

TECHNICAL BROCHURE
BPV R5

PV

SUBMERSIBLE VORTEX SEWAGE PUMP

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

- Corrosion resistant construction
- Cast iron body
- Thermoplastic impeller and cover.
- Upper sleeve and lower heavy duty ball bearing construction.
- Motor is permanently lubricated for extended service life.
- Powered for continuous operation.
- Vortex impeller is recessed to allow free flow through casing.
- All ratings are within the working limits of the motor.
- Heavy duty 10' and 20 ' length SJTW power cords with NEMA three prong, 115 or 230 volt grounding plug
- Complete unit is heavy duty, portable and compact.
- Mechanical seal is carbon, ceramic, BUNA and stainless steel.
- Stainless steel fasteners

APPLICATIONS

Specially designed for the following uses:

- Residential sewage systems
- Heavy duty sump/dewatering
- Water transfer

SPECIFICATIONS

Pump

- Discharge: 2" NPT
- Maximum capacity: 100 GPM
- Maximum head: 22' TDH
- Vortex Impeller
- Solids handling: 2" maximum sphere.
- Temperature: 104° F (40° C) maximum, continuous when fully submerged.
- Automatic models include a float switch.
- Manual models available.
- Pumping range: see performance chart or curve.

MOTOR

- Single phase
- 60 Hertz
- 115 and 230 Volt
- Built-in thermal overload protection with automatic reset.
- Class B insulation
- Oil-filled design
- High strength carbon steel shaft
- 0.5 HP, 3400 RPM
- PSC design

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

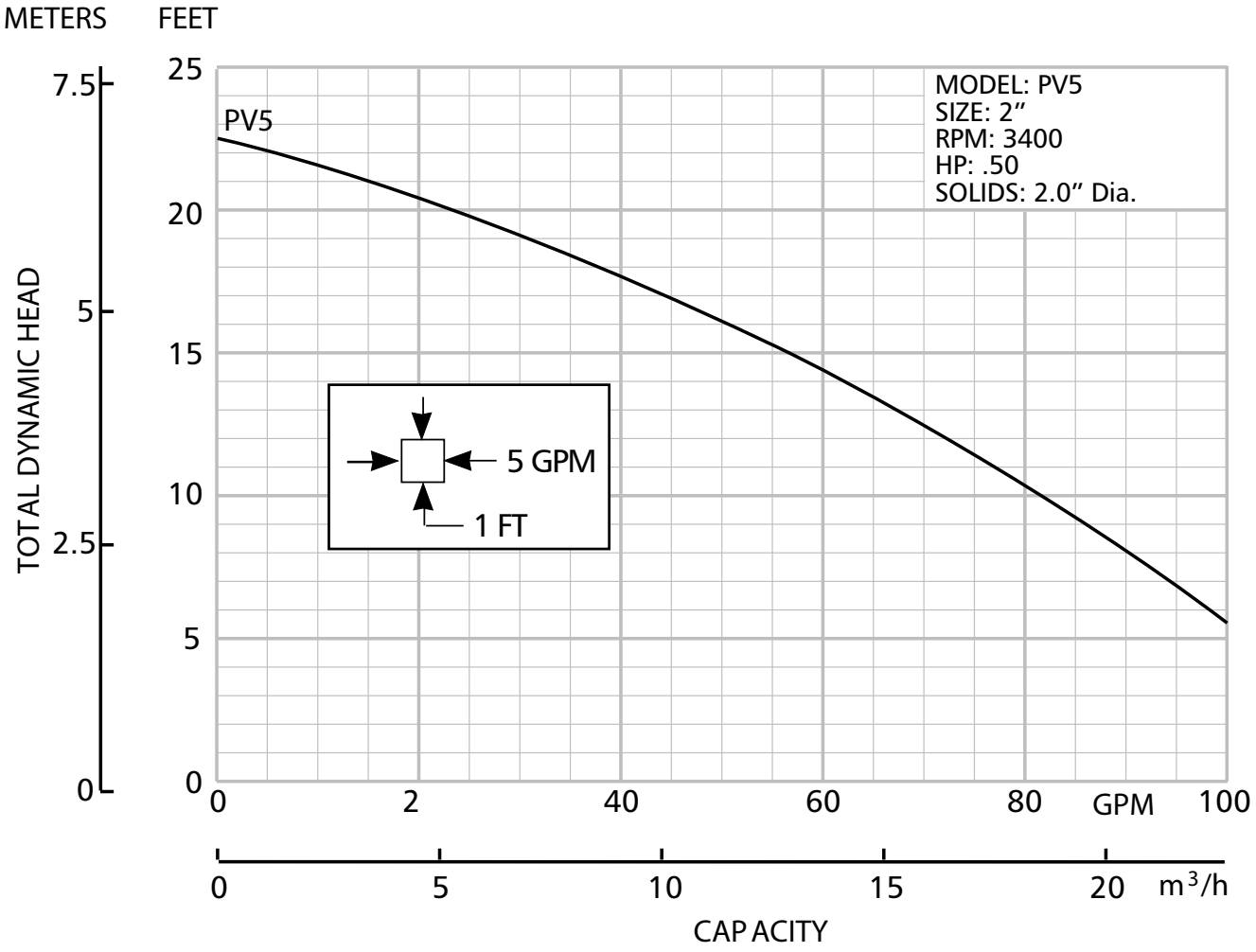
MODEL INFORMATION

Order No.	HP	Volts	Max. Amps	Minimum Circuit Breaker	Phase	RPM	Float Switch Style	Power Cord Length	Discharge Connection	Maximum Solids Size	Minimum Basin Diameter	Shipping Weight lbs/kg
PV51P1	0.5	115	13.0	20	1	3400	Piggyback Wide Angle	10'	2"	2"	18"	44
PV51MF							Plug / No Switch	20'				
PV51P1F							Piggyback Wide Angle					
PV52MF		230	6.5	15			Plug/No Switch					
PV52P1F							Piggyback Wide Angle					

PERFORMANCE CHARTS

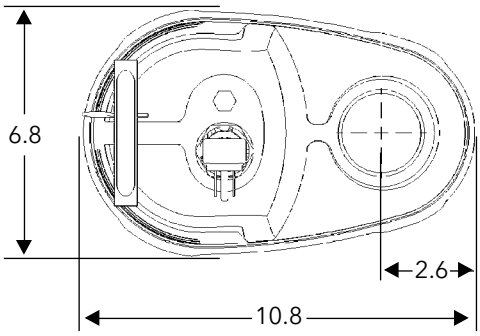
These charts show actual system performance with friction loss factored in for various discharge pipe lengths. Calculations and performance based on a system with 2" PVC, schedule 40 plastic pipe (C150), (4) 90° elbows, (1) check valve and (1) shut-off valve. Wastewater requires a minimum scouring velocity of 21 gpm for 2" pipe. Shaded areas do not provide minimum scouring velocity - use only for gray water with no solids.

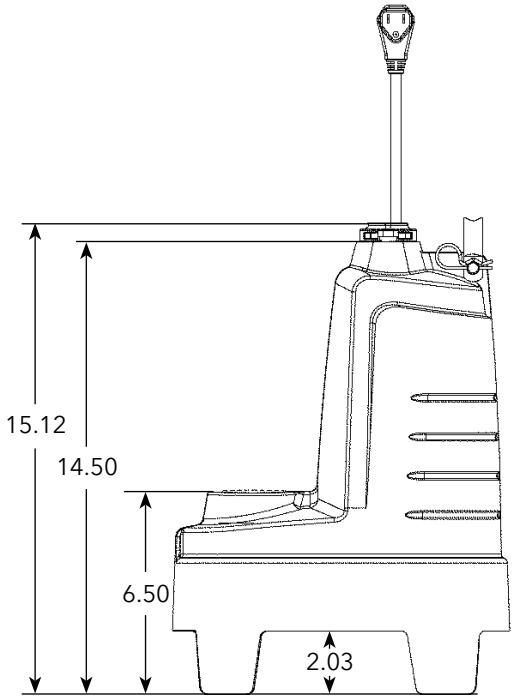
Pipe Length (Feet)	GPM									
	Vertical Head (Feet)									
	2	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**
25	95	89	83	77	70	62	53	45	35	22
50	83	78	73	67	61	55	48	40	31	20
75	76	71	66	61	55	50	43	37	28	18
100	69	65	61	56	51	46	40	33	26	17
150	60	57	53	49	45	40	35	29	23	16
200	54	51	48	44	40	36	32	27	21	14
250	49	47	44	40	37	33	29	24	19	13
300	46	43	40	37	34	31	27	23	18	12



DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)





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TECHNICAL BROCHURE
BPS R3

PS

SUBMERSIBLE SEWAGE PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

- Corrosion resistant construction
- Cast iron body
- Thermoplastic impeller and cover
- Upper sleeve and lower heavy duty ball bearing construction.
- Motor is permanently lubricated for extended service life.
- Powered for continuous operation.
- All ratings are within the working limits of the motor.
- Quick disconnect power cord, 10' and 20' standard lengths, heavy duty 16/3 SJTW with NEMA three prong, 115 or 230 volt grounding plug.
- Complete unit is heavy duty, portable and compact.
- Mechanical seal is carbon, ceramic, BUNA and stainless steel.
- Stainless steel fasteners

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #218526

APPLICATIONS

Specially designed for the following uses:

- Residential Sewage Systems
- Heavy-Duty Sump/Dewatering
- Water Transfer

SPECIFICATIONS

Pump – General:

- Discharge: 2" NPT
- Temperature: 104°F (40°C) maximum, continuous when fully submerged.
- Solids handling: 2" maximum sphere.
- Automatic models include a float switch.
- Manual models available.

PS4 Pump:

- Maximum capacity: 110 GPM
- Maximum head: 23' TDH

PS5 Pump:

- Maximum capacity: 130 GPM
- Maximum head: 27' TDH

MOTOR

General:

- Single phase
- 60 Hertz
- 115 and 230 volt
- Built-in thermal overload protection with automatic reset
- Class B insulation
- Oil-filled design
- High strength carbon steel shaft

PS4 Motor:

- .40 HP, 3400 RPM
- PSC design

PS5 Motor:

- .50 HP, 3400 RPM
- PSC design

MODEL INFORMATION

Order No.	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs/kg
PS41P1	0.4	115	10.0	20	1	Piggyback Float Switch	10'	2"	18"	2"	40 / 18.1
PS41P1F						Piggyback Float Switch	20'				
PS51M	0.5	115	13.0	20		Manual / No Switch	10'				
PS51P1						Piggyback Float Switch					
PS51MF						Manual / No Switch	20'				
PS51P1F						Piggyback Float Switch					
PS52MF		230	6.5	15		Plug / No Switch					

PERFORMANCE CHARTS

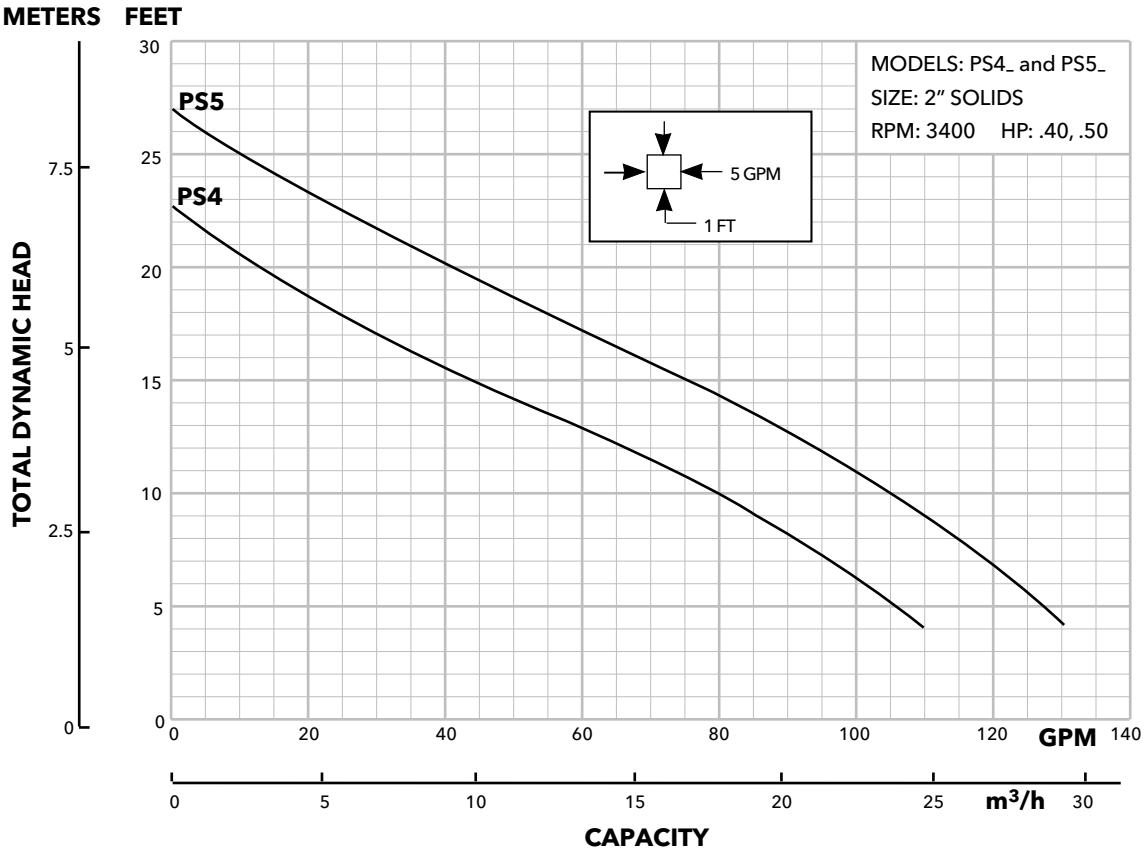
These charts show actual system performance with friction loss factored in for various discharge pipe lengths. Calculations and performance based on a system with 2" PVC, schedule 40 plastic pipe (C150), (4) 90º elbows, (1) check valve and (1) shut-off valve. Wastewater requires a minimum scouring velocity of 21gpm for 2" pipe. Shaded areas do not provide min. scouring velocity - use only for gray water with no solids.

PS4

Pipe Length	GPM Vertical Head (Feet)									
	2	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**
25	96	88	82	74	65	54	43	33	24	14
50	83	77	70	63	56	47	38	30	22	13
75	74	68	62	56	49	42	35	28	21	13
100	67	62	57	51	45	39	33	26	19	12
150	57	53	48	44	39	34	29	23	17	11
200	51	47	43	39	35	31	26	22	16	10
250	46	43	39	36	33	28	24	21	16	10
300	43	39	37	34	30	27	23	19	15	9

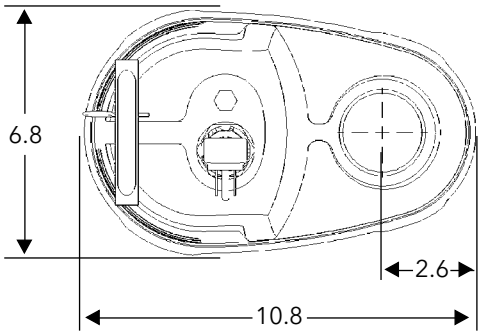
PS5

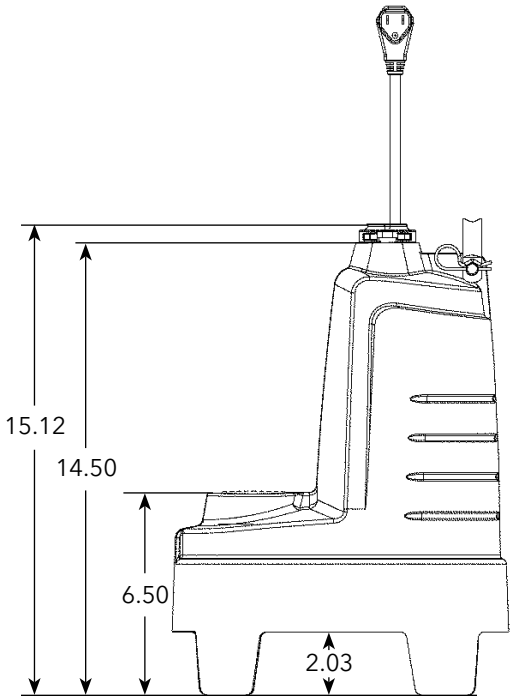
	4	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**
25	105	99	91	84	75	65	55	45	35	25
50	90	85	78	71	63	56	48	40	32	24
75	80	74	69	62	57	50	44	37	30	22
100	72	67	62	57	52	46	40	34	28	21
150	61	58	54	49	45	40	35	31	25	18
200	54	51	48	44	40	36	32	28	23	17
250	50	47	44	40	37	34	30	26	21	16
300	46	43	40	37	34	31	28	24	20	15



DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)





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TECHNICAL BROCHURE
B3872 R3

WW05 Series
Model 3872

SUBMERSIBLE SEWAGE PUMPS

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Glass-filled thermoplastic Full-Vortex design with pump out vanes for mechanical seal protection.

Casing and Base: Rugged glass-filled thermoplastic design provides superior strength and corrosion resistance.

Motor Housing: Cast iron for efficient heat transfer, strength, and durability.

Motor Cover: Thermoplastic cover with integral handle and float switch attachment points.

Bearings: Upper and lower heavy duty ball bearing construction.

Power Cable: Severe duty rated oil and water resistant.

O-ring: Provides positive sealing. Easily replaced during maintenance.

Stainless steel fasteners

AGENCY LISTINGS

By Canadian Standards Association

APPLICATIONS

Specifically designed for the following uses:

- Residential sewage systems
- Dewatering
- Water transfer

Anywhere waste or drainage must be disposed of quickly, quietly and efficiently.

SPECIFICATIONS

Pump:

- Solids handling capability: 2" maximum
- Capacities: up to 75 GPM
- Total heads: up to 18 feet
- Discharge size: 2" NPT
- Mechanical seal: carbon-rotary/ceramic-stationary, BUNA-N elastomers
- Temperature:
  104° F (40° C) continuous
  140° F (60° C) intermittent
- Class B Insulation
- Fasteners: 300 series stainless steel
- Capable of running dry without damage to components.

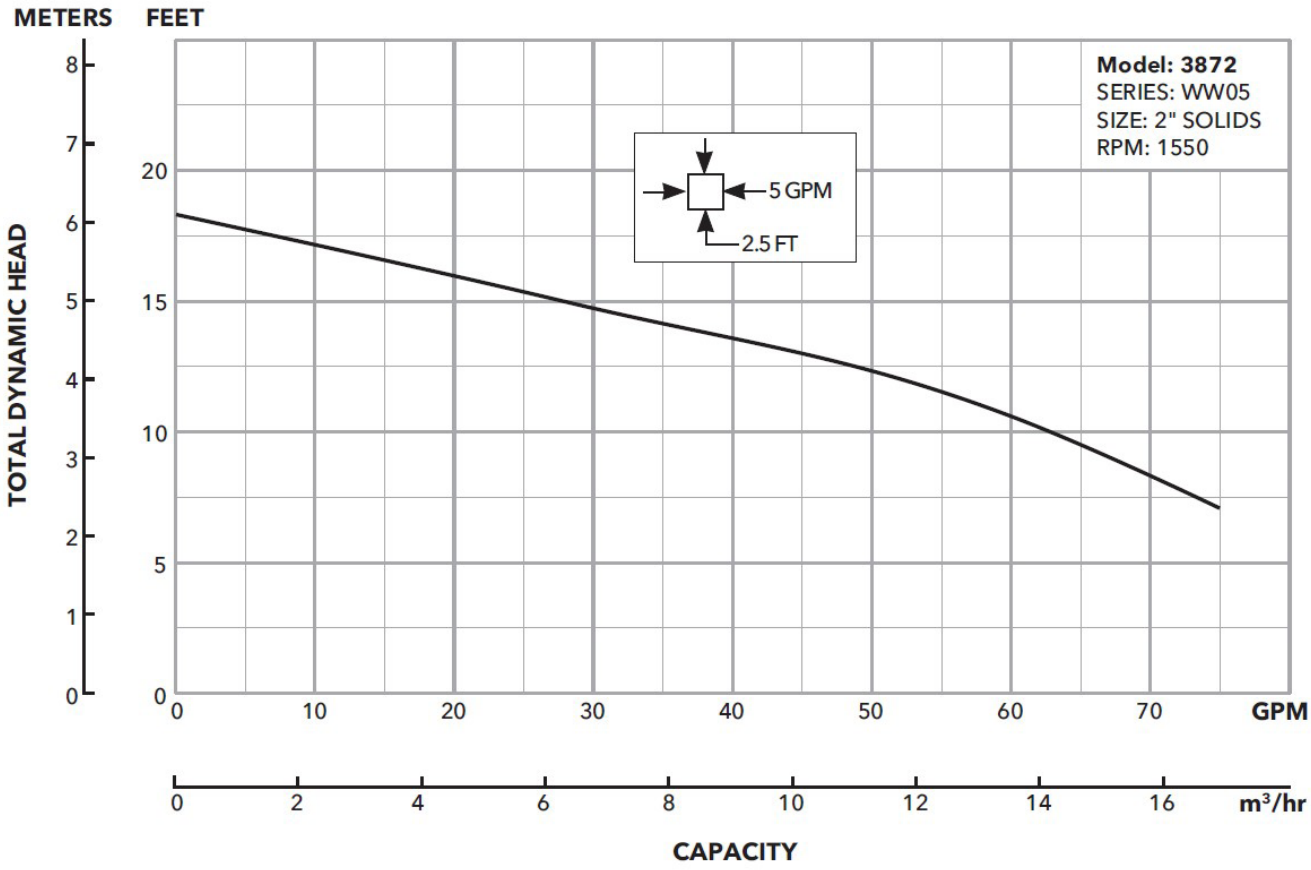
Motor

- Single phase: ½ HP, 115V, 60 Hz, 1550 RPM, built in overload with automatic reset.
- Power cord: 10 foot standard length, 16/3 SJTW with three prong grounding plug. Optional 20 foot length, 16/3 SJTW with three prong grounding plug.
- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer.

Available for automatic and manual operation. Automatic models include Mechanical Float Switch assembled and preset at the factory.

MODEL INFORMATION

Order Number	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Minimum On Level	Minimum Off Level	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs.kg
WW0511	.5	115	13	20	1	Plug / No Switch	10'	2"	Manual	Manual	18"	2"	22 / 10
WW0511A						Piggyback / Wide-Angle	10'		15"	9"			23 / 10.4
WW0511F						Plug / No Switch	20'		Manual	Manual			22 / 10
WW0511AC						Piggyback / Wide-Angle	20'		15"	9"			23 / 10.4



PERFORMANCE CHARTS

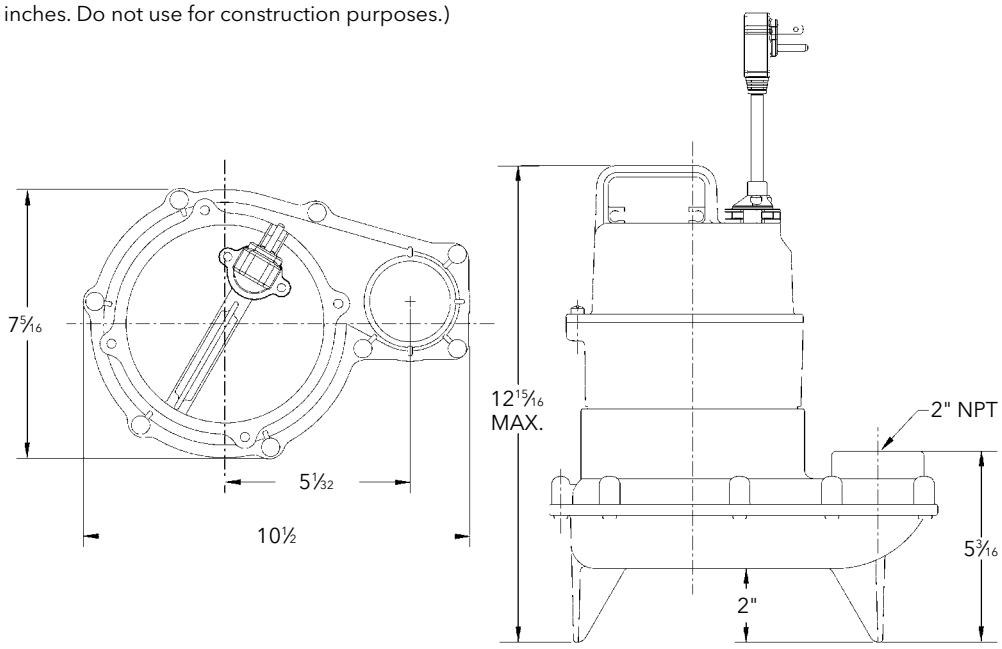
These charts show actual system performance with friction loss factored in for various discharge pipe lengths. Calculations and performance based on a system with 2" PVC, schedule 40 plastic pipe (C150), (4) 90° elbows, (1) check valve and (1) shut-off valve. Wastewater requires a minimum scouring velocity of 21 gpm for 2" pipe. Shaded areas do not provide min. scouring velocity - use only for gray water with no solids.

WW05 (3872)

	4	6	8	10	12	14	16
25	75	68	62	52	40	27	13
50	67	61	54	45	35	24	12
75	61	55	48	40	32	22	11
100	56	50	44	37	29	21	11
150	48	43	38	32	26	18	10
200	43	39	34	29	23	17	10
250	39	35	31	26	21	15	10
300	35	32	29	24	20	14	10

DIMENSIONS

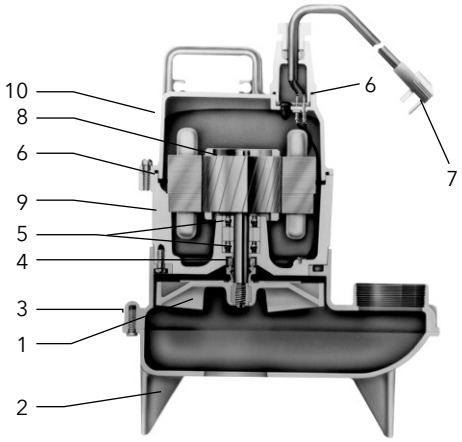
(All dimensions are in inches. Do not use for construction purposes.)



COMPONENTS *(for reference only)*

Item No.	Description
1	Impeller
2	Rugged thermoplastic base
3	Rugged thermoplastic pump casing
4	Mechanical seal
5	Ball bearings
6	O-rings
7	Power cord
8	Oil filled motor
9	Cast iron motor housing/stator assembly
10	Thermoplastic motor cover

* Parts available on repair parts selection chart.



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TECHNICAL BROCHURE
B2DM R4

Model 2DM

2" SUBMERSIBLE SEWAGE PUMP

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

Casing: Corrosion resistant AISI 304 SS designed for long lasting performance

Impeller: AISI type 304 stainless steel construction; two vane non-clog design for maximum pumping efficiency

Mechanical Seal: Drive lube silicon carbide sealing faces; all metal components of AISI type 300 stainless steel running in protected oil chamber

Elastomers: BUNA-N

Pump Support Feet: Motor shell and lifting handle: Constructed of AISI type 304 series stainless steel

Shaft: AISI type 304 stainless steel high strength pump shaft with keyed and locking cap screw impeller fastening

Discharge: 2" NPT for horizontal connection to rigid, flexible or guide rail piping connection

APPLICATIONS

Non-clog submersible sewage pumps for simplex and duplex installations in small lift stations, drainage systems or raw water applications requiring solids handling capability of 2" diameter made specifically for:

- Homes and farms
- Mobile home parks and motels
- Schools and hospitals
- Municipal package systems
- Industrial treatment systems
- Dewatering applications

Component	Material
Pump body and motor casing	Stainless steel (AISI 304)
Impeller	Stainless steel (AISI 304)
Lower mechanical seal	Silicon carbide/silicon carbide
Upper lip seal	Nitrile rubber
Motor Shaft	Stainless steel (AISI 304)
Handle	Nylon

SPECIFICATIONS

Pump:

- 2" discharge
- Solid size: 2" solids
- Capacities: to 175 U.S. GPM (41 m^3/h)
- Total heads: to 47 feet TDH (14 m)
- Temperature:
  104°F (40°C) continuous, 140°F (60°C) intermitten
- Maximum submergence: to 17 feet (5 m)
- AISI 304 SS casing
- AISI 304 SS impeller
- Continuous duty rated, non-overloading motor

Motor:

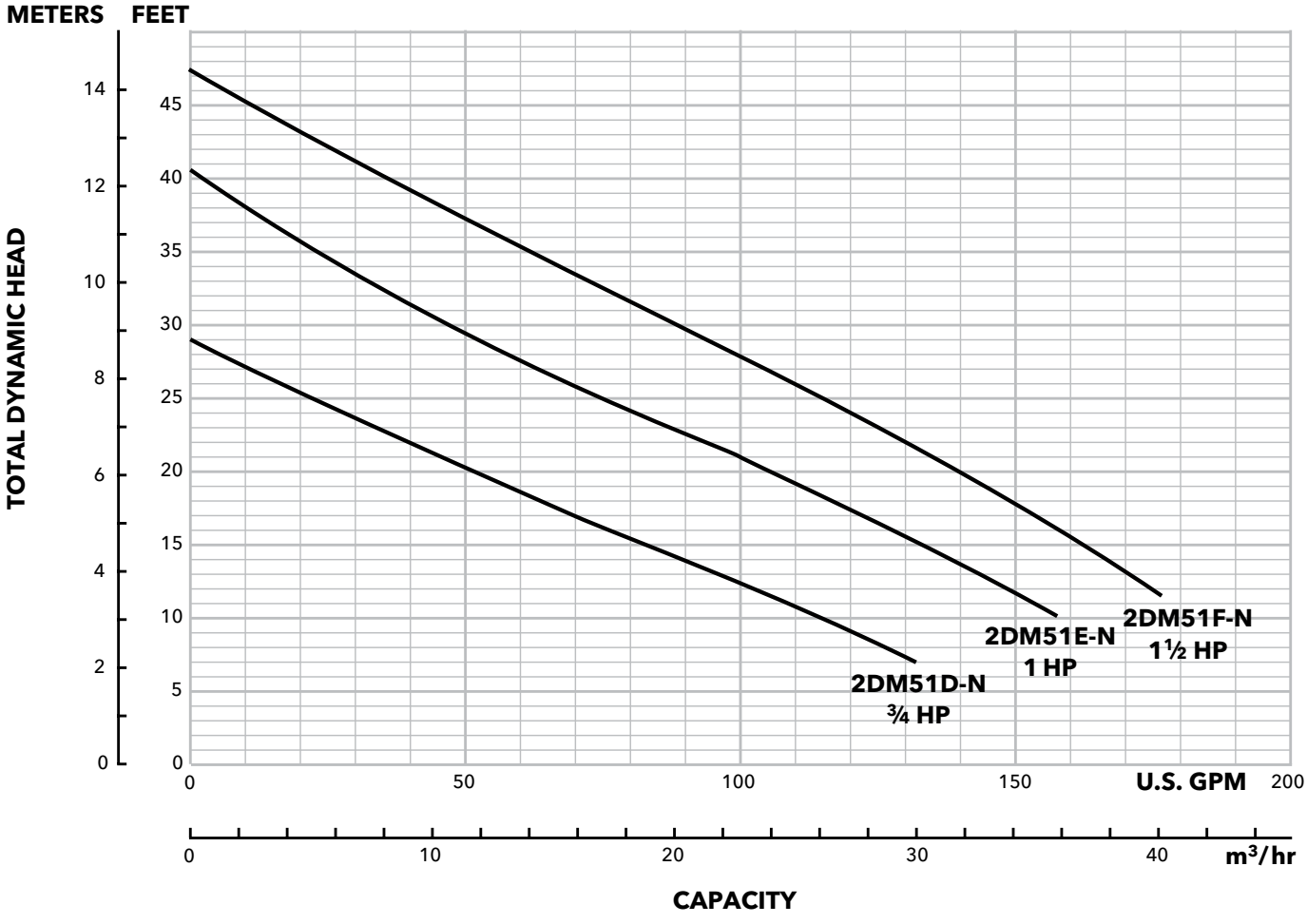
- Single phase: 60 Hz, 3450 RPM; ½ to 1 HP, 230 V
- Three phase: 60 Hz, 3450 RPM, ¾ to 1½ HP, 230 and 460 V
- Non-overloading
- Air-filled, class F insulated motor
- Thermal overload protection: built-in with automatic reset on single phase, 230 V models
- Three phase models require external overload in panel
- Power cord: 20 feet long
- Single phase 230 V models are supplied with molded NEMA plugs and built-in capacitors
- Three phase models are supplied with bare leads
- Float controls: optional, see accessory section for simplex or duplex system requirements
- Rotation is clockwise when viewed from top
- CSA listed (Three phase only)

AGENCY LISTINGS (Three phase only)

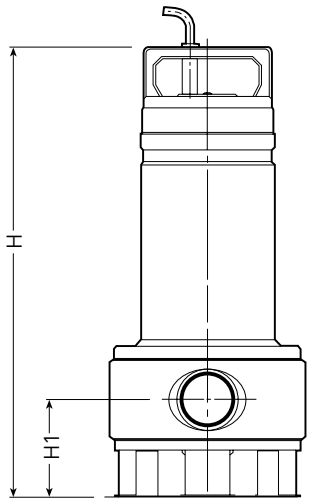
Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

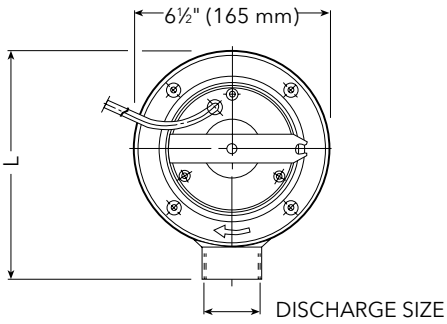
MODEL INFORMATION

Order Number	HP	Volts	Phase	RPM	Maximum Amps	Start Amps	Capacitor uF/V	Resistance Start/ Line-Line	Cord Length	Discharge Connection	Solids	Weight (Lbs.)
2DM51D1NA	¾	230	1	3450	5.4	27.2	22/450	4.4 / 1.9	20'	2"	2"	30
2DM51D3NA			3		3.4	24.9	NA	NA / 6.0				25
2DM51D4NA		460			1.7	12.7	NA	NA / 7.8				
2DM51E1NA	1	230	1		7.0	30.6	30/450	4.2 / 1.9				34
2DM51E3NA			3		4.4	29.8	NA	NA / 5.3				30
2DM51E4NA		460			2.2	15.2	NA	NA / 6.6				
2DM51F3NA	1½	230	3		5.6	39.2	NA	NA / 3.7				32
2DM51F4NA		460			2.8	19.9	NA	NA / 4.8				



DIMENSIONS





Series	HP	Phase	Dimensions in inches (mm)			Discharge Size	Wt. (lbs.)
			H	H1	L		
2DM	¾	3	17¼ (438)	4⅜ (111.5)	7¾ (198)	2"	25
		1	18 (458)				30
	1	3					30
		1	18 13/16 (478)				34
	1½	3					32

AGENCY LISTINGS **(Three phase only)**

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

xylem
Let's Solve Water

TECHNICAL BROCHURE
B2DV R4

Model 2DV

2" SUBMERSIBLE SEWAGE PUMP

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

Casing: Corrosion resistant AISI 304 SS designed for long lasting performance

Impeller: AISI type 304 stainless steel construction; vortex design

Mechanical Seal: Drive lube silicon carbide sealing faces; all metal components of AISI type 300 stainless steel running in protected oil chamber

Elastomers: BUNA-N

Pump Support Feet: Motor Shell and Lifting Handle: Constructed of AISI type 304 series stainless steel

Shaft: AISI type 304 stainless steel high strength pump shaft with keyed and locking cap screw impeller fastening

Discharge: 2" NPT for horizontal connection to rigid, flexible or guide rail piping connection

APPLICATIONS

Vortex submersible sewage pumps for simplex and duplex installations in small lift stations, drainage systems or raw water applications requiring solids handling capability of 2" diameter made specifically for:

- Homes and farms
- Mobile home parks and motels
- Schools and hospitals
- Municipal package systems
- Industrial treatment systems
- Dewatering applications

Component	Material
Pump body and motor casing	Stainless steel (AISI 304)
Impeller	Stainless steel (AISI 304)
Lower mechanical seal	Silicon carbide/silicon carbide
Upper lip seal	Nitrile rubber
Motor Shaft	Stainless steel (AISI 304)
Handle	Nylon

SPECIFICATIONS

Pump:

- 2" discharge
- Solid size: 2" solids
- Capacities: to 130 U.S. GPM (41 m^3/h)
- Total heads: to 39 feet TDH (14 m)
- Temperature:
  104°F (40°C) continuous, 140°F (60°C) intermitten
- Maximum submergence: to 17 feet (5 m)
- AISI 304 SS casing
- AISI 304 SS impeller
- Continuous duty rated, non-overloading motor

Motor:

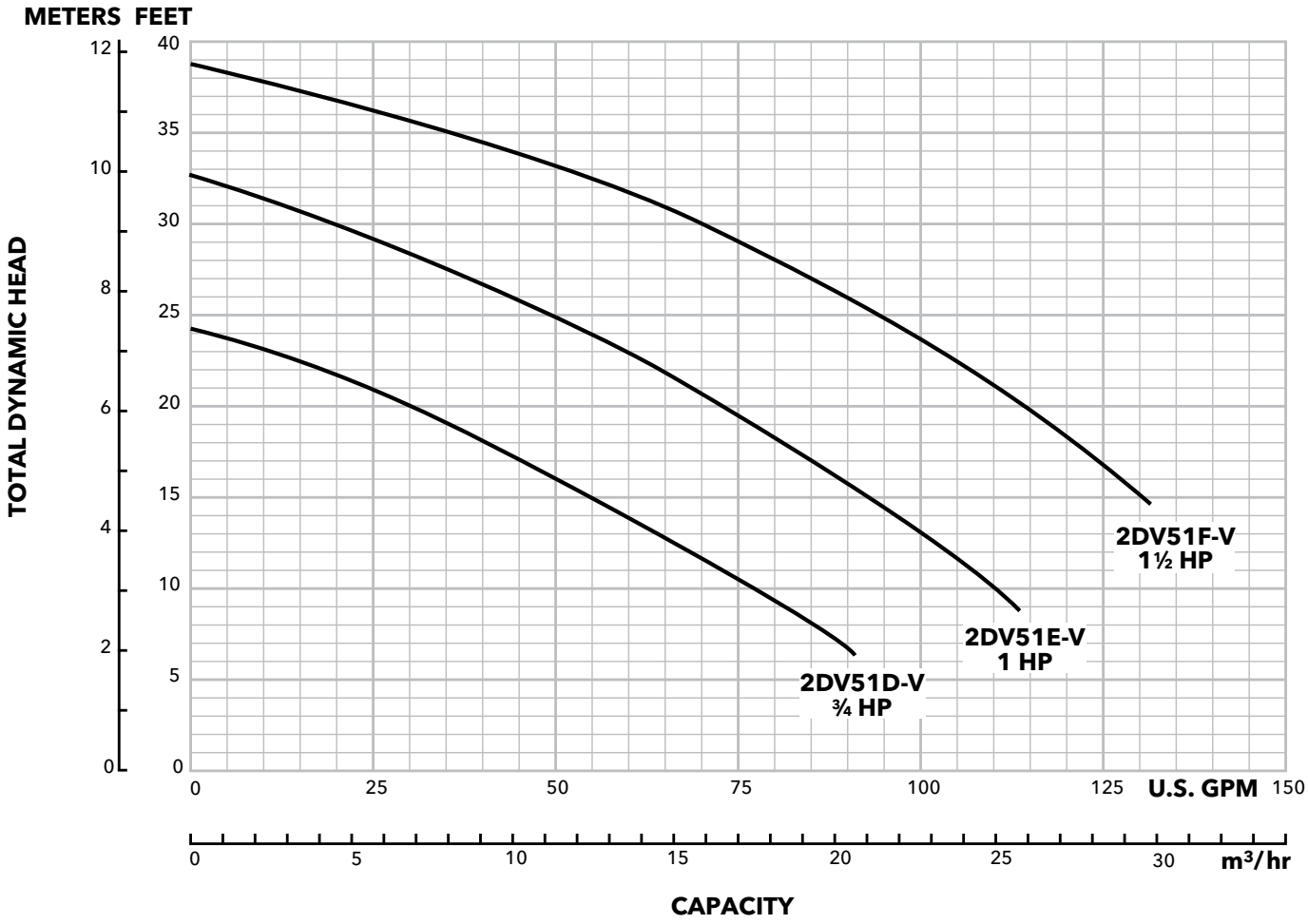
- Single phase: 60 Hz, 3450 RPM; ¾ to 1 HP, 230 V
- Three phase: 60 Hz, 3450 RPM, ¾ to 1½ HP, 230 and 460 V
- Non-overloading
- Air-filled, class F insulated motor
- Thermal overload protection: built-in with automatic reset on single phase, 230 V models
- Three phase models require external overload in panel
- Power cord: 20 feet long
- Single phase 230 V models are supplied with molded NEMA plugs and built-in capacitors
- Three phase models are supplied with bare leads
- Float controls: optional, see accessory section for simplex or duplex system requirements
- Rotation is clockwise when viewed from top

AGENCY LISTINGS (Three phase only)

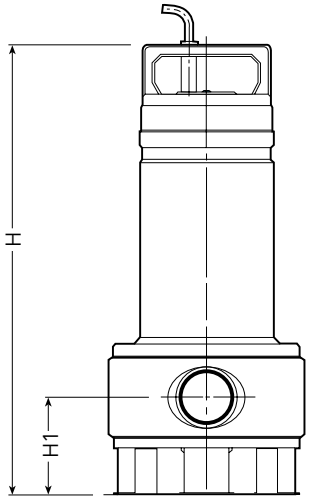
Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

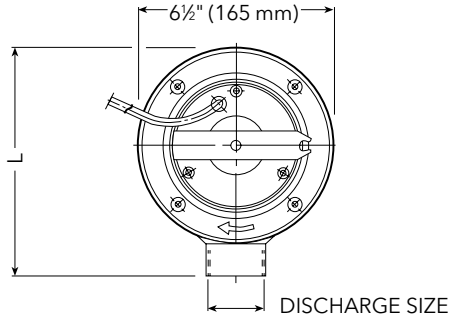
MODEL INFORMATION

Order Number	HP	Volts	Phase	RPM	Maximum Amps	Start Amps	Capacitor uF/V	Resistance Start/ Line-Line	Cord Length	Discharge Connection	Solids	Weight (Lbs.)
2DV51D1VA	¾	230	1	3450	5.4	27.2	22/450	4.4 / 1.9	20'	2"	2"	30
2DV51D3VA			3		3.4	24.9	NA	NA / 6.0				25
2DV51D4VA		460			1.7	12.7	NA	NA / 7.8				
2DV51E1VA	1	230	1		7.0	30.6	30/450	4.2 / 1.9				34
2DV51E3VA			3		4.4	29.8	NA	NA / 5.3				30
2DV51E4VA		460			2.2	15.2	NA	NA / 6.6				
2DV51F3VA	1½	230	3		5.6	39.2	NA	NA / 3.7				32
2DV51F4VA		460			2.8	19.9	NA	NA / 4.8				



DIMENSIONS





Series	HP	Phase	Dimensions in inches (mm)			Discharge Size	Wt. (lbs.)
			H	H1	L		
2DV	¾	3	17¼ (438)	4⅜ (111.5)	7¾ (198)	2"	25
		1	18 (458)				30
	1	3					30
		1	18 13/16 (478)				34
	1½	3					32

AGENCY LISTINGS **(Three phase only)**

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

xylem
Let's Solve Water

TECHNICAL BROCHURE
BVTXSERIES R3

VTX Series

SUBMERSIBLE SEWAGE PUMP

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, multivane, vortex style

Casing: Cast iron volute for maximum efficiency. Designed for easy installation on A10-20 slide rail or base elbow rail systems.

Mechanical Seal: SILICON CARBIDE VS. SILICON CARBIDE sealing faces for superior abrasive resistance, stainless steel metal parts, BUNA-N elastomers.

Shaft: Corrosion-resistant, 300 series stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

EXTENDED WARRANTY AVAILABLE FOR RESIDENTIAL APPLICATIONS.

APPLICATIONS

Specifically designed for the following uses:

- Homes
- Water transfer
- Sewage systems
- Light industrial
- Dewatering/Effluent
- Commercial applications

Anywhere waste or drainage must be disposed of quickly, quietly and efficiently.

SPECIFICATIONS

Pump

- Solids handling capabilities: 2" maximum
- Capacities: up to 208 GPM
- Total heads: up to 66 feet TDH
- Discharge size: 2" NPT threaded as standard.
- Temperature: 104°F (40°C) continuous
  140°F (60°C) intermittent.

MOTORS

- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer. All ratings are within the working limits of the motor.

Class B insulation on ½, ¾, 1, 1½, 2 HP models.

Single phase (60 Hz):

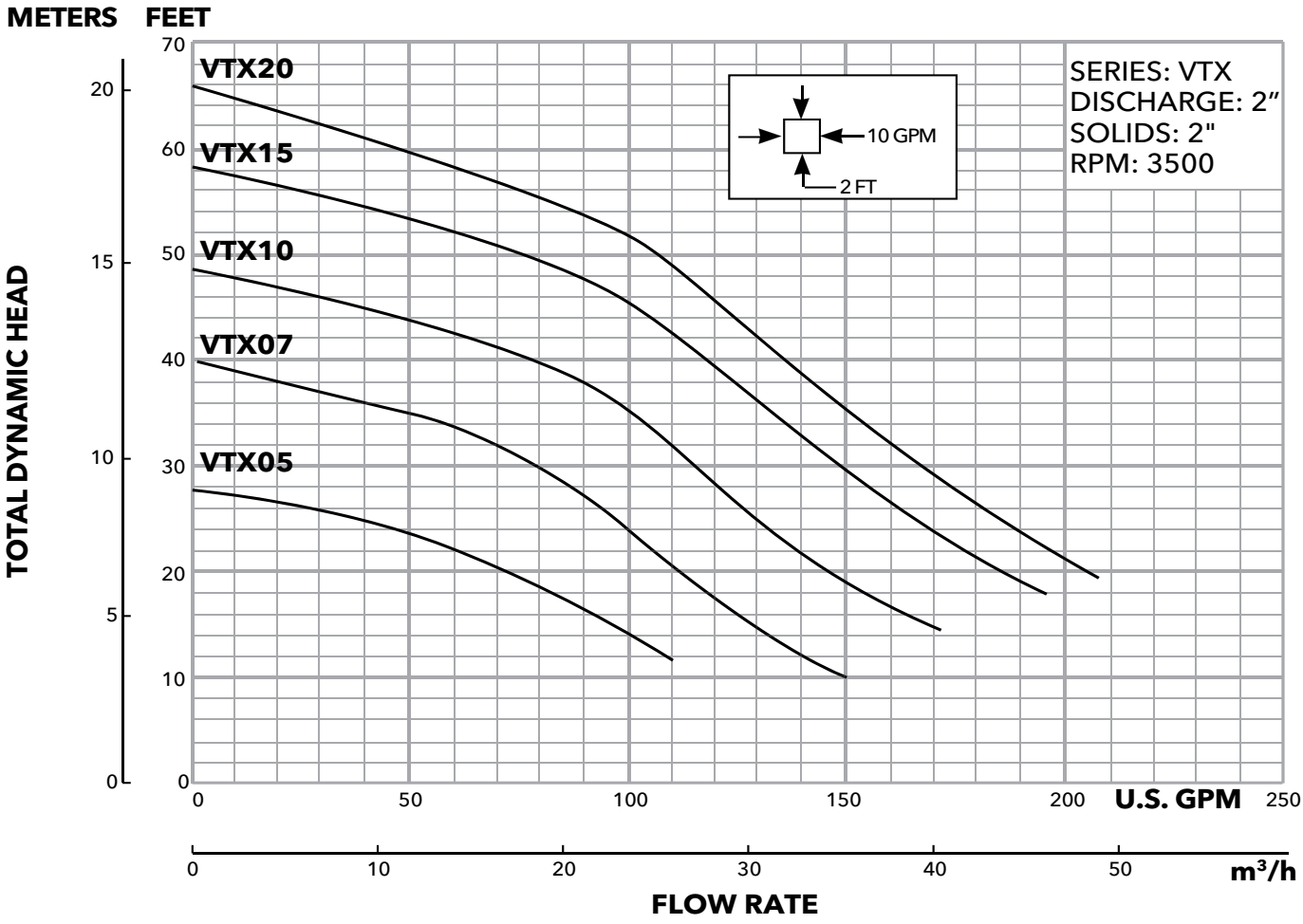
- PSC motors for improved reliability with no starting switches and low start & running current.
- Built-in overload with automatic reset.
- SJTOW severe duty oil and water resistant power cords, 20' length.
- ½ – 2 HP models have NEMA three prong grounding plugs.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

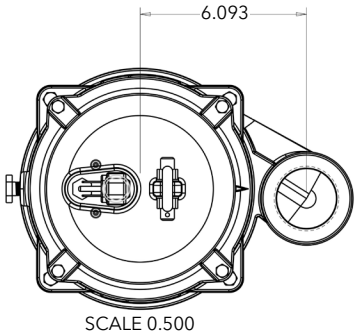
MOTOR AND MODEL INFORMATION

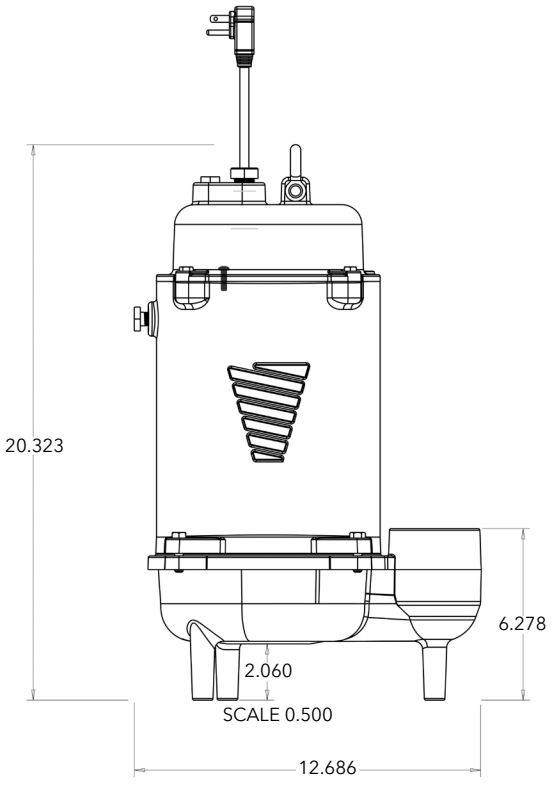
Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Motor Efficiency %	Resistance Main (White - black)	Resistance Phase (white-brown)
VTX0511	0.50	1	115	3500	3.13	12.5	62.6	J	71	0.45 - 0.50	4.2 - 4.6
VTX0512			230			7.7	35.7	K	71	1.6 - 1.8	3.7 - 4.0
VTX0712	0.75		230		3.50	8.5	45.2	B	75	1.2 - 1.3	3.2 - 4.6
VTX1012	1.00		230		3.75	9.5		B	78		
VTX1512	1.50		230		4.06	13.0		B	83		
VTX2012	2.00		230		4.31	16.0		B	82		



DIMENSIONS

(All dimensions are in inches.
Do not use for construction purposes.)





STANDARD PANEL OPTIONS

Pump Order Number	K-Series		Boulay Series	
	Simplex	Duplex	Simplex	Duplex
VTX0511	KS19020WF	KD19020WF	S10020	D10020
VTX0512	KS19020WF	KD19020WF	S10020	D10020
VTX0712	KS19020WF	KD19020WF	S10020	D10020
VTX1012	KS19020WF	KD19020WF	S10020	D10020
VTX1512	KS19020WF	KD19020WF	S10020	D10020
VTX2012	KS19020WF	KD19020WF	S10020	D10020

Note: Boulay Series part numbers have additional available features, see below for more information.
Note: K Series panel part numbers include floats, to order without float switches, remove the 'WF' suffix. Boulay Series panels do not include float switches.

K-SERIES

- NEMA 4X dead front outdoor rated enclosure
- Red LED alarm beacon
- HOA selector switch
- Single phase models handle 120, 208 and 230V service
- Three phase models handle 200, 230 and 460V service
- Requires separate control/alarm power feed

BOULAY SERIES

- NEMA 4X outdoor rated enclosure
- Red alarm beacon
- HOA selector switch
- Through door pump run light(s)
- Through door alarm test and horn silence button
- Single phase models handle 120, 208 and 230V service
- Three phase models handle 200, 230, 460 and 575V service

xylem
Let's Solve Water

TECHNICAL BROCHURE
B3886 R4

WS_B Series
Model 3886

SUBMERSIBLE SEWAGE PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, semi-open, dynamically balanced, non-clog with pump out vanes for mechanical seal protection. Optional Silicon bronze impeller available.

Casing: Cast iron volute type for maximum efficiency. Designed for easy installation on A10-20 guide rail or base elbow rail systems.

Mechanical Seal: Silicon carbide vs. silicon carbide sealing faces for superior abrasive resistance, stainless steel metal parts, BUNA-N elastomers.

Shaft: Corrosion-resistant stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

Extended Warranty available for residential applications.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

APPLICATIONS

Specifically designed for the following uses:

- Homes
- Sewage systems
- Dewatering/Effluent
- Water transfer

SPECIFICATIONS

Pump

- Solids handling capabilities: 2" maximum
- Discharge size: 2" NPT
- Capacities: up to 185 GPM
- Total heads: up to 38 feet TDH
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent

MOTORS

- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer. All ratings are within the working limits of the motor.
- Class B insulation

Single phase (60 Hz):

- All single phase models feature capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.
- SJTOW or STOW severe duty oil and water resistant power cords.
- ⅓ – 1 HP models have NEMA three prong grounding plugs.

Three phase (60 Hz):

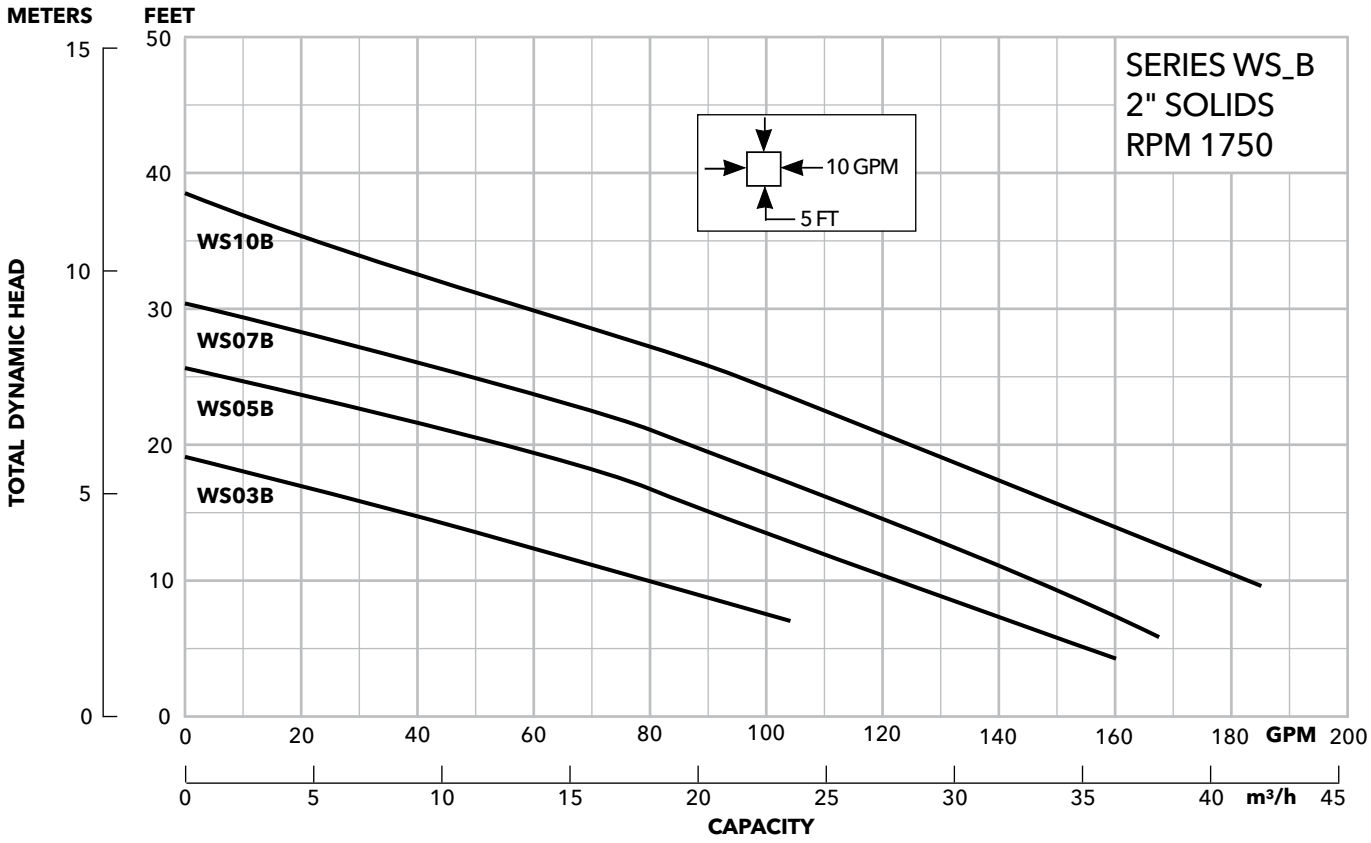
- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.

- Bearings: Upper and lower heavy duty ball bearing construction.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- Motor Cover O-ring: Assures positive sealing against contaminants and oil leakage.

MODELS

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency	Resistance		Weight (lbs.)
										Start	Line-Line	
WS0311B	0.33	1	115	1750	4.69	10.7	30.0	M	54	11.9	1.7	63
WS0318B			208			6.8	19.5	K	51	9.1	4.2	
WS0312B			230			4.9	14.1	L	53	14.5	8.0	
WS0511B	0.5	1	115		5.00	14.5	31.1	J	55	9.3	1.4	65
WS0518B			208			8.0	19.5	K	51	9.1	4.2	
WS0512B			230			7.3	16.5	J	54	11.7	5.6	
WS0538B		3	200			3.8	12.3	K	75	NA	6.7	
WS0532B			230			3.3	9.7	K	75	NA	9.9	
WS0534B			460			1.7	4.9	K	75	NA	39.4	
WS0537B			575			1.4	4.3	K	68	NA	47.8	
WS0718B	0.75	1	208		5.38	11.0	39.0	K	65	2.6	1.4	85
WS0712B			230			9.4	24.8	J	57	4.8	2.3	
WS0738B		3	200			4.1	21.2	H	74	NA	4.3	
WS0732B			230			3.6	17.3	J	76	NA	5.6	
WS0734B			460			1.8	8.9	J	76	NA	22.4	
WS0737B			575			1.5	7.3	J	71	NA	29.2	
WS1018B	1	1	208		5.75	14.0	39.0	K	65	2.6	1.4	
WS1012B			230			12.3	30.5	H	60	4.3	1.8	
WS1038B		3	200			6.0	21.2	H	74	NA	4.3	
WS1032B			230			5.8	17.3	J	76	NA	5.6	
WS1034B			460			2.9	8.9	J	76	NA	22.4	
WS1037B			575			2.4	7.3	J	71	NA	29.2	

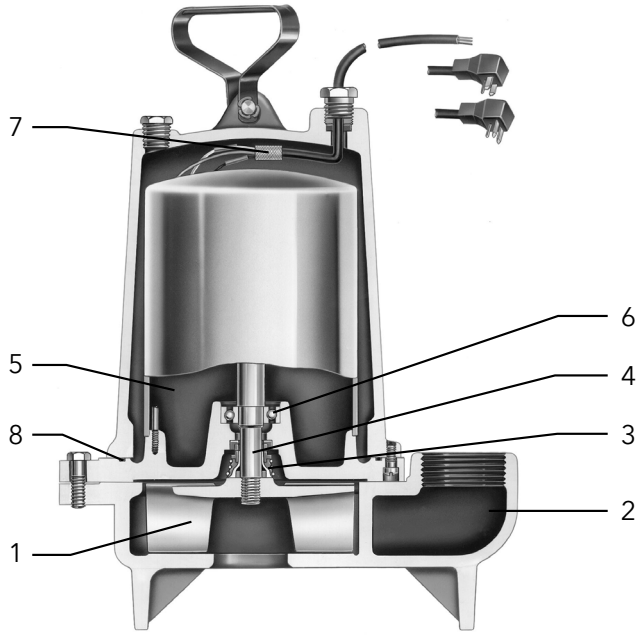
CURVES



COMPONENTS *(for reference only)*

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring

NOTE: *For specific parts breakdown, see repair parts.*

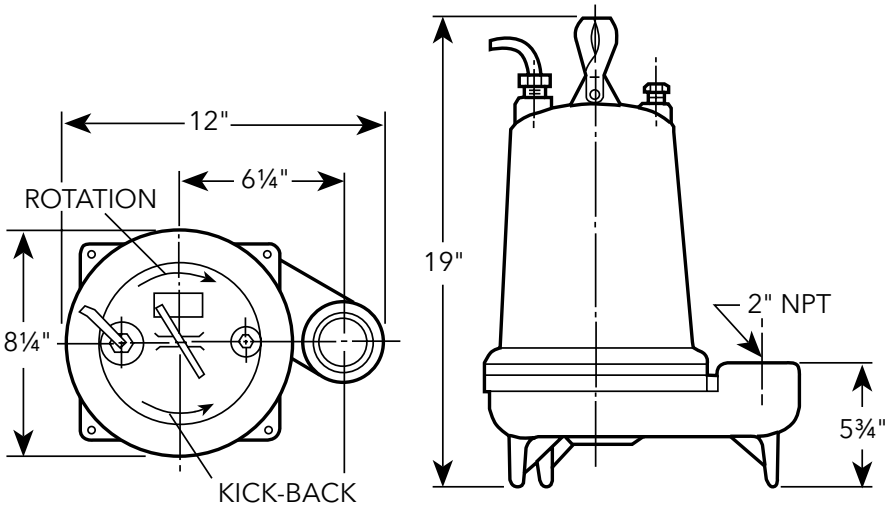


PERFORMANCE RATINGS (gallons per minute)

Order No.		WS03B	WS05B	WS07B	WS10B
Total Head Feet of Water	**HP**	⅓	½	¾	1
	RPM	1750	1750	1750	1750
	10	80	122	145	183
	15	36	90	116	152
	20	–	50	86	123
	25	–	–	48	95
	30	–	–	–	58
	35	–	–	–	20

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



PUMP-TO-PANEL PART NUMBERS

Pump	HP	Phase	Voltage	Amps	Simplex Panel	Duplex Panel
WS0311B	0.33	1	115	10.7	C4S10020	C4D10020
WS0318B	0.33	1	208	6.8	C4S10020	C4D10020
WS0312B	0.33	1	230	4.9	C4S10020	C4D10020
WS0511B	0.5	1	115	14.5	C4S10020	C4D10020
WS0518B	0.5	1	208	8	C4S10020	C4D10020
WS0512B	0.5	1	230	7.3	C4S10020	C4D10020
WS0538B	0.5	3	200	3.8	C4S32540	C4D32540
WS0532B	0.5	3	230	3.3	C4S32540	C4D32540
WS0534B	0.5	3	460	1.7	C4S31625	C4D31625
WS0537B	0.5	3	575	1.4	C4S31625	C4D31625
WS0718B	0.75	1	208	11	C4S10020	C4D10020
WS0712B	0.75	1	230	9.4	C4S10020	C4D10020
WS0738B	0.75	3	200	4.1	C4S34063	C4D34063
WS0732B	0.75	3	230	3.6	C4S32540	C4D32540
WS0734B	0.75	3	460	1.8	C4S31625	C4D31625
WS0737B	0.75	3	575	1.5	C4S31625	C4D31625
WS1018B	1	1	208	14	C4S10020	C4D10020
WS1012B	1	1	230	12.3	C4S10020	C4D10020
WS1038B	1	3	200	6	C4S34063	C4D34063
WS1032B	1	3	230	5.8	C4S34063	C4D34063
WS1034B	1	3	460	2.9	C4S32540	C4D32540
WS1037B	1	3	575	2.4	C4S32540	C4D32540

SERIES "CORE 4" CONTROL PANELS

Series “Core 4” Control Panels provide outstanding, automatic, liquid level control to help manage and maintain pump operation for a variety of effluent, sewage, and water transfer applications.

FEATURES

- Rugged, NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion
- Solid-state control board displays float status for ease of installation and trouble-shooting
- Hinged door with lockable stainless-steel latch for safe operation indoors and out
- Through-door mounted alarm test switch ensures proper operation of the alarm circuit without the need to open the panel
- Panel can be wired for a single power feed and control circuit, or the control circuit can be wired to a separate power supply to ensure alarm integrity in case of a tripped pump breaker
- Top-mounted, high intensity, flashing red light provides 360° visibility
- Auxiliary alarm contacts provided for remote alarm connection
- Field wiring diagram, panel schematic and installation instructions included
- Entire unit is UL and CUL listed

PRODUCT SPECIFICATIONS

- Hand-off-automatic (H-O-A) pump selection switch(es)
- On-off control circuit switch
- Float switches:
  - o Normally open (pump down) mechanical float switches with 20’ cords
  - o Simplex panels (three switches)
  - o Duplex panels (four switches)
- Duplex panels include alternation
- NEMA 4X:
  - o Flashing red alarm light
  - o Fiberglass enclosure with gasketed, hinged door and stainless-steel hardware
  - o Alarm horn (95db)
- Solid state printed circuit control board with float indicator lights
- Auxiliary alarm dry contact
- Elapsed time meter(s)
- Cycle counter(s)
- Single Phase
  - o Field adjustable for 115 or 230V, 60Hz
- Three Phase
  - o Field adjustable for 208/230/460/575 V, 60 Hz
  - o 115V control circuit transformer
  - o Adjustable motor overload protectors

xylem
Let's Solve Water

TECHNICAL BROCHURE
B3887BF R4

WS_BF Series

Model 3887BF

SUBMERSIBLE SEWAGE PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, semi-open, non-clog, dynamically balanced with pump out vanes for mechanical seal protection.

Casing: Cast iron flanged volute type for maximum efficiency. Designed for easy installation on A10-20 slide rail or base elbow rail systems.

Mechanical Seal: Silicon carbide vs. silicon carbide sealing faces for superior abrasive resistance, stainless steel metal parts, BUNA-N elastomers.

Shaft: Corrosion-resistant, 300 series stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

Extended Warranty available for residential applications.

APPLICATIONS

Specifically designed for the following uses:

- Homes
- Water transfer
- Sewage systems
- Light industrial
- Dewatering/Effluent
- Commercial applications

Anywhere waste or drainage must be disposed of quickly, quietly and efficiently.

SPECIFICATIONS

Pump

- Solids handling capabilities: 2" maximum
- Capacities: up to 185 GPM
- Total heads: up to 38 feet TDH
- Discharge size: 2" NPT threaded companion flange as standard. 3" option available but must be ordered separately. (Order no. A1-3)
- Temperature: 104°F (40°C) continuous
  140°F (60°C) intermittent.

MOTORS

- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer. All ratings are within the working limits of the motor.
- Class B insulation

Single phase (60 Hz):

- o Capacitor start motors for maximum starting torque.
- o Built-in overload with automatic reset.
- o SJTOW or STOW severe duty oil and water resistant power cords.
- o ⅓ – 1 HP models have NEMA three prong grounding plugs.

Three phase (60 Hz):

- o Class 10 overload protection must be provided in separately ordered starter unit.
- o STOW power cords all have bare lead cord ends.

- Bearings: Upper and lower heavy duty ball bearing construction.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- Motor Cover O-ring: Assures positive sealing against contaminants and oil leakage.

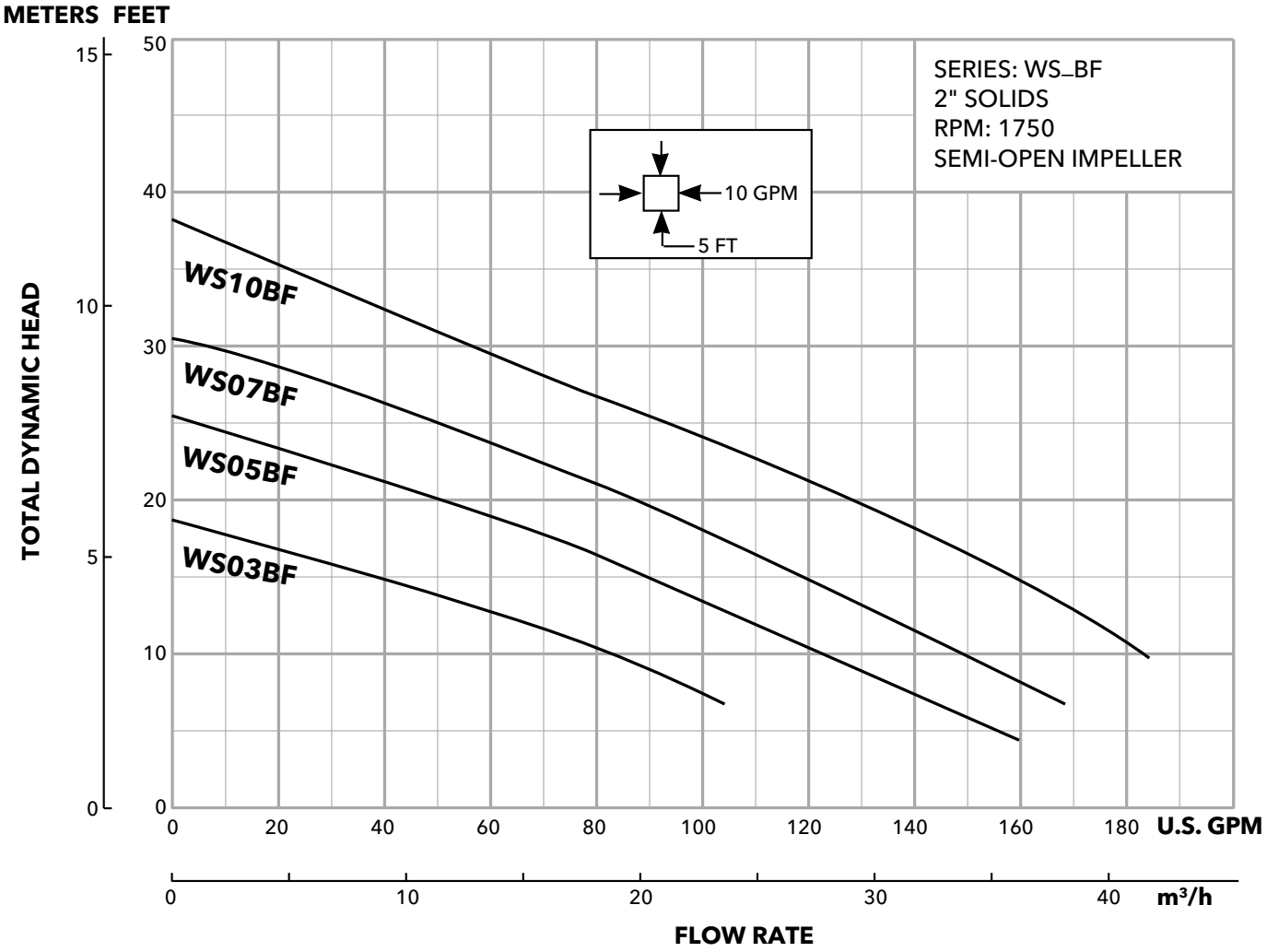
AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

MOTOR AND MODEL INFORMATION

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency	Resistance		Weight (lbs.)
										Start	Line-Line	
WS0311BF	0.33	1	115	1750	4.69	10.7	30.0	M	54	11.9	1.7	63
WS0318BF			208			6.8	19.5	K	51	9.1	4.2	
WS0312BF			230			4.9	14.1	L	53	14.5	8.0	
WS0511BF	0.5	1	115		5.00	14.5	31.1	J	55	9.3	1.4	65
WS0518BF			208			8.0	19.5	K	51	9.1	4.2	
WS0512BF			230			7.3	16.5	J	54	11.7	5.6	
WS0538BF		3	200			3.8	12.3	K	75	–	6.7	
WS0532BF			230			3.3	9.7	K	75	–	9.9	
WS0534BF			460			1.7	4.9	K	75	–	39.4	
WS0537BF			575			1.4	4.3	K	68	–	47.8	
WS0718BF	0.75	1	208		5.38	11.0	39.0	K	65	2.6	1.4	85
WS0712BF			230			9.4	24.8	J	57	4.8	2.3	
WS0738BF		3	200			4.1	21.2	H	74	–	4.3	
WS0732BF			230			3.6	17.3	J	76	–	5.6	
WS0734BF			460			1.8	8.9	J	76	–	22.4	
WS0737BF			575			1.5	7.3	J	71	–	29.2	
WS1018BF	1	1	208		5.75	14.0	39.0	K	65	2.6	1.4	
WS1012BF			230			12.3	30.5	H	60	4.3	1.8	
WS1038BF		3	200			6.0	21.2	H	74	–	4.3	
WS1032BF			230			5.8	17.3	J	76	–	5.6	
WS1034BF			460			2.9	8.9	J	76	–	22.4	
WS1037BF			575			2.4	7.3	J	71	–	29.2	

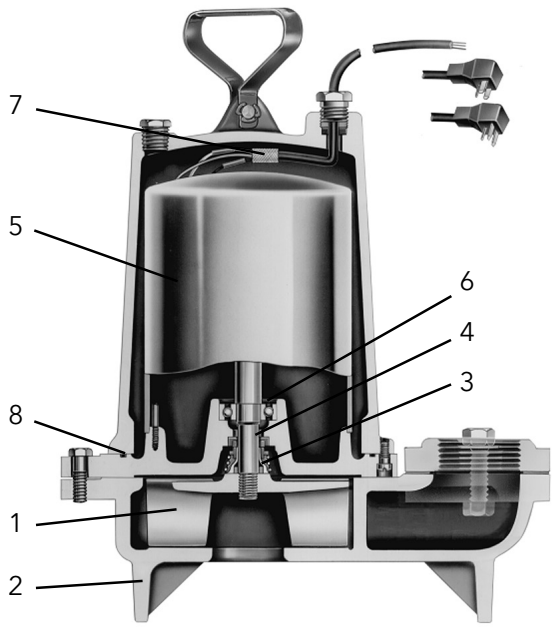
CURVES



COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring

* For available repair parts, see repair parts book.

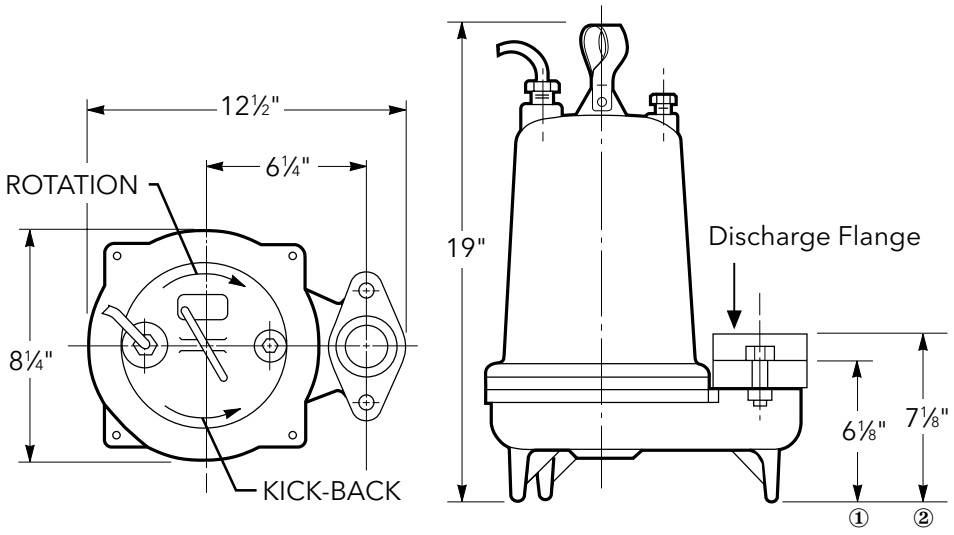


PERFORMANCE RATINGS (gallons per minute)

Order No.		WS03BF	WS05BF	WS07BF	WS10BF
Total Head Feet of Water	**HP**	⅓	½	¾	1
	RPM	1750	1750	1750	1750
	10	80	122	145	183
	15	36	90	116	152
	20	–	50	86	123
	25	–	–	48	95
	30	–	–	–	58
	35	–	–	–	20

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



Discharge Flange:

① 2" NPT standard

② 3" NPT optional (order an A1-3)

PUMP-TO-PANEL PART NUMBERS

Pump	HP	Phase	Voltage	Amps	Simplex Panel	Duplex Panel
WS0311BF	0.33	1	115	10.7	C4S10020	C4D10020
WS0318BF	0.33	1	208	6.8	C4S10020	C4D10020
WS0312BF	0.33	1	230	4.9	C4S10020	C4D10020
WS0511BF	0.5	1	115	14.5	C4S10020	C4D10020
WS0518BF	0.5	1	208	8	C4S10020	C4D10020
WS0512BF	0.5	1	230	7.3	C4S10020	C4D10020
WS0538BF	0.5	3	200	3.8	C4S32540	C4D32540
WS0532BF	0.5	3	230	3.3	C4S32540	C4D32540
WS0534BF	0.5	3	460	1.7	C4S31625	C4D31625
WS0537BF	0.5	3	575	1.4	C4S31625	C4D31625
WS0718BF	0.75	1	208	11	C4S10020	C4D10020
WS0712BF	0.75	1	230	9.4	C4S10020	C4D10020
WS0738BF	0.75	3	200	4.1	C4S34063	C4D34063
WS0732BF	0.75	3	230	3.6	C4S32540	C4D32540
WS0734BF	0.75	3	460	1.8	C4S31625	C4D31625
WS0737BF	0.75	3	575	1.5	C4S31625	C4D31625
WS1018BF	1	1	208	14	C4S10020	C4D10020
WS1012BF	1	1	230	12.3	C4S10020	C4D10020
WS1038BF	1	3	200	6	C4S34063	C4D34063
WS1032BF	1	3	230	5.8	C4S34063	C4D34063
WS1034BF	1	3	460	2.9	C4S32540	C4D32540
WS1037BF	1	3	575	2.4	C4S32540	C4D32540

SERIES "CORE 4" CONTROL PANELS

Series “Core 4” Control Panels provide outstanding, automatic, liquid level control to help manage and maintain pump operation for a variety of effluent, sewage, and water transfer applications.

FEATURES

- Rugged, NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion
- Solid-state control board displays float status for ease of installation and trouble-shooting
- Hinged door with lockable stainless-steel latch for safe operation indoors and out
- Through-door mounted alarm test switch ensures proper operation of the alarm circuit without the need to open the panel
- Panel can be wired for a single power feed and control circuit, or the control circuit can be wired to a separate power supply to ensure alarm integrity in case of a tripped pump breaker
- Top-mounted, high intensity, flashing red light provides 360° visibility
- Auxiliary alarm contacts provided for remote alarm connection
- Field wiring diagram, panel schematic and installation instructions included
- Entire unit is UL and CUL listed

PRODUCT SPECIFICATIONS

- Hand-off-automatic (H-O-A) pump selection switch(es)
- On-off control circuit switch
- Float switches:
  - o Normally open (pump down) mechanical float switches with 20’ cords
  - o Simplex panels (three switches)
  - o Duplex panels (four switches)
- Duplex panels include alternation
- NEMA 4X:
  - o Flashing red alarm light
  - o Fiberglass enclosure with gasketed, hinged door and stainless-steel hardware
  - o Alarm horn (95db)
- Solid state printed circuit control board with float indicator lights
- Auxiliary alarm dry contact
- Elapsed time meter(s)
- Cycle counter(s)
- Single Phase
  - o Field adjustable for 115 or 230V, 60Hz
- Three Phase
  - o Field adjustable for 208/230/460/575 V, 60 Hz
  - o 115V control circuit transformer
  - o Adjustable motor overload protectors

xylem
Let's Solve Water

TECHNICAL BROCHURE
B3887BHF R5

WS_BHF Series
Model 3887BHF

SUBMERSIBLE SEWAGE PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, enclosed, non-clog, dynamically balanced with pump out vanes for mechanical seal protection.

Casing: Cast iron flanged volute type for maximum efficiency. Designed for easy installation on A10-20 slide rail or base elbow rail systems.

Mechanical Seal: Silicon carbide vs. silicon carbide sealing faces for superior abrasive resistance, stainless steel metal parts, BUNA-N elastomers.

Shaft: Corrosion-resistant, 300 series stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

Extended Warranty available for residential applications.

APPLICATIONS

Specifically designed for the following uses:

- Homes
- Water transfer
- Sewage systems
- Light industrial
- Dewatering/Effluent
- Commercial applications

Anywhere waste or drainage must be disposed of quickly, quietly and efficiently.

SPECIFICATIONS

Pump

- Solids handling capabilities: 2" maximum
- Capacities: up to 220 GPM
- Total heads: up to 81 feet TDH
- Discharge size: 2" NPT threaded companion flange as standard. 3" option available but must be ordered separately. (Order no. A1-3)
- Temperature: 104°F (40°C) continuous
  140°F (60°C) intermittent.

MOTORS

- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer. All ratings are within the working limits of the motor.
- Class B insulation on ⅓-1½ HP models.
- Class F insulation on 2 HP models.

Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.
- SJTOW or STOW severe duty oil and water resistant power cords.
- ⅓ – 1 HP models have NEMA three prong grounding plugs.
- 1½ HP and larger units have bare lead cord ends.

Three phase (60 Hz):

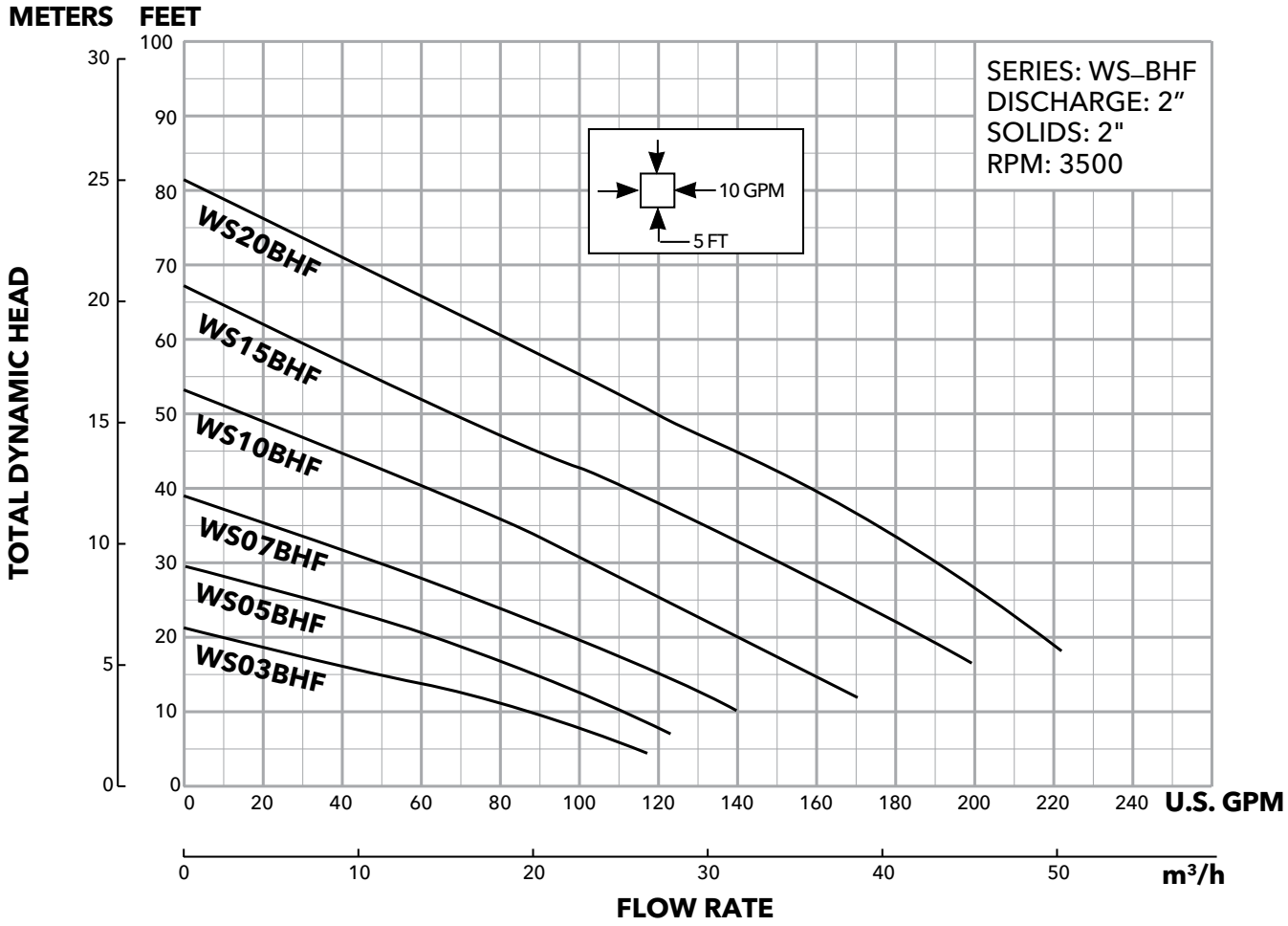
- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.

- Bearings: Upper and lower heavy duty ball bearing construction.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- Motor Cover O-ring: Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

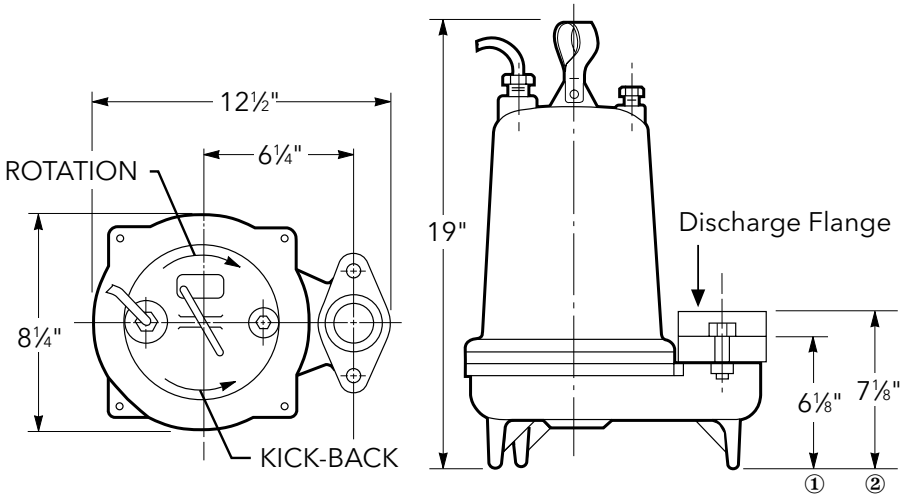
Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

CURVES



DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



Discharge Flange:

① 2" NPT standard

② 3" NPT optional (order an A1-3)

MOTOR AND MODEL INFORMATION

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Motor Efficiency %	Resistance	
										Start	Line-Line
WS0311BHF	0.33	1	115	3500	2.94	12.4	46.0	M	54	7.5	1.0
WS0318BHF			208			6.8	31.0	K	68	9.7	2.4
WS0312BHF			230			6.2	34.5	M	53	9.6	4.0
WS0511BHF	0.5		115		3.19	14.5	46.0	M	54	7.5	1.0
WS0518BHF			208			8.4	31.0	K	68	9.7	2.4
WS0512BHF			230			7.6	34.5	M	53	9.6	4.0
WS0538BHF		3	200			4.9	22.6	R	68	–	3.8
WS0532BHF			230			3.6	18.8	R	70	–	5.8
WS0534BHF			460			1.8	9.4	R	70	–	23.2
WS0537BHF			575			1.5	7.5	R	62	–	35.3
WS0718BHF	0.75	1	208		3.44	11.0	31.0	K	68	9.7	2.4
WS0712BHF			230			10.0	27.5	J	65	12.2	2.7
WS0738BHF		3	200			6.2	20.6	L	64	–	5.7
WS0732BHF			230			5.4	15.7	K	68	–	8.6
WS0734BHF			460			2.7	7.9	K	68	–	11
WS0737BHF			575			2.2	9.9	L	78	–	26.5
WS1018BHF	1	1 1	208		3.75	14.5	59.0	K	68	9.3	1.1
WS1012BHF			230			13.0	36.2	J	69	10.3	2.1
WS1038BHF		3	200			8.6	27.6	M	77	–	2.7
WS1032BHF			230			7.5	24.1	L	79	–	4.1
WS1034BHF			460			3.8	12.1	L	79	–	16.2
WS1037BHF			575			3.1	9.9	L	78	–	26.5
WS1512BHF	1.5	1	230		4.00	18.0	52.0	J	67	2.76	0.53
WS1538BHF		3	200			10.0	42.4	K	78	–	1.7
WS1532BHF			230			9.6	42.4	K	78	–	1.7
WS1534BHF			460			4.8	21.2	K	78	–	6.6
WS1537BHF			575			3.9	16.3	L	78	–	10.5
WS2012BHF	2	1	230		4.44	18.0	49.6	F	78	3.2	1.1
WS2038BHF		3	200			12.0	42.4	K	78	–	1.7
WS2032BHF			230			11.6	42.4	K	78	–	1.7
WS2034BHF			460			5.8	21.2	K	78	–	6.6
WS2037BHF			575			4.7	16.3	L	78	–	10.5

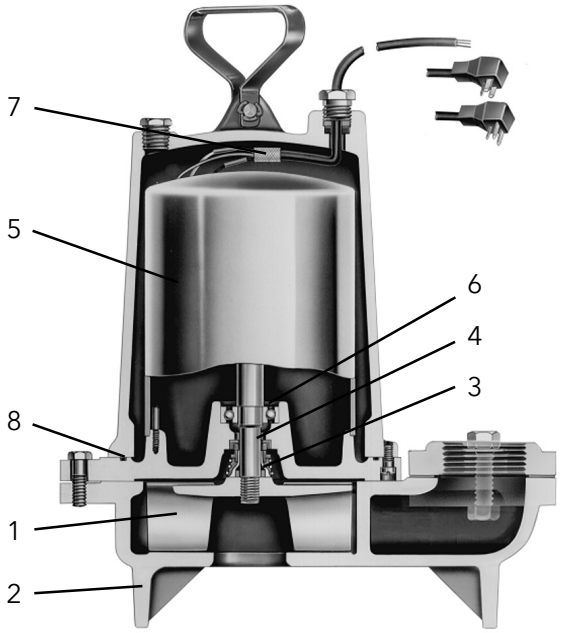
PERFORMANCE RATINGS (gallons per minute)

Order No.		WS03-BHF	WS05-BHF	WS07-BHF	WS10-BHF	WS15-BHF	WS20-BHF
Total Head Feet of Water	**HP**	⅓	½	¾	1	1½	2
	RPM	3500	3500	3500	3500	3500	3500
	10	86	110	140	–	–	–
	15	48	88	120	158	–	–
	20	–	62	98	139	186	217
	25	–	32	74	120	170	204
	30	–	–	49	101	150	190
	35	–	–	21	82	130	175
	40	–	–	–	60	110	159
	45	–	–	–	38	88	140
	50	–	–	–	–	67	120
	55	–	–	–	–	47	100
	60	–	–	–	–	29	80
	65	–	–	–	–	–	62
	70	–	–	–	–	–	43
	75	–	–	–	–	–	23

COMPONENTS *(for reference only)*

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring

**** For repair parts, reference repair parts book.***



PUMP-TO-PANEL PART NUMBERS

Pump	HP	Phase	Voltage	Amps	Simplex Panel	Duplex Panel
WS0311BHF	0.33	1	115	12.4	C4S10020	C4D10020
WS0318BHF	0.33	1	208	6.8	C4S10020	C4D10020
WS0312BHF	0.33	1	230	6.2	C4S10020	C4D10020
WS0511BHF	0.5	1	115	14.5	C4S10020	C4D10020
WS0518BHF	0.5	1	208	8.4	C4S10020	C4D10020
WS0512BHF	0.5	1	230	7.6	C4S10020	C4D10020
WS0538BHF	0.5	3	200	4.9	C4S34063	C4D34063
WS0532BHF	0.5	3	230	3.6	C4S32540	C4D32540
WS0534BHF	0.5	3	460	1.8	C4S31625	C4D31625
WS0537BHF	0.5	3	575	1.5	C4S31625	C4D31625
WS0718BHF	0.75	1	208	11	C4S10020	C4D10020
WS0712BHF	0.75	1	230	10	C4S10020	C4D10020
WS0738BHF	0.75	3	200	6.2	C4S34063	C4D34063
WS0732BHF	0.75	3	230	5.4	C4S34063	C4D34063
WS0734BHF	0.75	3	460	2.7	C4S32540	C4D32540
WS0737BHF	0.75	3	575	2.2	C4S31625	C4D31625
WS1018BHF	1	1	208	14.5	C4S10020	C4D10020
WS1012BHF	1	1	230	13	C4S10020	C4D10020
WS1038BHF	1	3	200	8.6	C4S36310	C4D36310
WS1032BHF	1	3	230	7.5	C4S36310	C4D36310
WS1034BHF	1	3	460	3.8	C4S32540	C4D32540
WS1037BHF	1	3	575	3.1	C4S32540	C4D32540
WS1512BHF	1.5	1	230	18	C4S10020	C4D10020
WS1538BHF	1.5	3	200	10	C4S31016	C4D31016
WS1532BHF	1.5	3	230	9.6	C4S36310	C4D36310
WS1534BHF	1.5	3	460	4.8	C4S34063	C4D34063
WS1537BHF	1.5	3	575	3.9	C4S32540	C4D32540
WS2012BHF	2	1	230	18	C4S10020	C4D10020
WS2038BHF	2	3	200	12	C4S31016	C4D31016
WS2032BHF	2	3	230	11.6	C4S31016	C4D31016
WS2034BHF	2	3	460	5.8	C4S34063	C4D34063
WS2037BHF	2	3	575	4.7	C4S34063	C4D34063

SERIES "CORE 4" CONTROL PANELS

Series “Core 4” Control Panels provide outstanding, automatic, liquid level control to help manage and maintain pump operation for a variety of effluent, sewage, and water transfer applications.

FEATURES

- Rugged, NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion
- Solid-state control board displays float status for ease of installation and trouble-shooting
- Hinged door with lockable stainless-steel latch for safe operation indoors and out
- Through-door mounted alarm test switch ensures proper operation of the alarm circuit without the need to open the panel
- Panel can be wired for a single power feed and control circuit, or the control circuit can be wired to a separate power supply to ensure alarm integrity in case of a tripped pump breaker
- Top-mounted, high intensity, flashing red light provides 360° visibility
- Auxiliary alarm contacts provided for remote alarm connection
- Field wiring diagram, panel schematic and installation instructions included
- Entire unit is UL and CUL listed

PRODUCT SPECIFICATIONS

- Hand-off-automatic (H-O-A) pump selection switch(es)
- On-off control circuit switch
- Float switches:
  - o Normally open (pump down) mechanical float switches with 20’ cords
  - o Simplex panels (three switches)
  - o Duplex panels (four switches)
- Duplex panels include alternation
- NEMA 4X:
  - o Flashing red alarm light
  - o Fiberglass enclosure with gasketed, hinged door and stainless-steel hardware
  - o Alarm horn (95db)
- Solid state printed circuit control board with float indicator lights
- Auxiliary alarm dry contact
- Elapsed time meter(s)
- Cycle counter(s)
- Single Phase
  - o Field adjustable for 115 or 230V, 60Hz
- Three Phase
  - o Field adjustable for 208/230/460/575 V, 60 Hz
  - o 115V control circuit transformer
  - o Adjustable motor overload protectors

2WD

Submersible 2" non-clog sewage pump dual seal with seal sensor probe

xylem

Features

Impeller: Cast iron, semi-open or enclosed, non-clog, dynamically balanced with pump out vanes for mechanical seal protection. Optional silicon bronze impeller available

Casing: Cast iron flanged volute type for maximum efficiency. Designed for easy installation on A10-20 guide rail

Dual mechanical seals

- **Lower:** Silicon carbide vs. silicon carbide sealing faces for superior abrasive resistance, stainless steel metal parts, BUNA-N elastomers
- **Upper:** Carbon vs. ceramic sealing faces, stainless steel metal parts, BUNA-N elastomers

Seal sensor probe: Located in oil-filled chamber. If pumpage should begin to leak past lower seal it indicates to pump control panel a fault has occurred. Requires optional seal fail circuit in the control panel.

Shaft: Corrosion resistant, 400 stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel

Capable of running dry without damage to components

Designed for continuous operation when fully submerged

Agency listings

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

Applications

Specifically designed for the following uses:

- Sewage systems
- Dewatering/effluent
- Water transfer
- Light industrial
- Commercial applications

Anywhere waste or drainage must be disposed of quickly, quietly and efficiently

Specifications

Pump:

- Solids handling capabilities: 2" maximum
- Capacities: up to 183 GPM
- Total heads: up to 52' TDH
- Discharge size: 2" NPT threaded companion flange as standard. 3" option available but must be ordered separately. (Order no. A1-3)
- Temperature: 104° F (40° C) continuous, 140° F (60° C) intermittent

Motors

- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer. All ratings are within the working limits of the motor
- Class F insulation

Single phase (60 Hz):

- All single phase models feature capacitor start motors for maximum starting torque
- Built-in overload with automatic reset.
- 1/3 and 1/2 HP – 16/3 SJTOW with 115 V or 230 V three prong plug
- 3/4 and 1 HP – 14/3 STOW with bare leads

Three phase (60 Hz):

- Overload protection must be provided in starter unit
- 1/2 - 1 HP – 14/4 STOW with bare leads
- Designed for continuous operation: pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged
- Bearings: upper and lower heavy duty ball bearing construction
- Power and control cable: severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. 20 foot standard with optional lengths available

Model and motor information

Order Number	HP	Phase	Volts	RPM	Impeller		Maximum Amps	L.R. Amps	KVA Code	F.L. Motor Efficiency %	Resistance		Wt. (lbs.)
					Dia. (in.)	Code					Start	Line-Line	
2WD52B0EA	0.33	1	115	1750	4.69	E	10.7	30.0	M	54	11.9	1.7	90
2WD52B8EA			208				6.8	19.5	K	51	9.1	4.2	
2WD52B1EA			230				4.9	14.1	L	53	14.5	8.0	
2WD52C0DA	0.5	1	115		5.00	D	14.5	31.1	J	55	9.3	1.4	94
2WD52C8DA			208				8.0	19.5	K	51	9.1	4.2	
2WD52C1DA			230				7.3	16.5	J	54	11.7	5.6	
2WD52C2DA		3	200				3.8	12.3	K	75	NA	6.7	
2WD52C3DA			230				3.3	9.7	K	75	NA	9.9	
2WD52C4DA			460				1.7	4.9	K	75	NA	39.4	
2WD52D8CA	0.75	1	208		5.38	C	11.0	39.0	K	65	2.6	1.4	98
2WD52D1CA			230				9.4	24.8	J	57	4.8	2.3	
2WD52D2CA		3	200				4.1	21.2	H	74	NA	4.3	
2WD52D3CA			230				3.6	17.3	J	76	NA	5.6	
2WD52D4CA			460				1.8	8.9	J	76	NA	22.4	
2WD52E8BA	1	1	208		5.75	B	14.0	39.0	K	65	2.6	1.4	104
2WD52E1BA			230				12.3	30.5	H	60	4.3	1.8	
2WD52E2BA		3	200				6.0	21.2	H	74	NA	4.3	
2WD52E3BA			230				5.8	17.3	J	76	NA	5.6	
2WD52E4BA			460				2.9	8.9	J	76	NA	22.4	
2WD51B0KA	0.33	1	115	3500	2.94	K	12.4	46.0	M	54	7.5	1.0	90
2WD51B8KA			208				6.8	31.0	K	68	9.7	2.4	
2WD51B1KA			230				6.2	34.5	M	53	9.6	4.0	
2WD51C0JA	0.5	1	115		3.19	J	14.5	46.0	M	54	7.5	1.0	94
2WD51C8JA			208				8.4	31.0	K	68	9.7	2.4	
2WD51C1JA			230				7.6	34.5	M	53	9.6	4.0	
2WD51C3JA		3	230				3.6	18.8	R	70	NA	5.8	
2WD51C4JA			460				1.8	9.4	R	70	NA	23.2	
2WD51C5JA			575				1.5	7.5	R	62	NA	35.3	
2WD51D8HA	0.75	1	208		3.44	H	11.0	31.0	K	68	9.7	2.4	98
2WD51D1HA			230				10.0	27.5	J	65	12.2	2.7	
2WD51D3HA		3	230				5.4	15.7	K	68	NA	8.6	
2WD51D4HA			460				2.7	7.9	K	68	NA	34.2	
2WD51D5HA			575				2.2	9.9	L	78	NA	26.5	
2WD51E8AA	1	1	208		3.75	A	14.5	59.0	K	68	9.3	1.1	104
2WD51E1AA			230				13.0	36.2	J	69	10.3	2.1	
2WD51E3AA		3	230				7.5	24.1	L	79	NA	4.1	
2WD51E4AA			460				3.8	12.1	L	79	NA	16.2	
2WD51E5AA			575				3.1	9.9	L	78	NA	26.5	

For 3” discharge order an A1-3, 3” discharge flange

Application data

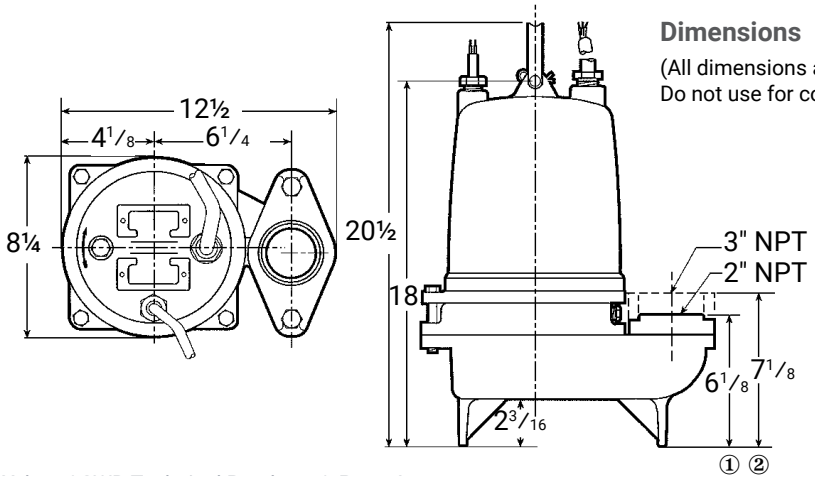
Maximum solid size	2"
Minimum casing thickness	5/16"
Casing corrosion allowance	1/8"
Maximum working pressure	22 PSI
Maximum submergence	50 feet
Minimum submergence	Fully submerged for continuous operation
	6" below top of motor for intermittent operation
Maximum environmental temperature	40°C (104°F) continuous operation
	60°C (140°F) intermittent operation

Construction details

Power cable – type	16/3, type SJTOW: single phase, 1/2 HP
	14/3, type STOW: single phase, 3/4 & 1 HP
	14/4, type STOW: all three phase
Sensor cable – type	16/2, type SJTOW: seal sensor only
	18/4, type SJTOW: optional seal/heat sensor
Motor cover	Gray cast iron – ASTM A48 Class 30
Bearing housing	Gray cast iron – ASTM A48 Class 30
Seal housing	Gray cast iron – ASTM A48 Class 30
Casing	Gray cast iron – ASTM A48 Class 30
Impeller	Gray cast iron – ASTM A48 or Cast Bronze – ASTM B584 C87600
Motor shaft	AISI 300 series stainless steel
Motor design	NEMA 48 Frame, oil filled with Class F Insulation
Motor overload protection	Single phase: on winding thermal overload protection
	Three phase: require ambient compensated Class 10, quick trip overloads in the control panel
Motor seal fail (moisture) detection	Seal fail sensor in an oil-filled seal chamber. Connect to an optional relay in control panel
Optional motor thermal protection	Normally closed on-winding thermostats open at 275° F (135 °C) and close at 112° F (78° C). Require terminal connection in the control panel
External hardware	300 series stainless steel
Impeller Type	Semi-opened with pump out vanes on back shroud - 1750 RPM
	Enclosed with pump out vanes on back shroud - 3500 RPM
Oil capacity – seal chamber	10 ounces
Oil capacity – motor chamber	4.0 quarts

Standard parts

Ball bearing	Upper	Single row ball – SKF™ 6203-2Z
	Lower	Single row ball – SKF™ 6203-2Z
Mechanical seals – standard	Upper	Carbon/Ceramic; John Crane Type 6
	Lower	Silicon Carbon/Silicon Carbon; Type 16
Mechanical seals – optional lower		Silicon Carbide/Tungsten Carbide: Type 16
O-ring – stuffing box		BUNA-N, AS 568A-163
O-ring – motor cover		BUNA-N, AS 568A-166



Dimensions

(All dimensions are in inches.
Do not use for construction purposes.)

Nomenclature description

1st character – discharge size

2 = 2” discharge with a bolt-on 2” N.P.T. threaded flange (For 3” discharge order an A1-3, 3” discharge flange)

2nd and 3rd characters – series/solids size

WD = wastewater, 2" solids handling, dual seal with seal fail probe in pump.

4th character – mechanical seals

5 = silicon carbide/silicon carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (standard)

3 = silicon carbide/tungsten carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (optional)

5th character – cycle/RPM

1 = 60 Hz/3500 RPM

2 = 60 Hz/1750 RPM

6th character – horsepower

B = 1/3 HP D = 3/4 HP

C = 1/2 HP E = 1 HP

7th character – phase/voltage/enclosure

0 = single phase, 115 V 4 = three phase, 460 V

1 = single phase, 230 V 5 = three phase, 575 V

2 = three phase, 200 V 8 = single phase, 208 V

3 = three phase, 230 V

8th character – impeller diameter

A = 3.75" 1 HP 3500 RPM E = 4.69" 1/3 HP 1750 RPM

B = 5.75" 1 HP 1750 RPM H = 3.44" 3/4 HP 3500 RPM

C = 5.38" 3/4 HP 1750 RPM J = 3.19" 1/2 HP 3500 RPM

D = 5.00" 1/2 HP 1750 RPM K = 2.94" 1/3 HP 3500 RPM

9th character – cord length (power and sensor)

A = 20' (standard) F = 50'

D = 30' J = 100'

10th character – options

B = bronze impeller E = epoxy paint

F = both epoxy paint and bronze impeller

Last character – option

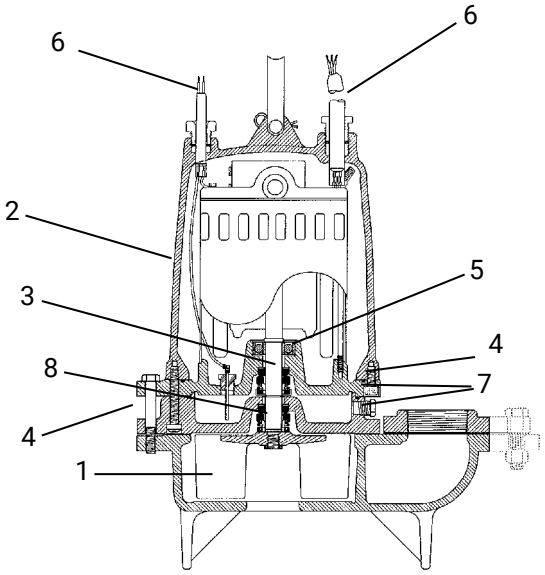
H = pilot duty thermal sensors **(three phase only!!)**

Materials of construction

Item no.	Part name	Material	
		Standard	Optional
1	Impeller	1003	1179
2	Motor cover	1003	
3	Shaft	300 Series SS	
4	Fasteners	300 Series SS	
5	Ball bearings	Steel	
6	Power cable	STOW, 20 feet	Additional lengths
	Seal sensor cable		
7	O-ring	BUNA-N	

8	Outer mech. Seal	Service	Rotary	Stationary	Elasto-mers	Metal parts
	OPT	Heavy duty	Silicon carbide	Tungsten carbide	BUNA-N	300 series SS
	STD	Mild abrasives	Silicon carbide		BUNA-N	300 series SS

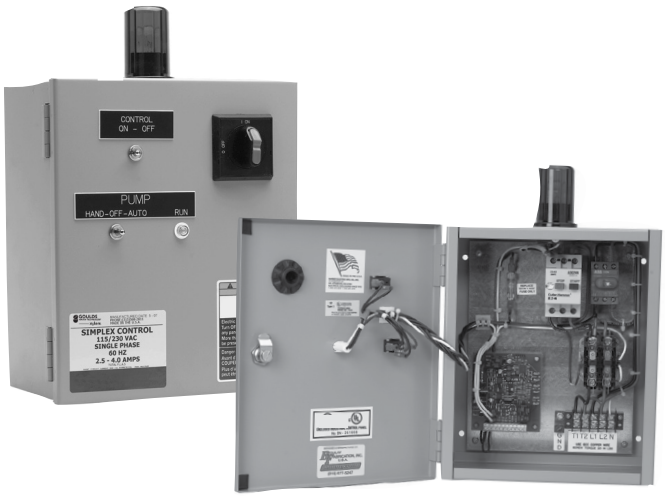
Material code	Engineering standard
1003	Cast iron — ASTM A48 Class 30
1179	Silicon bronze — ASTM C87600



Standard panel options

Pump order number	Boulay series		Disconnect style	
	Simplex	Duplex	Simplex	Duplex
2WD52B0EA	S10020H	D10020J	CSD11016H	CDD11016J
2WD52B8EA	S10020H	D10020J	CSD16310H	CDD16310J
2WD52B1EA	S10020H	D10020J	CSD14063H	CDD14063J
2WD52C0DA	S10020H	D10020J	CSD11016H	CDD11016J
2WD52C8DA	S10020H	D10020J	CSD16310H	CDD16310J
2WD52C1DA	S10020H	D10020J	CSD16310H	CDD16310J
2WD52C2DA	S32540H	D32540J	CSD32540H	CDD32540J
2WD52C3DA	S32540H	D32540J	CSD32540H	CDD32540J
2WD52C4DA	S31615H	D31615J	CSD31625H	CDD31625J
2WD52D8CA	S10020H	D10020J	CSD11016H	CDD11016J
2WD52D1CA	S10020H	D10020J	CSD16310H	CDD16310J
2WD52D2CA	S34063H	D34063J	CSD14063H	CDD14063J
2WD52D3CA	S32540H	D32540J	CSD32540H	CDD32540J
2WD52D4CA	S31625H	D31625J	CSD31625H	CDD31625J
2WD52E8BA	S10020H	D10020J	CSD11016H	CDD11016J
2WD52E1BA	S10020H	D10020J	CSD11016H	CDD11016J
2WD52E2BA	S34063H	D34063J	CSD34063H	CDD34063J
2WD52E3BA	S34063H	D34063J	CSD34063H	CDD34063J
2WD52E4BA	S32540H	D32540J	CSD32540H	CDD32540J
2WD51B0KA	S10020H	D10020J	CSD11016H	CDD11016J
2WD51B8KA	S10020H	D10020J	CSD16310H	CDD16310J
2WD51B1KA	S10020H	D10020J	CSD16310H	CDD16310J
2WD51C0JA	S10020H	D10020J	CSD11016H	CDD11016J
2WD51C8JA	S10020H	D10020J	CSD16310H	CDD16310J
2WD51C1JA	S10020H	D10020J	CSD16310H	CDD16310J
2WD51C3JA	S32540H	D32540J	CSD32540H	CDD32540J
2WD51C4JA	S31625H	D31625J	CSD31625H	CDD31625J
2WD51C5JA	S31625H	D31625J	CSD31625H	CDD31625J
2WD51D8HA	S10020H	D10020J	CSD11016H	CDD11016J
2WD51D1HA	S10020H	D10020J	CSD11016H	CDD11016J
2WD51D3HA	S34063H	D34063J	CSD34063H	CDD34063J
2WD51D4HA	S32540H	D32540J	CSD32540H	CDD32540J
2WD51D5HA	S31625H	D31625J	CSD31625H	CDD31625J
2WD51E8AA	S10020H	D10020J	CSD11016H	CDD11016J
2WD51E1AA	S10020H	D10020J	CSD11016H	CDD11016J
2WD51E3AA	S36310H	D36310J	CSD36310H	CDD36310J
2WD51E4AA	S32540H	D32540J	CSD32540H	CDD32540J
2WD51E5AA	S32540H	D32540J	CSD32540H	CDD32540J

Note: Panel part numbers above do not include float switches.
Note: Panel part numbers above include a seal fail circuit. If the 3 phase high temperature option is chosen for the pumps (H suffix), add an M suffix to the simplex part numbers above or an N suffix to the duplex models.
Note: All panel part numbers above have additional available features, see page 7 for more information.



Boulay series

- NEMA 4X outdoor rated enclosure
- Red alarm beacon
- HOA selector switch
- Through door pump run light(s)
- Through door alarm test and horn silence button
- Single phase models handle 120, 208 and 230V service
- Three phase models handle 200, 230, 460 and 575V service
- Accepts single or dual power feed
- See brochure "BCP3 R11" for additional information on simplex models
- See brochure "BCP4 R14" for additional information on duplex models information

Disconnect style

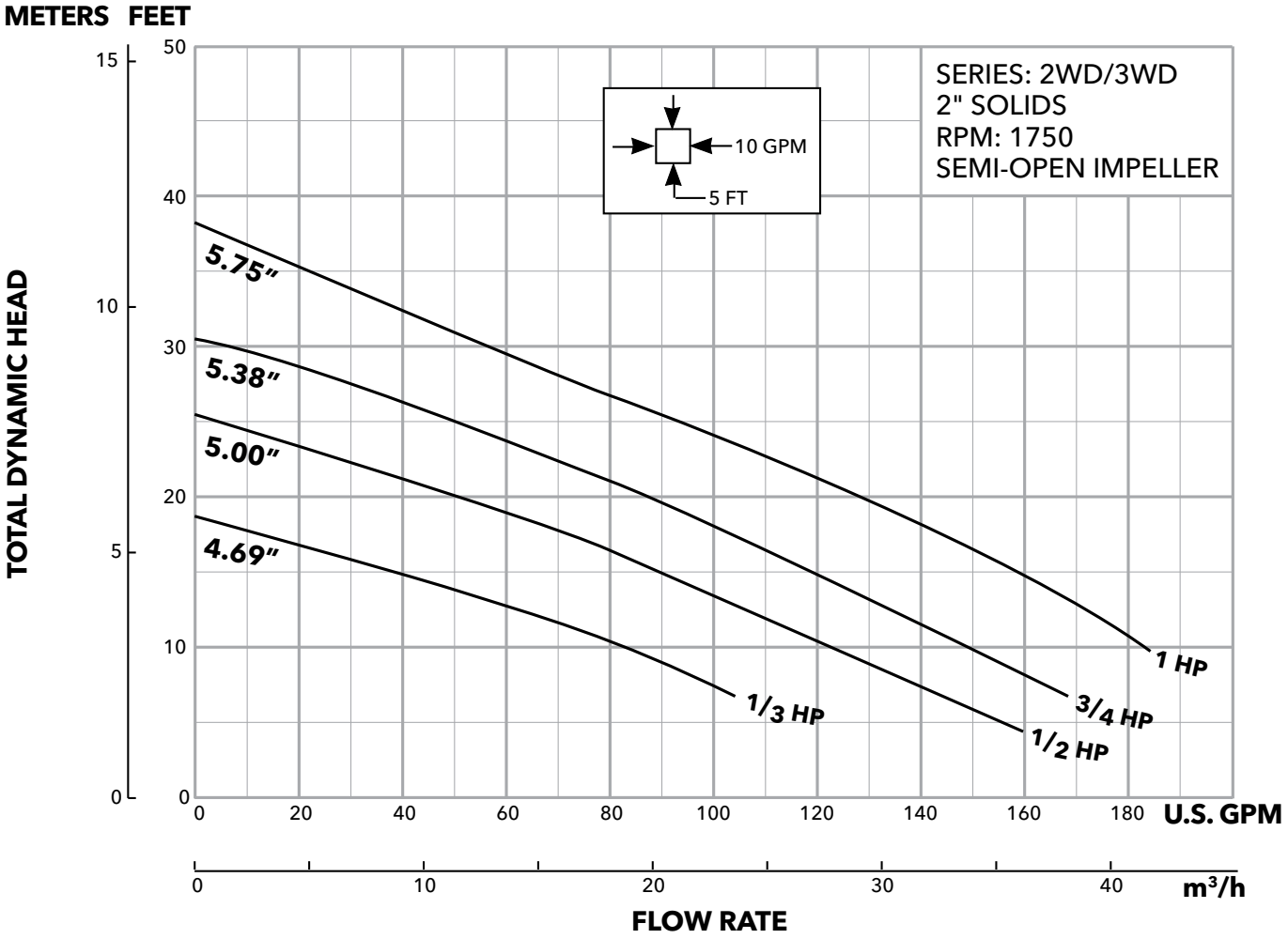
- NEMA 4X outdoor rated enclosure, NEMA 1 also available
- Red alarm beacon
- Through door HOA selector switch
- Through door control on/off switch
- Through door main disconnect switch
- Single phase models handle 120, 208 and 230V service
- Three phase models handle 200, 230, 460 and 575V service
- Accepts single or dual power feed
- See brochure "BCPSDWWP R3" for additional information

2WD/3WD

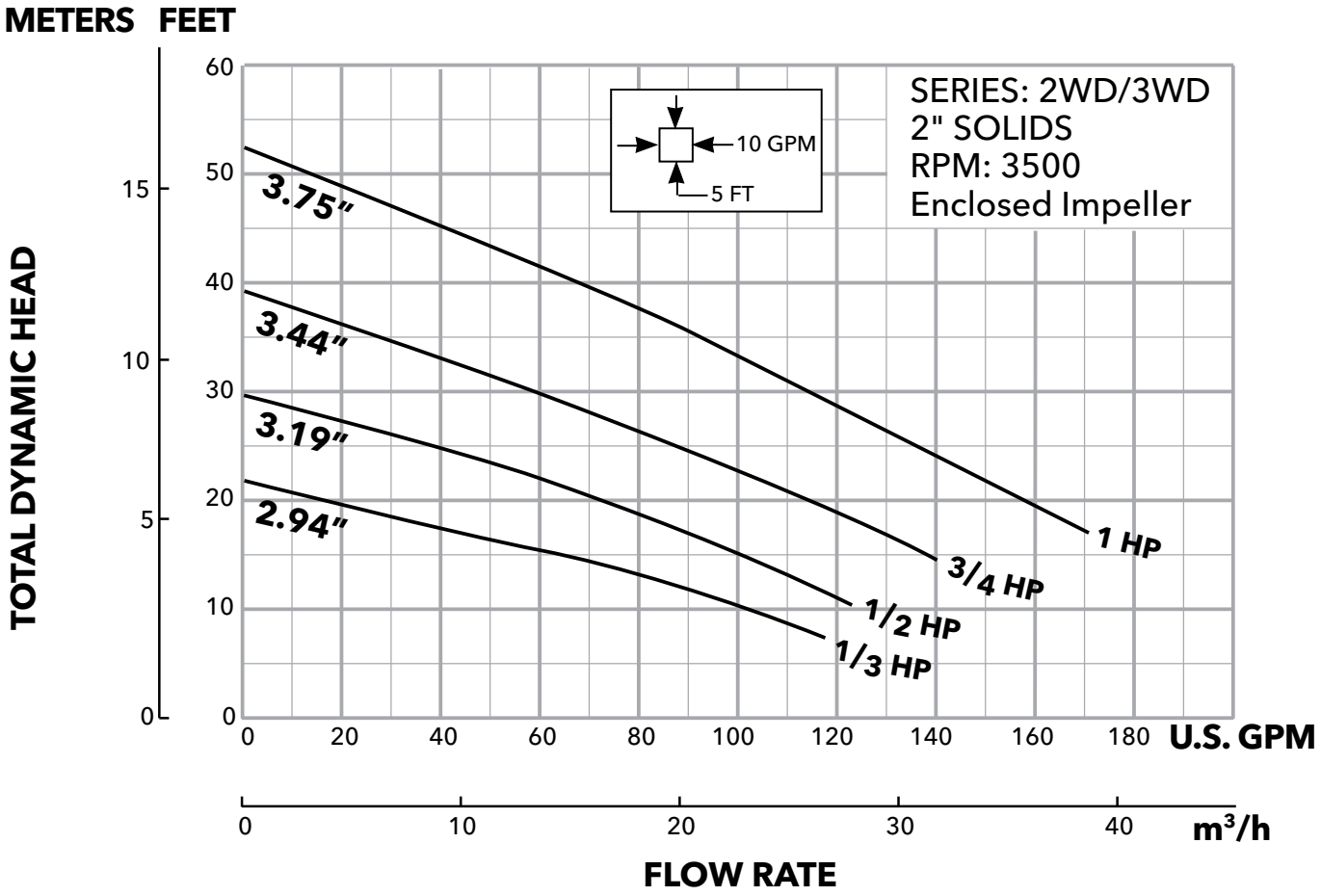
Submersible 2" Non-Clog Sewage Pump

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

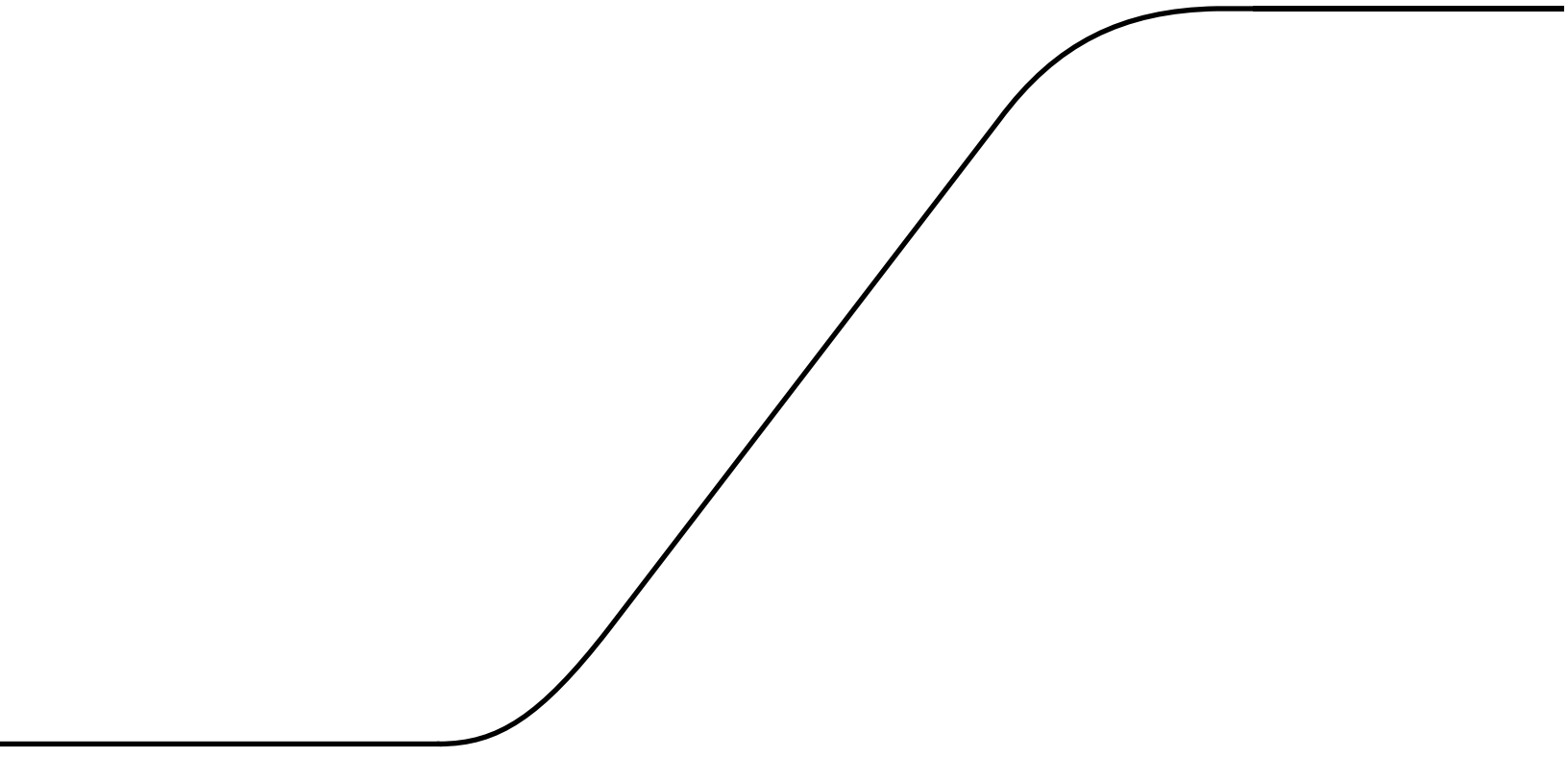
Impeller Diameter	Impeller Code	Motor HP Rating
5.75"	B	1
5.38"	C	¾
5.00"	D	½
4.69"	E	1/3



Impeller Diameter	Impeller Code	Motor HP Rating
3.75"	A	1
3.44"	H	¾
3.19"	J	½
2.94"	K	1/3



3" Sewage pumps



xylem
Let's Solve Water

TECHNICAL BROCHURE
B3888D3 R3

WS_D3 Series

Model 3888D3

SUBMERSIBLE SEWAGE PUMPS

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, ASTM A48, Class 30, two vane semi-open, non-clog design with pump out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller is an option.

Casing: Heavy duty gray cast iron, ASTM A48, Class 30. Volute type casing with 3", 125#, ANSI flanged, horizontal discharge. Compatible with A10-30 cast iron or A10-30B cast iron and brass (non-sparking) guide rail assembly.

Dual Mechanical Seals: Silicon carbide vs. silicon carbide outer seal and ceramic vs. carbon inner seal, stainless steel metal parts, BUNA-N elastomers. Upper and lower shaft seals are positioned independently and are separated by an oil-filled chamber.

Shaft: 300 series stainless steel keyed design.

Fasteners: 300 series stainless steel.

Capable of running dry temporarily without damage to seals or motor.

Warranty: 3 year standard (4 year GPDA)

APPLICATIONS

Used in a variety of residential, commercial and industrial applications such as:

- Sewage systems, flood and pollution control, dewatering/effluent, farms, hospitals, trailer courts and motels

SPECIFICATIONS

Pump:

- Maximum solid size: 2.5"
- Discharge size: 3", 125 # ANSI flange
- Maximum capacity: 470 GPM
- Maximum total head: 65 feet
- 300 Series stainess steel fasteners
- 20' Power cord
- Standard silicon carbide/silicon carbide outer seal

Motor:

- Maximum ambient temperature: 104° F (40° C) continuous duty, 140° F (60° C) intermittent duty
- Rated for continuous duty when fully submerged
- Insulation: Class F
- 60 Hertz
- Single row ball bearings
- 300 Series stainless steel keyed shaft

Single Phase:

- 1.5 - 5 HP; 208 and 230 volts
- Built-in thermal overloads with automatic reset
- Built-in capacitors

Three Phase:

- 1.5 - 5 HP; 200, 230, 460 and 575 volts
- Class 10 overload protection must be provided in control panel

MOTORS

- Fully submerged in oil-filled chamber: High grade turbine oil surrounds motor for more efficient heat dissipation, permanent lubrication of bearings and mechanical seal for complete protection against outside environment.
- Class F insulation
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits and can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction for precision positioning of parts and to carry thrust loads.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. 20 foot standard with optional lengths available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

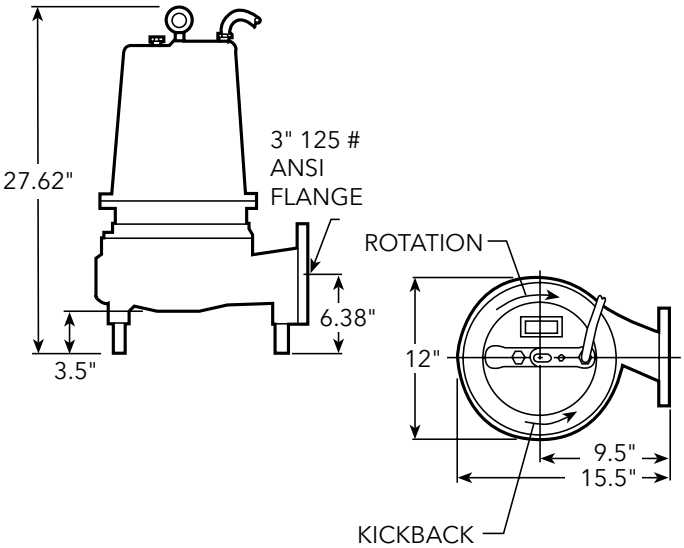
Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

MODEL AND MOTOR INFORMATION

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Power Cable	Full Load Motor Efficiency %	Resistance		Weight (lbs.)
											Start	Line-Line	
WS1518D3M	1.5	1	208	1750	5.25	15.0	50.8	B	14/3	80	1.1	0.9	192
WS1512D3M			230			12.5	29.5	E		70	1.4	1.8	
WS1538D3M		3	200			11.5	40.9	H	14/4	81	NA	1.7	190
WS1532D3M			230			10.0	40.0	F		83		2.3	
WS1534D3M			460			5.0	20.0	F		83		9.3	
WS1537D3M			575			4.0	14.4	H		74		14.8	
WS1518D3		1	208		6.50	15.0	50.8	B	14/3	80	1.1	0.9	192
WS1512D3			230			12.5	29.5	E		70	1.4	1.8	
WS1538D3		3	200			11.5	40.9	H	14/4	81	NA	1.7	190
WS1532D3			230			10.0	40.0	F		83		2.3	
WS1534D3			460			5.0	20.0	F		83		9.3	
WS1537D3			575			4.0	14.4	H		74		14.8	
WS2018D3	2	1	208		7.00	19.0	50.8	B	14/3	80	1.1	0.9	196
WS2012D3			230			16.0	36.9	D		75	1.4	1.5	
WS2038D3		3	200			11.5	40.9	H	14/4	81	NA	1.7	194
WS2032D3			230			10.0	40.0	F		83		2.3	
WS2034D3			460			5.0	20.0	F		83		9.3	
WS2037D3			575			4.0	14.4	H		74		14.8	
WS3018D3	3	1	208		7.25	25.5	50.8	B	10/3	80	1.1	0.9	205
WS3012D3			230			21.5	46.4	C		79	1.0	1.0	
WS3038D3		3	200			15.2	53.8	G	10/4	85	NA	1.3	200
WS3032D3			230			12.0	49.5	H	14/4	83		1.9	
WS3034D3			460			6.0	24.8	H		83		7.5	
WS3037D3			575			4.8	17.3	G		78		11.6	
WS5012D3	5	1	230		8.00	26.5	57.7	A	10/3	80	1.0	0.8	210
WS5038D3		3	200			18.8	73.9	F	10/4	84	NA	0.9	205
WS5032D3			230			16.4	63.6	E		85		1.2	
WS5034D3			460			8.2	31.8	E	14/4	85		4.8	
WS5037D3			575			6.8	22.8	E		80		7.4	

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



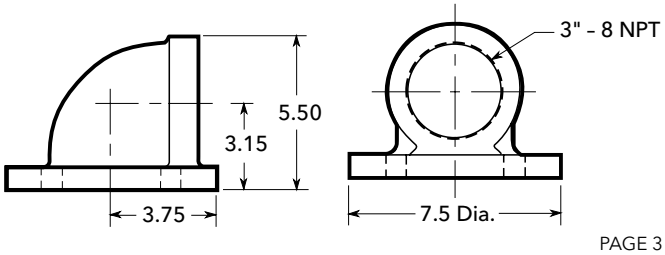
FITTINGS

PIPE CONNECTORS

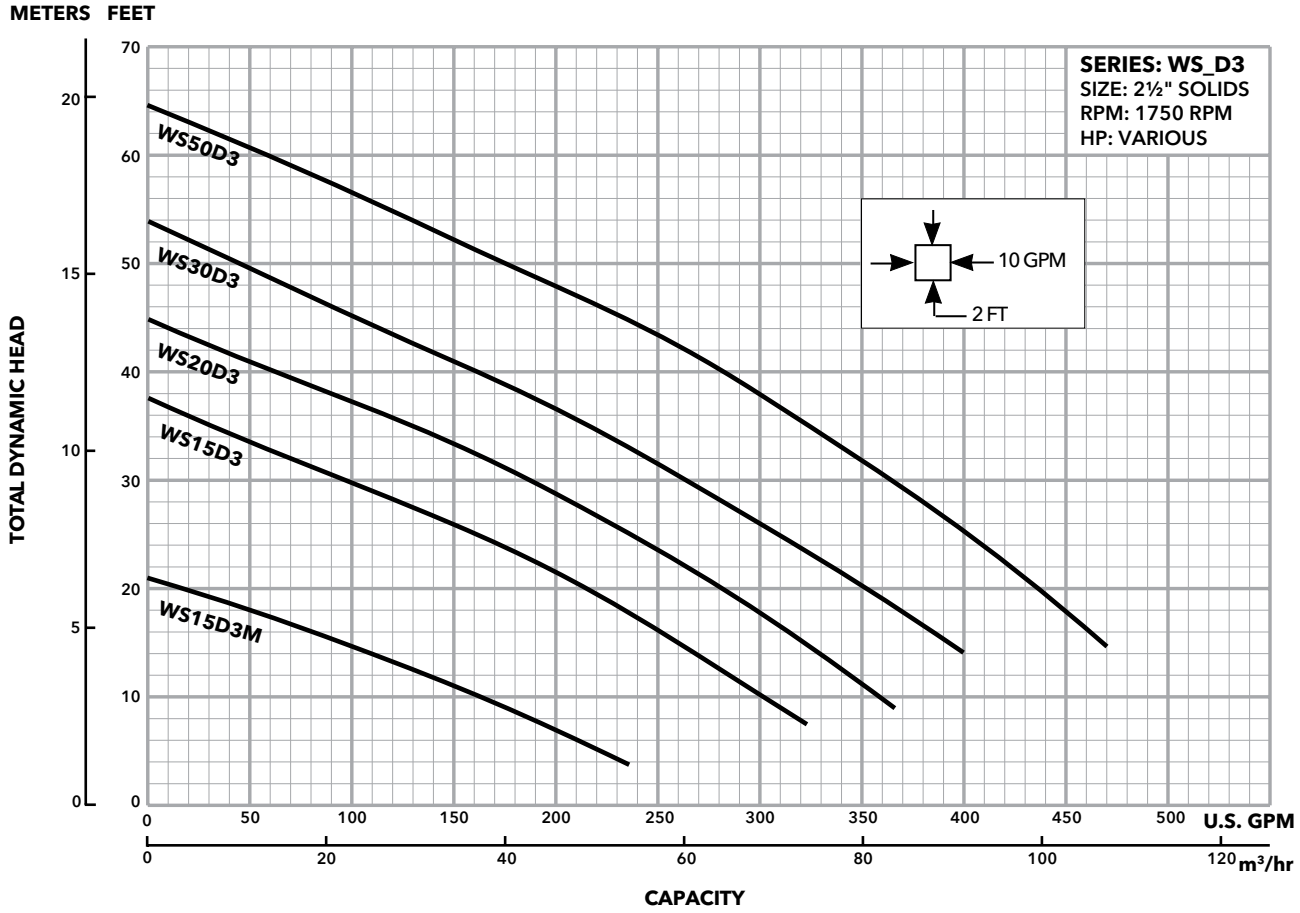
Short Radius Elbow

- Cast iron construction
- 125 lb. ANSI rated flange at pump end
- 3" NPT threaded connection for discharge pipe

Flange Size	Order Number	Used With
3"	A1-5	3", 125# ANSI Flange



PERFORMANCE CURVES



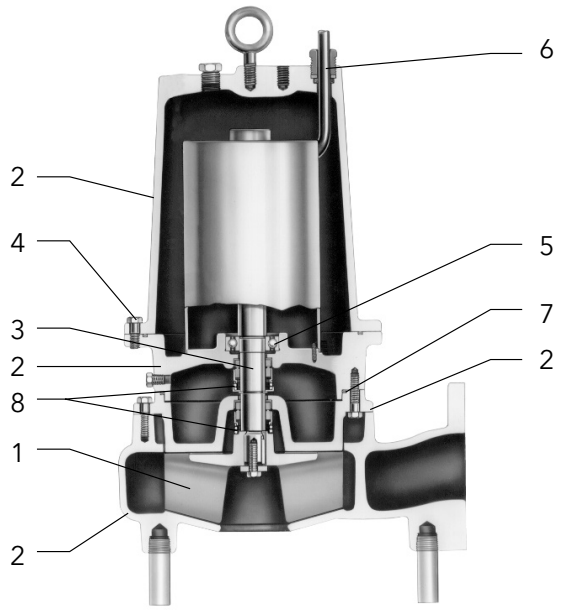
PERFORMANCE RATINGS (gallons per minute)

Series No.		WS15D3M	WS15D3	WS20D3	WS30D3	WS50D3
Total Head Feet of Water	HP	1½	1½	2	3	5
	RPM	1750				
	10	160	300			
	15	90	260	320		
	20		210	280	350	435
	25		160	235	310	400
	30		100	185	265	360
	35			130	210	325
	40			60	160	280
	45				100	230
	50					170
	55					115
	60					60

APPLICATION DATA AND CONSTRUCTION DETAILS

Maximum Solid Size		2.5"
Minimum Casing Thickness		5⁄16"
Casing Corrosion Allowance		1⁄8"
Maximum Working Pressure		30 PSI
Maximum Submergence		50 feet
Minimum Submergence		Fully submerged for continuous operation
		6" below top of motor for intermittent operation
Maximum Environmental Temperature		40° C (104° F) continuous operation, 60° C (140° F) intermittent operation
Power Cable – Type (See Motor Information for AWG data/size.)		Type SJTOW: single phase, 1½ and 2 HP
		Type STOW: single phase, 1½ – 3 HP and 5 HP, 460 V
		Type STOW: single phase, 3 and 5 HP, three phase 5 HP, 230 V
Motor Cover, Bearing Housing, Seal Housing, Casing		Gray Cast Iron – ASTM A48, Class 30
Impeller – Standard, Optional		Gray Cast Iron – ASTM A48 or Cast Bronze – ASTM B584 C87600
Motor Shaft		AISI 300 Series Stainless Steel
Motor Design		NEMA 56 Frame, oil filled with Class F Insulation
Motor Overload Protection		Single phase: on winding thermal overload protection auto reset
		Three phase: requires Class 10 overloads in control panel
External Hardware		300 Series Stainless Steel
Impeller Type		Semi-open with pump out vanes on back shroud
Oil Capacity – Seal Chamber		1.5 quarts
Oil Capacity – Motor Chamber		1½-5 HP single and three phase: 7 quarts
Mechanical Seals – Standard	Upper	Carbon/Ceramic; Type 21
	Lower	Silicon Carbide/Silicon Carbide; Type 31
Mechanical Seals – Optional Lower		Silicon Carbide/Tungsten Carbide; Type 31

MATERIALS OF CONSTRUCTION



Item No.	Part Name		Material			
			Standard		Optional	
1	Impeller, non-clog		1003		1179	
2	Castings		1003			
3	Shaft–keyed		300 Series SS			
4	Fasteners		300 Series SS			
5	Ball bearings		Steel			
6	Power cable		STOW, 20 feet		Additional lengths	
7	O-ring		BUNA-N			
8	**Outer Mech. Seal**	**Service**	**Rotary**	**Station-ary**	**Elasto-mers**	**Metal Parts**
	OPT	Heavy duty	Silicon Carbide	Tungsten Carbide	BUNA-N	300 Series SS
	STD	Mild abrasives	Silicon carbide		BUNA-N	300 Series SS

Material Code	Engineering Standard
1003	Cast iron – ASTM A48 Class 30
1179	Silicon bronze – ASTM C87600

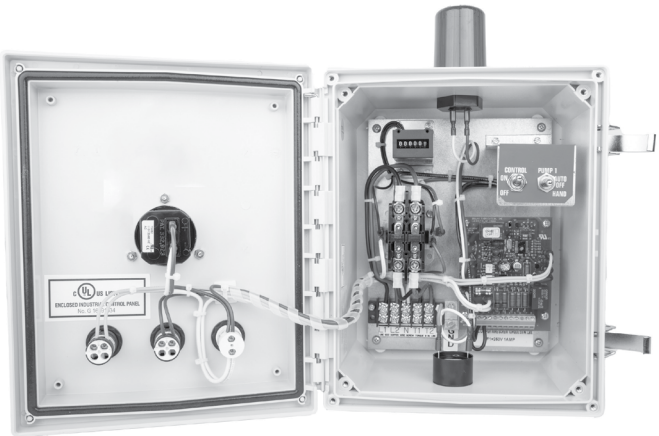
STANDARD PANEL OPTIONS

Pump	HP	Phase	Voltage	Amps	Simplex Panel	Duplex Panel
WS1518D3M	1.5	1	208	15	C4S10020	C4D10020
WS1512D3M	1.5	1	230	12.5	C4S10020	C4D10020
WS1538D3M	1.5	3	200	11.5	C4S31016	C4D31016
WS1532D3M	1.5	3	230	10	C4S31016	C4D31016
WS1534D3M	1.5	3	460	5	C4S34063	C4D34063
WS1537D3M	1.5	3	575	4	C4S34063	C4D34063
WS1518D3	1.5	1	208	15	C4S10020	C4D10020
WS1512D3	1.5	1	230	12.5	C4S10020	C4D10020
WS1538D3	1.5	3	200	11.5	C4S31016	C4D31016
WS1532D3	1.5	3	230	10	C4S31016	C4D31016
WS1534D3	1.5	3	460	5	C4S34063	C4D34063
WS1537D3	1.5	3	575	4	C4S34063	C4D34063
WS2018D3	2	1	208	19	C4S10020	C4D10020
WS2012D3	2	1	230	16	C4S10020	C4D10020
WS2038D3	2	3	200	11.5	C4S31016	C4D31016
WS2032D3	2	3	230	10	C4S31016	C4D31016
WS2034D3	2	3	460	5	C4S34063	C4D34063
WS2037D3	2	3	575	4	C4S34063	C4D34063
WS3018D3	3	1	208	25.5	C4S12136	C4D12127
WS3012D3	3	1	230	21.5	C4S12136	C4D12127
WS3038D3	3	3	200	15.2	C4S31016	C4D31016
WS3032D3	3	3	230	12	C4S31016	C4D31016
WS3034D3	3	3	460	6	C4S34063	C4D34063
WS3037D3	3	3	575	4.8	C4S34063	C4D34063
WS5012D3	5	1	230	26.5	C4S12136	C4D12836
WS5038D3	5	3	200	18.8	C4S31620	C4D31620
WS5032D3	5	3	230	16.4	C4S31620	C4D31620
WS5034D3	5	3	460	8.2	C4S36310	C4D36310
WS5037D3	5	3	575	6.8	C4S36310	C4D36310

Series "Core 4" Control Panels provide outstanding, automatic, liquid level control to help manage and maintain pump operation for a variety of effluent, sewage, and water transfer applications.

FEATURES

- Rugged, NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion
- Solid-state control board displays float status for ease of installation and trouble-shooting
- Hinged door with lockable stainless-steel latch for safe operation indoors and out
- Through-door mounted alarm test switch ensures proper operation of the alarm circuit without the need to open the panel
- Panel can be wired for a single power feed and control circuit, or the control circuit can be wired to a separate power supply to ensure alarm integrity in case of a tripped pump breaker.
- Top-mounted, high intensity, flashing red light provides 360° visibility
- Auxiliary alarm contacts provided for remote alarm connection
- Field wiring diagram, panel schematic and installation instructions included
- Entire unit is UL and CUL listed



APPLICATIONS

- Residential
- Effluent
- Sewage
- Water transfer

PRODUCT SPECIFICATIONS

- Hand-off-automatic (H-O-A) pump selection switch(es)
- On-off control circuit switch
- Float switches:
  - o Normally open (pump down) mechanical float switches with 20' cords
  - o Simplex panels (three switches)
  - o Duplex panels (four switches)
- Duplex panels include alternation
- NEMA 4X:
  - o Flashing red alarm light,
  - o Fiberglass enclosure with gasketed, hinged door and stainless-steel hardware
  - o Alarm horn (95db)
- Solid state printed circuit control board with float indicator lights
- Auxiliary alarm dry contact
- Elapsed time meter(s)
- Cycle counter(s)
- Single Phase
  - o Field adjustable for 115 or 230V, 60Hz
- Three Phase
  - o Field adjustable for 208/230/460/575 V, 60 Hz
  - o 115V control circuit transformer
  - o Adjustable motor overload protectors

xylem
Let's Solve Water

TECHNICAL BROCHURE
B3SD R7

3SD

SUBMERSIBLE SEWAGE PUMP

DUAL SEAL WITH SEAL SENSOR PROBE

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, two vane semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

Casing: Heavy duty cast iron, volute type for maximum efficiency. 3" flange conforms to 125 # ANSI standard. Connects to A10-30 guide rail system.

Dual Mechanical Seals: Silicon carbide vs. silicon carbide outer seal and ceramic vs. carbon inner seal, stainless steel metal parts, BUNA-N elastomers. Upper and lower shaft seals are positioned independently and are separated by an oil-filled chamber.

Seal Sensor Probe: Located in oil-filled chamber. If pumpage should begin to leak past lower seal it indicates to pump control panel a fault has occurred. Requires optional Seal Fail Circuit in the control panel.

Shaft: 300 series stainless steel keyed design.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

APPLICATIONS

Used in a variety of residential, commercial and industrial applications such as:

- Sewage systems
- Flood and pollution control
- Dewatering/Effluent
- Farms
- Hospitals
- Trailer courts
- Motels

SPECIFICATIONS

Pump:

- Maximum solid size: 2.5”
- Discharge size: 3”, 125 # ANSI flange
- Maximum capacity: 470 GPM
- Maximum total head: 65 feet
- 300 Series stainess steel fasteners
- 20’ Power cord
- Standard silicon carbide/silicon carbide outer seal

Motor:

- Maximum ambient temperature: 104° F (40° C) continuous duty, 140° F (60° C) intermittent duty
- Rated for continuous duty when fully submerged
- Insulation: Class F
- 60 Hertz
- Single row ball bearings
- 300 Series stainless steel keyed shaft

Single Phase:

- 1.5 - 5 HP; 208 and 230 volts
- Built-in thermal overloads with automatic reset
- Built-in capacitors

Three Phase:

- 1.5 - 5 HP; 200, 230, 460 and 575 volts
- Class 10 overload protection must be provided in control panel

MOTORS

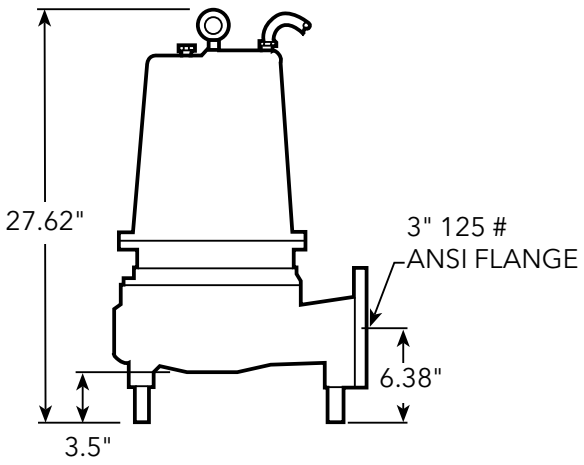
- Fully submerged in oil-filled chamber. High grade turbine oil surrounds motor for more efficient heat dissipation, permanent lubrication of bearings and mechanical seal for complete protection against outside environment.
- Class F insulation
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer’s recommended working limits and can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction for precision positioning of parts and to carry thrust loads.
- Power and Control Cables: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. 20 foot standard with optional lengths available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

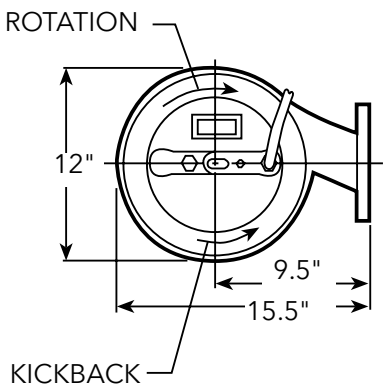
MODEL AND MOTOR INFORMATION

Order Number	HP	Phase	Volts	RPM	Impeller		Maximum Amps	L.R. Amps	KVA Code	Power Cable	F.L. Motor Efficiency %	Resistance		Wt. (lbs.)
					Dia. (in.)	Code						Start	Line-Line	
3SD52F8EA	1.5	1	208	1750	5.25	E	15.0	50.8	B	14/3	80	1.1	0.9	192
3SD52F1EA			230				13.5	29.5	E		70	1.4	1.8	
3SD52F2EA		3	200				11.5	40.9	H	14/4	81	NA	1.7	190
3SD52F3EA			230				10.0	40.0	F		83		2.3	
3SD52F4EA			460				5.0	20.0	F		83		9.3	
3SD52F5EA			575				4.0	14.4	H		74		14.8	
3SD52F8DA	1.5	1	208		6.50	D	15.0	50.8	B	14/3	80	1.1	0.9	192
3SD52F1DA			230				13.5	32.7	E		70	1.4	1.8	
3SD52F2DA		3	200				11.5	43.0	H	14/4	81	NA	1.7	190
3SD52F3DA			230				10.0	40.0	F		83		2.3	
3SD52F4DA			460				5.0	20.0	F		83		9.3	
3SD52F5DA			575				4.0	14.4	H		74		14.8	
3SD52G8CA	2	1	208		7.00	C	19.0	50.8	B	14/3	80	1.1	0.9	196
3SD52G1CA			230				16.0	36.9	D		75	1.4	1.5	
3SD52G2CA		3	200				11.5	43.0	H	14/4	81	NA	1.7	194
3SD52G3CA			230				10.0	40.0	F		83		2.3	
3SD52G4CA			460				5.0	20.0	F		83		9.3	
3SD52G5CA			575				4.0	14.4	H		74		14.8	
3SD52H8BA	3	1	208		7.25	B	25.5	50.8	B	10/3	80	1.1	0.9	205
3SD52H1BA			230				21.5	46.4	C		79	1.0	1.0	
3SD52H2BA		3	200				15.2	43.0	G	10/4	85	NA	1.3	200
3SD52H3BA			230				12.0	49.5	H	14/4	83		1.9	
3SD52H4BA			460				6.0	24.8	H		83		7.5	
3SD52H5BA			575				4.8	17.3	G		78		11.6	
3SD52J1AA	5	1	230		8.00	A	26.5	57.7	A	10/3	80	1.0	0.8	210
3SD52J2AA		3	200				18.8	77.8	F	10/4	84	NA	0.9	205
3SD52J3AA			230				16.4	63.6	E		85		1.2	
3SD52J4AA			460				8.2	31.8	E	14/4	85		4.8	
3SD52J5AA			575				6.8	22.8	E		80		7.4	

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)





APPLICATION DATA

Maximum Solid Size	2½"
Minimum Casing Thickness	5/16"
Casing Corrosion Allowance	⅛"
Maximum Working Pressure	30 PSI
Maximum Submergence	50 feet
Minimum Submergence	Fully submerged for continuous operation
	6" below top of motor for intermittent operation
Maximum Environmental Temperature	40°C (104°F) continuous operation
	60°C (140°F) intermittent operation

CONSTRUCTION DETAILS

Power Cable – Type	14/3, type SJTOW: single phase, ½ & 2 HP
	14/3, type STOW: single phase, ½ - 3 HP & 5 HP, 460 V
	10/3, type STOW: single phase, 3 & 5 HP, three phase 5 HP, 230 V
Sensor Cable – Type	16/2, type SJTOW: seal sensor only
	18/4, type SJTOW: seal/heat sensor
Motor Cover	Gray Cast Iron – ASTM A48 Class 30
Bearing Housing	Gray Cast Iron – ASTM A48 Class 30
Seal Housing	Gray Cast Iron – ASTM A48 Class 30
Casing	Gray Cast Iron – ASTM A48 Class 30
Impeller	Gray Cast Iron – ASTM A48 or Cast Bronze – ASTM B584 C87600
Motor Shaft	AISI 300 Series Stainless Steel
Motor Design	NEMA 56 Frame, oil filled with Class F Insulation
Motor Overload Protection	Single Phase: on winding thermal overload protection
	Three Phase: require ambient compensated Class 10, quick trip overloads in the control panel.
Motor Seal Fail (Moisture) Detection	Seal fail sensor in an oil-filled seal chamber. Connect to an optional relay in control panel.
Optional Motor Thermal Protection	Normally closed on-winding thermostats open at 275° F (135 °C) and close at 112° F (78° C). Require terminal connection in the control panel.
External Hardware	300 Series Stainless Steel
Impeller Type	Semi-opened with pump out vanes on back shroud
Oil Capacity – Seal Chamber	1.75 quarts
Oil Capacity – Motor Chamber	7.0 quarts

STANDARD PARTS

Ball Bearing	Upper	Single row ball – SKF™ 6204-2Z
	Lower	Single row ball – SKF™ 6206-2Z
Mechanical Seals – Standard	Upper	Carbon/Ceramic; Type 21
	Lower	Silicon Carbon/Silicon Carbon; Type 21
Mechanical Seals – Optional Lower		Silicon Carbide/Tungsten Carbide: Type 21
O-Ring – Stuffing Box		BUNA-N, AS 568A-163
O-Ring – Motor Cover		BUNA-N, AS 568A-166

NOMENCLATURE DESCRIPTION

1st, 2nd and 3rd Character – Discharge Size and Type

3SD = 3" discharge, 2.5" solids handling, dual seal with seal fail probe in pump.

4th Character – Mechanical Seals

5 = Silicon carbide/silicon carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (standard)

3 = Silicon carbide/tungsten carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (optional)

5th Character – Cycle/RPM

2 = 60 Hz/1750 RPM

6th Character – Horsepower

F = 1½ HP G = 2 HP H = 3 HP J = 5 HP

7th Character – Phase/Voltage

1 = single phase, 230 V 4 = three phase, 460 V
2 = three phase, 200 V 5 = three phase, 575 V
3 = three phase, 230 V 8 = single phase, 208 V

8th Character – Impeller Diameter

A = 8.00" C = 7.00" E = 5.25"
B = 7.25" D = 6.50"

9th Character – Cord Length (Power and Sensor)

A = 20' (standard) F = 50'
D = 30' J = 100'

10th Character – Options

B = Bronze impeller
E = Epoxy paint
F = Both epoxy paint and bronze impeller

11th Character – Option

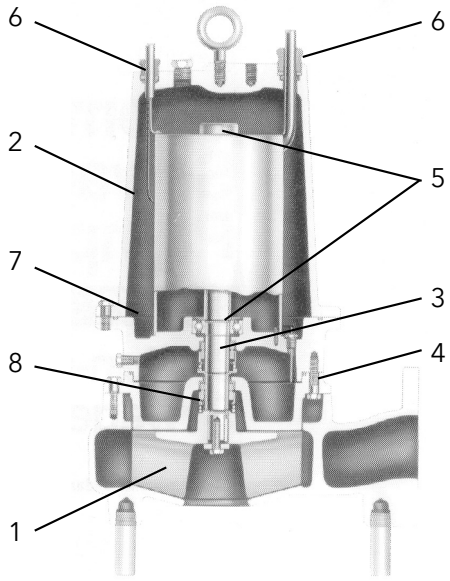
H = Pilot duty thermal sensors **(3 phase only!!)**

MATERIALS OF CONSTRUCTION

Item No.	Part Name	Material	
		Standard	Optional
1	Impeller, non-clog	1003	1179
2	Castings	1003	
3	Shaft-Keyed	300 Series SS	
4	Fasteners	300 Series SS	
5	Ball bearings	Steel	
6	Power cable	STOW, 20 feet	Additional lengths
	Seal sensor cable		
7	O-ring	BUNA-N	

Item No.	Outer Mech. Seal	Service	Rotary	Stationary	Elastomers	Metal Parts
8	OPT	Heavy duty	Silicon Carbide	Tungsten Carbide	BUNA-N	300 Series SS
	STD	Mild abrasives	Silicon Carbide		BUNA-N	300 Series SS

Material Code	Engineering Standard
1003	Cast iron – ASTM A48 Class 30
1179	Silicon bronze – ASTM C87600



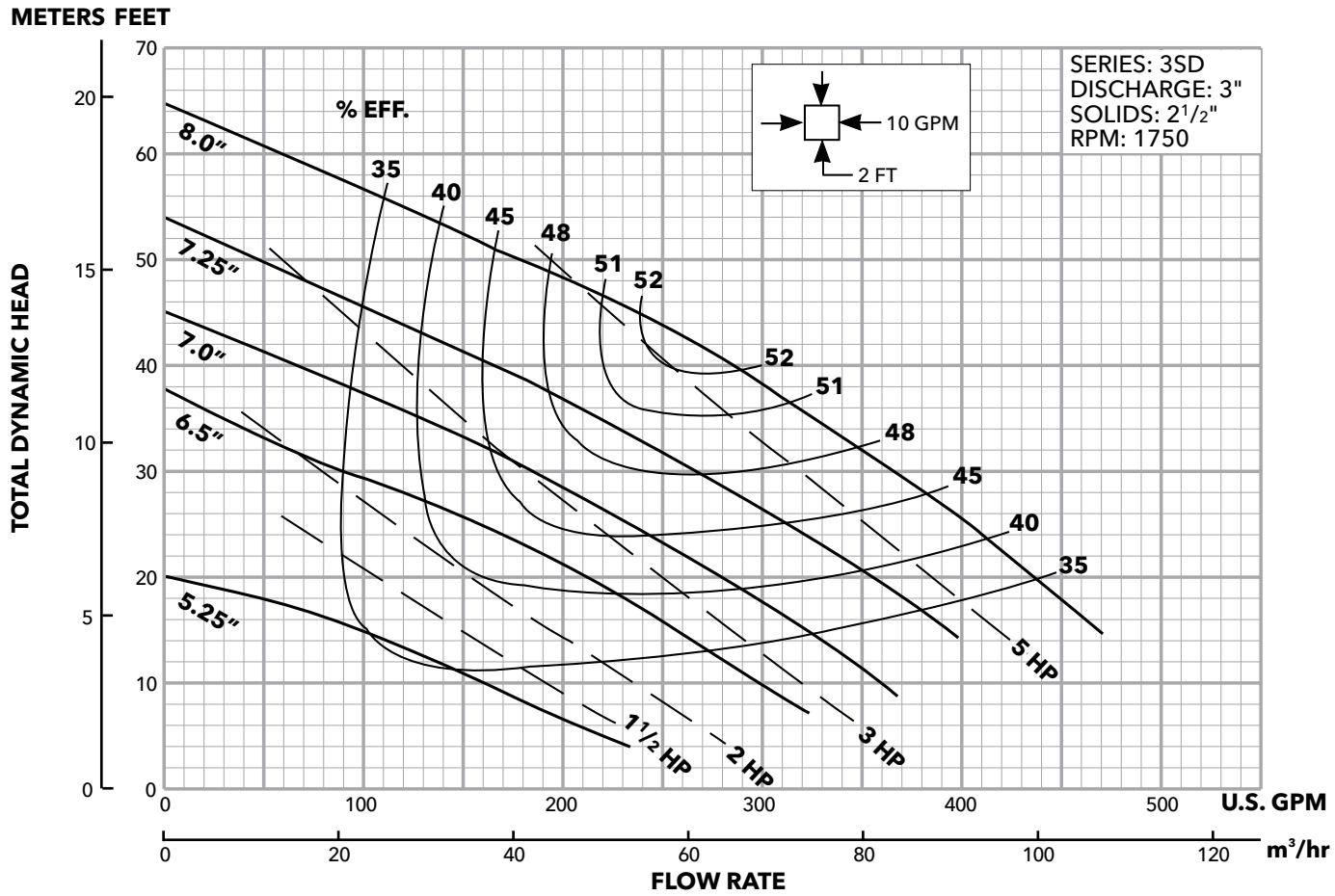
STANDARD PANEL OPTIONS

Order Number	HP	Phase	Volts	SF Amps	Simplex Panel Part Number	Duplex Panel Part Number
3SD52F8EA	1.5	1	208	15	SDS11522	SDD11522
3SD52F1EA			230	13.5	SDS17015	SDD17015
3SD52F2EA		3	200	11.5	SDS39014	SDD39014
3SD52F3EA			230	10	SDS39014	SDD39014
3SD52F4EA			460	5	SDS34063	SDD34063
3SD52F5EA			575	4	SDS340635	SDD340635
3SD52F8DA		1	208	15	SDS11522	SDD11522
3SD52F1DA			230	13.5	SDS17015	SDD17015
3SD52F2DA		3	200	11.5	SDS39014	SDD39014
3SD52F3DA			230	10	SDS39014	SDD39014
3SD52F4DA			460	5	SDS34063	SDD34063
3SD52F5DA			575	4	SDS340635	SDD340635
3SD52G8CA	2	1	208	19	SDS11522	SDD11522
3SD52G1CA			230	16	SDS11522	SDD11522
3SD52G2CA		3	200	11.5	SDS39014	SDD39014
3SD52G3CA			230	10	SDS39014	SDD39014
3SD52G4CA			460	5	SDS34063	SDD34063
3SD52G5CA			575	4	SDS340635	SDD340635
3SD52H8BA	3	1	208	25.5	SDS12228	SDD12228
3SD52H1BA			230	21.5	SDS12228	SDD12228
3SD52H2BA		3	200	15.2	SDS31318	SDD31318
3SD52H3BA			230	12	SDS39014	SDD39014
3SD52H4BA			460	6	SDS34063	SDD34063
3SD52H5BA			575	4.8	SDS340635	SDD340635
3SD52J1AA	5	1	230	26.5	SDS12228	SDD12228
3SD52J2AA		3	200	18.8	SDS31723	SDD31723
3SD52J3AA			230	16.4	SDS31318	SDD31318
3SD52J4AA			460	8.2	SDS36010	SDD36010
3SD52J5AA			575	6.8	SDS360105	SDD360105

3SD Submersible Sewage Pumps

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

Impeller Code	Impeller Diameter	Motor HP Rating
A	8"	5
B	7.25"	3
C	7"	2
D	6.50"	1.5
E	5.25"	1.5



xylem
Let's Solve Water

TECHNICAL BROCHURE
B3SDX R3

FEATURES

Impeller: Cast iron, ASTM A48, Class 30, two vane semi-open, non-clog design with pump out vanes for mechanical seal protection. Computer balanced for smooth operation. Silicon bronze impeller is an option.

Casing: Heavy duty gray cast iron, ASTM A48, Class 30. Volute type casing with 3", 125#, flanged, horizontal discharge conforming to ANSI standards. Compatible with A10-30 cast iron or A10-30B cast iron and brass (non-sparking) slide rail assembly.

Seals: Tandem mechanical seal system in an oil filled seal chamber. Each seal operates independently to ensure fail safe performance. Standard seals are carbon rotary and ceramic stationary. Outer seals are designed for easy replacement. Optional seals are available.

Seal Sensor Probes: Pump has a standard dual probe moisture detection system located in an oil filled seal chamber. The sensor leads must be connected to a "seal fail circuit" in the control panel.

3SDX EXPLOSION PROOF SUBMERSIBLE SEWAGE PUMP

CLASS 1, DIVISION 1, GROUPS C AND D HAZARDOUS LOCATIONS

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Designed for a variety of hazardous commercial and industrial applications such as:

- Sewage systems
- Flood and pollution control
- Dewatering and effluent
- Hospitals
- Trailer courts
- Hotels and motels

SPECIFICATIONS

Pump:

- Maximum solid size: 2.5″
- Discharge size: 3″ ANSI 125# Flange
- Maximum capacity: 550 GPM
- Maximum total head: 67′

MOTOR SPECIFICATIONS

- Maximum ambient temperature: 40° C (104° F)
- Rated for continuous duty with motor fully submerged
- Service Factor: 1.15
- HP range: Three phase: 1.5 to 7.5 HP
- 60 Hz Voltages available:
  Three phase: 200, 230, 460 and 575
- Insulation: Class F
- Single row ball bearings

MOTOR FEATURES

- Explosion Proof Motor: For use in hazardous locations. Rated Class 1, Division 1, Groups C & D.
- Standards: All motors conform to the latest requirements of NEMA, IEEE, ANSI and NEC standards.
- Air filled motor
- Class F insulation
- Thermal Protection System: The motor is equipped with two automatic reset on-winding thermostats to protect it from high temperatures.
- Operating Design: Motors are designed for continuous submerged operation. The maximum allowable run time in air is 15 minutes.
- Bearings: Single row greased for life sealed bearings. Rated for minimum L10 life of 17,500 hours. The bearings are designed to carry the radial and thrust loads.
- Cable Entry: Power and control cables are epoxy encapsulated to prevent wicking even if the cable jacket is punctured. Buna-N grommets provide an additional cable seal.
- Shaft: The shaft is 416 stainless steel.
- Power and Control Cables: Standard length is 25', optional 50' is available. The power leads are sized from 14/4 to 10/4 depending on HP and voltage, rated as SOW and SOOW. The control cable is 18/5 SOW cable.

AGENCY LISTINGS

C US

Tested by CSA to UL Std's 778, 1207 and 674
Tested by CSA to CSA 22.2 Std's 108-M89 and 145-M1986.
These ratings cover use in Hazardous (Classified) Locations Class I, Division 1, Groups C & D; Class II, Groups E, F & G.
File #LR38549

CONTROL PANEL REQUIREMENTS

To maintain warranty coverage and agency listings, Control Panels must have:

- Moisture Detection System – to warn of a seal failure.
- Thermal Protection System – winding thermostats open the pilot circuit of the magnetic motor controller before dangerous temperatures are reached.
- Overload (Over Current) Protection – Class 10, quick-trip type overload protection must be provided in control panel.
- Intrinsically Safe Relays – use "intrinsically safe relays" in a Class 1, Division 1, environment to power the float switches. They eliminate the danger of a spark if a switch cord becomes damaged. Intrinsically Safe Relays are available as an option from most panel suppliers. Other level control systems are available and may be applicable for this service, consult with your control manufacturer.

Typical Control Option:

- Guaranteed Pump Submergence Float – Many engineers specify a redundant OFF float or a Guaranteed Pump Submergence Circuit. This provides a second OFF float as protection from "OFF" float failure or hang up which protects the pump(s) from running dry.

PUMP ORDER NUMBERS AND GENERAL INFORMATION

Pump Order No.	HP	Imp. Dia.	Phase	Volts	RPM	1.15 SF Amps	Impeller Code	Full Load Amps	Locked Rotor Amps	Power Cord	Power Cable Diameter (in.)	18/5 Control Cable Dia. (in.)	Wt. (lbs.)
3SDX12F2KC	1½	5.81"	3	200	1750	5.9	K	5.3	42.0	14/4	0.58	0.495	250
3SDX12F3KC				230		5.1	K	4.6	36.6				
3SDX12F4KC				460		2.6	K	2.3	18.3				
3SDX12F5KC				575		2.0	K	1.8	14.6				
3SDX12G2JC	2	6.12"	3	200		7.6	J	6.8	50.6	14/4	0.58		
3SDX12G3JC				230		6.6	J	5.9	44.0				
3SDX12G4JC				460		3.3	J	2.9	22.0				
3SDX12G5JC				575		2.6	J	2.8	17.6				
3SDX12H2HC	3	6.75"	3	200		11.3	H	10.1	71.5	14/4	0.58		
3SDX12H3HC				230		9.8	H	8.8	62.1				
3SDX12H4HC				460		4.9	H	4.4	31.1				
3SDX12H5HC				575		3.9	H	3.5	24.9				
3SDX12J2GC	5	7.62"	3	200		18.3	G	17.0	92.1	12/4	0.66		
3SDX12J3GC				230		15.9	G	13.9	80.1				
3SDX12J4GC				460		8.0	G	7.0	40.0				
3SDX12J5GC				575		6.4	G	5.6	32.0	14/4	0.58		
3SDX12K2FC	7½	8.31"	3	200		26.7	F	23.3	144.0	10/4	0.73		
3SDX12K3FC				230		23.1	F	20.2	125.0				
3SDX12K4FC				460		11.6	F	10.1	62.5				
3SDX12K5FC				575		9.2	F	8.1	50.0	14/4	0.58		

NOMENCLATURE DESCRIPTION

1st - 4th Characters – Discharge Size and Type

3SDX = 3" discharge, 2½" solids handling, dual seal, Explosion Proof Sewage Pump

5th Character – Lower (outer) Mechanical Seal

The upper seal is carbon/rotary, ceramic/stationary, with Buna elastomers and 304SS metal parts – it is non-modifiable. The 5th character identifies which lower (outer) seal is to be ordered:

1 = Standard Lower Seal – Carbon/rotary, ceramic/stationary, Buna elastomers, 304SS metal parts

3 = Optional Lower Seal - Silicon carbide/rotary, silicon carbide/stationary, Viton, 304SS

5 = Optional Lower Seal - Silicon carbide/rotary, tungsten carbide/stationary, Viton, 304SS

6th Character – Cycle/RPM

2 = 60 Hz/1750 RPM

7th Character – Horsepower

F = 1½ HP H = 3 HP K = 7½ HP
G = 2 HP J = 5 HP

8th Character – Phase/Voltage/Hertz

2 = three phase, 200 V, 60
3 = three phase, 230 V, 60
4 = three phase, 460 V, 60
5 = three phase, 575 V, 60

9th Character – Impeller Diameter

K = 5.81" - 1½ HP at 1.15 service factor
J = 6.12" - 2 HP at 1.15 service factor
H = 6.75" - 3 HP at 1.15 service factor
G = 7.62" - 5 HP at 1.15 service factor
F = 8.31" - 7½ HP at 1.15 service factor
T = Special trim

10th Character – Cord Length (Power and Sensor)

C = 25' standard lengthF = 50' optional length

11th/12th Characters – Options

B = Bronze impeller E = Epoxy paint BE = Both

Example: Catalog Order Number 3SDX12F2KC = (3SDX) a 3" discharge, 2.5" solids pump with (1) standard seals, (2) 60 Hz/1750 rpm, (F) 1.5 hp, (2) 200 volt/three phase, (K) 5.81" impeller diameter, (C) standard 25' cord.

APPLICATION DATA

Maximum Solid Size	2½"
Minimum Casing Thickness	5⁄16"
Casing Corrosion Allowance	⅛"
Maximum Working Pressure	100 PSI
Maximum Submergence	200 feet depth
Maximum Environmental Temperature	40°C (104°F) ambient conditions
Maximum Starts Per Hour	10 evenly distributed starts/stops per hour

CONSTRUCTION DETAILS

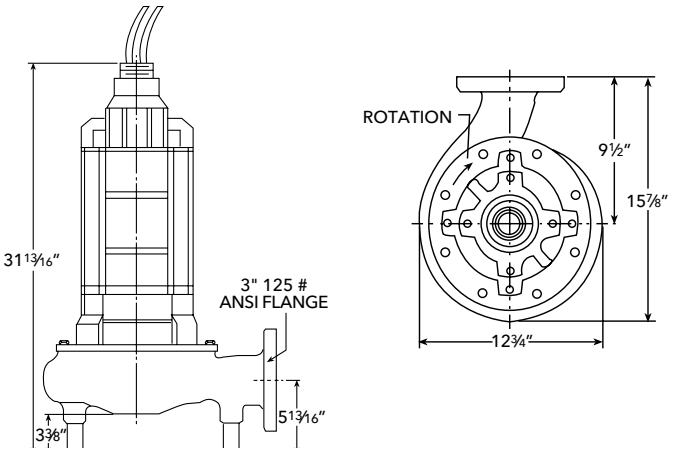
Power Cable – Type	10/4, 12/4, 14/4 SOW, SOOW
Control / Sensor Cable / Type	18/5 SOW
Cable Cap Assembly	Leads have a Buna grommet and are encapsulated in epoxy for a positive seal
Power and Control Cable Lengths	25' standard, 50' optional
Motor Enclosure	Cast Iron, ASTM A-48, Class 30 (minimum)
Motor Shaft	416 Stainless Steel
Motor Design	NEMA Design B – Air-filled
Motor Insulation	Class "F", 155° C (310° F) insulation
Motor Thermal Protection	Two (2) normally closed on-winding thermostats open at 153° C (307° F), automatic reset closes at 140° C (284° F)
Motor Overload Protection	Require Class 10, quick-trip, ambient compensated overloads in the control panel
Motor Moisture Protection	Dual moisture sensing probes in an oil-filled seal chamber between inner and outer seals - Connect to a relay in control panel
Casing	Cast Iron, ASTM A-48, Class 30
Impeller	Cast Iron, ASTM A-48, Class 30 or Optional Cast Bronze ASTM B584 C87600
Impeller Type	Semi-open, non-clog with pump out vanes on back shroud, computer dynamically balanced

STANDARD PARTS

Ball Bearings		Greased for life, single row, upper and lower ball bearings, L10 rating life of 17,500 hours
Mechanical Seals – Standard	Upper	Carbon – rotary / ceramic – stationary / Buna elastomers / 304SS metal parts
	Lower	
Mechanical Seals – Optional	Lower	Silicon carbide – rotary / silicon carbide – stationary / Viton / 304SS
	Lower	Silicon carbide – rotary / tungsten carbide – stationary / Viton / 304SS
Standard O-Rings		BUNA-N (nitrile)
External Hardware		Stainless steel

DIMENSIONS

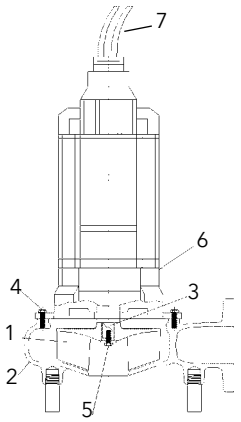
(All dimensions are in inches. Do not use for construction purposes.)



MATERIALS OF CONSTRUCTION

Item No.	Part Name	Material	
		Standard	Optional
1	Impeller, non-clog	1003	1179
2	Casing	1003	
3	Shaft–keyed	416 Series SS	
4	Fasteners	300 Series SS	
5	Impeller Bolt	Steel	
6	Motor Enclosure	Cast Iron	Additional lengths
7	Power and Control Cables	25', SOW/SOOW	

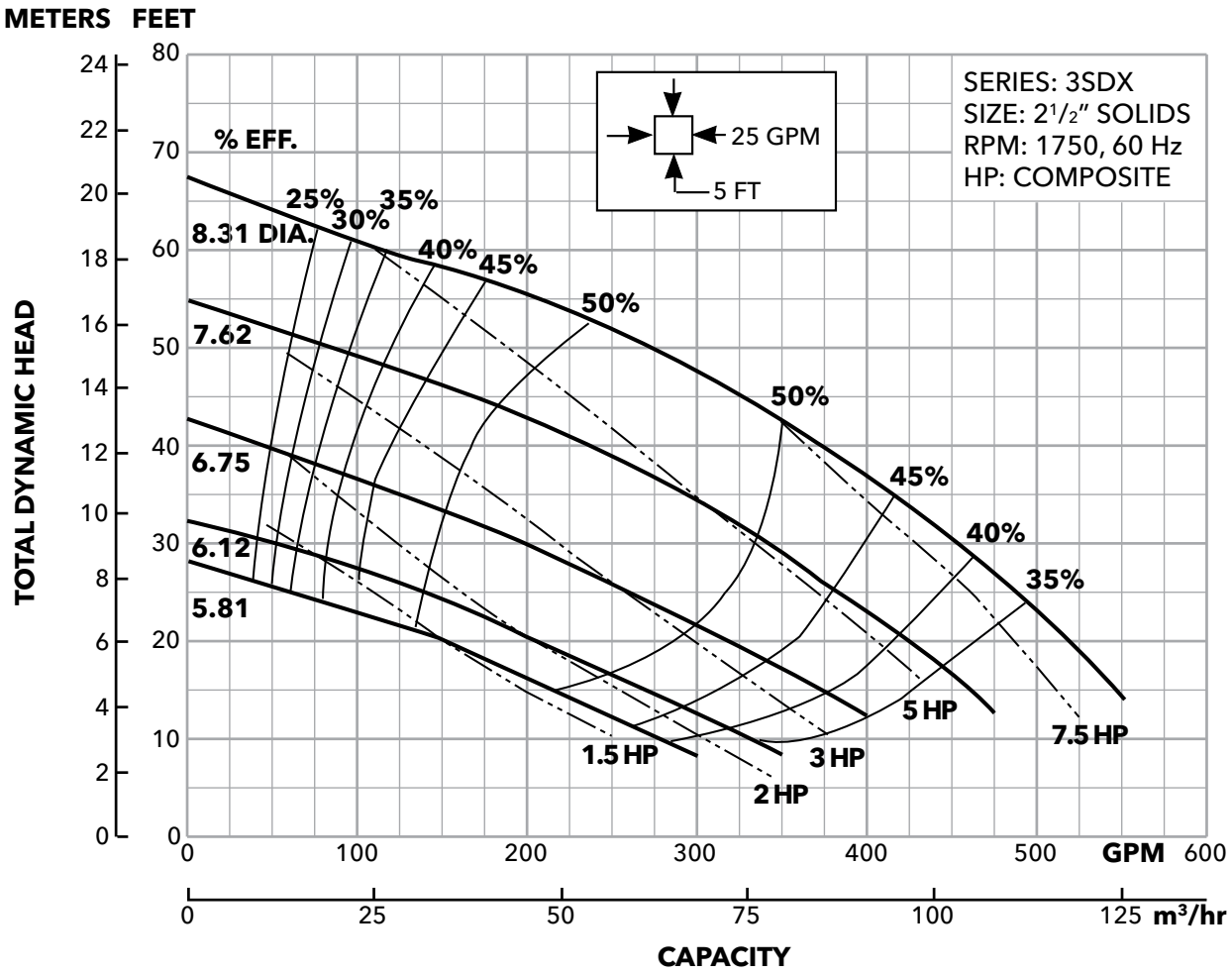
Material Code	Engineering Standard
1003	Cast iron – ASTM A48 Class 30
1179	Silicon bronze – ASTM B584 C87600



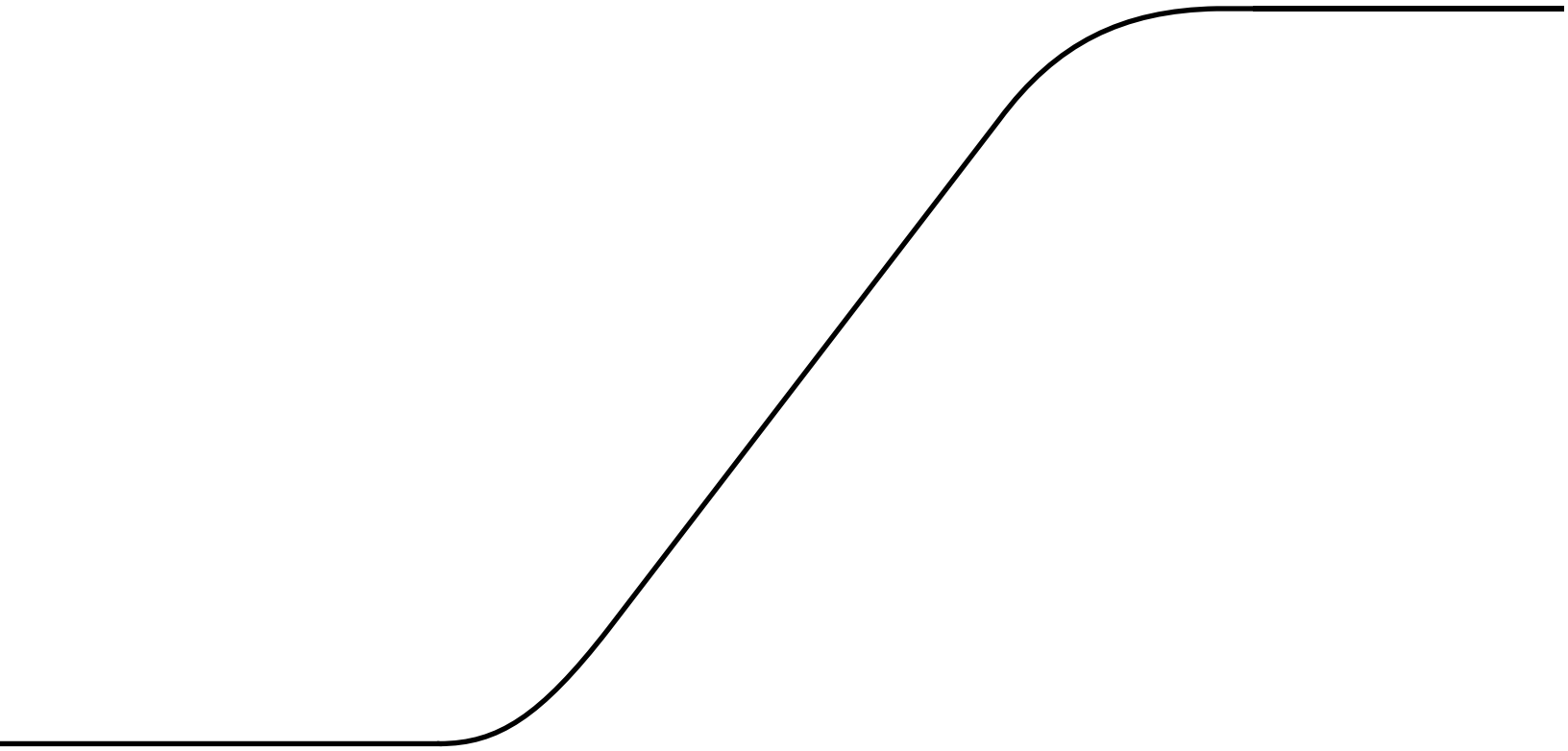
3SDX Explosion Proof Submersible Sewage Pumps

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

Impeller Diameter	Impeller Code	Minimum HP Required at 1.15 SF	HP Code	Pump Model
5.81"	K	1½	F	3SDX_F_K_
6.12"	J	2	G	3SDX_G_J_
6.75"	H	3	H	3SDX_H_H_
7.62"	G	5	J	3SDX_J_G_
8.31"	F	7½	K	3SDX_K_F_



4" Sewage Pumps



xylem
Let's Solve Water

TECHNICAL BROCHURE
B3888D4 R5

WS_D4 Series

Model 3888D4

SUBMERSIBLE SEWAGE PUMPS

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, two vane semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

Casing: Heavy duty gray cast iron, ASTM A48, Class 30. Volute type casing with 4", 125#, ANSI flanged, horizontal discharge. Compatible with A10-40 cast iron or A10-40B cast iron and brass (non-sparking) guide rail assembly.

Dual Mechanical Seals: Silicon carbide vs. silicon carbide outer seal and ceramic vs. carbon inner seal, stainless steel metal parts, BUNA-N elastomers. Upper and lower shaft seals are positioned independently and are separated by an oil-filled chamber.

Shaft: 300 series stainless steel keyed design.

Fasteners: 300 series stainless steel.

Capable of running dry temporarily without damage to seals or motor.

Warranty: 3 year standard (4 year GPDA)

APPLICATIONS

Used in a variety of residential, commercial and industrial applications such as:

- Sewage systems, flood and pollution control, dewatering/effluent, farms, hospitals, trailer courts and motels

SPECIFICATIONS

Pump:

- Maximum solid size: 3″
- Discharge size: 4″, 125 # ANSI flange
- Maximum capacity: 620 GPM
- Maximum total head: 60 feet
- 300 Series stainess steel fasteners
- 20′ Power cord
- Standard silicon carbide/silicon carbide outer seal

Motor:

- Maximum ambient temperature: 104° F (40° C) continuous duty, 140° F (60° C) intermittent duty
- Rated for continuous duty when fully submerged
- Insulation: Class F
- 60 Hertz
- Single row ball bearings
- 300 Series stainless steel keyed shaft

Single Phase:

- 1.5 - 5 HP; 208 and 230 volts
- Built-in thermal overloads with automatic reset
- Built-in capacitors

Three Phase:

- 1.5 - 7.5 HP; 200, 230, 460 and 575 volts
- Class 10 overload protection must be provided in control panel

MOTORS

- Fully submerged in oil-filled chamber: High grade turbine oil surrounds motor for more efficient heat dissipation, permanent lubrication of bearings and mechanical seal for complete protection against outside environment.
- Class F insulation
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits and can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction for precision positioning of parts and to carry thrust loads.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. 20 foot standard with optional lengths available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

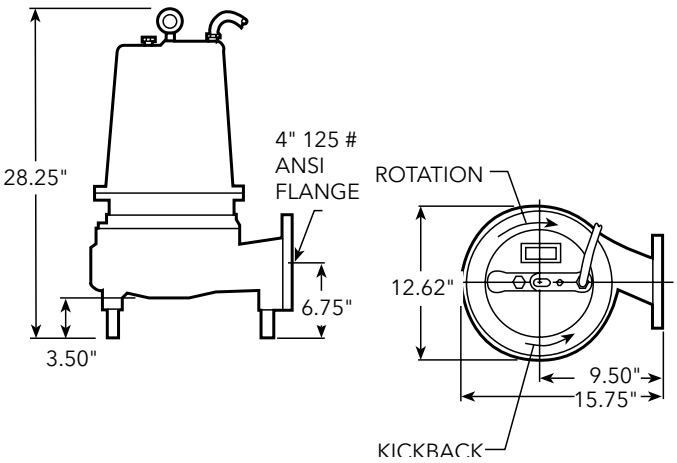
Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

MODEL AND MOTOR INFORMATION

Order Number	HP	Phase	Volts	RPM	Impeller Dia. (in.)	Maximum Amps	L.R. Amps	KVA Code	Power Cable	F.L. Motor Efficiency %	Resistance		Wt. (lbs.)
											Start	Line-Line	
WS1518D4M	1.5	1	208	1750	5.63	17.2	50.8	B	14/3	80	1.1	0.9	195
WS1512D4M			230			14.7	29.5	E		70	1.4	1.8	
WS1538D4M		3	200			11.5	40.9	H	14/4	81	NA	1.7	
WS1532D4M			230			10.0	40.0	F		83		2.3	
WS1534D4M			460			5.0	20.0	F		83		9.3	
WS1537D4M			575			4.0	14.4	H		74		14.8	
WS1518D4		1	208		6.25	17.2	50.8	B	14/3	80	1.1	0.9	195
WS1512D4			230			14.7	29.5	E		70	1.4	1.8	
WS1538D4		3	200			11.5	40.9	H	14/4	81	NA	1.7	
WS1532D4			230			10.0	40.0	F		83		2.3	
WS1534D4			460			5.0	20.0	F		83		9.3	
WS1537D4			575			4.0	14.4	H		74		14.8	
WS2018D4	2	1	208		6.63	20.3	50.8	B	14/3	80	1.1	0.9	200
WS2012D4			230			17.3	36.9	D		75	1.4	1.5	
WS2038D4		3	200			13.3	40.9	H	14/4	81	NA	1.7	
WS2032D4			230			11.6	40.0	F		83		2.3	
WS2034D4			460			5.8	20.0	F		83		9.3	
WS2037D4			575			4.6	14.4	H		74		14.8	
WS3018D4	3	1	208		7.00	25.5	50.8	B	10/3	80	1.1	0.9	208
WS3012D4			230			21.5	46.4	C		79	1.0	1.0	
WS3038D4		3	200			16.6	53.8	G	10/4	85	NA	1.3	205
WS3032D4			230			14.4	49.5	H	14/4	83		1.9	
WS3034D4			460			7.2	24.8	H		83		7.5	
WS3037D4			575			5.8	17.3	G		78		11.6	
WS5012D4	5	1	230		7.25	26.5	57.7	A	10/3	80	1.0	0.8	213
WS5038D4		3	200			19.1	73.9	F	10/4	84	NA	0.9	210
WS5032D4			230			16.6	63.6	E		85		1.2	
WS5034D4			460			8.3	31.8	E	14/4	85		4.8	
WS5037D4			575			6.6	22.8	E		80		7.4	
WS7532D4	7.5	3	230		7.69	23.0	105.0	G	10/4	83	NA	0.7	225
WS7534D4			460			11.5	52.5	G		83		2.8	
WS7537D4			575			9.2	42.0	E		84		4.4	

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



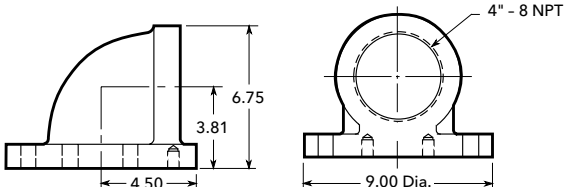
FITTINGS

PIPE CONNECTORS

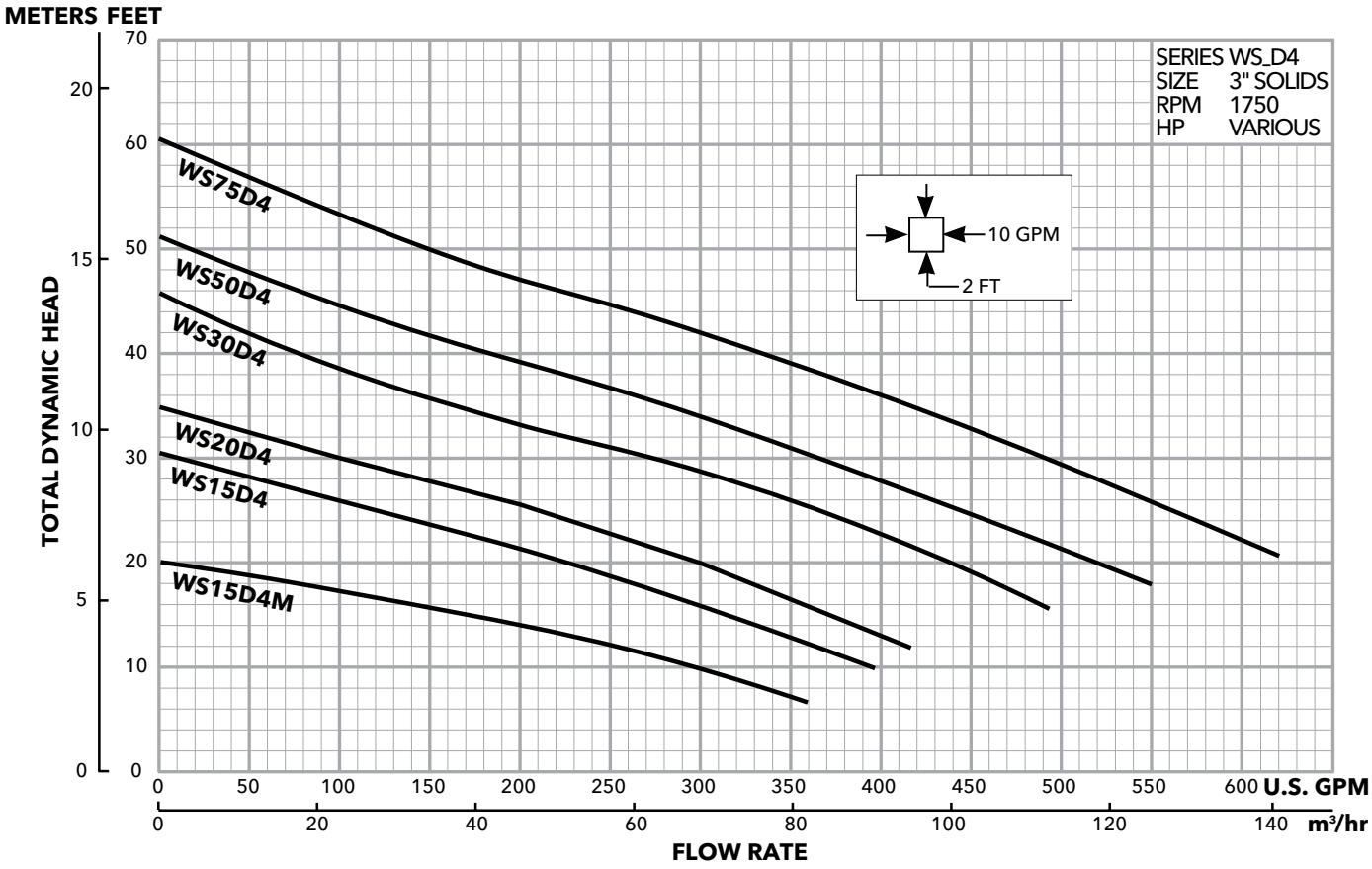
Short Radius Elbow

- Cast iron construction
- 125 lb. ANSI rated flange at pump end
- 4" NPT threaded connection for discharge pipe

Flange Size	Order Number	Used With
4"	A1-6	4", 125# ANSI Flange



PERFORMANCE CURVES



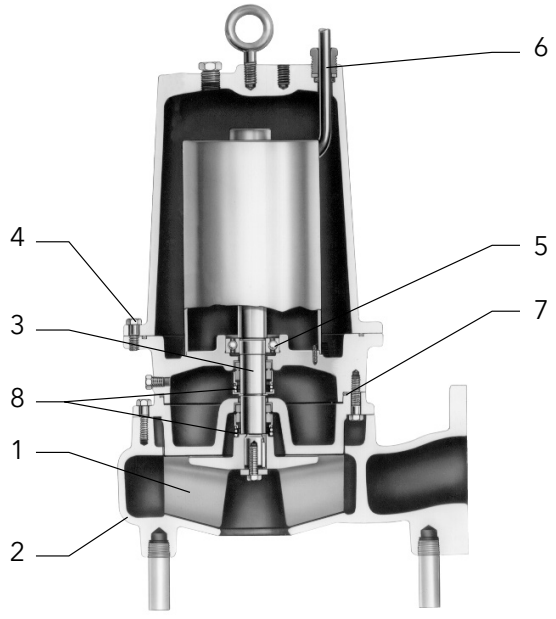
PERFORMANCE RATINGS (gallons per minute)

Series No.		WS15D4M	WS15D4	WS20D4	WS30D4	WS50D4	WS75D4
Total Head Feet of Water	HP	1½	1½	2	3	5	7½
	RPM	1750					
	10	300	395				
	15	170	320	370			
	20		230	300	440	520	
	25		120	205	365	440	
	30			100	270	360	510
	35				160	275	440
	40				80	175	355
	45					85	260
	50						155
	55						80

APPLICATION DATA AND CONSTRUCTION DETAILS

Maximum Solid Size		3"
Minimum Casing Thickness		5/16"
Casing Corrosion Allowance		1/8"
Maximum Working Pressure		30 PSI
Maximum Submergence		50 feet
Minimum Submergence		Fully submerged for continuous operation
		6" below top of motor for intermittent operation
Maximum Environmental Temperature		40° C (104° F) continuous operation, 60° C (140° F) intermittent operation
Power Cable – Type (See Motor Information for AWG data/size.)		Type SJTOW: single phase, 1½ and 2 HP
		Type STOW: single phase, 1½ – 3 HP and 5 HP, 460 V
		Type STOW: single phase, 3 and 5 HP, three phase 5 HP, 230 V and 7½ HP
Motor Cover, Bearing Housing, Seal Housing, Casing		Gray Cast Iron – ASTM A48, Class 30
Impeller – Standard, Optional		Gray Cast Iron – ASTM A48 or Cast Bronze – ASTM B584 C87600
Motor Shaft		AISI 300 Series Stainless Steel
Motor Design		NEMA 56 Frame, oil filled with Class F Insulation
Motor Overload Protection		Single phase: on winding thermal overload protection auto reset
		Three phase: requires Class 10 overloads in control panel
External Hardware		300 Series Stainless Steel
Impeller Type		Semi-open with pump out vanes on back shroud
Oil Capacity – Seal Chamber		1.5 quarts
Oil Capacity – Motor Chamber		1½-5 HP single and three phase: 7 quarts
		7½ HP three phase: 6.5 quarts
Mechanical Seals – Standard	Upper	Carbon/Ceramic; Type 21
	Lower	Silicon Carbide/Silicon Carbide; Type 31
Mechanical Seals – Optional Lower		Silicon Carbide/Tungsten Carbide; Type 31

MATERIALS OF CONSTRUCTION



Item No.	Part Name		Material			
			Standard		Optional	
1	Impeller, non-clog		1003		1179	
2	Casing		1003			
3	Shaft-keyed		300 Series SS			
4	Fasteners		300 Series SS			
5	Ball bearings		Steel			
6	Power cable		STOW, 20 feet		Additional lengths	
7	O-ring		BUNA-N			
8	**Outer Mech. Seal**	**Service**	**Rotary**	**Stationary**	**Elastomers**	**Metal Parts**
	OPT	Heavy duty	Silicon Carbide	Tungsten Carbide	BUNA-N	300 Series SS
	STD	Mild abrasives	Silicon carbide		BUNA-N	300 Series SS

Material Code	Engineering Standard
1003	Cast iron – ASTM A48 Class 30
1179	Silicon bronze – ASTM C87600

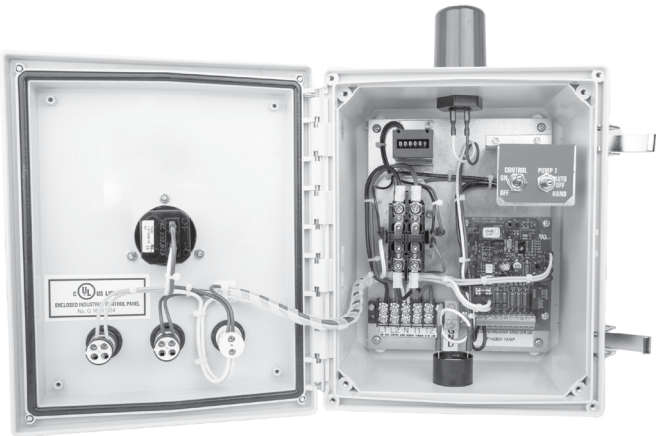
STANDARD PANEL OPTIONS

Pump	HP	Phase	Voltage	Amps	Simplex Panel	Duplex Panel
WS1518D4M	1.5	1	208	17.2	C4S10020	C4D10020
WS1512D4M	1.5	1	230	14.7	C4S10020	C4D10020
WS1538D4M	1.5	3	200	11.5	C4S31016	C4D31016
WS1532D4M	1.5	3	230	10	C4S31016	C4D31016
WS1534D4M	1.5	3	460	5	C4S34063	C4D34063
WS1537D4M	1.5	3	575	4	C4S34063	C4D34063
WS1518D4	1.5	1	208	17.2	C4S10020	C4D10020
WS1512D4	1.5	1	230	14.7	C4S10020	C4D10020
WS1538D4	1.5	3	200	11.5	C4S31016	C4D31016
WS1532D4	1.5	3	230	10	C4S31016	C4D31016
WS1534D4	1.5	3	460	5	C4S34063	C4D34063
WS1537D4	1.5	3	575	4	C4S34063	C4D34063
WS2018D4	2	1	208	20.3	C4S12136	C4D12127
WS2012D4	2	1	230	17.3	C4S10020	C4D10020
WS2038D4	2	3	200	13.3	C4S31016	C4D31016
WS2032D4	2	3	230	11.6	C4S31016	C4D31016
WS2034D4	2	3	460	5.8	C4S34063	C4D34063
WS2037D4	2	3	575	4.6	C4S34063	C4D34063
WS3018D4	3	1	208	25.5	C4S12136	C4D12836
WS3012D4	3	1	230	21.5	C4S12136	C4D12127
WS3038D4	3	3	200	16.6	C4S31620	C4D31620
WS3032D4	3	3	230	14.4	C4S31016	C4D31016
WS3034D4	3	3	460	7.2	C4S36310	C4D36310
WS3037D4	3	3	575	5.8	C4S34063	C4D34063
WS5012D4	5	1	230	26.5	C4S12136	C4D12836
WS5038D4	5	3	200	19.1	C4S31620	C4D31620
WS5032D4	5	3	230	16.6	C4S31620	C4D31620
WS5034D4	5	3	460	8.3	C4S36310	C4D36310
WS5037D4	5	3	575	6.6	C4S36310	C4D36310
WS7532D4	7.5	3	230	23	C4S32025	C4D32025
WS7534D4	7.5	3	460	11.5	C4S31016	C4D31016
WS7537D4	7.5	3	575	9.2	C4S36310	C4D36310

Series "Core 4" Control Panels provide outstanding, automatic, liquid level control to help manage and maintain pump operation for a variety of effluent, sewage, and water transfer applications.

FEATURES

- Rugged, NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion
- Solid-state control board displays float status for ease of installation and trouble-shooting
- Hinged door with lockable stainless-steel latch for safe operation indoors and out
- Through-door mounted alarm test switch ensures proper operation of the alarm circuit without the need to open the panel
- Panel can be wired for a single power feed and control circuit, or the control circuit can be wired to a separate power supply to ensure alarm integrity in case of a tripped pump breaker.
- Top-mounted, high intensity, flashing red light provides 360° visibility
- Auxiliary alarm contacts provided for remote alarm connection
- Field wiring diagram, panel schematic and installation instructions included
- Entire unit is UL and CUL listed



APPLICATIONS

- Residential
- Effluent
- Sewage
- Water transfer

PRODUCT SPECIFICATIONS

- Hand-off-automatic (H-O-A) pump selection switch(es)
- On-off control circuit switch
- Float switches:
  - o Normally open (pump down) mechanical float switches with 20' cords
  - o Simplex panels (three switches)
  - o Duplex panels (four switches)
- Duplex panels include alternation
- NEMA 4X:
  - o Flashing red alarm light,
  - o Fiberglass enclosure with gasketed, hinged door and stainless-steel hardware
  - o Alarm horn (95db)
- Solid state printed circuit control board with float indicator lights
- Auxiliary alarm dry contact
- Elapsed time meter(s)
- Cycle counter(s)
- Single Phase
  - o Field adjustable for 115 or 230V, 60Hz
- Three Phase
  - o Field adjustable for 208/230/460/575 V, 60 Hz
  - o 115V control circuit transformer
  - o Adjustable motor overload protectors

xylem
Let's Solve Water

TECHNICAL BROCHURE
B4SD R6

4SD

SUBMERSIBLE SEWAGE PUMP

DUAL SEAL WITH SEAL SENSOR PROBE

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, two vane semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

Casing: Heavy duty cast iron, volute type for maximum efficiency. 4" flange conforms to 125 # ANSI standard. Connects to A10-40 or A10-60 guide rail system.

Dual Mechanical Seals: Silicon carbide vs. silicon carbide outer seal and ceramic vs. carbon inner seal, stainless steel metal parts, BUNA-N elastomers. Upper and lower shaft seals are positioned independently and are separated by an oil-filled chamber.

Seal Sensor Probe: Located in oil-filled chamber. If pumpage should begin to leak past lower seal it indicates to pump control panel a fault has occurred. **Requires optional Seal Fail Circuit in the control panel.**

Shaft: 300 series stainless steel keyed design.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

APPLICATIONS

Used in a variety of residential, commercial and industrial applications such as:

- Sewage systems
- Flood and pollution control
- Dewatering/Effluent
- Farms
- Hospitals
- Trailer courts
- Motels

SPECIFICATIONS

Pump:

- Maximum solid size: 3″
- Discharge size: 4″, 125 # ANSI flange
- Maximum capacity: 620 GPM
- Maximum total head: 60 feet
- 300 Series stainess steel fasteners
- 20′ Power cord
- Standard silicon carbide/silicon carbide outer seal

Motor:

- Maximum ambient temperature: 104° F (40° C) continuous duty, 140° F (60° C) intermittent duty
- Rated for continuous duty when fully submerged
- Insulation: Class F
- 60 Hertz
- Single row ball bearings
- 300 Series stainless steel keyed shaft

Single Phase:

- 1.5 - 5 HP
- 208 and 230 volts
- Built-in thermal overloads with automatic reset
- Built-in capacitors

Three Phase:

- 1.5 - 7.5 HP
- 200, 230, 460 and 575 volts
- Class 10 overload protection must be provided in control panel

MOTORS

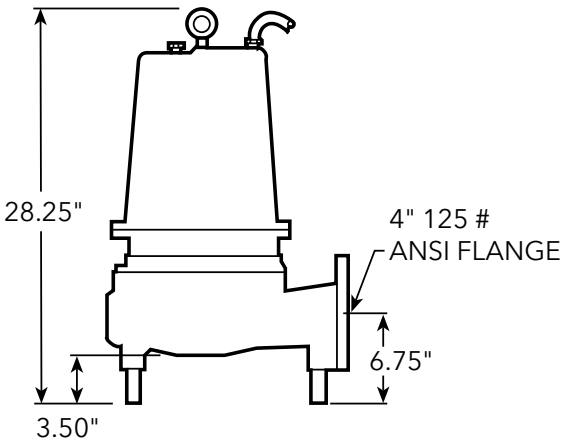
- Fully submerged in oil-filled chamber. High grade turbine oil surrounds motor for more efficient heat dissipation, permanent lubrication of bearings and mechanical seal for complete protection against outside environment.
- Class F insulation
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits and can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction for precision positioning of parts and to carry thrust loads.
- Power and Control Cables: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. 20 foot standard with optional lengths available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

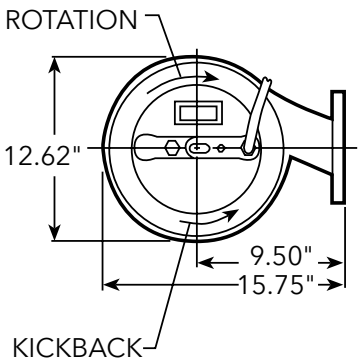
MODEL AND MOTOR INFORMATION

Order Number	HP	Phase	Volts	RPM	Impeller		Maximum Amps	Locked Rotor Amps	KVA Code	Power Cable	F.L. Motor Efficiency %	Resistance		Weight (lbs.)
					Dia. (In.)	Code						Start	Line-Line	
4SD52F8EA	1.5	1	208	1750	5.63	E	17.2	50.8	B	14/3	80	1.1	0.9	195
4SD52F1EA			230				14.7	29.5	E		70	1.4	1.8	
4SD52F2EA		3	200				11.5	40.9	H	14/4	81	NA	1.7	
4SD52F3EA			230				10.0	40.0	F		83		2.3	
4SD52F4EA			460				5.0	20.0	F		83		9.3	
4SD52F5EA			575				4.0	14.4	H		74		14.8	
4SD52F8DA	1.5	1	208		6.25	D	17.2	50.8	B	14/3	80	1.1	0.9	195
4SD52F1DA			230				14.7	29.5	E		70	1.4	1.8	
4SD52F2DA		3	200				11.5	40.9	H	14/4	81	NA	1.7	
4SD52F3DA			230				10.0	40.0	F		83		2.3	
4SD52F4DA			460				5.0	20.0	F		83		9.3	
4SD52F5DA			575				4.0	14.4	H		74		14.8	
4SD52G8CA	2	1	208		6.63	C	20.3	50.8	B	14/3	80	1.1	0.9	200
4SD52G1CA			230				17.3	36.9	D		75	1.4	1.5	
4SD52G2CA		3	200				13.3	40.9	H	14/4	81	NA	1.7	
4SD52G3CA			230				11.6	40.0	F		83		2.3	
4SD52G4CA			460				5.8	20.0	F		83		9.3	
4SD52G5CA			575				4.6	14.4	H		74		14.8	
4SD52H8BA	3	1	208		7.00	B	25.5	50.8	B	10/3	80	1.1	0.9	208
4SD52H1BA			230				21.5	46.4	C		79	1.0	1.0	
4SD52H2BA		3	200				16.6	53.8	G	10/4	85	NA	1.3	205
4SD52H3BA			230				14.4	49.5	H	14/4	83		1.9	
4SD52H4BA			460				7.2	24.8	H		83		7.5	
4SD52H5BA			575				5.8	17.3	G		78		11.6	
4SD52J1AA	5	1	230		7.25	A	26.5	57.7	A	10/3	80	1.0	0.8	213
4SD52J2AA		3	200				19.1	73.9	F	10/4	84	NA	0.9	210
4SD52J3AA			230				16.6	63.6	E		85		1.2	
4SD52J4AA			460				8.3	31.8	E	14/4	85		4.8	
4SD52J5AA			575				6.6	22.8	E		80		7.4	
4SD52K3FA	7.5	3	230		7.69	F	23.0	105.0	G	10/4	83	NA	0.7	225
4SD52K4FA			460				11.5	52.5	G		83		2.8	
4SD52K5FA			575				9.2	42.0	E		84		4.4	

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)





APPLICATION DATA

Maximum Solid Size	3"
Minimum Casing Thickness	5⁄16"
Casing Corrosion Allowance	⅛"
Maximum Working Pressure	30 PSI
Maximum Submergence	50 feet
Minimum Submergence	Fully submerged for continuous operation
	6" below top of motor for intermittent operation
Maximum Environmental Temperature	40°C (104°F) continuous operation
	60°C (140°F) intermittent operation

CONSTRUCTION DETAILS

Power Cable – Type	14/3, type SJTOW: single phase, ½ and 2 HP
	14/4, type STOW: single phase, 1½ - 3 HP and 5 HP, 460 V
	10/4, type STOW: single phase, 3 and 5 HP, three phase 5 HP, 230 V and 7½ HP
Sensor Cable – Type	16/2, type SJTOW: seal sensor only
	18/4, type SJTOW: seal/heat sensor
Motor Cover	Gray Cast Iron – ASTM A48 Class 30
Bearing Housing	Gray Cast Iron – ASTM A48 Class 30
Seal Housing	Gray Cast Iron – ASTM A48 Class 30
Casing	Gray Cast Iron – ASTM A48 Class 30
Impeller	Gray Cast Iron – ASTM A48 or Cast Bronze – ASTM B584 C87600
Motor Shaft	AISI 300 Series Stainless Steel
Motor Design	NEMA 56 Frame, oil filled with Class F Insulation
Motor Overload Protection	Single Phase: on winding thermal overload protection
	Three Phase: require ambient compensated Class 10, quick trip overloads in the control panel.
Motor Seal Fail (Moisture) Detection	Seal fail sensor in an oil-filled seal chamber. Connect to an optional relay in control panel.
Optional Motor Thermal Protection	Normally closed on-winding thermostats open at 275° F (135 °C) and close at 112° F (78° C). Require terminal connection in the control panel.
External Hardware	300 Series Stainless Steel
Impeller Type	Semi-open with pump out vanes on back shroud
Oil Capacity – Seal Chamber	1.75 quarts
Oil Capacity – Motor Chamber	1½-5 HP single and three phase: 7 quarts
	7½ HP three phase: 6.5 quarts

STANDARD PARTS

Ball Bearing	Upper	1½ – 5 HP single and three phase: single row ball– SKF™ 6204-2Z
		7½ HP three phase: single row ball – SKF™ 6204-2Z
	Lower	1½ – 5 HP single and three phase: single row ball – SKF™ 5206-2Z
		7½ HP three phase: double row ball – SKF™ 5206-2Z
Mechanical Seals – Standard	Upper	Carbon/Ceramic; Type 21
	Lower	Silicon Carbon/Silicon Carbon; Type 31
Mechanical Seals – Optional Lower		Silicon Carbide/Tungsten Carbide: Type 21
O-Ring – Stuffing Box		BUNA-N, AS 568A-265
O-Ring – Motor Cover		BUNA-N, AS 568A-374

NOMENCLATURE DESCRIPTION

1st, 2nd and 3rd Character – Discharge Size and Type

4SD = 4" discharge, 3" solids handling, dual seal with seal fail probe in pump.

4th Character – Mechanical Seals

5 = Silicon carbide/silicon carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (standard)

3 = Silicon carbide/tungsten carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (optional)

5th Character – Cycle/RPM

2 = 60 Hz/1750 RPM

6th Character – Horsepower

F = 1½ HP H = 3 HP K = 7½ HP

G= 2 HP J = 5 HP

7th Character – Phase/Voltage

1 = single phase, 230 V 4 = three phase, 460 V

2 = three phase, 200 V* 5 = three phase, 575 V

3 = three phase, 230 V 8 = single phase, 208 V

* Not available on 7½ HP.

8th Character – Impeller Diameter

A = 7.25", 5 HP D = 6.25", 1½ HP

B = 7.00", 3 HP E = 5.63", 1½ HP

C = 6.63", 2 HP F = 7.69", 7½ HP

9th Character – Cord Length (Power and Sensor)

A = 20' (standard) F = 50'

D = 30' J = 100'

10th Character – Options

B = Bronze impeller

E = Epoxy paint

F = Both epoxy paint and bronze impeller

11th Character – Option

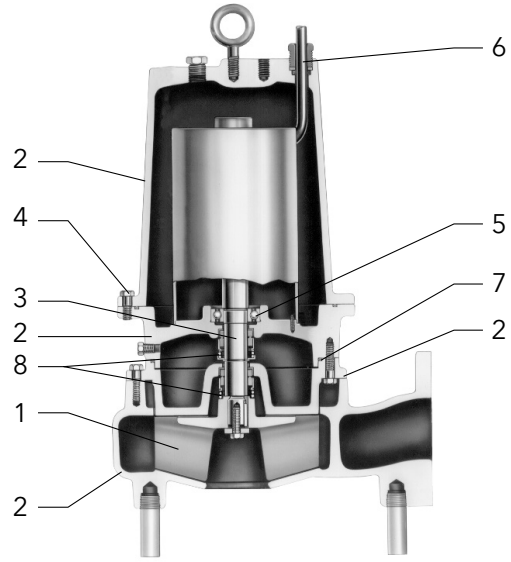
H = Pilot duty thermal sensors **(3 phase only)**

MATERIALS OF CONSTRUCTION

Item No.	Part Name	Material	
		Standard	Optional
1	Impeller, non-clog	1003	1179
2	Castings	1003	
3	Shaft-Keyed	300 Series SS	
4	Fasteners	300 Series SS	
5	Ball bearings	Steel	
6	Power cable	STOW, 20 feet	Additional lengths
	Seal sensor cable		
7	O-ring	BUNA-N	

8	Outer Mech. Seal	Service	Rotary	Stationary	Elasto-mers	Metal Parts
	OPT	Heavy duty	Silicon Carbide	Tungsten Carbide	BUNA-N	300 Series SS
	STD	Mild abrasives	Silicon Carbide		BUNA-N	300 Series SS

Material Code	Engineering Standard
1003	Cast iron – ASTM A48 Class 30
1179	Silicon bronze – ASTM C87600



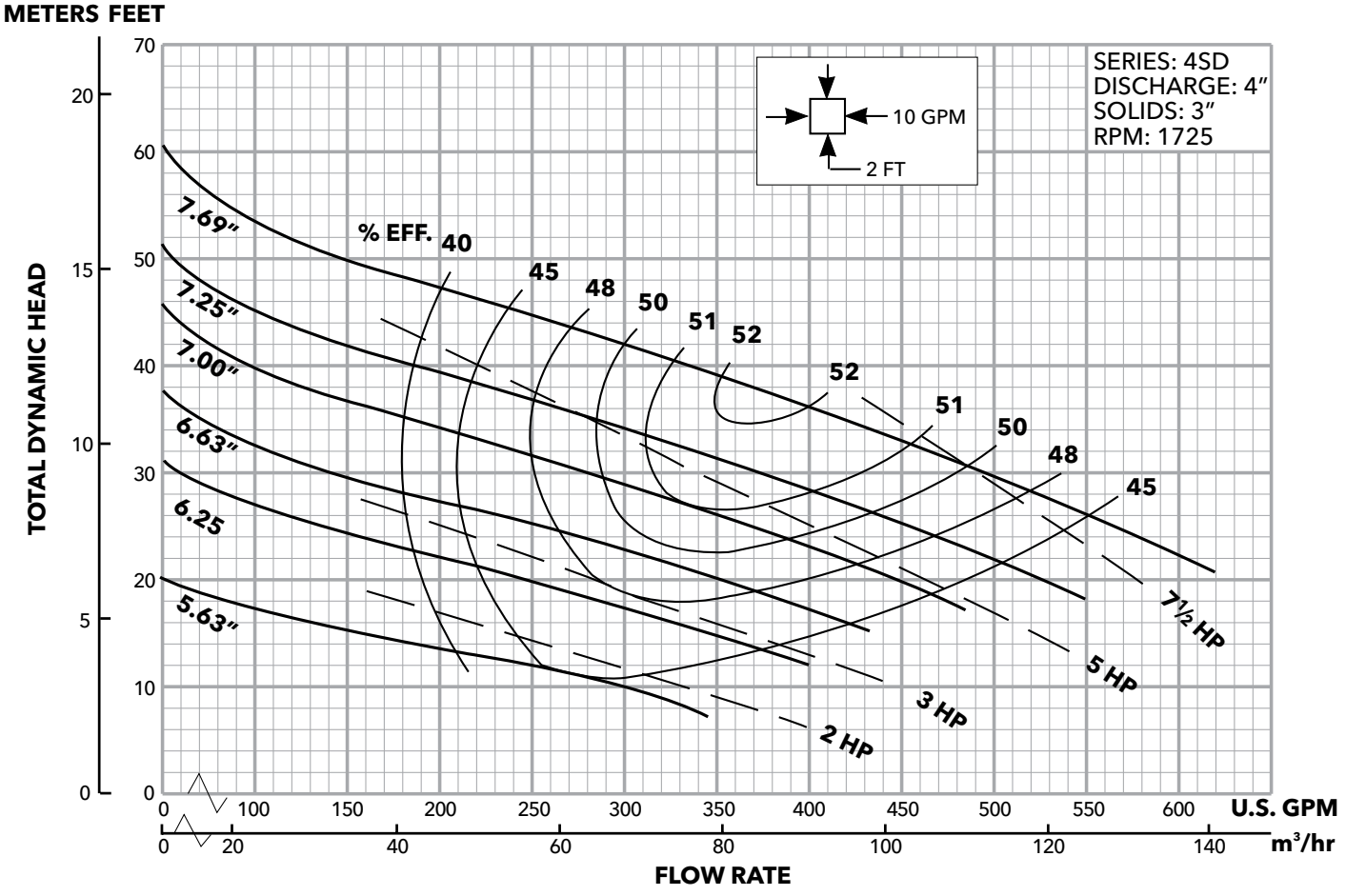
STANDARD PANEL OPTIONS

Order Number	HP	Phase	Volts	SF Amps	Simplex Panel Part Number	Duplex Panel Part Number
4SD52F8EA	1.5	1	208	17.2	SDS11522	SDD11522
4SD52F1EA			230	14.7	SDS17015	SDD17015
4SD52F2EA		3	200	11.5	SDS39014	SDD39014
4SD52F3EA			230	10	SDS39014	SDD39014
4SD52F4EA			460	5	SDS34063	SDD34063
4SD52F5EA			575	4.0	SDS340635	SDD340635
4SD52F8DA		1	208	17.2	SDS11522	SDD11522
4SD52F1DA			230	14.7	SDS17015	SDD17015
4SD52F2DA		3	200	11.5	SDS39014	SDD39014
4SD52F3DA			230	10	SDS39014	SDD39014
4SD52F4DA			460	5	SDS34063	SDD34063
4SD52F5DA			575	4	SDS340635	SDD340635
4SD52G8CA	2	1	208	20.3	SDS11522	SDD11522
4SD52G1CA			230	17.3	SDS11522	SDD11522
4SD52G2CA		3	200	13.3	SDS31318	SDD31318
4SD52G3CA			230	11.6	SDS39014	SDD39014
4SD52G4CA			460	5.8	SDS34063	SDD34063
4SD52G5CA			575	4.6	SDS340635	SDD340635
4SD52H8BA	3	1	208	25.5	SDS12228	SDD12228
4SD52H1BA			230	21.5	SDS12228	SDD12228
4SD52H2BA		3	200	16.6	SDS31318	SDD31318
4SD52H3BA			230	14.4	SDS31318	SDD31318
4SD52H4BA			460	7.2	SDS36010	SDD36010
4SD52H5BA			575	5.8	SDS340635	SDD340635
4SD52J1AA	5	1	230	26.5	SDS12228	SDD12228
4SD52J2AA		3	200	19.1	SDS31723	SDD31723
4SD52J3AA			230	16.6	SDS31318	SDD31318
4SD52J4AA			460	8.3	SDS36010	SDD36010
4SD52J5AA			575	6.6	SDS360105	SDD360105
4SD52K3FA	7.5	3	230	23	SDS32025	SDD32025
4SD52K4FA			460	11.5	SDS39014	SDD39014
4SD52K5FA			575	9.2	SDS360105	SDD360105

4SD Submersible Sewage Pumps

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

Impeller Diameter	Impeller Code	Motor Rating
7.69"	F	7.5
7.25"	A	5
7.00"	B	3
6.63"	C	2
6.25"	D	1.5
5.63"	E	1.5



xylem
Let's Solve Water

TECHNICAL BROCHURE

B4SDX R3

FEATURES

Impeller: Cast iron, ASTM A48, Class 30, two vane semi-open, non-clog design with pump out vanes for mechanical seal protection. Computer balanced for smooth operation. Silicon bronze impeller is an option.

Casing: Heavy duty gray cast iron, ASTM A48, Class 30. Volute type casing with 4", 125#, flanged, horizontal discharge conforming to ANSI standards. Compatible with A10-40, A10-60 cast iron or A10-40B, A10-60B cast iron and brass (non-sparking) slide rail assembly.

Seals: Tandem mechanical seal system in an oil filled seal chamber. Each seal operates independently to ensure fail safe performance. Standard seals are carbon rotary and ceramic stationary. Outer seals are designed for easy replacement. Optional seals are available.

Seal Sensor Probes: Pump has a standard dual probe moisture detection system located in an oil filled seal chamber. The sensor leads must be connected to a "seal fail circuit" in the control panel.

4SDX EXPLOSION PROOF SUBMERSIBLE SEWAGE PUMP

CLASS 1, DIVISION 1, GROUPS C AND D HAZARDOUS LOCATIONS

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Designed for a variety of hazardous commercial and industrial applications such as:

- Sewage systems
- Flood and pollution control
- Dewatering and effluent
- Hospitals
- Trailer courts
- Hotels and motels

SPECIFICATIONS

Pump:

- Maximum solid size: 3″
- Discharge size: 4″ ANSI 125# Flange
- Maximum capacity: 650 GPM
- Maximum total head: 52′

MOTOR SPECIFICATIONS

- Maximum ambient temperature: 40° C (104° F)
- Rated for continuous duty with motor fully submerged
- Service Factor: 1.15
- HP range: Three phase: 2 to 7.5 HP
- 60 Hz Voltages available:
  Three phase: 200, 230, 460 and 575
- Insulation: Class F
- Single row ball bearings

MOTOR FEATURES

- Explosion Proof Motor: For use in hazardous locations. Rated Class 1, Division 1, Groups C & D.
- Standards: All motors conform to the latest requirements of NEMA, IEEE, ANSI and NEC standards.
- Air filled motor
- Class F insulation
- Thermal Protection System: The motor is equipped with two automatic reset on-winding thermostats to protect it from high temperatures.
- Operating Design: Motors are designed for continuous submerged operation. The maximum allowable run time in air is 15 minutes.
- Bearings: Single row greased for life sealed bearings. Rated for minimum L10 life of 17,500 hours. The bearings are designed to carry the radial and thrust loads.
- Cable Entry: Power and control cables are epoxy encapsulated to prevent wicking even if the cable jacket is punctured. Buna-N grommets provide an additional cable seal.
- Shaft: The shaft is 416 stainless steel.
- Power and Control Cables: Standard length is 25', optional 50' is available. The power leads are sized from 14/4 to 10/4 depending on HP and voltage, rated as SOW and SOOW. The control cable is 18/5 SOW cable.

AGENCY LISTINGS

C US

Tested by CSA to UL Std's 778, 1207 and 674
Tested by CSA to CSA 22.2 Std's 108-M89 and 145-M1986.
These ratings cover use in Hazardous (Classified) Locations
Class I, Division 1, Groups C & D; Class II, Groups E, F & G.
File #LR38549

CONTROL PANEL REQUIREMENTS

To maintain warranty coverage and agency listings, Control Panels must have:

- Moisture Detection System – to warn of a seal failure.
- Thermal Protection System – winding thermostats open the pilot circuit of the magnetic motor controller before dangerous temperatures are reached.
- Overload (Over Current) Protection – Class 10, quick-trip type overload protection must be provided in control panel.
- Intrinsically Safe Relays – use "intrinsically safe relays" in a Class 1, Division 1, environment to power the float switches. They eliminate the danger of a spark if a switch cord becomes damaged. Intrinsically Safe Relays are available as an option from most panel suppliers. Other level control systems are available and may be applicable for this service, consult with your control manufacturer.

Typical Control Option:

- Guaranteed Pump Submergence Float – Many engineers specify a redundant OFF float or a Guaranteed Pump Submergence Circuit. This provides a second OFF float as protection from "OFF" float failure or hang up which protects the pump(s) from running dry.

PUMP ORDER NUMBERS AND GENERAL INFORMATION

Pump Order No.	HP	Imp. Dia.	Phase	Volts	RPM	1.15 SF Amps	Impeller Code	Full Load Amps	Locked Rotor Amps	Power Cord	Power Cable Diameter (in.)	18/5 Control Cable Dia. (in.)	Wt. (lbs.)
4SDX12G2KC	2	5.69"	3	200	1750	7.6	K	6.8	50.6	14/4	0.58	0.495	270
4SDX12G3KC				230		6.6		5.9	44.0				
4SDX12G4KC				460		3.3		2.9	22.0				
4SDX12G5KC				575		2.6		2.8	17.6				
4SDX12H2JC	3	6.31"	3	200		11.3	J	10.1	71.5	14/4	0.58		
4SDX12H3JC				230		9.8		8.8	62.1				
4SDX12H4JC				460		4.9		4.4	31.1				
4SDX12H5JC				575		3.9		3.5	24.9				
4SDX12J2HC	5	7.12"	3	200		18.3	H	17.0	92.1	12/4	0.66		
4SDX12J3HC				230		15.9		13.9	80.1				
4SDX12J4HC				460		8.0		7.0	40.0				
4SDX12J5HC				575		6.4		5.6	32.0	14/4	0.58		
4SDX12K2GC	7½	7.69"	3	200		26.7	G	23.3	144.0	10/4	0.73		
4SDX12K3GC				230		23.1		20.2	125.0				
4SDX12K4GC				460		11.6		10.1	62.5				
4SDX12K5GC				575		9.2		8.1	50.0	14/4	0.58		

NOMENCLATURE DESCRIPTION

1st - 4th Characters – Discharge Size and Type

4SDX = 4" discharge, 3" solids handling, dual seal, Explosion Proof Sewage Pump

5th Character – Lower (outer) Mechanical Seal

The upper seal is carbon/rotary, ceramic/stationary, with Buna elastomers and 304SS metal parts – it is non-modifiable. The 5th character identifies which lower (outer) seal is to be ordered:

1 = Standard Lower Seal – Carbon/rotary, ceramic/stationary, Buna elastomers, 304SS metal parts

3 = Optional Lower Seal - Silicon carbide/rotary, silicon carbide/stationary, Viton, 304SS

5 = Optional Lower Seal - Silicon carbide/rotary, tungsten carbide/stationary, Viton, 304SS

6th Character – Cycle/RPM

2 = 60 Hz/1750 RPM

7th Character – Horsepower

G = 2 HP J = 5 HP
H = 3 HP K = 7½ HP

8th Character – Phase/Voltage/Hertz

2 = three phase, 200 V, 60
3 = three phase, 230 V, 60
4 = three phase, 460 V, 60
5 = three phase, 575 V, 60

9th Character – Impeller Diameter

K = 5.69" - 2 HP at 1.15 service factor
J = 6.31" - 3 HP at 1.15 service factor
H = 7.12" - 5 HP at 1.15 service factor
G = 7.69" - 7½ HP at 1.15 service factor
T = Special trim

10th Character – Cord Length (Power and Sensor)

C = 25' standard lengthF = 50' optional length

11th/12th Characters – Options

B = Bronze impeller E = Epoxy paint BE = Both

Example: Catalog Order Number 4SDX12J4HC = a 4" discharge, 3" solids pump with (1) standard seals, (2) 60 Hz/1750 rpm, (J) 5 hp, (4) 460 volt/three phase, (H) 7.12" impeller, (C) standard 25' cord.

APPLICATION DATA

Maximum Solid Size	3"
Minimum Casing Thickness	5/16"
Casing Corrosion Allowance	1/8"
Maximum Working Pressure	100 PSI
Maximum Submergence	200 feet depth
Maximum Environmental Temperature	40°C (104°F) ambient conditions
Maximum Starts Per Hour	10 evenly distributed starts/stops per hour

CONSTRUCTION DETAILS

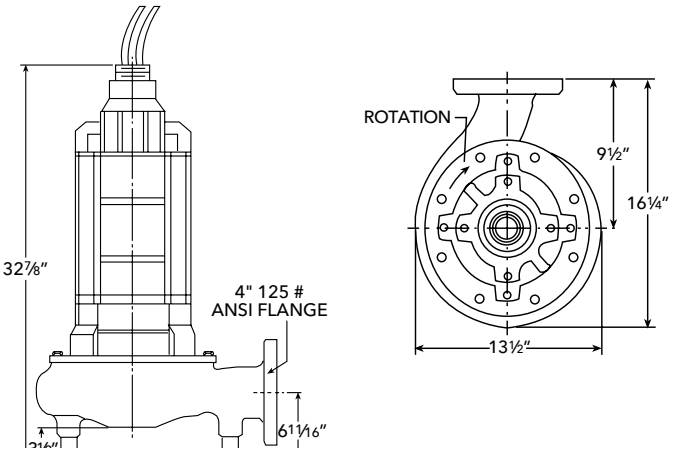
Power Cable – Type	10/4, 12/4, 14/4 SOW, SOOW
Control / Sensor Cable / Type	18/5 SOW
Cable Cap Assembly	Leads have a Buna grommet and are encapsulated in epoxy for a positive seal
Power and Control Cable Lengths	25' standard, 50' optional
Motor Enclosure	Cast Iron, ASTM A-48, Class 30 (minimum)
Motor Shaft	416 Stainless Steel
Motor Design	NEMA Design B – Air-filled
Motor Insulation	Class "F", 155° C (310° F) insulation
Motor Thermal Protection	Two (2) normally closed on-winding thermostats open at 153° C (307° F), automatic reset closes at 140° C (284° F)
Motor Overload Protection	Require Class 10, quick-trip, ambient compensated overloads in the control panel
Motor Moisture Protection	Dual moisture sensing probes in an oil-filled seal chamber between inner and outer seals - Connect to a relay in control panel
Casing	Cast Iron, ASTM A-48, Class 30
Impeller	Cast Iron, ASTM A-48, Class 30 or Optional Cast Bronze ASTM B584 C87600
Impeller Type	Semi-open, non-clog with pump out vanes on back shroud, computer dynamically balanced

STANDARD PARTS

Ball Bearings		Greased for life, single row, upper and lower ball bearings, L10 rating life of 17,500 hours
Mechanical Seals – Standard	Upper	Carbon – rotary / ceramic – stationary / Buna elastomers / 304SS metal parts
	Lower	
Mechanical Seals – Optional	Lower	Silicon carbide – rotary / silicon carbide – stationary / Viton / 304SS
	Lower	Silicon carbide – rotary / tungsten carbide – stationary / Viton / 304SS
Standard O-Rings		BUNA-N (nitrile)
External Hardware		Stainless steel

DIMENSIONS

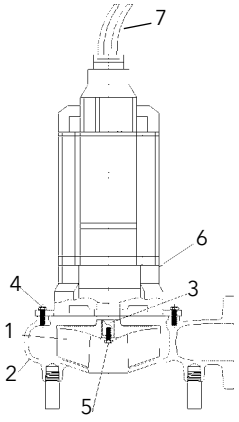
(All dimensions are in inches. Do not use for construction purposes.)



MATERIALS OF CONSTRUCTION

Item No.	Part Name	Material	
		Standard	Optional
1	Impeller, non-clog	1003	1179
2	Casing	1003	
3	Shaft–keyed	416 Series SS	
4	Fasteners	300 Series SS	
5	Impeller Bolt	Steel	
6	Motor Enclosure	Cast Iron	
7	Power and Control Cables	25', SOW/SOOW	50'

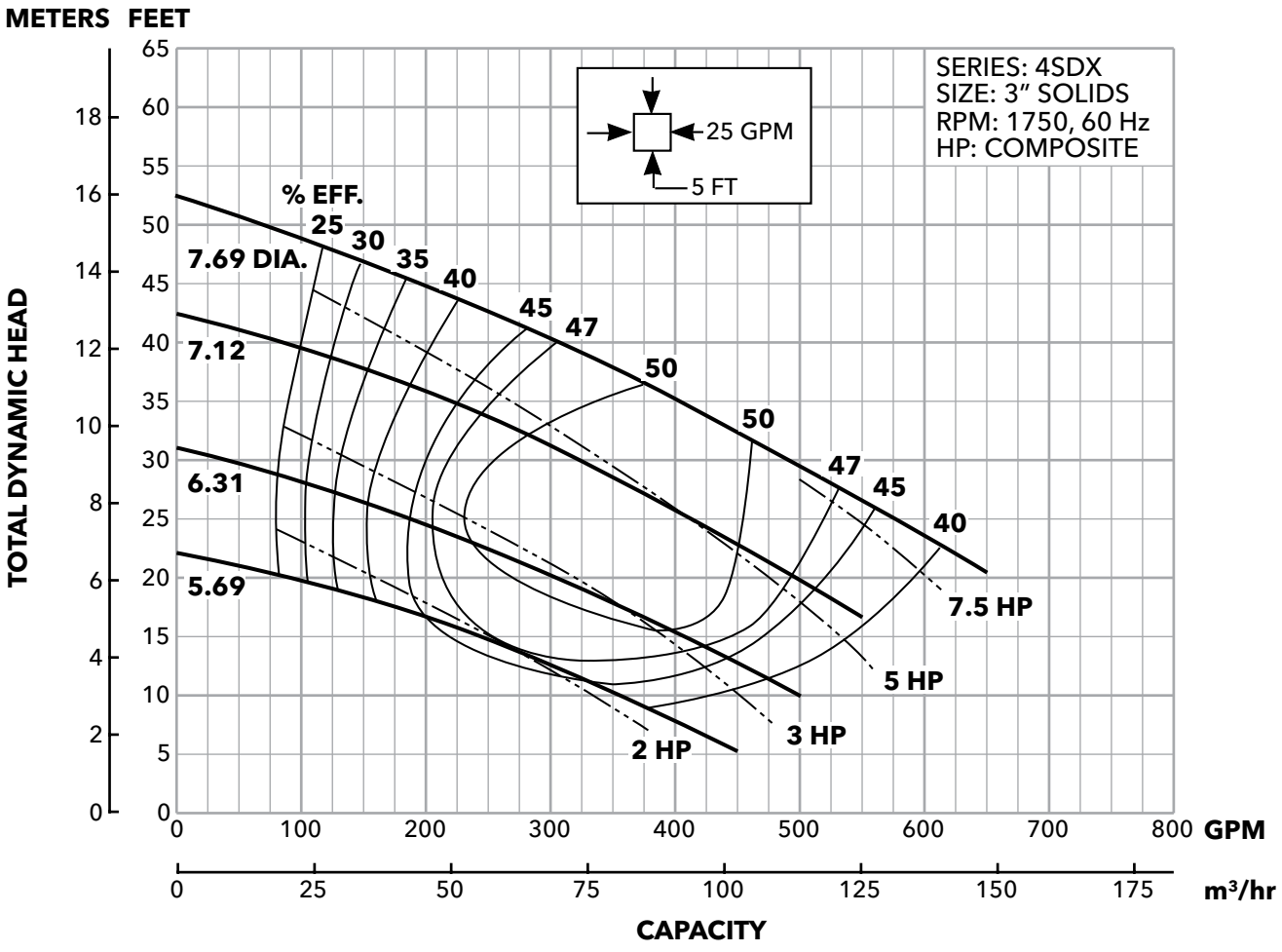
Material Code	Engineering Standard
1003	Cast iron – ASTM A48 Class 30
1179	Silicon bronze – ASTM B584 C87600



4SDX Explosion Proof Submersible Sewage Pumps

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

Impeller Diameter	Impeller Code	Minimum HP Required at 1.15 SF	HP Code	Pump Model
5.69"	K	2	G	4SDX_G_K_
6.31"	J	3	H	4SDX_H_J_
7.12"	H	5	J	4SDX_J_H_
7.69"	G	7½	K	4SDX_K_G_



xylem
Let's Solve Water

TECHNICAL BROCHURE
B4NS R6

4NS

SUBMERSIBLE 4" NON-CLOG SEWAGE PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, two vane closed design for high efficiency and maximum wear life. Balanced for smooth operation.

Bronze Wear Ring: Replaceable to renew the running clearances and efficiencies to original conditions.

Casing: Heavy duty cast iron, volute type for maximum efficiency. 4" 125# ANSI cast iron flanged. Adaptable to guide rail mounting system.

Tandem Seals: Two independently mounted mechanical face type seals are separated by an oil filled chamber. The oil chamber acts as a barrier to trap moisture and provide time for a planned shutdown and maintenance. The oil provides lubrication to the internal (upper) seal. Carbon rotating and ceramic stationary faces are standard on both internal (upper) and external (lower) seals. Optional materials are available for the lower seals. See the Nomenclature Page for order number changes to order either silicon carbide/silicon carbide faces with Viton or silicon carbide/tungsten carbide faces with Viton elastomers. These are recommended for applications containing fine solids or abrasives as found in parking lot/garage drainage and construction dewatering jobs.

Moisture Protection System: Two-wire, dual moisture sensing probes are located in the oil filled chamber between the inner and outer seals. When connected to a control panel with an optional Moisture Detection System and an alarm it will detect the presence of moisture should the outer seal fail. It will also detect moisture in the motor chamber and provide a warning prior to water levels reaching the bearing or stator.

Designed for Continuous Operation: Motor is rated continuous duty submerged condition in water that is 40° C or below. Maximum runtime with pump unsubmerged for 7½–40 HP is 15 minutes. Motor is suitable for 10 starts per hour.

Bearings: Ball, single-row, angular contact, Conrad type bearings with a Class 3 internal fit conforming to AFBMA Standard 20 are used. The bearings are greased for life with a premium moisture resistant polyurea thickened grease containing rust inhibitors and suitable for operation over a range of – 25° C to + 120° C.

Impeller Mounting Screw: 300 series stainless steel with anti-rotational locking patch.

Castings: All iron castings are ASTM A48 class 30 gray cast iron.

APPLICATIONS

Heavy duty design features for a wide range of commercial and industrial applications such as:

- Sewage systems
- Flood and pollution control
- Industrial dewatering
- Wastewater treatment plants
- Municipal and subdivision lift stations

SPECIFICATIONS

Pump:

- Solids handling capabilities: 3" maximum.
- Discharge size: 4" 125# ANSI flanged.
- Capacities: up to 1160 GPM.
- Total heads: up to 140 feet.
- Minimum flow: 100 GPM.
- Maximum flow: end of published curve.
- Mechanical seals: 304 stainless steel metal parts, BUNA-N elastomers with carbon/rotary and ceramic/stationary faces standard for upper and lower seals. Optional lower seals are available with Viton elastomers and either silicon carbide/silicon carbide or silicon carbide/tungsten carbide faces.
- Fasteners: 300 series stainless steel.

Motor:

- CSA certified motors (Canadian Standards Association)
- Three phase motors only
- Available voltages: 200, 230, 400, 460 and 575 volt, 60 Hertz
- HP Range: 7.5 - 40
- Motor shaft is a one-piece design of high strength 416 stainless steel
- All motors are air-filled and designed for continuous duty when fully submerged or for up to 15 minutes operation in air.
- NEMA design "B" with copper windings
- Class "F" stator winding designed for inverter duty
- Moisture System: Two wire dual probe monitoring system constantly monitors seal oil chamber and stator housing for moisture. **Note:** control panel must contain an alarm circuit and alarm device.
- Two (2) normally-closed, automatic reset thermostats connected in series and embedded in adjoining phases.
- Power and sensor cords are 25' standard length, 50' available as an option.
- Motors conform to the latest applicable requirements of NEMA, IEEE, ANSI and NEC standards.

NOTICE: Class 10 quick trip overload protection must be provided in control panel.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

MODEL AND MOTOR INFORMATION (All ratings at 3 phase, 60 Hz.)

Order Number	HP	Phase	Volts	RPM	Impeller Dia. (In.)	Impeller Code	S.F. Amps	Service Factor	Full Load Amps	Locked Rotor Amps	Power Cable Size	Sensor Cable Size	Frame Size	Weight (lbs.)
4NS12K3MC	7.5	3	230	1750	7.50	M	23.4	1.15	21.0	160.0	8/4	18/5	210TY	455
4NS12K4MC			460				11.7		10.5	80.0	8/4			
4NS12K5MC			575				9.4		8.4	64.0	14/4			
4NS12L2KC	10		200		8.00	K	35.6		31.1	186.2	8/4			
4NS12L3KC			230				31.0		27.0	162.0	8/4			
4NS12L4KC			460				15.5		13.5	81.0	8/4			
4NS12L5KC			575				12.3		10.8	64.0	14/4			
4NS12M2GC	15		200		9.00	G	54.8		48.2	256.0	6/4			
4NS12M3GC			230				47.8		42.0	222.0	8/4			
4NS12M4GC			460				23.9		21.0	111.0	8/4			
4NS12M5GC			575				19.1		16.8	88.7	10/4			
4NS12N2EC	20		200		9.75	E	74.8		64.4	342.0	4/4			
4NS12N3EC			230				65.0		56.0	298.0	6/4			
4NS12N4EC			460				32.5		28.0	149.0	6/4			
4NS12N5EC			575				26.0		22.4	119.0	10/4			
4NS12P2CC	25		200		10.38	C	83.6		72.5	394.0	2/4		250TYS	890
4NS12P3CC			230				72.8		63.0	342.0	4/4			
4NS12P4CC			460				36.4		31.5	171.0	4/4			
4NS12P5CC			575				29.1		25.2	137.0	8/4			
4NS12Q2BC	30		200		10.75	B	103.2		89.7	472.0	2/4			
4NS12Q3BC			230				89.6		78.0	410.0	2/4			
4NS12Q4BC			460				44.8		39.0	205.0	2/4			
4NS12Q5BC			575				35.8		31.2	164.0	8/4			
4NS12R2AC	40		200		11.00	A	132.8		114.4	600.0	1/0/4			
4NS12R3AC			230				115.4		99.4	522.0	1/4			
4NS12R4AC			460				57.7		49.7	261.0	6/4			
4NS12R5AC			575				46.2		39.8	209.0	8/4			
4NS13K2DC	7.5	3	200	1150	10.12	D	30.4	1.15	26.5	131.6	8/4	18/5	210TY	455
4NS13K3DC			230				26.4		23.0	114.4	10/4			
4NS13K4DC			460				13.2		11.5	57.2	10/4			
4NS13K5DC			575				10.6		9.2	45.8	14/4			
4NS13L2AC	10		200		11.00	A	40.0		35.0	186.0	8/4			
4NS13L3AC			230				34.8		30.4	161.0	8/4			
4NS13L4AC			460				17.4		15.2	80.7	8/4			
4NS13L5AC			575				13.9		12.2	64.5	12/4			

NOMENCLATURE DESCRIPTION

1st Character – Discharge Size

4 = 4" 125 # ANSI Discharge Flange

2nd and 3rd Character – Pump Type / Design

NS = Dual Seal Non-Clog Pump with On-Winding Thermal Sensors and Moisture Detection Sensors

4th Character – Mechanical Seals

1 = Standard Seal – the upper seal is carbon/rotary and ceramic/stationary, the lower seal is carbon/rotary with ceramic/stationary with BUNA elastomers and 304 stainless steel metal parts.

3 = Optional Lower Seal – silicon carbide/rotary and silicon carbide/stationary with Viton elastomers and 304 SS metal parts is recommended for applications with fine solids or abrasives.

5 = Optional Lower Seal – silicon carbide/rotary and tungsten carbide/stationary with Viton elastomers and 304 SS metal parts is recommended for applications with fine solids or abrasives.

5th Character – Motor RPM / Hertz

2 = 1750 RPM / 60 Hz

3 = 1150 RPM / 60 Hz

6th Character – Horsepower

K = 7.5 M= 15 P = 25 R = 40

L = 10 N = 20 Q = 30

7th Character – Voltage / Phase

2 = 200 / 3 4 = 460 / 3 6 = 380/400 / 3

3 = 230 / 3 5 = 575 / 3

8th Character – Impeller Code

A = 11.0" 10 HP 1150 RPM 40 HP 1750 RPM
20 HP 1450 RPM

B = 10.75" 30 HP 1750 RPM

C = 10.38" 25 HP 1750 RPM

D = 10.12" 7.5 HP 1150 RPM 15 HP 1450 RPM

E = 9.75" 20 HP 1750 RPM

G = 9.00" 15 HP 1750 RPM 10 HP 1450 RPM

K = 8.00" 10 HP 1750 RPM 7.5 HP 1450 RPM

M = 7.50" 7.5 HP 1750 RPM

T = SPECIAL TRIM

9th Character – Cord Length - Power and Sensor Cords

C = 25' standard F = 50' Optional

10th Character – Options

E = Epoxy Paint

APPLICATION DATA

Maximum Solid Size	3"
Minimum Casing Thickness	5/16"
Casing Corrosion Allowance	1/8"
Maximum Working Pressure	100 PSI
Maximum Submergence	200 feet
Maximum Environmental Temperature	40°C (104°F) ambient conditions
Maximum Starts Per Hour	Maximum of 10 evenly spaced starts per hour

CONSTRUCTION DETAILS

Power Cable – Type	1/0 / 4, 2/4, 4/4, 6/4, 8/4, 10/4, 12/4 SOW or SOOW (see Model Info)
Control / Sensor Cable / Type	Type 18/5 SOW
Power Cable and Cap Assembly	Leads have a BUNA-N grommet in addition to being epoxy encapsulated
Power and Control Cable Lengths	25' standard, 50' optional
Motor Enclosure	Cast iron ASTM A-48 Class 30
Motor Shaft	Series 416 Stainless steel
Motor Design	NEMA design "B" with copper windings and designed to withstand 200 psi water pressure at all seal locations. Air-filled NEMA 210TY frame on 7.5, 10, 15 and 20 HP models. Air-filled NEMA 250TYS frame on 25 - 40 HP models.
Motor Insulation Rating	Class "F" insulation
Motor Thermal Protection	Two (2) normally closed on-winding thermostats open at 320° F (160° C), automatic reset closes at 221° F (105° C).
Motor Overload Protection	Class 10, ambient compensated, quick-trip overload protection must be provided in control panel.
Motor Moisture Protection	Two (2) moisture sensing probes in the oil-filled seal chamber must be connected to a relay in control panel.
Casing	Cast iron ASTM A-48 Class 30
Impeller	Cast iron ASTM A-48 Class 30
Impeller Type	Two vane enclosed design for maximum efficiency.
Casing/Impeller/Wear Ring	Replaceable bronze wear ring
External Hardware	Stainless steel

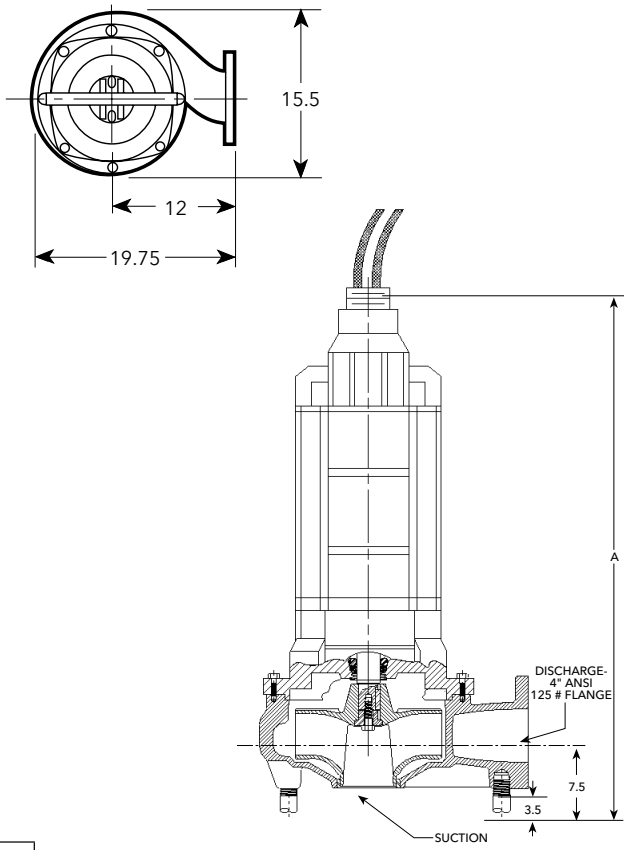
STANDARD PARTS

Ball Bearing		Lubricated for life bearings are designed for a minimum L10 life of 30,000 hours.
210 and 250 Frame		Single row Radial (upper)
		Single row Thrust (lower)
Mechanical Seals – Standard	Upper	Carbon/rotary and ceramic/stationary
	Lower	
Mechanical Seals – Optional	Lower	Silicon carbide/rotary and tungsten carbide/stationary
	Lower	Silicon carbide/rotary and silicon carbide/stationary
Standard Motor O-rings		BUNA-N (nitrile)
Seal Chamber Oil		SAE IOW

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)

HP	RPM	"A" Dimensions (in.)
7½	1750	41.3
10		
15		
20		
25		46.6
30		
40		
7½	1150	41.3
10		



4NS Submersible Sewage Pumps

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

Impeller Code	Impeller Diameter
A	11.00"
B	10.75"
C	10.38"
E	9.75"
G	9.00"
K	8.00"
M	7.50"

Customer _____

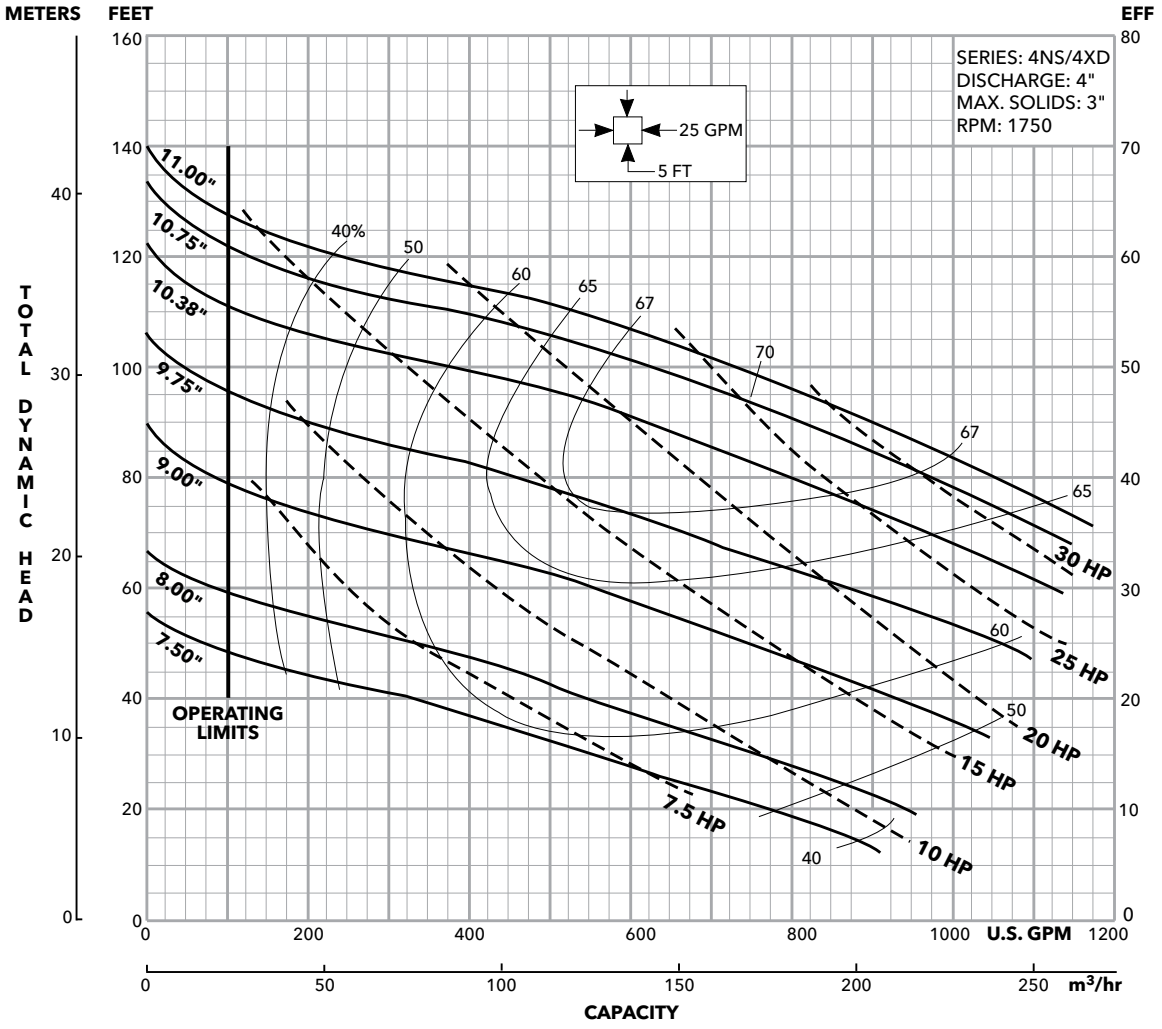
Pump Item _____

Condition of Service _____ Impeller Diameter _____

_____ GPM _____ TDH _____ EFF%

Certified for: Approval ☐

By _____ Date _____ Record ☐



Impeller Code	Impeller Diameter
A	11.00"
D	10.12"

Customer _____

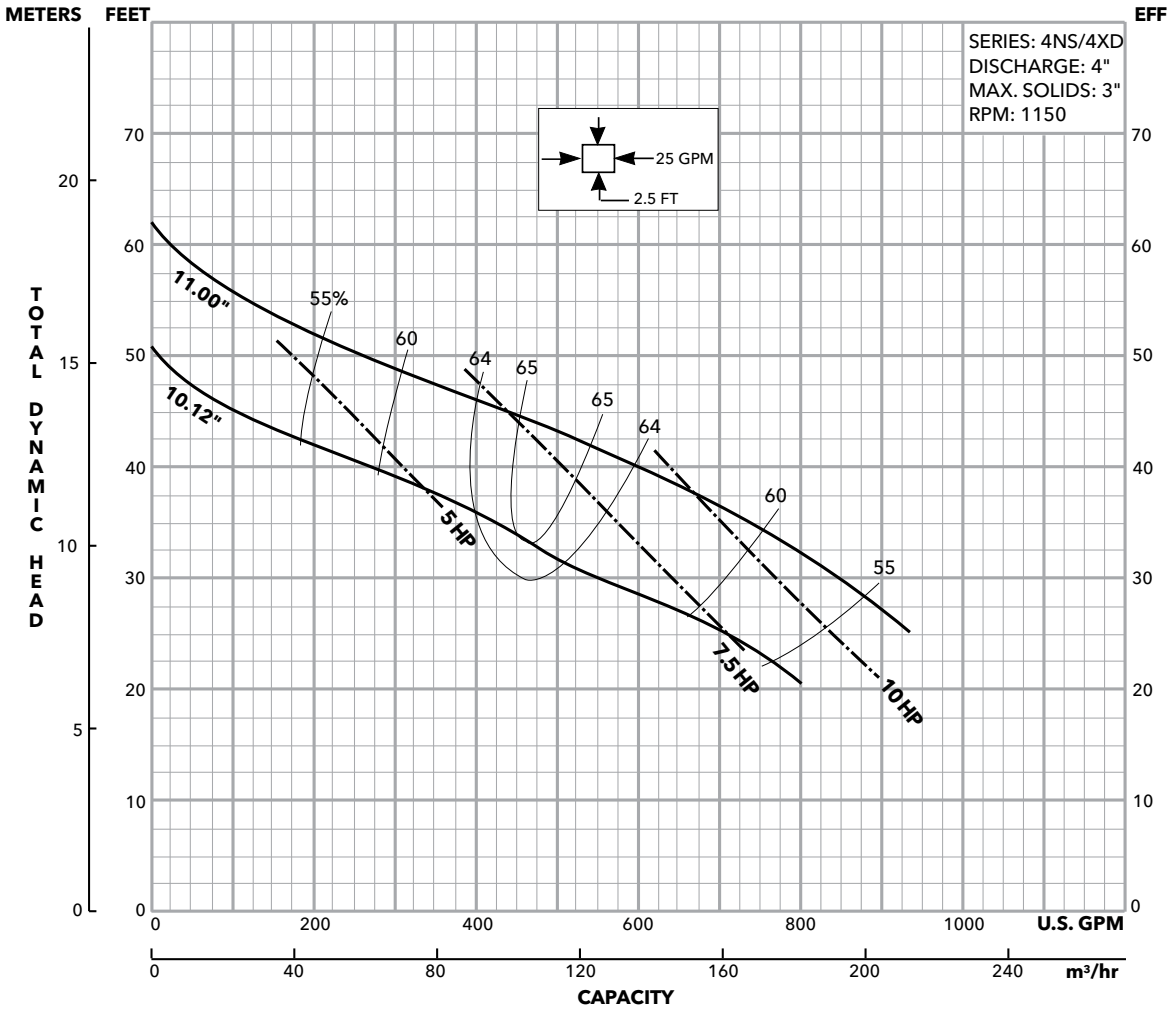
Pump Item _____

Condition of Service Impeller Diameter _____

_____ GPM _____ TDH _____ EFF%

Certified for: Approval ☐

By _____ Date _____ Record ☐



4NS Submersible 4" Non-Clog Sewage Pump

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

MOTOR DATA

ORDER NUMBER	HP	PHASE	VOLTS	RPM	S.F. AMPS	SERVICE FACTOR	LOCKED ROTOR AMPS	KVA CODE	FULL LOAD MOTOR EFFICIENCY	WINDING RESISTANCE
4NS12K2MC	7.5	3	200	1750	27.0	1.15	183.8	K	90.5%	.266
4NS12K3MC			230		23.4		160.0		90.5%	.352
4NS12K4MC			460		11.7		80.0		90.5%	1.410
4NS12K5MC			575		9.4		64.0		90.5%	2.200
4NS12L2KC	10		200		35.6		186.2	H	85.8%	.257
4NS12L3KC			230		31.0		162.0		85.8%	.341
4NS12L4KC			460		15.5		81.0		85.8%	1.360
4NS12L5KC			575		12.3		64.0		86.2%	2.130
4NS12M2GC	15		200		54.8		256.0	G	86.5%	.149
4NS12M3GC			230		47.8		222.0		86.5%	.197
4NS12M4GC			460		23.9		111.0		86.5%	.788
4NS12M5GC			575		19.1		88.7		86.5%	1.230
4NS12N2EC	20		200		74.8		342.0		82.2%	.122
4NS12N3EC			230		65.0		298.0		82.2%	.162
4NS12N4EC			460		32.5		149.0		82.2%	.649
4NS12N5EC			575		26.0		119.0		82.2%	1.010
4NS12P2CC	25		200		83.6		394.0	F	86.7%	.093
4NS12P3CC			230		72.8		342.0		86.7%	.123
4NS12P4CC			460		36.4		171.0		86.7%	.492
4NS12P5CC			575		29.1		137.0		86.7%	.769
4NS12Q2BC	30		200		103.2		472.0		87.1%	.068
4NS12Q3BC			230		89.6		410.0		87.1%	.090
4NS12Q4BC			460		44.8		205.0		87.1%	.359
4NS12Q5BC			575		35.8		164.0		87.1%	.561
4NS12R2AC	40		200		132.8		600.0		87.5%	.052
4NS12R3AC			230		115.4		522.0		87.5%	.069
4NS12R4AC			460		57.7		261.0		87.5%	.276
4NS12R5AC			575		46.2		209.0		87.5%	.432
4NS13K2DC	7.5		200	1150	30.4		131.6	G	80.6%	.388
4NS13K3DC			230		26.4		114.4		80.6%	.513
4NS13K4DC			460		13.2		57.2		80.6%	2.050
4NS13K5DC			575		10.6		45.8		80.6%	3.200
4NS13L2AC	10		200		40.0		186.0	H	82.2%	.285
4NS13L3AC			230		34.8		161.0		82.2%	.378
4NS13L4AC			460		17.4		80.7		82.2%	1.510
4NS13L5AC			575		13.9		64.5		82.2%	2.360

xylem
Let's Solve Water

TECHNICAL BROCHURE
B4XD R4

4XD

SUBMERSIBLE 4" NON-CLOG EXPLOSION PROOF SEWAGE PUMP

BUILT IN THE USA
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GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Impeller: Cast iron, two vane closed design for high efficiency and maximum wear life. Balanced for smooth operation.

Bronze Wear Ring: Replaceable to renew the running clearances and efficiencies to original conditions.

Casing: Heavy duty cast iron, volute type for maximum efficiency. 4" 125# ANSI cast iron flanged. Adaptable to guide rail mounting system.

Tandem Seals: Two independently mounted mechanical face type seals are separated by an oil filled chamber. The oil chamber acts as a barrier to trap moisture and provide time for a planned shutdown and maintenance. The oil provides lubrication to the internal (upper) seal. Carbon rotating and ceramic stationary faces are standard on both internal (upper) and external (lower) seals. Optional materials are available for the lower seals. See the Nomenclature Page for order number changes to order either silicon carbide/silicon carbide faces with Viton or silicon carbide/tungsten carbide faces with Viton elastomers. These are recommended for applications containing fine solids or abrasives as found in parking lot/garage drainage and construction dewatering jobs.

Moisture Protection System: Two-wire, dual moisture sensing probes are located in the oil filled chamber between the inner and outer seals. When connected to a control panel with an optional Moisture Detection System and an alarm it will detect the presence of moisture should the outer seal fail. It will also detect moisture in the motor chamber and provide a warning prior to water levels reaching the bearing or stator.

Designed for Continuous Operation: Motor is rated continuous duty submerged condition in water that is 40° C or below. Maximum runtime with pump unsubmerged for 7½–40 HP is 15 minutes. Motor is suitable for 10 starts per hour.

Bearings: Ball, single-row, angular contact, Conrad type bearings with a Class 3 internal fit conforming to AFBMA Standard 20 are used. The bearings are greased for life with a premium moisture resistant polyurea thickened grease containing rust inhibitors and suitable for operation over a range of – 25° C to + 120° C.

Impeller Mounting Screw: 300 series stainless steel with anti-rotational locking patch.

Castings: All iron castings are ASTM A48 class 30 gray cast iron.

APPLICATIONS

Heavy duty design features for a wide range of commercial and industrial applications such as:

- Sewage systems
- Flood and pollution control
- Industrial dewatering
- Wastewater treatment plants
- Municipal and subdivision lift stations

SPECIFICATIONS

Pump:

- Solids handling capabilities: 3" maximum.
- Discharge size: 4" 125# ANSI flanged.
- Capacities: up to 1160 GPM.
- Total heads: up to 140 feet.
- Minimum flow: 100 GPM.
- Maximum flow: end of published curve.
- Mechanical seals: 304 stainless steel metal parts, BUNA-N elastomers with carbon/rotary and ceramic/stationary faces standard for upper and lower seals. Optional lower seals are available with Viton elastomers and either silicon carbide/silicon carbide or silicon carbide/tungsten carbide faces.
- Fasteners: 300 series stainless steel

Motor:

- **Explosion Proof Motor:** Motors up to and including 40 HP are rated as Class F, 1.15 service factor and are certified explosion proof for Class I, Division I, Groups C and D locations.
- CSA certified motors (Canadian Standards Association).
- UL (Underwriters Laboratories) Listed Motors.
- Three phase motors only.
- Available voltages: 200, 230, 400, 460 and 575 volt, 60 Hz.
- HP Range: 7.5 - 40
- Motor shaft is a one-piece design of high strength 416 stainless steel.
- All motors are air-filled and designed for continuous duty when fully submerged or for up to 15 minutes operation in air.
- NEMA design "B" with copper windings.
- Class "F" stator winding designed for inverter duty.
- Moisture System: Two wire dual probe monitoring system constantly monitors seal oil chamber and stator housing for moisture. **Note:** control panel must contain an alarm circuit and alarm device.
- Two (2) normally-closed, automatic reset thermostats connected in series and embedded in adjoining phases.
- Power and sensor cords are 25' standard length, 50' available as an option.
- Motors conform to the latest applicable requirements of NEMA, IEEE, ANSI and NEC standards.

NOTICE: Class 10 quick trip overload protection must be provided in control panel.

AGENCY LISTINGS

C SP US Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

MOTOR LISTED EXPLOSION PROOF
CLASS I, DIVISION I, GROUPS C & D

UL Underwriters Laboratories

MODEL AND MOTOR INFORMATION (All ratings at 3 phase, 60 Hz.)

Order Number	HP	Phase	Volts	RPM	Impeller Dia. (In.)	Impeller Code	S.F. Amps	Service Factor	Full Load Amps	Locked Rotor Amps	Power Cable Size	Sensor Cable Size	Frame Size	Weight (lbs.)
4XD12K2MC	7.5	3	200	1750	7.50	M	27.0	1.15	24.2	183.8	8/4	18/5	210TY	455
4XD12K3MC			230				23.4		21.0	160.0	8/4			
4XD12K4MC			460				11.7		10.5	80.0	8/4			
4XD12K5MC			575				9.4		8.4	64.0	14/4			
4XD12L2KC	10		200		8.00	K	35.6		31.1	186.2	8/4			
4XD12L3KC			230				31.0		27.0	162.0	8/4			
4XD12L4KC			460				15.5		13.5	81.0	8/4			
4XD12L5KC			575				12.3		10.8	64.0	14/4			
4XD12M2GC	15		200		9.00	G	54.8		48.2	256.0	6/4			
4XD12M3GC			230				47.8		42.0	222.0	8/4			
4XD12M4GC			460				23.9		21.0	111.0	8/4			
4XD12M5GC			575				19.1		16.8	88.7	10/4			
4XD12N2EC	20		200		9.75	E	74.8		64.4	342.0	4/4			
4XD12N3EC			230				65.0		56.0	298.0	6/4			
4XD12N4EC			460				32.5		28.0	149.0	6/4			
4XD12N5EC			575				26.0		22.4	119.0	10/4			
4XD12P2CC	25		200		10.38	C	83.6		72.5	394.0	2/4		250TYS	890
4XD12P3CC			230				72.8		63.0	342.0	4/4			
4XD12P4CC			460				36.4		31.5	171.0	4/4			
4XD12P5CC			575				29.1		25.2	137.0	8/4			
4XD12Q2BC	30		200		10.75	B	103.2		89.7	472.0	2/4			
4XD12Q3BC			230				89.6		78.0	410.0	2/4			
4XD12Q4BC			460				44.8		39.0	205.0	2/4			
4XD12Q5BC			575				35.8		31.2	164.0	8/4			
4XD12R2AC	40		200		11.00	A	132.8		114.4	600.0	1/0/4			
4XD12R3AC			230				115.4		99.4	522.0	1/4			
4XD12R4AC			460				57.7		49.7	261.0	6/4			
4XD12R5AC			575				46.2		39.8	209.0	8/4			
4XD13K2DC	7.5		200	1150	10.12	D	30.4		26.5	131.6	8/4		210TY	455
4XD13K3DC			230				26.4		23.0	114.4	10/4			
4XD13K4DC			460				13.2		11.5	57.2	10/4			
4XD13K5DC			575				10.6		9.2	45.8	14/4			
4XD13L2AC	10		200		11.00	A	40.0		35.0	186.0	8/4			
4XD13L3AC			230				34.8		30.4	161.0	8/4			
4XD13L4AC			460				17.4		15.2	80.7	8/4			
4XD13L5AC			575				13.9		12.2	64.5	12/4			

NOMENCLATURE DESCRIPTION

1st Character – Discharge Size
4 = 4″ 125 # ANSI Discharge Flange

2nd and 3rd Character – Pump Type / Design
XD = Explosion Proof, Dual Seal Pump with On-Winding Thermal Sensors and Moisture Detection Sensors

4th Character – Mechanical Seals
1 = Standard Seal – the upper seal is carbon/ceramic, the lower seal is carbon/ceramic, BUNA and 304 stainless steel metal parts.
3 = Optional Lower Seal – silicon carbide/silicon carbide, Viton elastomers and 304 SS metal parts.
5 = Optional Lower Seal – silicon carbide/tungsten carbide, Viton elastomers and 304 SS metal parts.

5th Character – Motor RPM / Hertz
2 = 1750 RPM / 60 Hz
3 = 1150 RPM / 60 Hz

6th Character – Horsepower
K = 7.5 M= 15 P = 25 R = 40
L = 10 N = 20 Q = 30

7th Character – Voltage / Phase
2 = 200 / 3 4 = 460 / 3 6 = 380/400 / 3
3 = 230 / 3 5 = 575 / 3

8th Character – Impeller Code
A = 11.0″ 10 HP 1150 RPM 40 HP 1750 RPM
20 HP 1450 RPM
B = 10.75″ 30 HP 1750 RPM
C = 10.38″ 25 HP 1750 RPM
D = 10.12″ 7.5 HP 1150 RPM 15 HP 1450 RPM
E = 9.75″ 20 HP 1750 RPM
G = 9.00″ 15 HP 1750 RPM 10 HP 1450 RPM
K = 8.00″ 10 HP 1750 RPM 7.5 HP 1450 RPM
M = 7.50″ 7.5 HP 1750 RPM
T = SPECIAL TRIM

9th Character – Cord Length - Power and Sensor Cords
C = 25′ standard F = 50′ Optional

10th Character – Options
E = Epoxy Paint

APPLICATION DATA

Maximum Solid Size	3"
Minimum Casing Thickness	5/16"
Casing Corrosion Allowance	1/8"
Maximum Working Pressure	100 PSI
Maximum Submergence	200 feet
Maximum Environmental Temperature	40°C (104°F) ambient conditions
Maximum Starts Per Hour	Maximum of 10 evenly spaced starts per hour

CONSTRUCTION DETAILS

Power Cable – Type	1/0 / 4, 2/4, 4/4, 6/4, 8/4, 10/4, 12/4 SOW or SOOW (see Model Info)
Control / Sensor Cable / Type	Type 18/5 SOW
Power Cable and Cap Assembly	Leads have a BUNA-N grommet in addition to being epoxy encapsulated
Power and Control Cable Lengths	25' standard, 50' optional
Motor Enclosure	Cast iron ASTM A-48 Class 30
Motor Shaft	Series 416 Stainless steel
Motor Design	NEMA design "B" with copper windings and designed to withstand 200 psi water pressure at all seal locations. Air-filled NEMA 210TY frame on 7.5, 10, 15 and 20 HP models. Air-filled NEMA 250TYS frame on 25 - 40 HP models.
Motor Insulation Rating	Class "F" insulation
Motor Thermal Protection	Two (2) normally closed on-winding thermostats open at 320° F (160° C), automatic reset closes at 221° F (105° C).
Motor Overload Protection	Class 10, ambient compensated, quick-trip overload protection must be provided in control panel.
Motor Moisture Protection	Two (2) moisture sensing probes in the oil-filled seal chamber must be connected to a relay in control panel.
Casing	Cast iron ASTM A-48 Class 30
Impeller	Cast iron ASTM A-48 Class 30
Impeller Type	Two vane enclosed design for maximum efficiency.
Casing/Impeller/Wear Ring	Replaceable bronze wear ring
External Hardware	Stainless steel

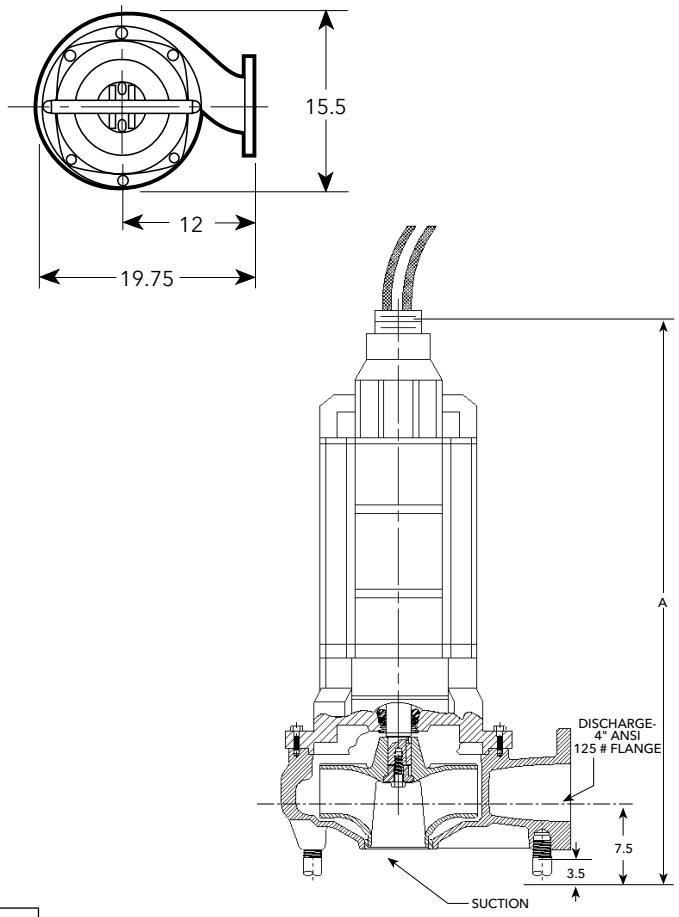
STANDARD PARTS

Ball Bearing		Lubricated for life bearings are designed for a minimum L10 life of 30,000 hours.
210 and 250 Frame		Single row Radial (upper)
		Single row Thrust (lower)
Mechanical Seals – Standard	Upper	Carbon/rotary and ceramic/stationary
	Lower	
Mechanical Seals – Optional	Lower	Silicon carbide/rotary and tungsten carbide/stationary
	Lower	Silicon carbide/rotary and silicon carbide/stationary
Standard Motor O-rings		BUNA-N (nitrile)
Seal Chamber Oil		Premium moisture resistant polyurea thickened grease containing rust inhibitors is suitable for operation over a temperature range of - 25° C to +120° C.

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)

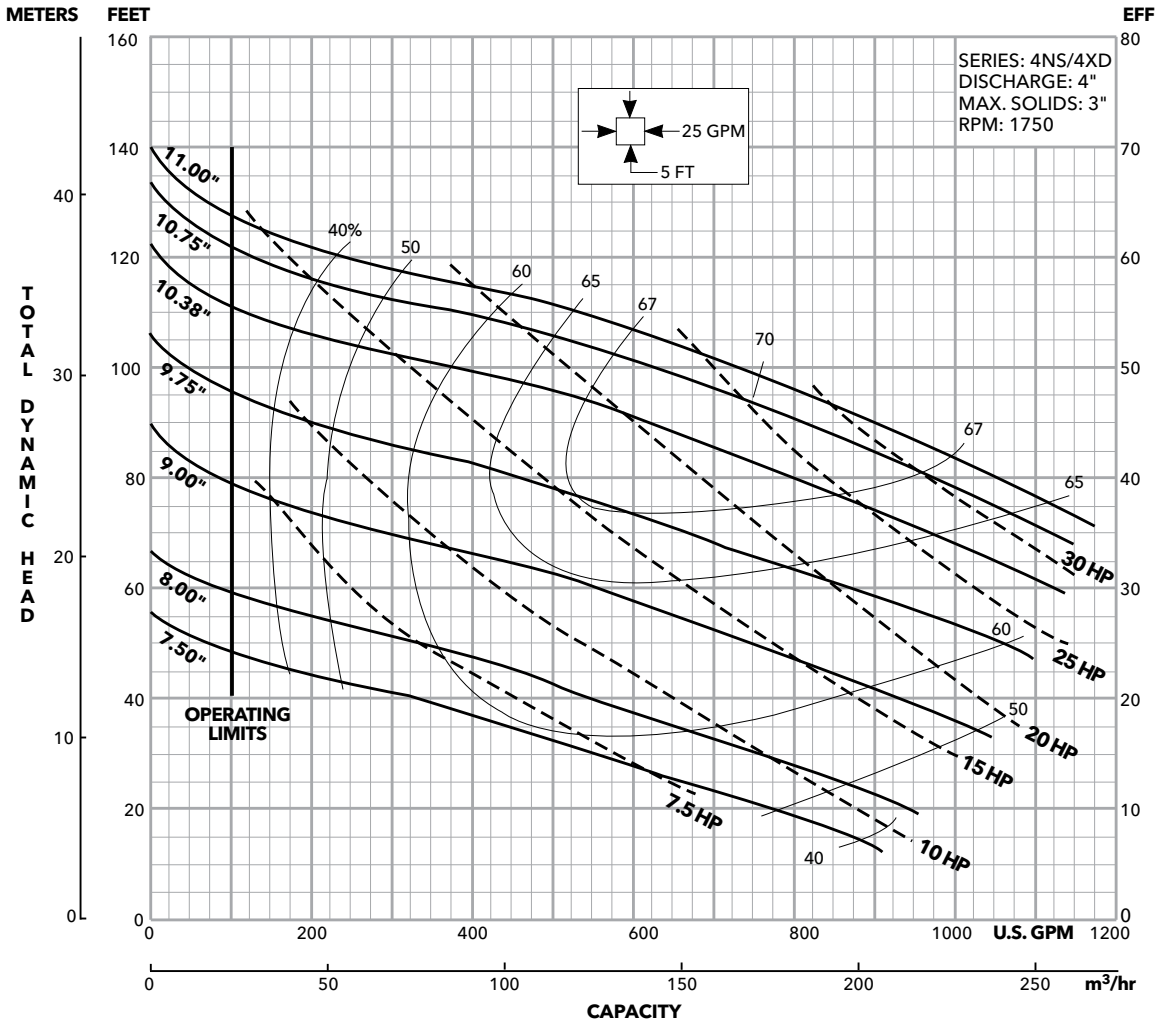
HP	RPM	"A" Dimensions (in.)
7½	1750	41.3
10		
15		
20		
25		46.6
30		
40		
7½	1150	41.3
10		



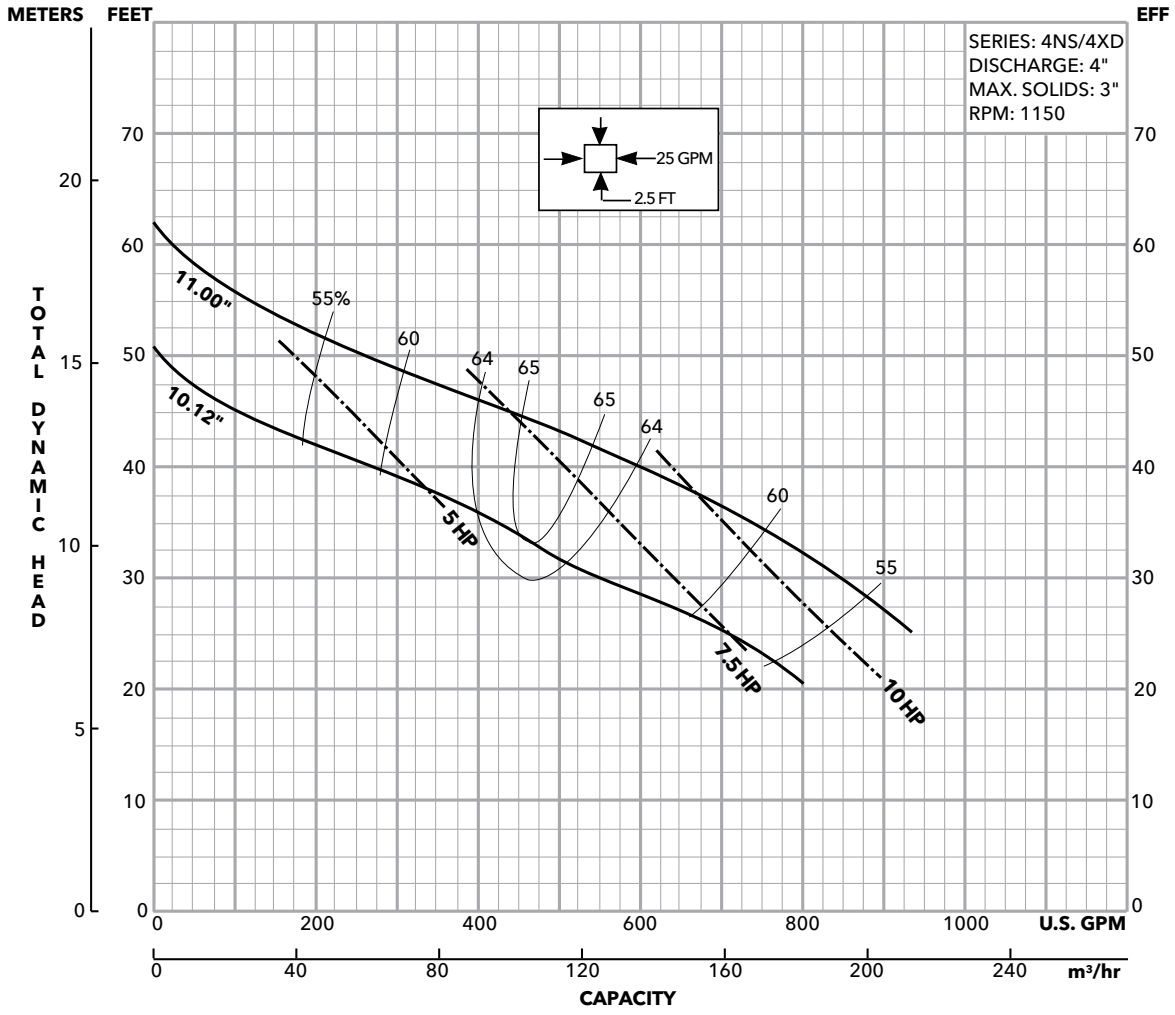
4XD Submersible Explosion Proof Sewage Pumps

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

Impeller Code	Impeller Diameter	HP
A	11.00"	40
B	10.75"	30
C	10.38"	25
E	9.75"	20
G	9.00"	15
K	8.00"	10
M	7.50"	7.5



Impeller Code	Impeller Diameter	HP
A	11.00"	10
D	10.12"	7.5



4XD

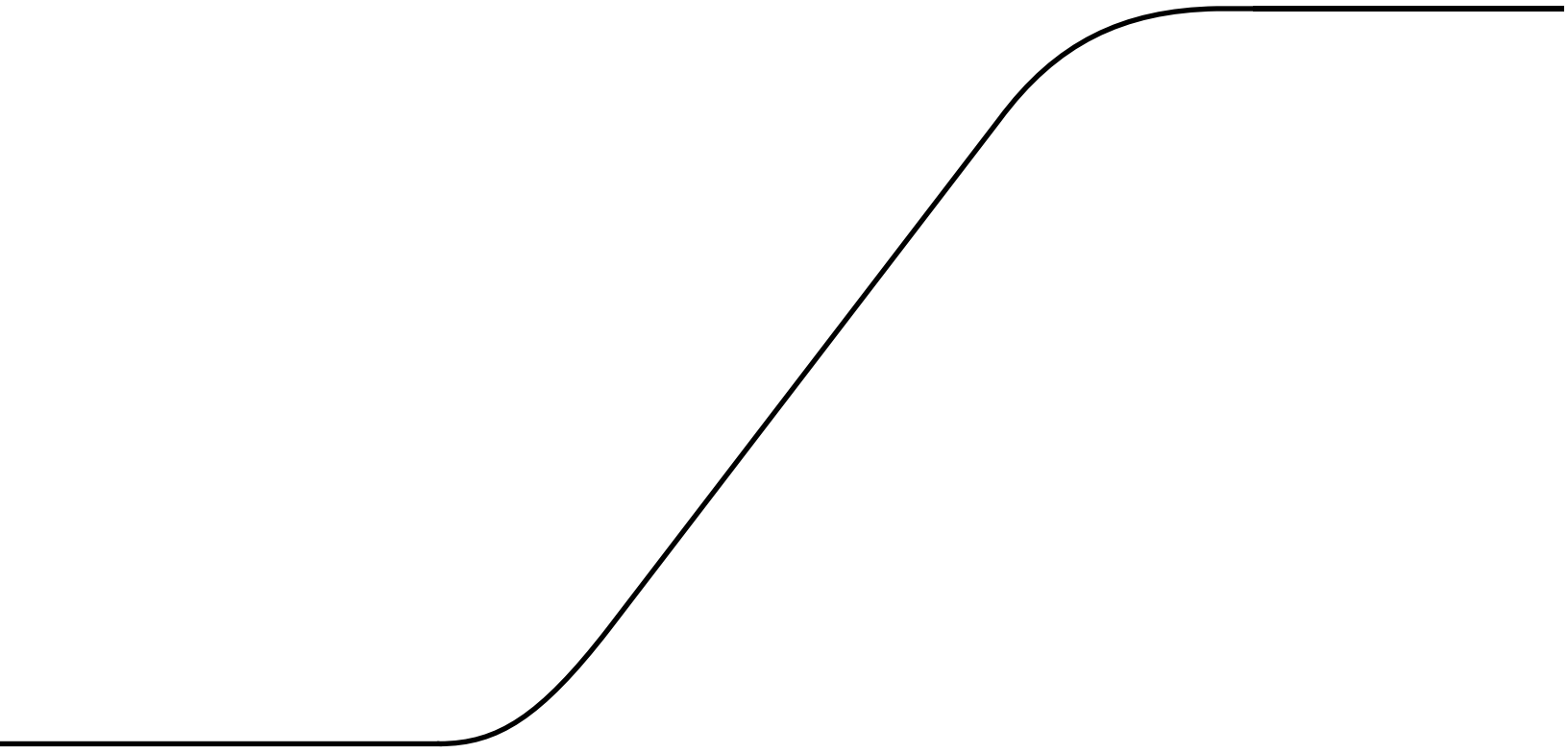
Submersible 4" Non-Clog Explosion Proof Sewage Pump

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

MOTOR DATA

ORDER NUMBER	HP	PHASE	VOLTS	RPM	S.F. AMPS	SERVICE FACTOR	LOCKED ROTOR AMPS	KVA CODE	FULL LOAD MOTOR EFFICIENCY	WINDING RESISTANCE
4XD12K2MC	7.5	3	200	1750	27.0	1.15	183.8	K	90.5%	.266
4XD12K3MC			230		23.4		160.0		90.5%	.352
4XD12K4MC			460		11.7		80.0		90.5%	1.410
4XD12K5MC			575		9.4		64.0		90.5%	2.200
4XD12L2KC	10		200		35.6		186.2	H	85.8%	.257
4XD12L3KC			230		31.0		162.0		85.8%	.341
4XD12L4KC			460		15.5		81.0		85.8%	1.360
4XD12L5KC			575		12.3		64.0		86.2%	2.130
4XD12M2GC	15		200		54.8		256.0	G	86.5%	.149
4XD12M3GC			230		47.8		222.0		86.5%	.197
4XD12M4GC			460		23.9		111.0		86.5%	.788
4XD12M5GC			575		19.1		88.7		86.5%	1.230
4XD12N2EC	20		200		74.8		342.0		82.2%	.122
4XD12N3EC			230		65.0		298.0		82.2%	.162
4XD12N4EC			460		32.5		149.0		82.2%	.649
4XD12N5EC			575		26.0		119.0		82.2%	1.010
4XD12P2CC	25		200		83.6		394.0	F	86.7%	.093
4XD12P3CC			230		72.8		342.0		86.7%	.123
4XD12P4CC			460		36.4		171.0		86.7%	.492
4XD12P5CC			575		29.1		137.0		86.7%	.769
4XD12Q2BC	30		200		103.2		472.0		87.1%	.068
4XD12Q3BC			230		89.6		410.0		87.1%	.090
4XD12Q4BC			460		44.8		205.0		87.1%	.359
4XD12Q5BC			575		35.8		164.0		87.1%	.561
4XD12R2AC	40		200		132.8		600.0		87.5%	.052
4XD12R3AC			230		115.4		522.0		87.5%	.069
4XD12R4AC			460		57.7		261.0		87.5%	.276
4XD12R5AC			575		46.2		209.0		87.5%	.432
4XD13K2DC	7.5		200	1150	30.4		131.6	G	80.6%	.388
4XD13K3DC			230		26.4		114.4		80.6%	.513
4XD13K4DC			460		13.2		57.2		80.6%	2.050
4XD13K5DC			575		10.6		45.8		80.6%	3.200
4XD13L2AC	10		200		40.0		186.0	H	82.2%	.285
4XD13L3AC			230		34.8		161.0		82.2%	.378
4XD13L4AC			460		17.4		80.7		82.2%	1.510
4XD13L5AC			575		13.9		64.5		82.2%	2.360

Grinder Pumps



AGS series

Axial grinder pumps

xylem

Features

Design: Capable of grinding domestic sewage in the modern wastewater stream.

Cutter system: Stainless steel, axial lobe-cutter design with 8-hole cutting plate, capable of 4.9 million bites per hour and TDH up to 120 feet.

Impeller: Cast Iron semi open 2 vane impeller.

Casing: Cast iron, volute type for high efficiency. Adaptable for guide rail system.

Motor: Fully submerged in oil-filled chamber. High grade turbine oil surrounds motor for more efficient heat dissipation, permanent lubrication of bearings and mechanical seal, and protection against outside environment.

Motor shaft: 300 series stainless steel.

Designed for continuous operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.

Applications

Designed for residential/light commercial/small office sewage (2" pump replacement and new construction) or anywhere modern wastewater flushables are creating clogging issues.

Specifications

Pump:

- Capacities: to 53 gpm/12 m³/hr
- Total heads: to 120 ft/ 36.6m TDH
- Temperature: Class F insulation - 104ºF (40ºC) maximum continuous, 140ºF (60ºC) maximum intermittent
- Single mechanical seal: silicon carbide rotary/silicon carbide stationary, 300 series stainless steel metal parts, BUNA-N elastomers
- Fasteners: 300 series stainless steel
- Axial cutter and plate: 440C hardened stainless steel

Bearings: Upper and lower single row sealed ball bearings for precision positioning of parts and to carry all radial and thrust loads.

Mechanical seal: Hardfaced silicon carbide on silicon carbide for longer life, stainless steel metal parts, BUNA-N elastomers.

Power cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking.

O-ring: Assures positive sealing against contaminants and oil leakage.

Paint: Electro-coat paint process protects all casting surfaces.

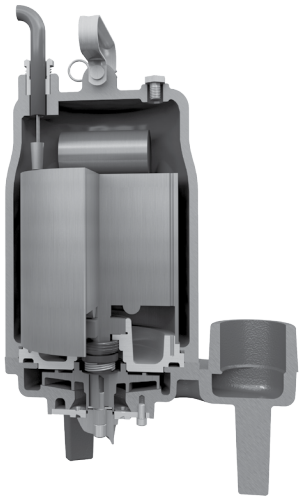
May be used with optional guide rail. See Fittings or Pump Removal Systems.

Agency listings

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association

Motor:

- Single-phase motor with on winding thermal protector. No external capacitor kits required.
- Class F insulation
- Shaft: 300 series stainless steel threaded design
- Bearings: Single row sealed ball bearings, upper and lower
- Power cord with a 115V or 230V NEMA three prong grounding plug. Allows connection to a piggyback float switch. 20 foot long cable. 2HP version has bare leads

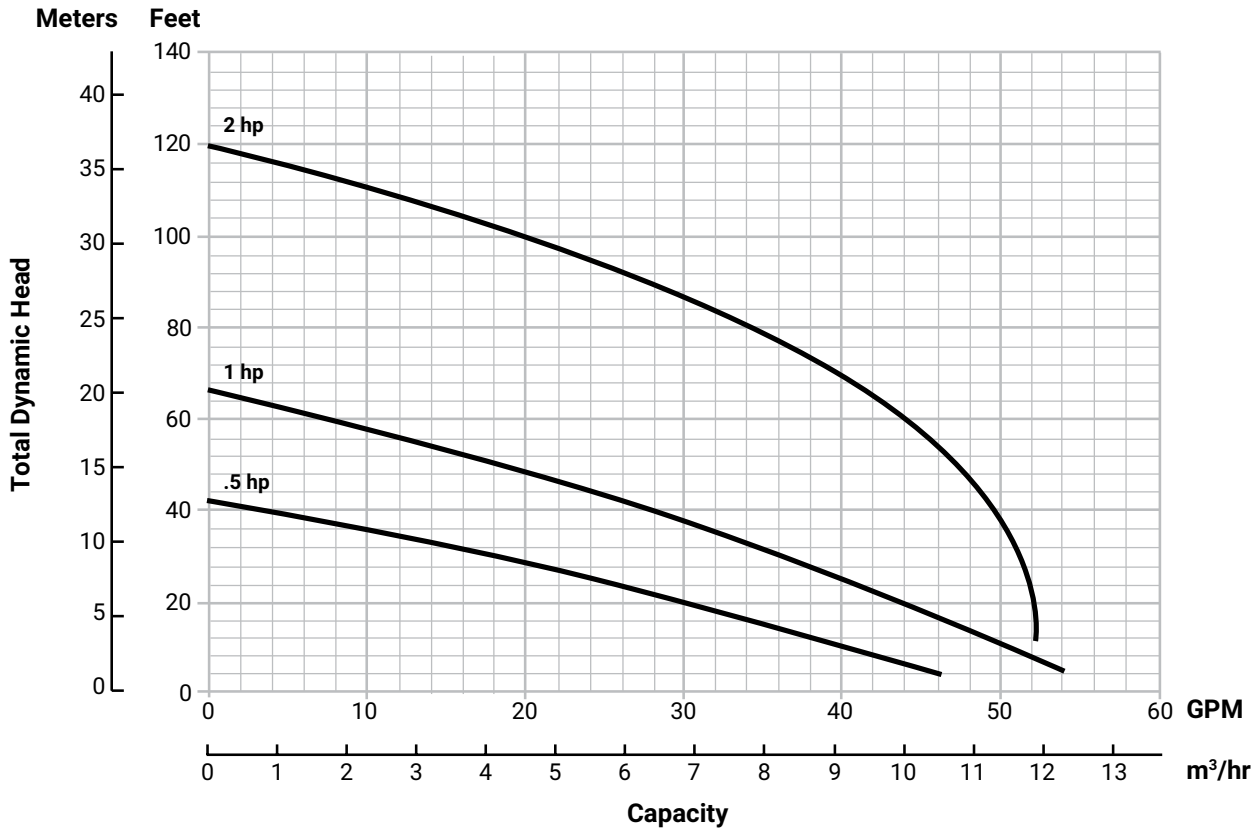


Model information

Order number	HP	Phase	Volts	RPM	Float switch style	Maximum amps	Discharge size	Impeller diameter	Power cord	Weight lbs. (kg)
AGS0511	0.5	1	115	3500	Manual / no switch	9	2"	3.5"	20' SJTOW with NEMA plug	65 (29.5)
AGS0511PB					Piggyback float switch					
AGS0512			230		Manual / no switch	4.5				
AGS0512PB					Piggyback float switch					
AGS1011	1		115		Manual / no switch	11		4.25"		
AGS1011PB					Piggyback float switch					
AGS1012			230		Manual / no switch	5.5				
AGS1012PB					Piggyback float switch					
AGS2012	2		208-230		Manual / no switch	15	1.25"	5.69"	20' STOW with bare leads	96 (43.5)

*** part numbers with PB suffix include an A2E series mechanical float switch**

Performance curves

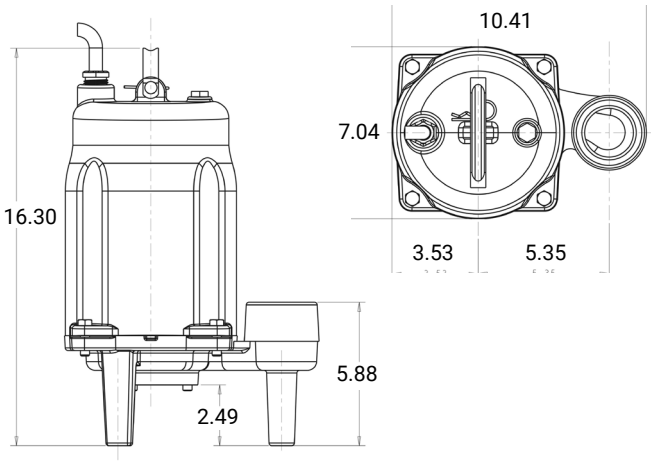


Motor data

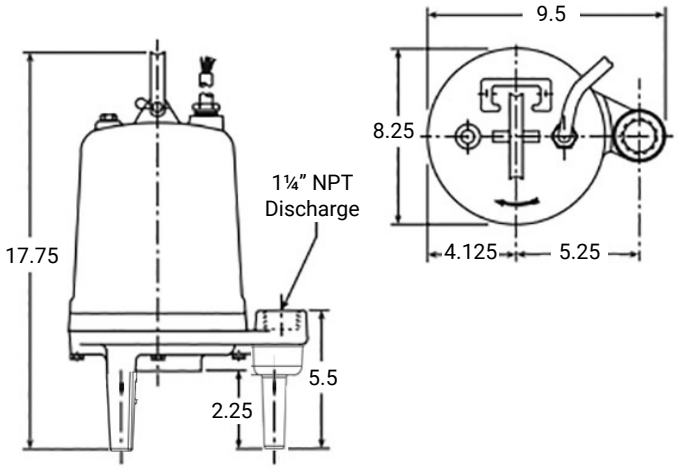
HP	Volts	Phase	RPM	Maximum amps	LRA	Resistance	Power cable	Fuse/circuit breaker
						Line-line		
0.5	115	1	3500	9	46	0.6	SJTOW 14/3	15
	230			4.5	25.5	2.6		10
1	115			11	46	0.6		15
	230			5.5	25.5	2.6		10
2	208-230			15	59	1.1	STOW 14/3	30

Dimensions (All dimensions are in inches. Do not use for construction purposes.)

AGS 0511, 0512 & 1011 (in inches)**:**



AGS 2012 (in inches)**:**



Application data

Minimum casing thickness	5/16"
Casing corrosion allowance	1/8"
Maximum working pressure	50 psi
Maximum submergence	50 feet
Minimum submergence	Fully submerged for continuous operation
	6" below top of motor for intermittent operation
Maximum environmental temperature	40ºC (104ºF) continuous operation
	60ºC (140ºF) intermittent operation
Maximum number of evenly distributed starts per hour	10
Bearings	B-10 life of 30,000 hours min.
Minimum basin size	Simplex – 24" x 24"
	Duplex – 36" x 36" fiberglass
2" Maximum discharge pipe diameter	Requires a minimum flow of 21 gpm to maintain a 2 ft./sec. scouring velocity

Standard parts

Ball bearing – upper	Single row ball – SKF 6203-2Z
Ball bearing – lower	Single row ball – SKF 6204-2Z
Mechanical seal	Silicon carbide/silicon carbide; Type 16
O-ring – motor cover	BUNA-N, AS 568A-166

Construction details

Power cable – type	14/3 SJTOW with NEMA Plug
	14/3 STOW with bare leads for 2HP
Motor cover	Gray cast iron - ASTM A48, Class 30
Bearing housing	Gray cast iron - ASTM A48, Class 30
Seal housing	Gray cast iron - ASTM A48, Class 30
Casing	Gray cast iron - ASTM A48, Class 30
Impeller	Gray cast iron - ASTM A48, Class 30
Motor shaft	AISI 300 series stainless steel
Motor design	NEMA 48 frame, oil filled with Class F insulation
Motor overload protection	On winding thermal protector - auto reset
External hardware	300 series stainless steel
Impeller type	Semi-opened with pump out vanes on back shroud
Cutter	Type 440C hardened stainless steel
Oil capacity – motor chamber	.57 gallons

Cutter assembly

8-hole cutting ring

3 lobe cutter

Standard panel options

Pump order number	K-series		Boulay series	
	Simplex	Duplex	Simplex	Duplex
AGS0511	KS19020WF	KD19020WF	S10020	D10020
AGS0512	KS19020WF	KD19020WF	S10020	D10020
AGS1011	KS19020WF	KD19020WF	S10020	D10020
AGS1012	KS19020WF	KD19020WF	S10020	D10020
AGS2012	KS19020WF	KD19020WF	S10020	D10020

Note: Boulay series part numbers have additional available features, see below for more information.

Note: K-series panel part numbers include floats, to order without float switches, remove the 'WF' suffix. Boulay series panels do not include float switches.

K-series

- NEMA 4X dead front outdoor rated enclosure
- Red LED alarm beacon
- HOA selector switch
- Field wiring terminal block
- Single phase models handle 120, 208 and 230V service
- Three phase models handle 200, 230 and 460V service
- Requires separate control/alarm power feed
- See brochure "BCPKSDPANELS" for additional information

Boulay series

- NEMA 4X outdoor rated enclosure
- Red alarm beacon
- HOA selector switch
- Through door pump run light(s)
- Through door alarm test and horn silence button
- Single phase models handle 120, 208 and 230V service
- Three phase models handle 200, 230, 460 and 575V service
- Accepts single or dual power feed
- See brochure "BCP3" for additional information on simplex models
- See brochure "BCP4" for additional information on duplex models

TECHNICAL BROCHURE
BRGS2012 R3

RGS2012

SUBMERSIBLE GRINDER PUMP

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Design: Capable of grinding domestic sewage in individual residential applications.

Cutter System: Anti-roping design. Two blade rotary cutter is threaded to shaft. Stationary cutter ring is reversible for extended service.

Impeller: Silicon bronze, semi-open, non-overloading two-vane design with pump-out vanes for mechanical seal protection. Balanced for smooth operation.

Casing: Cast iron, volute type for high efficiency. Adaptable for guide rail system.

Motor: Fully submerged in oil-filled chamber. High grade turbine oil surrounds motor for more efficient heat dissipation, permanent lubrication of bearings and mechanical seal, and protection against outside environment.

Motor Shaft: 300 series stainless steel, short overhang for minimum shaft deflection.

Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.

Bearings: Upper and lower ball bearings for precision positioning of parts and to carry all radial and thrust loads.

Mechanical Seal: Hardfaced Silicon carbide for longer life, stainless steel metal parts, BUNA-N elastomers.

Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking.

O-Ring: Assures positive sealing against contaminants and oil leakage.

Paint: Electro-coat paint process protects all casting surfaces.

May be used with optional guide rail. See Fittings or Pump Removal Systems.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

Underwriters Laboratories

APPLICATIONS

Designed for high head residential sewage applications where a gravity system is not practical. Ideal for pressure sewage systems.

SPECIFICATIONS

Pump:

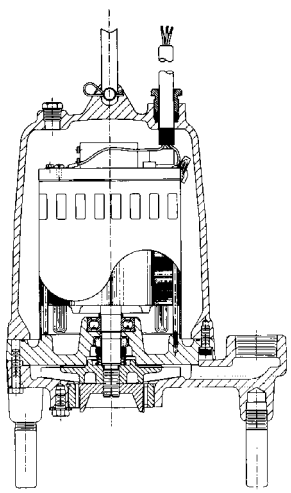
- Capacities: to 41 GPM
- Total heads: to 95' TDH
- Discharge: 1¼" NPT
- Temperature: 104°F (40°C) maximum continuous, 140°F (60°C) maximum intermittent
- Single mechanical seal: silicon carbide rotary/silicon carbide stationary, 300 series stainless steel metal parts, BUNA-N elastomers
- Fasteners: 300 series stainless steel
- Rotating cutter and cutter ring: 440 C hardened stainless steel

Motor:

- Single phase: 2 HP, 60 Hz, 3450 RPM, 208/230 V, capacitor start with on winding thermal protector. No external capacitor kits required.
- Class F insulation
- Shaft: 300 series stainless steel threaded design
- Bearings: ball bearings upper and lower

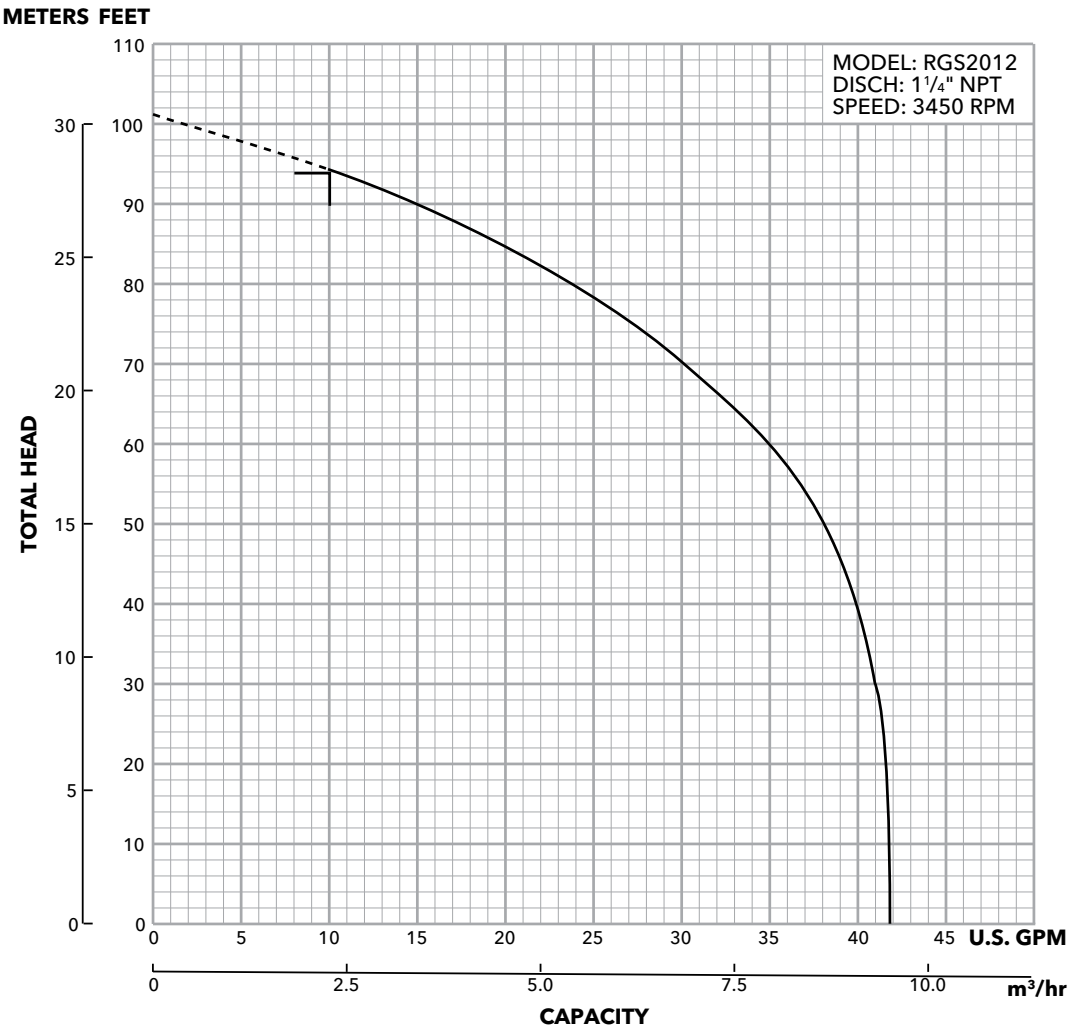
Power Cord with bare lead ends:

- Use for connections in a control panel or junction box
- Standard length 20', 14/3 STOW
- Optional lengths of 30', 50' and 100'



Power Cord with 230 V NEMA three prong grounding plug:

- P suffix equals a 20' long cord with plug
- PS suffix equals a 30' long cord with plug
- Allows direct connection to piggyback type float switch



= A 1¼" minimum discharge pipe requires a minimum flow of 10 gpm to maintain a 2 ft./sec. scouring velocity. Flows less than 10 gpm will allow solids to settle in the pipe.

MODEL INFORMATION

Order Number	HP	Volts	Phase	RPM	Operation	Discharge Size	Impeller Diameter (inches)	Maximum Amps	LRA	Power Cord	Weight (lbs.)
RGS2012	2	208/230	1	3450	Manual	1¼"	5.69"	15	59	20' with Bare Leads	75
RGS2012P										20' with 230 V Plug	
RGS2012PA					Automatic					20' with 230 V Plug and Float	76
RGS2012PS					Manual					30' with 230 V Plug	

A non-stock pump may be special ordered with optional legs by adding an "L" suffix to the Order Number. Example: RGS2012L, RGS2012SL, RGS2012PSL, etc. See "L" List Adder in price book.

MOTOR DATA

HP	Volts	Phase	RPM	Maximum Amps	LRA	Full Load Motor Efficiency	Resistance		Power Cable	Fuse/ Circuit Breaker
							Start	Line-Line		
2	208/230	1	3450	15	59	70	2.47	1.1	14/3	30

APPLICATION DATA

Minimum Casing Thickness	5/16"
Casing Corrosion Allowance	1/8"
Maximum Working Pressure	50 PSI
Maximum Submergence	50 feet
Minimum Submergence	Fully submerged for continuous operation
	6 " below top of motor for intermittent operation
Maximum Environmental Temperature	40°C (104°F) continuous operation
	60°C (140°F) intermittent operation
Maximum Number of Evenly Distributed Starts per hour	10
Bearings	B-10 life of 30,000 hours min.
Minimum Basin Size	Simplex – 24" x 36" Fiberglass
	Duplex – 36" x 36" Fiberglass
1¼" Minimum Discharge Pipe Diameter	Requires a minimum flow of 10 gpm to maintain a 2 ft./sec. scouring velocity
2" Maximum Discharge Pipe Diameter	Requires a minimum flow of 21 gpm to maintain a 2 ft./sec. scouring velocity

CONSTRUCTION DETAILS

Power Cable – type	14/3 STOW, single phase with bare leads
	14/3 STOW, with 230 V NEMA three prong grounding plug
Motor Cover	Gray cast iron - ASTM A48, Class 30
Bearing Housing	Gray cast iron - ASTM A48, Class 30
Seal Housing	Gray cast iron - ASTM A48, Class 30
Casing	Gray cast iron - ASTM A48, Class 30
Impeller	Cast silicon bronze - ASTM B584 C87600
Motor Shaft	AISI 300 series stainless steel
Motor Design	NEMA 48 frame, oil filled with Class F insulation
Motor Overload Protection	On winding thermal protector - auto reset
External Hardware	300 series stainless steel
Impeller Type	Semi-opened with pump out vanes on back shroud
Cutter	Two blades; type 440C hardened stainless steel
Oil Capacity – motor chamber	.88 gallons

STANDARD PARTS

Ball Bearing – upper	Single row ball – SKF 6203-2Z
Ball Bearing – lower	Single row ball – SKF 6204-2Z
Mechanical Seal	Silicon carbide/silicon carbide; Type 16
O-Ring – motor cover	BUNA-N, AS 568A-166

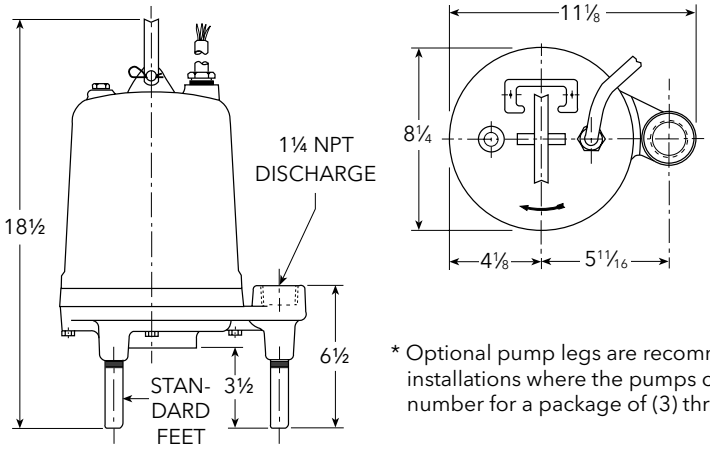
CUTTER ASSEMBLY

2-Blade Rotating Cutter

Reversible Cutter Ring

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



* Optional pump legs are recommended for poly or fiberglass basin installations where the pumps contact the basin floor. The order number for a package of (3) three optional pump legs is 4K639.

Standard Foot

Optional Pump Legs
Order No. 4K639
(Set of 3)

xylem
Let's Solve Water

TECHNICAL BROCHURE

B1GD R4

FEATURES

Single phase pumps now have built-in overload protection. See control panel note on page 3.

Impeller: Silicon bronze, multi-vane semi-open, with pump-out vanes for mechanical seal protection. Balanced for smooth operation.

Grinder Cutter System: The anti-roping design, hardened cutter is keyed to the motor shaft for positive drive. The cutter ring is specially designed to be reversed when the first side wears out thus doubling its life and reducing maintenance costs. The cutter system is designed and tested to pass items found in normal wastewater.

Casing: Heavy duty cast iron, volute type for maximum efficiency. Use with A10-12 guide rail system for ease of installation and maintenance.

Dual Mechanical Seals: Silicon carbide vs. silicon carbide outer seal and ceramic vs. carbon inner seal, stainless steel metal parts, BUNA-N elastomers. Upper and lower shaft seals are positioned independently and are separated by an oil-filled chamber. Optional Silicon/Tungsten Carbide outer seal available.

Optional Seal Sensor Probe: Located in oil-filled chamber. If pumpage should begin to leak past lower seal it indicates to pump control panel a fault has occurred. **Requires optional Seal Fail Circuit in the control panel.**

Fasteners and Pipe Plugs: 300 series stainless steel.

AGENCY LISTINGS

C SP US

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

1GD

SUBMERSIBLE GRINDER PUMP

DUAL SEAL WITH OPTIONAL SEAL SENSOR PROBE

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Designed for high head sewage applications where a gravity system is not practical. Ideal for pressure sewage systems.

SPECIFICATIONS

Pump:

- Solids handling capabilities: 3" maximum
- Discharge: 1¼" NPT removable flange
- Capacities: up to 46 GPM
- Total heads: up to 106 feet TDH

Motor:

- 2 HP, 3450 RPM, 60 Hz
- Class "F" insulation
- Rated for continuous duty fully submerged
- Maximum Fluid Temperature: 104° F continuous duty, 140° F intermittent duty

Single Phase:

- 208 or 230 volt
- Built-in, auto reset, on-winding motor overload

Three Phase:

- 200, 230, 460 or 575 volt
- Class 10 ambient compensated, overload protection required in control panel.

MOTORS

- Fully submerged in oil-filled chamber. High grade turbine oil surrounds motor for more efficient heat dissipation, permanent lubrication of bearings and mechanical seal for complete protection against outside environment.
- Class F insulation
  - Single Phase: 2 HP, 208 or 230 volt, 60 Hertz, 3450 RPM, 14/4 power cord. Motor has built-in overload with automatic reset. Start capacitor, run capacitor and starting relay are required and will be located in the control panel. See "Recommended Control Panels" in chart on this bulletin.
  - Three Phase: 2 HP, 200, 230, 460 or 575 V, 60 Hz, 3450 RPM. 14/4 STOW. Overload protection must be provided in starter unit.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits and can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction for precision positioning of parts and to carry thrust loads.
- Power (Sensor) Cables: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. 20 foot standard with optional lengths available.
- O-ring: Assures positive sealing against contaminants and oil leakage.
- Shaft: 300 series stainless steel, keyed design, short overhang for minimum shaft deflection.
- Pump is capable of running dry without damage to mechanical components.

NOMENCLATURE DESCRIPTION

1st, 2nd and 3rd Characters – Discharge Size and Type
1GD = 1¼" discharge, grinder, dual seal

4th Character – Mechanical Seals
5 = silicon carbide/silicon carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (standard)
3 = silicon carbide/tungsten carbide/BUNA – lower seal and carbon/ceramic/BUNA – upper seal (optional)

5th Character – Cycle/RPM
1 = 60 Hz/3500 RPM

6th Character – Horsepower
G= 2 HP

7th Character – Phase/Voltage
1 = single phase, 230 V
2 = three phase, 200 V
3 = three phase, 230 V
4 = three phase, 460 V
5 = three phase, 575 V
6 = three phase, 380 V
8 = single phase, 208 V

8th Character – Impeller Diameter
A = 5⅝", Standard
B = 5¼"
C = 4¾"
D = 4¼"

9th Character – Cord Length (Power and Sensor)
A = 20' (standard)
D = 30'
F = 50'
J = 100'

10th Character – Options
S = Seal fail, moisture sensing circuit[1]
E = Epoxy paint

Last Character – Option
H = Pilot duty thermal sensors[1] **(3 phase only!!)**

[1]These options add a 2-wire or 4-wire sensor cord to the pump and require optional control panel circuits to operate. See panel options on control panel bulletin BCP5.

MODEL AND MOTOR INFORMATION

Order No.	HP	Phase	Volts	RPM	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency	Resistance		Power Cord	Weight lbs.
								%	Start	Line-Line		
1GD51G1AA	2	1	230	3450	15.5	96.0	P	79.0	1.37	0.62	14/4 STOW 20' LONG	110
1GD51G8AA			208		17.5							
1GD51G2AA		3	200		14.0	44.8	J	81.0	NA	1.8		105
1GD51G3AA			230		12.0	37.4	D	81.4		2.8		
1GD51G4AA			460		6.0	18.7				11.1		
1GD51G5AA			575		4.8	14.0	J	83.2		18.0		

FEATURES *(continued)*

Effective with December 2005 (M05) Date Codes -

Single-Phase 1GD Pumps Contain a Built-in, Auto Reset Overload.

Important Control Panel Requirements and Notes:

1) See panel bulletin BCP5 for other available options.

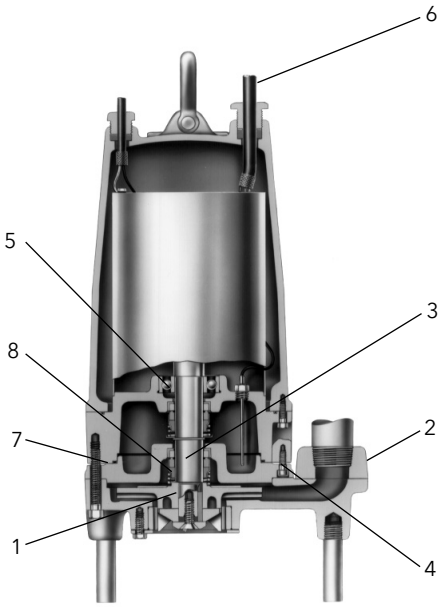
2) These pumps require a magnetic contactor, start and run capacitors and a starting relay in the control panel.

3) CP-1GDB Capacitor packs with starting relays are available on product bulletin BCPCAP. They are for certified panel shops to "build" into a custom panel. Field installing capacitor packs into a S10020 or D10020 will negate the UL listing on that panel and is therefore not permissible.

Pump Order No.	Pump Seal Fail Circuit	Voltage / Phase	Recommended Control Panel	
			Simplex	Duplex
1GD51G1A_	No	230 / 1	S1GD2	D1GD2
1GD51G8A_		208 / 1	S1GD2	D1GD2
1GD51G1A_S	Yes	230 / 1	S1GD2H	D1GD2J
1GD51G8A_S		208 / 1	S1GD2H	D1GD2J

MATERIALS OF CONSTRUCTION

Item No.	Part Name			Material			
				Standard			
1	Impeller, multi-vane			1179			
2	Castings			1003			
3	Shaft-Keyed			300 Series SS			
4	Fasteners			300 Series SS			
5	Ball bearings			Steel			
6	Power cable			STOW, 20 feet			
7	O-ring			BUNA-N			
8	**Outer Mech. Seal**	**No.**	**Service**	**Rotary**	**Stationary**	**Elas-tomers**	**Metal Parts**
	OPT	10K22	Heavy duty	Silicon Carbide	Tungsten Carbide	BUNA-N	300 Series SS
	STD	10K28	Mild abrasives	Silicon Carbide		BUNA-N	300 Series SS
	Material Code			**Engineering Standard**			
	1003			Cast iron – ASTM A48 Class 30			
	1179			Silicon bronze – ASTM C87600			



APPLICATION DATA

Maximum Solid Size	N/A
Minimum Casing Thickness	5/16"
Casing Corrosion Allowance	1/8"
Maximum Working Pressure	50 PSI
Maximum Submergence	50 feet
Minimum Submergence	Fully submerged for continuous operation
	6" below top of motor for intermittent operation
Maximum Environmental Temperature	40°C (104°F) continuous operation
	60°C (140°F) intermittent operation

CONSTRUCTION DETAILS

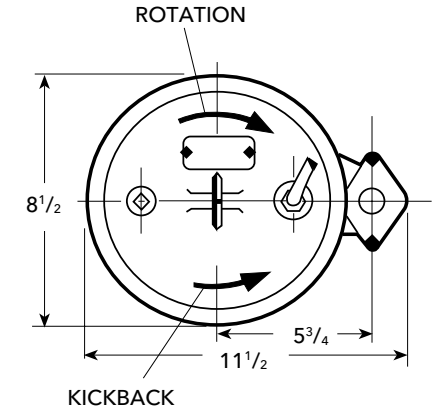
Power Cable – Type	14/3, type SJTOW: single phase
	14/4, type STOW: single phase
	14/4, type STOW: all three phase
Sensor Cable – Type	16/2, type SJTOW: heat sensor or seal fail only
	18/4, type SJTOW: seal/heat sensor
Motor Cover	Gray Cast Iron – ASTM A48 Class 30
Bearing Housing	Gray Cast Iron – ASTM A48 Class 30
Seal Housing	Gray Cast Iron – ASTM A48 Class 30
Casing	Gray Cast Iron – ASTM A48 Class 30
Impeller	Cast Bronze – ASTM B584 C87600
Motor Shaft	AISI 300 Series Stainless Steel
Motor Design	NEMA 56 Frame, oil filled with Class F Insulation
Optional: Motor Seal Fail (Moisture) Detection	Seal fail sensor in an oil-filled seal chamber. Connect to an optional relay in control panel.
Optional: Motor Thermal Protection 1Ø and 3Ø	Normally closed on-winding thermostats open at 275° F (135 °C) and close at 112° F (78° C). Require terminal connection in the control panel.
Motor Overload Protection	Single Phase: Built-in, auto reset overload
	Three Phase: require ambient compensated Class 10 protection in the control panel.
External Hardware	300 Series Stainless Steel
Impeller Type	Semi-open with pump out vanes on back shroud
Cutter	Two blades; type 440C stainless steel
Oil Capacity – Seal Chamber	1.5 quarts
Oil Capacity – Motor Chamber	4.5 quarts

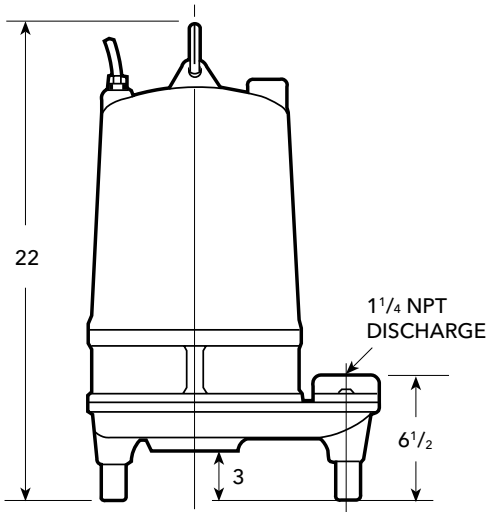
STANDARD PARTS

Ball Bearing – Upper	Single row ball– SKF™ 6203-2Z
Ball Bearing – Lower	Single row ball – SKF™ 6206-2Z
Mechanical Seals – Standard	Carbon/Ceramic; Upper
	Silicon Carbide/Silicon Carbide - Lower
Mechanical Seals – Optional	Silicon Carbide/Tungsten Carbide - Lower
O-Ring – Stuffing Box	BUNA-N, AS 568A-256
O-Ring – Motor Cover	BUNA-N, AS 568A-166

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



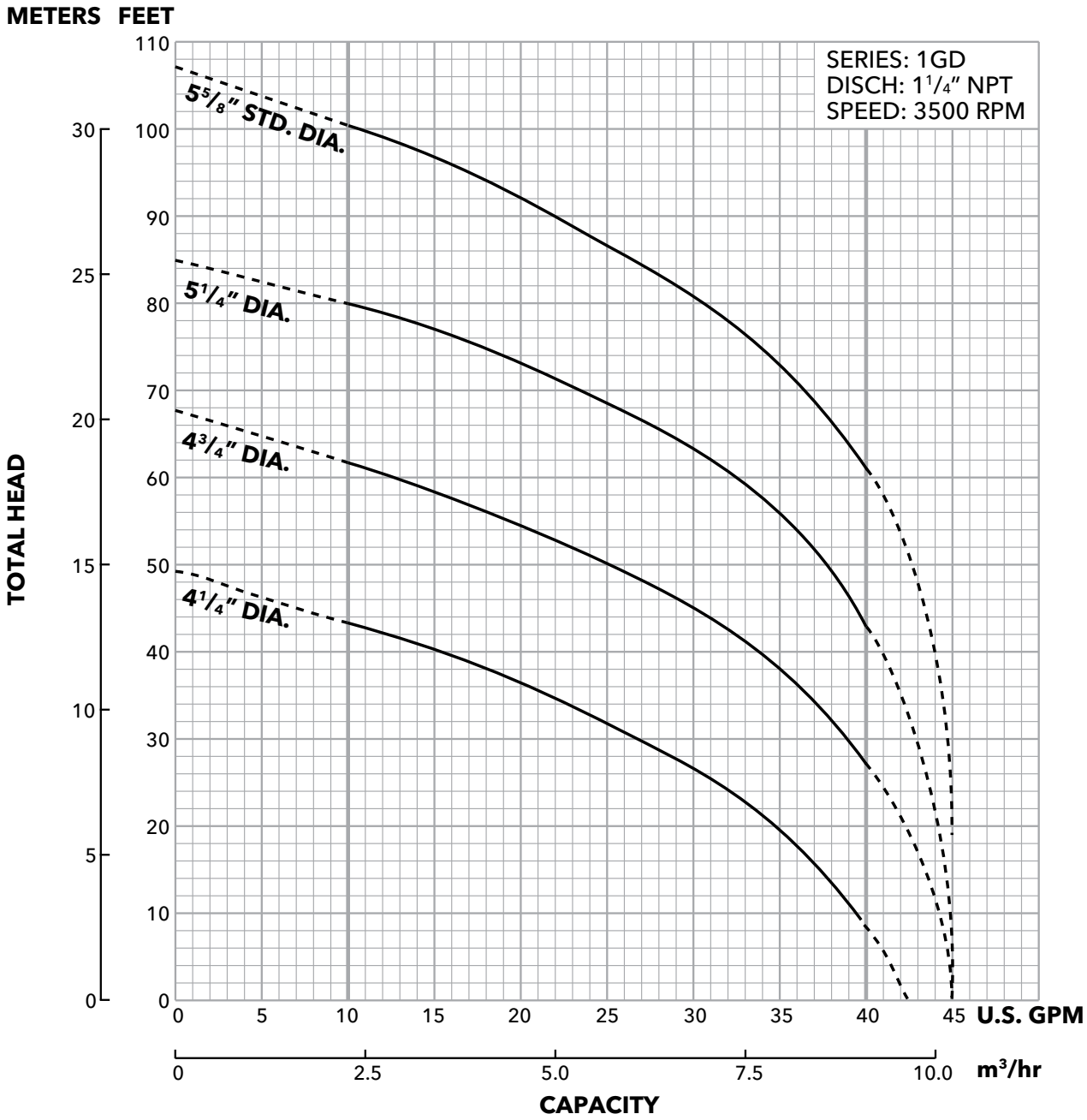


Standard Foot

Optional Pump Legs
Order No. 4K639
(Set of 3)

1GD Submersible Grinder Pump

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED



┐ = A 1¼" minimum discharge pipe requires a minimum flow of 10 gpm to maintain a 2 ft./sec. scouring velocity. Flows less than 10 gpm will allow solids to settle in the pipe.

TECHNICAL BROCHURE
B1GA2GA R9

FEATURES

Design: Capable of grinding municipal, commercial and industrial sewage.

Cutter System: Designed to reduce sewage to a fine slurry.

Impeller: Cast iron, semi-open, non-overloading multi-vane design with pump-out vanes for mechanical seal protection.

Casing: Cast iron, volute type for high efficiency. Adaptable for slide rail system.

Paint: Two coat paint system for superior surface protection.

Float Leakage Sensor (FLS): a small internal float switch is used to detect the presence of water in the stator chamber. Standard on all models.

Leakage Sensor Detector Circuit: The FLS, when activated, will cause the patented 24 volt MiniCAS monitoring relay to signal an alarm and, if desired, stop the pump. The MiniCAS 24 volt relay can be ordered separately for installation in a control panel by a UL or CSA certified panel shop or as a built-in option in our control panel.

1GA(X) & 2GA(X)

1½" AND 2" DISCHARGE SUBMERSIBLE GRINDER PUMPS

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

High head and pressure sewage systems for:

- Municipal
- Commercial
- Industrial

PUMP SPECIFICATIONS

1GA:

- Discharge Size: 1½"
- Maximum Capacity: 92 GPM.
- Maximum Total Head: 117' TDH.

2GA:

- Discharge Size: 2"
- Maximum Capacity: 198 GPM.
- Maximum Total Head: 178' TDH.
- Maximum temperature rating: 104° F (40° C) continuous duty
- Tandem mechanical seals: see Application Data for details.
- Fasteners: 300 series stainless steel.
- Rotating cutter: chrome alloyed cast iron.
- Cutter ring: hardened 316L stainless steel.
- Cast iron parts are ASTM A-48, Class 35B.

MOTOR SPECIFICATIONS

- Air-filled design
- NEMA type B
- Class F insulation
- 60 Hertz
- Shaft: 431 series stainless steel, taper collet design.
- Ball bearings: oversized, pre-greased upper and lower ball bearings.
- Power cord: 30 feet standard, single jacket, 6 conductor combination power and control cable. Optional 100 foot lead is available.

Single Phase:

- 3 HP @ 3450 RPM
- 5.4 HP @ 3450 RPM
- 9.4 HP @ 3450 RPM
- 230 Volts

Notice: Single phase pumps require a capacitor pack and start relay for proper operation.

Three Phase:

- 4 HP @ 3450 RPM
- 6 HP @ 3450 RPM
- 11 HP @ 3450 RPM
- 200, 230, 460 and 575 Volts

MOTOR FEATURES

- Air-filled, NEMA type B squirrel cage induction motor
- Class F, 311° F (155° C) insulated stator winding
- Designed for a maximum of 15 evenly spaced starts per hour.
- Built-in thermal sensors provide an over temperature signal to the Mini CAS (Control and Status) monitoring relay mounted in the control panel. The Mini CAS can be ordered separately or ordered as an option in our control panel.
- Common pump motor shaft and compact seal design permit short overhang minimizing shaft deflection.
- Motor casings have integral cooling ribs for maximum heat dissipation.
- Shaft mounting is a robust maintenance free design featuring pre-greased ball bearings.
- The junction chamber is completely sealed off from the surrounding liquid and incorporates a separate gland assembly with a strain relief clamp.
- Also available in optional Explosion Proof construction. Explosion Proof motor listed Class 1, Division 1, Groups C and D. These units are FM approved.

CONTROLS

- SINGLE PHASE UNITS require capacitors. See panels BCP5 R13 for Standard Construction and Explosion Proof.
- THREE PHASE UNITS can use standard panel selections with option added for minicas device (i.e. options O, simplex and P, duplex).

MODEL INFORMATION

Order Number	HP	Phase	Volts	RPM	Discharge Size	Impeller Code	Max. Amps	Start Amps	Locked Rotor Amps	Power Cable Size	Pump Wt. (Lbs.)
1GA71G1HD	3	1	230	3450	1½"	H	13.0	74.0	52.0	14/7	117
1GA71G1LD						L					
1GA81H1GD	5.4					G	22.0	120.0	100.0	12/7	172
2GA81H1KD					2"	K					
2GA31J1FD	9.4			3430		F	38.0	134.0	170.0	8/4 & 10/3*	241
2GA31J1JD						J					
1GA71H2CD	4	3	200	3450	1½"	C	12.0	63.0	62.0	14/7	117
1GA71H3CD			230				10.0	60.0	54.0		
1GA71H4CD			460				5.0	30.0	27.0		
1GA71H5CD			575				4.0	20.0	22.0		
1GA81J2BD	6		200			B	17.0	133.0	79.0	12/7	172
1GA81J3BD			230				15.0	144.0	75.0		
1GA81J4BD			460				7.6	77.0	41.0		
1GA81J5BD			575				6.0	53.0	30.0		
2GA81J2ED			200		2"	E	17.0	133.0	79.0		
2GA81J3ED			230				15.0	144.0	75.0		
2GA81J4ED			460				7.6	77.0	41.0		
2GA81J5ED			575				6.0	53.0	30.0		
2GA31K2AD	11		200	3475		A	30.0	258.0	189.0	8/4 & 10/3*	241
2GA31K3AD			230				26.0	229.0	164.0		
2GA31K4AD			460				13.0	113.0	82.0		
2GA31K5AD			575				11.0	84.0	66.0		
2GA31K2DD			200			D	30.0	258.0	189.0		
2GA31K3DD			230				26.0	229.0	164.0		
2GA31K4DD			460				13.0	113.0	82.0		
2GA31K5DD			575				11.0	84.0	66.0		

* Single cable

NOMENCLATURE

1st, 2nd and 3rd Characters – Discharge Size and Type
1GA = 1½" discharge, grinder, dual seal
2GA = 2" discharge, grinder, dual seal

4th Character – Mechanical Seals
3 = tungsten carbide/tungsten carbide lower, carbon/ceramic upper
7 = ceramic/ceramic lower, carbon/ceramic upper
8 = tungsten carbide/ceramic lower, carbon/ceramic upper

5th Character – Cycle/RPM
1 = 60 Hz/3500 RPM

6th Character – Horsepower
G = 3 HP, 1Ø
H = 5 HP, 1Ø; 4 HP 3Ø
J = 9.4 HP, 1Ø; 6 HP 3Ø
K = 11 HP, 3Ø

7th Character – Phase and Voltage
1 = single phase, 230 volt
2 = three phase, 200 volt
3 = three phase, 230 volt
4 = three phase, 460 volt
5 = three phase, 575 volt

8th Character – Performance Curve
A = 11 HP / 3Ø / 2GA
B = 6 HP / 3Ø / 1GA
C = 4.0 HP / 3Ø / 1GA
D = 11 HP / 3Ø / 2GA
E = 6 HP / 3Ø / 2GA
F = 9.4 HP / 1Ø / 2GA
G = 5.4 HP / 1Ø / 1GA
H = 3 HP / 1Ø / 1GA
J = 9.4 HP / 1Ø / 2GA
K = 5.4 HP / 1Ø / 2GA
L = 3 HP / 1Ø / 1GA

Impeller trims not available.

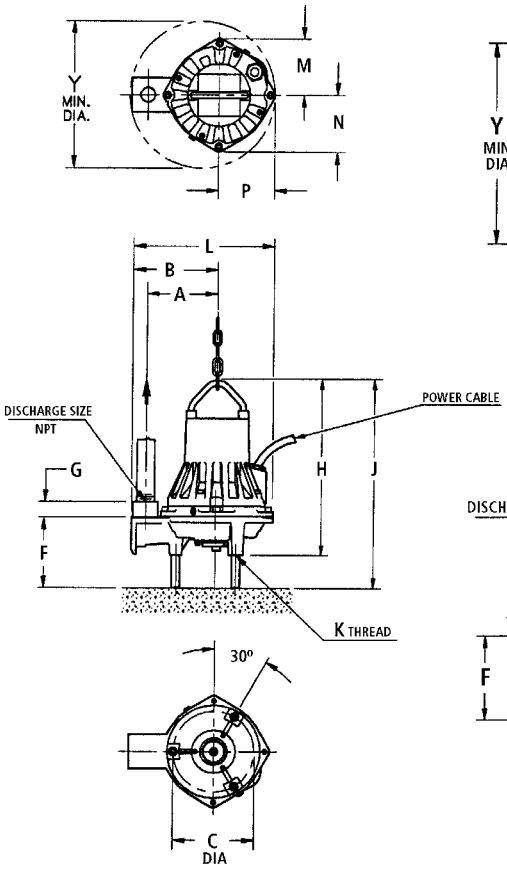
9th Character – Cord Length
D = 30' (standard)
J = 100'

10th Character – Explosion Proof Option
X = Explosion Proof

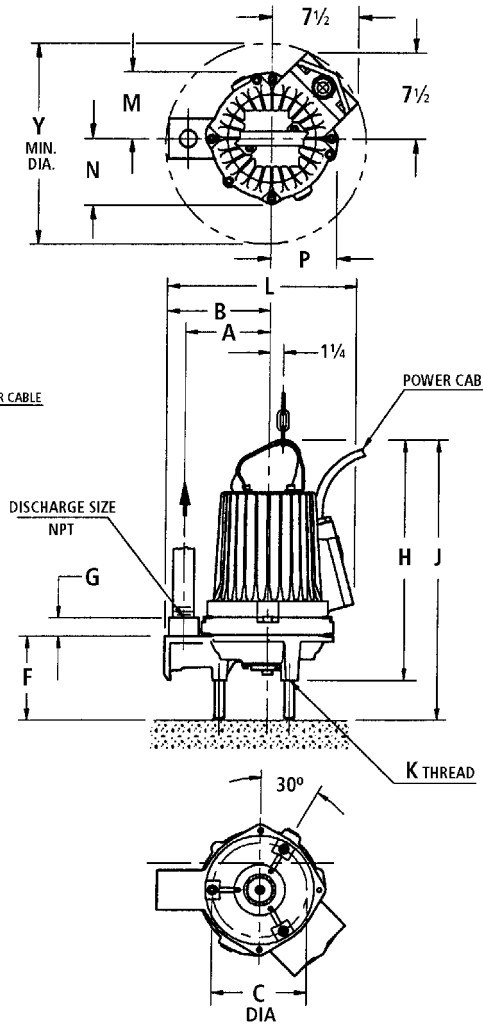
1GA & 2GA

1½" AND 2" DISCHARGE – SUBMERSIBLE GRINDER PUMPS

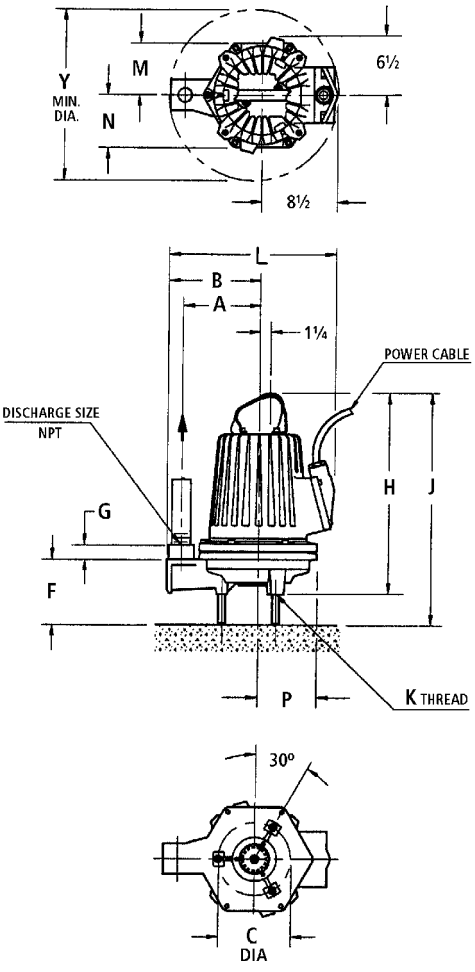
DRAWING 1



DRAWING 2



DRAWING 3



See Dimension Chart on back.

DIMENSIONS (All dimensions are in inches. Do not use for construction purposes.)

Drawing Number	Pump Series	HP	Phase	Disch. Size	A	B	C	F	G	H	J	K	L	M	N	P	Y	Wt. (lbs.)
1	1GA	3	1	1.5"	7.0	8.75	7.94	7.25	1.5	17.5	20.5	M16	14.25	5.5	5.5	5.5	14.5	117
		4	3															
2		5.4	1			8.5		7.0		20.5	23.75		16.0				17.5	172
		6	3															
2	2GA	5.4	1	2"	7.5	9.0	7.94	7.0	1.5	20.5	23.75	M16	16.5	5.5	5.5	5.5	17.5	172
		6	3															
3		9.4	1		8.5	10.0		7.25		22.0	25.5		18.5	5.75	5.75	6.5	18.5	241
		11	3															

1GA & 2GA

1½" AND 2" DISCHARGE – SUBMERSIBLE GRINDER PUMPS

MOTOR DATA

Model	HP	Phase	Volts	RPM	Maximum Amps	Service Factor	Start Amps	Locked Rotor Amps	KVA Code	Full Load Motor Eff.
1GA71G1HD	3	1	230	3500	13.0	1.5	74.0	52.0	D	77.1
1GA71G1LD										
1GA81H1GD	5.4				22.0	1.8	120.0	100.0	E	80.0
2GA81H1KD										
2GA31J1FD	9.4				38.0	1.88	134.0	170.0	D	79.5
2GA31J1JD										
1GA71H2CD	4	3	200		12.0	1.33	63.0	62.0	F	81.5
1GA71H3CD			230		10.0		60.0	54.0		
1GA71H4CD			460		5.0		30.0	27.0		
1GA71H5CD			575		4.0		20.0	22.0		
1GA81J2BD	6		200		17.0	1.2	133.0	79.0		79.5
1GA81J3BD			230		15.0		144.0	75.0		
1GA81J4BD			460		7.6		77.0	41.0		
1GA81J5BD			575		6.0		53.0	30.0		
2GA81J2ED			200		17.0		133.0	79.0		
2GA81J3ED			230		15.0		144.0	75.0		
2GA81J4ED			460		7.6		77.0	41.0		
2GA81J5ED			575		6.0		53.0	30.0		
2GA31K2AD	11		200		30.0	1.47	258.0	189.0	G	84.5
2GA31K3AD			230		26.0		229.0	164.0		
2GA31K4AD			460		13.0		113.0	82.0		
2GA31K5AD			575		11.0		84.0	66.0		
2GA31K2DD			200		30.0		258.0	189.0		
2GA31K3DD			230		26.0		229.0	164.0		
2GA31K4DD			460		13.0		113.0	82.0		
2GA31K5DD			575		11.0		84.0	66.0		

APPLICATION DATA

Maximum Solid Size	N/A
Minimum Casing Thickness	5/16"
Casing Corrosion Allowance	1/8"
Maximum Working Pressure	80 PSI
Maximum Submergence	65 feet
Minimum Submergence	Top of motor dome
Maximum Environmental Temperature	40°C (104°F) continuous operation

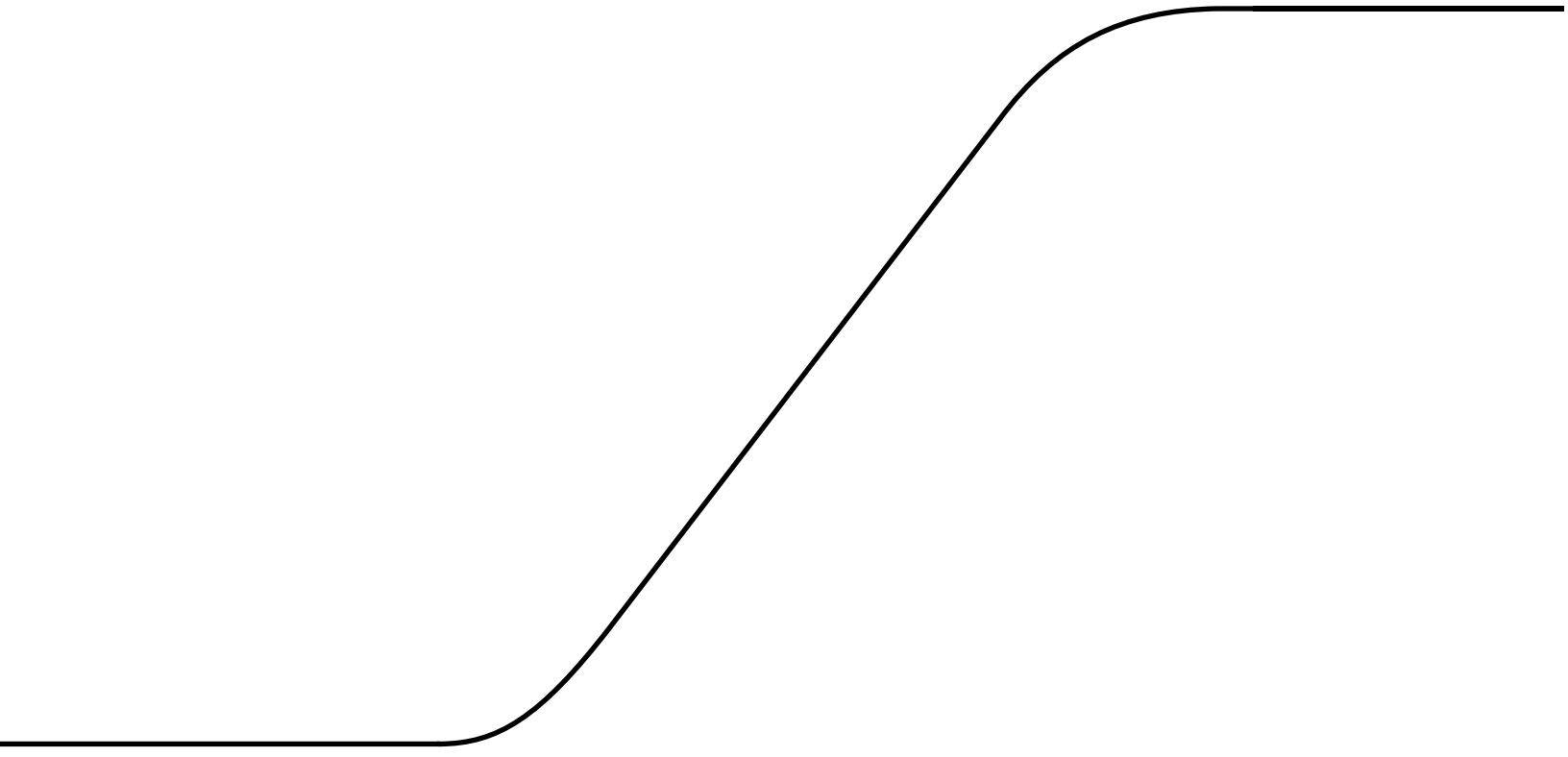
CONSTRUCTION DETAILS

Power Cable – Type	1Ø	14/7 - 2HP, 12/7 - 3HP, 8/4 & 10/3 - 5HP SUBCAB (Single Cable)
	3Ø	14/7- 3HP, 12/7- 5HP, 8/4 & 10/3 - 7.5HP SUBCAB (Single Cable)
Motor Housing		Gray Cast Iron – ASTM A48-Class 35B
Bearing Housing		Gray Cast Iron – ASTM A48-Class 35B
Seal Housing		Gray Cast Iron – ASTM A48-Class 35B
Casing		Gray Cast Iron – ASTM A48-Class 35B
Impeller		Gray Cast Iron – ASTM A48-Class 35B
Motor Shaft		AISI 431 Stainless Steel
Motor Design		Air filled, Permanently Lubricated, Class F Insulation
Motor Overload Protection		Single and Three Phase require ambient compensated Class 10, quick-trip overloads in the control panel
Float Leakage Sensor (FLS) (Seal Sensor)		Detects the presence of water in the stator chamber. Connect to a Leakage Sensor Detector Circuit containing a patented Mini CAS (Control and Status) monitoring unit mounted in the control panel.
Motor Thermal Protection		Normally closed on-winding thermostats open at 260° F (125° C) and close at 158° F (70° C). Connect to patented Mini CAS in control panel.
External Hardware		300 Series stainless steel
Impeller Type		Semi-open with pump out vanes on back shroud
Rotating Cutter		Two blades; chrome alloyed cast iron
Cutter Ring		Hardened 316L Stainless Steel

STANDARD PARTS

Ball Bearing – upper	Single row ball
Ball Bearing – lower	Double row angular contact ball
Mechanical Seals *(See Nomenclature page, 11th Character)*	Lower - Tungsten Carbide/Tungsten Carbide, Upper - Carbon/Ceramic
	Lower - Ceramic/Ceramic, Upper - Carbon/Ceramic
	Lower - Tungsten Carbide/Ceramic, Upper - Carbon/Ceramic
O-Ring – bearing housing	BUNA-N
O-Ring – motor housing	BUNA-N

Package systems



xylem
Let's Solve Water

TECHNICAL BROCHURE
BSDS1 R2

SDS1

SINK DRAIN SYSTEM

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

FEATURES

Fully assembled (individually cartoned)

Capable of running dry without damage to components

Severe duty rated oil and water resistant power cable

APPLICATIONS

- Laundry tray
- Wet bar sink
- Air conditioning condensate or dehumidifier water
- Residential dishwashers
- Beautician sink

ASSEMBLED COMPONENTS

EP0411, 0.4 HP, ¾" solids handling pump is CSA listed

CSA listed pump

A2H11 Vertimaster vertical level switch with 10 foot cord and piggyback plug is UL and CSA listed

10 gallon structural foam basin and cover

1½" NPT threaded vent, discharge and inlet connections

1½" schedule 40 PVC discharge pipe (internal)

SPECIFICATIONS

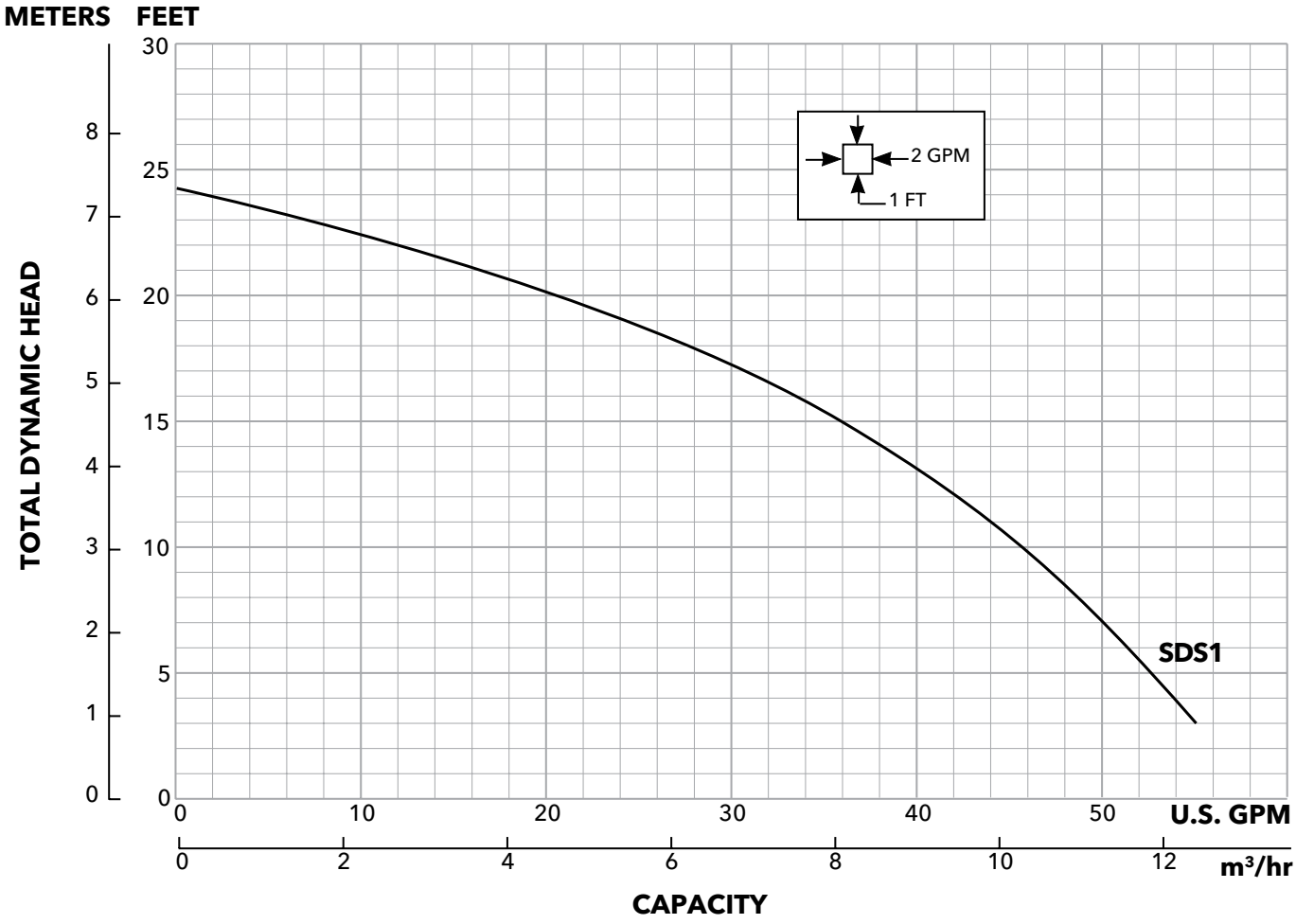
- 0.4 HP, 115 V, 1 PH, 1550 RPM, with 10' cord
- Maximum Amps: 12
- ¾" maximum solids handling
- Capacities: up to 55 GPM
- Total heads: up to 24 feet
- Built in overload with automatic reset

AGENCY LISTINGS

C SA US

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

PERFORMANCE CURVES

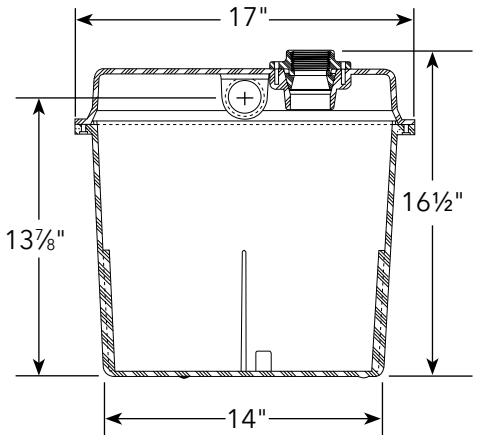


PERFORMANCE RATINGS

Total Head (feet of water)	GPM
5	53
10	46
15	36
20	21
22.5	10

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



GOULDS WATER TECHNOLOGY
xylem

TECHNICAL BROCHURE
GWT-GWPSERTB-4000024 R1

A9-2PH

A9-2P

GWP Series

ASSEMBLED WASTEWATER PACKAGES

xylem
Let's Solve Water

DESCRIPTION

The GWP Basin series is fully assembled at the factory for simplified installation. The structural foam cover is strong and corrosion resistant. Vent grommets for both 2" and 3" vents are provided, adding system flexibility and reduced inventory. The GWP features a thermoplastic 4" uniseal inlet grommet. Factory preset mechanical float switch for dependable automatic operation. The basin torque stop insert stabilizes the pump during startup. Schedule 40, 2" PVC discharge pipe with 1⁄8" bleed hole is factory installed.

FEATURES

Choice of Pumps

- PV Vortex
- PS Non-clog
- WW05 Vortex

Choice of Basins

- Ribbed 23x30 Polyethylene Basin
- Roll Top 18x30 Polyethylene Basin

Choice of Swing Type 2” Check Valve

- A9-2PH rubber sleeve type
- A9-2P compression type

SPECIFICATIONS

23 x 30 — Basin: Ribbed polyethylene basin

- Usable capacity: 24.8 gallons
- Dimensions: 23" w x 30" h
- Inlet: 4" inlet hub

18 x 30 — Basin: Roll top polyethylene basin

- Usable capacity: 14 gallons
- Dimensions: 18" w x 30" h
- Inlet: 4" inlet grommet

APPLICATIONS

- Basement bathrooms
- Home remodels
- Sewage lift stations
- Areas where wastewater must be removed quickly, quietly, and efficiently

PACKAGE WITH 18X30 BASIN

Package Order Number	Pump	Volts	Basin	Cover	Check Valve	Discharge Pipe
GWP2211	PS51P1F	115	Roll Top Polyethylene 18" Diameter x 30" High with 4” Inlet Grommet and Pump Torque Stop Insert	18" Structural Foam Cover with Bolts, Sealing Tape and (2) 2" and(1) 3" Vent and Discharge Grommets	A9-2P 2" Compression Type	2" Diameter x 30" Long Schedule 40 PVC Discharge Pipe
GWP2241	PV51P1F					
GWP2231	WW0511AC					
GWP2111	PS51P1F				A9-2PH 2"Rubber Sleeve Type	
GWP2141	PV51P1F					
GWP2131	WW0511AC					
GWP2142	PV52P1F	230				

PACKAGE WITH 23X30 BASIN

Package Order Number	Pump	Volts	Basin	Cover	Check Valve	Discharge Pipe
GWP1211	PS51P1F	115	Ribbed Polyethylene 23" Diameter x 30" High with 4"Slip Type Inlet Hub and Pump Torque Stop Insert	18"Structural Foam Cover with Bolts, Sealing Tape and (2) 2" and(1) 3" Vent and Discharge Grommets	A9-2P 2" Compression Type	2"Diameter x 30" Long Schedule 40 PVC Discharge Pipe
GWP1241	PV51P1F					
GWP1231	WW0511AC					
GWP1111	PS51P1F				A9-2PH 2"Rubber Sleeve Type	
GWP1141	PV51P1F					
GWP1131	WW0511AC					
GWP1142	PV52P1F	230				

PUMP INFORMATION

Pump	HP	Volts	Max Amps	Min Circuit Breaker	Phase	Impeller Type	Float	Power Cord Length	Discharge Connec-tion	Max Solids
PS51P1F	0.5	115	13	20	1	Semi-Open	Piggyback Wide Angle	20’	2”	2”
PV51P1F						Vortex				
WW0511AC						Vortex				
PV52P1F		230	6.5	15		Vortex				

[1] Information on individual basin components for "replacement parts" may be found in the Basin Section, kit numbers CWK11, CWK12, CWK21, CWK22 and CWK23.

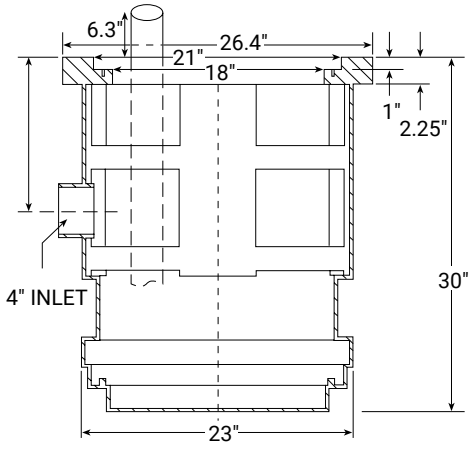
[2] Additional pump information may be found on the pump bulletin

NOMENCLATURE

Character	Code		
1-3	GWP	Assembled Vortex Wastewater Package	
4 and 5	11	23" x 30" Ribbed basin with A9-2PH check valve	
	12	23" x 30" Ribbed basin with A9-2P check valve	
	21	18" x 30" Poly basin with A9-2PH check valve	
	22	18" x 30" Poly basin with A9-2P check valve	
6 and 7	11	PS51P1F	20’ Piggyback wide angle
	41	PV51P1F	
	31	WW0511AC	
	42	PV52P1F	

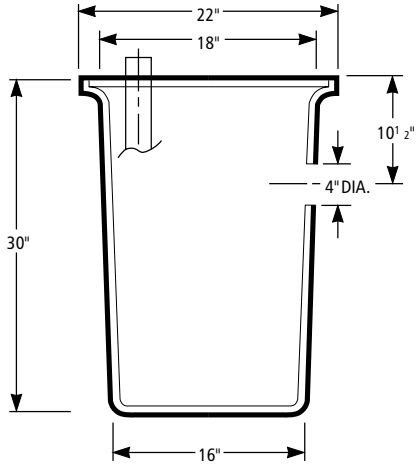
DIMENSIONS

Ribbed 23 x 30 Basin Dimensions



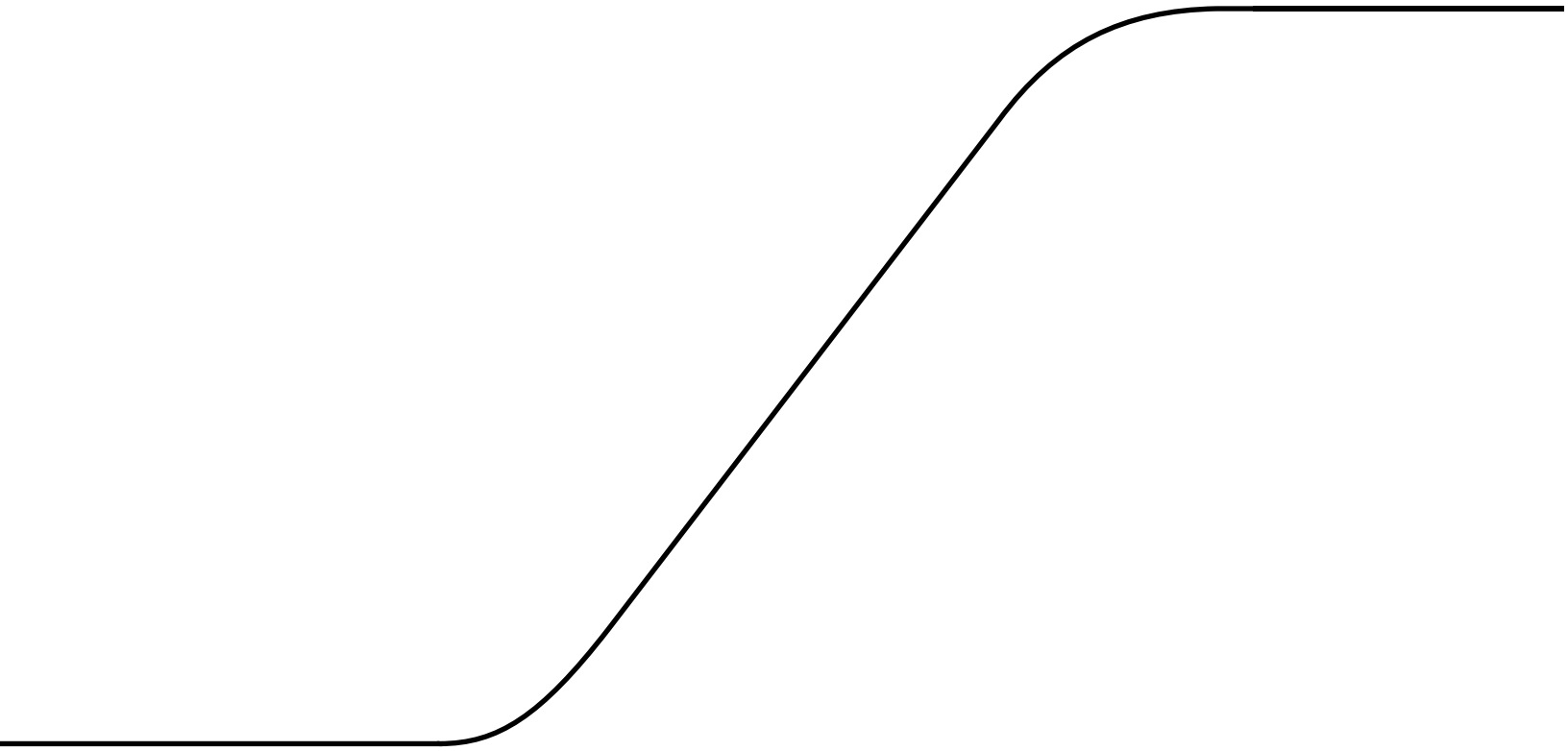
For additional basin kit data, see basin bulletins BCPCWK11.

Roll Top 18 x 30 Basin Dimensions



For additional basin kit data, see basin bulletins BCPCWK21.

Pre-designed basin packages



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TECHNICAL BROCHURE

TYPICAL GUIDE RAIL BASIN KIT

TYPICAL SWITCH

S10020 NEMA 4X OUTDOOR CONTROL PANEL

FEATURES

Pump: BGPGS R4

Capacities: to 41 GPM, Total Heads: to 95' TDH

Discharge: 1¼" NPT

Temperature: 104° F continuous, 140° F intermittent.

Single mechanical seal: silicon carbide rotary/silicon carbide stationary, 300 series stainless steel metal parts, BUNA-N elastomers.

Rotating cutter and cutter ring: 440 C stainless steel, hardened to 55 – 60 Rockwell C.

Motor:

Single phase: 2 HP, 60 Hz, 3450 RPM, 208/230V, capacitor start with on winding thermal protector.

Class F insulation

Shaft: 300 series stainless steel threaded design.

Bearings: ball bearings upper and lower.

Power cord: 20 feet standard 14/3 STOW.

See BRGS2012 pump bulletin for additional data.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

RGS

GRINDER PACKAGES

BUILT IN THE USA
ENGINEERED, ASSEMBLED & TESTED

GOULDS WATER TECHNOLOGY
a xylem brand

Pump/ Control Kit	Order No.	Description	
Simplex	SIMRGSKTN4*	(1) RGS2012	2HP, 230 V, single phase, pump
		(1) S10020	Simplex outdoor control panel
		(3) A2D23W	Mechanical level switch
		4K639	Cast iron pump leg (set of 3)
Duplex	DUPRGSKTN4*	(2) RGS2012	2 HP, 230 V, single phase, pump
		(1) D10020	Duplex outdoor control panel
		(3) A2D23W	Mechanical level switch
		4K639	Cast iron pump leg (set of 3)

* For indoor panel delete suffix "N4", SIMRGSKT includes a S10020N1 panel. DUPGRSKT includes a D10020N1 panel.

GRINDER PUMP PACKAGES

A complete simplex or duplex installation consists of a simplex or duplex pump kit AND a simplex or duplex basin kit.

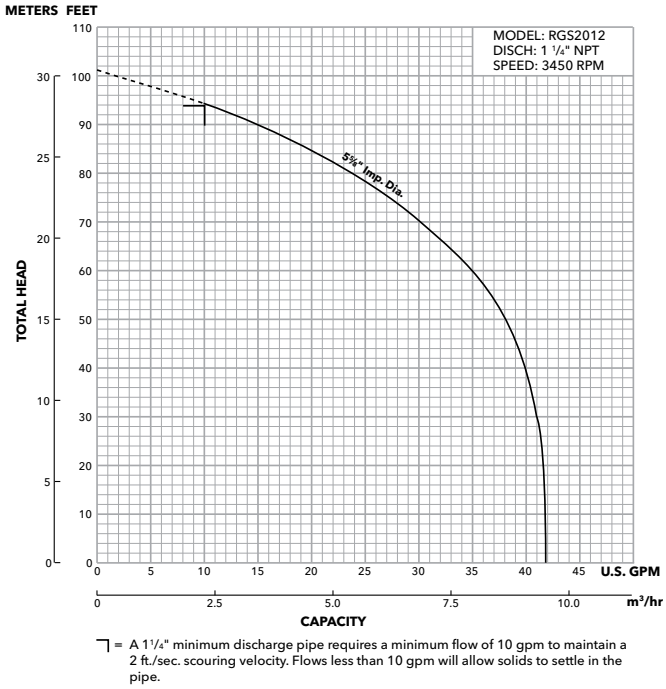
Choose the simplex or duplex basin kit from the chart on the following pages to best suit your installation needs and make sure it is included in your order.

Both pump/control kit and basin kit must be ordered for a complete installation.

PUMP AND CONTROL DATA

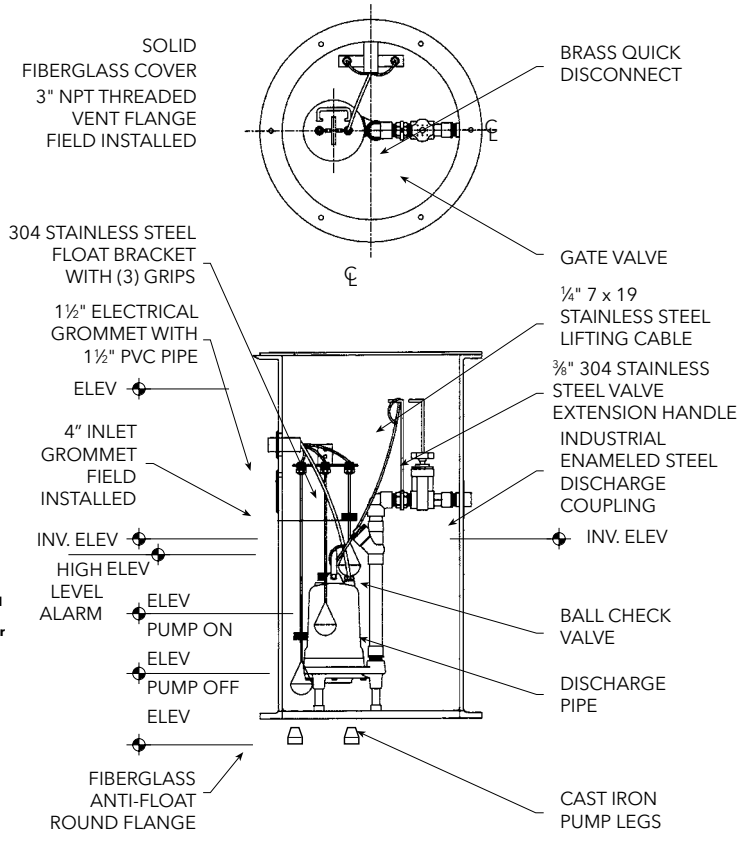
Component	HP	Volts	Phase	RPM	Maximum Amps	LRA	Full Load Motor Efficiency	Resistance		Power Cable	Fuse/ Circuit Breaker	Weight (lbs.)
								Start	Line-Line			
RGS2012	2	208/230	1	3450	15	59	70	2.47	1.1	14/3	30	75

S10020	Simplex Outdoor N4X Panel	20 Maximum Amps
S10020N1	Simplex Indoor N1 Panel	20 Maximum Amps
D10020	Duplex Outdoor N4X Panel	20 Maximum Amps
D10020N1	Duplex Indoor N1 Panel	20 Maximum Amps



= A 1¼" minimum discharge pipe requires a minimum flow of 10 gpm to maintain a 2 ft./sec. scouring velocity. Flows less than 10 gpm will allow solids to settle in the pipe.

TYPICAL INSTALLATION



BASIN KITS *(Each pump kit requires one of the following basin kits to complete the Residential Pump Package.)*

* Basins are not pre-drilled for 1.5" electrical grommet or for 4" inlet grommet. Parts are shipped loose. Installer must drill holes for grommets.

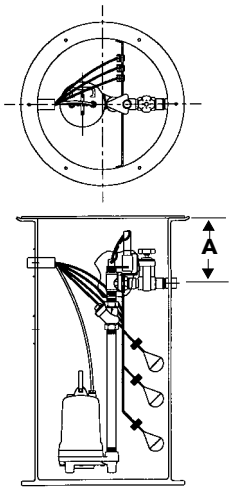
Guide Rail Equipped Basin Installation *(pump is suspended by its discharge)*

Simplex

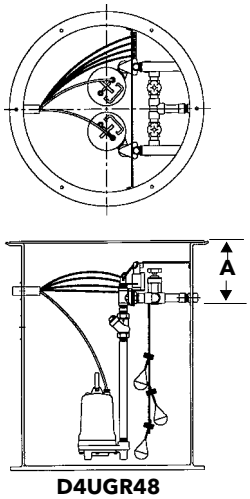
- 24" diameter fiberglass basin with integral anti-floatation ring.
- Stainless steel hardware.
- Grass green solid fiberglass cover.
- 1.5" electrical grommet. *
- 4" inlet grommet. *
- Brass quick disconnect coupling.
- Schedule 40 galvanized steel discharge pipe.
- Cast iron ball type check valve.
- Bronze gate valve.
- ¼" stainless steel pump lifting cable
- Pump slide rail system complete with PVC guide pipe and integral stainless steel guide bracket for those installations requiring a guide rail type system.

Duplex

- 36" diameter fiberglass basin with integral anti-floatation ring.
- Stainless steel hardware.
- Grass green solid fiberglass cover.
- 1.5" electrical grommet. *
- 4" inlet grommet. *
- (2) Brass quick disconnect couplings.
- Schedule 40 galvanized steel discharge pipes.
- (2) Cast iron ball type check valves.
- (2) Bronze gate valves.
- (2) ¼" stainless steel pump lifting cables.
- Pump slide rail system complete with dual pipe stainless steel guide rail system assembly for those installations requiring a guide rail type system.



S4UGR48



D4UGR48

Kit No.	Discharge Piping (SS)	Slide Rail	Basin Dia.	Basin Depth	"A" Dim.
S4UGR48	1.25"	Stainless steel guide bracket and PVC guide pipe	24"	48" (tall)	20"
S4UGR84	1.25"		24"	84" (tall)	42"

Kit No.	Discharge Piping (SS)	Slide Rail	Basin Dia.	Basin Depth	"A" Dim.
D4UGR48	1.25"	Stainless steel guide bracket and PVC guide pipe	36"	48" (tall)	20"
D4UGR84	1.25"		36"	84" (tall)	42"

BASIN KITS *(Each pump kit requires one of the following basin kits to complete the Residential Pump Package.)*

* Basins are not pre-drilled for 1.5" electrical grommet or for 4" inlet grommet. Parts are shipped loose. Installer must drill holes for grommets.

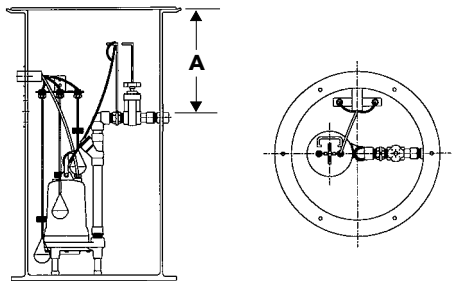
Non-Guide Rail Equipped Basin Installation

Simplex

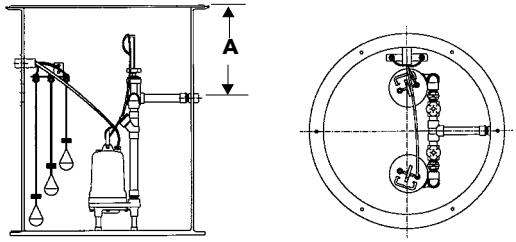
- 24" diameter fiberglass basin with integral anti-floatation ring.
- Stainless steel hardware.
- Grass green solid fiberglass cover.
- 1.5" electrical grommet. *
- 4" inlet grommet. *
- Brass quick disconnect coupling with stainless steel pull rod.
- Schedule 80 PVC discharge pipe.
- PVC ball type check valve.
- PVC gate valve.
- ¼" stainless steel pump lifting cable.

Duplex

- 36" diameter fiberglass basin with integral anti-floatation ring.
- Stainless steel hardware.
- Grass green solid fiberglass cover.
- 1.5" electrical grommet. *
- 4" inlet grommet. *
- (2) brass quick disconnect couplings with stainless steel pull rods.
- Schedule 80 PVC discharge pipes.
- (2) PVC ball type check valves.
- (2) PVC gate valves.
- ¼" stainless steel pump lifting cable.



S4NGRD48



D4NGRD48

Kit No.	Discharge Piping (PVC)	Basin Dia.	Basin Depth	"A" Dim.
S4NGRD48	1.25"	24"	48" (tall)	20"
S4NGRD84	1.25"	24"	84" (tall)	42"
S2NGRD48	2.00"	24"	48" (tall)	20"
S2NGRD84	2.00"	24"	84" (tall)	42"

Kit No.	Discharge Piping (PVC)	Basin Dia.	Basin Depth	"A" Dim.
D4NGRD48	1.25"	36"	48" (tall)	20"
D4NGRD84	1.25"	36"	84" (tall)	42"
D2NGRD48	2.00"	36"	48" (tall)	20"
D2NGRD84	2.00"	36"	84" (tall)	42"

GOULDS WATER TECHNOLOGY
xylem

Technical brochure
BCPBPACK R10

Wastewater Package System

xylem
Let's Solve Water

Features

- Completely assembled basin kit for 2" connection
- Simplex and duplex configurations available
- Conery base elbow disconnects 2"
- Easy pump installation
- Valves and piping complete
- True Union isolation valve
- Stainless steel guide rails
- Installed stainless steel float bracket
- Inlet hub shipped loose

Bill of materials for basin kits

- Basin in specified size
- Studs for slide rail attachment
- 2" stainless steel discharge coupling
- Nylon electric coupling
- 4" inlet hub – shipped loose
- Conery base elbow system(s)
- Stainless steel upper guide rail bracket
- Conery stainless steel intermediate guide rail bracket (used on 84" and deeper)
- 10' stainless steel lift-out chain package(s)
- 1" stainless steel guide rail
- 2" PVC Schedule 80 discharge pipe
- 2" PVC True Union ball valve
- 2" cast iron ball check valve
- 2" PVC Schedule 80 elbow
- 2" PVC Schedule 80 union
- 2" PVC Schedule 80 reducer bushing (thread by slip)
- Stainless steel extension handle bracket
- Basin lifting lugs
- Stainless steel cross braces for upper guide rail bracket and intermediate bracket
- Stainless steel float bracket
- Stainless steel nuts, bolts and washers
- 3 (simplex) or 4 (duplex) float switches
- Junction box NEMA 4X
- Steel hatch cover

Basin kit order numbers

Simplex

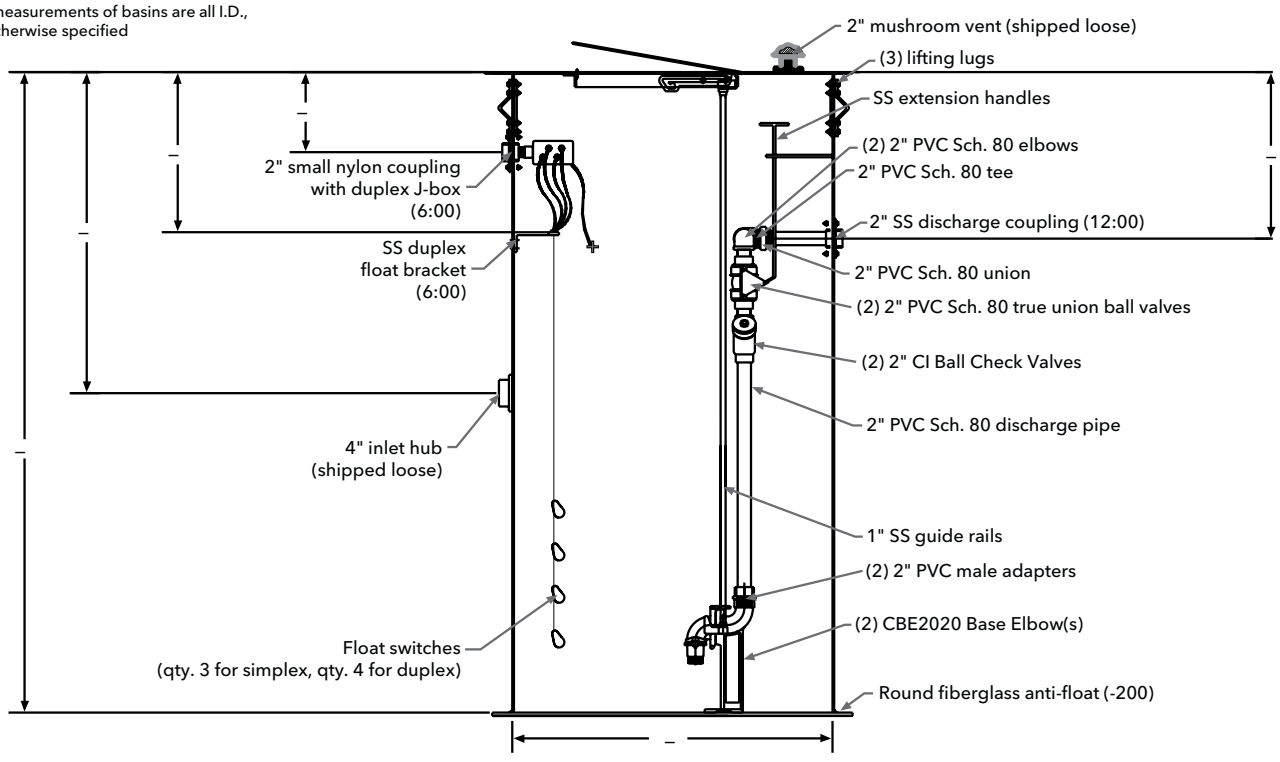
Order no.	Discharge size	Standard discharge depth	Optional discharge depths	D X H basin size
SIM304812LS2	2"	12"	N/A	30" x 48"
SIM306024LS2	2"	24"	N/A	30" x 60"
SIM3072__LS2	2"	36"	24"	30" x 72"
SIM3084__LS2	2"	48"	24", 36"	30" x 84"
SIM3096__LS2	2"	48"	24", 36", 60"	30" x 96"
SIM30108__LS2	2"	48"	24", 36", 60", 72"	30" x 108"
SIM30120__LS2	2"	48"	24", 36", 60", 72"	30" x 120"

Duplex

Order no.	Discharge size	Standard discharge depth	Optional discharge depths	D X H basin size
DUP364812LS2	2"	12"	N/A	36" x 48"
DUP366024LS2	2"	24"	N/A	36" x 60"
DUP3672__LS2	2"	36"	24"	36" x 72"
DUP3684__LS2	2"	48"	24", 36"	36" x 84"
DUP3696__LS2	2"	48"	24", 36", 60"	36" x 96"
DUP36108__LS2	2"	48"	24", 36", 60", 72"	36" x 108"
DUP36120__LS2	2"	48"	24", 36", 60", 72"	36" x 120"
DUP484812LS	2"	12"	N/A	48" x 48"
DUP486024LS2	2"	24"	N/A	48" x 60"
DUP4872__LS2	2"	36"	24",	48" x 72"
DUP4884__LS2	2"	48"	24", 36"	48" x 84"
DUP4896__LS2	2"	48"	24", 36", 60"	48" x 96"
DUP48108__LS2	2"	48"	24", 36", 60", 72"	48" x 108"
DUP48120__LS2	2"	48"	24", 36", 60", 72"	48" x 120"

Basin kit dimensional

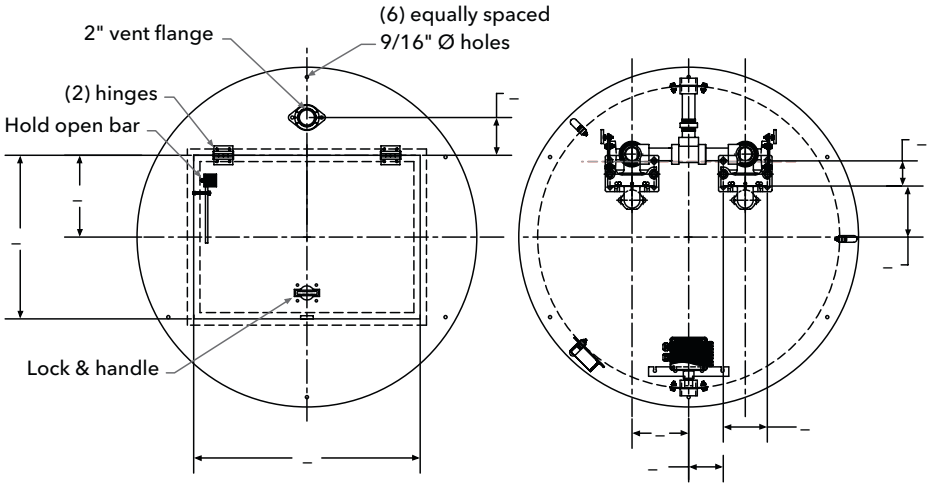
Note: measurements of basins are all I.D., if not otherwise specified



Basin kit top view

Note: measurements of basins are all I.D., if not otherwise specified.

Sample drawing

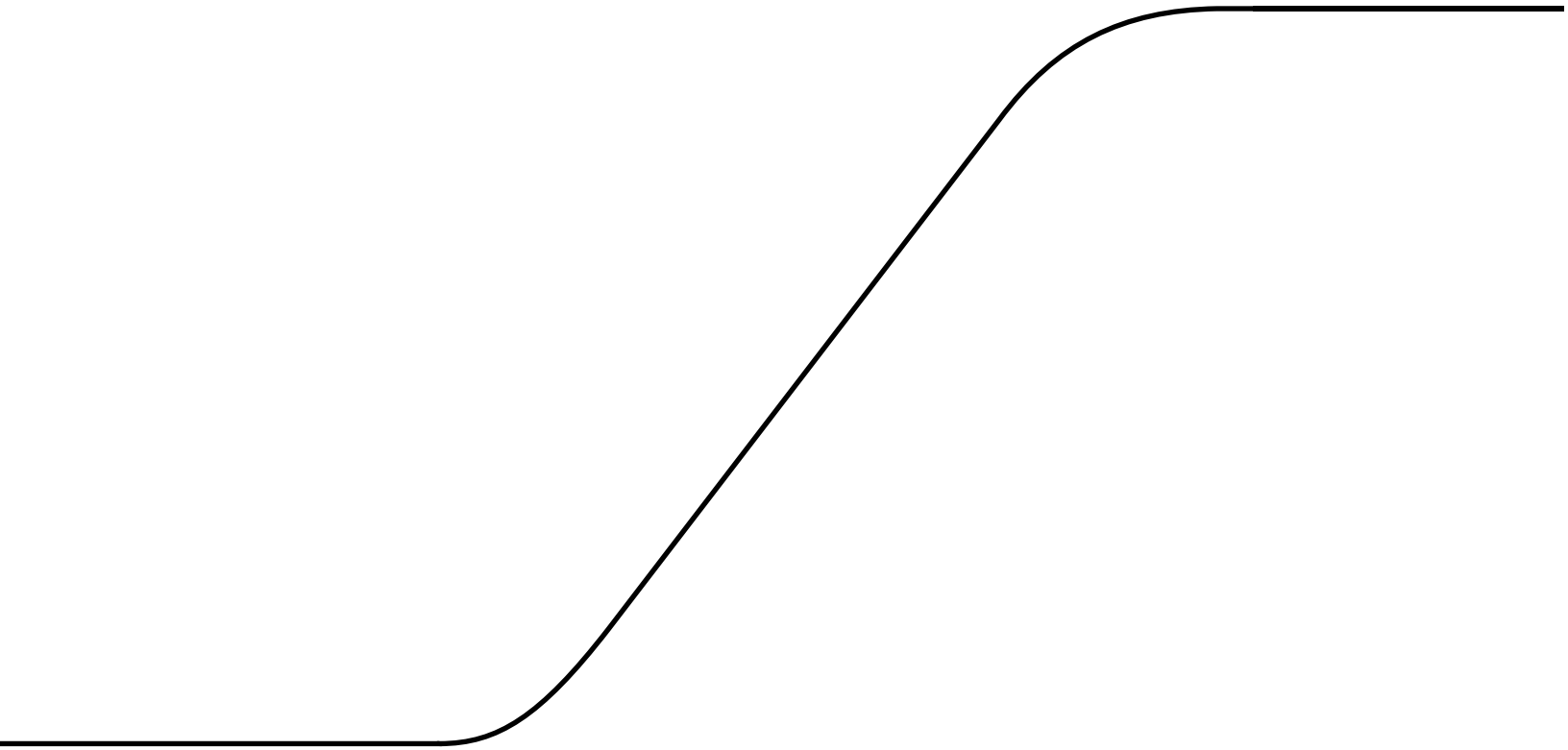


Basin kit nomenclature

Example: **SIM** **30** **72** **48** **LS2**

- Simplex / duplex
- Basin diameter
- Basin depth
- Discharge depth
- Size of basin discharge (LS2=2")

Panels



GOULDS WATER TECHNOLOGY
xylem

Technical brochure
GWTC4Pan-TB-4000021 R2

Series “Core 4” control panels

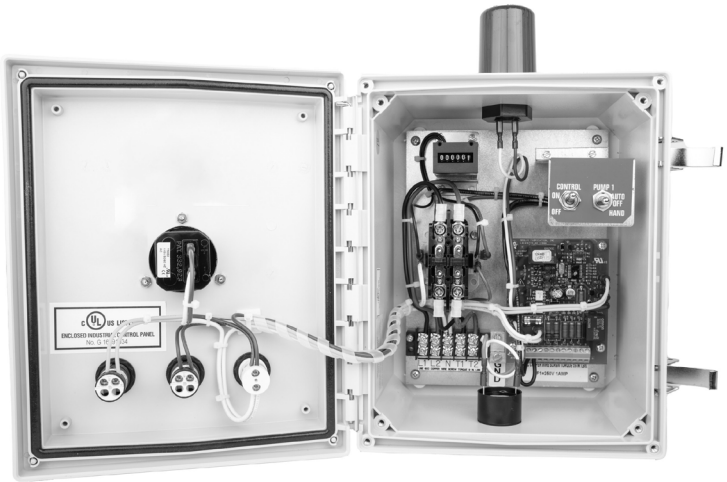
Simplex and duplex, single and three phase control for 3885 (WE), 3886 (WS), 3887 (WS BF/BHF) and 3888 (D3/D4)

xylem

Series “Core 4” control panels provide outstanding, automatic, liquid level control to help manage and maintain pump operation for a variety of effluent, sewage, and water transfer applications.

Features

- Rugged, NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion
- Solid-state control board displays float status for ease of installation and trouble-shooting
- Hinged door with lockable stainless-steel latch for safe operation indoors and out
- Through-door mounted alarm test switch ensures proper operation of the alarm circuit without the need to open the panel
- Panel can be wired for a single power feed and control circuit, or the control circuit can be wired to a separate power supply to ensure alarm integrity in case of a tripped pump breaker.
- Top-mounted, high intensity, flashing red light provides 360° visibility
- Auxiliary alarm contacts provided for remote alarm connection
- Field wiring diagram, panel schematic and installation instructions included
- Entire unit is UL and CUL listed



Applications

- Residential
- Effluent
- Sewage
- Water transfer

Product specifications

- Hand-off-automatic (H-O-A) pump selection switch(es)
- On-off control circuit switch
- Float switches:
  - Normally open (pump down) mechanical float switches with 20’ cords
  - Simplex panels (three switches)
  - Duplex panels (four switches)
- Duplex panels include alternation
- NEMA 4X:
  - Flashing red alarm light
  - Fiberglass enclosure with gasketed, hinged door and stainless-steel hardware
  - Alarm horn (95db)
- Solid state printed circuit control board with float indicator lights
- Auxiliary alarm dry contact
- Elapsed time meter(s)
- Cycle counter(s)
- Single Phase
  - Field adjustable for 115/208/230V, 60Hz
- Three Phase
  - Field adjustable for 208/230/460/575 V, 60 Hz
  - 115V control circuit transformer
  - Adjustable motor overload protectors

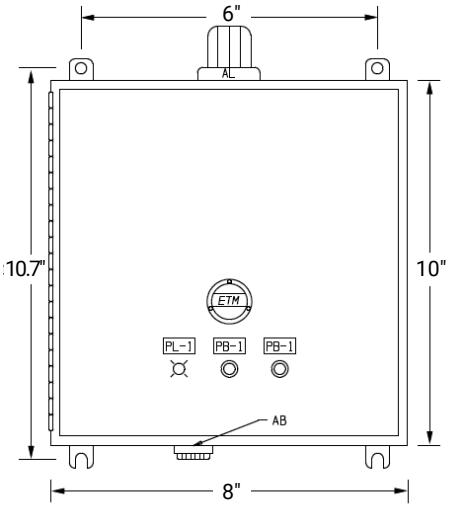
Nomenclature

Character	1 & 2	3	4	5, 6, 7, 8
	C4 = Core four	S = Simplex	1 = Single phase	Amp range
		D = Duplex	3 = Three phase	0-20
				21-36
				0-20
				21-27
				28-36
				1.6-2.5
				2.5-4.0
				4.0-6.3
				6.3-10
				10-16
				16-20
				20-25
				22-32

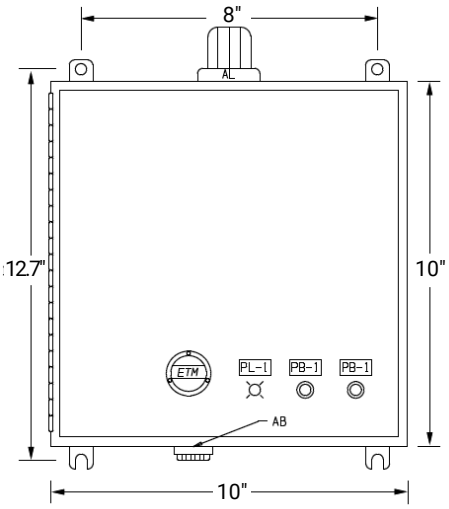
Panel model information

Single phase panels		Three phase panels	
Order number	Amp range	Order number	Amp range
C4S10020	0-20	C4S31625	1.6-2.5
C4S12136	21-36	C4S32540	2.5-4.0
C4D10020	0-20	C4S34063	4.0-6.3
C4D12127	21-27	C4S36310	6.3-10
C4D12836	28-36	C4S31016	10-16
		C4S31620	16-20
		C4S32025	20-25
		C4S32232	22-32
		C4D31625	1.6-2.5
		C4D32540	2.5-4.0
		C4D34063	4.0-6.3
		C4D36310	6.3-10
		C4D31016	10-16
		C4D31620	16-20
		C4D32025	20-25
		C4D32232	22-32

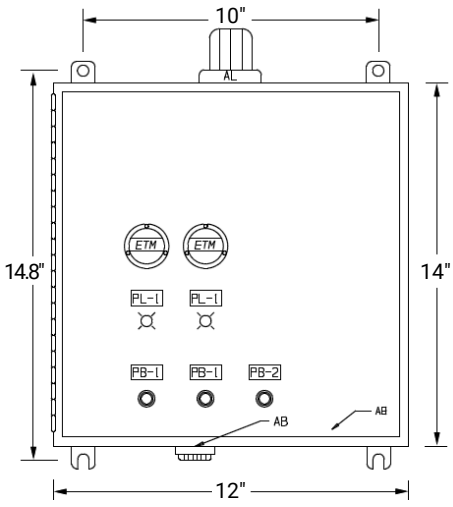
Panel dimensions and enclosure layout



C4S10020



C4S12136 - C4S31016
C4S31620 - C4S31625
C4S32025 - C4S32232
C4S32540 - C4S34063
C4S36310



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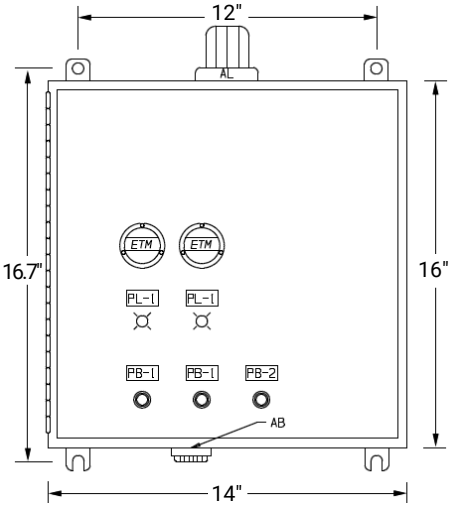

C4D12836 - C4D31016
C4D31620 - C4D31625
C4D32025 - C4D32232
C4D32540 - C4D34063
C4D36310

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3SD/4SD Series

SIMPLEX CONTROL PANELS

3SD/4SD Series Simplex Panels control 120/208/240V single phase or 208/240/480V/575V three phase pumps designed for dewatering, wastewater, and sewage applications. They come standard with a clear front NEMA 4X rated enclosure, IEC rated contactors, and a motor protective switch. All panels are UL listed for the United States and Canada, and come standard with a five-year warranty.

FEATURES

- Indoor/outdoor NEMA 4X panel enclosure: heavy duty polycarbonate with stainless steel lockable latches
- Visible pump control indicators: pump hand-off-auto (H.O.A.) switch, green pump run lights, red pump fault lights with reset button, and power on light
- Visible alarm indicators: High red beacon alarm light, alarm test and silence buttons
- Alarm horn sounds at 85 decibels at 10 feet
- Remote monitoring by dry contacts: high liquid, pump run(s), and pump fault(s)
- Upgraded pump protection: motor protective switch (branch circuit protection, adjustable overload and disconnect) and thermal cutout with indicators
- Three floats with 50' cords: stop, start, high level
- Cycle counter with LCD display and reset
- Elapsed time meter with LCD display and reset
- Seal failure circuit with indicator light

APPLICATIONS

- Sewage pump chambers
- Grinder pumps
- Sump pump basins
- Lift stations

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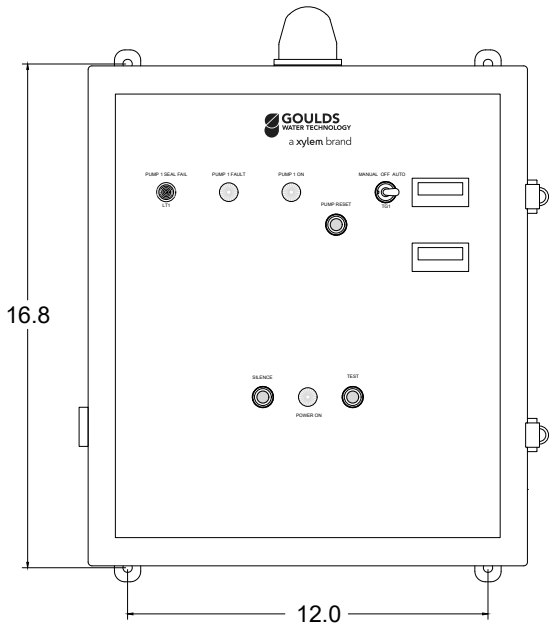
PRODUCT SPECIFICATIONS

Simplex Single Phase: 120/208/240VAC

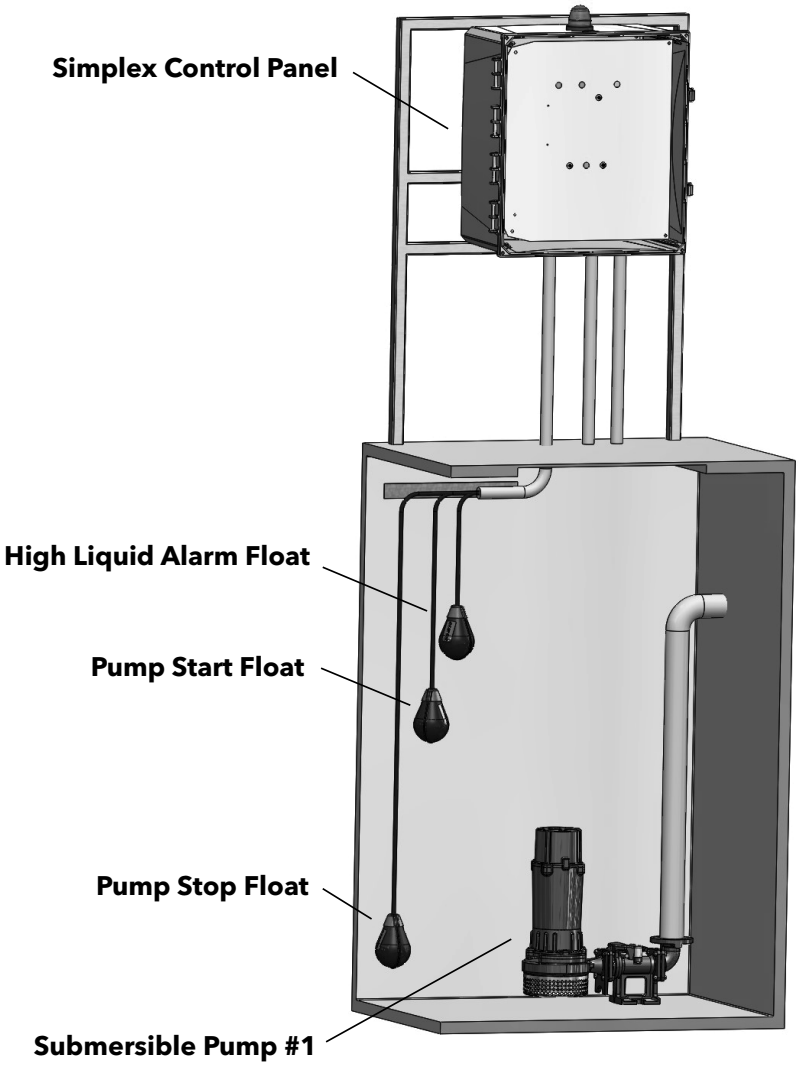
Model	Pump Full Load Amp Rating
SDS17015	7.0-15.0 FLA
SDS11522	15.0-22.0 FLA
SDS12228	22.0-28.0 FLA

Simplex Three Phase: 208/240/480VAC/575V

Model	Pump Full Load Amp Rating
SDS34063	4.0-6.3 FLA
SDS340635	4.0-6.3 FLA 575V
SDS36010	6.0-10.0 FLA
SDS360105	6.0-10.0 FLA 575V
SDS39014	9.0-14.0 FLA
SDS31318	13.0-18.0 FLA
SDS31723	17.0-23.0 FLA
SDS32025	20.0-25.0 FLA



Typical Installation of 3SD/4SD Simplex Control Panel



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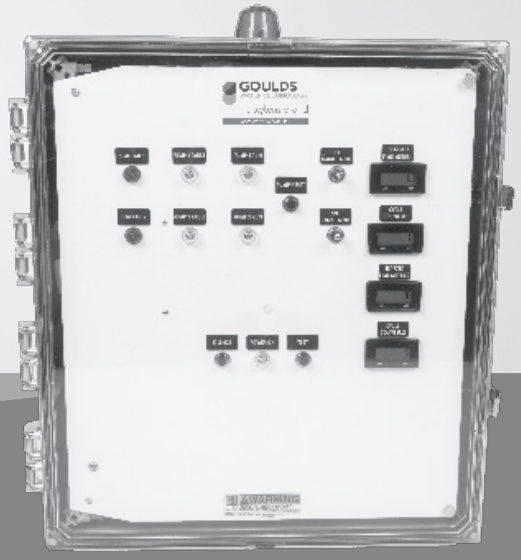

3SD/4SD Series

DUPLEX CONTROL PANELS

3SD/4SD Series Duplex Panels control two 120/208/240V single phase or two 208/240/480/575V three phase pumps designed for dewatering, wastewater, and sewage applications. They come standard with a clear front NEMA 4X rated enclosure, IEC rated contactors, and motor protective switches. All panels are UL listed for the United States and Canada, and come standard with a five-year warranty.

FEATURES

- Indoor/outdoor NEMA 4X panel enclosure: heavy duty polycarbonate with stainless steel lockable latches
- Duplex provides: two-pump alternation and high demand two-pump operation
- Visible pump control indicators: pump #1 and #2 hand-off-auto (H.O.A.) switch, green pump run lights, red pump fault lights with reset button, and power on light
- Visible alarm indicators: high red beacon alarm light, alarm test and silence buttons
- Alarm horn sounds at 85 decibels at 10 feet
- Remote monitoring by dry contacts: high liquid, pump run(s), and pump fault(s)
- Upgraded pump protection: motor protective switches included for both pumps (Branch circuit protection, adjustable overload and disconnect) and thermal cutout with indicators
- Four floats with 50' cords: off, lead, lag, high level
- Cycle counter with LCD display and reset for each pump
- Elapsed time meter with LCD display and reset for each pump
- Seal failure circuit with indicator lights

APPLICATIONS

- Sewage pump chambers
- Grinder pumps
- Sump pump basins
- Lift stations

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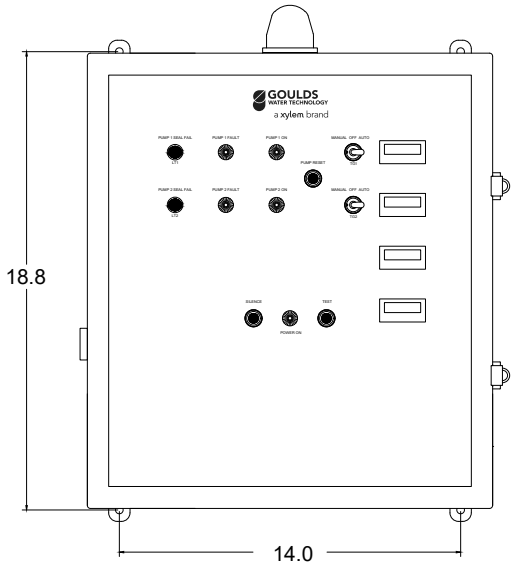
PRODUCT SPECIFICATIONS

Duplex Single Phase: 120/208/240VAC

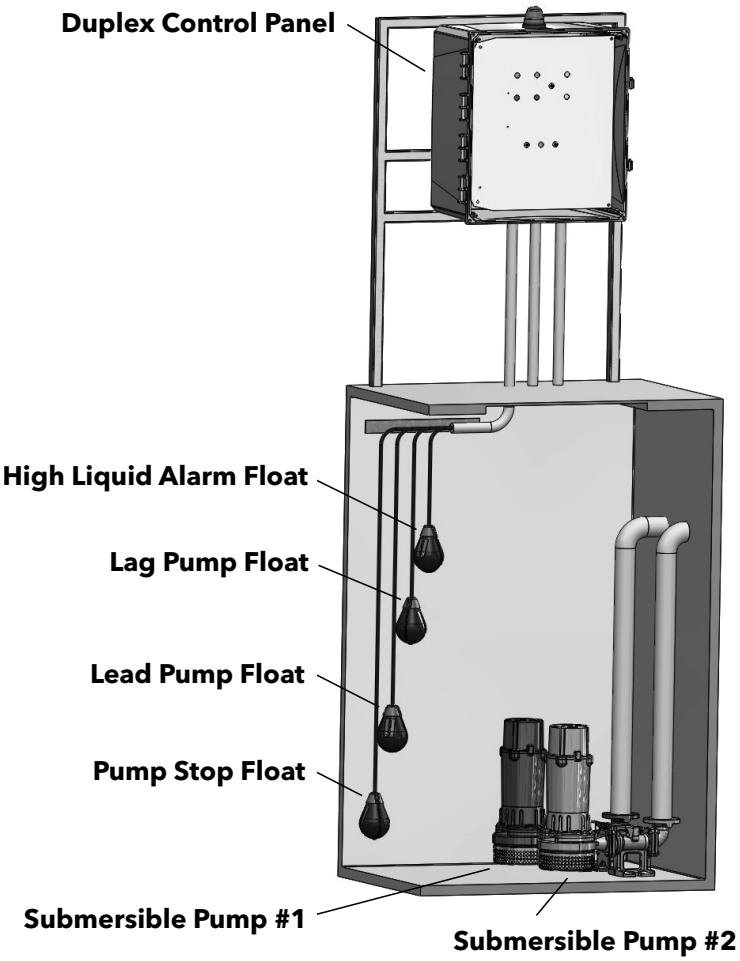
Model	Pump Full Load Amp Rating
SDD17015	7.0-15.0 FLA
SDD11522	15.0-22.0 FLA
SDD12228	22.0-28.0 FLA

Duplex Three Phase: 208/240/480/575VAC

Model	Pump Full Load Amp Rating
SDD34063	4.0-6.3 FLA
SDD340635	4.0-6.3 FLA 575V
SDD36010	6.0-10.0 FLA
SDD360105	6.0-10.0 FLA 575V
SDD39014	9.0-14.0 FLA
SDD31318	13.0-18.0 FLA
SDD31723	17.0-23.0 FLA
SDD32025	20.0-25.0 FLA



Typical Installation of 3SD/4SD Duplex Control Panel



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4NS Series

SIMPLEX CONTROL PANELS

4NS Series Simplex Panels control a 208/240/480/575V three phase pump designed for dewatering, wastewater, and sewage applications. They come standard with a clear front NEMA 4X rated enclosure, IEC rated contactors, and a motor protective switch. All panels are UL listed for the United States and Canada, and come standard with a five-year warranty.

FEATURES

- Indoor/outdoor NEMA 4X panel enclosure: heavy duty polycarbonate with stainless steel lockable latches
- Visible pump control indicators: pump hand-off-auto (H.O.A.) switch, green pump run light, red pump fault light with reset button, and power on light
- Visible alarm indicators: high red beacon alarm light, alarm test and silence buttons
- Alarm horn sounds at 85 decibels at 10 feet
- Remote monitoring by dry contacts: high Liquid, pump run, and pump fault
- Upgraded pump protection: motor protective switch (branch circuit protection, adjustable overload and disconnect) and thermal cutout with indicators
- Three floats with 50' cords: stop, start, high Level
- Cycle counter with LCD display and reset
- Elapsed time meter with LCD display and reset
- Seal failure circuit with indicator light

APPLICATIONS

- Sewage pump chambers
- Grinder pumps
- Sump pump basins
- Lift stations

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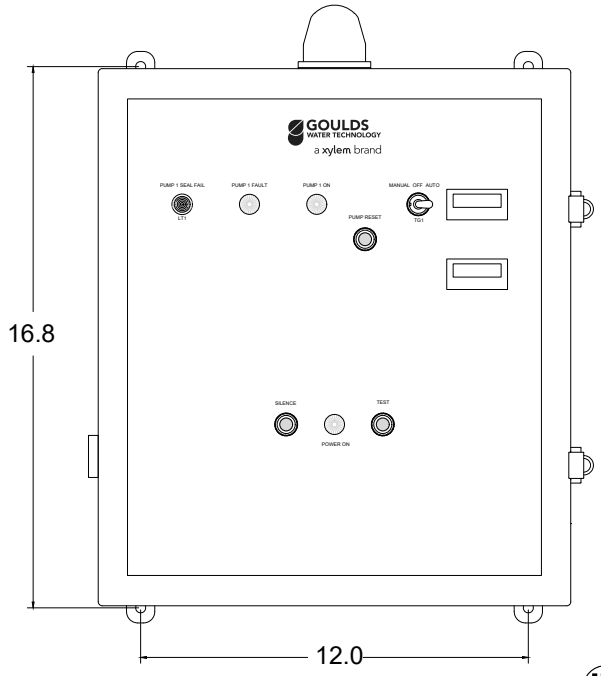
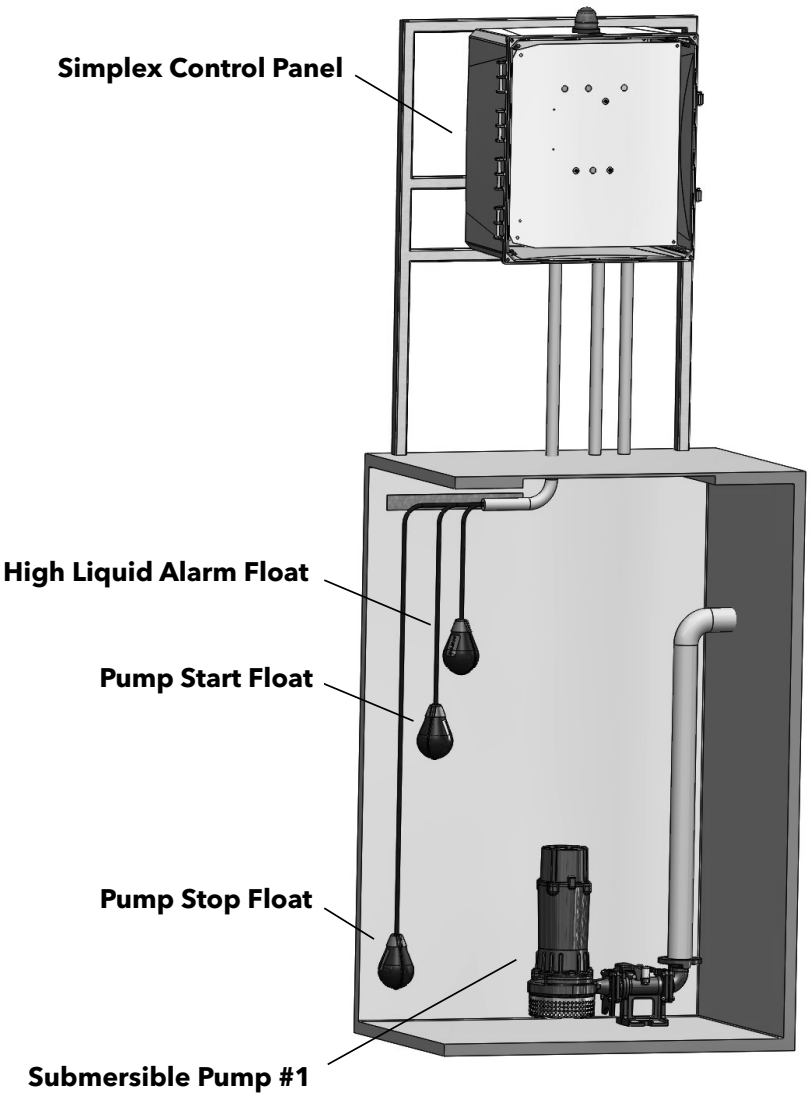
PRODUCT SPECIFICATIONS

Simplex Three Phase: 208/240/480/575VAC

Model	Pump Full Load Amp Rating
NSS39014	9.0-14.0 FLA
NSS390145	9.0-14.0 FLA 575V
NSS31318	13.0-18.0 FLA
NSS313185	13.0-18.0 FLA 575V
NSS31723	17.0-23.0 FLA
NSS317235	17.0-23.0 FLA 575V
NSS32432	24.0-32.0 FLA
NSS324325	24.0-32.0 FLA 575V
NSS33040	30.0-40.0 FLA
NSS330405	30.0-40.0 FLA 575V
NSS33750	37.0-50.0 FLA
NSS337505	37.0-50.0 FLA 575V
NSS34865	48.0-65.0 FLA
NSS365115	65.0-115.0 FLA



Typical Installation of 4NS Simplex Control Panel



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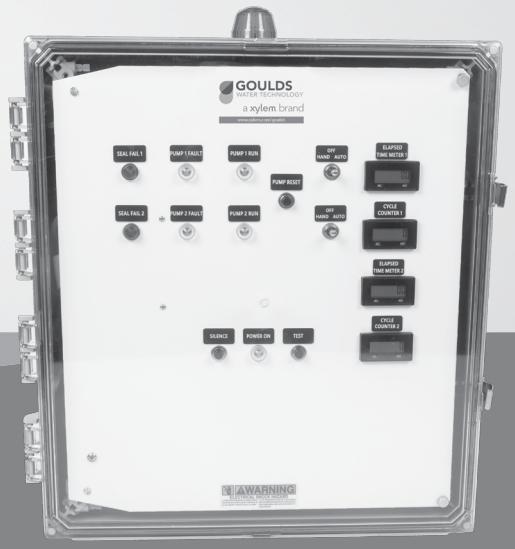

4NS Series

DUPLEX CONTROL PANELS

4NS Series Duplex Panels control two 208/240/480/575V three phase pumps designed for dewatering, wastewater, and sewage applications. They come standard with a clear front NEMA 4X rated enclosure, IEC rated contactors, and motor protective switches. All panels are UL listed for the United States and Canada, and come standard with a five-year warranty.

FEATURES

- Indoor/outdoor NEMA 4X panel enclosure: heavy duty polycarbonate with stainless steel lockable latches
- Duplex provides: two-pump alternation and high demand two-pump operation
- Visible pump control indicators: pump #1 and #2 hand-off-auto (H.O.A.) switch, green pump run lights, red Pump Fault lights with reset button, and Power On light
- Visible alarm indicators: High red beacon alarm light, alarm test and silence buttons
- Alarm horn sounds at 85 decibels at 10 feet
- Remote monitoring by dry contacts: high liquid, pump run(s), and pump fault(s)
- Upgraded pump protection: motor protective switches included for both pumps (branch circuit protection, adjustable overload and disconnect) and thermal cutout with indicators
- Four floats with 50' cords: off, lead, lag, high Level
- Cycle counter with LCD display and reset for each pump
- Elapsed time meter with LCD display and reset for each pump
- Seal failure circuit with indicator light

APPLICATIONS

- Sewage pump chambers
- Grinder pumps
- Sump pump basins
- Lift stations

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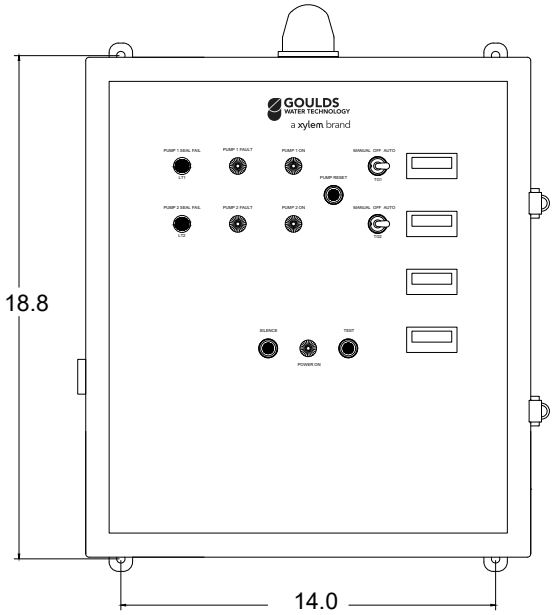
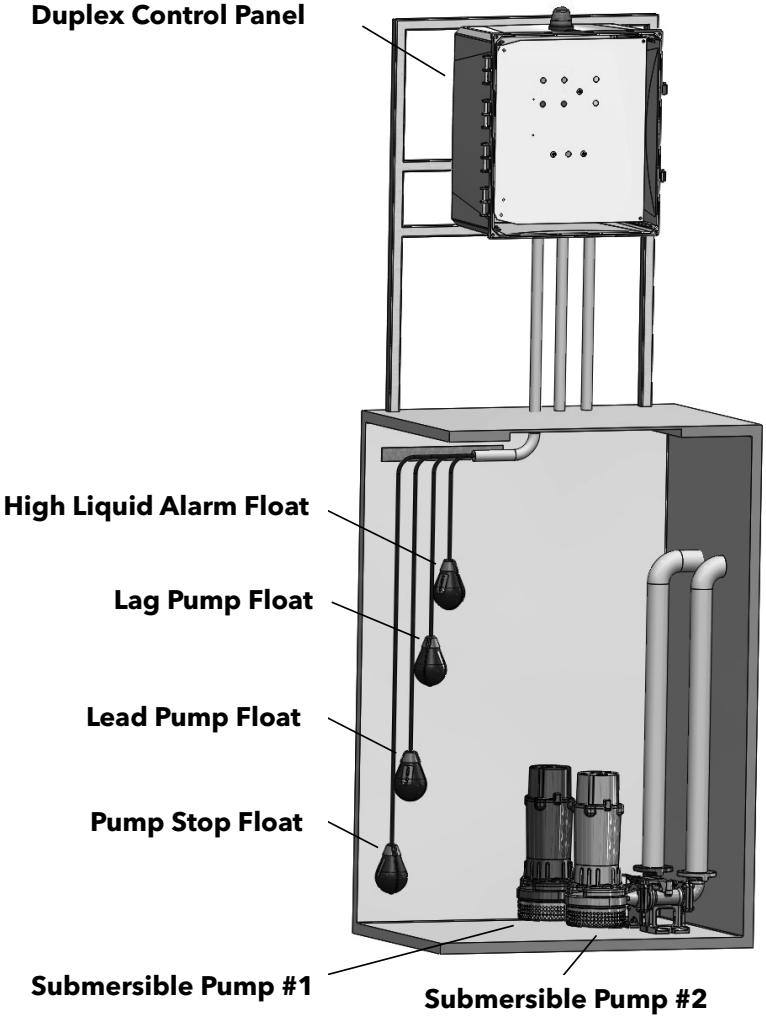
PRODUCT SPECIFICATIONS

Duplex Three Phase: 208/240/480/575VAC

Model	Pump Full Load Amp Rating
NSD39014	9.0-14.0 FLA
NSD390145	9.0-14.0 FLA 575V
NSD31318	13.0-18.0 FLA
NSD313185	13.0-18.0 FLA 575V
NSD31723	17.0-23.0 FLA
NSD317235	17.0-23.0 FLA 575V
NSD32432	24.0-32.0 FLA
NSD324325	24.0-32.0 FLA 575V
NSD33040	30.0-40.0 FLA
NSD330405	30.0-40.0 FLA 575V
NSD33750	37.0-50.0 FLA
NSD337505	37.0-50.0 FLA 575V
NSD34865	48.0-65.0 FLA
NSD365115*	65.0-115.0 FLA
*This model comes standard with a NEMA 3R rated painted steel enclosure.	



Typical Installation of 4NS Duplex Control Panel



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K Series Simplex/Duplex Wastewater Panels

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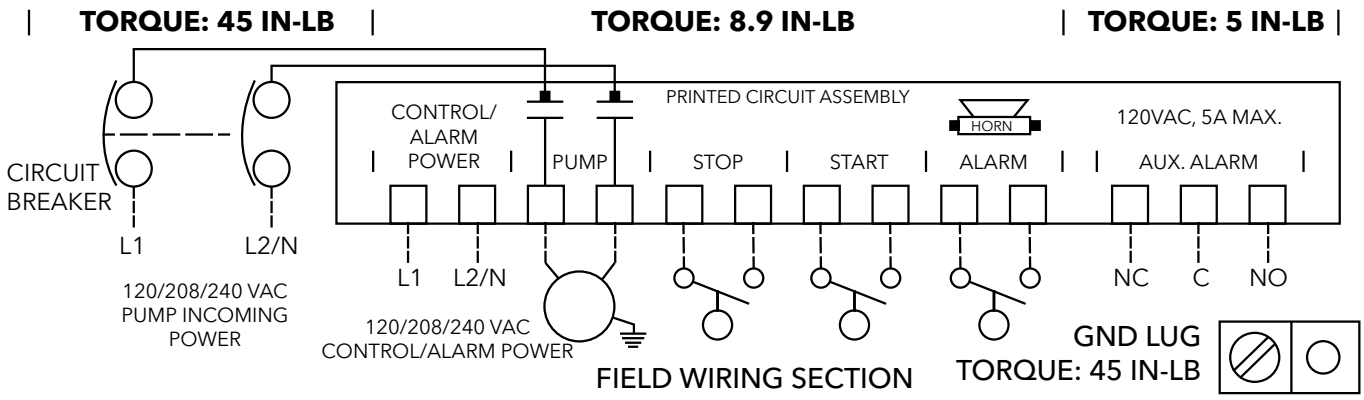
SIMPLEX SINGLE PHASE PANEL

KS19020WF

- Controls one single phase wastewater pump (20 amps maximum)
- 3 Normally Open Floats Included (Off/On/High Level Alarm) 20' Cords
- 8" X 6" X 4" NEMA 4X Thermoplastic Enclosure
- Universal pump voltage and control/alarm power
- One panel handles 3 voltages (120/208/230V)
- Audible/visual high level alarm system with auxiliary alarm contacts, for signaling an external device
- Integral mounting tabs
- Integral padlockable latch



BRANCH CIRCUIT PROTECTION FOR CONTROL/ ALARM CIRCUIT PROVIDED BY OTHERS

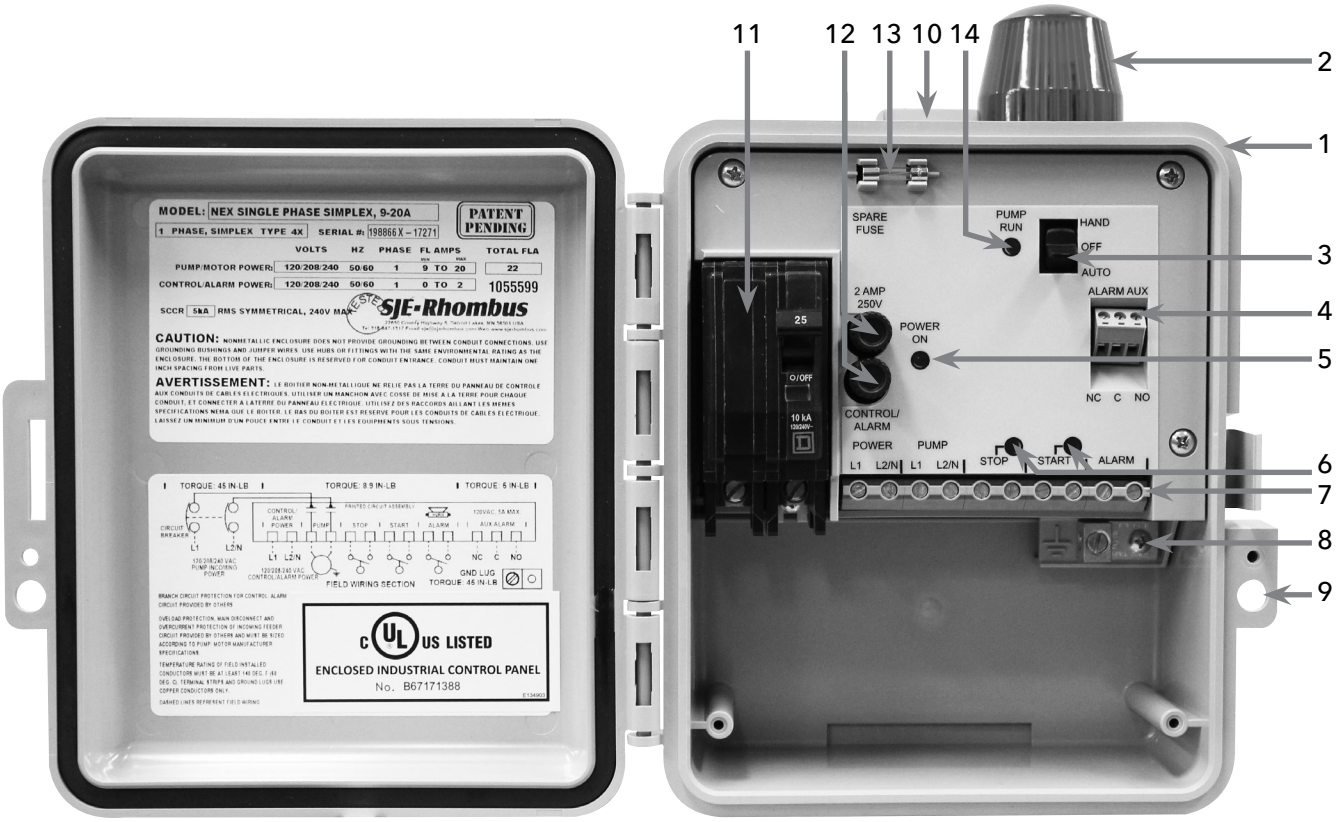
OVERLOAD PROTECTION, MAIN DISCONNECT AND OVERCURRENT PROTECTION OF INCOMING FEEDER CIRCUIT PROVIDED BY OTHERS AND MUST BE SIZED ACCORDING TO PUMP/MOTOR MANUFACTURER SPECIFICATIONS.

TEMPERATURE RATING OF FIELD INSTALLED CONDUCTORS MUST BE AT LEAST 140°F (60°C). TERMINAL STRIPS AND GROUND LUGS USE COPPER CONDUCTORS ONLY.

DASHED LINES REPRESENT FIELD WIRING.

SIMPLEX SINGLE PHASE PANEL

KS19020WF



COMPONENTS

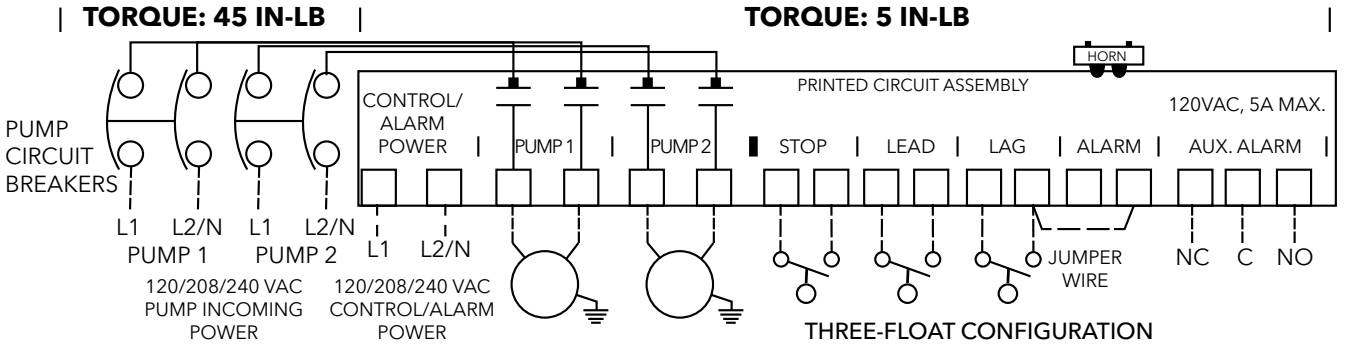
1. NEMA 4X outdoor rated enclosure
2. Red LED alarm beacon
3. HOA selector switch
4. Auxiliary alarm contacts
5. Green control/alarm power indicator
6. Red float status indicators (stop/start)
7. Field wiring terminal block
8. Ground lug
9. Integral padlockable latch
10. Integral mounting tabs
11. Pump circuit breaker
12. Control/alarm fuses
13. Spare fuse
14. Green pump run indicator

Not Shown: Alarm piezo horn and test/silence push button

DUPLEX SINGLE PHASE PANEL

KD19020WF

- Alternately controls two single phase wastewater pumps (20 amps maximum)
- 3 Normally Open Floats Included (Off/On/High Level Alarm) 20' Cords
- 10" X 8" X 4" NEMA 4X Thermoplastic Enclosure
- Universal pump voltage and control/alarm power
- One panel handles 3 voltages (120/208/230V)
- Audible/visual high level alarm system with auxiliary alarm contacts, for signaling an external device
- Integral mounting tabs
- Integral padlockable latch



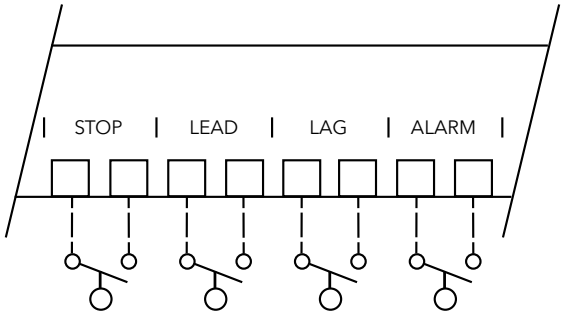
THREE-FLOAT CONFIGURATION

BRANCH CIRCUIT PROTECTION FOR CONTROL/ ALARM CIRCUIT PROVIDED BY OTHERS

OVERLOAD PROTECTION, MAIN DISCONNECT AND OVERCURRENT PROTECTION OF INCOMING FEEDER CIRCUIT PROVIDED BY OTHERS AND MUST BE SIZED ACCORDING TO PUMP/MOTOR MANUFACTURER SPECIFICATIONS.

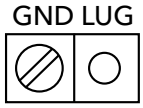
TEMPERATURE OF FIELD INSTALLED CONDUCTORS MUST BE AT LEAST 140°F (60°C). TERMINAL STRIPS AND GROUND LUGS USE COPPER CONDUCTORS ONLY.

DASHED LINES REPRESENT FIELD WIRING.



FOUR-FLOAT CONFIGURATION

FIELD WIRING SECTION



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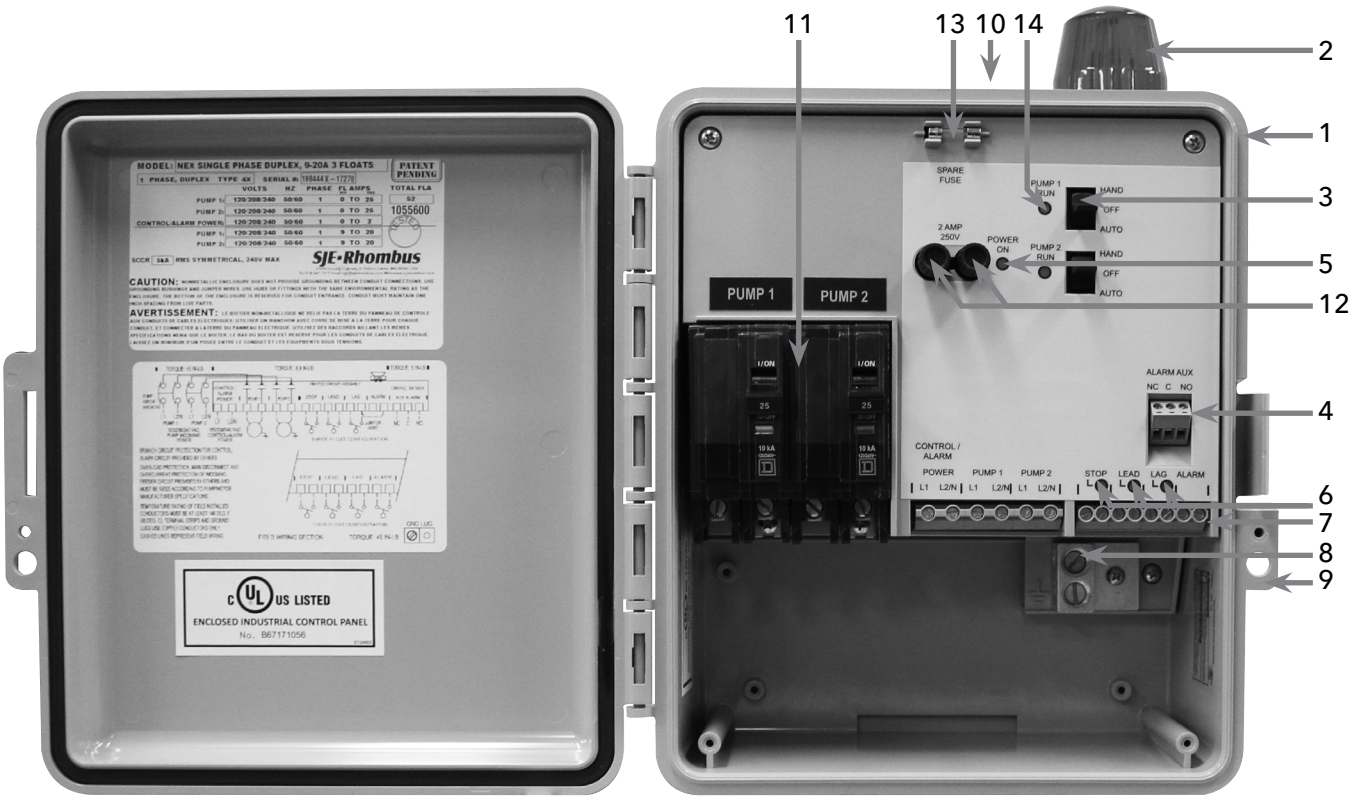
DUPLEX SINGLE PHASE PANEL

KD19020WF



COMPONENTS

1. NEMA 4X outdoor rated enclosure
2. Red LED alarm beacon
3. HOA selector switch
4. Auxiliary alarm contacts
5. Green control/alarm power indicator
6. Red float status indicators (stop/lead/lag)
7. Field wiring terminal blocks
8. Ground lug
9. Integral padlockable latch
10. Integral mounting tabs
11. Pump circuit breakers
12. Control/alarm fuses
13. Spare fuse
14. Green pump run indicators

Not Shown: Alarm piezo horn and test/silence push button

SIMPLEX THREE PHASE PANEL

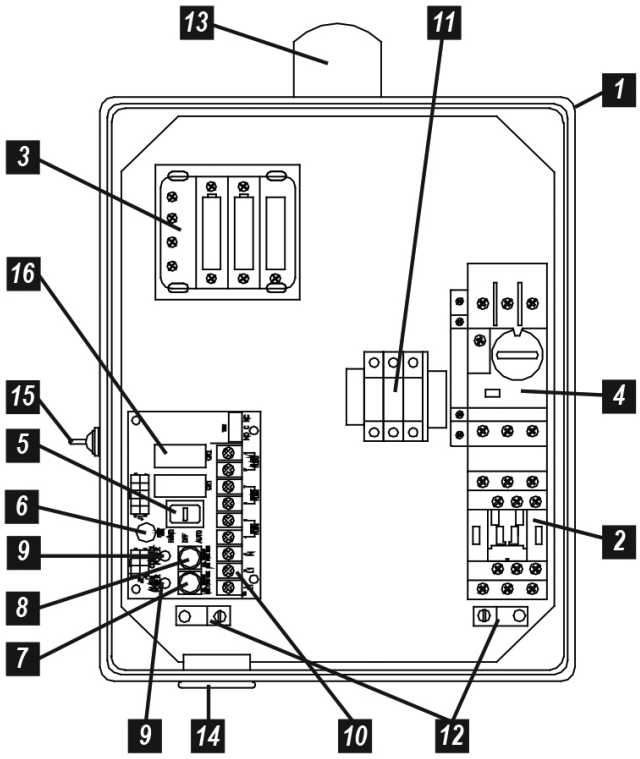
KS31255WF (1.25 – 5 AMPS) • KS34518WF (4.5 – 18 AMPS) • KS38032WF (8 – 32 AMPS)

- Controls one three phase wastewater pump
- 3 Normally Open Floats Included (Off/On/High Level Alarm) 20′ Cords
- 12″ X 10″ X 6″ NEMA 4X Thermoplastic Enclosure with removable mounting feet
- Multi-Tap Transformer (208/230/460V primary) provides 120V control/alarm voltage
- Audible/visual high level alarm system with auxiliary alarm contacts, for signaling an external device

PANEL COMPONENTS

1. **Enclosure** measures 12 x 10 x 6 inches (30.48 x 25.40 x 15.24 cm). NEMA 4X (ultraviolet stabilized thermoplastic with removable mounting feet for outdoor or indoor use).
2. **IEC Motor Contactor** controls pump by switching electrical lines.
3. **Multi-Tap Transformer** (208/240/480 VAC primary) provides 120V control/alarm voltage.
4. **Motor Protective Switch** provides adjustable overload, branch circuit protection and pump disconnect.
5. **HOA Switch** for manual pump control (mounted on circuit board)
6. **Green Pump Run Indicator Light** mounted on circuit board
7. **Alarm Fuse** (mounted on circuit board)
8. **Control Fuse** (mounted on circuit board)
9. **Alarm and Control Power Indicators** (mounted on circuit board)
10. **Float Switch Terminal Block** (mounted on circuit board)
11. **Input Power Terminal Block**
12. **Ground Lugs**

NOTE: Schematic/Wiring Diagram is located inside the panel on enclosure cover.

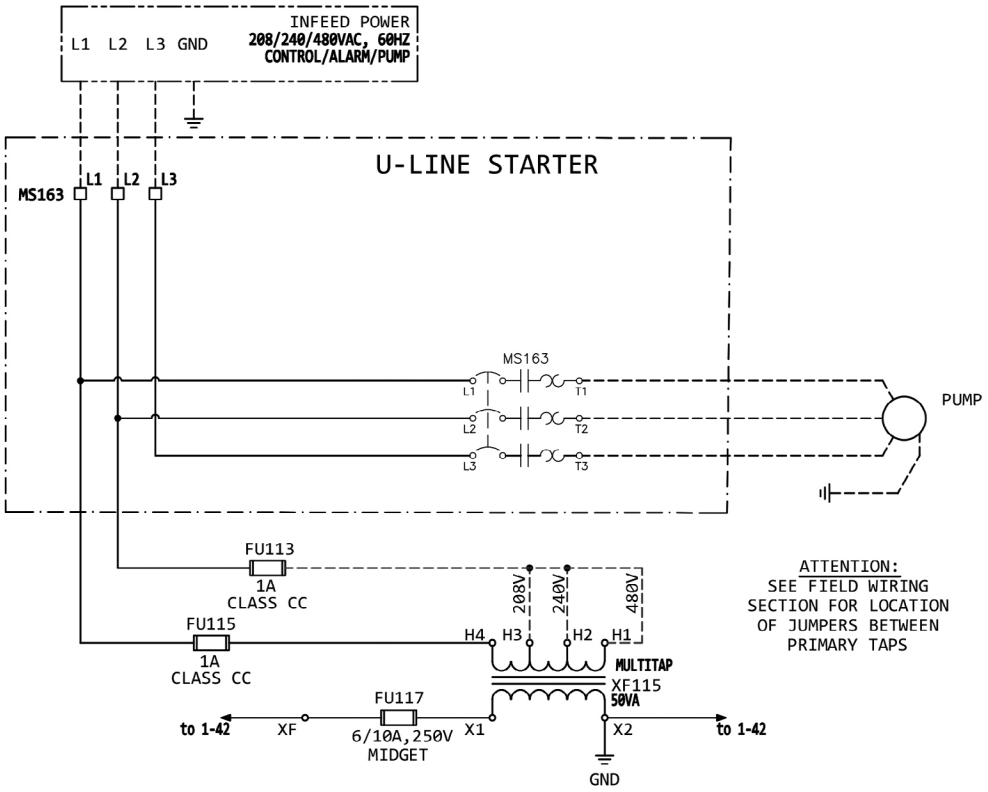


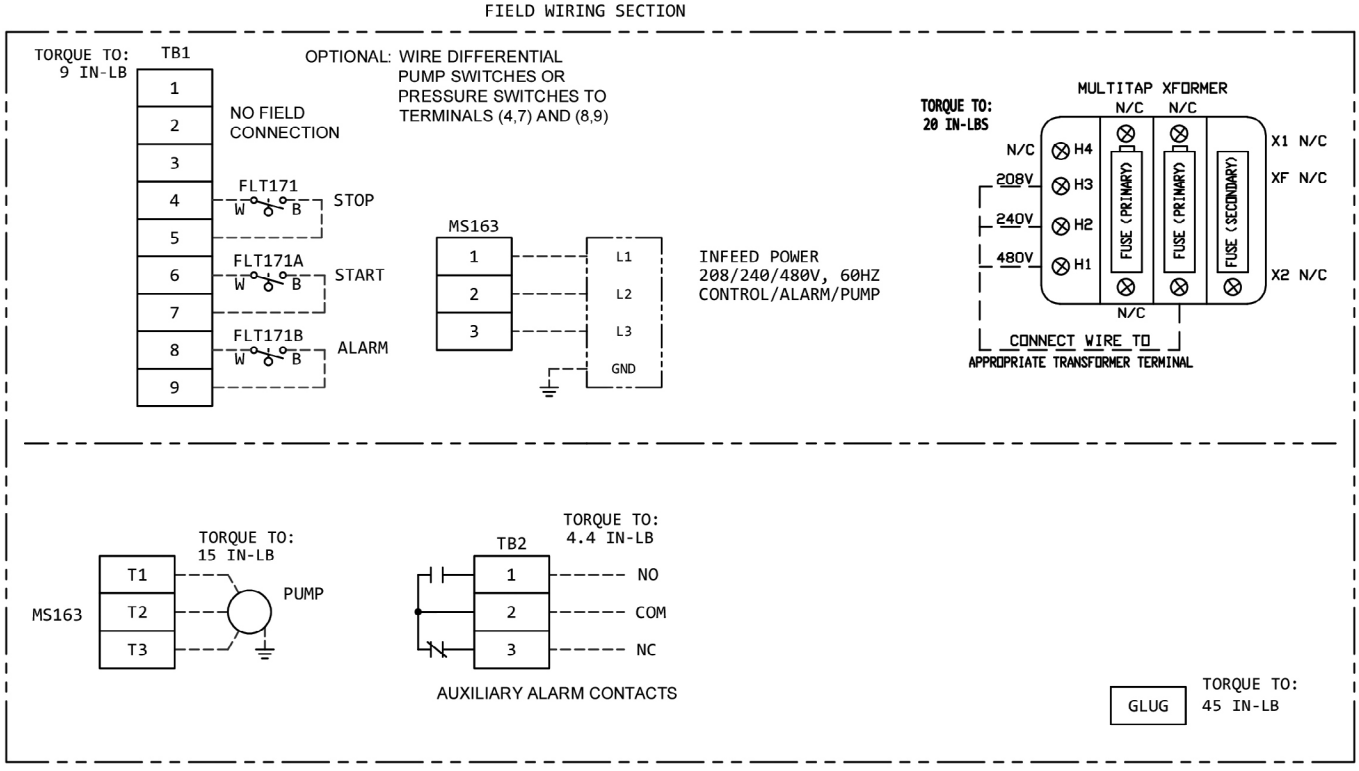
STANDARD ALARM PACKAGE

13. **Red Alarm Beacon** provides 360° visual check of alarm condition.
14. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating).
15. **Exterior Alarm Test/Normal/Silence** Switch allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition is cleared.
16. **Horn Silence Relay** (mounted on circuit board)

SIMPLEX THREE PHASE PANEL

KS31255WF (1.25 – 5 AMPS) • KS34518WF (4.5 – 18 AMPS) • KS38032WF (8 – 32 AMPS)





DUPLEX THREE PHASE PANEL

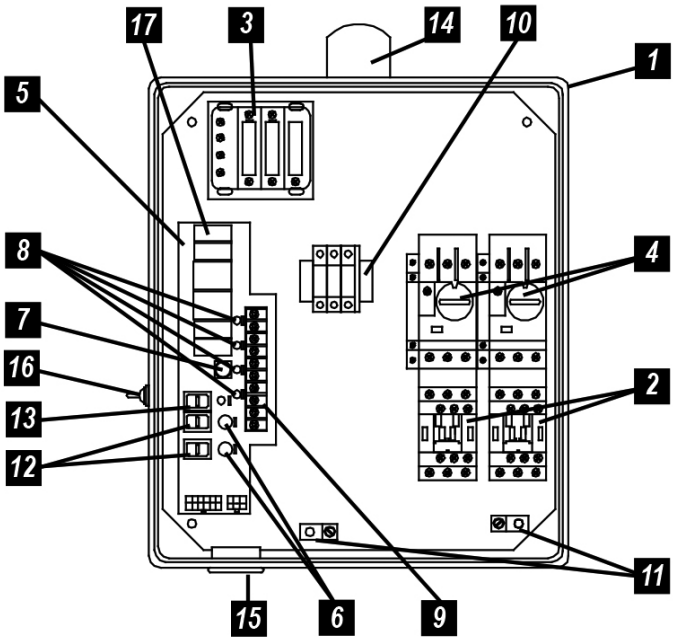
KD31255WF (1.25 – 5 AMPS) • KD34518WF (4.5 – 18 AMPS) • KD38032WF (8 – 32 AMPS)

- Alternately controls two (2), three phase wastewater pumps
- 3 Normally Open Floats Included (Off/On/High Level Alarm) 20' Cords
- 14" X 12" X 6" NEMA 4X Thermoplastic Enclosure with removable mounting feet
- Multi-Tap Transformer (208/230/460V primary) provides 120V control/alarm voltage
- Audible/visual high level alarm system with auxiliary alarm contacts, for signaling an external device

PANEL COMPONENTS

1. Enclosure measures 14 x 12 x 6 inches (35.56 x 30.48 x 15.24 cm) NEMA 4X (ultraviolet stabilized thermoplastic with removable mounting feet for outdoor or indoor use).
2. IEC Motor Contactors control pumps by switching electrical lines.
3. Multi-Tap Transformer (208/240/480 VAC primary) provides 120V control/alarm voltage.
4. Motor Protective Switches provide adjustable overload, branch circuit protection and pump disconnect.
5. Alternating Circuit Board provides pump control and alternation (U.S. Patent # 5,909,532).
6. Green Pump Run Indicator Lights (mounted on circuit board)
7. Alarm/Control Fuse (mounted on circuit board)
8. Float Status Indicator Lights (mounted on circuit board)
9. Float Switch Terminal Block (mounted on circuit board)
10. Input Power Terminal Block
11. Ground Lugs
12. HOA Switches for manual pump control (mounted on circuit board)
13. Control ON/OFF Switch (mounted on circuit board)

NOTE: Schematic/Wiring Diagram is located inside the panel on enclosure cover.

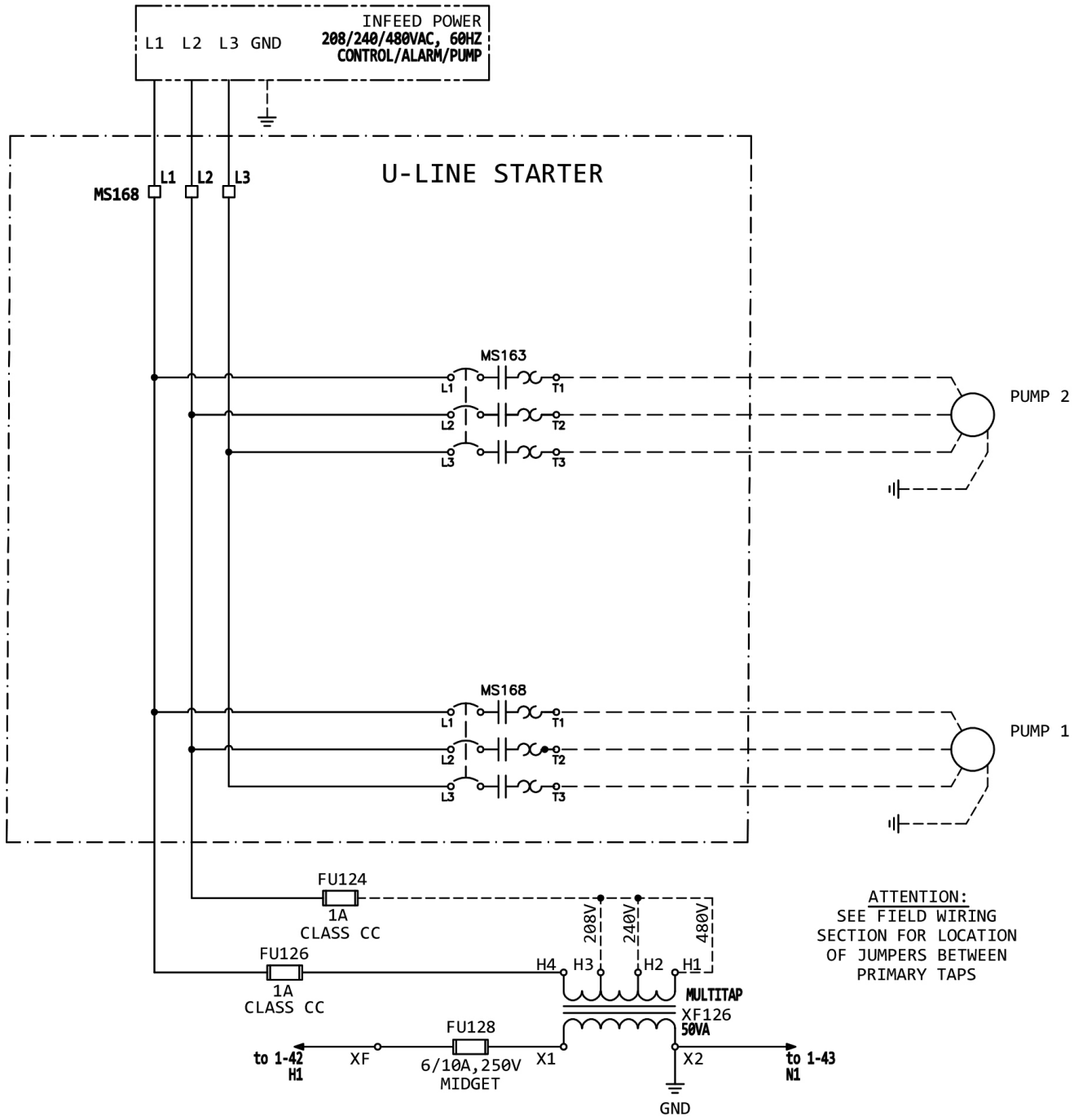


STANDARD ALARM PACKAGE

14. Red Alarm Beacon provides 360° visual check of alarm condition.
15. Alarm Horn provides audio warning of alarm condition (83 to 85 decibel rating).
16. Exterior Alarm Test/Normal/Silence Switch allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition is cleared.
17. Horn Silence Relay (mounted on circuit board)

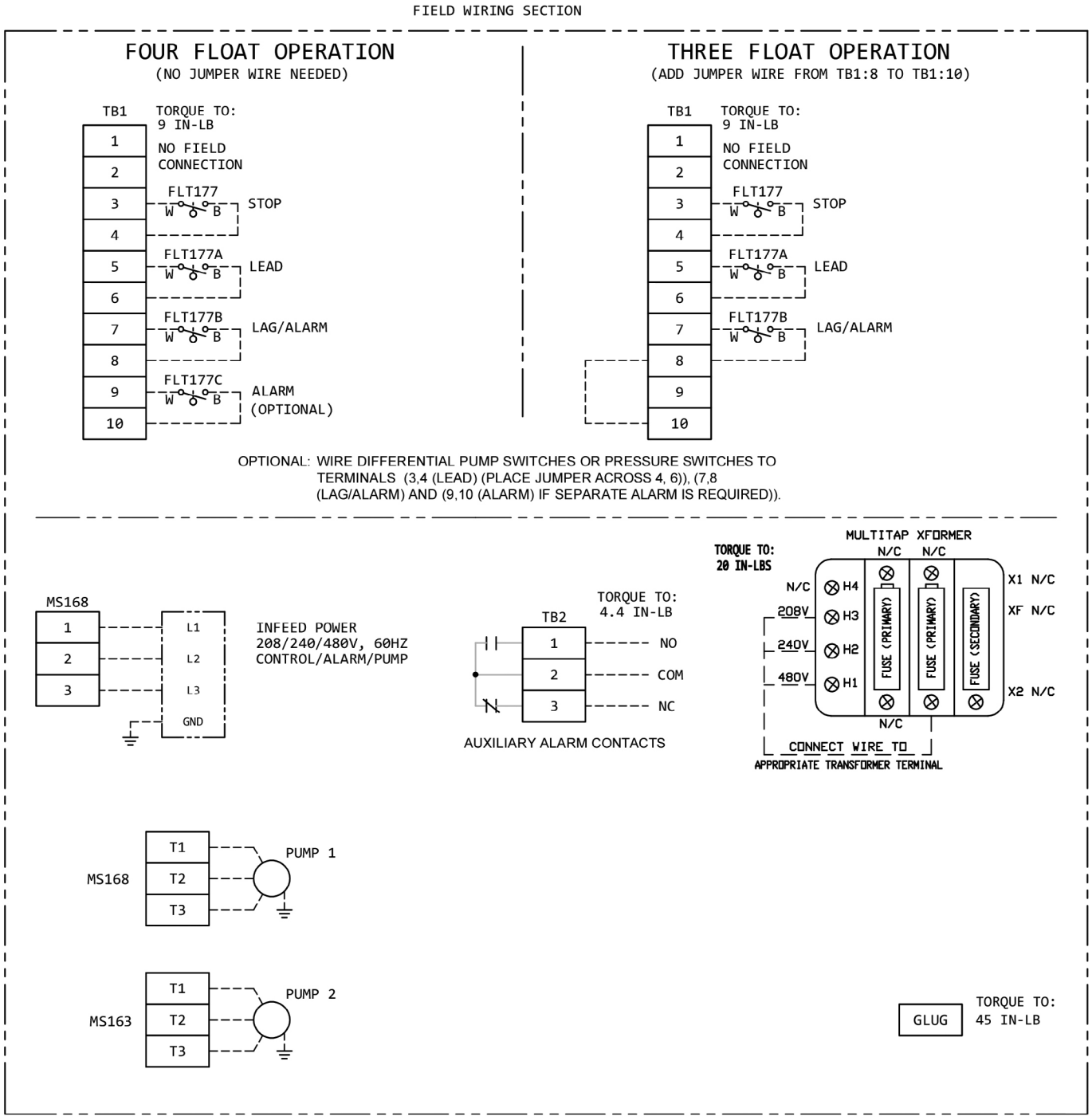
DUPLEX THREE PHASE PANEL

KD31255WF (1.25 – 5 AMPS) • KD34518WF (4.5 – 18 AMPS) • KD38032WF (8 – 32 AMPS)



DUPLEX THREE PHASE PANEL

KD31255WF (1.25 – 5 AMPS) • KD34518WF (4.5 – 18 AMPS) • KD38032WF (8 – 32 AMPS)



NOTES:

1. FIELD WIRING IS SHOWN ----------
2. TEMPERATURE RATING OF FIELD INSTALLED CONDUCTORS MUST BE AT LEAST 140° F. (60° C.).
3. FIELD WIRING WILL ACCEPT COPPER CONDUCTORS ONLY.
4. CONNECT GROUND LUG IN PANEL TO A SECURE EARTH GROUND.
5. INSTALL IN ACCORDANCE WITH ARTICLE 409 OF THE NATIONAL ELECTRIC CODE.
6. MAIN DISCONNECT AND OVERCURRENT PROTECTION OF INCOMING FEEDER CIRCUIT PROVIDED BY OTHERS AND MUST BE SIZED ACCORDING TO PUMP/MOTOR MANUFACTURING SPECIFICATIONS.

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TECHNICAL BROCHURE
BCP0 R7

FEATURES

Rugged NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion.

Hinged door with lockable stainless steel latch for safe operation indoors and out.

High level alarm circuit with external, on/off, alarm horn silence switch.

Alarm test switch insures proper operation of the alarm circuit without the need to actuate the alarm float.

Inside mounted pump run light.

Top mounted high intensity red light provides 360° visibility.

Corrosion proof alarm horn.

Color coded wiring, screw type terminals, ensure ease of field servicing.

Field wiring diagram, panel schematic and installation instructions included.

Entire unit is UL and CUL listed

Non-modifiable

S10015 1Ø CONTROL PANELS

SIMPLEX / WEATHERPROOF CONTROLLER WITH ALARM

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Simplex liquid level controller, automatically maintains pump operation, includes high level alarm warning for a variety of sump, effluent, sewage and water transfer applications.

SPECIFICATIONS

- Accepts single or dual power feed.
- Hand-off-automatic (H-O-A) pump selection switch.
- Magnetic contactor.
- Numbered terminal strip-screw type.
- NEMA 4X, 30 watt, red alarm light.
- NEMA 4X, fiberglass enclosure with gasketed, hinged door and stainless steel hardware.
- NEMA 4X, alarm horn –95db.

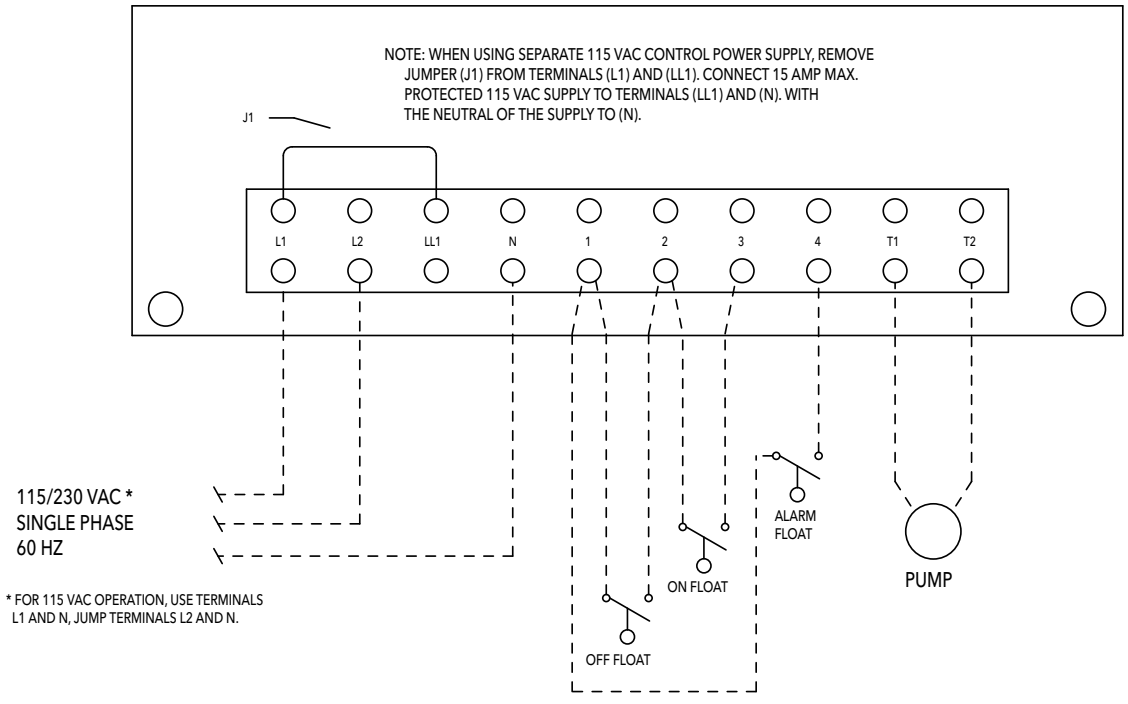
Single Phase

- 115 or 230 volt, 60 Hz.

Order No.	Maximum Running Amps	Float Switches
S10015	20	None - Order Separately (3 required)
S10015WF	20	① Inc. (3) N.O. Narrow Angle Mech. Control Switches

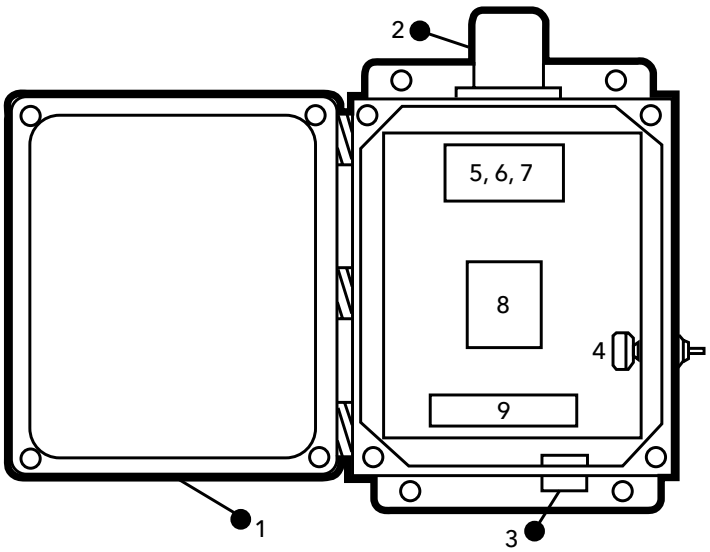
① Includes weights. Replacement switch is order No. A2N33.

TERMINAL STRIP WIRING



COMPONENTS

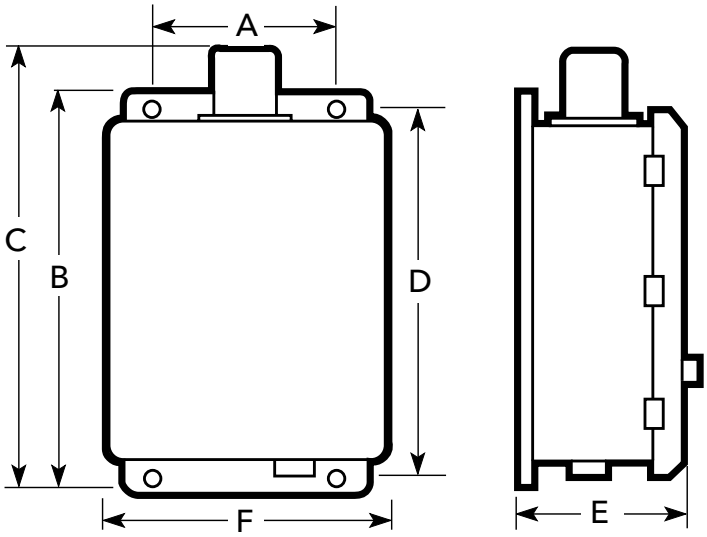
1. NEMA 4X FRP enclosure
2. Alarm light (RB63)
3. Alarm horn (RB50)
4. Horn on-off selector switch
5. H-O-A selector switch
6. Pump run light
7. Alarm test switch
8. Motor contactor
9. Wiring terminal strip



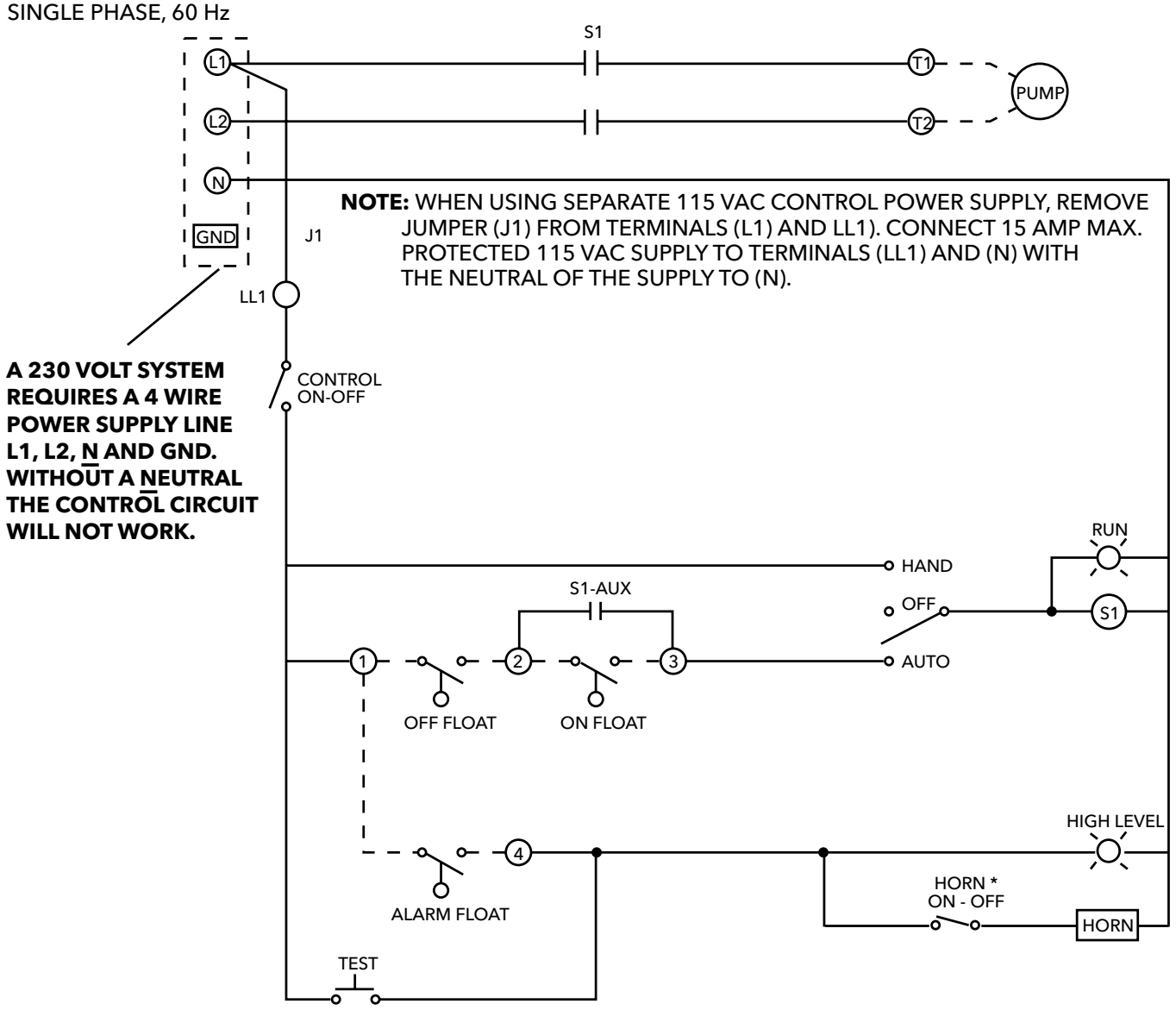
ENCLOSURE DIMENSIONS (in inches)

Single Phase

A	B	C	D	E	F
6	11.5	13.5	11.75	5.63	9.25



115/230 VAC (FOR 115 VAC, USE TERMINALS L1 AND N, JUMP L2 AND N).
SINGLE PHASE, 60 Hz



NOTE: WHEN USING SEPARATE 115 VAC CONTROL POWER SUPPLY, REMOVE JUMPER (J1) FROM TERMINALS (L1) AND LL1). CONNECT 15 AMP MAX. PROTECTED 115 VAC SUPPLY TO TERMINALS (LL1) AND (N) WITH THE NEUTRAL OF THE SUPPLY TO (N).

A 230 VOLT SYSTEM REQUIRES A 4 WIRE POWER SUPPLY LINE L1, L2, N AND GND. WITHOUT A NEUTRAL THE CONTROL CIRCUIT WILL NOT WORK.

***NOTE:** THE HORN ON/OFF SELECTOR SWITCH MUST BE PLACED BACK INTO THE (ON) POSITION AFTER THE ALARM CONDITION HAS BEEN CORRECTED IN ORDER TO MAINTAIN THE AUDIO ALARM ANNUNCIATION

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TECHNICAL BROCHURE
BCP1 R7

SIMPLEX INDOOR PANEL

S10020N1 SINGLE PHASE CONTROL PANEL

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

High level alarm circuit includes spring loaded through door-mounted silence switch for manual silence of alarm horn.

Through door mounted alarm test switch insures proper operation of the alarm circuit without the need to open the panel.

Through door mounted pump run light.

Top mounted high intensity flashing red light provides 360° visibility.

Pulsating, corrosion proof alarm horn.

Color coded wiring, screw type terminals and plug in sockets, insure ease of field servicing.

Field wiring diagram, panel schematic and installation instructions included.

Entire unit is UL and CUL listed.

PANEL MODEL INFORMATION

ORDER NUMBER	AMP RANGE
S10020N1	0-20

APPLICATIONS

Superior quality simplex liquid level controller, automatically maintains pump operation. High level alarm warning for a variety of sump, effluent, sewage and water transfer applications. Not for use in damp, outdoor, or weatherproof applications.

SPECIFICATIONS

- Non-modifiable — No options available.
- Accepts single or dual power feed.
- Hand-off-automatic (H-O-A) pump selection switch.
- On-off control circuit switch.
- Oversized magnetic contactors.
- Numbered terminal strip-screw type.
- NEMA 1, 30 watt, flashing red light.
- NEMA 1, steel enclosure.
- NEMA 1, alarm horn – 95db.
- Auxiliary alarm contacts.

Single Phase

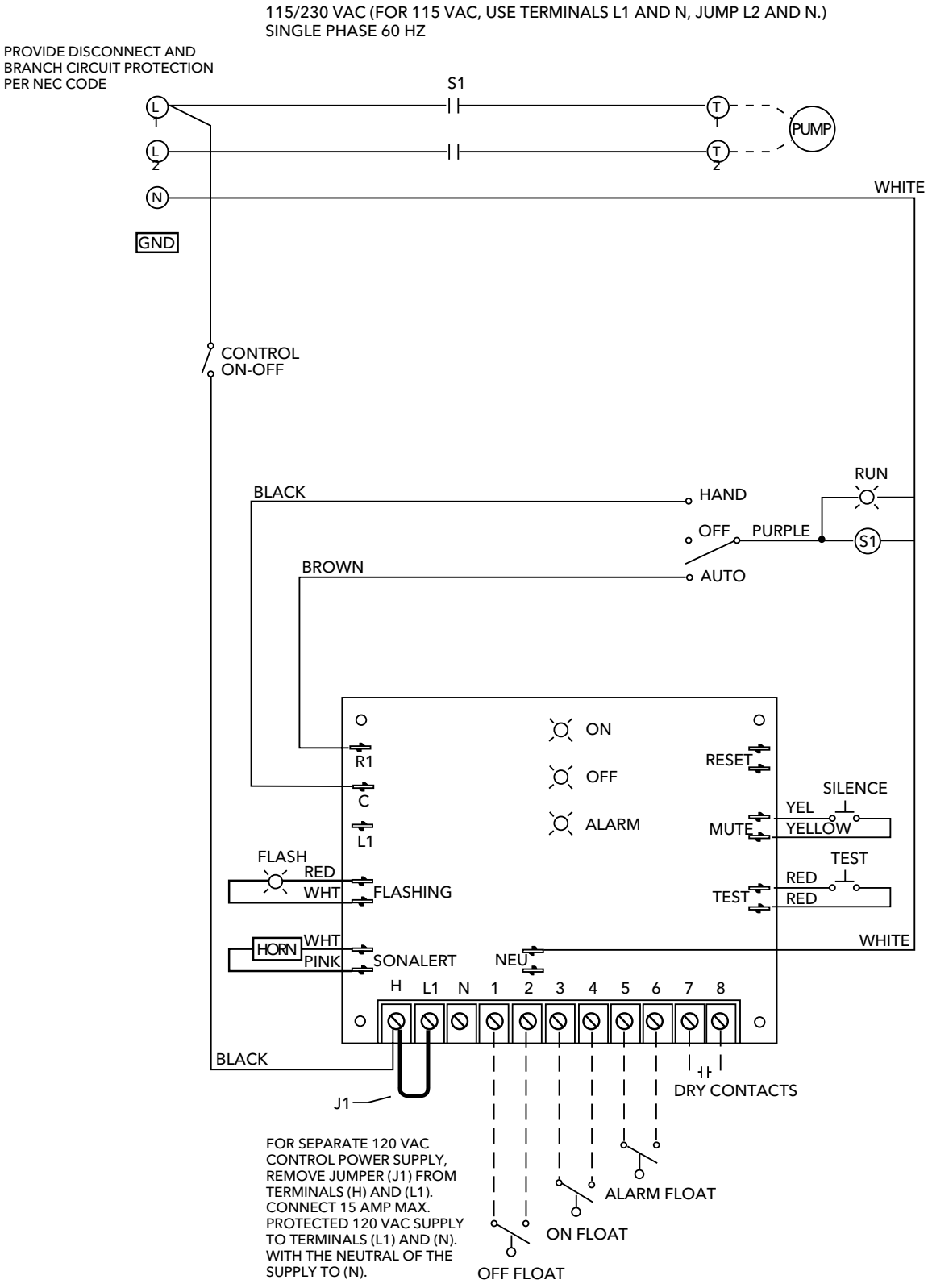
- Field adjustable for 115 or 230 V, 60 Hz.
- Enclosure: 8.0" H x 8.0" W x 4.0" D.

NOTE: Enclosure dimensions do not include 3" high light.

ADDITIONAL FEATURES

- Panel can be wired for a single power feed for pump and control circuit or the control circuit can be wired to a separate power supply to insure alarm integrity in case of a tripped pump breaker.
- Auxiliary alarm contacts provided for remote alarm connection.
- Float Switches – Note: Please order float switches separately. We offer several types and models. See the Float Switch bulletin for available options. The type selected determines the quantity needed. The basin depth and panel location determine the required cord length. Contact your distributor or Customer Service for additional information.

SIMPLEX SINGLE PHASE WIRING DIAGRAM – S10020 After October 1, 2003



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TECHNICAL BROCHURE
BCP2 R7

DUPLEX NEMA1 INDOOR PANEL

D10020N1 SINGLE PHASE CONTROL PANEL

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Superior quality duplex liquid level controller, automatic alternation for two pump operation. High level alarm warning designed for a variety of sump, effluent, sewage and water transfer applications. Not for use in damp, outdoor or weatherproof applications.

SPECIFICATIONS

- Non-modifiable – No options available.
- Accepts single or dual power feed.
- Two hand-off-automatic (H-O-A) pump switches.
- On-off control circuit switch.
- Two oversized magnetic contactors.
- Numbered terminal strip-screw type.
- NEMA 1, 30 watt, flashing red light.
- NEMA 1, steel enclosure.
- NEMA 1, alarm horn – 95db.
- Auxiliary alarm contacts.
- Alternator selector switch
- Lag pump start delay

Single Phase

- Field adjustable for 115 or 230 V, 60 Hz.
- Two pump 25 amp circuit breakers.
- Enclosure: 12.3" W x 14.3" H x 6" D.

NOTE: Enclosure dimensions do not include 3" high light.

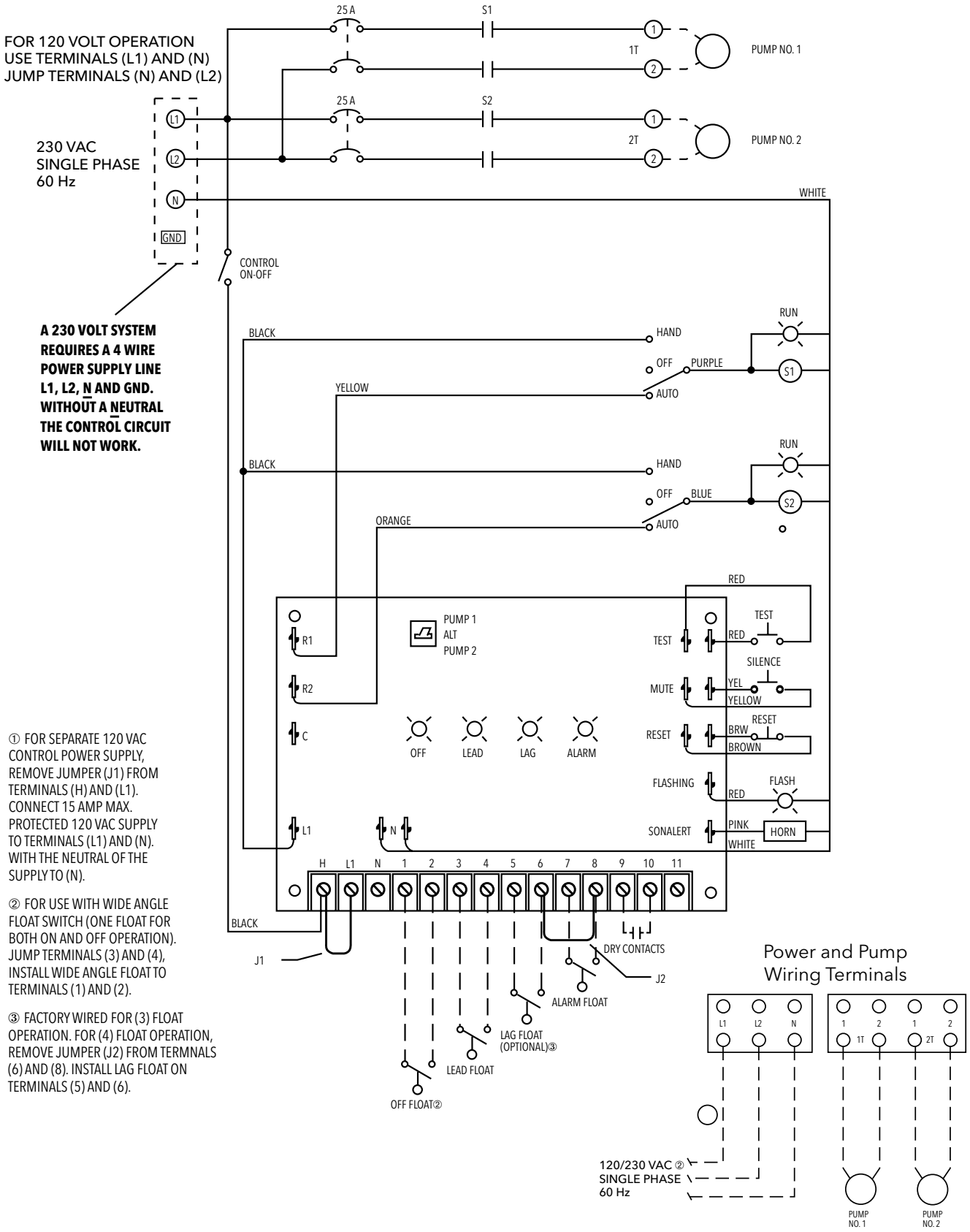
PANEL MODEL INFORMATION

ORDER NUMBER	AMP RANGE
D10020N1	0-20

Panel is non-modifiable.

FEATURES

- Provides fully automatic operation for two pumps. Alternates pump starting to distribute operating time. Provides extra pumping capacity in times of high inflow by energizing both pumps.
- Solid state pump alternator circuit with float status lights for ease of installation or trouble shooting.
- Alternator selector switch allows a choice of automatic alternation or operation of only pump 1 or pump 2. Typically used if one pump is down for maintenance.
- Lag pump start delay built-in.
- High level alarm circuit includes through door mounted silence switch for manual silence of alarm horn.
- Two through door mounted pump run lights.
- Top mounted high intensity flashing red light provides 360° visibility.
- Pulsating, corrosion proof alarm horn.
- Auxiliary alarm contacts provided for remote alarm connection.
- Lag pump start delay built-in. Delays starting lag pump for 5 seconds if both pumps attempt to start simultaneously as after a power outage.
- Color coded wiring, screw type terminals and plug in sockets, insure ease of field servicing.
- Field wiring diagram, panel schematic and installation instructions included.
- Factory wired for operation with three float switches. An easy field modification for four float switch operation using separate “lag-on” and “alarm switches” is provided.
- Panel can be wired for a single power feed for pumps and control circuit or the control circuit can be wired to a separate power supply to insure alarm integrity in case of a tripped main breaker.
- Float Switches – Note: Please order float switches separately. Requires three narrow angle switches or optional fourth float for lag pump.
- Entire unit is UL and CUL listed.



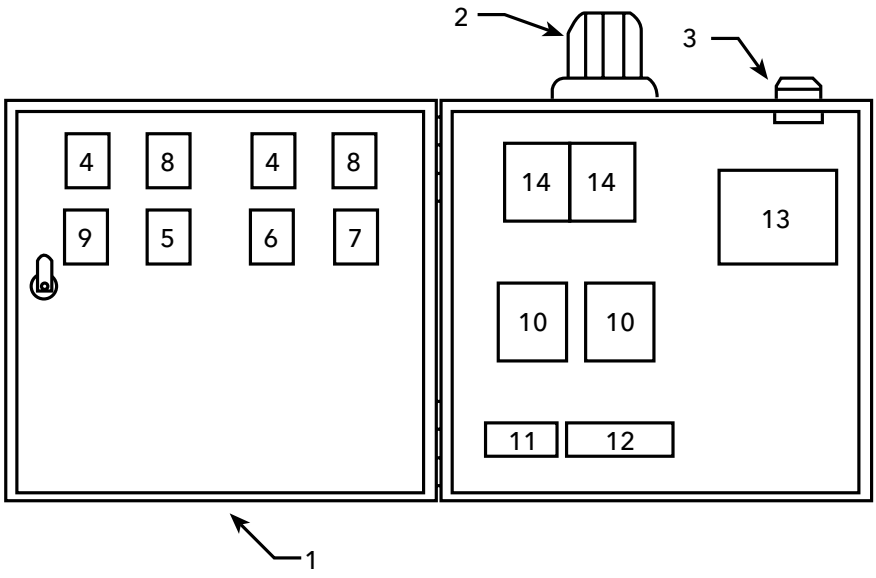
① FOR SEPARATE 120 VAC CONTROL POWER SUPPLY, REMOVE JUMPER (J1) FROM TERMINALS (H) AND (L1). CONNECT 15 AMP MAX. PROTECTED 120 VAC SUPPLY TO TERMINALS (L1) AND (N). WITH THE NEUTRAL OF THE SUPPLY TO (N).

② FOR USE WITH WIDE ANGLE FLOAT SWITCH (ONE FLOAT FOR BOTH ON AND OFF OPERATION). JUMP TERMINALS (3) AND (4), INSTALL WIDE ANGLE FLOAT TO TERMINALS (1) AND (2).

③ FACTORY WIRED FOR (3) FLOAT OPERATION. FOR (4) FLOAT OPERATION, REMOVE JUMPER (J2) FROM TERMNALS (6) AND (8). INSTALL LAG FLOAT ON TERMINALS (5) AND (6).

D10020N1 COMPONENTS

1. NEMA 1 enclosure
2. Flashing alarm light
3. Alarm horn
4. Pump run lights
5. Horn on/off selector switch
6. Alarm test selector switch
7. Control power on/off selector switch
8. H-O-A selector switches
9. Alarm reset selector switch
10. Contactors
11. Terminal strip
12. Terminal strip
13. Control board
14. Motor circuit breakers



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TECHNICAL BROCHURE

BCP3 R12

FEATURES

Rugged, NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion.

Solid-state control board displays float status for ease of installation and troubleshooting.

Hinged door with lockable stainless steel latch for safe operation indoors and out.

High-level alarm circuit includes spring loaded through-door mounted silence button for manual silence of alarm horn.

Through-door mounted pump run light and alarm test button.

Top-mounted, high intensity, flashing red light provides 360° visibility.

Pulsating, corrosion proof alarm horn.

Auxiliary alarm contacts provided for remote alarm connection.

Entire unit is UL and CUL listed.

SIMPLEX WEATHERPROOF CONTROL PANELS

SINGLE AND THREE PHASE CONTROL PANEL

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Superior quality simplex liquid level controller automatically maintains pump operation. Includes high-level alarm warning for a variety of sump, effluent, sewage and water transfer applications.

SPECIFICATIONS

- Accepts single or dual power feed.
- Hand-off-automatic (H-O-A) pump selection switch.
- On-off control circuit switch.
- Oversized magnetic contactor.
- Numbered terminal strip-screw type.
- Float Switches – Note: Please order float switches separately. We offer several types and models. See the Float Switch bulletin for available options. The type selected determines the quantity needed. The basin depth and panel location determine the required cord length. Contact your distributor or Customer Service for additional information.
- NEMA 4X, 30 watt, flashing red light.
- NEMA 4X, fiberglass enclosure with gasketed, hinged door and stainless steel hardware.
- Solid-state printed circuit control board with float indicator lights.
- NEMA 4X, alarm horn – 95db.
- Auxiliary alarm contacts.

Single Phase

- Field adjustable for 115 or 230 V, 60 Hz.

Three Phase

- Field adjustable for 208/230/460/575 V, 60 Hz.
- 115V control circuit transformer.
- Adjustable motor overload protectors.
- Heaters not required.

ADDITIONAL FEATURES

- Through-door mounted alarm test switch insures proper operation of the alarm circuit without the need to open the panel.
- Color coded wiring, screw type terminals and plug in sockets, ensure ease of field servicing.
- Field wiring diagram, panel schematic and installation instructions included.
- Panel can be wired for a single power feed for pump and control circuit or the control circuit can be wired to a separate power supply to insure alarm integrity in case of a tripped pump breaker.

PANEL MODEL INFORMATION

SINGLE PHASE PANELS		THREE PHASE PANELS	
ORDER NUMBER	**AMP RANGE**	**ORDER NUMBER**	**AMP RANGE**
S10020	0-20	S31625	1.6 - 2.5
S12136	21-36	S32540	2.5 - 4.0
		S34063	4.0 - 6.3
		S36310	6.3 - 10
		S31016	10 - 16
		S31620	16 - 20
		S32025	20 - 25
		S32232	22 - 32

ADDITIONAL OPTIONS

Code (add as required)

A = Guaranteed pump submergence circuit

C = 115V condensation heater

D = Single phase lightning arrestor

E = Three phase lightning arrestor

F = Elapsed time meter (1) – simplex

H = Seal fail circuit (1) – simplex

K = Cycle counter – Simplex

M = High temp. indicator with shutdown – Simplex

O = Special simplex seal fail and high temperature circuit for use on only three phase 15/20GD, 15/20GX,1GA/2GA, GV Plus and Impact pumps. For single phase, see Goulds single phase grinder control panels bulletin BCP1PGP for standard, BCP1PC1P for explosion proof.

R = Simplex 3SDX/4SDX/4NS/4XD Seal Fail

Y = Simplex dry contact for seal failure interface to building management system.

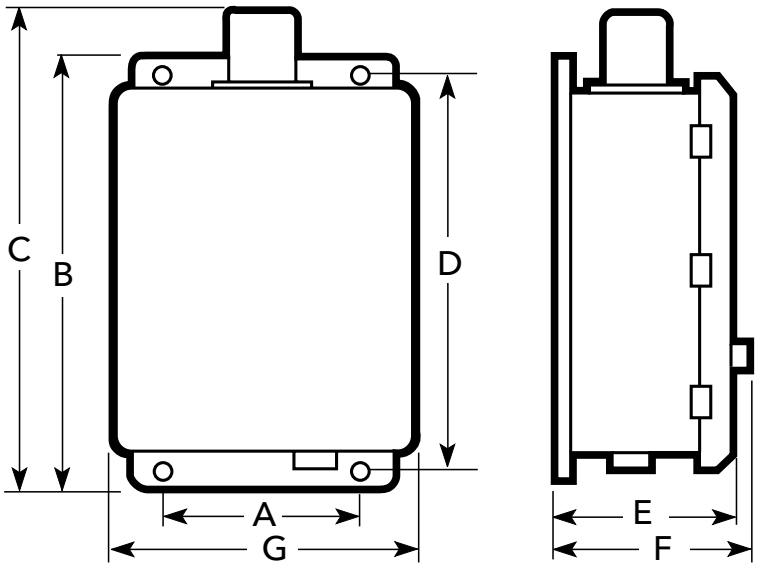
Z = Simplex dry contact for pump running interface to building management system.

When ordering options, add the appropriate code number as a suffix to the panel order number.

Example: S10020CF adds a cond. heater and (1) elapsed time meter.

ENCLOSURE DIMENSIONS (in inches)

Single Phase						
A	**B**	**C**	**D**	**E**	**F**	**G**
6.3	11.5	14.3	10.8	5.5	6.0	9.3
Three Phase						
A	**B**	**C**	**D**	**E**	**F**	**G**
8.3	13.5	16.3	12.8	5.6	6.1	11.3
NOTE: Mounting holes are ⅜".						

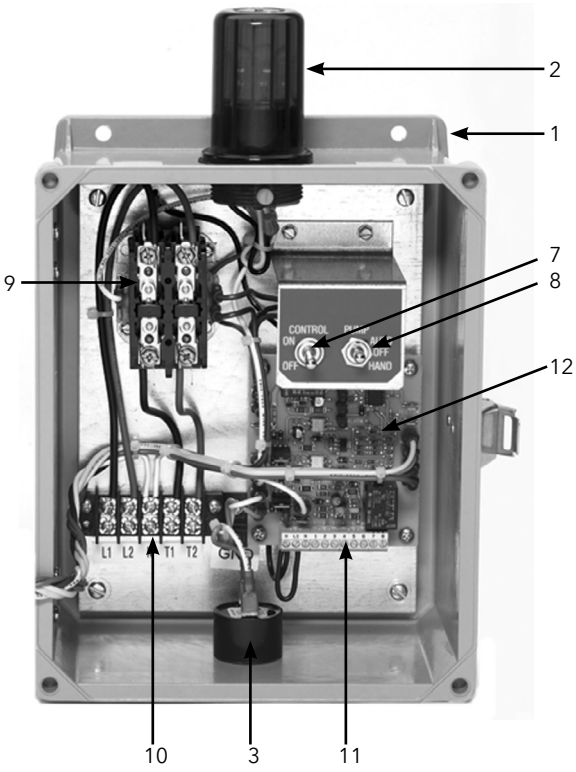


COMPONENTS

1. NEMA 4X fiberglass enclosure
2. Flashing red alarm light
3. Alarm horn
4. Pump run light
5. Alarm test button
6. Alarm horn silence button
7. Control power on/off switch
8. H-O-A selector switch
9. Contactor
10. Terminal wiring strip – power and pumps
11. Terminal wiring strip – floats
12. Solid-state control board

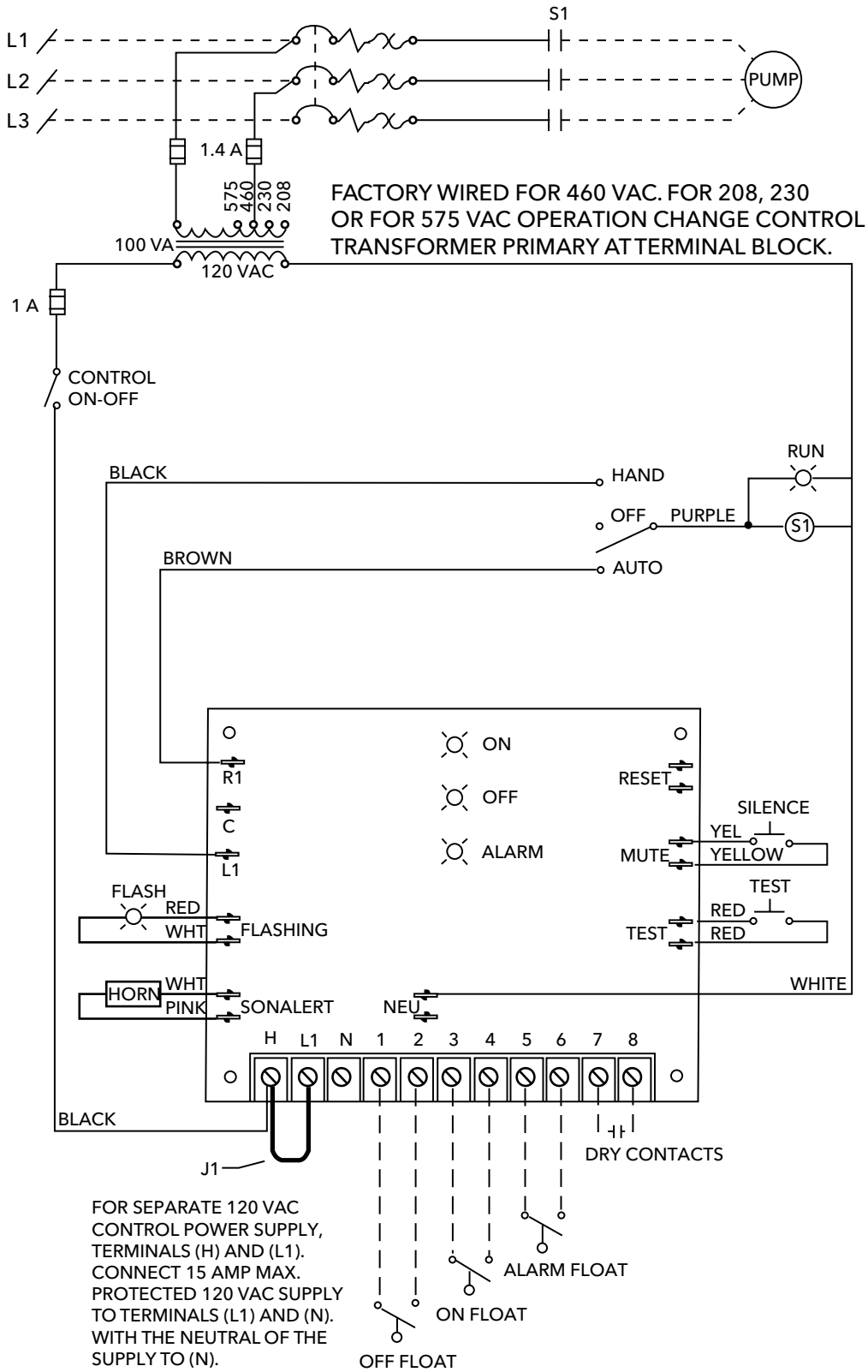
Three phase models only

13. Motor circuit protector-upper left corner
14. Transformer-upper right corner



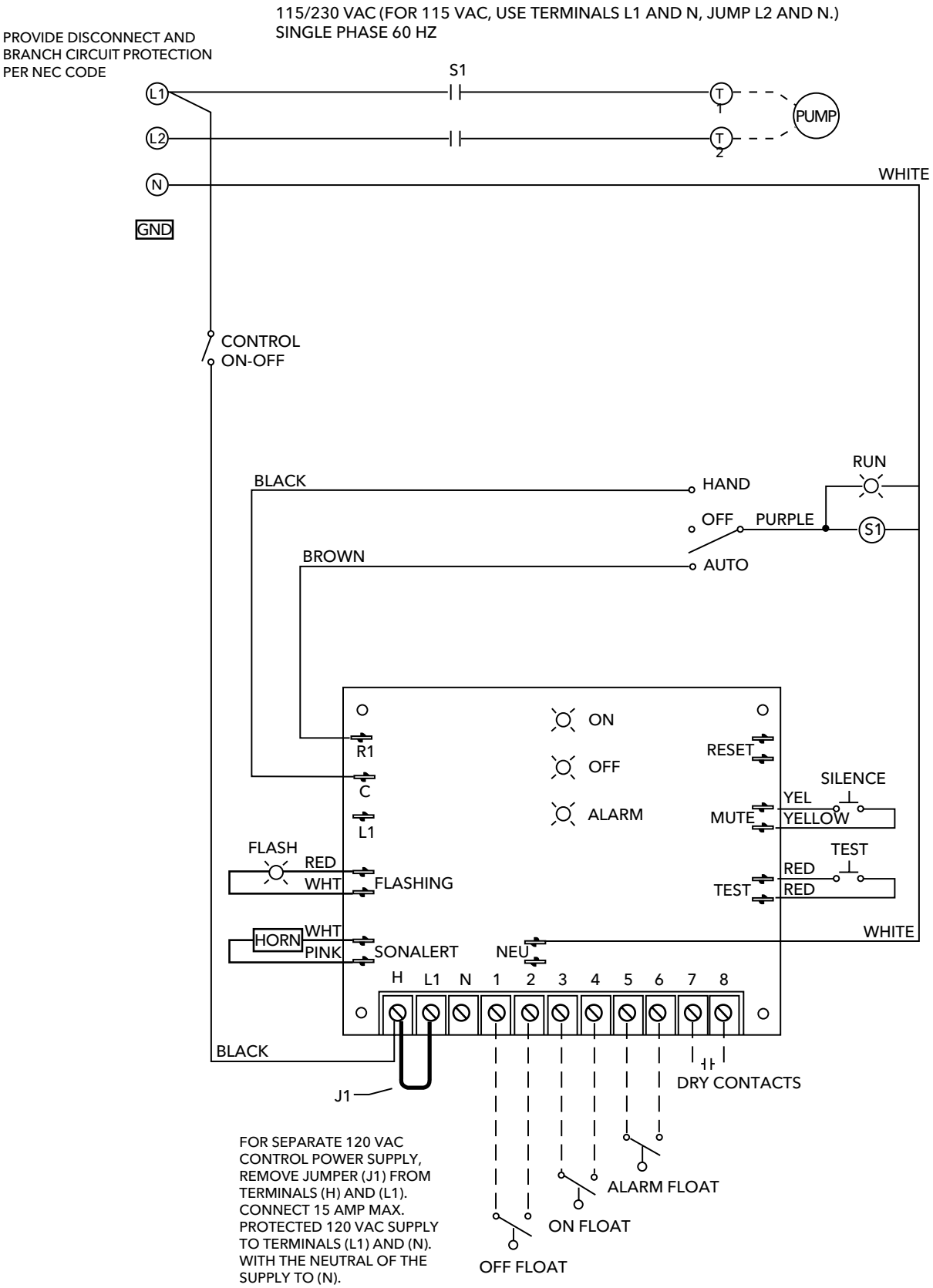
SIMPLEX THREE PHASE PANEL LAYOUT

NOTE: A fused disconnect or circuit breaker must be provided by installer.
Provide disconnect sizing per NEC 430-53(C).



FOR USE WITH WIDE ANGLE FLOAT SWITCH (ONE FLOAT FOR BOTH ON AND OFF OPERATION).
JUMP TERMINALS (3) AND (4), INSTALL WIDE ANGLE FLOAT TO TERMINALS (1) AND (2).

SIMPLEX SINGLE PHASE WIRING DIAGRAM – S10020 After October 1, 2003



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TECHNICAL BROCHURE
BCP4 R15

FEATURES

NEMA 4X, 30 watt, flashing red light and alarm horn – 95db.

NEMA 4X, fiberglass enclosure with gasketed, hinged door and stainless steel hardware.

Entire unit is UL and CUL listed.

Single Phase

- Field adjustable for 115, 208 or 230V, 60 Hz.
- 2 pump circuit breakers.

Three Phase

- Field adjustable for 208/230 /460/575V, 60 Hz.
- 115V control circuit transformer.
- 2 adjustable motor overload protectors.
- Heaters not required.

Provides fully automatic operation for two pumps.

Solid state pump alternator circuit displays float status for ease of installation and trouble shooting.

DUPLEX NEMA 4X WEATHERPROOF PANELS

SINGLE AND THREE PHASE CONTROL PANELS

GOULDS WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Superior quality duplex liquid-level controller, automatically controls alternation for two pump operation. High-level alarm warning designed for a variety of sump, effluent, sewage and water transfer applications.

SPECIFICATIONS

- Accepts single or dual power feed.
- 2 hand-off-automatic (H-O-A) pump switches.
- On-off control circuit switch.
- 2 oversized magnetic contactors.
- Numbered terminal strip-screw type.
- Float Switches – **Note: Please order float switches separately.** We offer several types and models. See the Float Switch bulletin for available options. The type selected determines the quantity needed. The basin depth and panel location determine the required cord length. Contact your distributor or Customer Service for additional information.
- Electronic pump alternator.
- Alternator selector switch.
- Lag pump start delay.

FEATURES

- Rugged, NEMA 4X construction withstands even the most severe weather conditions and prevents corrosion.
- Provides fully automatic operation for two pumps. Alternates pump starting to distribute operating time. Provides extra pumping capacity in times of high inflow by energizing both pumps.
- Alternator selector toggle for maintenance on one or both pumps.
- Hinged door with lockable stainless steel latch for safe operation indoors or out.
- High-level alarm circuit includes through-door mounted silence switch for manual silence of alarm horn.
- Through-door mounted alarm test switch insures proper operation of the alarm circuit without the need to open the panel.
- Two through-door mounted pump run lights.
- Top-mounted high intensity flashing red light provides 360° visibility.
- Pulsating, corrosion proof alarm horn.
- These duplex controls are factory wired for operation with three float bulbs. An easy field modification for four float bulb operation using separate "lag-on" and "alarm bulbs" is provided.
- Alternator selector switch allows a choice of automatic alternation or operation of only pump 1 or pump 2. Typically used if one pump is down for maintenance.
- Lag pump-start delay built-in. Delays starting lag pump for 5 seconds if both pumps attempt to start simultaneously as after a power outage.
- Panel can be wired for a single power feed for pumps and control circuit or the control circuit can be wired to a separate power supply to insure alarm integrity in case of a tripped main breaker.
- Auxiliary alarm contacts provided for remote alarm connection.
- Color coded wiring, screw type terminals and plug in sockets, ensure ease of field servicing.
- Field wiring diagram, panel schematic and installation instructions included.
- Requires three float switches or with optional fourth lag float, order separately.

PANEL MODEL INFORMATION

SINGLE PHASE PANELS		THREE PHASE PANELS	
ORDER NUMBER	**AMP / HP RANGE**	**ORDER NUMBER**	**AMP RANGE**
D10020	0-20 AMPS	D31625	1.6 - 2.5
D12127	3 HP	D32540	2.5 - 4.0
D12836	5 HP	D34063	4.0 - 6.3
		D36310	6.3 - 10
		D31016	10 - 16
		D31620	16 - 20
		D32025	20 - 25
		D32232	22 - 32

ADDITIONAL OPTIONS

Code (add as required)

A = Guaranteed pump submergence circuit

C = 115V condensation heater

D = Single phase lightning arrestor

E = Three phase lightning arrestor

G = Elapsed time meter (2) – Duplex

J = Seal fail circuit (2) – Duplex

L = Cycle counter (2) – Duplex

N = High temp. indicator with pump shutdown – Duplex

P = Special duplex Mini CAS seal fail and high temperature circuit for use on only three phase 15/20GD, 15/20GX, 1GA/2GA, GV Plus and Impact pumps. For single phase, see Goulds single phase grinder control panels bulletin BCP1PGP for standard, BCP1PC1P for explosion proof.

T = 4 intrinsically safe relays in duplex panel

V = Duplex 3SDX/4SDX/4NS/4XD Seal Fail

YY= Duplex dry contact for seal failure interface to building management system.

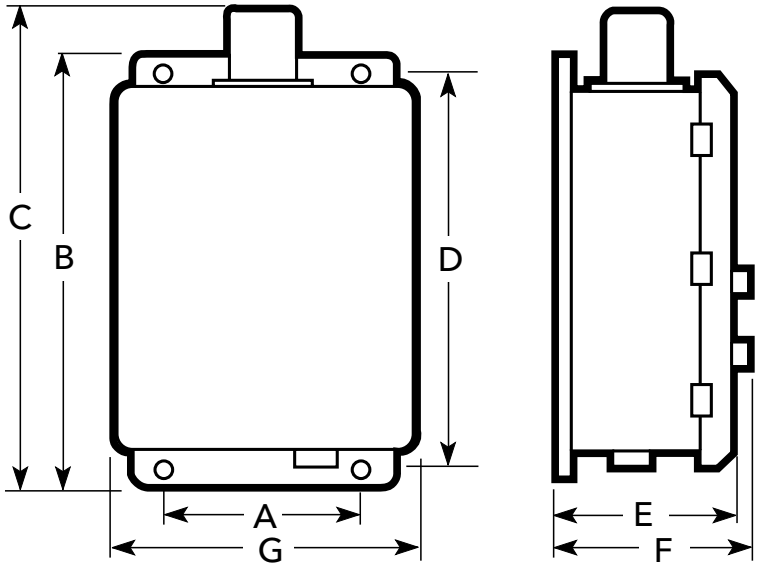
ZZ= Duplex dry contact for pump running interface to building management system.

When ordering options, add the appropriate code number as a suffix to the panel order number.

Example...D31625CG adds a condensation heater and (2) elapsed time meters.

ENCLOSURE DIMENSIONS (in inches)

Single Phase						
A	**B**	**C**	**D**	**E**	**F**	**G**
10.1	15.5	18.3	14.8	6.8	7.2	13.3
Three Phase						
A	**B**	**C**	**D**	**E**	**F**	**G**
12.1	17.5	20.3	16.8	6.8	7.2	15.3
NOTE: Mounting holes are ⅜".						

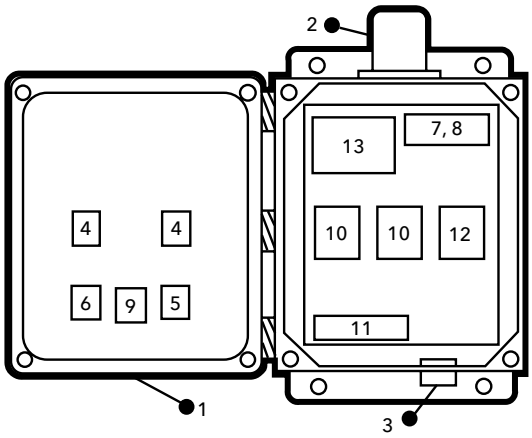


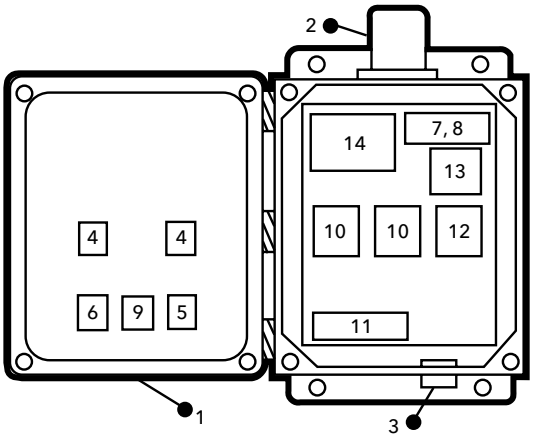
SINGLE PHASE COMPONENTS

1. NEMA 4X enclosure
2. Flashing alarm light
3. Alarm horn
4. Pump run light
5. Alarm silence button
6. Alarm test button
7. Control power on/off switch
8. H-O-A switch
9. Alarm reset button
10. Contactor
11. Terminal strip
12. Alternator circuit
13. Motor circuit breakers

THREE PHASE COMPONENTS

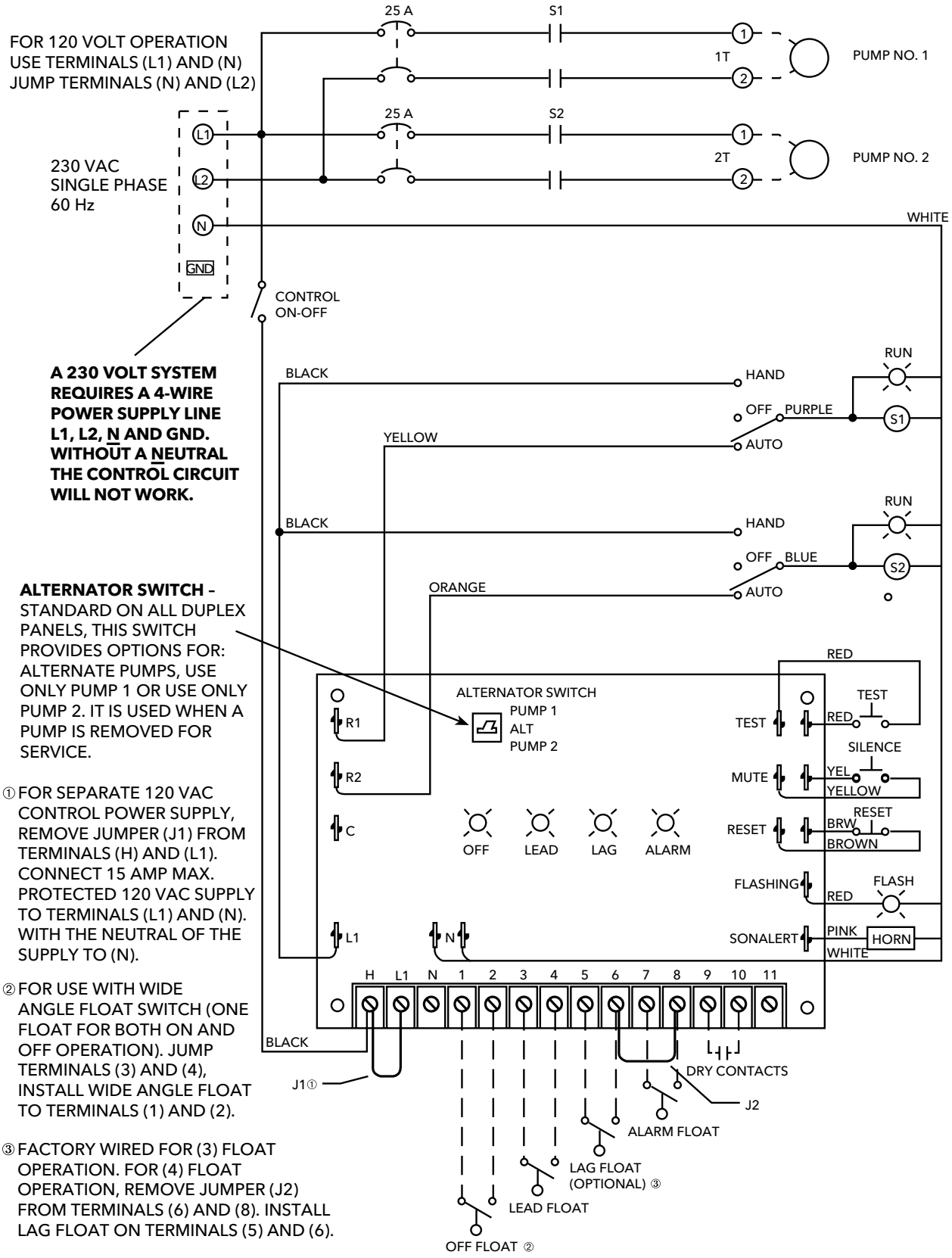
1. NEMA 4X enclosure
2. Flashing alarm light
3. Alarm horn
4. Pump run light
5. Alarm silence button
6. Alarm test button
7. Control power on/off switch
8. H-O-A switch
9. Alarm reset button
10. Contactor
11. Terminal strip
12. Alternator circuit
13. Control transformer
14. Motor circuit protectors



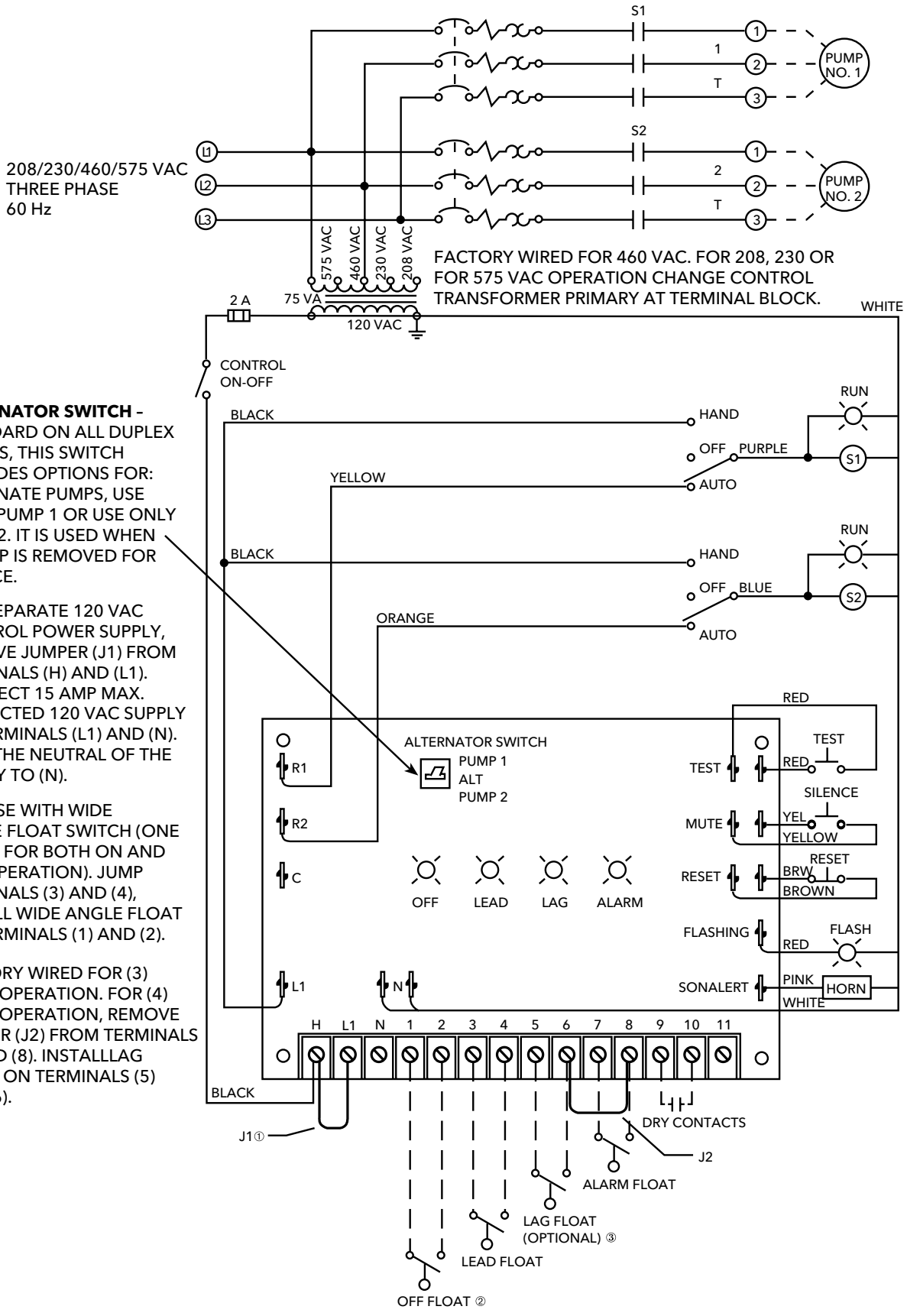


DUPLEX SINGLE PHASE WIRING DIAGRAM – D10020

NOTE: The standard panels shown in this book are not designed to be used with pumps requiring external capacitors. See the catalog for panels with built-in capacitor packs.



DUPLEX THREE PHASE WIRING DIAGRAM – D3 – – – –



ALTERNATOR SWITCH – STANDARD ON ALL DUPLEX PANELS, THIS SWITCH PROVIDES OPTIONS FOR: ALTERNATE PUMPS, USE ONLY PUMP 1 OR USE ONLY PUMP 2. IT IS USED WHEN A PUMP IS REMOVED FOR SERVICE.

① FOR SEPARATE 120 VAC CONTROL POWER SUPPLY, REMOVE JUMPER (J1) FROM TERMINALS (H) AND (L1). CONNECT 15 AMP MAX. PROTECTED 120 VAC SUPPLY TO TERMINALS (L1) AND (N). WITH THE NEUTRAL OF THE SUPPLY TO (N).

② FOR USE WITH WIDE ANGLE FLOAT SWITCH (ONE FLOAT FOR BOTH ON AND OFF OPERATION). JUMP TERMINALS (3) AND (4), INSTALL WIDE ANGLE FLOAT TO TERMINALS (1) AND (2).

③ FACTORY WIRED FOR (3) FLOATOPERATION. FOR (4) FLOATOPERATION, REMOVE JUMPER (J2) FROM TERMINALS (6) AND (8). INSTALLLAG FLOAT ON TERMINALS (5) AND (6).

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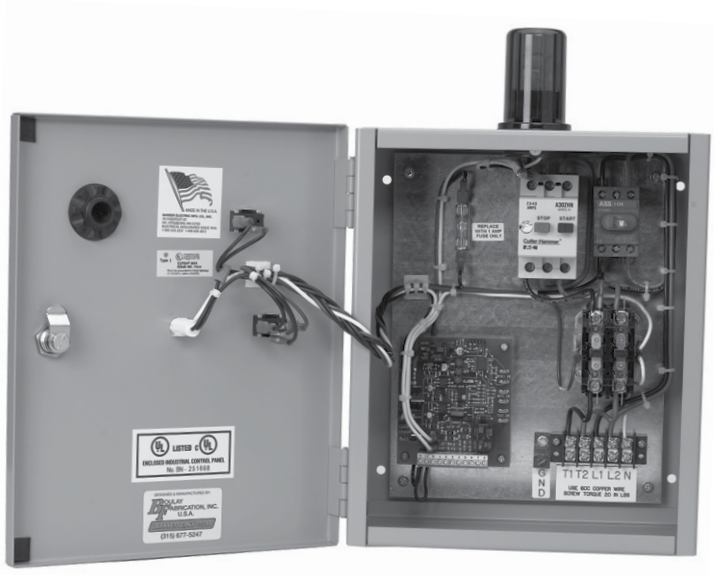
BCPSDWWP R6



SIMPLEX/DUPLEX WASTEWATER DISCONNECT STYLE PANELS

GOULDS WATER TECHNOLOGY
a xylem brand

PANEL FEATURES

Oversize enclosure to accommodate all options.

One main disconnect through-the-door with door interlock, **prevents the door from accidentally being opened when the disconnect is in the ON position. Pad-lockable in the OFF position only.**

A manual lockable disconnect feature on the motor overload protector. Lock not provided.

Oversize magnetic contactor.

Ambient compensated bi-metallic (Class 10) motor overload circuit protector. Instantaneous magnetic trip for short circuit protection. Single-phase protection for three-phase motor. Field adjustable within the amp. range.

Control transformer with fused primary and fused secondary on all three-phase. Single-phase 115 volt has a fused control circuit.

Through-door hand-off-auto switch, control on/off switch and green pump run light.

Numbered and wired control terminal board.

Layout and schematic CAD diagrams can be provided upon request.

Optional alarm circuit may be field modified to use a 115 volt AC external power source.

APPLICATIONS

Superior quality simplex and duplex liquid level controller automatically maintains pump operation. Includes high-level alarm warning for a variety of sump, effluent, sewage and water transfer applications with ability to disconnect power at panels.

SPECIFICATIONS – 1Ø AND 3Ø

- Accepts single or dual power feed.
- Solid state printed circuit control board with float indicator lights.
- Main disconnect
- Alternator for duplex version
- Alarm horn
- Auxiliary alarm contacts
- Capacitors for pumps requiring external motor components are not included or available with this panel.

Single Phase

- Field adjustable for 115 or 230 V, 60 Hz.
- Adjustable motor overload protectors redundant to built-in overload in single phase motors.

Three Phase

- Field adjustable for 208/230/460/575 V, 60 Hz.
- 115 V control circuit transformer.
- Adjustable motor overload protectors.
- **Heaters not required.**

ORDER NUMBERS

	Phase	NEMA 1	NEMA 4X	Amp Rating
Simplex	1	CSD14063N1	CSD14063	4.0-6.3
		CSD16310N1	CSD16310	6.3-10
		CSD11016N1	CSD11016	10-16
		CSD11620N1	CSD11620	16-20
		CSD12025N1	CSD12025	20-25
		CSD12232N1	CSD12232	22-32
	3	CSD31625N1	CSD31625	1.6-2.5
		CSD32540N1	CSD32540	2.5-4.0
		CSD34063N1	CSD34063	4.0-6.3
		CSD36310N1	CSD36310	6.3-10
		CSD31016N1	CSD31016	10-16
		CSD31620N1	CSD31620	16-20
		CSD32025N1	CSD32025	20-25
		CSD32232N1	CSD32232	22-32
Duplex	1	CDD14063N1	CDD14063	4.0-6.3
		CDD16310N1	CDD16310	6.3-10
		CDD11016N1	CDD11016	10-16
		CDD11620N1	CDD11620	16-20
		CDD12025N1	CDD12025	20-25
		CDD12232N1	CDD12232	22-32
	3	CDD31625N1	CDD31625	1.6-2.5
		CDD32540N1	CDD32540	2.5-4.0
		CDD34063N1	CDD34063	4.0-6.3
		CDD36310N1	CDD36310	6.3-10
		CDD31016N1	CDD31016	10-16
		CDD31620N1	CDD31620	16-20
		CDD32025N1	CDD32025	20-25
		CDD32232N1	CDD32232	22-32

NOTE: NEMA 4X panel selections are dead front with an inner door

NOMENCLATURE

Character	Description
1st	C = Goulds Water Technology
2nd	S = Simplex, D = Duplex
3rd	D = Disconnect
4th	1= single phase - 115/230 volt 3 = 3 phase - 208/230/460/575 volt
5th – 8th	116 = 1.0-1.6 amp range, 1625 = 1.6-2.5 amp range, 2540 = 2.5-4.0 amp range, 4063 = 4.0-6.3 amp range, 6310 = 6.3-10.0 amp range, 1016 = 10-16 amp range, 1620 = 16-20 amp range, 2025 = 20-25 amp range, 2232 = 22-32 amp range (amp ratings of 22-25 overlap on the last two ratings, when in doubt go to larger range)
9th – 10th	N1 = Nema 1, Nothing in 9th and 10th character for Nema 4X.

ADDITIONAL OPTIONS

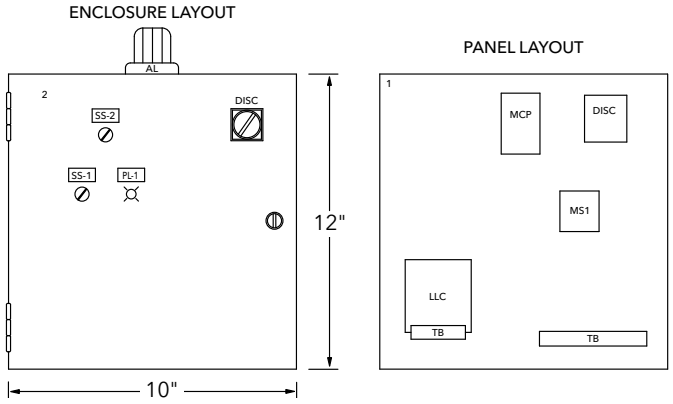
Code (add as required)

A = Guaranteed pump submergence circuit
C = 115V condensation heater
D = Single phase lightning arrestor
E = Three phase lightning arrestor
F = Elapsed time meter (1) – simplex
H = Seal fail circuit (1) – simplex
K = Cycle counter – Simplex
M = High temp. indicator with shutdown – Simplex
O = Special simplex seal fail and high temperature circuit for use on only three phase 15/20GD, 15/20GX,1GA/2GA, GV Plus and Impact pumps. For single phase, see Goulds Water Technology single phase grinder control panels bulletin BCP1PGP for standard, BCP1PC1P for explosion proof.
R = Simplex 3SDX/4SDX/4NS/4XD Seal Fail
Y = Simplex dry contact for seal failure interface to building management system.
Z = Simplex dry contact for pump running interface to building management system.

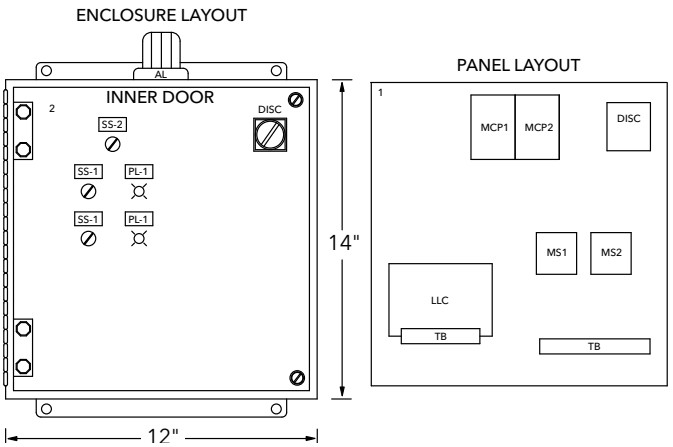
When ordering options, add the appropriate code number as a suffix to the panel order number.

Example: S10020CF adds a cond. heater and (1) elapsed time meter.

SIMPLEX 1Ø ENCLOSURE LAYOUT



DUPLEX 1Ø ENCLOSURE LAYOUT



ADDITIONAL OPTIONS

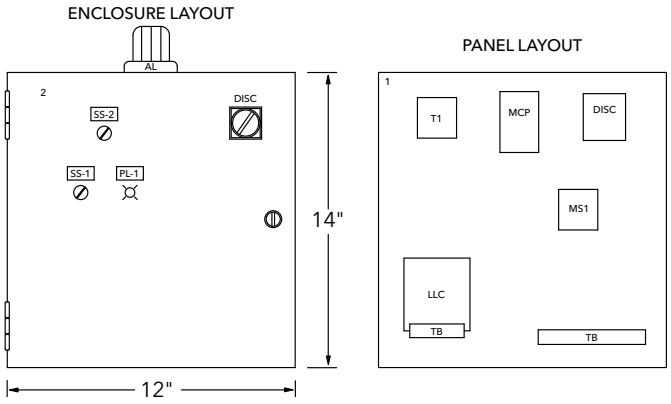
Code (add as required)

A = Guaranteed pump submergence circuit
C = 115V condensation heater
D = Single phase lightning arrestor
E = Three phase lightning arrestor
G = Elapsed time meter (2) – Duplex
J = Seal fail circuit (2) – Duplex
L = Cycle counter (2) – Duplex
N = High temp. indicator with pump shutdown – Duplex
P = Special duplex Mini CAS seal fail and high temperature circuit for use on only three phase 15/20GD, 15/20GX, 1GA/2GA, GV Plus and Impact pumps. For single phase, see Goulds single phase grinder control panels bulletin BCP1PGP for standard, BCP1PC1P for explosion proof.
T = 4 intrinsically safe relays in duplex panel
V = Duplex 3SDX/4SDX/4NS/4XD Seal Fail
YY = Duplex dry contact for seal failure interface to building management system.
ZZ = Duplex dry contact for pump running interface to building management system.

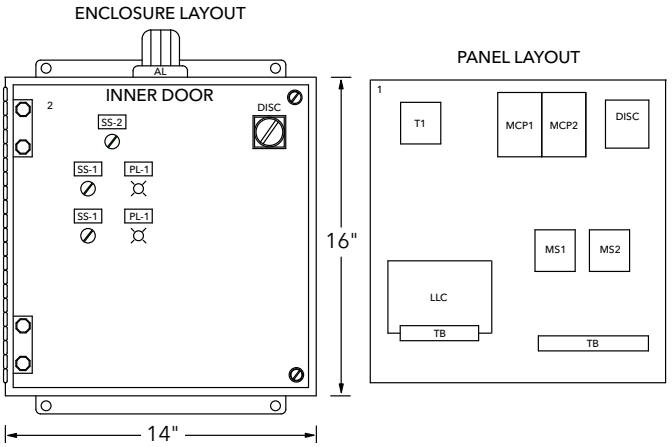
When ordering options, add the appropriate code number as a suffix to the panel order number.

Example...D31625CG adds a condensation heater and (2) elapsed time meters.

SIMPLEX 3Ø ENCLOSURE LAYOUT

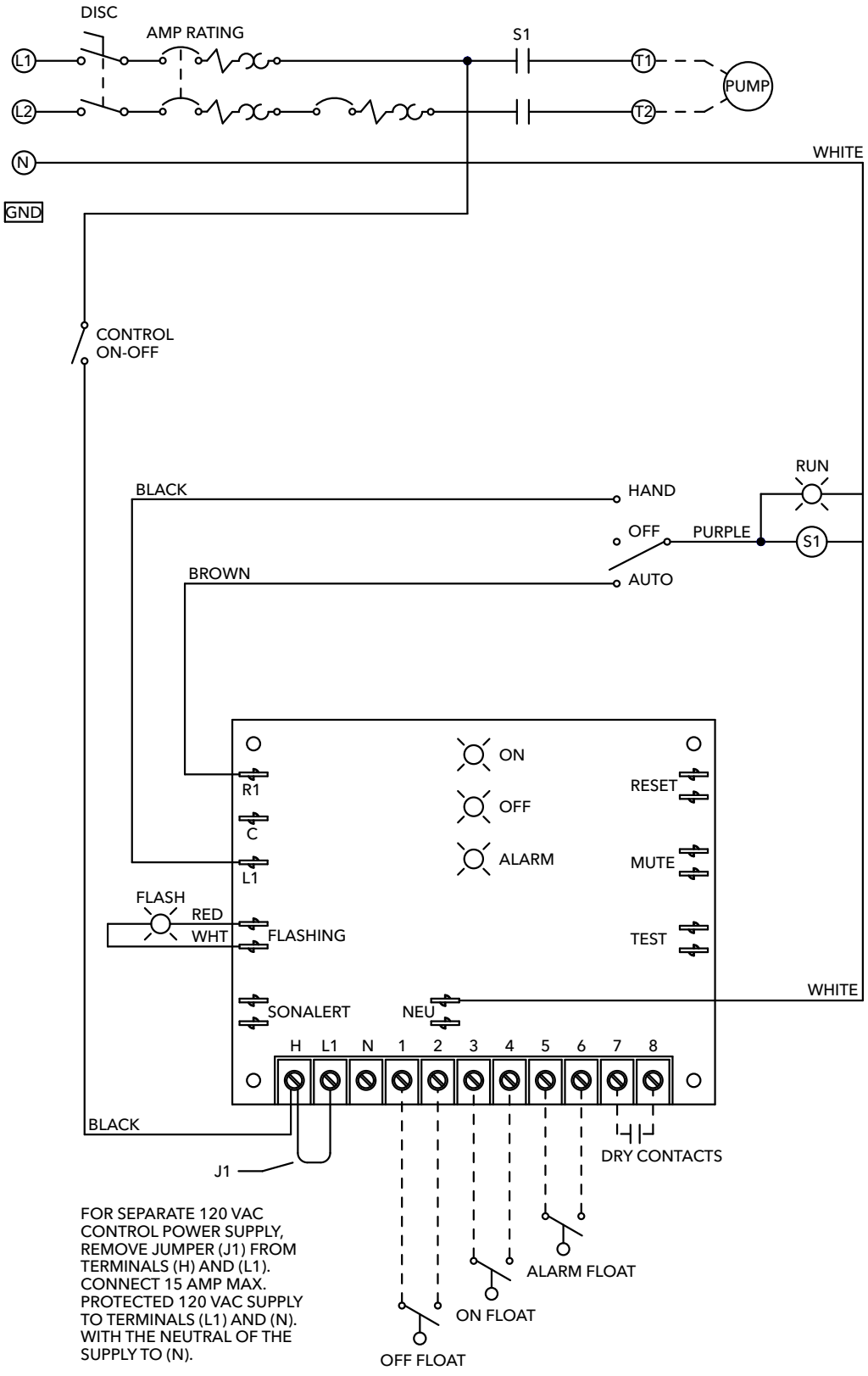


DUPLEX 3Ø ENCLOSURE LAYOUT



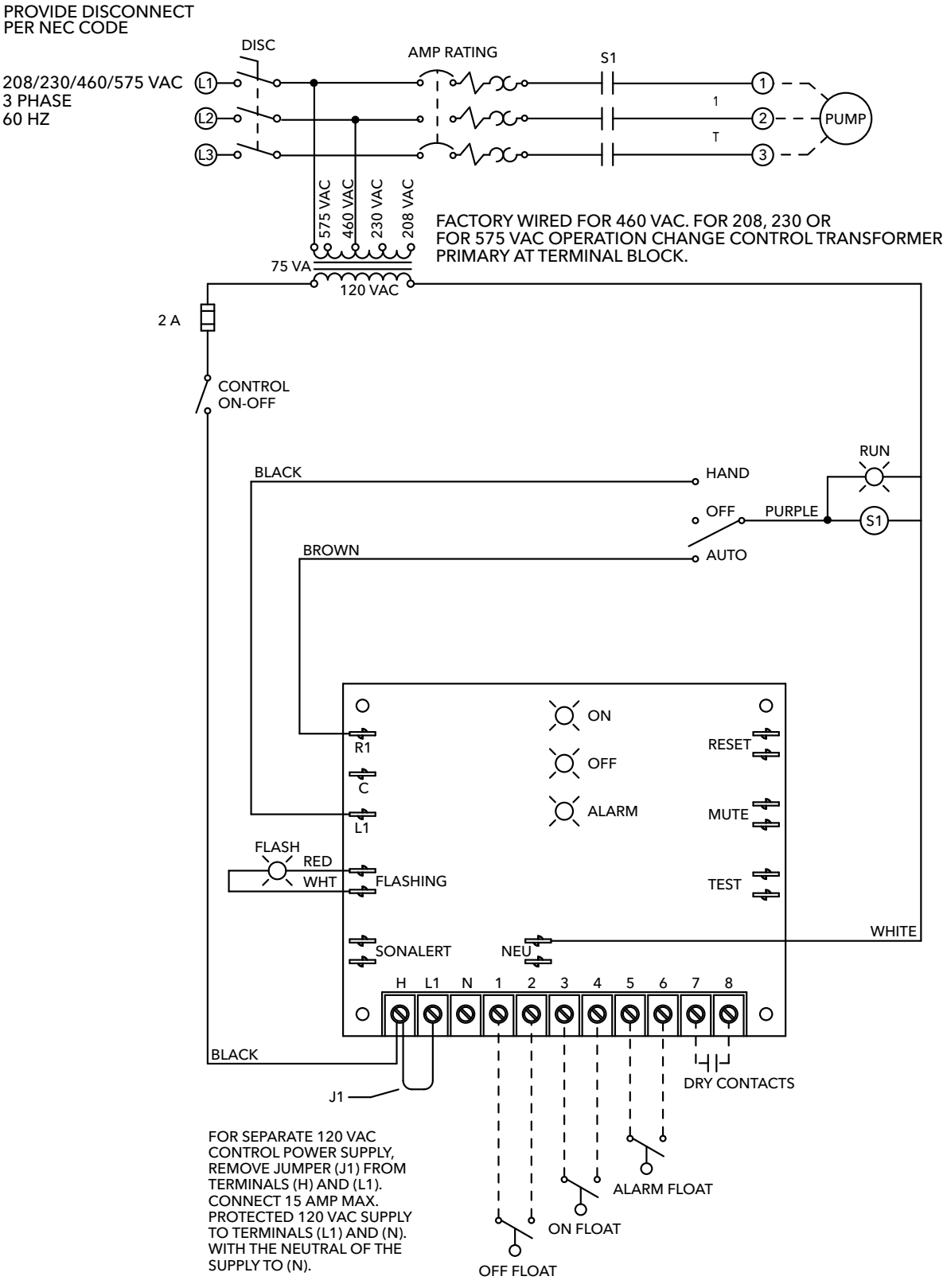
SIMPLEX PANEL INSTALLATION – SINGLE PHASE

115/230 VAC (FOR 115 VAC, USE TERMINALS L1 AND N, JUMP L2 AND N.)
SINGLE PHASE 60 HZ



FOR USE WITH WIDE ANGLE FLOAT SWITCH (ONE FLOAT FOR BOTH ON AND OFF OPERATION).
JUMP TERMINALS (3) AND (4), INSTALL WIDE ANGLE FLOAT TO TERMINALS (1) AND (2).

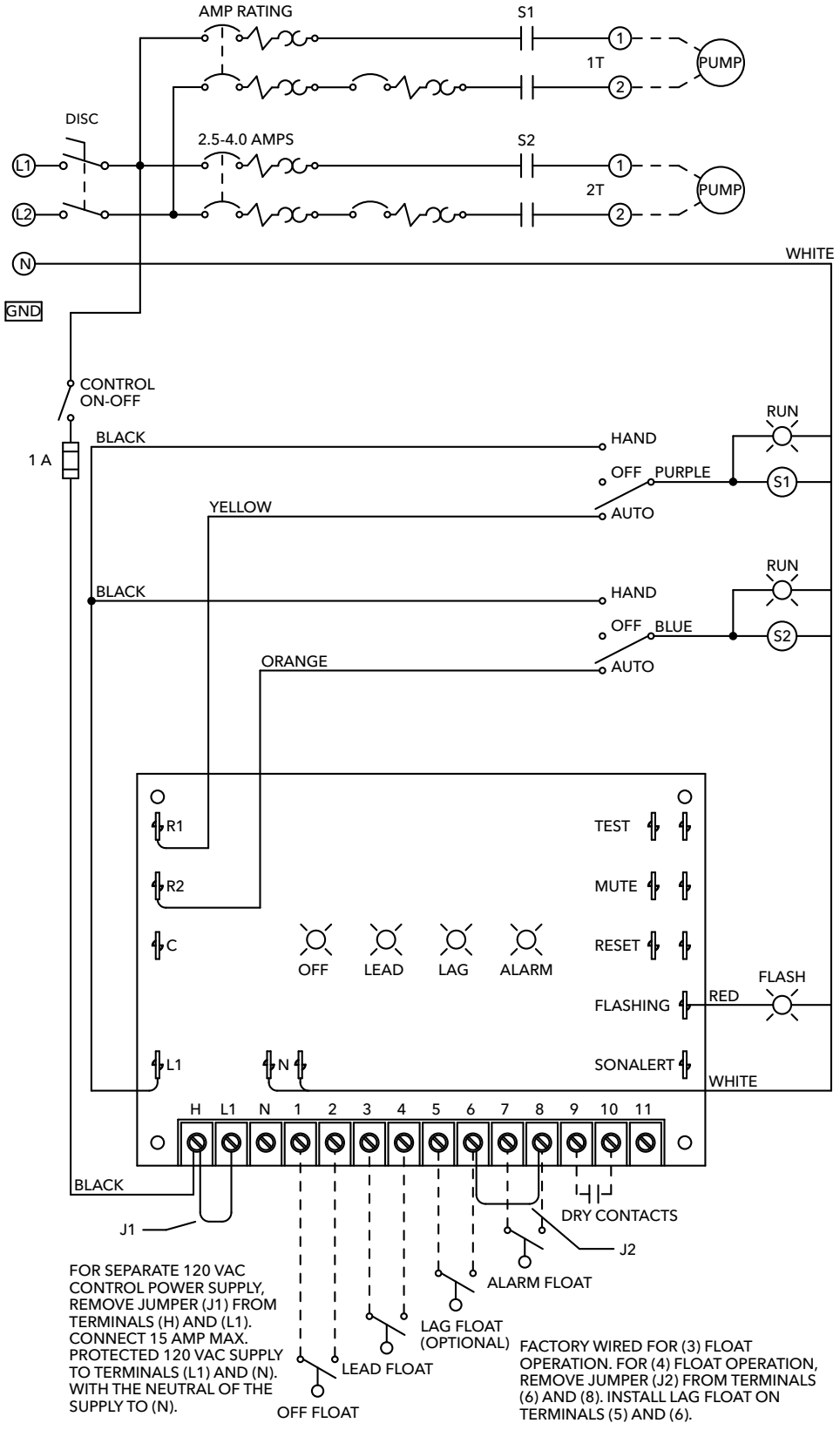
SIMPLEX PANEL INSTALLATION – THREE PHASE



FOR USE WITH WIDE ANGLE FLOAT SWITCH (ONE FLOAT FOR BOTH ON AND OFF OPERATION).
JUMP TERMINALS (3) AND (4), INSTALL WIDE ANGLE FLOAT TO TERMINALS (1) AND (2).

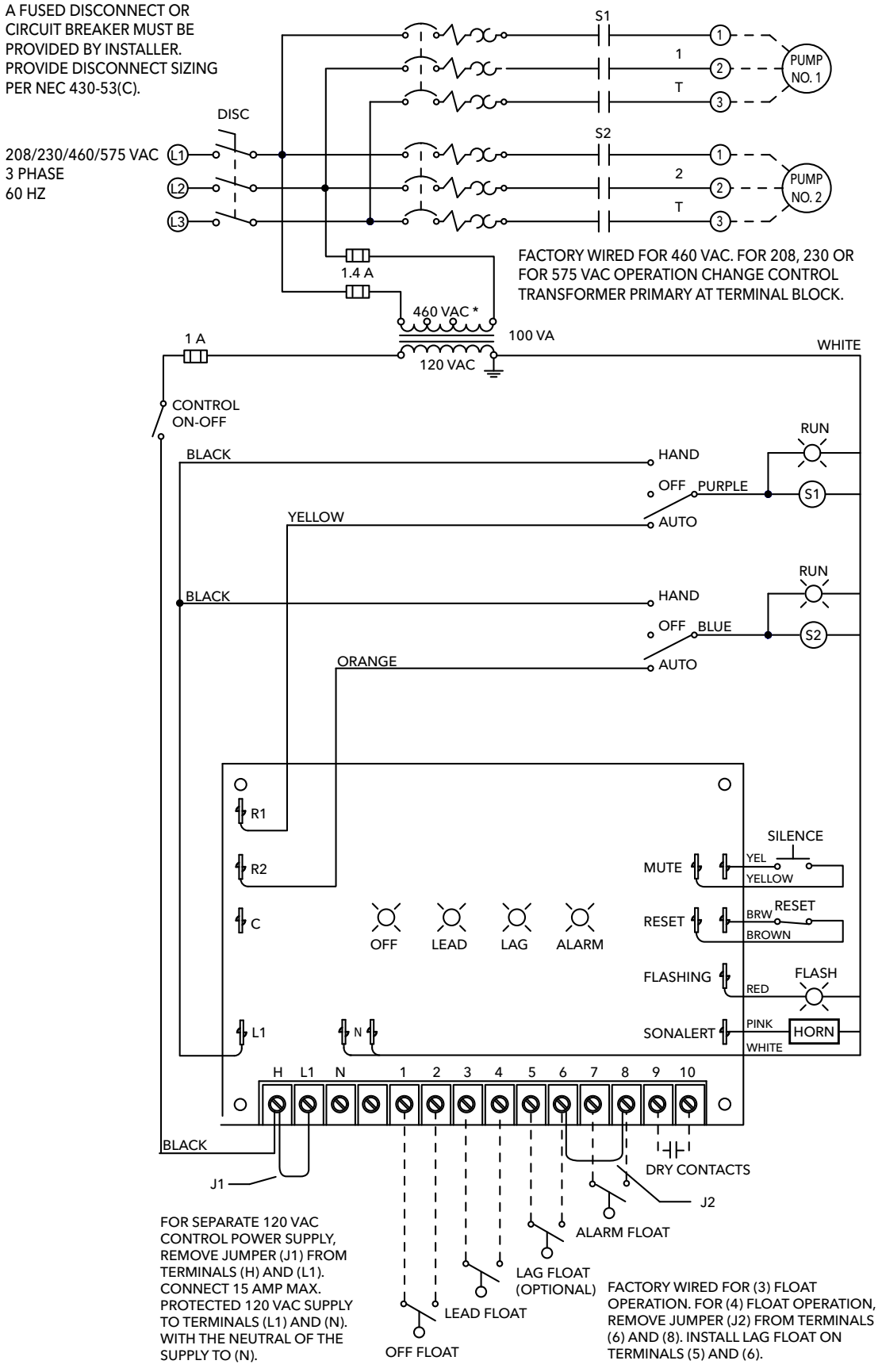
DUPLEX PANEL INSTALLATION – SINGLE PHASE

115/230 VAC (FOR 115 VAC, USE TERMINALS L1 AND N, JUMP L2 AND N.)
SINGLE PHASE 60 HZ



FOR USE WITH WIDE ANGLE FLOAT SWITCH (ONE FLOAT FOR BOTH ON AND OFF OPERATION). JUMP TERMINALS (3) AND (4), INSTALL WIDE ANGLE FLOAT TO TERMINALS (1) AND (2).

DUPLEX PANEL INSTALLATION – THREE PHASE



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BCP5 R14

STANDARD PANEL FEATURES

NEMA 4X, Fiberglass Enclosure
Pump Circuit Breaker(s)
Control Circuit Breaker
Motor Contactor(s)
H-O-A Switch(es) (Hand-Off-Automatic switch)
Through-Door Pump Run Light(s)
External Motor Components (capacitors)
High Level Alarm Circuit with Dry Contacts
Flashing high-level red alarm light
Alarm Horn, 101 db @ 10 feet
Alternation on duplex panels
All controls are UL and CUL Listed

SIMPLEX AND DUPLEX SINGLE PHASE PANELS

FOR SINGLE PHASE PUMPS REQUIRING EXTERNAL MOTOR COMPONENTS

GOULDS
WATER TECHNOLOGY
a xylem brand

ADDITIONAL PANEL OPTIONS AVAILABLE

Add option characters as order number suffixes in alphabetic order.

C = Condensation heater, 115 volt (70 watt) prevents condensation inside the panel

D = Single phase lightning arrestor

F = Simplex (1) elapsed time meter, shows run time in hours

G = Duplex (2) elapsed time meters, show run time in hours

K = Simplex cycle counter for (1) pump, records On/Off cycles

L = Duplex cycle counters for (2) pumps, record On/Off cycles for each pump

M = Simplex high temperature sensor circuit with pump shutdown

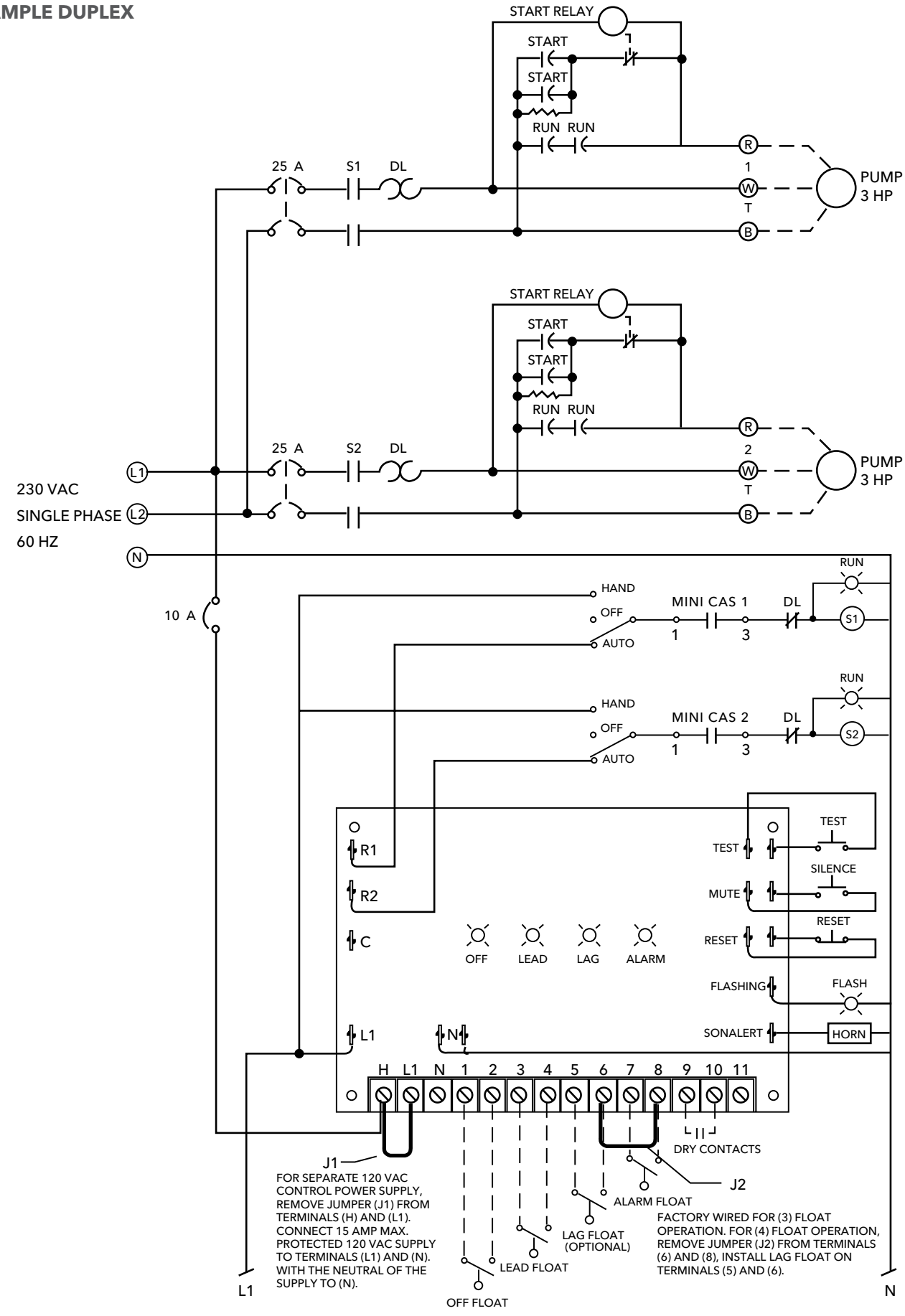
N = Duplex high temperature sensor circuits with pump shutdown

S = Intrinsic safe

T = Intrinsic safe

Part number	Style	HP Rating	Seal Fail Style	Voltage	Pump Match
S1GD2	Simplex	2	Not included	230/208	GWT 1GD less seal fail
D1GD2	Duplex				
S1GD2H	Simplex		Standard	230/208	GWT 1GD and B&G 12GDS
D1GD2J	Duplex				
S1FGC2	Simplex	3	Minicas	230	GWT 1GA and B&G 15GDS
D1FGC2	Duplex				
S1FGC3	Simplex	5.4			GWT 1GA/2GA and B&G 15GDS/20GDS
D1FGC3	Duplex				
S1FGC5	Simplex	9.4			GWT 2GA and B&G 20GDS
D1FGC5	Duplex				

SAMPLE DUPLEX



Duplex Operation

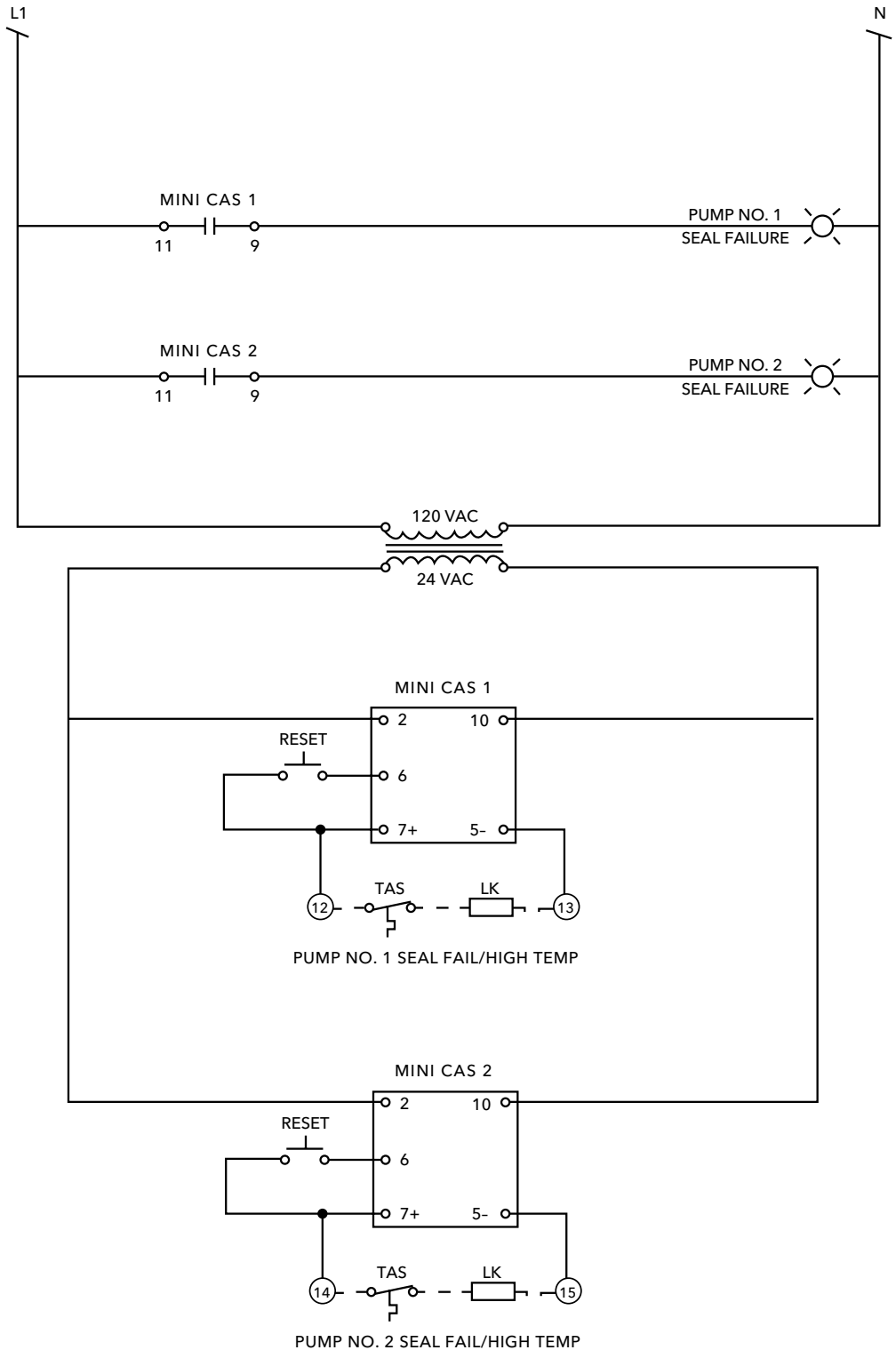
High Level Alarm: This float activates the alarm light and audible alarm when lifted. The audible alarm may be silenced by pressing the illuminated PUSH TO SILENCE button on the front of the control panel. The alarm light will remain on until the float is lowered.

Lag Pump On: This float turns on the lag pump when lifted. The pump will continue to run until the Pumps Off float is lowered.

Lead Pump On: This float turns on the lead pump when lifted. The pump will continue to run until the Pumps Off float is lowered.

Pumps Off: This float turns off the pumps when lowered.

Minicas: Minicas monitors the pump seals for water leakage and monitors the motor for over heating. If leakage is detected the seal failure light will be activated. In the event of motor over heating, the pump will be disabled. Once the over heat condition is corrected, operation will resume automatically.



CAPACITOR PACKS

FOR SINGLE PHASE WASTEWATER PUMPS REQUIRING EXTERNAL STARTING COMPONENTS

CAPACITOR PACKS

Order No.	Description	Where Used
CP1GD	NEMA 4X Enclosure	1 Phase, 1GD and 12GDS built after Dec 2005, date code M05
CP1GDB	Capacitors and start relay	1 Phase, 1GD and 12GDS built after Dec 2005, date code M05
CP-1	NEMA 3R Enclosure	1 Phase, 1GD and 12GDS built before Dec 2005, date code L05 and earlier
CP-1B	Capacitors and start relay	1 Phase, 1GD and 12GDS built before Dec 2005, date code L05 and earlier
CP-2GB	Loose parts	Capacitor pack 3 HP, 1 phase, Grinder 1/2GA/X and 1/2GDS/X
CP-3GB	Loose parts	Capacitor pack 5.4 HP, 1 phase, Grinder 1/2GA/X and 1/2GDS/X
CP-5GB	Loose parts	Capacitor pack 9.4 HP, 1 phase, Grinder 1/2GA/X and 1/2GDS/X

COMPONENT RATINGS

CP1GD and CP1GDB	Component Ratings (after December 2005)
Start Capacitor	216-259 Mfd @ 330 VAC
Run Capacitor	50 Mfd @ 370 VAC (9K262)
Start Relay	9K458 (RVA2ALKL) or RB-60 (155031102)

NOMENCLATURE

Standard Wastewater Control Panels

S10020N1 ——— Simplex indoor (NEMA1) panel, 20 amps maximum – no options available
D10020N1 ——— Duplex indoor (NEMA1) panel, 20 amps maximum per pump – no options available

Example: S 1 0020 XX (See reverse for continued example.)

S

1st Character *Panel Type*
S = Simplex
D = Duplex

1

2nd Character *Phase/Voltage*
1 = Single Phase, 115/230 V
3 = Three Phase, 200/230/460/575 V

0020

3, 4, 5, 6th Character *Maximum Pump Amp Range*
0015 = Single phase, 20 amps (basic simplex with no options available)
0020 = Single phase, 20 amps (simplex only)
2127 = Single phase, 21-27 amps (no capacitors)
2836 = Single phase, 28-36 amps (no capacitors)
1625 = Three phase, 1.6 to 2.5 amps
2540 = Three phase, 2.5 to 4.0 amps
4063 = Three phase, 4.0 to 6.3 amps
6310 = Three phase, 6.3 to 10 amps
1016 = Three phase, 10 to 16 amps
1620 = Three phase, 16 to 20 amps
2025 = Three phase, 20 to 25 amps

Example: S 1 0020 XX

XX

Additional Characters – *add options as needed in alphabetic order*

A = Guaranteed pump submergence circuit – used with a redundant float switch to prevent a pump from running dry

C = Condensation heater, 115 volt (70 watt) with an automatic thermostat to turn the heater on – prevents condensation inside the panel

D = Single phase lightning arrestor

E = Three phase lightning arrestor

F = Simplex (1) elapsed time meter shows total pump run time in hours

G = Duplex (2) elapsed time meters show total pump run time for each pump in hours

H = Simplex seal fail or moisture detection circuit for (1) pump①

J = Duplex seal fail or moisture detection circuits for (2) pumps①

K = Simplex cycle counter for (1) pump, records total on/off cycles

L = Duplex cycle counters for (2) pumps, records total on/off cycles for each pump

M = Simplex high temperature sensor circuit with pump shutdown feature to protect the motor (1) from overheating②

N = Duplex high temperature sensor circuits with pump shutdown feature to protect the motors (2) from overheating②

O = Simplex Mini CAS for 1/2GA, 15/20GDS/GXS③

P = Duplex Mini CAS for 1/2GA, 15/20GDS/GXS③

S = 3 Intrinsically safe relays in a Simplex Panel

T = 4 Intrinsically safe relays in a Duplex Panel

Y = Simplex dry contact for Seal Fail BMS

Z = Simplex dry contact for Pump Run BMS

YY = Duplex dry contact for Seal Fail BMS

ZZ = Duplex dry contact for Pump Run BMS

N1 = Indoor, no modification available

① H and J options will only work with pump(s) equipped with seal fail sensors and cords designed for use with these circuits.

② M and N options will only work with pump(s) equipped with built-in thermal sensors and cords designed to be connected to these circuits.

③ Mini CAS options "O" and "P" can only be added to three-phase control panels above and will work only with Grinder Pumps listed.

CUSTOM CONTROL PANEL QUOTE REQUEST

Please fax to Customer Service at 888-322-5877.

Date: _____

Company Name: _____

Contact Name: _____

Contacts Phone: _____ Ext. # _____

Contacts Fax: _____

Contacts E-mail: _____

Engineer's Specification Attached:

Yes ☐ No ☐

PUMP INFORMATION:

Model: _____

Horsepower: _____ Voltage: ____ Phase: _____

FLA: _____

List any special pump ratings or listings required such as:

Class I, Division I; Class I, Division II; etc.:

_____

* Moisture Det☐n/Seal Fa☐rm Circuit:

Yes No

* Pump Motor ☐ Temperat☐Circuit:

Yes No

* Pump must also have this feature – i.e. a sending device or sensors

Other Options: _____

DESCRIBE SEQUENCE OF OPERATION:

Always Attach Engineer's Specification if Available.

ENCLOSURE RATING:

NEMA 1 Painted Steel ☐

NEMA 12 Painted Steel ☐

NEMA 3R Painted Steel ☐

NEMA 4 Painted Steel ☐

NEMA 4X ☐

choose one for 4X only:

Fiberglass ☐

Aluminum ☐

Stainless Steel ☐

SYSTEM TYPE (check one):

Simplex ☐ Duplex ☐ Triplex ☐

Other ☐

Explain Other: _____

INCOMING POWER DATA:

60 Hertz Line Voltage:

115 ☐ 200/208 ☐ 230 ☐

380 ☐ 460 ☐ 575 ☐

50 Hertz Line Voltage:

120/127 ☐ 220 ☐

380 ☐ 415 ☐

Phase:

1 ☐ 3 ☐

LEVEL CONTROLS (select one):

Float Switches ☐ Quantity _____

Ultrasonic ☐

Pressure Transducer ☐

Distance from transducer to control panel. _____Ft.

Pressure Activated System ☐

No floats or compressor required

ENCLOSURE OPTIONS:

Through Door H-O-A Switches Yes ☐ No ☐

Deadfront Panel with Full Inner Door Yes ☐ No ☐

Lockable Thru Cover Non-Fused Disconnect Yes ☐ No ☐

Lockable Thru Cover Main Fused Disconnect Yes ☐ No ☐

Lockable Thru Cover Main Circuit Breaker Disconnect Yes ☐ No ☐

ALARM DEVICES:

Flashing Red Light Yes ☐ No ☐

Buzzer (95 db @ 2 ft.) Yes ☐ No ☐

Horn (101 db @ 10 ft.) Yes ☐ No ☐

4" Bell (90 db @ 10 ft.) Yes ☐ No ☐

ALARM CIRCUIT OPTIONS:

Low Level Alarm Yes ☐ No ☐

Guaranteed Pump Submergence Yes ☐ No ☐

EXTRA SET OF ALARM CONTACTS:

Powered (wet contacts) Yes ☐ No ☐

Remote Alarm Panel Required Yes ☐ No ☐

Non-powered (dry contacts) Yes ☐ No ☐

If Yes - Select an alarm device from the Price Book

SEAL FAILURE CIRCUIT WITH INDICATOR LIGHT:

Warning Light Yes ☐ No ☐

Alarm Test Button Yes ☐ No ☐

Pump Shutdown with Manual Reset (restart) Yes ☐ No ☐

Alarm Device Activation Yes ☐ No ☐

Dry Contacts Yes ☐ No ☐

HIGH TEMPERATURE CIRCUITS:

Pilot Light Yes ☐ No ☐

Automatic Pump Restart Yes ☐ No ☐

Manual Pump Restart Yes ☐ No ☐

Dry Alarm Contacts Yes ☐ No ☐

Alarm Device Activation Yes ☐ No ☐

OTHER OPTIONS REQUIRED:

Always Attach Engineer's Specification if Available.

Single Phase Starter with Overloads Yes ☐ No ☐

Condensation Heater - 115 volt Yes ☐ No ☐

Elapsed Time Meter (s) Yes ☐ No ☐

Cycle Counter(s) Yes ☐ No ☐

Intrinsically Safe Control Circuit (requires one per float) Yes ☐ No ☐

Float Switch Test Buttons Yes ☐ No ☐

20 Amp Convenience Outlet (GFI) with Circuit Breaker Yes ☐ No ☐

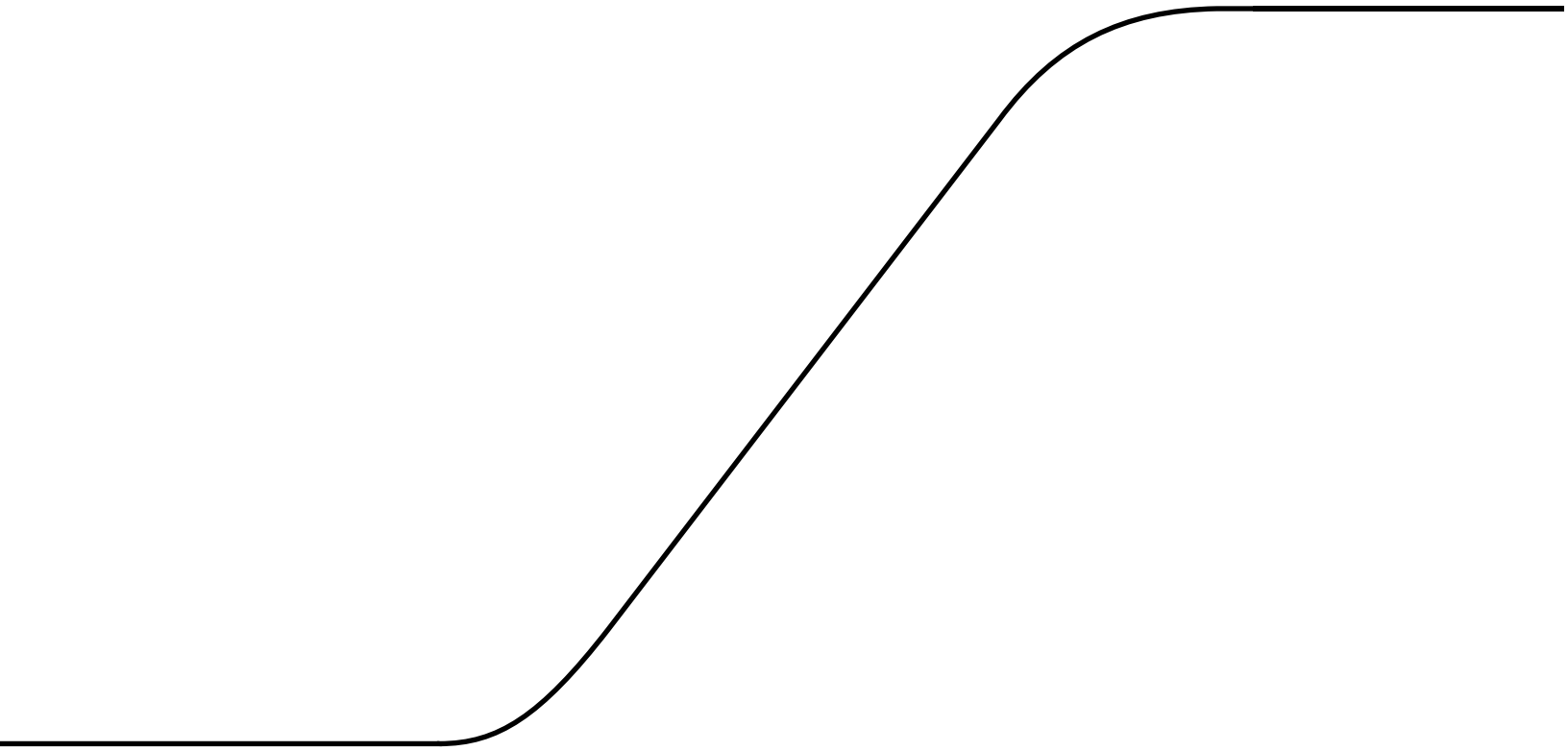
Lag Pump Start Delay Yes ☐ No ☐

Lead Pump Selection (manual alternation) Yes ☐ No ☐

Timers Yes ☐ No ☐

If Yes, must attach complete specification.

Elevator kits and components



xylem
Let's Solve Water

TECHNICAL BROCHURE
BCPELSPKT R11

A1SEEWATER
Oil Smart Switch

A4-SEE1
Liquid Smart Switch

A1SEE Panel Series


Standard Effluent Pump

The Oil **Smart** Switch with panel or alarm, when combined with a pump, allows water to be pumped from Elevator sumps, leachate wells and transformer vaults without danger of pumping oil into sewers and waterways.

The Oil **Removal** System is an oil removal system providing alarm when oil is being pumped.

FEATURES

Protects environment from hazardous waste

The solid state device senses between oil and water

Panel and switch kitted with effluent single phase pumps.

Only operates pump if water is sensed by probes. Does not operate if oil is present in pit.

Oil Removal: Sensor differentiates between oil and water. Panel allows oil to be pumped.

Elevator Sump Kits and Components

GOULDS WATER TECHNOLOGY
a xylem brand

OIL SMART® SWITCH

- Solid state sensing device that differentiates between oil and water
- Two sense points, Pump On and Pump Off, reduces the risk of pumping oil or other hydrocarbons into the environment
- Includes mounting hardware
- Pump On position is the shorter rod
- Pump Off position is the longer rod
- Pumping Differential: 6″
- Dimensions: 2.5″ wide x 6″ high (body less rods) x 1.75″ deep.
- 20' cord
- Completely encapsulated and water-tight
- CE, UL 508, UL Marine and CUL Listings
- Exceeds U.S. Coast Guard Standards
- Complies with State and Federal regulations and reduces the risk of adverse publicity and expensive cleanup costs.

Part Number A1SEEWATER
A1SEEWATERP (with plug)

OIL SMART® ALARM

- Alarm leak or liquid detection
- 120V
- Includes Liquid Smart® Sensor
- Sensor differentiates between oil and water
- Alarm indication differentiates liquid
- Dry contacts

Part Number A4-SEE1

OIL SMART® SWITCH AND ALARM KIT

- Combines plug version of Oil Smart switch for direct pump connection with Oil Smart alarm
- Two sense points, Pump On and Pump Off, reduces the risk of pumping oil or other hydrocarbons into the environment
- Includes mounting hardware
- Pump On position is the shorter rod
- Pump Off position is the longer rod
- Pumping Differential: 6″
- Dimensions: 2.5″ wide x 6″ high (body less rods) x 1.75″ deep.
- 20' cord
- Completely encapsulated and water-tight
- CE, UL 508, UL Marine and CUL Listings
- Includes Liquid Smart® Sensor
- Sensor differentiates between oil and water
- Alarm indication differentiates liquid
- Dry contacts

Part Number A1SEEWATER1

Includes:

- A1SEEWATERP
- A4-SEE1

SIMPLEX SINGLE PHASE PANEL KIT

- Simplex, 115 or 230 volt, 1Ø panel, up to 20 amps, in rugged NEMA 4X fiberglass enclosure with locking hasp and hinged door.
- Use with our model A1SEEWATER Oil Smart sensor to control a sump/effluent pump in areas where oil may be present.
- The sensor differentiates **between oil and water**. The panel and sensor will not allow the pump to operate unless water is present, eliminating environmental contamination and costly oil cleanups.
- High level alarm features a top mounted high intensity red alarm light with 360° visibility and a 95db corrosion resistant alarm horn.
- Terminal strip with connections
- Entire panel is UL and CUL Listed.
- Switch included (A1SEEWATER)
- Includes Liquid Smart switch

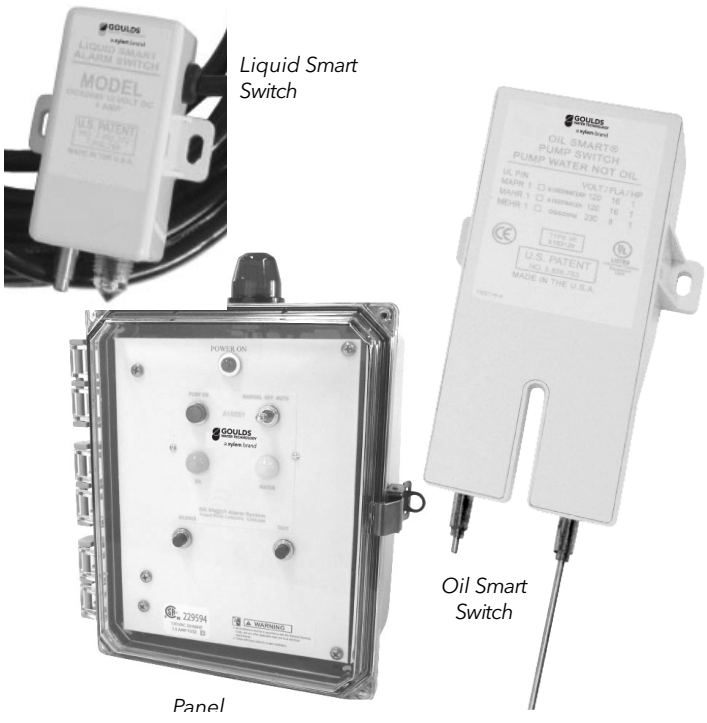
Part Number A1SEE1

Includes:

• Panel • Liquid Smart sensor • Oil Smart switch

Optional panels available on request for oil removal to separate chamber

- by operation of solenoid OR
- with two separate pumps



Liquid Smart Switch

Oil Smart Switch

Panel

SIMPLEX SINGLE PHASE PANEL OIL REMOVAL KIT

- The sensor differentiates **between oil and water**. The panel will allow oil to be pumped to same chamber while sending alarm.

Part Number A1SEE2 (no valves used)

Part Number A1SEE5 (used with solenoids)

Includes:

• Panel • Liquid Smart sensor • Oil Smart switch

SIMPLEX THREE PHASE PANEL KIT

- Simplex, 3Ø panel in rugged NEMA 4X fiberglass enclosure with locking hasp. Multitap.

Part #	Voltage	Full Load Amps
A3SEE11016	208-240/460	1.0-1.6
A3SEE11625	208-240/460	1.6-2.5
A3SEE12540	208-240/460	2.5-4.0
A3SEE14063	208-240/460	4.0-6.3
A3SEE16010	208-240/460	6.0-10.0
A3SEE19014	208-240/460	9.0-14.0
A3SEE11318	208-240/460	13.0-18.0
A3SEE11723	208-240/460	17.0-23.0
A3SEE12025	208-240/460	20.0-25.0
A3SEE12432	208-240/460	24.0-32.0

Includes:

• Panel • Liquid Smart sensor • Oil Smart switch

SIMPLEX THREE PHASE PANEL OIL REMOVAL KIT

- The sensor differentiates **between oil and water**. The panel will allow oil to be pumped to same chamber while sending alarm signal. Multitap.

Part Number A3SEE2 – 208V / 230V / 480V

(no valves used)

Part Number A3SEE7 – 208V / 230V / 480V

(used with solenoids)

Includes:

• Panel • Liquid Smart sensor • Oil Smart switch

SOLENOID VALVES

(1) Closed Part #	(1) Open Size	Required Each Open / Closed
95-16	1.5"	Closed
95-18	2"	Closed
95-17	1.5"	Open
95-19	2"	Open

DUPLEX SINGLE PHASE PANEL KIT

- 1Ø panel, 115 / 208 / 230 volt
- Two 20 amp motor start relays
- Operates pumps: up to ¾ HP at 120V
  up to 2 HP at 230V
- Includes Liquid Smart® alarm sensor
- Alarm indication differentiates liquid
- Includes high water 2-pump demand switch
- Includes Oil Smart® pump controller
- Alternation, 2-pump high demand, pump no load lockout.
- Seal fail fault and high temperature
- NEMA 4X enclosure
- Dry contacts
- All switches included

Part Number D1SEE20

Part Number D1SEE20 includes:

- Panel
- Oil Smart switch
- High water 2-pump switch
- Liquid Smart sensor

High Water 2-Pump Switch

Liquid Smart Switch

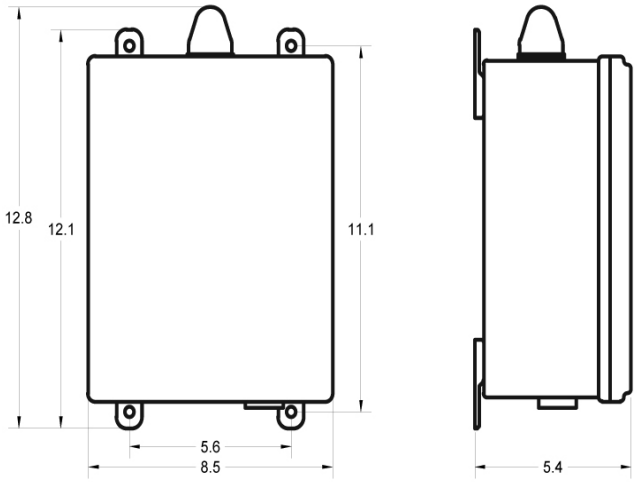
Panel

Oil Smart Switch

PANEL LAYOUTS

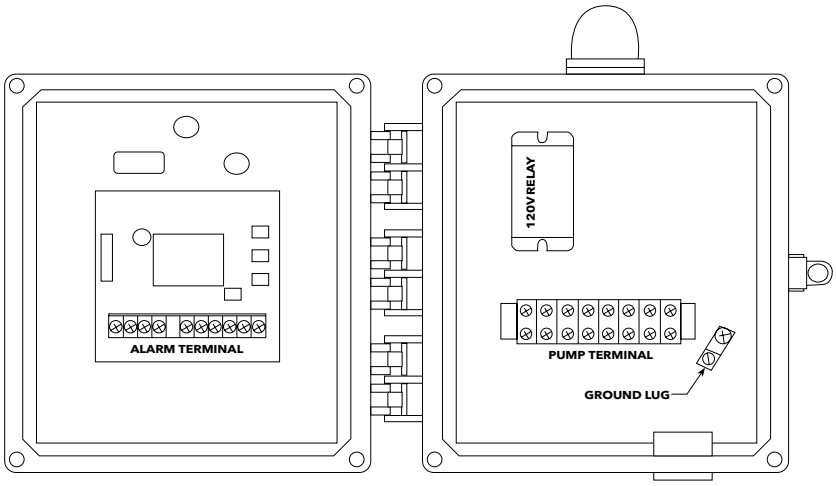
SIMPLEX SINGLE PHASE PANEL – A1SEE1

Enclosure Dimensions (in inches)

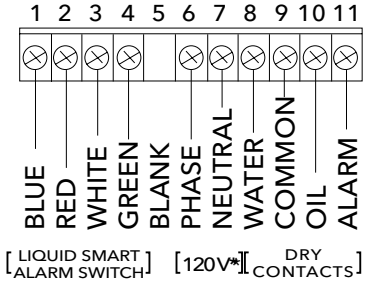


Wiring Diagram

INSIDE VIEW

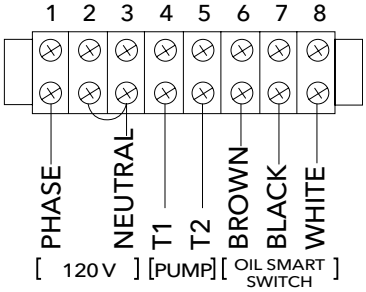


ALARM TERMINAL



* Hook up separate 120V supply here or jump from pump terminal 1 and 3 to alarm terminal 6 and 7 for power.

PUMP TERMINAL

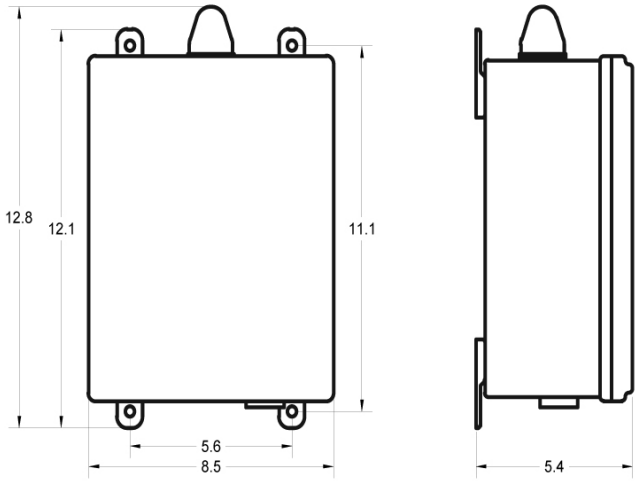


* For 240V, remove jumper and supply power to terminals 1 and 2, with neutral on 3.

PANEL LAYOUTS

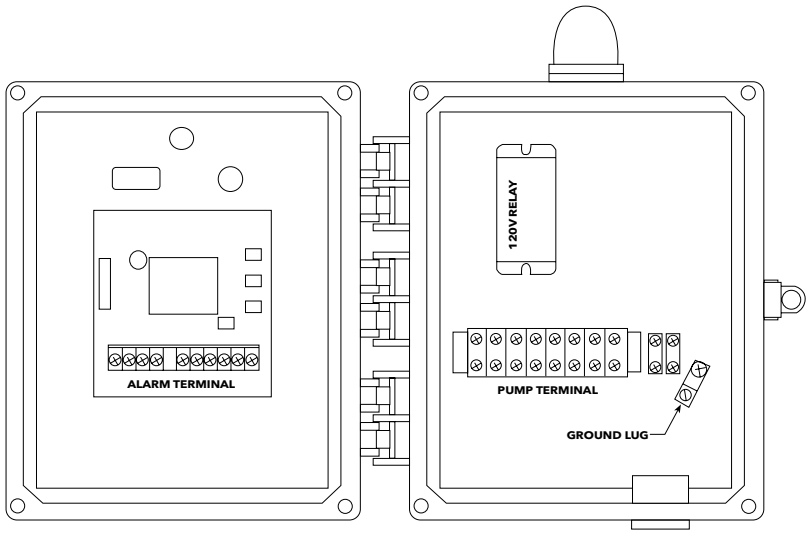
SIMPLEX PANEL OIL REMOVAL – A1SEE2

Enclosure Dimensions (in inches)

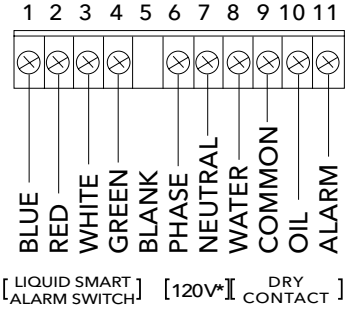


Wiring Diagram

INSIDE VIEW

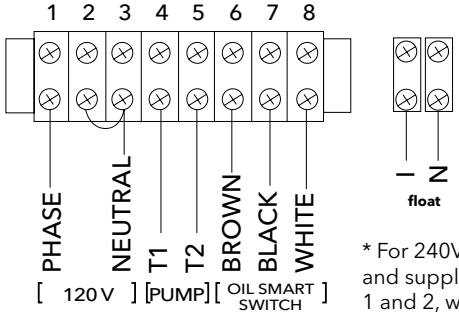


ALARM TERMINAL



* Hook up separate 120V supply here or jump from pump terminal 1 and 3 to alarm terminal 6 and 7 for power.

PUMP TERMINAL

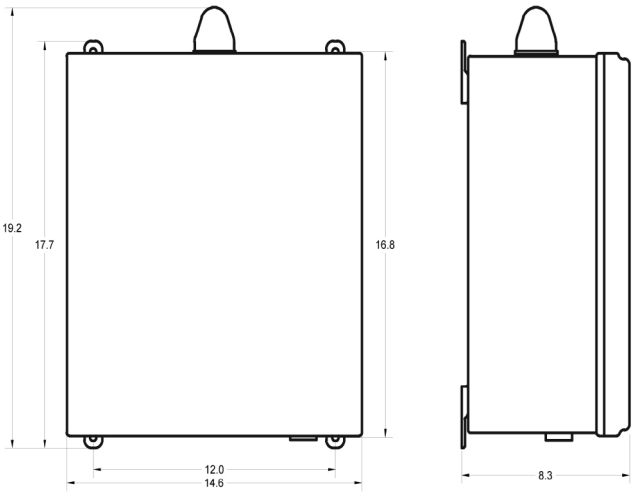


* For 240V, remove jumper and supply power to terminals 1 and 2, with neutral on 3.

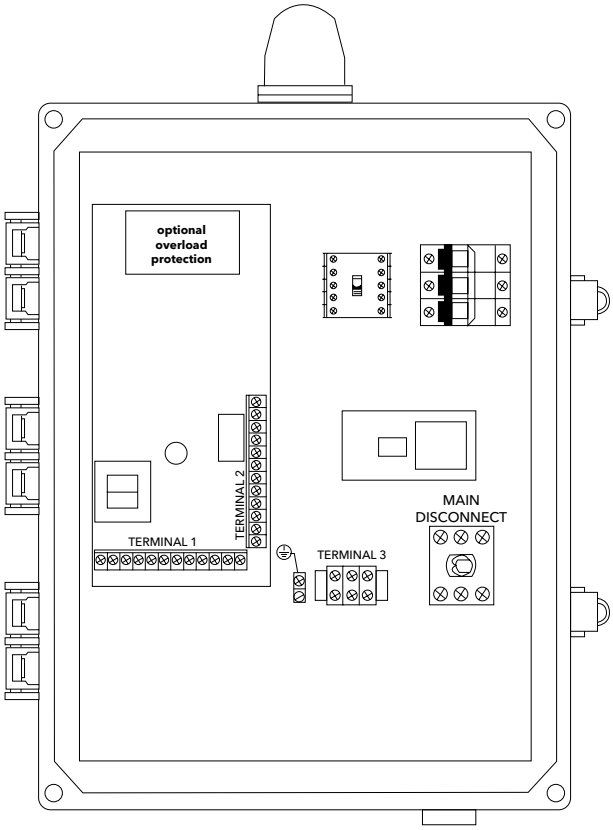
PANEL LAYOUTS

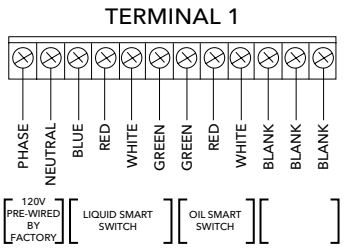
SIMPLEX THREE PHASE PANEL – A3SEE1

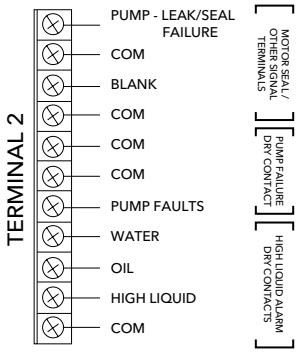
Enclosure Dimensions (in inches)

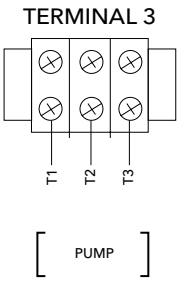


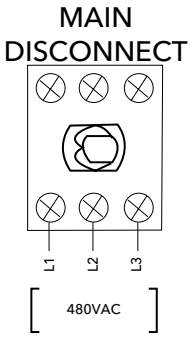
Wiring Diagram







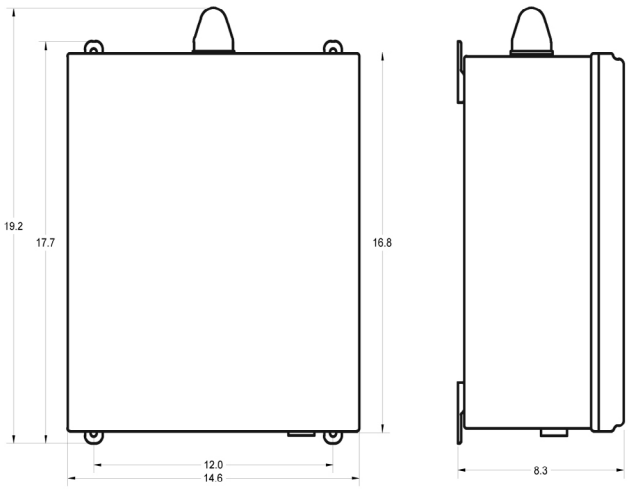




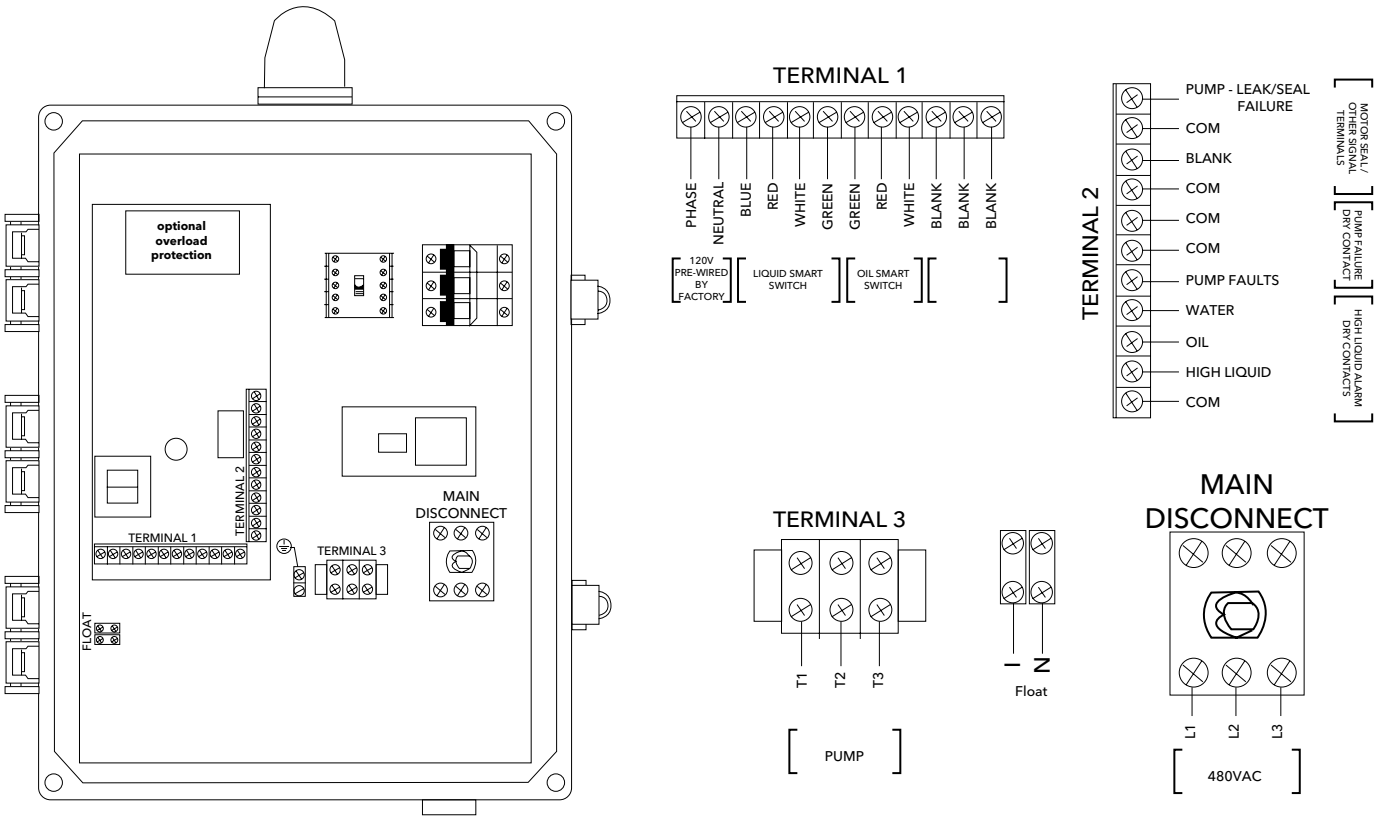
PANEL LAYOUTS

SIMPLEX THREE PHASE OIL REMOVAL PANEL – A3SEE2

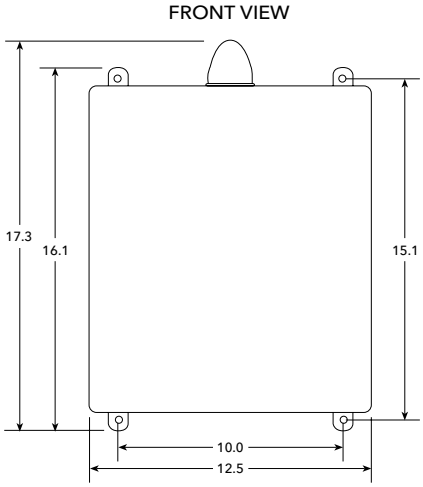
Enclosure Dimensions (in inches)

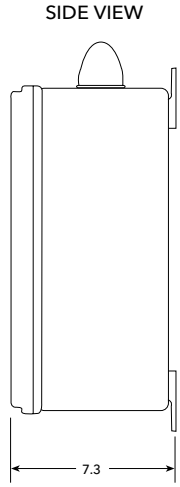


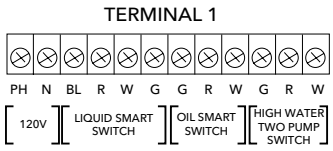
Wiring Diagram

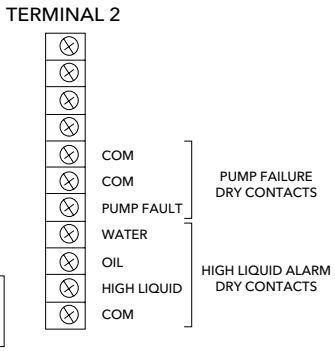


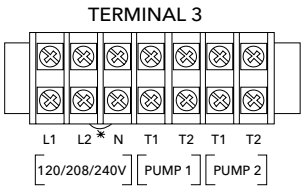
DUPLEX PANEL – D1SEE20

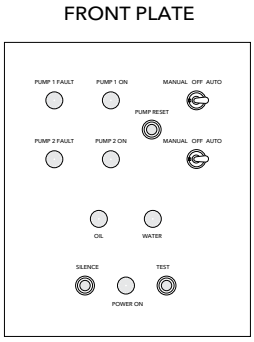


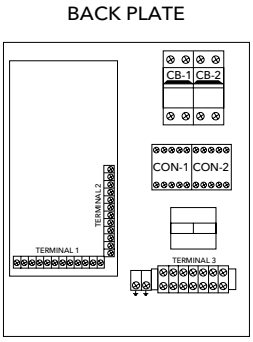












Verify correct operation of control panel after installation is complete.

Use Copper Conductors Only

Temperature ratings of conductors is to be 60°C (167°F). Branch circuit protection shall be provided by the installer. Must be sized according to pump/motor manufacturing specifications.

Technical Specifications:

- Panel Enclosure: Heavy Duty NEMA 4X Polycarbonate, 14″ x 12″ x 6″
- Components Enclosure: Type 3R High Impact Injected Plastic
- Oil Smart Switch Dimensions: 2.5″ W x 6″ H x 1.75″ D plus 6″ sensor
- Liquid Smart/High Water 2 Pump Switch Dimensions: 3.5″ H x 1.5″ W x 1.5″ D

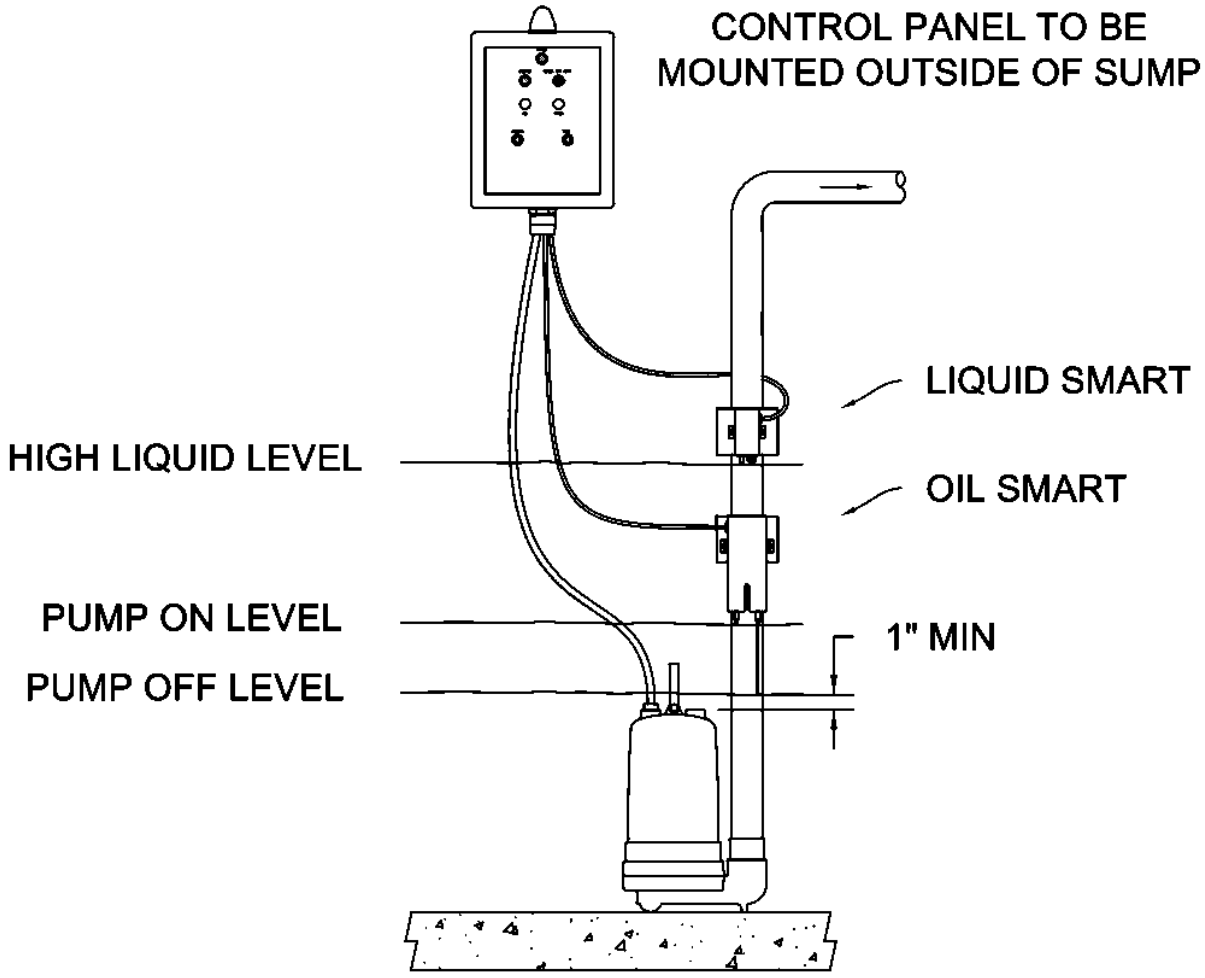
ELEVATOR PUMP KITS

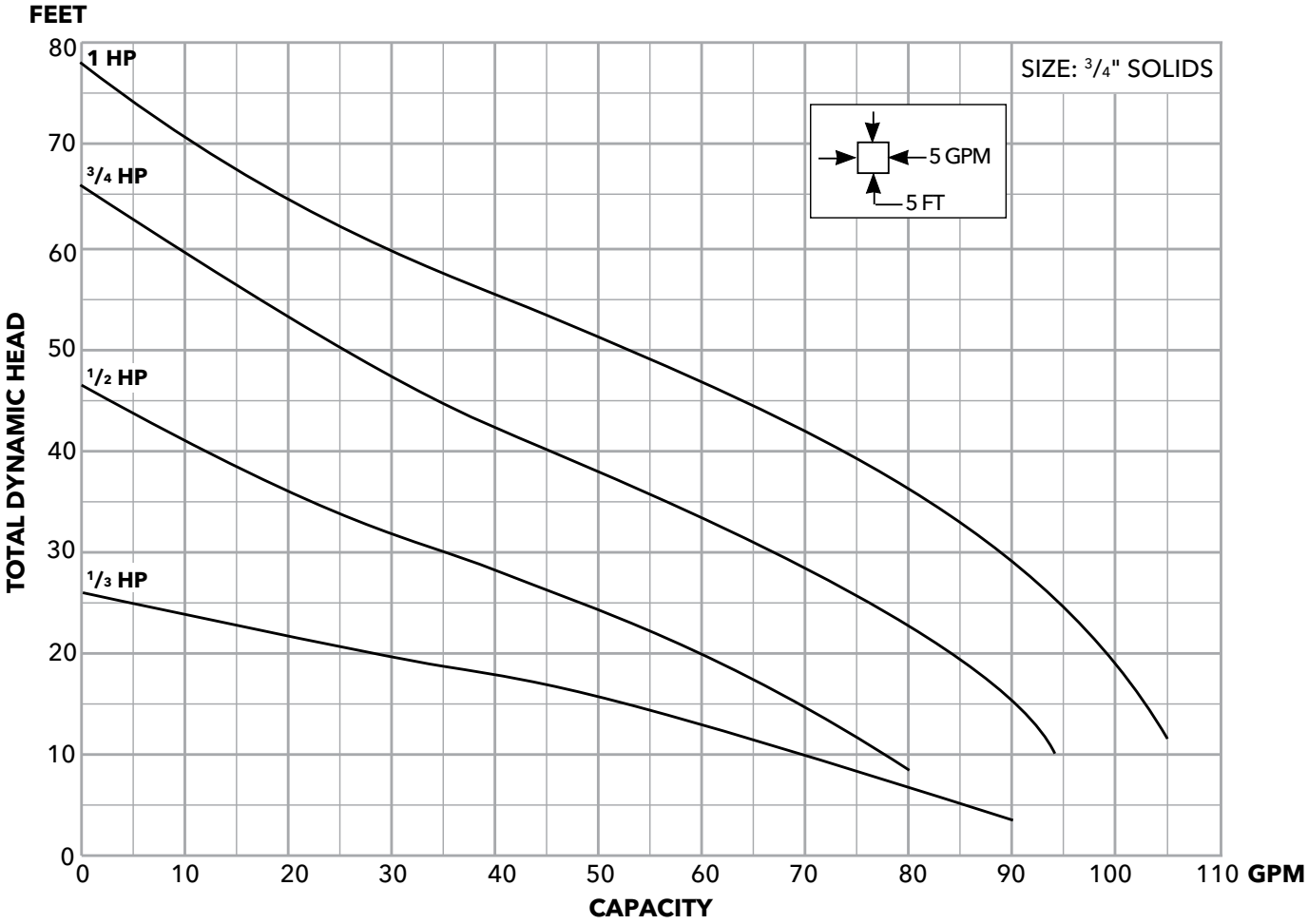
Brands	Model Number	Panel	Oil Smart Switch	Liquid Smart Sensor	Pump
GWT	ELKTWE0311L	A1SEE1 Included	Included	Included	WE0311L
	ELKTWE0511H				WE0511H
	ELKTWE0512H				WE0512H
	ELKTWE0712H				WE0712H
	ELKTWE1012H				WE1012H
B&G	ELKT2EC0311L				2EC0311L
	ELKT2EC0511				2EC0511
	ELKT2EC0512				2EC0512
	ELKT2EC0712				2EC0712
	ELKT2EC1012				2EC1012

FEATURES FOR PUMP

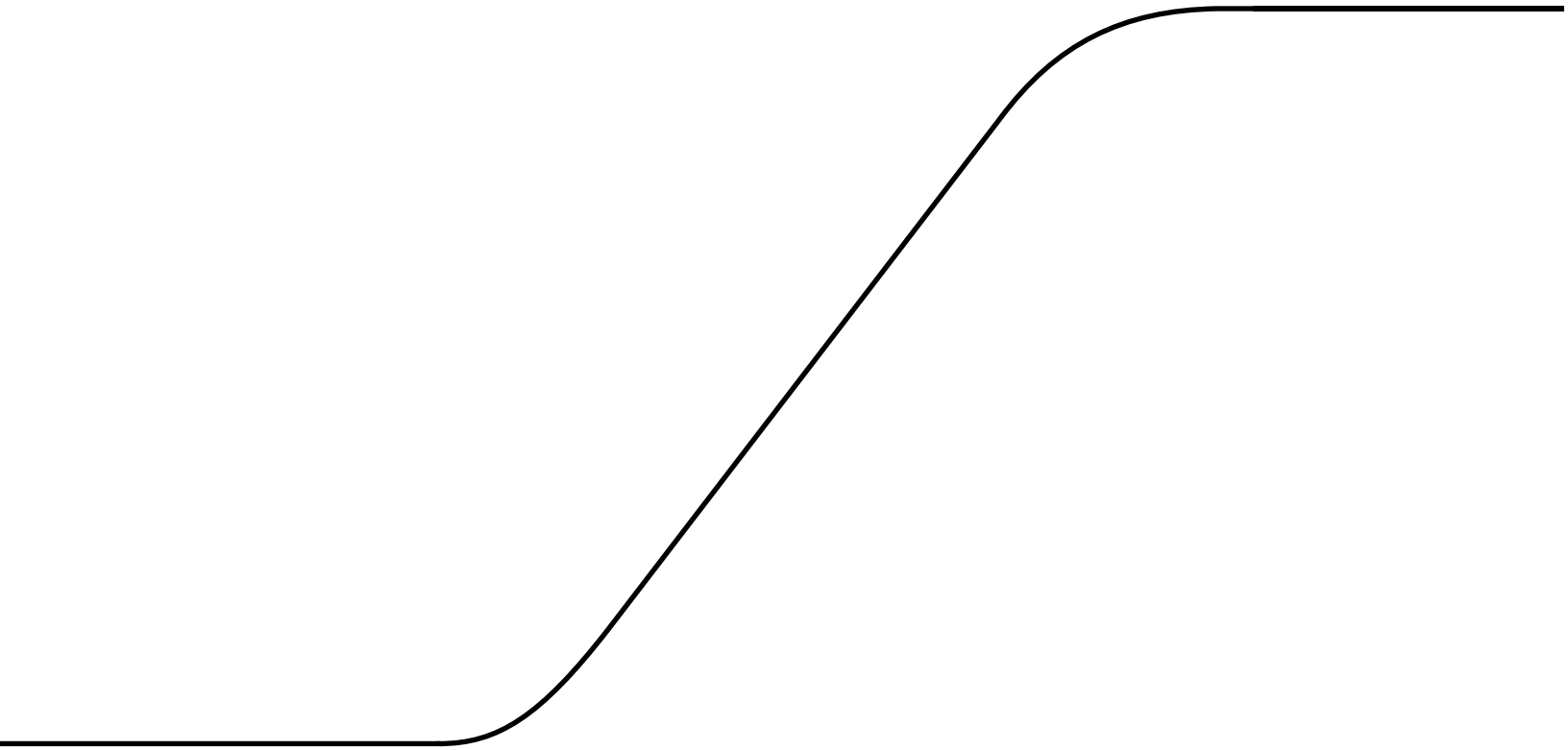
- Effluent, ⅓, ½, ¾ and 1 HP, single phase pump
- Hard faced seal
- Cast iron construction

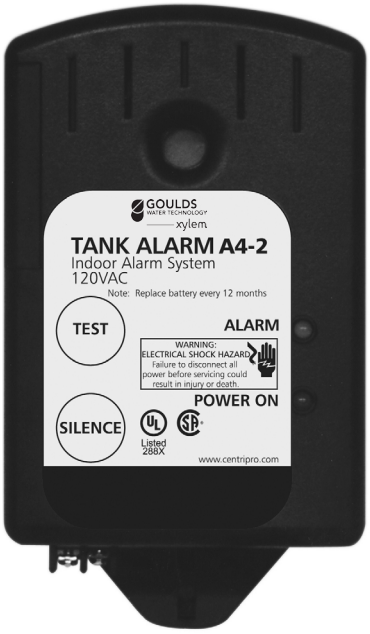
PUMP INSTALLATION KIT




FEET
80
70
60
50
40
30
20
10
0
1 HP
3/4 HP
1/2 HP
1/3 HP
SIZE: 3/4" SOLIDS
5 GPM
5 FT
TOTAL DYNAMIC HEAD
0
10
20
30
40
50
60
70
80
90
100
110 GPM
CAPACITY

Floats and Alarms





Indoor and outdoor alarms

xylem

Features

Indoor and outdoor alarm panels for sump, effluent and wastewater systems as well as test panel for troubleshooting.

Use Normally Open (NO) floats for high level or Normally Closed (NC) for low level indication.

Enclosures rated by NEMA Standards for location/ placement.

- NEMA 1 for indoor use
- NEMA 3R enclosures for outdoor use

TA... (Tank Alert®) alarms are provided with floats

A4-2 (TA-AB) is a new design - see new data section

Standard models require a 120V power supply

Battery backup alarm available on some models

Two wireless alarm units - allow retrofitting an alarm without digging up lawns and landscaping. There is a standard unlisted model and one with a UL listed enclosure and power supply.

Model information

Alarm order number	Agency listing	NEMA rating ①	Float switch included	Float switch length	Power cord length	Audible alarm type / db at 10'	Primary power	Hertz	Voltage to float switch	Battery backup alarm
A4-2 (TA-AB)	UL, CSA	N1	Yes	10'	6'	Horn / 87	120 VAC	60	9 VDC	Yes
TAN3M*	UL, CSA	N3R		15'	N/A	Horn / 85		50/60	120 VAC	No

* M = Mechanical SignalMaster Switch

① N1= Indoor, N3R = Raintight (Outdoor).

A4-2 (AB Alarm with Battery Backup)

- CSA Certified and UL Listed
- NEMA 1 enclosure, designed for ease of installation, rated for indoor use
- If primary power fails, the alarm system continues to work due to battery backup feature (battery not included)
- Voltage:
  - – Primary: 120 VAC, 60 Hz, 2.4 watts maximum, (alarm condition)
  - – Secondary: 9 VDC to switch
- Battery backup power: 9 VDC
- Alarm horn: 87 decibels at 10 feet (3 meters)
- Power cord: 6 feet (1.8 meters)
- Red "alarm" light and green "power on" light, alarm "test" switch, and horn "silence" switch
- Complete package includes standard SJE SignalMaster® control switch with 10 feet of cable and mounting clamp. SJE SignalMaster control switch passes NSF Standard 61 protocol by an approved Water Quality Association laboratory.

① For float switch connection only. Do not apply power. (Voltage across terminals is 8-9 VDC.) *See picture below.*

LR54245 LISTED

TAN3M (XT Alarm System)

- The Tank Alert® XT can be used as a high level alarm in lift chambers, sump pump basins and holding tanks
- UL Listed (for indoor and outdoor use) and CSA Certified
- Voltage: 120 VAC, 50/60 Hz, 8.5 watts maximum, (alarm condition)
- Enclosure meets Type 3R water-tight standards, listed for indoor or outdoor use under UL standard 864. Dimensions are 6.5” x 4.5” x 3.0”
- Premounted terminal block so enclosure can also be used as a junction box for splicing pump, pump switch and pump power. Meets NEC standard for junction boxes.
- N.O. float switch has a 15’ long, 18 gauge, 2 conductor SJOW (UL) cord
- Mechanical SignalMaster® Float on TAN3M, switches are rated for a maximum fluid temperature of 140º F (60º C)
- Automatic alarm reset, alarm test switch and horn silence switch
- Alarm horn: 85 decibels at 10 feet (3 meters)
- Does not control or interface with pump
- Operates even if pump circuit fails when wired on separate circuit
- No power cord

LR54245 LISTED

xylem
Let's Solve Water

TECHNICAL BROCHURE
BCPFS R20

PUMP / CONTROL PANEL SWITCHES

GOULDS
WATER TECHNOLOGY
a xylem brand

TERMS TO KNOW

Pump Switches are used to directly control the operation of a pump. They are normally wide-angle switches which means they operate over a range of approximately 70° to 90°. Pump switches are available with piggyback plugs and with bare leads. Some can also be used with control panels.

Control Switches are designed to only control pumps when used with a control or alarm panel. They cannot handle the high starting amps and running amperage of a pump, only signal or control amperage.

NO or Normally Open is a switch with contacts that are open in the hanging position. They are used to pump down or empty a tank.

NC or Normally Closed is a switch with contacts that are closed in the hanging position. They are used to pump up or fill a tank.

A2T SERIES

SJE Double Float® Master Pump Switch

Features

- Mechanically activated, wide-angle switch designed to control pumps up to 15 FLA, 90 LRA, 120 VAC or 240 VAC.
- This switch consists of two mechanical floats and a splice tube. The splice tube contains a holding relay which eliminates pump chatter in turbulent conditions.
- Includes standard mounting clamps and boxed packaging.
- Cable attached to float housing: flexible 18 gauge, 2 conductor (UL, CSA) SJOW, water-resistant (CPE).
- Cable above splice: flexible 14 gauge, 3 conductor (UL, CSA) SJTW, water-resistant, thermoplastic.
- Floats: 2.74" diameter x 4.83" long (7.0 x 12.3 cm) high impact, corrosion resistant, PP housing for use in sewage and non-potable water up to 140° F (60° C).
- Not sensitive to rotation or turbulence.
- Pumping range: 3" to 48"
- Available for pump up or pump down applications.
- For confined applications requiring an accurate pumping range.
- CSA Certified
- See chart for data and order numbers.

A2X SERIES

MilliAmpMaster™ Mechanical Float Switch

Features

- Mechanically activated, snap-action, sealed gold cross-point contacts are designed to activate low current control panels and alarms.
- Narrow angle Control for Low Voltage AC or DC applications.
- Electrical Load – low current non-arcing applications
  - 125 VAC – Max. Load .1 amps (Min. Load .16 milliamps)
  - 30 VDC – Max. Load .1 amps (Min. Load .16 milliamps)
  - 5 VDC - Minimum Load 1 milliamp
- UL Listed for use in non-potable water and sewage.
- CSA Certified
- Mounting clamp for attaching to discharge pipe is standard.
- Not sensitive to rotation.
- Maximum submergence or water depth, 30' (9 meters), 13 psi.
- Flexible 18 gauge, 2 conductor SJOW water resistant cable.
- Impact and corrosion resistant, polypropylene float housing for use in sewage and water up to 140 ° F.
- Float comes with blue cap for easy identification.

A2D SERIES

SJE PumpMaster® Pump Switch

Features

- Mechanically activated, heavy duty contacts, wide angle operation.
- Controls pumps up to 1/2 HP at 120 VAC and 1 HP at 230 VAC.
- Non-corrosive PVC housing for use in liquids up to 140° F (60° C).
- Not sensitive to rotation or turbulence.
- Pumping range: 7" to 36".
- 16 AWG, SJOW cord is available with or without piggyback plug.
- Available as pump up, pump down models, see Nomenclature Chart.
- For non-potable water, water or sewage applications.
- UL Recognized for use in water and sewage.
- CSA Certified.
- See chart for amperage range and other data.

A2E SERIES

SJE PumpMaster Plus® Pump Switch

Features

- Controls pumps up to ¾ HP at 120 VAC and 2 HP at 230 VAC.
- 14 AWG, SJOW cord is available with or without piggyback plug.
- **All other features are the same as A2D PumpMaster Series above.**

A2H SERIES

SJE VerticalMaster 3 Plus Pump Switch

Features

- Mechanically activated vertical operation
- Controls pumps up to 1/2 HP at 120VAC, and 1 HP at 230 VAC
- Temperature Rating: 140° F (60° C)

- Cord Material: 16 gauge, 2 conductor SJOW
- Adjustable pumping range of .75 – 6.5 inches (2 – 17 cm)
- UL Recognized
- CSA Certified
- See chart for amperage range and other data

A2HT SERIES

High Temperature Float Switch

Features

- Temperature Rating: 200° F (93° C)
- Float Material: Polypropylene
- Cord Material: 16 gauge, 2 conductor SJOOW
- Ratings: 13 Maximum Amps
- Float Dimensions: 3.18" diameter x 5.58" long
- Available lengths: 20', 30' *

** No other lengths available in this Series.*

A2G SERIES

SJE AmpMaster® Pump Switch

Features

- Mechanically activated, heavy duty contacts, wide angle operation.
- Controls pumps up to 1½ HP at 115 VAC and 3 HP at 250 VAC.
- Non-corrosive PVC housing for use in liquids up to 140° F (60° C).
- Maximum pump running current of 20 amps.
- Not sensitive to rotation or turbulence.
- Pumping range: 9" to 24".
- 12 AWG, SJOW cord is available only with bare leads.
- Available for pump down applications only.
- UL Recognized for use in non-potable water and sewage.
- CSA Certified
- See chart for amperage range and other data.

A2R SERIES

SJE MicroMaster®

Features

- Mechanically activated, snap action contacts, wide angle.
- Pump down operation (optional pump up available)
- UL Recognized for use in non-potable water and sewage.
- CSA Certified
- See chart for amperage range and other data.
- Controls pump up to 70 amps at 115 VAC and 10 amps at 230 VAC
- 16 AWG, SJOW cord on 230 V; 18 AWG, SJOW cord on 115 V
- Pumping range: 8" to 36"
- Not sensitive to rotation or turbulence

A2A SERIES

Features

- Magnetically activated vertical operation.
- Switch mechanism encapsulated in epoxy to ensure a water proof switch.
- Controls pumps up to ½ HP at 120 VAC and 1 HP at 230 VAC.
- Non-corrosive PVC housing for use in liquids up to 125° F (52° C).
- 10′ or 20′ Cord with piggyback plug
- Operating Temperature: 0 - 140° F
- Pumping range: 1.5" - 6.0" (inches)
- Available for pump down applications only.
- For confined applications requiring an accurate pumping range.
- Stainless steel mounting bracket and hose clamp.
- UL Recognized for use in non-potable water and sewage.
- CSA Certified
- See chart for amperage range and other data.

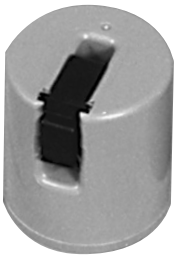
A2N SERIES

SJE SignalMaster® Control Switch

Features

- Mechanically activated, narrow angle, designed to activate pump control panels or alarms.
- Not designed for direct connection to pump.
- Non-corrosive PVC housing for use in liquids up to 140° F (60° C).
- Not sensitive to rotation.
- Control differential: 1.5" above or below horizontal.
- Available as NO (pump down), NC (pump up) model, see Nomenclature page.
- For non-potable water, water or sewage applications.
- Supplied with a pipe clamp for mounting to pipe.
- UL Listed for use in non-potable water and sewage.
- CSA Certified.
- See chart for amperage range and other data.
- Normally open - comes with yellow cap for easy identification.
- Normally closed - comes with white cap for easy identification.

A2WT SJ ELECTRO WEIGHT



- Adjustable snap in design.
- Works with all float switches shown.
- PVC

A2WTC CONERY WEIGHT

- Zinc plated cord weight
- Works with all float switches

PUMP SWITCHES (WIDE ANGLE) can be connected directly to a pump
CONTROL SWITCHES (NARROW ANGLE) can only be used with control panels or alarm panels

Order Number	Maximum Running Amps	Maximum Starting Amps	Cord Length (Feet)	Bare Leads	Pump Switch	Control Switch	(1) N.0.	(2) N.C.	Mounting Strap	Mounting Weight
A2D13	13	85	10	X	X	-	X		X	
A2D14				X	X	-	X		X	
A2D23U			15	X	X	-		X	X	
A2D23W				X	X	-	X		X	X
A2D33			20	X	X	-	X		X	
A2D33U				X	X	-		X	X	
A2D33W				X	X	-	X		X	X
A2D53W			30	X	X	-	X		X	X
A2D63W			50	X	X	-	X		X	X
A2D83W			100	X	X	-	X		X	X
A2E03	15		4	X	X	-	X			X
A2E23			15	X	X	-	X		X	
A2E23U				X	X	-		X	X	
A2E33			20	X	X	-	X		X	
A2E53			30	X	X	-	X		X	
A2E53U				X	X	-		X	X	
A2E63			50	X	X	-	X		X	
A2E63U				X	X	-		X	X	
A2E83			100	X	X	-	X		X	
A2E83U				X	X	-		X	X	
A2G23	20	120	15	X	X	-	X		X	
A2G33			20	X	X	-	X		X	
A2G43			25	X	X	-	X		X	
A2G53			30	X	X	-	X		X	
A2N03	5	N/A	3	X	-	X	X		X	
A2N13			10	X	-	X	X		X	
A2N23			15	X	-	X	X		X	
A2N23W				X	-	X	X		X	
A2N23WB				X	-	X	X			X
A2N23WU				X	-	X		X		X
A2N33			20	X	-	X	X		X	
A2N33U				X	-	X		X	X	
A2N33W				X	-	X	X			X
A2N33WB				X	-	X	X			X
A2N33WU				X	-	X		X		X
A2N43W			25	X	-	X	X			X
A2N43WU				X	-	X		X		X
A2N53			30	X	-	X	X		X	
A2N53W				X	-	X	X			X
A2N53WU				X	-	X		X		X
A2N63			50	X	-	X	X		X	
A2N63W				X	-	X	X			X
A2N73			75	X	-	X	X		X	
A2N73W				X	-	X	X			X
A2N83			100	X	-	X	X		X	
A2N83U				X	-	X		X	X	
A2N93			125	X	-	X	X		X	
A2SJRHT33	13	78	20	X	X	-	X		X	
A2SJRHT53			30	X	X	-	X		X	
A2T33	15	90	20	X	-	X	X		X	
A2X03	See Description	N/A	7	X	-	X	X		X	
A2X13			10	X	-	X	X		X	
A2X13U				X	-	X		X	X	
A2X23			15	X	-	X	X		X	
A2X33			20	X	-	X	X		X	
A2X33U				X	-	X		X	X	
A2X53			30	X	-	X	X		X	
A2X53U				X	-	X		X	X	
A2X63W				X	-	X	X			X

N.O. (1) = PUMP DOWN N.C. (2) = PUMP UP

WIDE ANGLE 115 VOLT PIGGYBACK FLOAT SWITCHES TO DIRECTLY CONTROL PUMPS

Order Number	Maximum Amps	Start Amps	115 V Plug	Cord Length (Feet)	(1)	(2)	Mounting Strap
					N.0.	N.C.	
A2A11	13	85	X	10	X		X
A2D11			X		X		X
A2D11B			X		X		
A2D11C			X		X		X
A2A31			X	20	X		X
A2D31			X		X		X
A2D31B			X		X		
A2D31C			X		X		X
A2D31U			X			X	X
A2D51			X	30	X		X
A2D51C			X		X		X
A2D61			X	50	X		X
A2E21	15		X	15	X		X
A2E31			X	20	X		X
A2E31C			X		X		X
A2E31U			X			X	X
A2E51			X	30	X		X
A2E61			X	50	X		X
A2H11	13	60	X	10	X		X
A2H11B			X		X		
A2H11C			X		X		X
A2H31			X	20	X		X
A2J21	10	60	X	15	X		X
A2J31			X	20	X		X
A2R11			X	10	X		X
A2R11B			X		X		
A2R31			X	20	X		X
A2R31B			X		X		
A2SJRHT31	13	78	X	20	X		X
A2T21	15	90	X	15	X		X
A2T31			X	20	X		X
A2T51			X	30	X		X

aN.O. (1) = PUMP DOWN N.C. (2) = PUMP UP

WIDE ANGLE 230 VOLT PIGGYBACK FLOAT SWITCHES TO DIRECTLY CONTROL PUMPS

Order Number	Maximum Amps	Start Amps	230 V Plug	Cord Length (Feet)	(1)	(2)	Mounting Strap
					N.0.	N.C.	
A2D12	13	85	X	10	X		X
A2D12B			X		X		
A2D12C			X		X		X
A2A32			X	20	X		X
A2D32			X		X		X
A2D32B			X		X		
A2D32C			X		X		X
A2D32U			X			X	X
A2D52			X	30	X		X
A2D52C			X		X		X
A2D62			X	50	X		X
A2E22	15		X	15	X		X
A2E32			X	20	X		X
A2E32C			X		X		X
A2E32U			X			X	X
A2E52			X	30	X		X
A2E62			X	50	X		X
A2H12B	12	60	X	10	X		
A2H12C			X		X		X
A2H22			X	15	X		X
A2H32			X	20	X		X
A2J12	10	60	X	10	X		X
A2J22			X	15	X		X
A2J32			X	20	X		X
A2R12			X	10	X		X
A2R12B			X		X		
A2R32			X	20	X		X
A2R32B			X		X		
A2SJRHT32	13	78	X	20	X		X
A2T22	15	90	X	15	X		X
A2T32			X	20	X		X
A2T52			X	30	X		X

N.O. (1) = PUMP DOWN N.C. (2) = PUMP UP

NOMENCLATURE

A2 D 3 3 OPTIONS

OPTIONS

U = Pump Up or Normally Closed (NC)

W = A2WT Cable Weight

B = Bulk Packed (internal only)

Style of Cord

1 = 115 V piggyback

2 = 230 V piggyback

3 = Bare lead

Length of Cord

1 = 10'

2 = 15' ①

3 = 20'

4 = 25' ①

5 = 30'

6 = 50'

7 = 75'

8 = 100'

9 = 125'

Only available on select control switches.

Type of Switch

A = Alderon

D = PumpMaster® – SJE

E = PumpMaster Plus® – SJE

G = AmpMaster® – SJE

H = VerticalMaster® – SJE

J = VerticalMaster® II – SJE ②

N = SignalMaster™ – SJE

P = MicroMaster® Plus – SJE ②

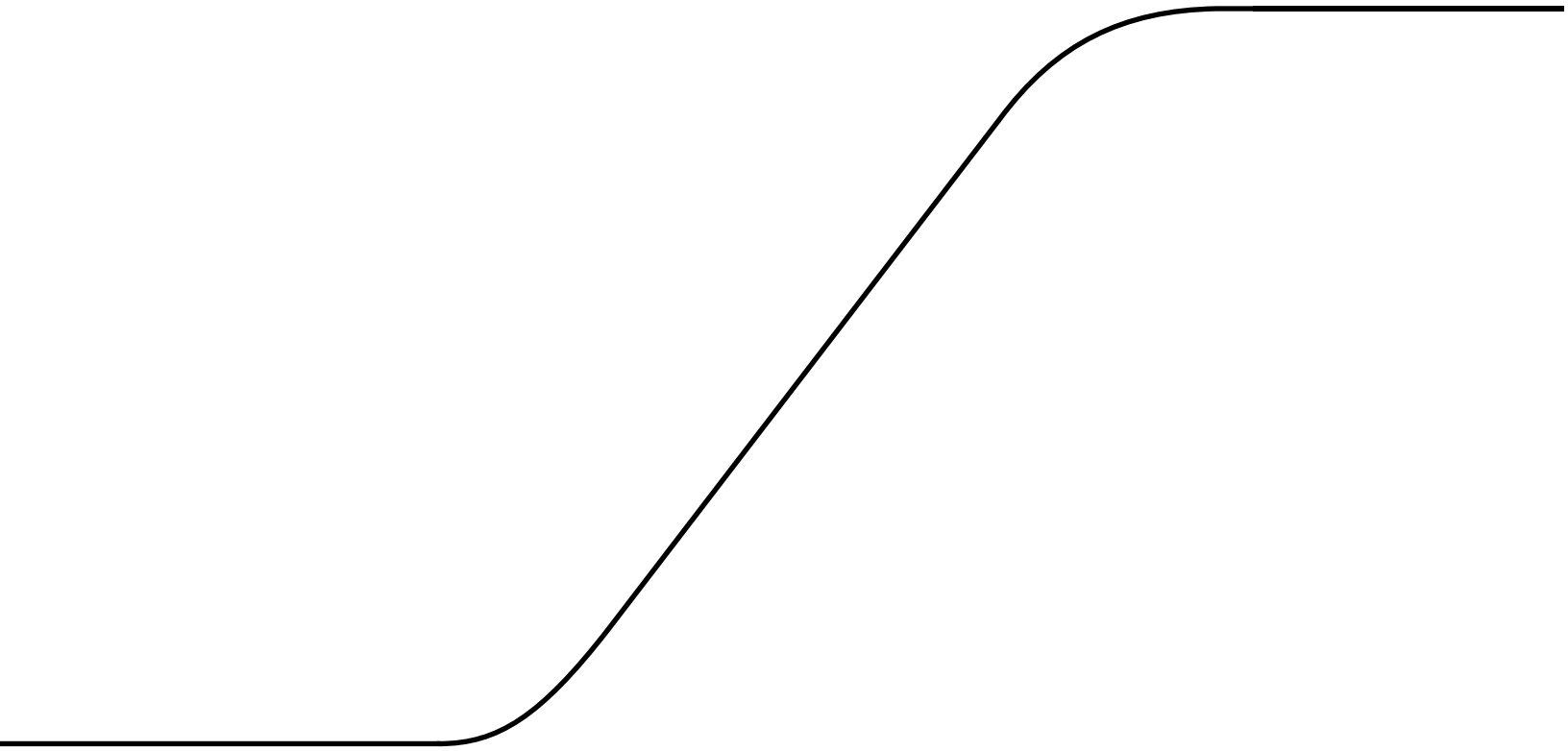
R = MicroMaster® – SJE ②

T = Double Float® Master – SJE

X = MilliAmpMaster™

Float Switch

Basin packages



xylem
Let's Solve Water

TECHNICAL BROCHURE
BCPOLY R6

POLYETHYLENE BASINS AND COVERS

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

Suitable for residential and light commercial sump or sewage applications.

Stacking ribs and tapered profile provide greater efficiency in shipping and storage.

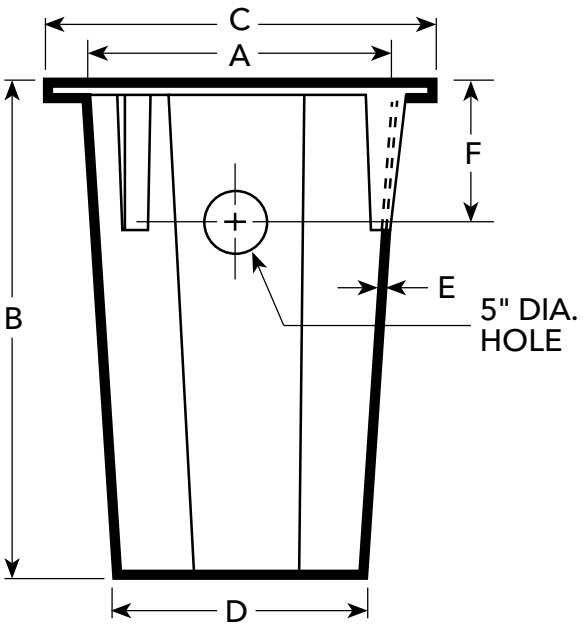
Made of non-corrosive, impact resistant, virgin polyethylene.

Basins are available with structural foam, steel or poly covers, sealing tape,
2 inch discharge/vent pipe grommets, 4 inch inlet pipe grommet and 2 inch cord seal.

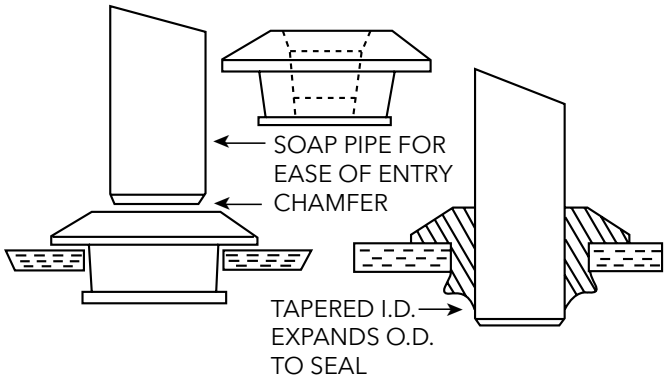
All basins listed are provided with inlet hole drilled.

Maximum fluid temperature: 130° F (54° C).

DIMENSIONS



PIPE GROMMET DETAIL



SELECTION CHART

Order Number	Nominal Basin Size (inches)	Basin Style	Cover Style	Cover Dia. (in.)	Bolt Circle	No. Bolt Holes	Inside Dia. A	Height B	Outside Dia. C	Base Dia. D	Thickness E	Inlet F	Capacity		Weight (lbs.)
													Total Gal.	Gal. Per Inch	
A7-1822P	18 x 22	Sump Crock	Slotted/ Poly	20.5	NA	NA	18"	22"	22"	17"	1/8"	-	22	1	6
A7-1830P	18 x 30	Poly Basin	Simplex Steel	20.5	19.5	4	18"	30"	22"	17"	3/16"	10½	30	1	10
A7-1830IL	18 x 30	IAPMO①	Simplex Steel	20.5	19.5	4	18"	30"	22"	17"	3/16"	10½	30	1	10
A7-1830SP	18 x 30	Side Vent	Simplex Steel	20.5	19.5	4	18"	30"	22"	17"	3/16"	10½	30	1	18
A7-1830SPP	18 x 30	Side Vent	Simplex Poly	20.5	19.5	4	18"	30"	22"	17"	3/16"	10½	30	1	15
A7-2331SP	23 x 31	Side Vent	Simplex Poly	28	24.5	6	23"	30"	29"	22"	3/16"	10½	50	1.6	24
A7-1822LPN	18 x 22	Poly Basin	Slotted/ Poly	20.5	19.5	4	18"	22"	22"	17"	3/16"	10½	19	1	6
A7-1822RPS	18 x 22	Radon Gas Tight	Simplex Steel	20.5	19.5	4	18"	22"	22"	17"	3/16"	10½	19	1	14
A7-1822SVP	18 x 22	Side Vent	Simplex Poly	20.5	19.5	4	18"	22"	22"	17"	3/16"	10½	19	1	10
A7-1824LP	18 x 24	Corrugated Poly	Slotted Poly	20.5	19.5	4	18"	24"	22"	17"	3/16"	10½	22	1	9
A7-2424PS	24 x 24	Poly Basin	Simplex Steel	28	26.5	6	24"	24"	29"	23"	3/16"	10½	43	1.9	35
A7-2430PS	24 x 30	Poly Basin	Simplex Steel	28	26.5	6	24"	30"	29"	23"	3/16"	10½	54	1.9	39
A7-2436P	24 x 36	Poly Basin	Simplex Steel	28	26.5	6	24"	36"	29"	23"	3/16"	10½	65	1.9	26
A7-3036PS	30 x 36	Poly Basin	Simplex Steel	34	32.5	6	30"	39"	36"	29"	5/16"	10½	103	3	45
A7-3036PD	30 x 36	Poly Basin	Duplex Steel	34	32.5	6	30"	36"	35"	29"	5/16"	10½	103	3	50
A7-3636PS	36 x 36	Poly Basin	Simplex Steel	40	38.5	6	36"	36"	41"	35"	5/16"	10½	154	4.3	55
A7-3636PD	36 x 36	Poly Basin	Duplex Steel	40	38.5	6	36"	36"	41"	35"	5/16"	10½	154	4.3	60

① This basin meets a 10' stack test requirement.

PIPE GROMMETS FOR ALL BASINS AND COVERS UP TO 36" DIAMETER

Alcryn Thermoplastic can be used for basin inlet, discharge and vent connections.

Thermoplastic Uniseal Inlet Grommet		
Order Number	**Pipe Size**	**Required Hole Diameter**
A8-2U	2"	3"
A8-24U	2"	4"
A8-3U	3"	4"
A8-4U	4"	5"
A8-4DU	4" Double Seal	5"
A8-6U	6" Seal	7"

Basin and package accessories

xylem

Table of Contents

Features

Fiberglass Basins - heavy duty construction, standard sizes to 72" Dia. and 96" Deep, custom basins to 20' deep available by quote request.

Covers

Pipe Grommets - Use for Inlet or Discharge Connections

Discharge Hubs - Cast iron caulking type and NPT Threaded

Float Switch Brackets - several models to choose from

Junction Boxes - boxes and cord grips

Cord Grips - designed to be installed in fiberglass covers

Cord Seals - seal around electric cord entry holes

Fiberglass basin

Order No.	Options ①	Dimensional Data (inches)			Approx.		Weight (lbs.)		
		A	B	C	Total Gallons	Gallons Per Inch	Fiberglass Standard Basin	with "F" suffix	with "S" suffix
A7-2436	F	24	36	26.5	65	1.81	40	60	107
A7-2448		24	48		84	1.75	50	70	117
A7-2460		24	60		102	1.70	59	79	126
A7-2472F		24	72		118	1.64	NA	89	136
A7-2484F		24	84		165	1.96	NA	116	163
A7-3036		30	36	32.5	110	3.00	46	80	148
A7-3048		30	48		137	2.85	59	92	160
A7-3060		30	60		169	2.82	90	104	172
A7-3072F		30	72		199	2.76	NA	147	214
A7-3084F		30	84		257	3.05	NA	162	230
A7-3096F		30	96		294	3.06	NA	177	245
A7-3636		36	36	38.5	159	4.41	64	103	195
A7-3648		36	48		200	4.17	78	118	210
A7-3660		36	60		246	4.10	93	132	224
A7-3684F		36	84		370	4.40	NA	226	318
A7-4248		42	48	44.5	274	5.71	116	167	288
A7-4260		42	60		339	5.65	139	190	310
A7-4284F		42	84		504	6.00	NA	272	393
A7-4860		48	60	51	446	7.43	161	226	378
A7-4884F		48	84		658	7.83	NA	364	516
A7-6078F		60	78	63	955	12.24	NA	580	807
A7-7284F		72	84	75	1481	17.63	NA	865	1183

① An "F" suffix = fiberglass. Basins are not predrilled for inlet and discharge hubs. Dimensions and weights are based on Topp Industries, Inc. specifications.

Note: Fiberglass collars are molded as an integral part of the basin (built-in) and not something that can be added in the field. See price book.

Standard features

- Heavy duty fiberglass construction with $^{3}/_{16}$" wall thickness (minimum).
- Designed to withstand hydrostatic pressure of 120 lbs. per cu. ft.
- Maximum fluid temperature: 140° F (60° C).
- Standard sizes:
  - 24" – 72" diameter.
  - 36" – 96" deep.
- Larger sizes also available.
- Fiberglass anti-flotation collars are standard on models with an “F” suffix on the order number.
- Basins are not factory drilled for inlet or discharge connections.

Options

- Optional sizes with depths to 20' are available: contact Customer Service for price quote and availability.
- Inlet hubs and inlet grommets – order separately, see chart on this bulletin.
- Discharge hubs – order separately, see chart on this bulletin.

Solid fiberglass cover

- Heavy duty fiberglass construction.
- Construction provides corrosion resistant gas tight design.
- Unique flange connection allows superior sealing capability.
- Light weight for easy installation.
- Available in 24" through 72" diameters.
- Optional float switch cord grips available (see basin accessories).

Solid steel cover

- Heavy duty steel construction.
- Black epoxy coating is applied to each cover.
- Available in 24" through 72" diameters.
- Optional float switch cord grips available (see basin accessories).

Dimensional data

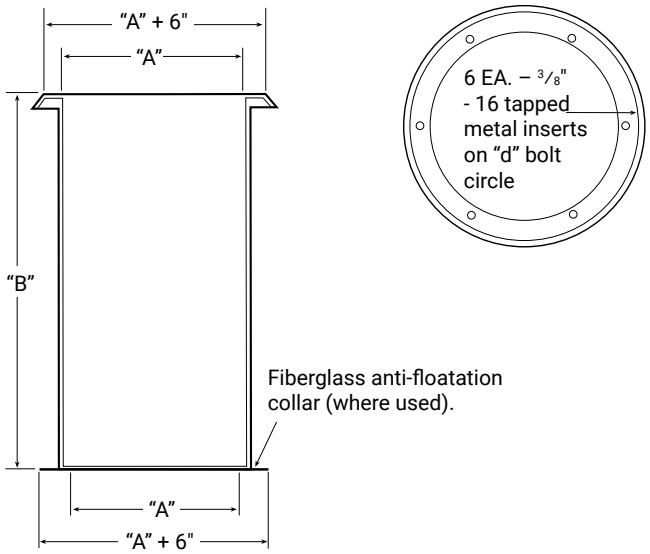
Order No.	A Basin Inside Dia. in.	B Cover Outside Dia. in.	C Cover Bolt Circle in.	D Material Thickness in.
A8-24F	24	30.1875	26.5	.8125
A8-30F	30	36.5	32.5	.8125
A8-36F	36	42.5	38.5	.8125
A8-48F	48	54	51.0	.50
A8-60F	60	66	63.0	.75
A8-72F	72	78	75.0	1.0

Dimensional data

Order No.	A Basin Inside Dia. in.	B Cover Outside Dia. in.	C Cover Bolt Circle in.	D Material Thickness in.
A8-24T	24	28	26.5	.25
A8-30T	30	34	32.5	.25
A8-36T	36	40	38.5	.25
A8-42T	42	46	44.5	.25
A8-48T	48	54	51.0	.25
A8-60T	60	66	63.0	.375
A8-72T	72	78	75.0	.375

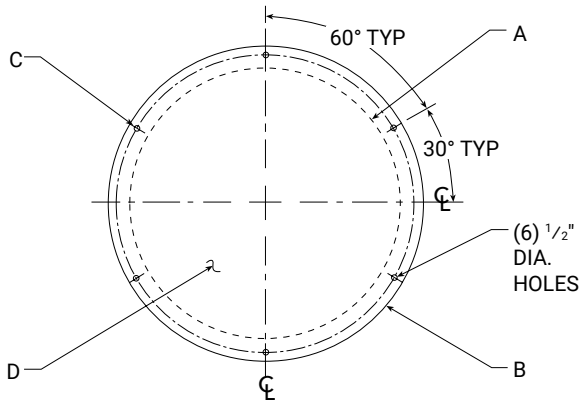
(All dimensions are in inches and weights in lbs. Do not use for construction purposes.)

Basin dimension drawing



Cover dimension drawing

Stainless Steel Hardware Standard – Gasket Tape Provided



Single door hatch cover

- Heavy duty steel construction.
- Black epoxy coating is applied to each cover.
- Single door design provides large opening for easy access to pump and controls.
- Available in 24" through 72" diameters.

Double door hatch cover

- Heavy duty steel construction.
- Black epoxy coating is applied to each cover.
- Double door design provides easy access to pump and controls.
- Available in 48" through 72" diameters.

Single door hatch cover dimensional data

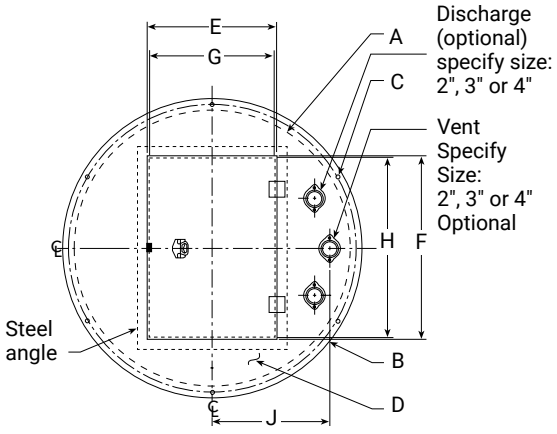
Steel Order No.	Vent Size	A Basin Inside Dimension	B Cover Outside Dimension	C Cover Bolt Circle	D Cover Thickness	E Hatch Door Width	F Hatch Door Length	G Clear Access Width	H Clear Access Length	J Dist.
A8-24H1	2"	24	28	26.5	.25	13.5	17	16	12	10
A8-30H1	2"	30	34	32.5	.25	17.5	23	16	22	13
A8-36H1	2"	36	40	38.5	.25	21.5	25	20	24	16
A8-42H1	2"	42	46	44.5	.25	23.5	33	22	32	19
A8-48H1	2"	48	54	51	0.25	25.5	37	24	36	21
A8-60H1	2"	60	66	63	0.25	30.5	40	29	39	27
A8-72H1	2"	72	78	75	0.25	35.5	49	34	48	28

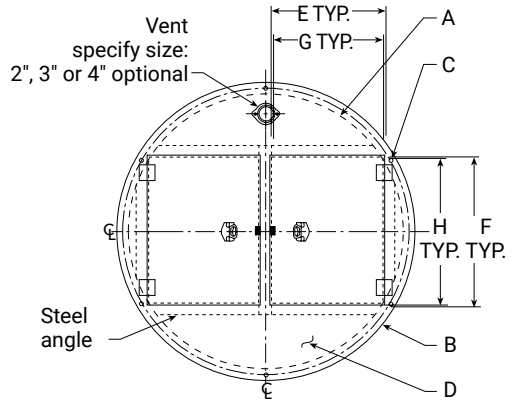
Double door hatch cover dimensional data

Steel Order No.	Vent Size	A Basin Inside Dimension	B Cover Outside Dimension	C Cover Bolt Circle	D Cover Thickness	E Hatch Door Width	F Hatch Door Length	G Clear Access Width	H Clear Access Length
A8-48H2	2"	48	54	51	.250	18	25	17	24
A8-60H2	2"	60	66	63	.375	21	31	20	30
A8-72H2	2"	72	78	75	.375	25	41	24	40

(All dimensions are in inches and weights in lbs. Do not use for construction purposes.)

Stainless steel hardware standard – gasket tape provided





Simplex fiberglass pump cover

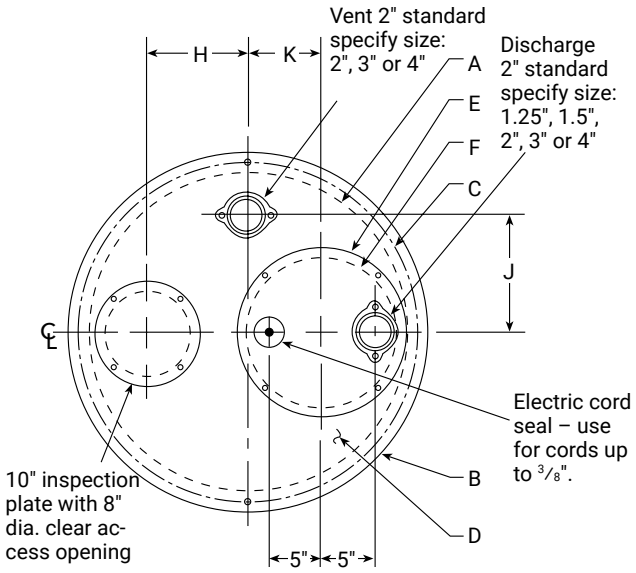
(Simplex covers are not for use if slide rails are used in basin.)

- Heavy duty fiberglass construction.
- Construction provides corrosion resistant gas tight design.
- Unique flange connection allows superior sealing capability.
- Light weight for easy installation.
- Pump access and switch inspection plates furnished as standard.
- Available in 24" through 48" diameters.
- Optional float switch cord grips available (see basin accessories).

Simplex steel pump cover

- Heavy duty steel construction.
- Black epoxy coating is applied to each cover.
- Pump access and switch inspection plates furnished as standard.
- Available in 24" through 48" diameters.
- Optional float switch cord grips available (see basin accessories).

Stainless Steel Hardware Standard – Gasket Tape Provided



Simplex fiberglass pump cover dimensional data

Order No.	Vent Size	A Cover Inside Dimension	B Cover Outside Dimension	C Cover Bolt Circle	D Cover Thickness	E Access Plate Dimension	F Clear Access Dimension	G Distance	H Distance	J Distance	K Distance
A8-24FS	2"	24	30.5	26.5	.25	16	14	NA	7.75	10	5.50
A8-30FS	2"	30	36.0	32.5	.25	18	16	NA	9.50	11	7.00
A8-36FS	2"	36	42.5	38.5	.25	18	16	NA	13.00	14	7.00

Simplex steel pump cover dimensional data

Order No.	Vent Size	A Cover Inside Dimension	B Cover Outside Dimension	C Cover Bolt Circle	D Cover Thickness	E Access Plate Dimension	F Clear Access Dimension	G Distance	H Distance	J Distance	K Distance
A8-24TS	2"	24	28	26.5	.25	16	14	NA	7.75	10	5.50
A8-30TS	2"	30	34	32.5	.25	18	16	NA	9.50	11	7.00
A8-36TS	2"	36	40	38.5	.25	18	16	NA	13.00	14	7.00
A8-42TS	2"	42	46	44.5	.25	22	20	NA	14.00	14	10.00
A8-48TS	2"	48	54	51.0	.25	22	20	NA	18.00	20	9.00
A8-60TS	2"	60	66	63.0	.375	28	26	NA	15.50	25	15.50

(All dimensions are in inches and weights in lbs. Do not use for construction purposes.)

Duplex fiberglass pump cover

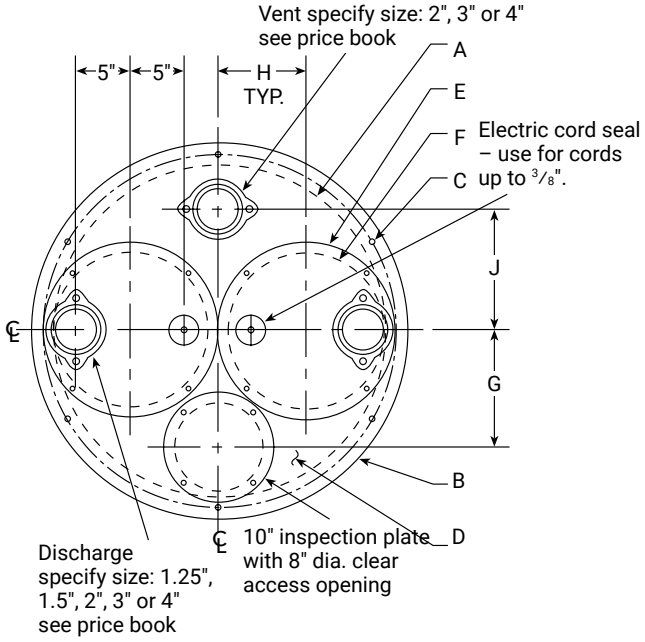
(Duplex covers are not for use if slide rails are used in basin.)

- Heavy duty fiberglass construction.
- Construction provides corrosion resistant gas tight design.
- Unique flange connection allows superior sealing capability.
- Light weight for easy installation.
- Two pump access and one switch inspection plate furnished as standard.
- Available in 30" through 72" diameters.
- Optional float switch cord grips available (see Basin Accessories).

Duplex steel pump cover

- Heavy duty steel construction.
- Black epoxy coating is applied to each cover.
- Two pump access and one switch inspection plate furnished as standard.
- Available in 24" through 48" diameters.
- Optional float switch cord grips available (see Basin Accessories).

Stainless Steel Hardware Standard – Gasket Tape Provided



Duplex fiberglass pump cover dimensional data

Order No.	Vent Size	A Bain Inside Dimension	B Cover Outside Dimension	C Bolt Circle	D Cover Thickness	E Access Plate Dimension	F Clear Access Dimension	G Distance	H Distance	J Distance
A8-30FD	2"	30	34	32.5	.25	16	14	10.50	8.00	11
A8-36FD	2"	36	40	38.5	.25	18	16	13.00	10.00	14

Duplex steel pump cover dimensional data

Order No.	Vent Size	A Bain Inside Dimension	B Cover Outside Dimension	C Bolt Circle	D Cover Thickness	E Access Plate Dimension	F Clear Access Dimension	G Distance	H Distance	J Distance
A8-30TD	2"	30	34	32.5	.25	16	14	10.50	8.00	11
A8-36TD	2"	36	40	38.5	.25	18	16	13.00	10.00	14
A8-42TD	2"	42	46	44.5	.25	22	20	14.00	10.00	14
A8-48TD	2"	48	54	51.0	.25	22	20	18.00	12.00	20
A8-60TD	2"	60	66	63.0	.375	28	26	15.50	15.50	25
A8-72TD	2"	72	78	75.0	.375	28	26	15.50	15.50	30

(All dimensions are in inches and weights in lbs. Do not use for construction purposes.)

NOTE: Not for use if slide rails are installed in basin.

Connections

Inlet grommet (ringer series)

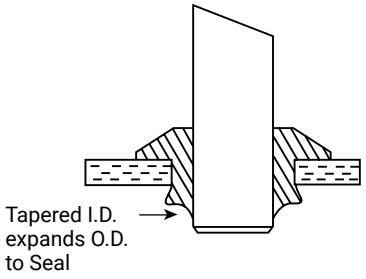
Order No.	Pipe Size	Required Hole Dia.
A8-12U	1¼"	
A8-15U	1½"	
A8-2U	2"	3"
A8-24U	2"	4"
A8-3U	3"	4"
A8-4U	4"	5"
A8-6U	6" Seal	7"

Stop 'n' seal inlet Hub

Order No.	Pipe Size	Required Hole Dia.
A8-4DU	4" Double Seal	5"

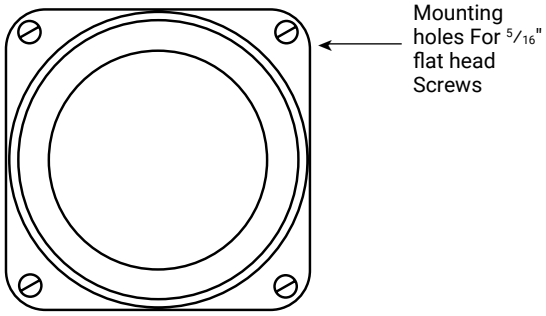
Composite inlet hub

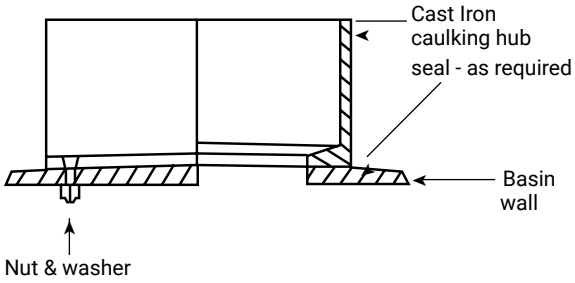
Order No.	Pipe Size
A8-4C	4"
A8-6C	6"
A8-6C2	6"
A8-8C	8"
A8-8C2	8"



Inlet caulking hubs

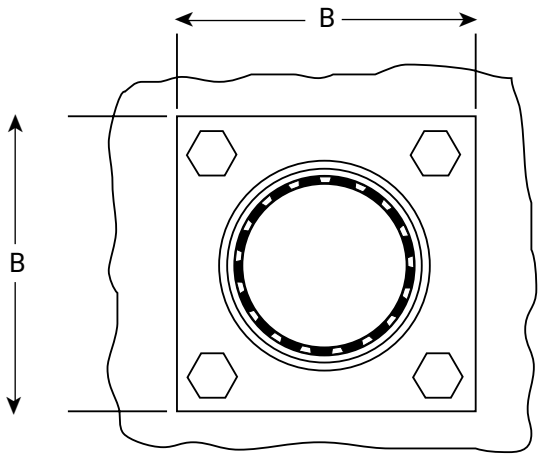
Order No.	Description
A8-2	2" Cast Iron
A8-3	3" Cast Iron
A8-4	4" Cast Iron
A8-6	6" Cast Iron
A8-8	8" Cast Iron



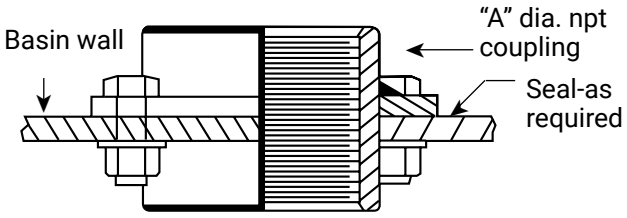


Discharge hubs

Through basin wall, female NPT coupling.



12 Gauge steel plate



Dimensional data

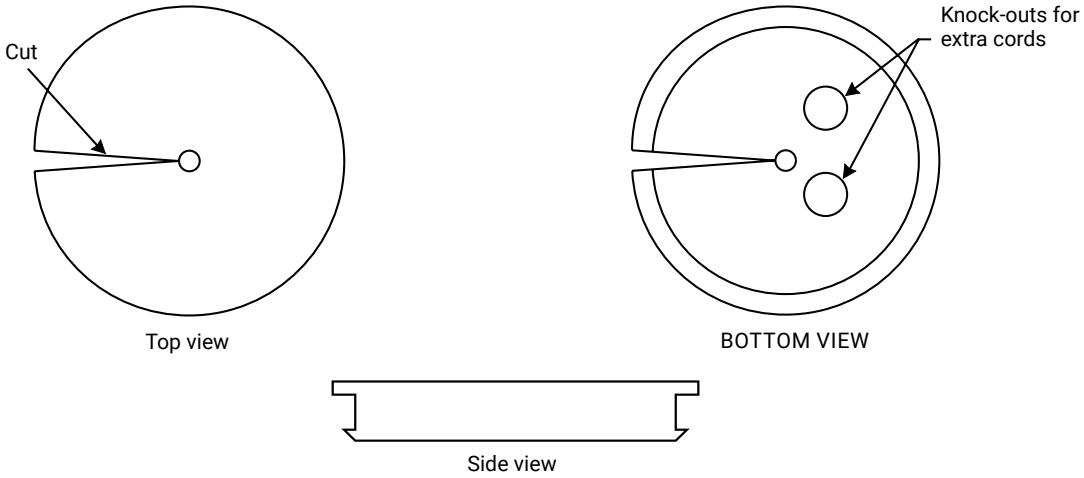
Model No.	A	B
A8-12	$1^{1}/_{4}$"	4"
A8-15	$1^{1}/_{2}$"	4"
A8-20	2"	4"
A8-30	3"	6"
A8-40	4"	6"

Cord seal

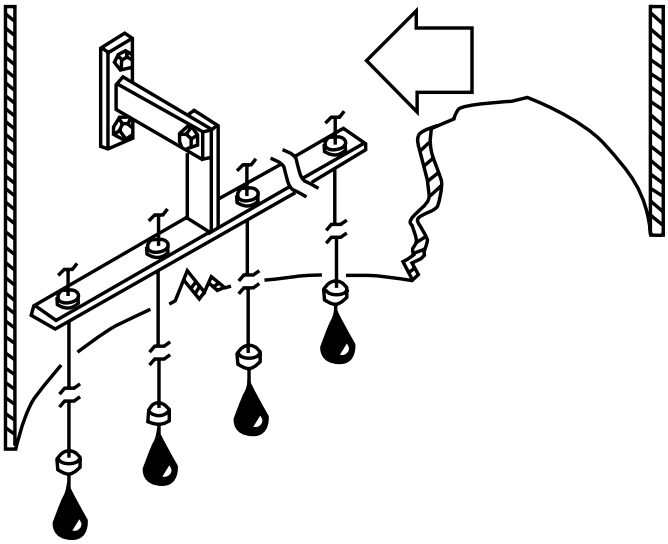
Specifications:

Material: Alcryn Part No. A8-CS
Diameter: 2.5" Thickness: $^{7}/_{16}$"

- Cord Seal is designed to seal around electric cord entry holes of 2.0" to 1.25".
- To modify the seal for smaller holes simply cut pie slices out until the diameter is 0.4" greater than the entry hole.

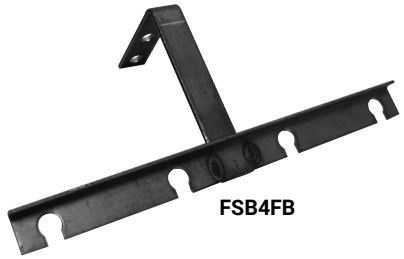


Stainless steel float brackets

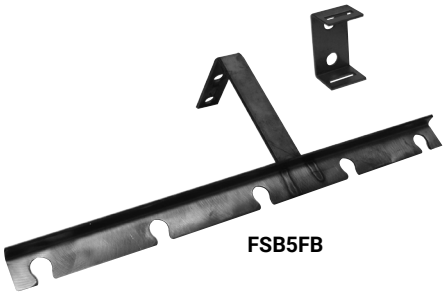


- T-type brackets are designed to keep multiple float switches organized within the basin. All brackets are made of Type 304 stainless steel and come with black cord snubbers to securely attach float cables.
- The T-shaped bracket styles are supplied with a mounting piece so that the bracket itself may be easily removed from the basin with the floats still attached.

Order No.	Type	# Floats	Material	Includes	Mfg.
FSB1	Adjustable Bracket	6	304 SS	Cord Snubbers	Conery
FSB3FB	T Type	3	304 SS	Cord Grips	Topp
FSB4FB	T Type	4	304 SS	Cord Snubbers	Conery
FSB5FB	T Type	5	304 SS	Cord Snubbers	
FSB6FB	T Type	6	304 SS	Cord Snubbers	
FSB6AHB	Hook	6	304 SS	Hooks	

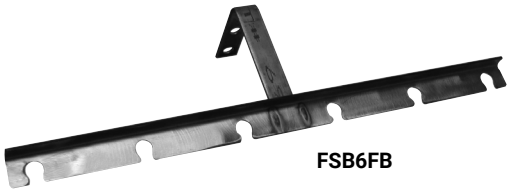


FSB4FB



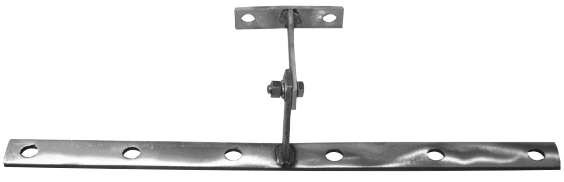
FSB5FB

Cord Snubbers



FSB6FB

FSB6AHB is a 6-float hook-type bracket.



FSB–1

Portable hoists

Standard features:

- 304SS construction
- 30' of ¼" stainless steel cable
- Galvanized 1 ton hook
- Dutton-Lainson Marine Grade Brake Winch
- Adjustable reach in 1" (25 mm) increments

Model	Mast Diameter	Maximum Load	Weight	Optional Socket Part Number
A8-PH300	2 3/8"	300	73	A8-PH1S
A8-PH1000	3½"	1000	96	A8-PH2S

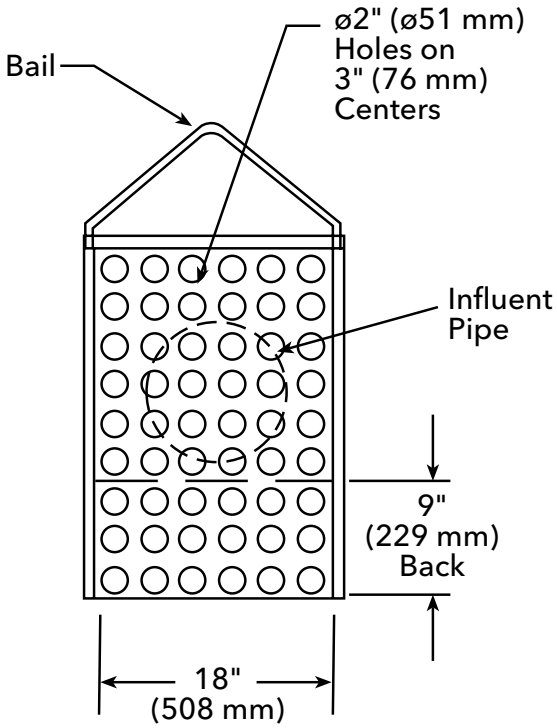
Trash baskets

Standard features:

- All aluminum construction
- Perforated screening style
- Baskets for up to 8" inlet
- 2" diameter holes on 3" centers
- **Part # A8-TB1**

Application:

- Large solids pit for problem applications. Easily captures non-pumpable waste to be removed during routine maintenance.



Junction boxes

- NEMA 4X fiberglass enclosure.
- Cord grips supplied for pump and control wires.
- 2" conduit connection supplied.
- Consult factory for enclosure types and options not listed.

Cord grips up to .47	Cord Grips .38 to .75	Inside box dimensions
3	1	6" x 7" x $2^{7}/_{8}$"

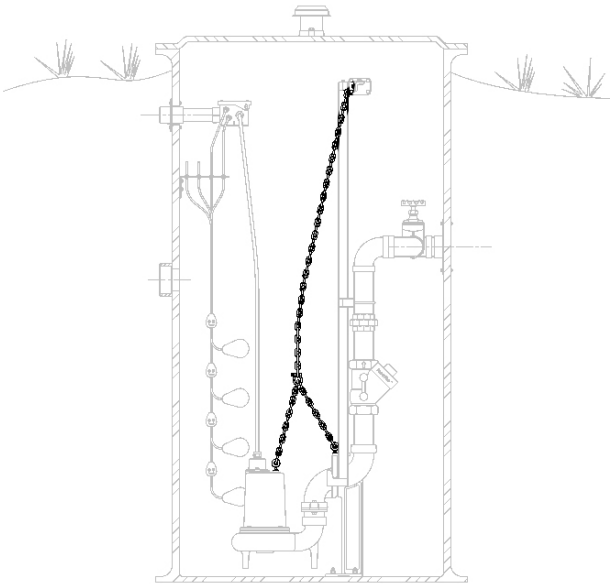
Part number	Configuration	Size	Grips
A8-1J	Simplex	6 x 7 x $2^{7}/_{8}$	3 / 1
A8-3J	Simplex	4 x 4 x 4	3 / 1
A8-4J	Duplex	6 x 6 x 4	4 / 2
A8-6J	Duplex	8 x 8 x 4	6 / 2

Bail features

- Specifically designed for 4” Wastewater pumps with two point connection or one pump point and one rail point of connection
- Ease of lifting
- Stainless Steel Chain and Shackles for corrosive environments often found in Wastewater applications
- Requires additional straight chain to pull from pit

Bails	Safe working load	Diameter of chain	Length	Shackle	Ring/Link	Recommended for
ABAIL1	1200	5/16"	30"	½"	½" x 3 1/8"	7.5 – 15 HP
ABAIL2	2800	½"	30"	5/8"	½" x 2½" X 4¼"	20 – 72 HP

Lifting chain kit features



- Specifically designed for lifting pumps less than 7.5 HP
- Two point connection: one pump connection and one slide rail connection
- Bail and straight chain all in one kit
- Ease of Maintenance

Chain Kits	Safe working load	Diameter of chain on bail	Diameter of chain on straight run	Shackle	Length	Recommended usage
ACHNSS10KT	800	3/8"	5/16"	3/8"	10'	up to 7.5 HP
ACHNSS20KT	800	3/8"	5/16"	3/8"	20'	up to 7.5 HP

Chain features

- Strong 316 stainless steel for use with lifting bails or connected directly to pump
- Two diameters of chain available for all pump models sold
- 316 stainless steel shackles Included

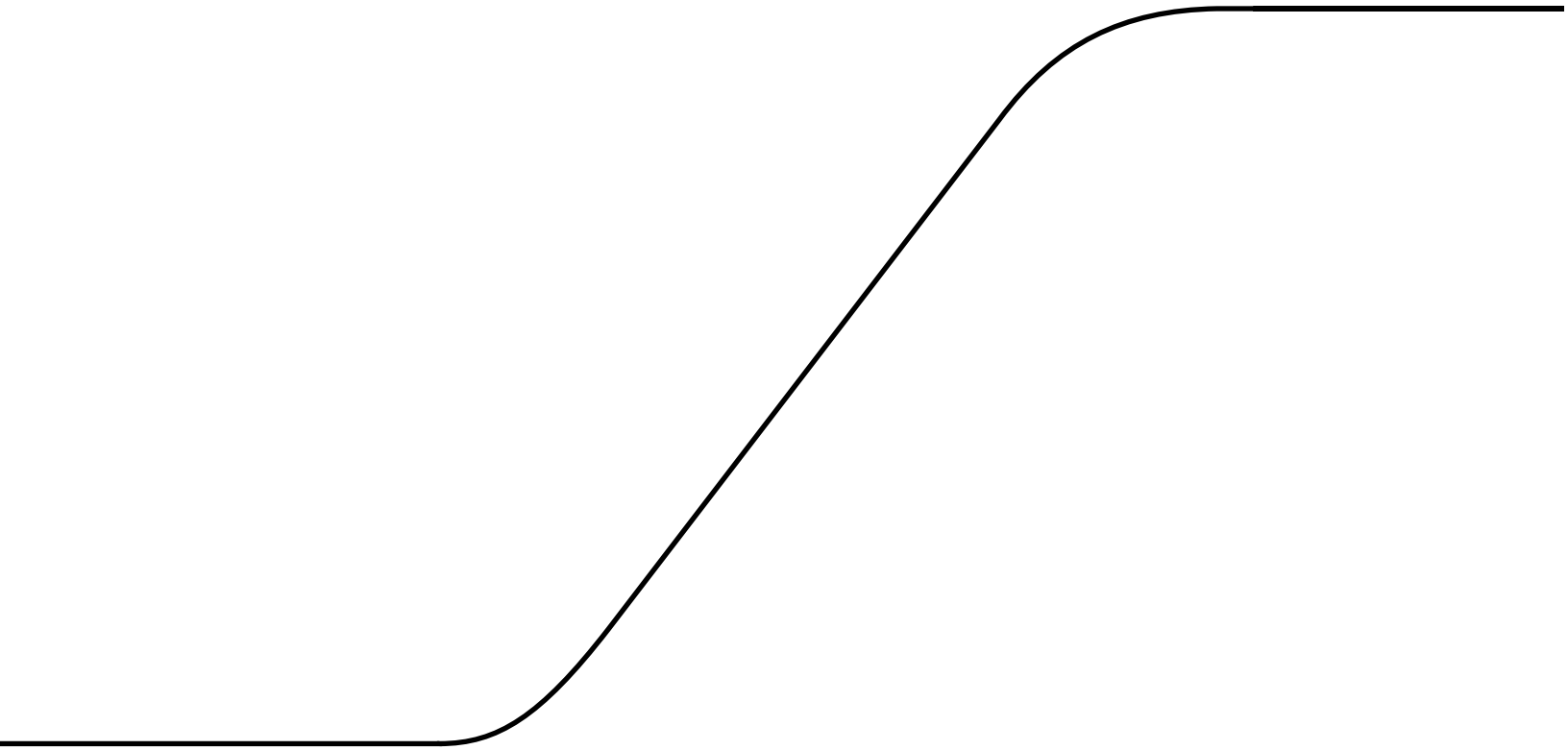
Chain	Safe working load	Diameter of chain	Length	Shackle	Recommended usage
ACHNSS10	800	3/16"	10	5/16"	up to 7.5 HP
ACHNSS20	800	3/16"	20	5/16"	up to 7.5 HP
ACHNSS30	800	3/16"	30	5/16"	up to 7.5 HP
ACHNSSL10	2800	½"	10	5/8"	7.5 HP up to 72 HP
ACHNSSL20	2800	½"	20	5/8"	7.5 HP up to 72 HP

Cable features

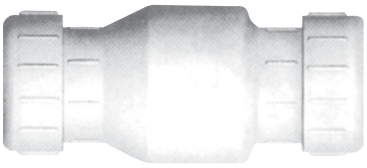
- Strong 304 stainless steel for use with lifting bails or connected directly to pump
- 304 stainless steel shackles and thimbles Included

Cable	Safe working load	Diameter of cable	Length	Thimble	Shackle	Recommended usage
ACBL10	740	3/16"	10	3/16"	5/16"	up to 7.5 HP
ACBL20	740	3/16"	20	3/16"	5/16"	up to 7.5 HP
ACBL30	740	3/16"	30	3/16"	5/16"	up to 7.5 HP

Fittings



xylem
Let's Solve Water



TECHNICAL BROCHURE
BCPCV1 R10

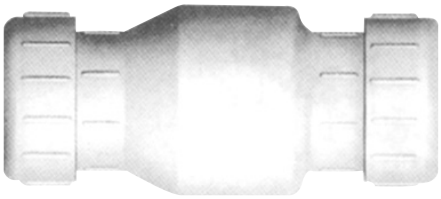
CHECK VALVES / FITTINGS

CAST IRON / PLASTIC CHECK VALVES / SHORT RADIUS ELBOWS
EFFLUENT AND SEWAGE

GOULDS
WATER TECHNOLOGY
a xylem brand

PLASTIC CHECK VALVES

- Ideal for horizontal installation.
- Compression seal connection for easy installation.
- Swing design flapper prevents clogging.
- Available for pipe size 1¼", 1½", 2", 3".
- 200 PSI burst rating.
- PVC weighted and shielded flapper will retain back pressure up to 125 PSI.
- Pressure rated at 125 PSI at 72° F.
- NSF approved.



Pipe Size	Order No.	Overall Length	Overall Width
1¼"	A9-12P	8¼"	$3^{3}/_{16}$"
1½"	A9-15P	8¼"	$3^{3}/_{16}$"
2"	A9-2P	$9^{9}/_{16}$"	4¼"
3"	A9-3P	13¼"	5¾"

RUBBER FLAPPER STYLE CHECK VALVE

Pipe Size	Order No.
2" NPT	A9-2PH

BALL CHECK VALVES

- Ideal for vertical mounting.
- Heavy duty cast iron or plastic construction.
- Natural rubber ball.
- Clean-out port and plug.
- Available in 1¼", 1½", 2" and 3" NPT threaded connections.
- Also available in 4" flanged (125#).
- Recommended for flow velocity of 3' to 5' per second.
- Horizontal installation requires a 20' static head.

Plastic Models			
Pipe Size	**Order No.**	**Maximum Pressure**	**Maximum Temperature**
1¼" NPT	A9-12BPT	100 PSI	150° F
1½" NPT	A9-15BPT		
2" NPT	A9-2BPT		

Cast Iron Models			
Pipe Size	**Order No.**	**Maximum Pressure**	**Maximum Temperature**
1¼" NPT	A9-12B	150 PSI	180° F
2" NPT	A9-2B		
3" NPT	A9-3B		
4" Flanged	A9-4BCF ①		

① A9-4BCF – Nitrile covered metal ball, access (clean out) port.

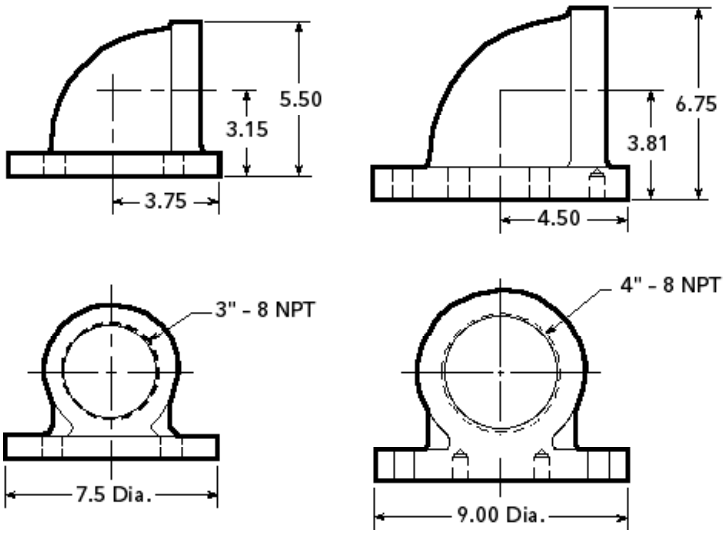
FITTINGS

PIPE CONNECTORS

Short Radius Elbow

- Cast iron construction.
- 125 lb. ANSI rated flange at pump end.
- 3" NPT or 4" NPT threaded connection for discharge pipe.

Flange Size	Order Number	Used With
3"	A1-5	3", 125# ANSI Flange
4"	A1-6	4", 125# ANSI Flange



A1-5 **A1-6**

GOULDS WATER TECHNOLOGY
xylem

Technical brochure
BCPGDS R7

Guide and disconnect systems less rails

1¼" through 6" connections

xylem
Let's Solve Water

Features

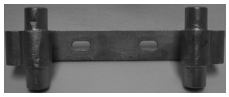
- Ductile iron construction
- Powder coated for corrosion resistance
- Compact design for greater space availability in the basin
- Designed for simple installation and removal on most pumps
- Innovative design allows for pump service without the need to disconnect plumbing or physically enter the basin
- Units include a SS chain kit – see descriptions
- Base units accept different size guide pipes (not supplied)
- Optional non-sparking bronze guide plate available for 3" and 4" flanged discharge models with HB suffix
- Upper guide bracket included in all packages
- Intermediate guide brackets available as an option

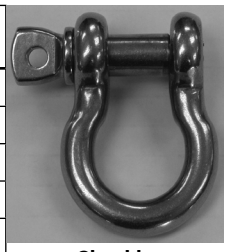
Conery base elbow rail system

Goulds order #	Connections	Description	Usable rail sizes	Weight (lbs.)	Use with	Maximum pump weight (lbs.)
CBE1220	1¼" x 2"	**Kit Includes:** • (1) Ductile iron base elbow • (1) Ductile iron pull-out • (1) SS Pump adapter flange and mounting hardware • (1) SS Lower guide plate bracket and mounting hardware (Attached) • (2) BUNA-N O-rings • (1) SS Upper guide rail bracket • (1) SS 3⁄16" Lifting chain (7') • (1) SS 3⁄16" Lifting chain (3') • (3) SS ¼" SPA shackles • (1) SS ¼" Quick link • (1) SS Lifting eyebolt	¾", 1"	51	**Grinder or effluent pumps with 1¼" discharge**	200
CBE1520	1½" x 2"		¾", 1"	51	**Sump and effluent pumps with 1½" discharge and stainless steel sewage pumps with 1½" discharge for 1 3⁄8" solids**	200
CBE2020	2" x 2"		¾", 1"	55	**Sewage or effluent pumps with 2" discharge**	200
CBE3030	3" x 3"		¾", 1", 1¼"	76	**2" Solids handling sewage pumps and 3" NPT threaded vertical discharge (pumps equipped with A1-3, 3" flange)**	400
CBE2020CP	2" x 2"		¾", 1"	76	**2" Solids handling sewage pumps and 2" NPT threaded vertical discharge**	200
CBE3030H	3" x 3"		¾", 1", 1¼"	66	**2½" Solids handling pumps with 3" 125# ANSI flanged discharge.**	400
CBE3030HB	3" Flange x 3" NPT non-sparking		¾", 1", 1¼"	68	**2½" Solids handling pumps with 3" 125# ANSI flanged discharge.**	400
CBE4040H	4" Flange		2"	157	**3" Solids handling pumps with 4" 125# ANSI flanged discharge.**	2,000
CBE4040HB	4" Flange non-sparking		2"	163	**3" Solids handling pumps with 4" 125# ANSI flanged discharge.**	2,000
CBE6060	6" Flange		2"	200	**3½" Solids handling pumps with 6" 125# ANSI flanged discharge.**	2,000
CBE6060B	6" Flange non-sparking		2"	200	**3½" Solids handling pumps with 6" 125# ANSI flanged discharge.**	2,000

* Note: 4" and 6" sizes do not include hardware

Conery base elbow rail system optional components

Goulds order #	Vendor part #	Pictures	Description
CBR075	IGB075		SS Intermediate guide bracket – use with ¾" pipe
CBR100	IGB100		SS Intermediate guide bracket – use with 1" pipe
CBR125	IGB0125		SS Intermediate guide bracket – use with 1¼" pipe
CPA12	PAF125		SS Pump adapter – for pumps with 1¼" NPT discharge
CPA15	PAF150		SS Pump adapter – for pumps with 1½" NPT discharge
CPA20	PAF200		SS Pump adapter – for pumps with 2" NPT discharge
CPA30	PAF300		SS Pump adapter – for pumps with 3" NPT discharge
CUGBS	UGB-STNLS		**SS Upper guide rail bracket:** For use with ¾", 1" and 1¼" Guide Rails (stainless steel recommended)
UGB-0200	UGB-0200		**SS Upper guide rail bracket:** For use with 2" guiderails (stainless steel recommended)



Shackle

Quick link

1¼" Lift out dimensions CBE1220

Materials of construction:

Pump adapter: 304 SST

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron

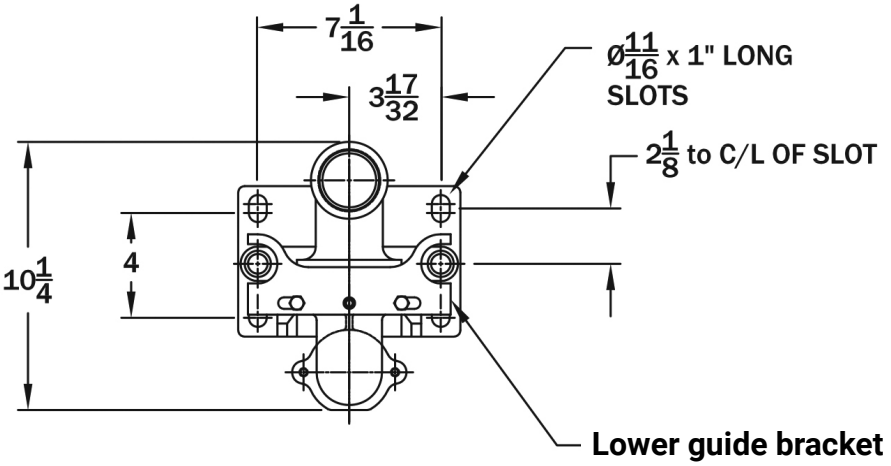
Lower guide bracket: 304 SST

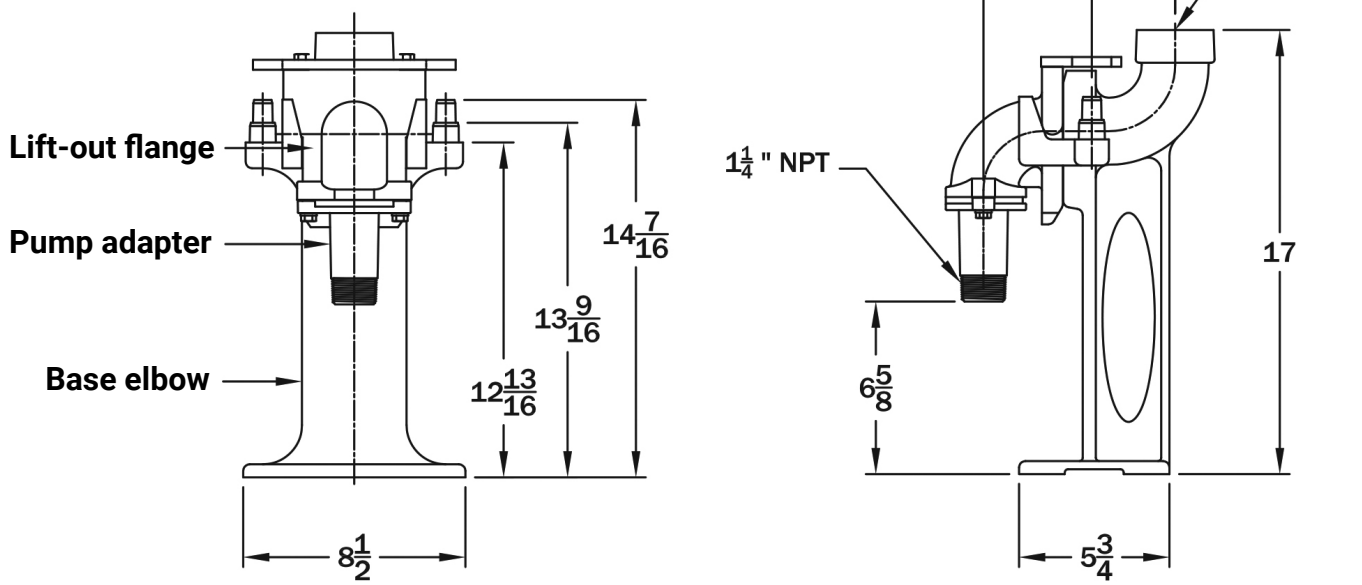
All fasteners are 304 series SST

Usable guide rail sizes: ¾", 1"

Maximum weight allowance: 200 lbs

Note: All dimensions are in inches





1¹⁄₂" Lift out dimensions CBE1520

Materials of construction:

Pump adapter: 304 SST

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron

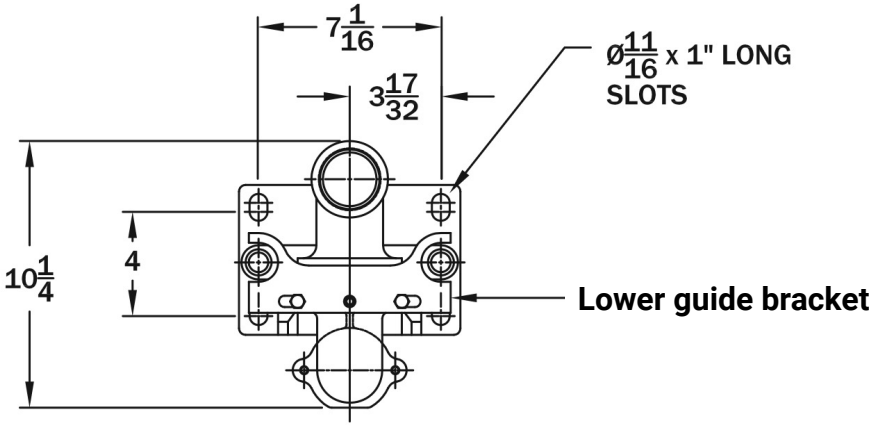
Lower guide bracket: 304 SST

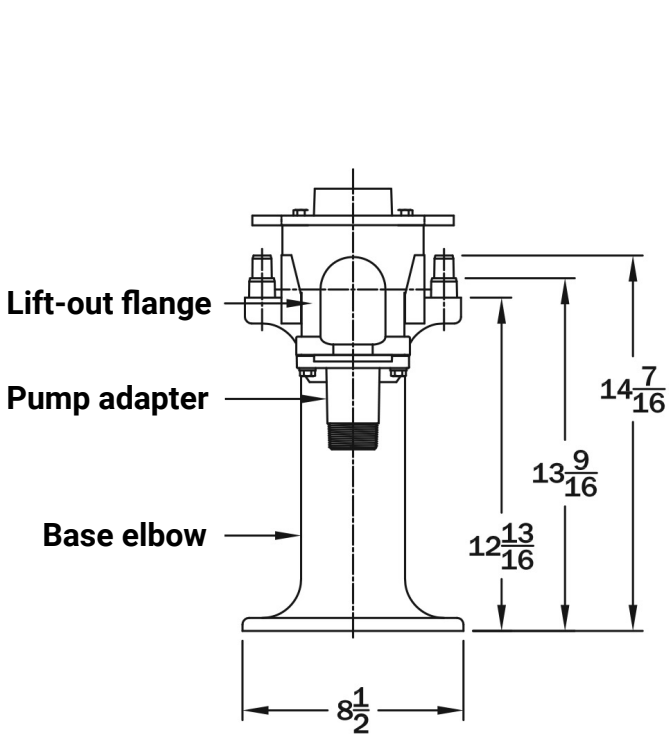
All fasteners are 304 series SST

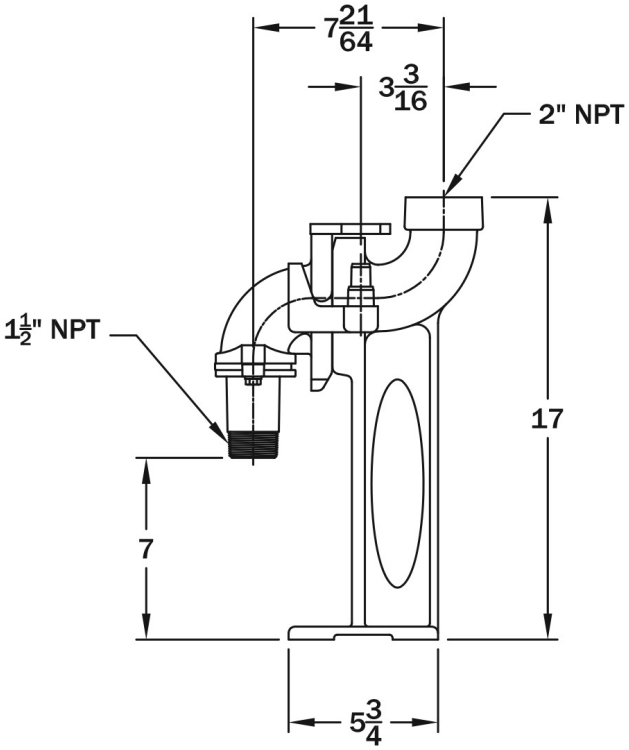
Usable rail sizes: ³⁄₄" and 1"

Maximum weight allowance: 200 lbs

Note: All dimensions are in inches







2" Lift out dimensions CBE2020

Materials of construction:

Pump adapter: 304 SST

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron

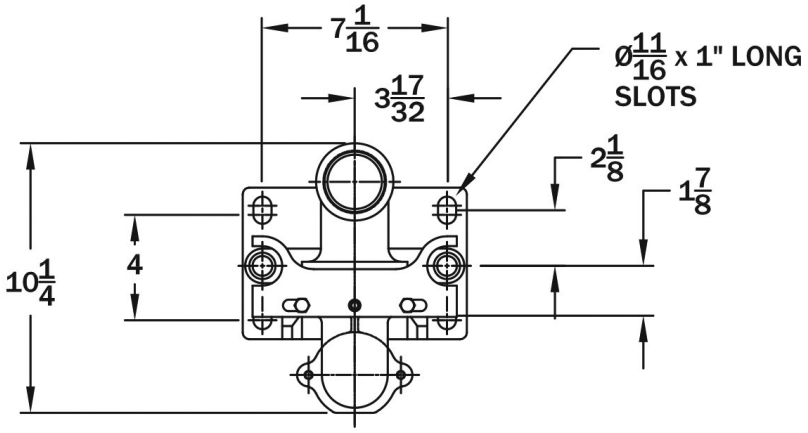
Lower guide bracket: 304 SST

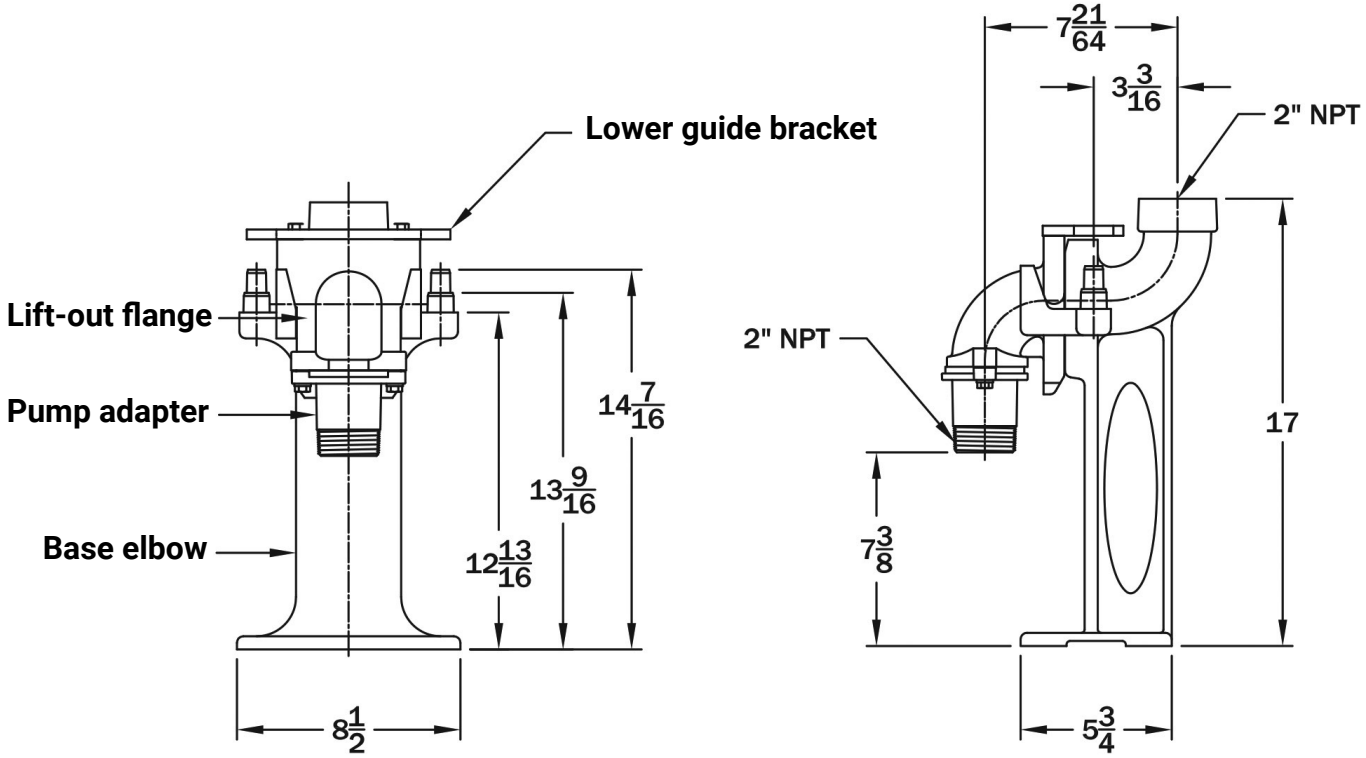
All fasteners are 304 series SST

Usable rail sizes: ¾" and 1"

Maximum weight allowance: 200 lbs

Note: All dimensions are in inches





2" Lift out dimensions CBE2020CP

Materials of construction:

Pump adapter: 304 SST

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron

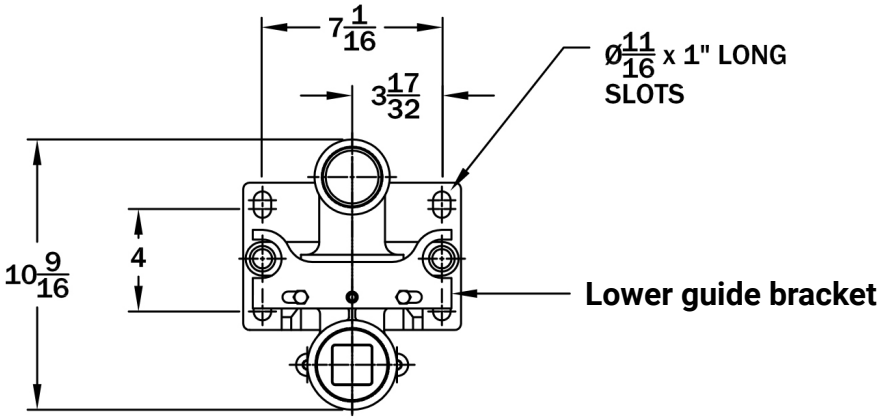
Lower guide bracket: 304 SST

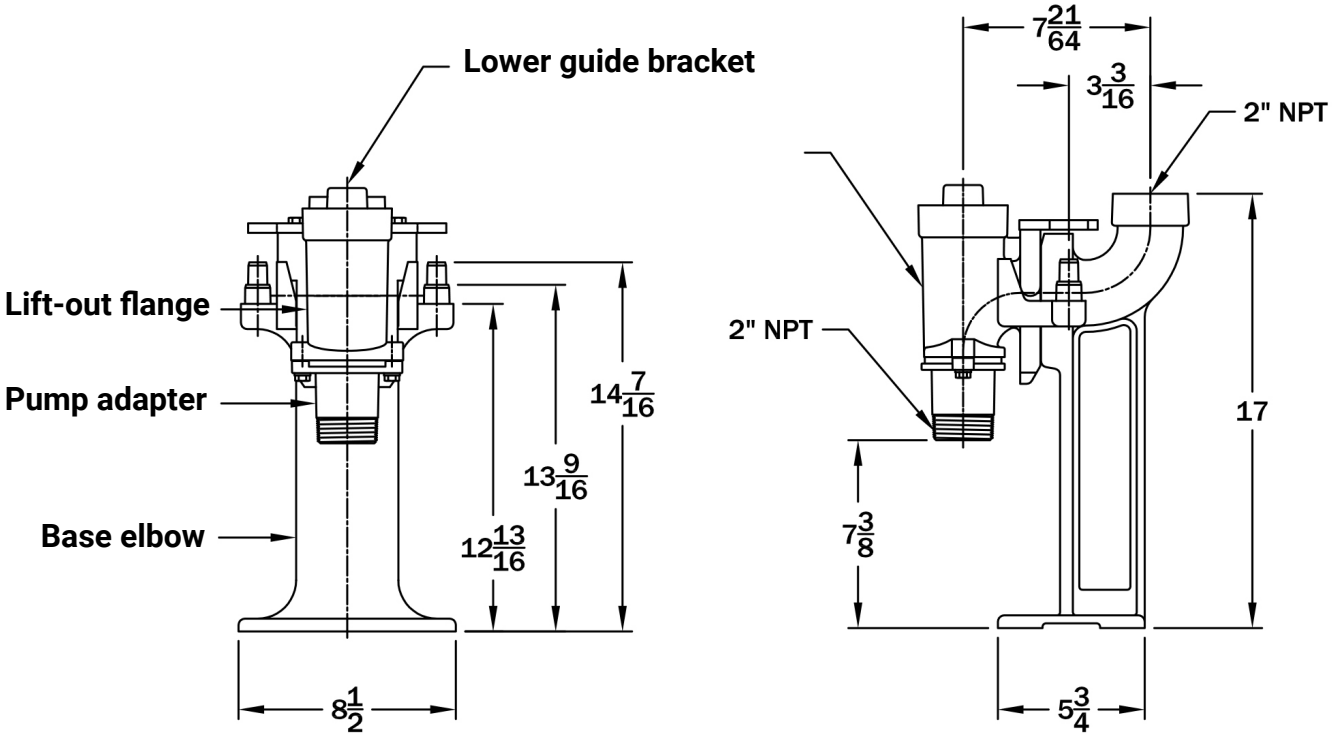
All fasteners are 304 series SST

Usable rail sizes: ¾" and 1"

Maximum weight allowance: 200 lbs

Note: All dimensions are in inches





3" Lift out dimensions CBE3030

Materials of construction:

Pump adapter: 304 SST

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron

Lower guide bracket: 304 SST

All fasteners are 304 series SST

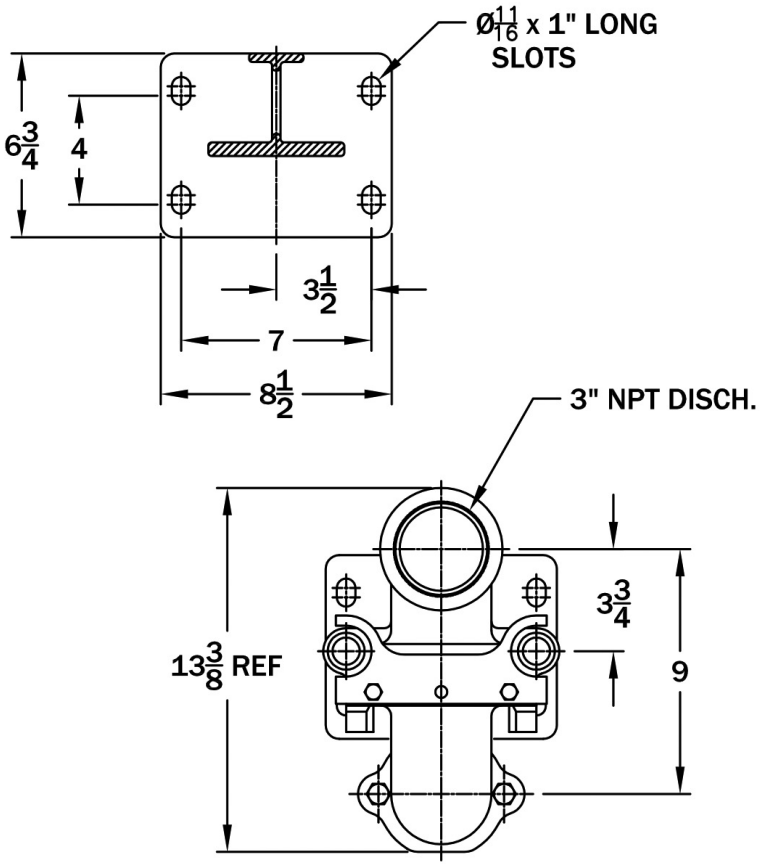
Usable guide rail sizes: ¾", 1", 1¼"

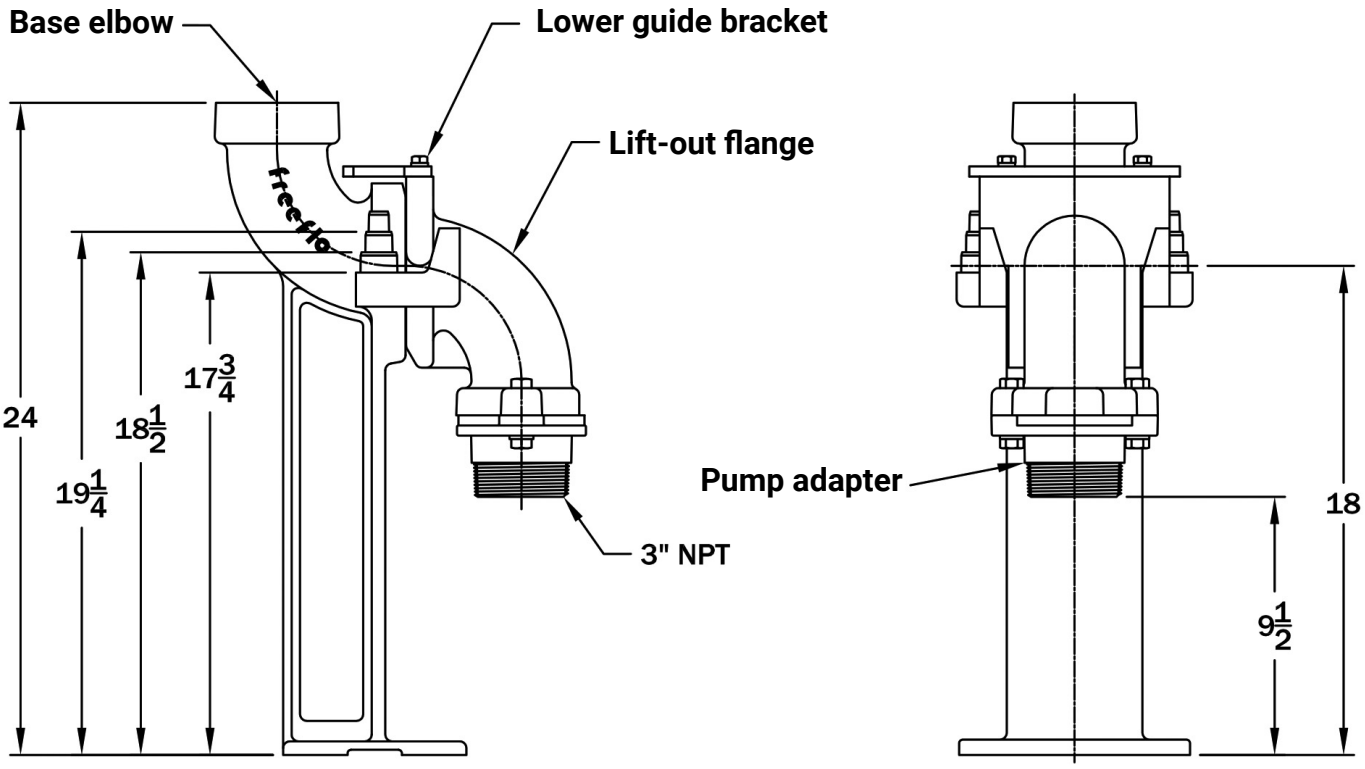
Spherical solids size: 3" diameter

Maximum weight allowance: 400 lbs

Note: All dimensions are in inches

Mounting dimensions





CBE3030H

Materials of construction:

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron

Lower guide bracket: 304 SST

All fasteners are 304 series SST

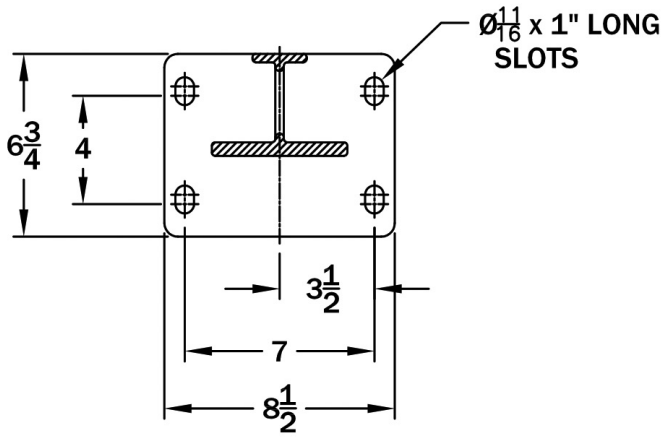
Usable guide rail sizes: ¾", 1", 1¼"

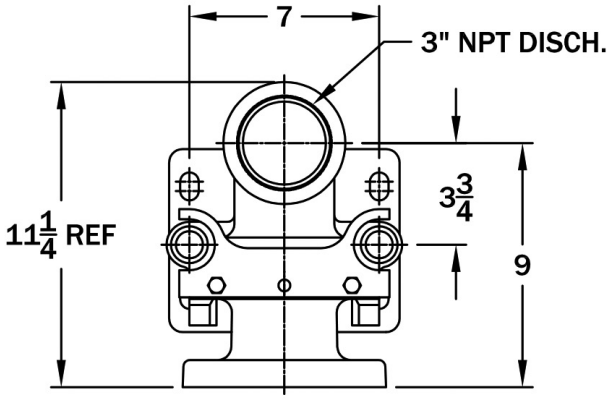
Spherical solids size: 3" diameter

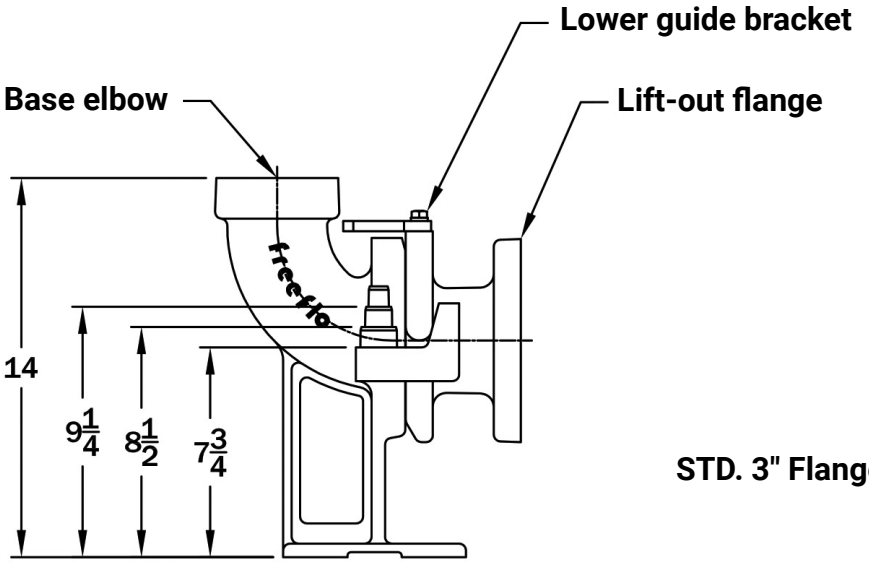
Maximum weight allowance: 400 lbs

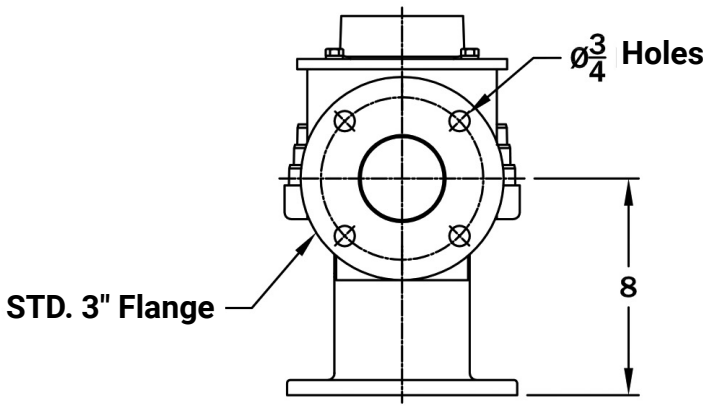
Note: All dimensions are in inches

Mounting dimensions









CBE3030HB

Materials of construction:

Base elbow: Cast ductile iron

Lift-out flange: Cast brass

Lower guide bracket: Cast brass

All fasteners are 304 series SST

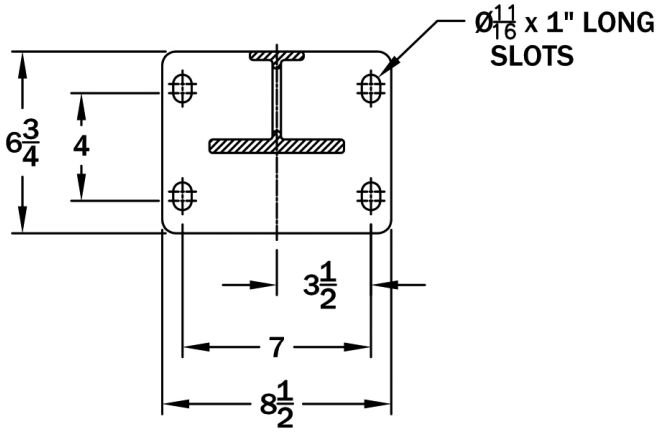
Usable guide rail sizes: ¾", 1", 1¼"

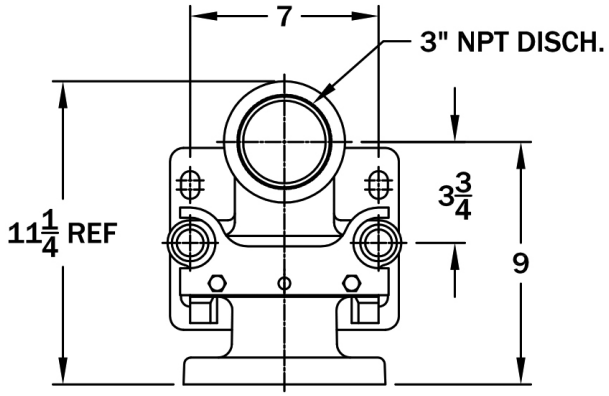
Spherical solids size: 3" diameter

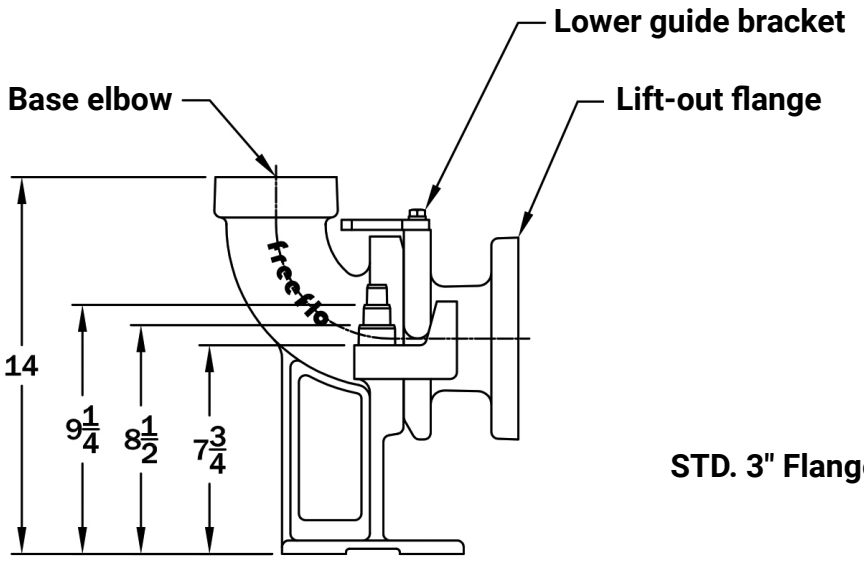
Maximum weight allowance: 400 lbs

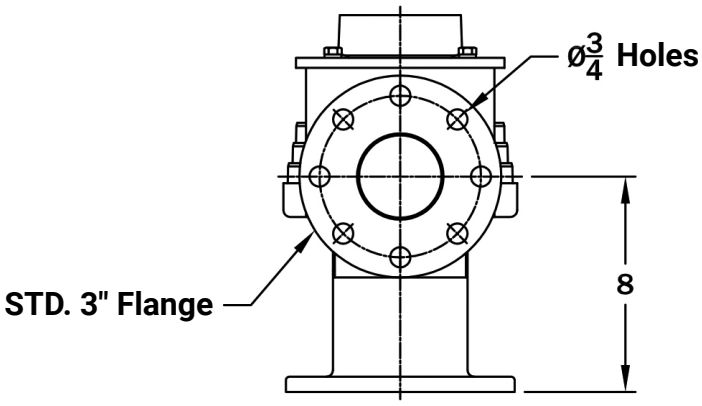
Note: All dimensions are in inches

Mounting dimensions









4" Lift Out Dimensions CBE4040

Materials of construction:

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron with SST sealing ring

Lower guide bracket: Cast ductile iron

All fasteners are 304 series SST

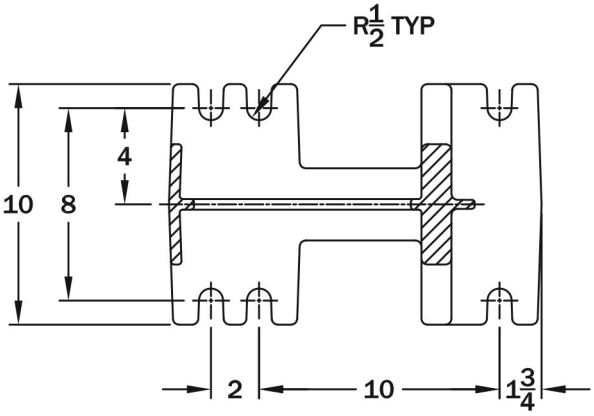
Usable guide rail sizes: 2"

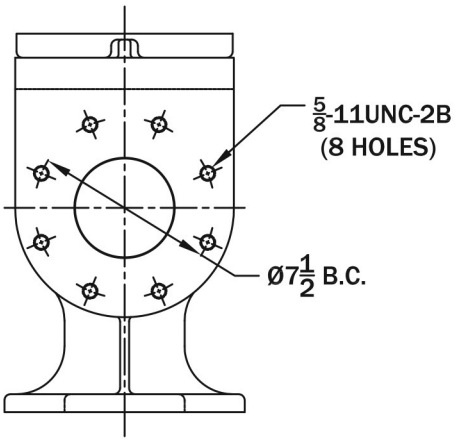
Spherical solids size: 4" diameter

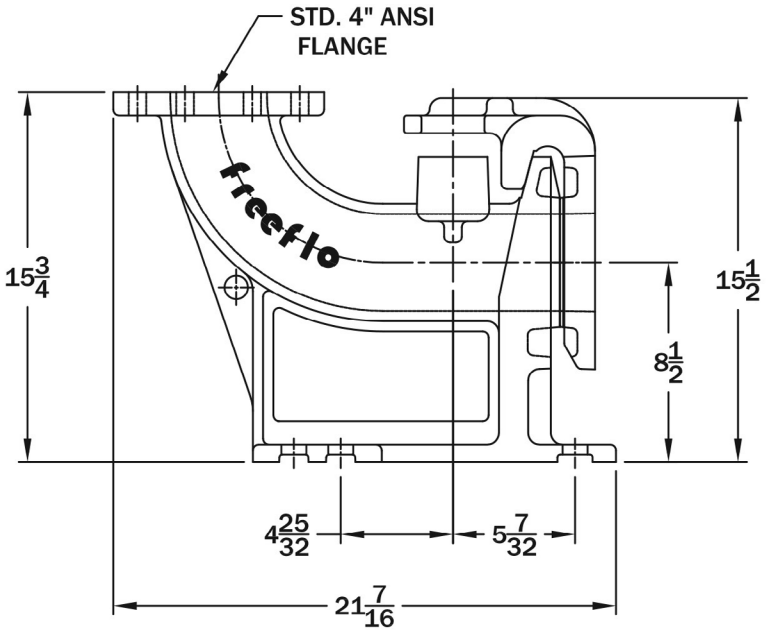
Maximum weight allowance: 2000 lbs

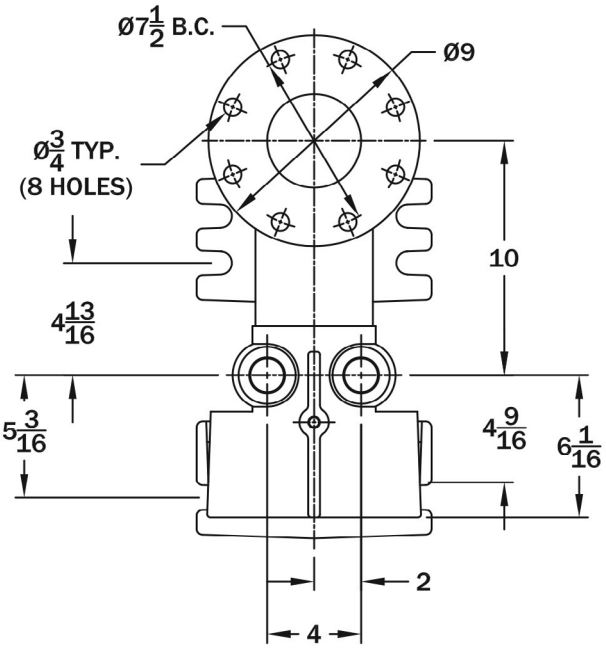
Note: All dimensions are in inches

Mounting dimensions









4" Lift out dimensions CBE4040HB

Materials of construction:

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron with bronze sealing ring

Lower guide bracket: Bronze

All fasteners are 304 series SST

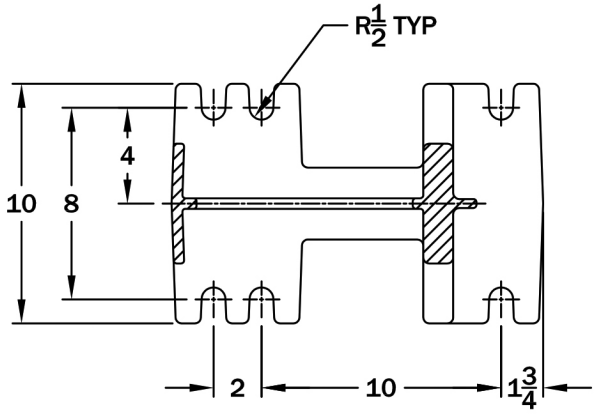
Usable guide rail sizes: 2"

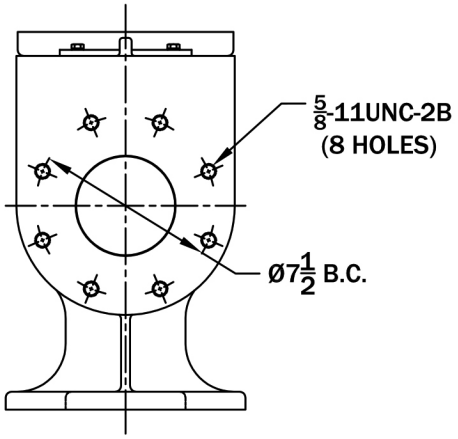
Spherical solids size: 4" diameter

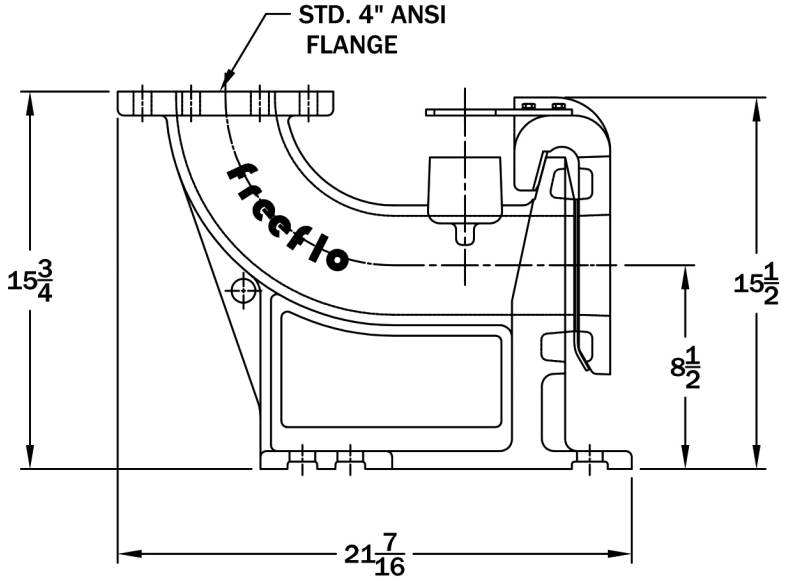
Maximum weight allowance: 2000 lbs

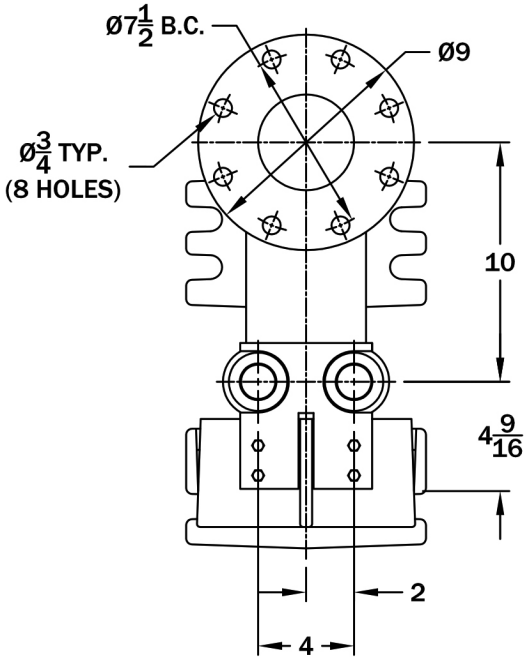
Note: All dimensions are in inches

Mounting dimensions









6" Lift Out Dimensions CBE6060

Materials of construction:

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron with stainless steel sealing ring

Lower guide bracket: Cast ductile iron

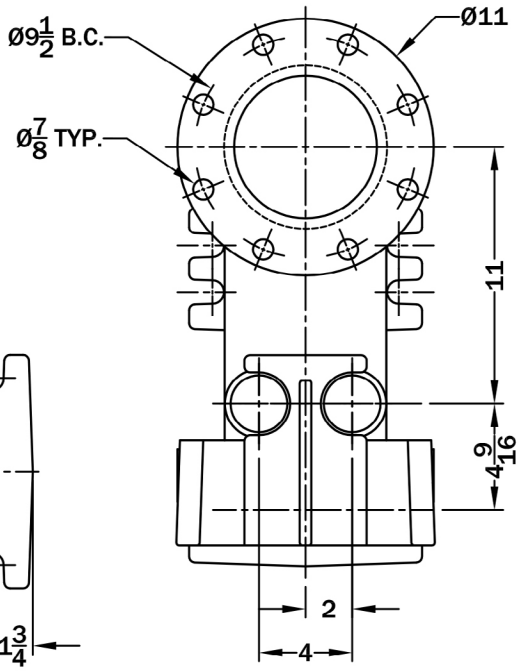
All fasteners are 304 series SST

Usable guide rail sizes: 2"

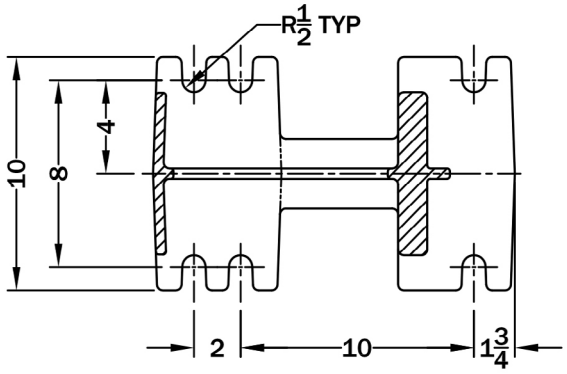
Spherical solids size: 6" diameter

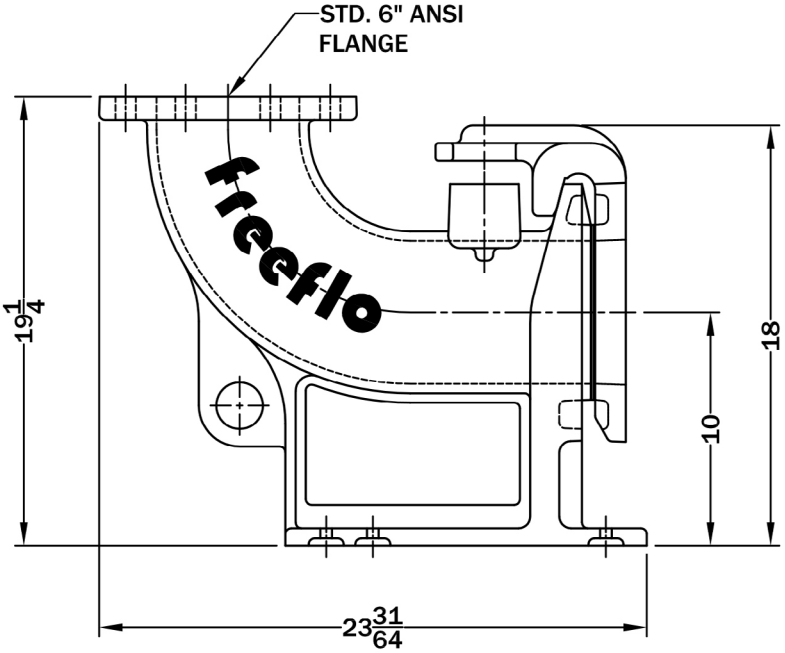
Maximum weight allowance: 2000 lbs

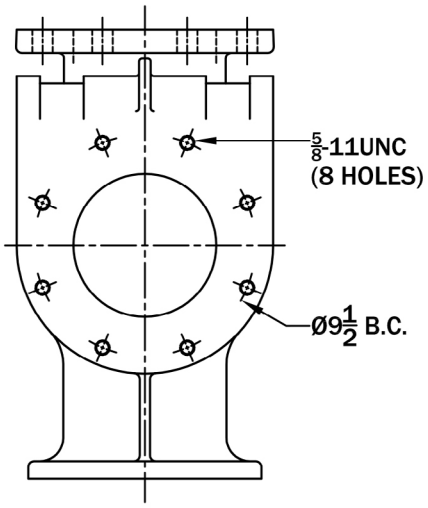
Note: All dimensions are in inches



Mounting dimensions







CBE6060B

Materials of construction:

Base elbow: Cast ductile iron

Lift-out flange: Cast ductile iron with bronze sealing ring

Lower guide bracket: Bronze

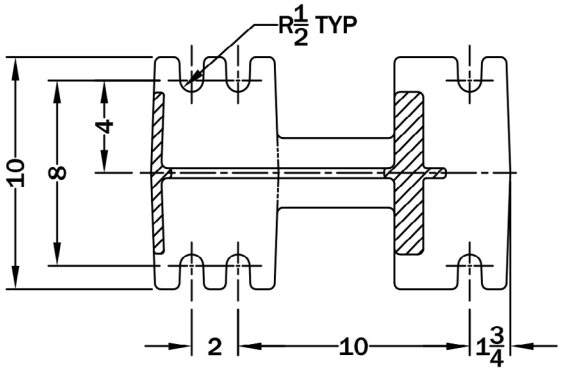
All Fasteners are 304 Series SST

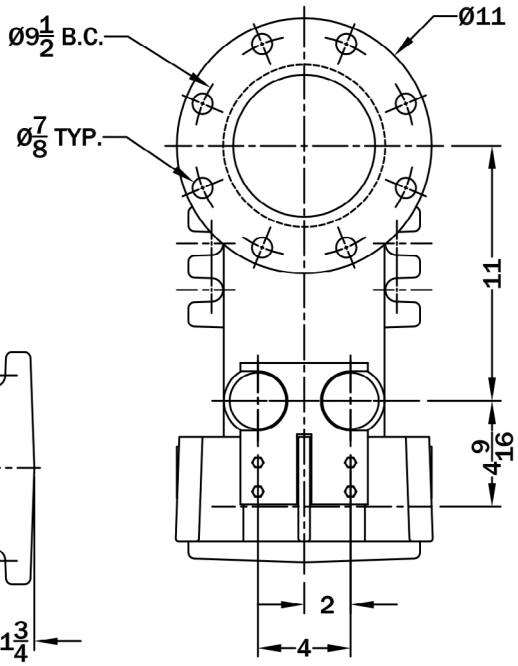
Usable guide rail sizes: 2"

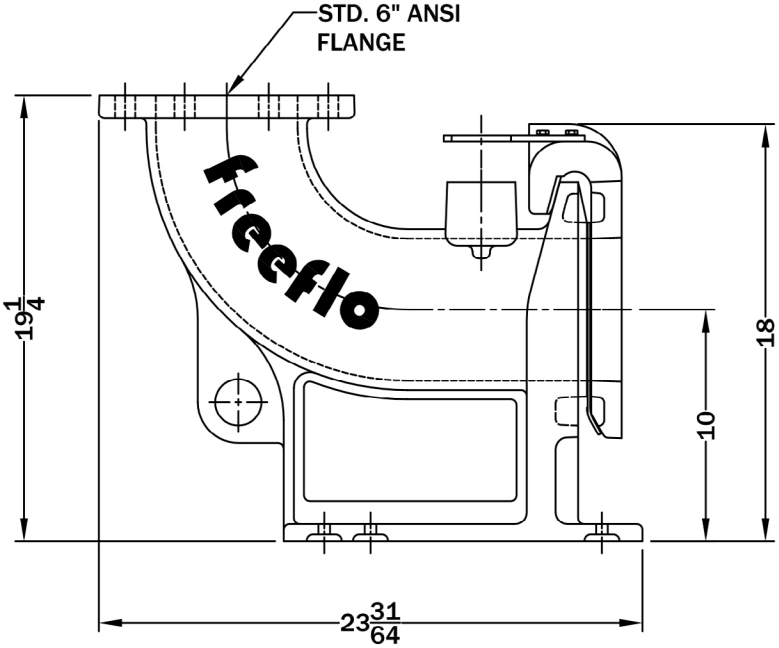
Spherical solids size: 6" diameter

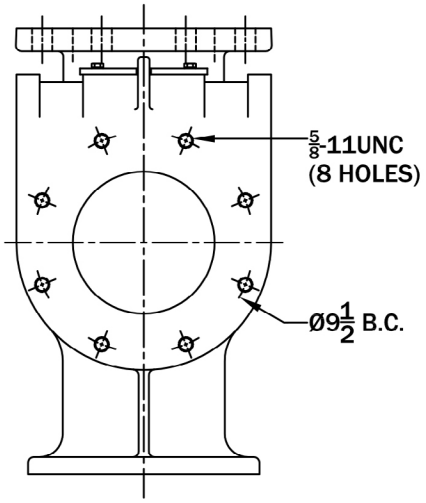
Maximum weight allowance: 2000 lbs

Note: All dimensions are in inche

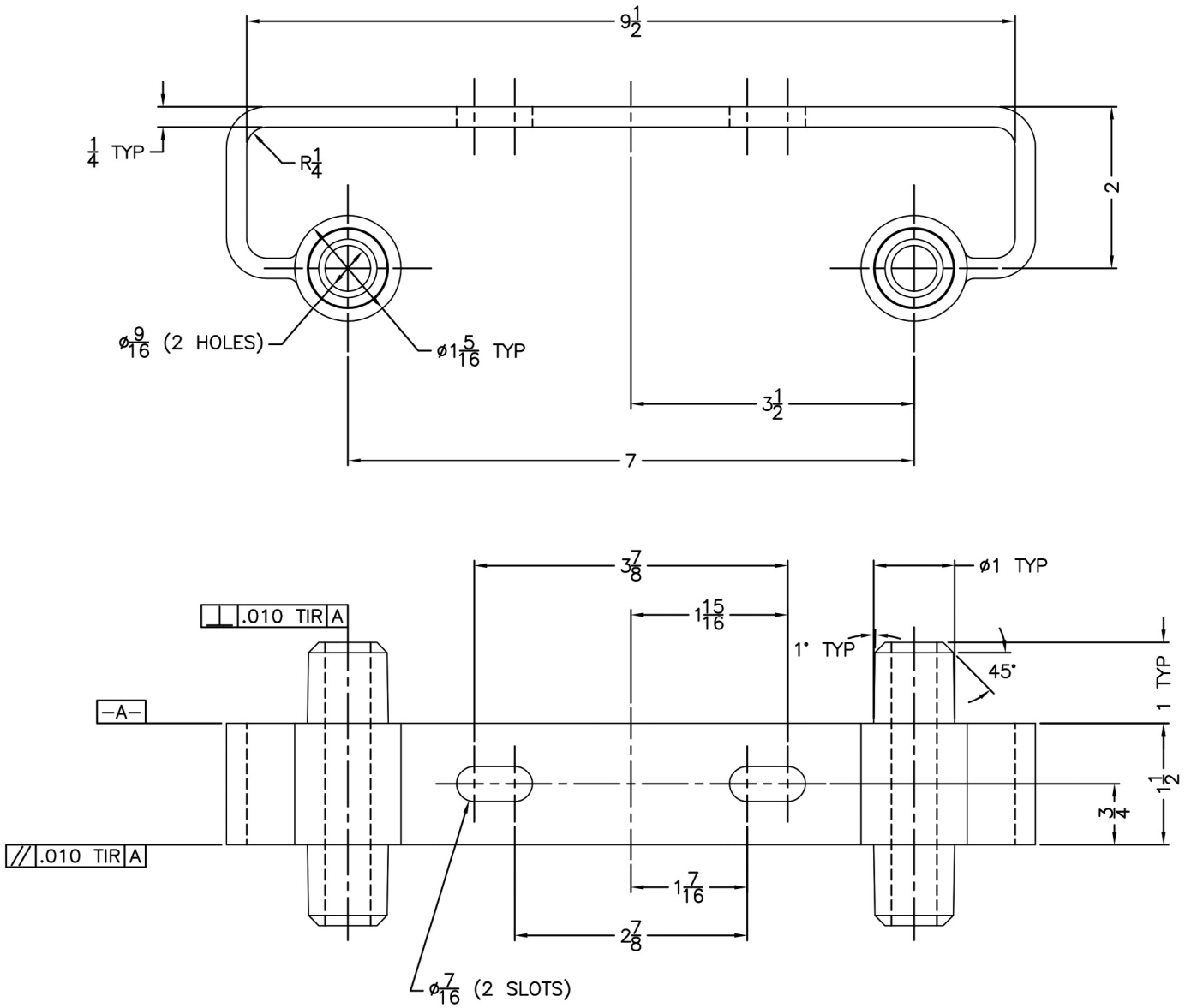






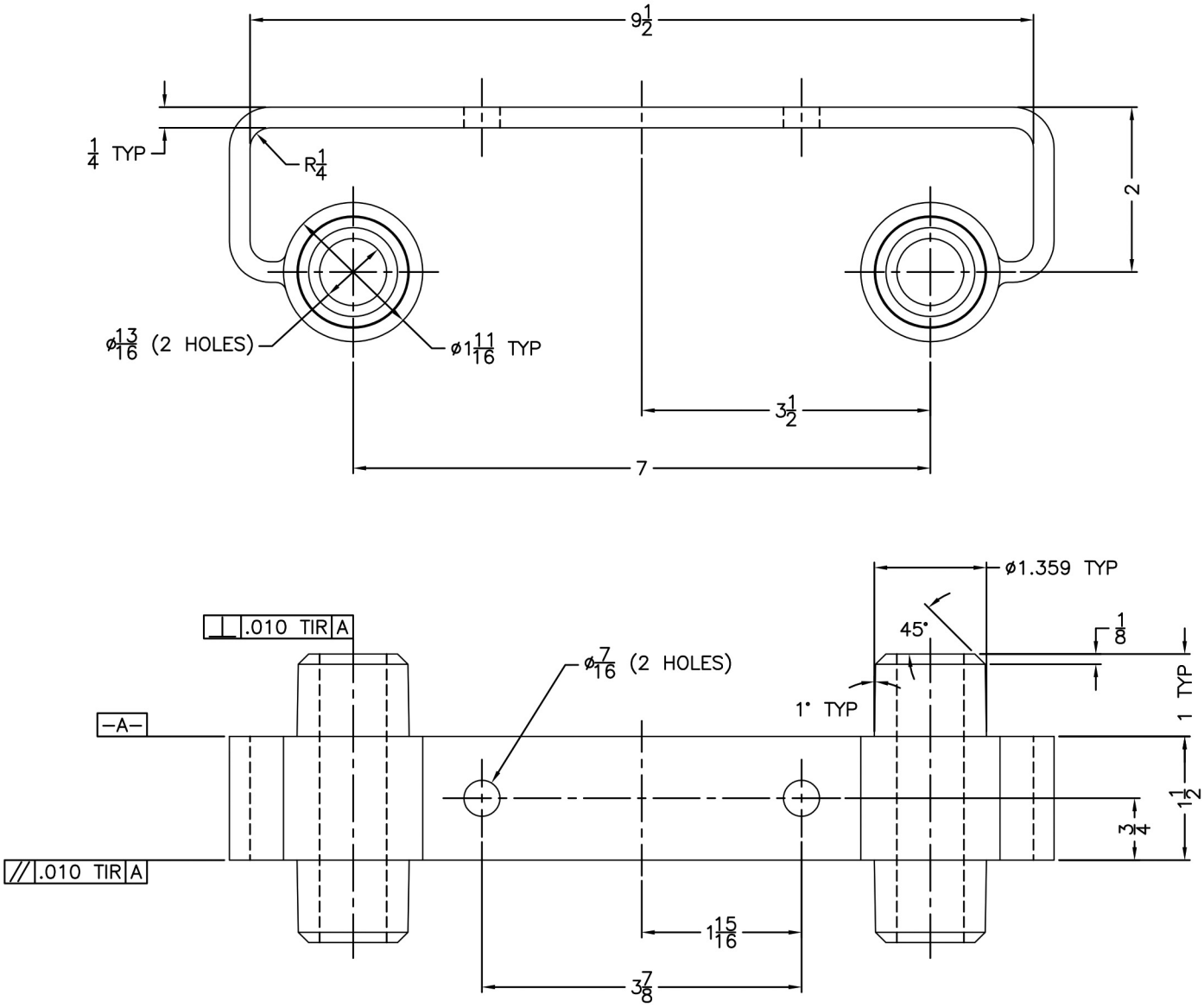


Intermediate guide bracket 1" rails



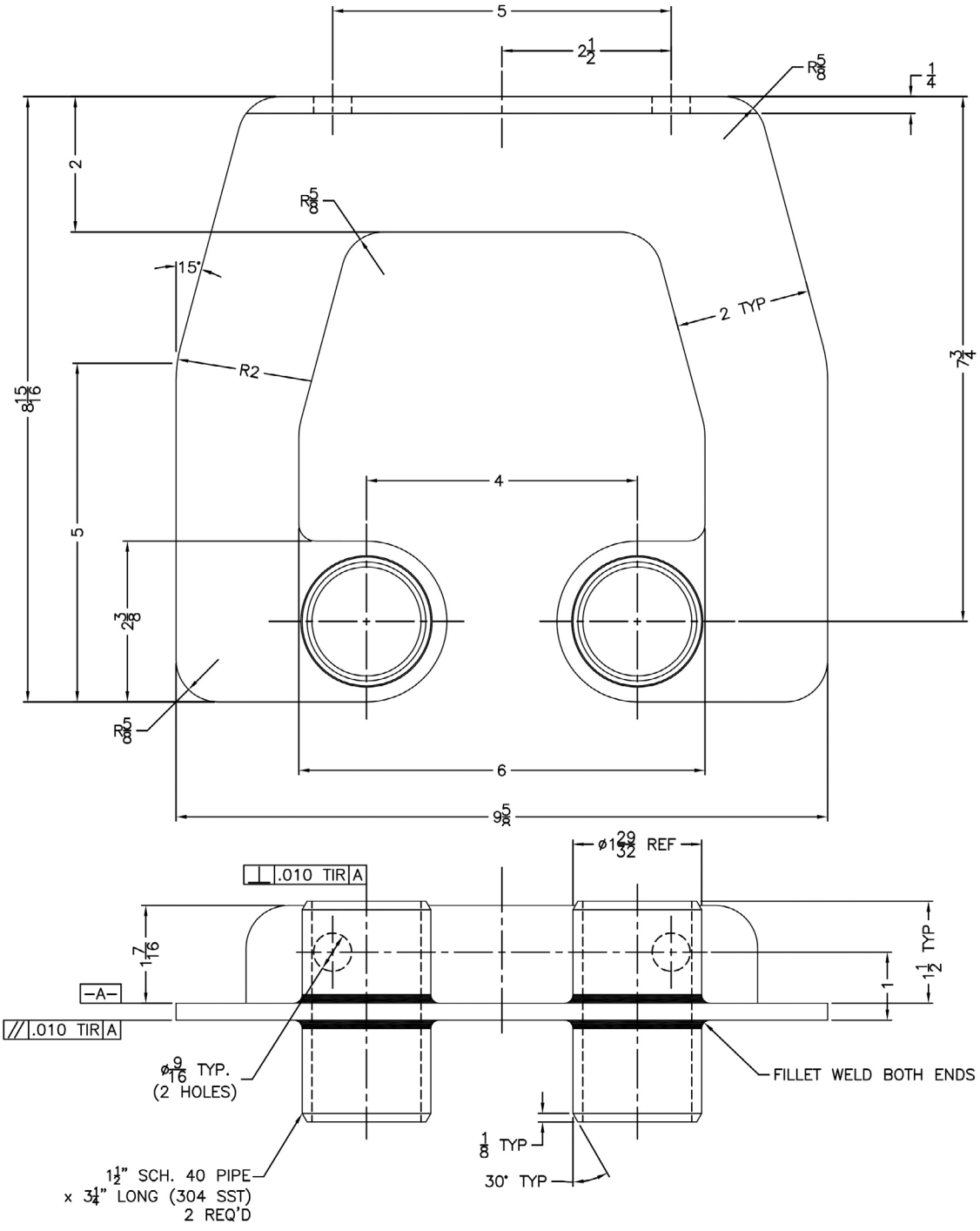
Note: Surface of part must be free of porosity.
Part must be free of distortion due to casting process.

Intermediate guide bracket 1¼" rails



Note: Surface of part must be free of porosity.
Part must be free of distortion due to casting process.

Intermediate guide bracket 2" rails



Installation for 2” NPT discharge pumps

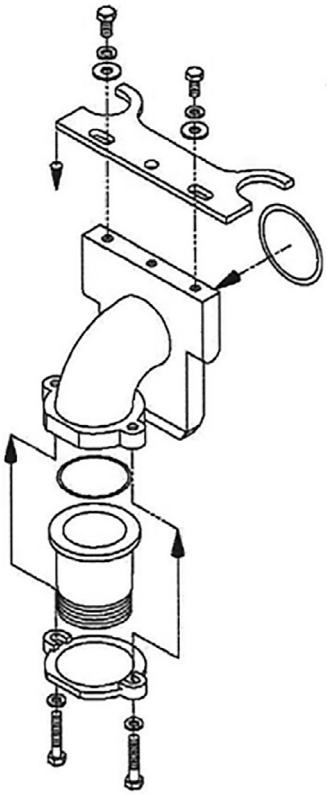


Figure 1

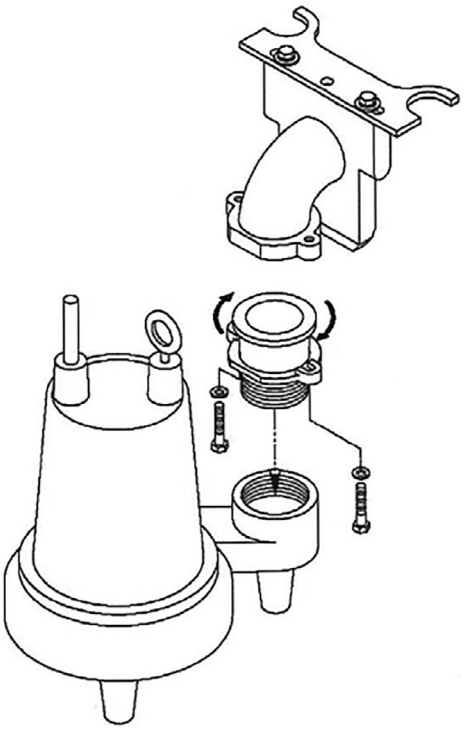


Figure 2

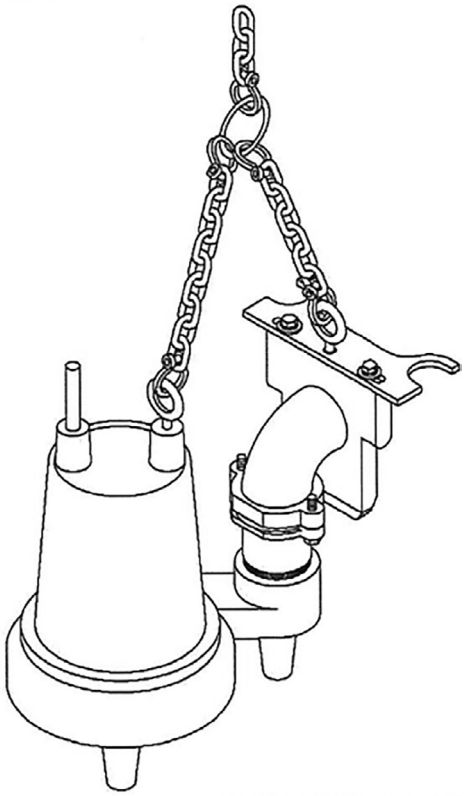


Figure 3

Figure 1 shows all the parts included with the pull-out flange assembly. This is the removable portion of the base elbow rail system assembly, and it is this assembly that will attach to the discharge of the pump (see figure 2). The threaded pump adapter flange will thread into the pump discharge as shown. The pump adapter flange is secured by tightening the two (2) long cap screws provided. This allows the pump to be oriented as necessary before lowering into the basin or collection tank. After attaching the pull out flange assembly to the pump, the lifting chain or cable assembly should be attached (see figure 3). This should be adequately sized to handle the weight of the pump and the pull out flange assembly as well as be long enough to allow for easy access for pulling the pump.

Installation for 3” and 4” ANSI flange pumps

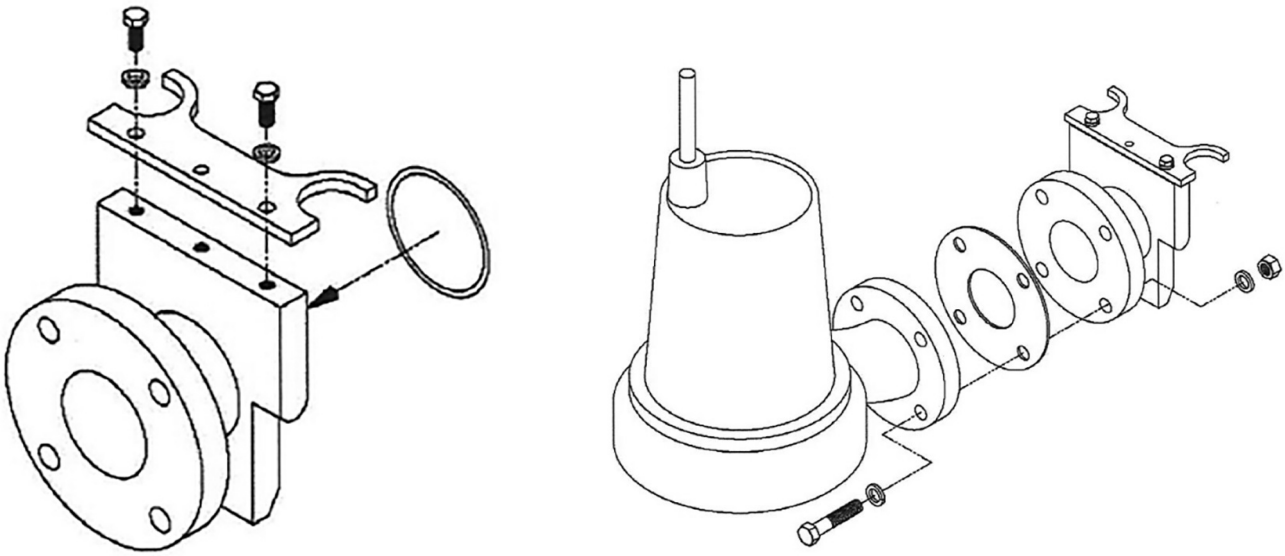


Figure 2

NOTE: Pictures are 3” flange. 4” flange (8 bolt holes) assembly is the same.

Figure 1 shows all the parts included with the pull-out flange assembly. This is the removable portion of the base elbow rail system assembly, and it is this assembly that will attach to the discharge of the pump (see figure 2). The pull out flange will bolt to the pump discharge as shown. A gasket flange should be placed between the pull out flange and the pump discharge flange. After attaching the pull out flange assembly to the pump discharge flange, the lifting chain or cable assembly should be attached. This should be adequately sized to handle the weight of the pump and the pull out flange assembly as well as be long enough to allow for easy access for pulling the pump.

xylem
Let's Solve Water

TECHNICAL BROCHURE
BCPSSGR R7

MODELS A10-12 (1¼"), A10-2015 (1½") AND A10-20 (2")

Provide an easy means of removing pump from a wet-well by utilizing a quick disconnect and guide rail system.

Connect directly to 1¼", 1½" or 2" vertical discharge Effluent, Wastewater and Grinder pumps.

Adaptable to 1¼", 1½" and 2" threaded, horizontal discharge pumps by using a street elbow.

Two piece 96" long fabricated SS rail assembly (2 easily coupled 48" long pieces for shipping convenience and ease of handling).

Corrosion resistant design

STANDARD GUIDE RAIL COMPONENTS

SS Guide rails, base, cross braces and pump brackets.

SS Lifting cable, 96" long x 3⁄16" cable.

Brass quick disconnect with o-ring seal.

Schedule 40 galvanized discharge pipe.
Optional stainless steel pipe nipples are available (contact factory).

Cast iron check valve with BUNA ball.

SS Tee handle for shut-off valve is supplied
(it is for use with the optional discharge pipe assemblies).

GUIDE RAIL SYSTEMS AND DISCHARGE PIPE ASSEMBLIES

STAINLESS STEEL

GOULDS WATER TECHNOLOGY
a xylem brand

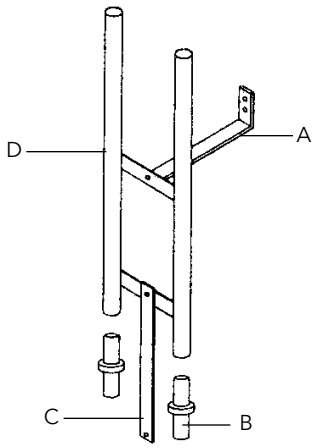
ORDER NUMBERS / QUANTITY REQUIRED

Slide Rail Order Number	Pump Discharge	Discharge Size (Inches)	Standard Discharge From Bottom
A10-12	1¼"	1¼"	36"
A10-2015	1½"	2"	36"
A10-20	2"	2"	36"

For option with stainless steel discharge pipe and fittings, add "SS" suffix when ordering

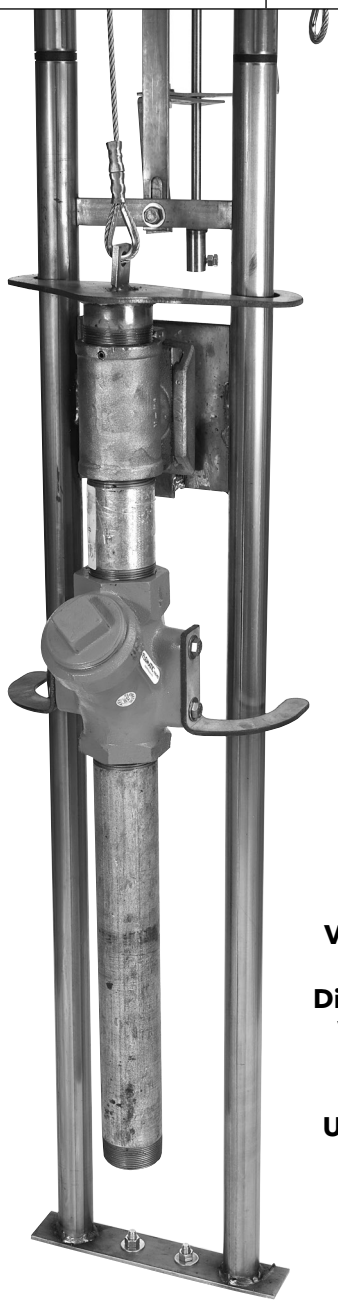
EXTENSION KITS INCLUDE:

	Quantity	Item #
• Stainless steel wall bracket	1	A
• Guide rail connectors	2	B
• Stainless steel attachment brace	1	C
• Stainless steel rail extension	1	D
• Stainless steel nuts, bolts and washers		
• Cable extension – not shown		



A10-2024EXT

Order Number	Length
A10-2012 EXT	12"
A10-2024 EXT	24"
A10-2048 EXT	48"

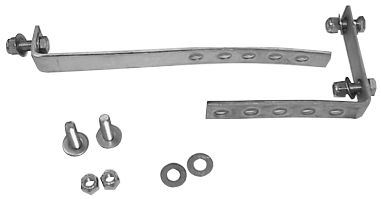


View of Lower Guide Rail showing Brass Disconnect, Ball Check Valve/Lower Pump Bracket Assembly, Lifting Cable and Upper Pump Bracket.

SYSTEM COMPONENTS AND DIMENSION CHART FOR A10-12, A10-2015 AND A10-20

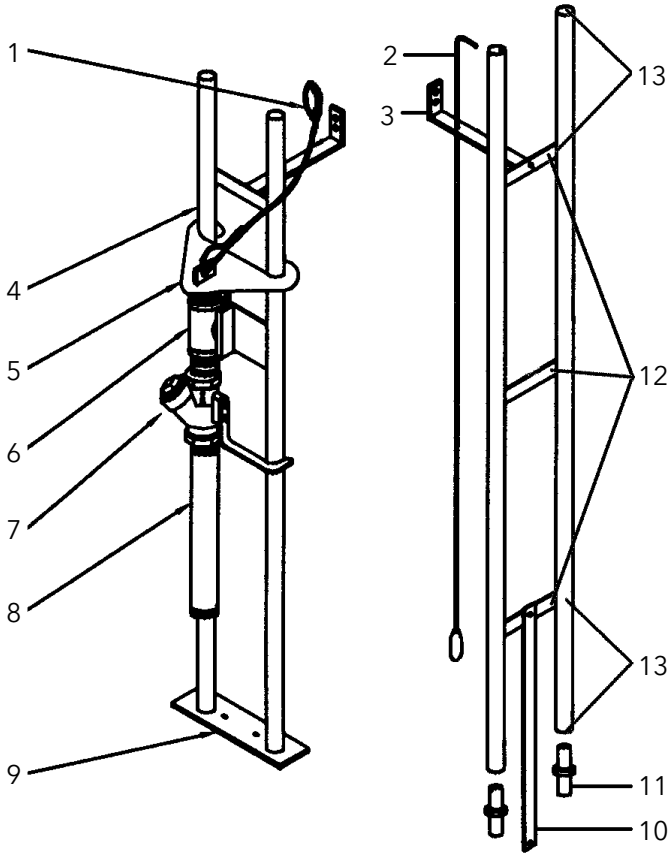
Item No.	Dimension	Descriptions and Quantities
1	3/16" x 96" long	Stainless steel lifting cable
2	47" long	Stainless steel valve extension handle
3	11" min. – 14" max.	Adjustable stainless steel wall (support) brackets (qty. 2) includes (5) 3/8" SS bolts, nuts and washers
4	1½" O.D.	Stainless steel guide rail tubing, 304 SS, 16 gauge
5	N/A	Stainless steel upper pump/guide bracket
6	1¼" (A10-12), 2" (A10-2015 & A10-20)	1¼" Brass quick disconnect assembly, 2" Brass quick disconnect assembly
		Discharge is 36" up from base to discharge centerline
7	1¼" (A10-12), 2" (A10-2015 & A10-20)	Cast iron ball check valve and lower pump bracket assembly with BUNA ball and clean-out port
8	1¼" (A10-12), 1½" x 2" (A10-2015), 2" (A10-20)	Schedule 40 galvanized discharge pipe (SS discharge pipes are available as a special order option)
9	11" wide (2) ½" holes	Base or stud mounting plate
10	11½" long, ½" hole and ½" x 1½" slot	SS attachment brace – connects the (2) 48" guide rail halves, includes (2) 3/8" SS bolts, nuts and washers
11	N/A	Plastic guide rail connectors (2) fit inside SS rails
12	18½" – 19" spacing	Stainless steel intermediate braces (3) on upper rail assembly
13	4½" – 5½" end to C/L	Upper and lower cross brace dimensions from end of rail

Stainless Steel Attachment Brace



Stainless Steel Wall Bracket Assembly

Valve End of Shut-Off Valve Handle



DISCHARGE PIPE ASSEMBLIES H12S, H20S, H12D, H20D

FEATURES

- Simplex discharge piping includes a union and a shut-off valve:
  H12S (1¼") discharge – use with **A10-12**;
  H20S (2") discharge – use with **A10-2015 or A10-20**.
- Duplex discharge piping includes (2) unions, (2) shut-off valves and a tee assembly; **H12D** (1¼") discharge – use with **A10-12; H20D** (2") discharge – use with **A10-2015** or **A10-20.**

Items in bold type are product Order Numbers.

All pipe and fitting galvanized steel. Contact factory for stainless steel option.

Simplex Discharge Assemblies H12S and H20S

Assembled kits contain a brass gate valve, union and galvanized pipe nipples. Ready for connection to the appropriate guide rail assembly.

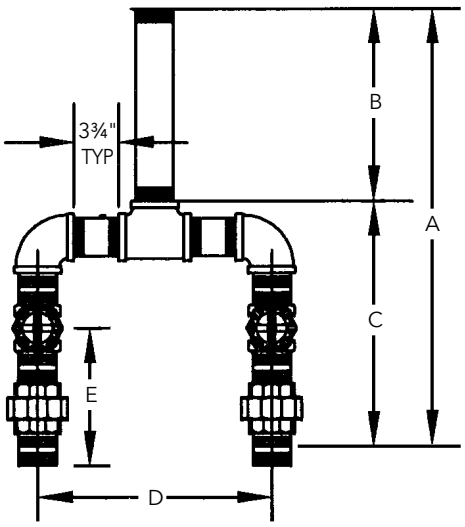
Duplex Discharge Piping Assemblies H12D and H20D

Assembled kits contain (2) brass gate valves, (2) unions, a tee and (2) elbows. Ready for connection to the appropriate guide rail (2) assemblies.

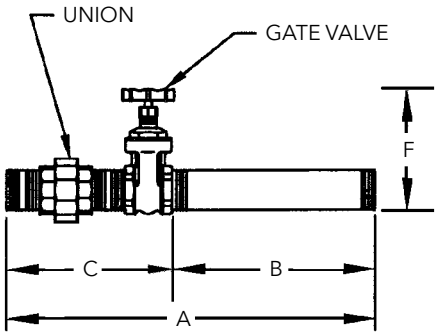
Dimension	Discharge Piping Order Number (dimensions in inches)			
	H12S	H20S	H12D	H20D
A	20	20	24	26
B	12	12	12	12
C	8	8	12	14
D	NA	NA	14	18
E	NA	NA	6	7
F	5.5	8	5.5	8

* Stainless steel option available. Consult factory.

Discharge Pipe	Rail System	Configuration
H12S	A10-12	Simplex
H12D	A10-12	Duplex
H20S	A10-15, 20	Simplex
H20D	A10-15, 20	Duplex



Duplex Discharge Kit



Simplex Discharge Kit

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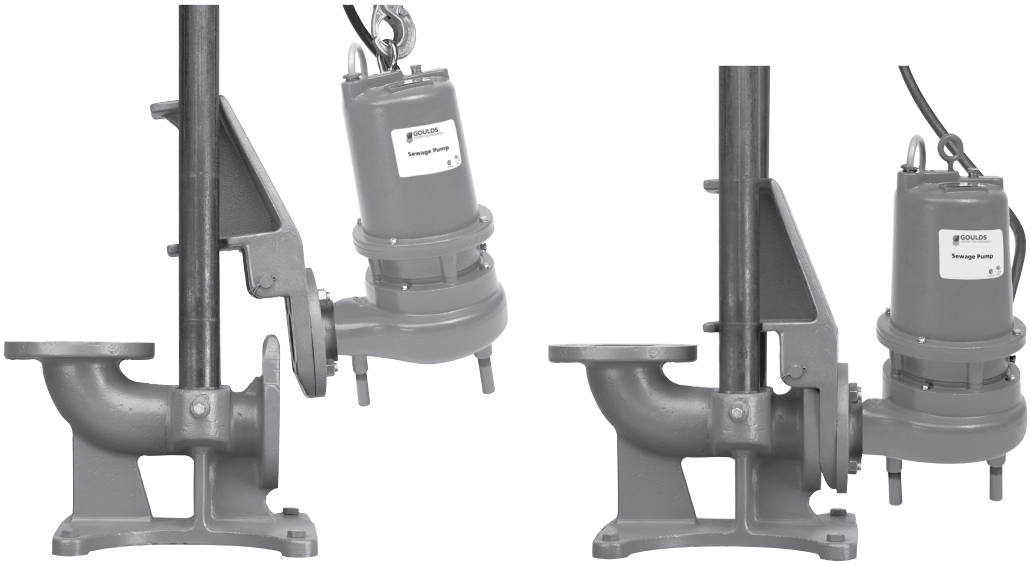


Guide Rail Systems

EFFLUENT AND SEWAGE

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

A10-30, 3" X 4" RAIL SYSTEM: Connects to any pump with a 3", 150# ANSI flanged discharge. Outlet is a 4" flanged discharge.

A10-40, 4" X 4" RAIL SYSTEM: Connects to any pump with a 4", 150# ANSI flanged discharge. Outlet is a 4" flanged discharge.

A10-60, 4" X 6" RAIL SYSTEM: Connects to any pump with a 4", 150# ANSI flanged discharge. Outlet is a 6" flanged discharge.

ALL MODELS:

Cast iron construction for standard applications.

Optional brass pump adapter for applications requiring a non-sparking disconnect.

Standard kit contains a base, a pump adapter with all required bolts and fittings, and the upper guide rail positioning bracket.

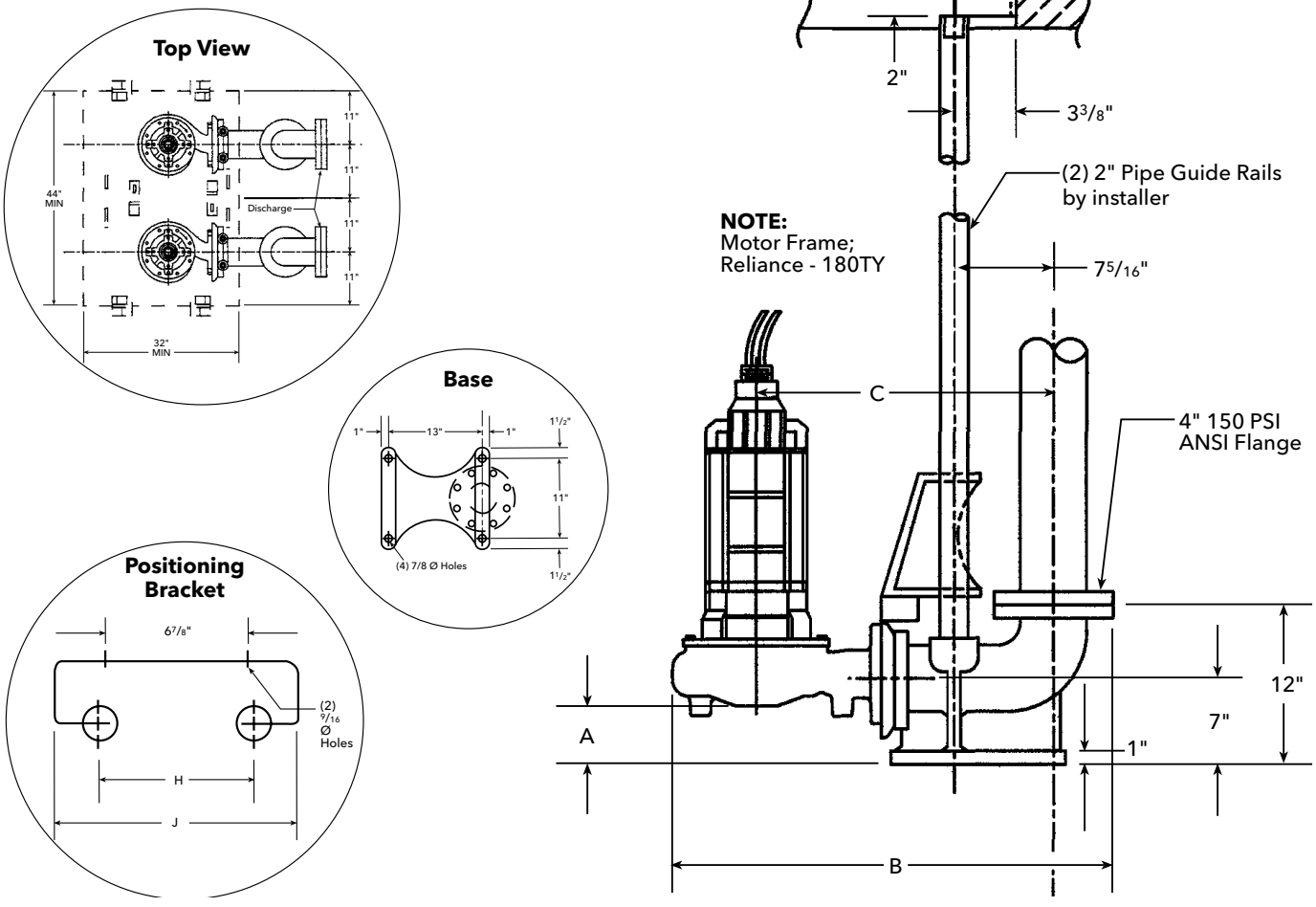
Optional intermediate guide rail brackets are available in either steel or brass for non-sparking applications.

Guide rails are not supplied - they may be sourced locally - 2" stainless steel guide rails recommended.

Spare pump adapter kits are available for those who want a back-up pump/adapter ready for an emergency quick change.

3" AND 4" DISCHARGE GUIDE RAIL SYSTEM

Pump Discharge	Part Number	A	B Max.	C	H	J	Weight
3"	A10-30	4 9/16	33 3/8	22½	6¾	11±¼	170 lbs.
4"	A10-40	3 13/16	34¼	23	7¾	12±¼	185 lbs.



3" AND 4" DISCHARGE GUIDE RAIL SYSTEM

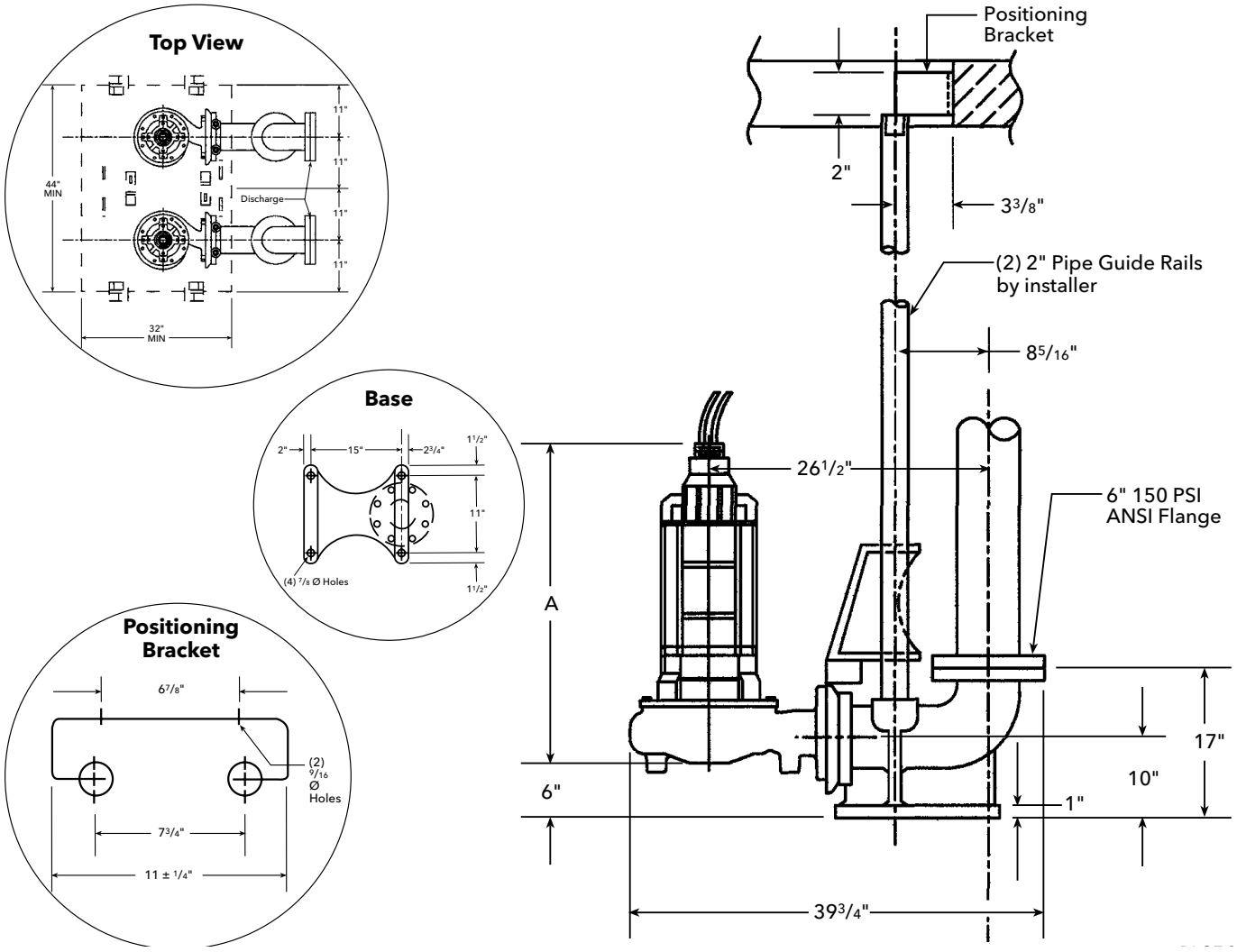
- Heavy duty cast iron construction.
- Twin guide rails provide positive alignment with base.
- No sealing devices required – pump weight provides sufficient force for proper seal.
- Self cleaning design. When pump flange engages base, the shearing action wipes the sealing surfaces clean.

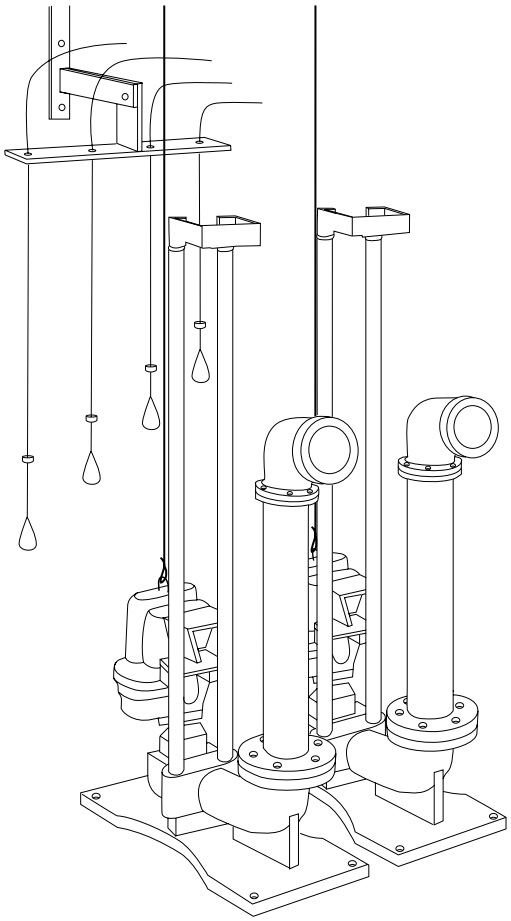
- **System Components Include:**
  - Base with integral cast elbow.
  - Pump adapter – guide assembly with fasteners.
  - Upper guide rail positioning bracket. Carbon steel bracket available as an option in stainless steel.

NOTE: Guide rails are not furnished by Goulds Water Technology. Lifting chains and bails need to be ordered separately. Intermediate bracket available as seen on page 4 for pits over 11 feet.

4" DISCHARGE GUIDE RAIL SYSTEM

Frame	Pump Discharge	Part Number	A	Weight
210	4"	A10-60	37¾	185 lbs.
250	4"	A10-60	43 1/8	185 lbs.





PUMP ADAPTER KITS

1K340 – for A10-30 iron
1K341 – for A10-40 / A10-60 iron
1K447 – for A10-30B brass
1K448 – for A10-40B / A10-60B brass

Part numbers are for repairs, component is included in the A10-30, 40 accessory.

INTERMEDIATE GUIDE RAIL BRACKET

A10-30 (B) standard	4K436
A10-40 (B), 60 (B) standard	4K437
A10-30 304 SS	4K631
A10-40 304 SS	4K632

Used on pits over 11 feet for extra support.
Must be purchased separately.

MINIMUM BASIN DIAMETER

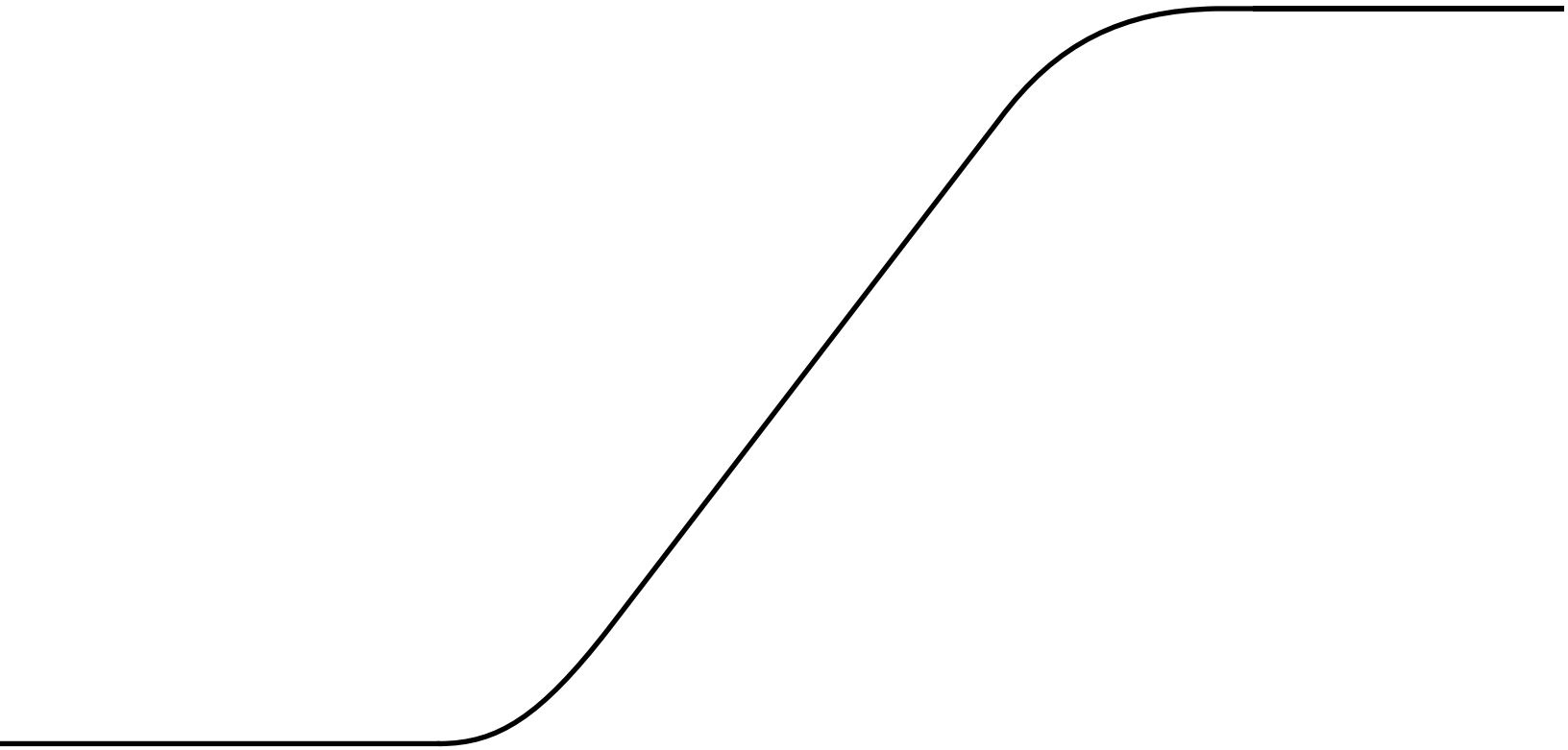
	Minimum	Recommended
Simplex	36"	42"
Duplex	48"	60"

UPPER GUIDE RAIL BRACKET

A10-30 (B)	4K467
A10-40 (B), 60 (B)	4K468

Pump Discharge Size	Order Number	ANSI Flanged Discharge Size	Material of Positioning Bracket	Used On These Pumps
3"	A10-30	4" 150 lb. ANSI	Carbon Steel	3WDA, 3DWS, 3WS, 3888D3, 3SD
3"	A10-30SS		Stainless Steel	
4"	A10-40		Carbon Steel	4WDA, 4DWS, 4DWC, 4WS, 3888D4, 4SD, 4NS
4"	A10-40SS		Stainless Steel	
4"	A10-60SS	6" 150 lb. ANSI		
3" XP	A10-30B	4" 150 lb. ANSI	Carbon Steel	3XWC, 3SDX
4" XP	A10-40B			4XWC, 4XD, 4SDX
4" XP	A10-60B	6" 150 lb. ANSI		4XWC, 4XD, 4SDX

Technical data



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TECHNICAL MANUAL
TTECHS R7

Wastewater Technical Manual

FOR GOULDS WATER TECHNOLOGY, BELL & GOSSETT AND RED JACKET SERIES

INDEX

FRICTION LOSS

PLASTIC PIPE: FRICTION LOSS (IN FEET OF HEAD) PER 100 FT.

GPM	GPH	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"	10"
		ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.
1	60	4.25	1.38	.356	.11									
2	120	15.13	4.83	1.21	.38	.10								
3	180	31.97	9.96	2.51	.77	.21	.10							
4	240	54.97	17.07	4.21	1.30	.35	.16							
5	300	84.41	25.76	6.33	1.92	.51	.24							
6	360		36.34	8.83	2.69	.71	.33	.10						
8	480		63.71	15.18	4.58	1.19	.55	.17						
10	600		97.52	25.98	6.88	1.78	.83	.25	.11					
15	900			49.68	14.63	3.75	1.74	.52	.22					
20	1,200			86.94	25.07	6.39	2.94	.86	.36	.13				
25	1,500				38.41	9.71	4.44	1.29	.54	.19				
30	1,800					13.62	6.26	1.81	.75	.26				
35	2,100					18.17	8.37	2.42	1.00	.35	.09			
40	2,400					23.55	10.70	3.11	1.28	.44	.12			
45	2,700					29.44	13.46	3.84	1.54	.55	.15			
50	3,000						16.45	4.67	1.93	.66	.17			
60	3,600						23.48	6.60	2.71	.93	.25			
70	4,200							8.83	3.66	1.24	.33			
80	4,800							11.43	4.67	1.58	.41			
90	5,400							14.26	5.82	1.98	.52			
100	6,000								7.11	2.42	.63	.08		
125	7,500								10.83	3.80	.95	.13		
150	9,000									5.15	1.33	.18		
175	10,500									6.90	1.78	.23		
200	12,000									8.90	2.27	.30		
250	15,000										3.36	.45	.12	
300	18,000										4.85	.63	.17	
350	21,000										6.53	.84	.22	
400	24,000											1.08	.28	
500	30,000											1.66	.42	.14
550	33,000											1.98	.50	.16
600	36,000											2.35	.59	.19
700	42,000												.79	.26
800	48,000												1.02	.33
900	54,000												1.27	.41
950	57,000													.46
1000	60,000													.50

FRICTION LOSS

STEEL PIPE: FRICTION LOSS (IN FEET OF HEAD) PER 100 FT.

GPM	GPH	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"
		ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.
1	60	4.30	1.86	.26											
2	120	15.00	4.78	1.21	.38										
3	180	31.80	10.00	2.50	.77	.10									
4	240	54.90	17.10	4.21	1.30	.34									
5	300	83.50	25.80	6.32	1.93	.51	.24								
6	360		36.50	8.87	2.68	.70	.33	.10							
7	420		48.70	11.80	3.56	.93	.44	.13							
8	480		62.70	15.00	4.54	1.18	.56	.17							
9	540			18.80	5.65	1.46	.69	.21							
10	600			23.00	6.86	1.77	.83	.25	.11	.04					
12	720			32.60	9.62	2.48	1.16	.34	.15	.05					
15	900			49.70	14.70	3.74	1.75	.52	.22	.08					
20	1,200			86.10	25.10	6.34	2.94	.87	.36	.13					
25	1,500				38.60	9.65	4.48	1.30	.54	.19					
30	1,800				54.60	13.60	6.26	1.82	.75	.26					
35	2,100				73.40	18.20	8.37	2.42	1.00	.35					
40	2,400				95.00	23.50	10.79	3.10	1.28	.44					
45	2,700					30.70	13.45	3.85	1.60	.55					
70	4,200					68.80	31.30	8.86	3.63	1.22	.35				
100	6,000						62.20	17.40	7.11	2.39	.63				
150	9,000							38.00	15.40	5.14	1.32	.08			
200	12,000							66.30	26.70	8.90	2.27	.736	.30	.08	
250	15,000							90.70	42.80	14.10	3.60	1.20	.49	.13	
300	18,000								58.50	19.20	4.89	1.58	.64	.16	.0542
350	21,000								79.20	26.90	6.72	2.18	.88	.23	.0719
400	24,000								103.00	33.90	8.47	2.72	1.09	.279	.0917
450	27,000								130.00	42.75	10.65	3.47	1.36	.348	.114
500	30,000								160.00	52.50	13.00	4.16	1.66	.424	.138
550	33,000								193.00	63.20	15.70	4.98	1.99	.507	.164
600	36,000								230.00	74.80	18.60	5.88	2.34	.597	.192
650	39,000									87.50	21.70	6.87	2.73	.694	.224
700	42,000									101.00	25.00	7.93	3.13	.797	.256
750	45,000									116.00	28.60	9.05	3.57	.907	.291
800	48,000									131.00	32.40	10.22	4.03	1.02	.328
850	51,000									148.00	36.50	11.50	4.53	1.147	.368
900	54,000									165.00	40.80	12.90	5.05	1.27	.410
950	57,000									184.00	45.30	14.30	5.60	1.41	.455
1000	60,000									204.00	50.20	15.80	6.17	1.56	.500

FRICTION LOSS

EQUIVALENT NUMBER OF FEET STRAIGHT PIPE FOR DIFFERENT FITTINGS

Size of fittings, Inches	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"
90° Ell	1.5	2.0	2.7	3.5	4.3	5.5	6.5	8.0	10.0	14.0	15	20	25
45° Ell	0.8	1.0	1.3	1.7	2.0	2.5	3.0	3.8	5.0	6.3	7.1	9.4	12
Long Sweep Ell	1.0	1.4	1.7	2.3	2.7	3.5	4.2	5.2	7.0	9.0	11.0	14.0	
Close Return Bend	3.6	5.0	6.0	8.3	10.0	13.0	15.0	18.0	24.0	31.0	37.0	39.0	
Tee-Straight Run	1	2	2	3	3	4	5						
Tee-Side Inlet or Outlet or Pitless Adapter	3.3	4.5	5.7	7.6	9.0	12.0	14.0	17.0	22.0	27.0	31.0	40.0	
Ball or Globe Valve Open	17.0	22.0	27.0	36.0	43.0	55.0	67.0	82.0	110.0	140.0	160.0	220.0	
Angle Valve Open	8.4	12.0	15.0	18.0	22.0	28.0	33.0	42.0	58.0	70.0	83.0	110.0	
Gate Valve-Fully Open	0.4	0.5	0.6	0.8	1.0	1.2	1.4	1.7	2.3	2.9	3.5	4.5	
Check Valve (Swing)	4	5	7	9	11	13	16	20	26	33	39	52	65
In Line Check Valve (Spring) or Foot Valve	4	6	8	12	14	19	23	32	43	58			

Example:

(A) 100 ft. of 2" plastic pipe with one (1) 90° elbow and one (1) swing check valve.

90° elbow – equivalent to 5.5 ft. of straight pipe
Swing check – equivalent to 13.0 ft. of straight pipe
100 ft. of pipe – equivalent to 100 ft. of straight pipe
118.5 ft. = Total equivalent pipe

Figure friction loss for 118.5 ft. of pipe.

(B) Assume flow to be 80 GPM through 2" plastic pipe.

1. Friction loss table shows 11.43 ft. loss per 100 ft. of pipe.
2. In step (A) above we have determined total ft. of pipe to be 118.5 ft.
3. Convert 118.5 ft. to percentage 118.5 ÷ 100 = 1.185
4. Multiply 11.43
   x 1.185
   13.54455 or 13.5 ft. = Total friction loss in this system.

PIPE VOLUME AND VELOCITY

STORAGE OF WATER IN VARIOUS SIZE PIPES

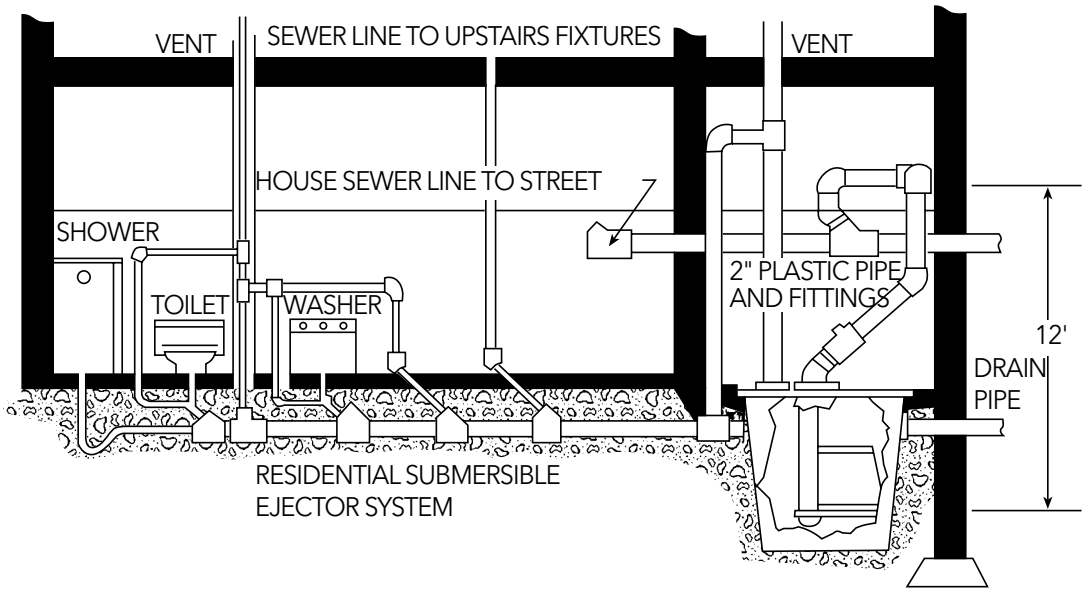
Pipe Size	Volume in Gallons per Foot	Pipe Size	Volume in Gallons per Foot
1¼	.06	6	1.4
1½	.09	8	2.6
2	.16	10	4.07
3	.36	12	5.87
4	.652		

MINIMUM FLOW TO MAINTAIN 2FT./SEC. *SCOURING VELOCITY IN VARIOUS PIPES

Pipe Size	Minimum GPM	Pipe Size	Minimum GPM
1¼	9	6	180
1½	13	8	325
2	21	10	500
3	46	12	700
4	80		

* Failure to maintain or exceed this velocity will result in clogged pipes. Based on schedule 40 nominal pipe.

SEWAGE PUMP SELECTION



The primary function for which the Submersible Sewage Pump is designed is the handling of sewage and other fluids containing unscreened nonabrasive solids and wastes. In order to insure a maximum of efficiency and dependable performance, careful selection of pump size is necessary. Required pump capacity will depend upon the number and type of fixtures discharging into the sump basin, plus the type of facility served. The fundamentals involved in selecting a pump for a Water System can be applied to selecting a Submersible Sewage Pump. By answering the three (3) questions concerning capacity, suction, and discharge conditions we will know what is required of the pump and be able to select the right pump from the catalog.

1. To simplify the selection of the proper size Submersible Sewage Pump, the general rule is to base the pump capacity on the number of toilets the pump will be serving. This differs from the selection of the proper pump for a Water System in that question 1, "Water Needed" is reversed. How much liquid do we want to dispose of rather than how much do we need? The following chart will help determine pump capacity:

Sewage Selection Table for Residential or Commercial Systems

Number of Bathrooms	GPM
1	20
2	30

The above selection table takes into consideration other fixtures which will drain only water into the sewage basin.

Therefore, pump capacity should not be increased for lavatories, bathtubs, showers, dishwashers, or washing machines. When no toilets are involved in the facility served, for example, a laundromat, the major fixture discharging waste should be considered. In this case, the chart should read "Maximum Number of Washing Machines."

In areas where drain tile from surrounding lawns or fields enters the sump, groundwater seepage can be determined as follows:

14 GPM for 1,000 sq. ft. of **sandy soil**
8 GPM for 1,000 sq. ft. of **clay soil**

If the calculated groundwater seepage is less than one-fourth of the pump capacity required based on the number of toilets, the pump capacity should not be increased. Any seepage over the allowed one-fourth should be added to the required pump capacity.

2. Since the pump is submerged in the liquid to be pumped, there is no suction lift. Question 2 does NOT become a factor in pump selection.

3. Answering Question 3, discharge conditions is the final step in selecting a Submersible Sewage Pump. Only the vertical distance between the pump and the highest point in the discharge piping, plus friction losses in discharge pipe and fittings affect discharge pressure. (Friction losses can be obtained from the friction table in this Selection Manual.)

Normally service pressure is not a consideration. The total of the vertical distance, plus the friction losses is the required discharge head in feet.

WASTEWATER PUMPS SIZING AND SELECTION

WHAT DO YOU NEED TO KNOW TO SELECT A SEWAGE PUMP?

1. Size solids to be handled.
- Effluent (liquid only) – <1"
- Residential – 1½" or larger
- Commercial/Industrial – 2½" or larger

2. Capacity required.
- 1 bath – 20 GPM
- 2-3 baths – 30 GPM
- 4-5 baths – 45 GPM

3. Pump/Motor Run Time
Units up to 1½ HP should run a minimum of 1 minute. Two (2) HP and larger units should run a minimum of 2 minutes.

4. Formula for Total Dynamic Head:
Vertical elevation
+ friction loss (pipe + fittings)
+ Pressure Requirements (x 2.31')

Total head in feet

Note: Wastewater pumps are designed to pump effluent with some suspended solids, not solids with some effluent.

5. Must maintain **minimum** velocity of 2 ft./second (see index).

6. Must turn storage in the discharge pipe a **minimum** of one time per cycle. (See index).

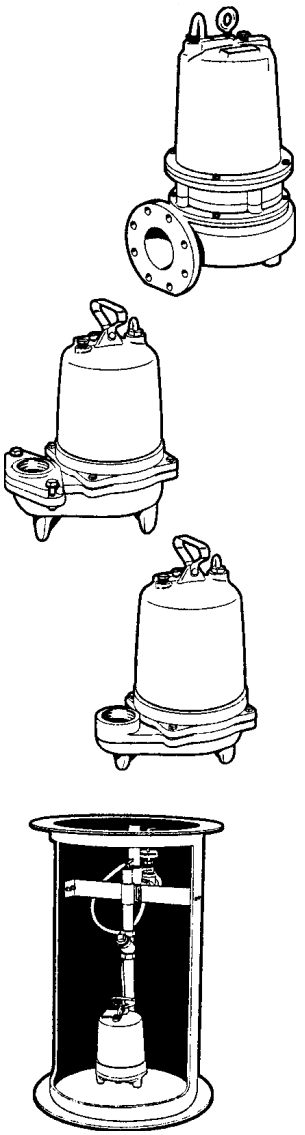
7. Are receiver basin and cover required?

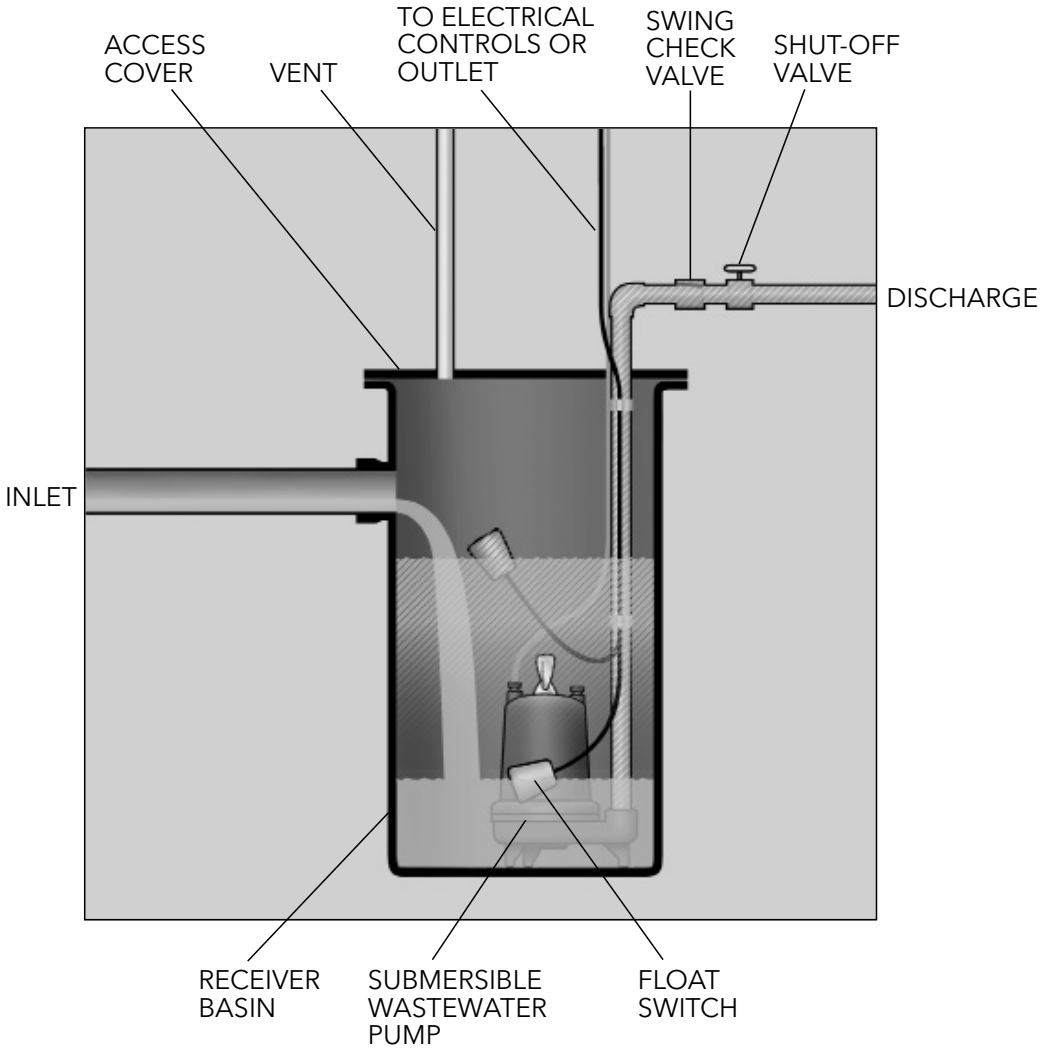
8. What is the power available?
- Phase – 1Ø or 3Ø
- Voltage – 115, 200, 230, 460 or 575 V
- Hertz – 50 or 60 Hz

9. What pipe size will be used?

10. Simplex or Duplex System?
(Duplex when service cannot be interrupted)

Note: State and local codes take preference.





FLOW RATE CALCULATION

Residential Sizing

BATHROOM COUNT

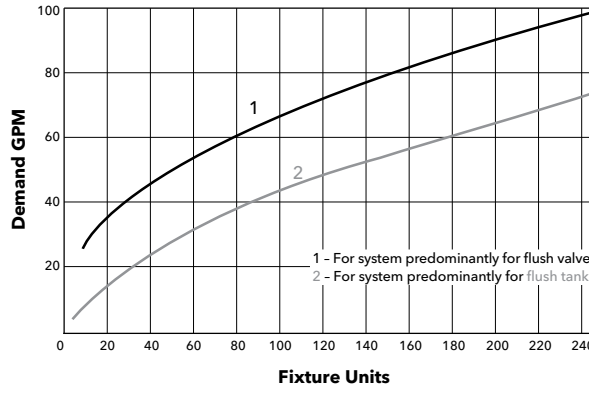
Number of Bathrooms	Flow Rate per Minute
1	20
2	30
3	40
4	50
5	60
6	70

FIXTURE COUNT V = Value style fixture T = Tank Style Fixture

Fixture	Type	Count
Toilet	V	6
Toilet	T	3
Lav Sink	V or T	1
Tub	V or T	2
Shower	V or T	2
Full Body Shower	Add Flow rate: 9 to 65 Gallons per minute to total	
Kitchen Sink	V or T	2
Dishwasher	V or T	4
Wash Machine	V or T	8
Bidet	V or T	3
Icemaker	V or T	3
Hose Bib	V or T	4

Fixture	Quantity	Count	Total Count
Toilets	3	3	9
Tub and Shower	2	4	8
Full body shower			15
Lav Sink		1	3
Kitchen Sink	1	2	2
Dishwasher	1	4	4
Icemaker	1	3	3
Wash Machine	1	8	8
Hose Bib	1	4	4
Total			56

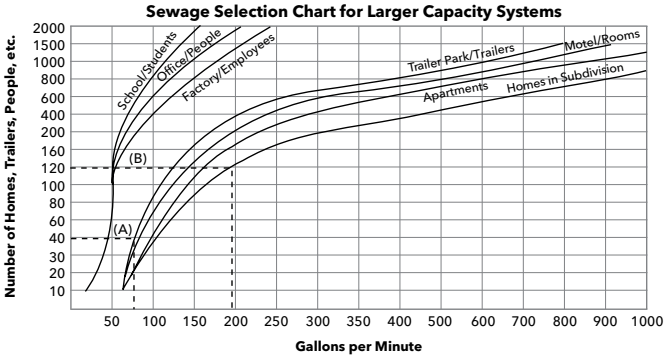
PLUMBING WATER SYSTEMS



"Hunter" Estimate Curves for Demand Load

Commercial Sizing

OCCUPANT SIZING

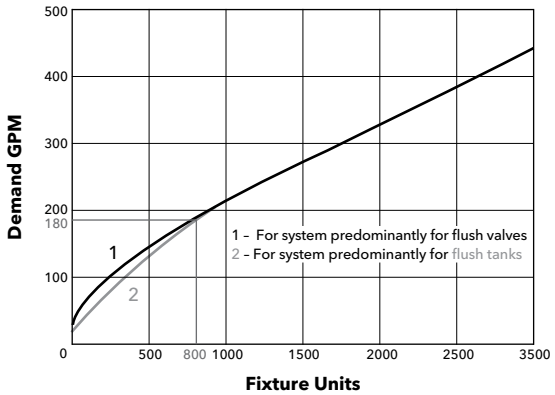


FIXTURE COUNT V = Value style fixture T = Tank Style Fixture

Fixture	Type	Count
Toilet	V	10
Toilet	T	5
Pedestal Urinal	V or T	10
Stall Urinal	V or T	5
Lav Sink	V or T	3
Kitchen Sink	V or T	4
Tub	V or T	4
Shower	V or T	4
Dishwasher	V or T	4
Icemaker	V or T	3
Commercial Wash. Machine	V or T	6
Hose Bib - Commercial	V or T	6
Full Body Shower	Add Flow rate 9 to 65 Gallons per minute to total	

Fixture	Quantity	Count	Total Count
Toilet	50	10	500
Lav Sink	50	3	150
Shower	50	4	200
Full body shower	50	15	750
Dishwasher	50	4	200
Icemaker	50	3	150
Wash Machine	10	6	60
Dishwasher	10	4	40
Hose bib	2	6	12
Total			2062

PLUMBING WATER SYSTEMS



"Hunter" Estimate Curves for Demand Load

FLOW CALCULATION EXAMPLE

To Calculate Flow with Fixture Counts

Take total number of each style fixture X Count for that fixture. Add all fixture total counts. Add Full Body shower flow rate to total.

Use "Hunter" estimate curves for Demand Load for appropriate style fixtures. (Valve style fixtures are predominant in Commercial buildings; Tank style fixtures are predominant in Residential).

COMMERCIAL BUILDING EXAMPLE:

Valve Style Fixtures

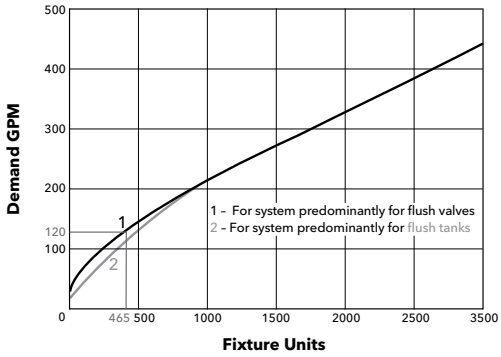
25 Toilets
25 Lav sinks
25 Tubs
6 Kitchen Sinks
2 Commercial Washing Machines
1 Dishwasher

Count Calculation

25 Toilets	X	10 Count	=	250
25 Lav Sinks	X	3 Count	=	75
25 Tubs	X	4 Count	=	100
6 Kitchen Sinks	X	4 Count	=	24
2 Commercial	X	6 Count	=	12
1 Dishwasher	X	4 Count	=	4

Total 465 Count

Plumbing Water Systems



"Hunter" Estimate Curves for Demand Load

HEAD CALCULATION

Example: Fig. 1. A two-bathroom home is situated such that the city sewer main is located above the basement drain facilities. Groundwater seepage through drain tile into the sump is estimated at 6 GPM. The vertical distance from the pump to the highest point in the discharge piping is 12 feet.

A pump capable of pumping 30 GPM is required (seepage is less than one-fourth of the pump capacity so it is automatically included). The discharge head must be 12 feet, plus any friction loss in the approximately 15 feet of pipe, 3-90° elbows, 3-45° elbows, and check valve.
Assume plastic pipe is used.

1. RATE OF FLOW = 30 GPM
   Two (2) toilets, includes seepage up to one-fourth of selected ____ pump capacity. 6 GPM is less than the 7.5 GPM allowable so no correction is necessary.
2. SUCTION CONDITIONS – Flooded Suction
3. DISCHARGE CONDITIONS
   Vertical Differential 12.0'
   Friction losses @ 30 GPM
   15' of 2" pipe (1.8' per 100' of pipe) = .2' F.L.
   3-2", 90° elbows = 16.5 equivalent feet
   3-2", 45° elbows = 7.5 equivalent feet
   1-check valve = 19.0 equivalent feet
   Total = 43.0 equivalent feet = .6' F.L.

Total Discharge Head = _____ 12.8'

Referring to the catalog, we find that a 1/3 HP Sewage Pump should be adequate for the job.

Example: The same conditions as in the previous example exist, except the house is located on a large tract of sandy soil where the groundwater seepage is estimated @ 20 GPM.

1. RATE OF FLOW = 30 GPM
   Two (2) toilets, includes seepage up to one-fourth of selected pump capacity – 7.5 GPM.
   The additional 12.5 GPM (20-7.5) must be added to the required pump capacity – 12.5 GPM
   Total = 42.5 GPM
2. SUCTION CONDITIONS _____ Flooded Suction
3. DISCHARGE CONDITIONS
   Vertical Differential – 12.0'
   Friction losses @ 42.5 GPM
   15' of 2" pipe (3.5' per 100' of pipe) = .5' F.L.
   3-2", 90° elbows = 16.5 equivalent feet
   3-2", 45° elbows = 7.5 equivalent feet
   1-check valve = 19.0 equivalent feet
   Total = 43.0 equivalent feet or 1.5' F.L.

Total Discharge Head = 14.0'

Referring again to the catalog, we find that a 1/3 HP Sewage Pump should be adequate for this installation.

BASIN SIZING

CALCULATING BASIN SIZE

1. Choosing Diameter

A minimum of 24" is required for simplex. Duplex stations normally start at 36", but require much larger for larger diameter discharge pumps.

For example: A pump that flows 100 GPM, requires a 2-minute run time. A duplex station with a diameter of 36" holds 4.4 gallons (see Chart A) per inch.

50 GPM x 2 minutes = 100 gallons

100 gallons / 4.4 gallons per inch 22.72" for pump down.

22.72" would be used for (E).

2. Sizing Depth

Inlet and Float Location Basin Sizing Method

1. Top of basin to bottom of the inlet (A)	+	in.
2. Inlet to "Alarm" float (B)	+	in.
3. "Alarm" to "Lag" float (C)	+	in.
4. "Lag" to "On" float (D)	+	in.
5. Pump down (E) (Note A)	+	17.86 in.
6. Floor of basin to top of pump case (Note B)	+	19.0 in.

Note A = Minimum suggested basin diameter for duplex configuration is 36". Volume by inch of basin divided by 2 x's pumping rate.

Note B = Most pumps are approximately 19" tall. Pump should remain covered during pumping.

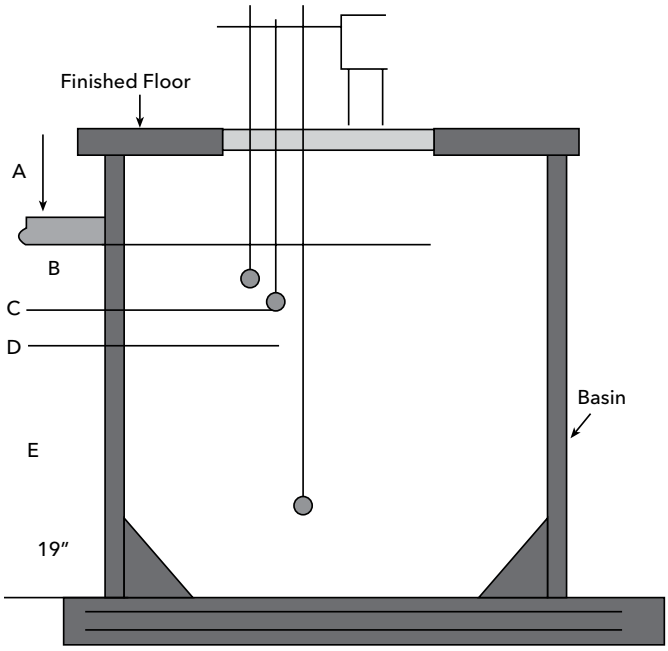


CHART A

Dimensions		Volumes	
Diameter	**Depth**	**Total Gallons**	**Gallons Per Inch**
24	36	65	1.81
	48	84	1.75
	60	102	1.70
	72	118	1.64
	84	165	1.96
	96	188	1.96
30	36	110	3.00
	48	137	2.85
	60	169	2.82
	72	199	2.76
	84	257	3.05
	96	294	3.06
36	36	159	4.41
	48	200	4.17
	60	246	4.10
	72	291	4.04
	84	370	4.40
	96	423	4.40
42	48	274	5.71
	60	339	5.65
	72	402	5.58
	84	504	6.00
	96	576	6.00
48	48	361	7.52
	60	446	7.43
	72	529	7.34
	84	658	7.83
	96	752	7.83
60	78	955	12.24
	84	1028	12.23
	96	1175	12.23
72	78	1375	17.62
	84	1481	17.63
	96	1692	17.63

ELECTRICAL DATA

AGENCY LISTINGS AND POWER CORD PLUG REMOVAL

Our single-phase sump, effluent and sewage pumps with 115, 208 and 230 volt motors up to and including 1 HP are now built with NEMA three-prong grounding plug power cords. This allows qualified electricians or professional pump installers to easily connect the pumps; according to U.S. National (NEC), Canadian (CSA), state, provincial and local electrical codes, to a properly rated piggyback float switch for automatic operation.

NOTICE: This statement is written for the intent purpose of verifying to electrical inspectors that according to both UL and CSA standards it is allowable to remove the plug ends for direct wiring to a disconnect switch, control panel or hard wired float switch. Removing the plug end does not violate our UL Listing or CSA/CUS certification in any way. Always follow the aforementioned codes when making connections to the bare leads once the plug is removed. Plug removal information and wiring diagrams may be found in the Installation Manual supplied with the pump and in this booklet. Please use this statement in the event an inspector needs written assurance of this policy.

TRANSFORMER SIZES

A full three phase supply is recommended for all three phase motors, consisting of three individual transformers or one three phase transformer. "Open" delta or wye connections using only two transformers can be used, but are more likely to cause problems from current unbalance.

Transformer ratings should be no smaller than listed in the table for supply power to the motor alone.

TRANSFORMER CAPACITY REQUIRED FOR SUBMERSIBLE MOTORS

Submersible 3Ø Motor HP Rating	Total Effective KVA Required	Smallest KVA Rating – Each Transformer	
		Open WYE DELTA 2 Transformers	WYE or DELTA 3 Transformers
1½	3	2	1
2	4	2	1½
3	5	3	2
5	7½	5	3
7½	10	7½	5
10	15	10	5
15	20	15	7½
20	25	15	10
25	30	20	10
30	40	25	15
40	50	30	20
50	60	35	20
60	75	40	25
75	90	50	30
100	120	65	40

APPLICATION – THREE PHASE UNBALANCE

THREE PHASE POWER UNBALANCE

A full three phase supply is recommended for all three phase motors, consisting of three individual transformers or one three phase transformer. So-called "open" delta or wye connections using only two transformers can be used, but are more likely to cause problems, such as poor performance overload tripping or early motor failure due to current unbalance.

Transformer ratings should be no smaller than listed in Table 2 on page 3 for supply power to the motor alone.

Checking and correcting rotation and current unbalance

1. Establish correct motor rotation by running in both directions. Change rotation by exchanging any two of the three motor leads. The rotation that gives the most water flow is always the correct rotation.
2. After correct rotation has been established, check the current in each of the three motor leads and calculate the current unbalance as explained in 3 below.

   If the current unbalance is 2% or less, leave the leads as connected.

   If the current unbalance is more than 2%, current readings should be checked on each leg using each of the three possible hook-ups. Roll the motor leads across the starter in the same direction to prevent motor reversal.
3. To calculate percent of current unbalance:
   A. Add the three line amp values together.
   B. Divide the sum by three, yielding average current.
   C. Pick the amp value which is furthest from the average current (either high or low).
   D. Determine the difference between this amp value (furthest from average) and the average.
   E. Divide the difference by the average.
   Multiply the result by 100 to determine percent of unbalance.
4. Current unbalance should not exceed 5% at service factor load or 10% at rated input load. If the unbalance cannot be corrected by rolling leads, the source of the unbalance must be located and corrected. If, on the three possible hookups, the leg farthest from the average stays on the same power lead, most of the unbalance is coming from the power source. However, if the reading farthest from average moves with the same motor lead, the primary source of unbalance is on the "motor side" of the starter. In this instance, consider a damaged cable, leaking splice, poor connection, or faulty motor winding.

Phase designation of leads for CCW rotation viewing shaft end

To reverse rotation, interchange any two leads.

Phase 1 or "A" – Black Motor Lead or T1

Phase 2 or "B" – White Motor Lead or T2

Phase 3 or "C" – Red Motor Lead or T3

Notice: Phase 1, 2 and 3 may not be L1, L2 and L3.

	Hookup 1			Hookup 2			Hookup 3		
	L1	L2	L3	L1	L2	L3	L1	L2	L3
Starter Terminals	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
	⊤	⊤	⊤	⊤	⊤	⊤	⊤	⊤	⊤
	T1	T2	T3	T1	T2	T3	T1	T2	T3
Motor Leads	R	B	W	W	R	B	B	W	R
	T3	T1	T2	T2	T3	T1	T1	T2	T3

Example:

T3-R = 51 amps	T2-W = 50 amps	T1-B = 50 amps
T1-B = 46 amps	T3-R = 48 amps	T2-W = 49 amps
T2-W = 53 amps	T1-B = 52 amps	T3-R = 51 amps
Total = 150 amps	Total = 150 amps	Total = 150 amps
÷ 3 = 50 amps	÷ 3 = 50 amps	÷ 3 = 50 amps
– 46 = 4 amps	– 48 = 2 amps	– 49 = 1 amps
4 ÷ 50 = .08 or 8%	2 ÷ 50 = .04 or 4%	1 ÷ 50 = .02 or 2%

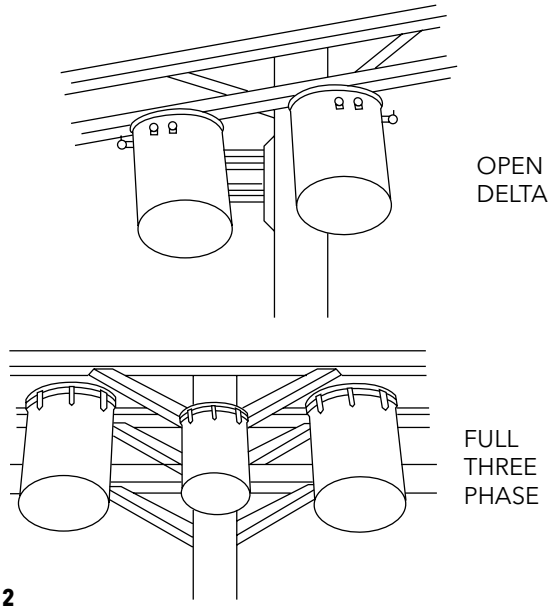


FIGURE 12

ELECTRICAL DATA

NEMA CONTROL PANEL ENCLOSURES

Enclosure Rating	Explanation
NEMA 1 ① General Purpose	To prevent accidental contact with enclosed apparatus. Suitable for application indoors where not exposed to unusual service conditions.
NEMA 2 Driptight	To prevent accidental contact, and in addition, to exclude falling moisture or dirt.
NEMA 3 ① Weatherproof (Weatherproof Resistant)	Protection against specified weather hazards. Suitable for use outdoors.
NEMA 3R ① Raintight	Protects against entrance of water from a beating rain. Suitable for general outdoor application not requiring sleetproof.
NEMA 4 ① Watertight	Designed to exclude water applied in form of hose stream. To protect against stream of water during cleaning operations, etc.
NEMA 4X ① Watertight & Corrosion Resistant	Designed to exclude water applied in form of hose stream. To protect against stream of water during cleaning operations, etc. Corrosion Resistant.
NEMA 5 Dust Tight	Constructed so that dust will not enter enclosed case. Being replaced in some equipment by NEMA 12.
NEMA 6 Submersible	Intended to permit enclosed apparatus to be operated successfully when submerged in water under specified pressure and time.
NEMA 7 Hazardous Locations Class I – Air Break	Designed to meet application requirements of National Electrical Code for Class 1, Hazardous Locations (explosive atmospheres). Circuit interruption occurs in air.
NEMA 8 Hazardous Locations A, B, C or D Class II – Oil Immersed	Identical to NEMA 7 above, except the apparatus is immersed in oil.
NEMA 9 Hazardous Locations E, F or G Class II	Designed to meet application requirements of National Electrical Code for Class II Hazardous Locations (combustible dusts, etc.).
NEMA 10 Bureau of Mines Permissible	Meets requirements of U.S. Bureau of Mines. Suitable for use in coal mines.
NEMA 11 Dripproof Corrosion Resistant	Provides oil immersion of apparatus such that it is suitable for application where equipment is subject to acid or other corrosive fumes.
NEMA 12 Driptight, Dusttight	For use in those industries where it is desired to exclude dust, lint, fibers and flyings, or oil or Industrial coolant seepage.

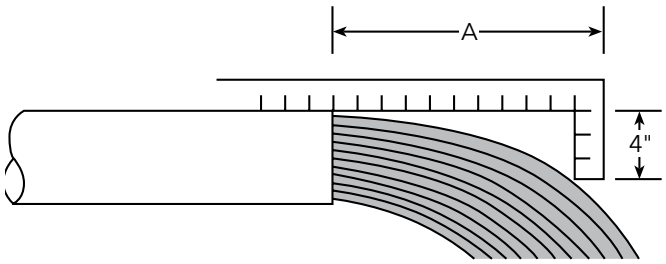
① Types available from Xylem, Residential and Commercial Water.

DETERMINING FLOW RATES

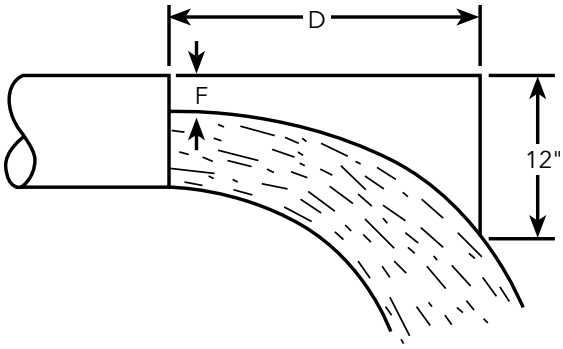
FULL PIPE FLOW – CALCULATION OF DISCHARGE RATE USING HORIZONTAL OPEN DISCHARGE FORMULA

An L-shaped measuring square can be used to estimate flow capacity, using the chart below. As shown in illustration, place 4" side of square so that it hangs down and touches the water. The horizontal distance shown "A" is located in the first column of the chart and you read across to the pipe diameter (ID) to find the gallons per minute discharge rate.

Example: A is 8" from a 4" ID pipe
= a discharge rate of 166 GPM.



PIPE NOT RUNNING FULL – CALCULATION OF DISCHARGE RATE USING AREA FACTOR METHOD



Flow From Horizontal Pipe (Not Full)

Flow (GPM) = A x D x 1.093 x F
A = Area of pipe in square inches
D = Horizontal distance in inches
F = Effective area factor from chart
Area of pipe equals inside Dia.^{2} x 0.7854

Example: Pipe inside diameter = 10 in.
D = 20 in.
F = 2½ in.
A = 10 x 10 x 0.7854 = 78.54 square in.
$R\% = \frac{F}{D} = \frac{2\frac{1}{2}}{10} = 25\%$
F = 0.805
Flow = 78.54 x 20 x 1.039 x 0.805 = 1314 GPM

Ratio F/D = R %	Eff. Area Factor F	Ratio F/D = R %	Eff. Area Factor F
5	0.981	55	0.436
10	0.948	60	0.373
15	0.905	65	0.312
20	0.858	70	0.253
25	0.805	75	0.195
30	0.747	80	0.142
35	0.688	85	0.095
40	0.627	90	0.052
45	0.564	95	0.019
50	0.500	100	0.000

DISCHARGE RATE IN GALLONS PER MINUTE/NOMINAL PIPE SIZE (ID)

Horizontal Dist. (A) Inches	Pipe Diameter											
	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
4	5.7	9.8	13.3	22.0	31.3	48.5	83.5					
5	7.1	12.2	16.6	27.5	39.0	61.0	104	163				
6	8.5	14.7	20.0	33.0	47.0	73.0	125	195	285			
7	10.0	17.1	23.2	38.5	55.0	85.0	146	228	334	380		
8	11.3	19.6	26.5	44.0	62.5	97.5	166	260	380	665	1060	
9	12.8	22.0	29.8	49.5	70.0	110	187	293	430	750	1190	1660
10	14.2	24.5	33.2	55.5	78.2	122	208	326	476	830	1330	1850
11	15.6	27.0	36.5	60.5	86.0	134	229	360	525	915	1460	2100
12	17.0	29.0	40.0	66.0	94.0	146	250	390	570	1000	1600	2220
13	18.5	31.5	43.0	71.5	102	158	270	425	620	1080	1730	2400
14	20.0	34.0	46.5	77.0	109	170	292	456	670	1160	1860	2590
15	21.3	36.3	50.0	82.5	117	183	312	490	710	1250	2000	2780
16	22.7	39.0	53.0	88.0	125	196	334	520	760	1330	2120	2960
17		41.5	56.5	93.0	133	207	355	550	810	1410	2260	3140
18			60.0	99.0	144	220	375	590	860	1500	2390	3330
19				110	148	232	395	620	910	1580	2520	3500
20					156	244	415	650	950	1660	2660	3700
21						256	435	685	1000	1750	2800	
22							460	720	1050	1830	2920	
23								750	1100	1910	3060	
24									1140	2000	3200	

TERMS AND USABLE FORMULAS

The term "head" by itself is rather misleading. It is commonly taken to mean the difference in elevation between the suction level and the discharge level of the liquid being pumped. Although this is partially correct, it does not include all of the conditions that should be included to give an accurate description.

- **Friction Head:** The pressure expressed in lbs./sq. in. or feet of liquid needed to overcome the resistance to the flow in the pipe and fittings.
- **Suction Lift:** Exists when the source of supply is below the center line of the pump.
- **Suction Head:** Exists when the source of supply is above the center line of the pump.
- **Static Suction Lift:** The vertical distance from the center line of the pump down to the free level of the liquid source.
- **Static Suction Head:** The vertical distance from the center line of the pump up to the free level of the liquid source.
- **Static Discharge Head:** The vertical elevation from the center line of the pump to the point of free discharge.
- **Dynamic Suction Lift:** Includes static suction lift, friction head loss and velocity head.
- **Dynamic Suction Head:** Includes static suction head minus friction head minus velocity head.
- **Dynamic Discharge Head:** Includes static discharge head plus friction head plus velocity head.
- **Total Dynamic Head:** Includes the dynamic discharge head plus dynamic suction lift or minus dynamic suction head.
- **Velocity Head:** The head needed to accelerate the liquid. Knowing the velocity of the liquid, the velocity head loss can be calculated by a simple formula Head = $V^2/2g$ in which g is acceleration due to gravity or 32.16 ft./sec. Although the velocity head loss is a factor in figuring the dynamic heads, the value is usually small and in most cases negligible. See table.

BASIC FORMULAS AND SYMBOLS

Formulas

$$GPM = \frac{Lb./Hr.}{500 \times Sp.\,Gr.}$$

$$H = \frac{2.31 \times psi}{Sp.\,Gr.}$$

$$H = \frac{1.134 \times In.\,Hg.}{Sp.\,Gr.}$$

$$H_V = \frac{V^2}{2g} = 0.155\,V^2$$

$$V = \frac{GPM \times 0.321}{A} = \frac{GPM \times 0.409}{(I.D.)^2}$$

$$BHP = \frac{GPM \times H \times Sp.\,Gr.}{3960 \times Eff.}$$

$$Eff. = \frac{GPM \times H \times Sp.\,Gr.}{3960 \times BHP}$$

$$N_S = \frac{N\sqrt{GPM}}{H^{3/4}}$$

$$H = \frac{V^2}{2g}$$

Approximate Cost of Operating Electric Motors

Motor HP	*Average kilowatts input or cost based on 1 cent per kilowatt hour		Motor HP	*Av. kw input or cost per hr. based on 1 cent per kw hour
	1 Phase	3 Phase		3 Phase
⅓	.408		20	16.9
½	.535	.520	25	20.8
¾	.760	.768	30	26.0
1	1.00	.960	40	33.2
1½	1.50	1.41	50	41.3
2	2.00	1.82	60	49.5
3	2.95	2.70	75	61.5
5	4.65	4.50	100	81.5
7½	6.90	6.75	125	102
10	9.30	9.00	150	122
			200	162

Symbols

GPM = gallons per minute
Lb. = pounds
Hr. = hour
Sp. Gr. = specific gravity
H = head in feet
psi = pounds per square inch
In. Hg. = inches of mercury
h_v = velocity head in feet
V = velocity in feet per second
g = 32.16 ft./sec.^{2} (acceleration of gravity)
A = area in square inches (πr^2) (for a circle or pipe)
ID = inside diameter in inches
BHP = brake horsepower
Eff. = pump efficiency expressed as a decimal
N_s = specific speed
N = speed in revolutions per minute
D = impeller in inches

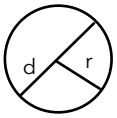
TERMS AND USABLE FORMULAS

BASIC FORMULAS AND SYMBOLS

Temperature conversion

DEG. C = (DEG. F – 32) x .555

DEG. F = (DEG. C x 1.8) + 32



CIRCLE

Area of a Circle

A = area; C = circumference. D = diameter

$A = \pi r^2$; $\pi = 3.14$ r = radius

$C = 2\pi r$

Water Horsepower $= \frac{GPM \times 8.33 \times Head}{33000} = \frac{GPM \times Head}{3960}$	**Where:** **GPM** = Gallons per Minute **8.33** = Pounds of water per gallon **33000** = Ft. Lbs. per minute in one horsepower **Head** = Difference in energy head in feet (field head).
Laboratory BHP $= \frac{Head \times GPM \times Sp.\ Gr.}{3960 \times Eff.}$ **Field BHP** = Laboratory BHP + Shaft Loss **Total BHP** = Field BHP + Thrust Bearing Loss	**Where:** **GPM** = Gallons per Minute **Head** = Lab. Head (including column loss) **Eff.** = Lab. Eff. of Pump Bowls **Shaft Loss** = HP loss due to mechanical friction of lineshaft bearings **Thrust Bearing Loss** = HP Loss in driver thrust bearings (See (1) below under Misc.)
Input Horsepower $= \frac{Total\ BPH}{Motor\ Eff.}$	**Motor Eff. from Motor mfg. (as a decimal)**
Field Efficiency $= \frac{Water\ Horsepower}{Total\ BHP}$	**Water HP as determined above** **Total BHP as determined above**
Overall Plant Efficiency $= \frac{Water\ Horsepower}{Input\ Horsepower}$	**(See (2) below under Misc.)** **Water HP as determined above** **Input HP as determined above**

Electrical

Input Horsepower $= \frac{BHP}{Mot.\ Eff.} = \frac{4.826 \times K \times M \times R}{T} = \frac{1.732 \times E \times I \times PF}{746}$

BHP	=	Brake Horsepower as determined above
Mot. Eff.	=	Rated Motor Efficiency
K	=	Power Company Meter Constant
M	=	Power Company Meter Multiplier, or Ratio of Current and Potential Transformers connected with meter
R	=	Revolutions of meter disk
T	=	Time in Sec. for R
E	=	Voltage per Leg applied to motor
I	=	Amperes per Leg applied to motor
PF	=	Power factor of motor
1.732	=	Factor for 3-phase motors. This reduces to 1 for single phase motors

Kilowatt input to Motor $= .746 \times I.H.P. = \frac{1.732 \times E \times I \times PF}{1000}$	**KW-Hrs. Per 1000 Gallons of Cold Water Pumped Per Hour** $= \frac{HD\ in\ ft. \times 0.00315}{Pump\ Eff. \times Mot.\ Eff.}$

Miscellaneous

(1) **Thrust Bearing Loss** = .0075 HP per 100 RPM per 1000 lbs. thrust.*

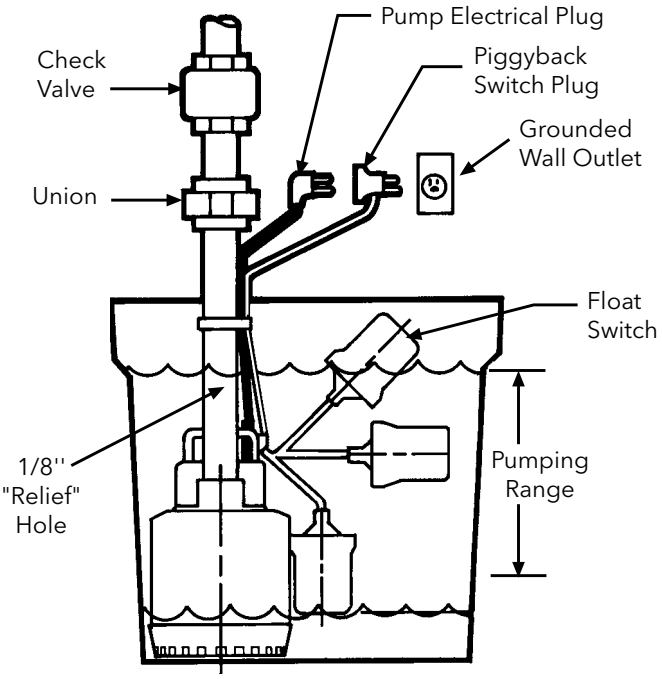
(2) **Overall Plant Efficiency sometimes referred to as "Wire to Water" Efficiency**

***Thrust (in lbs.)** = (thrust constant (k) laboratory head) + (setting in feet x shaft wt. per ft.)

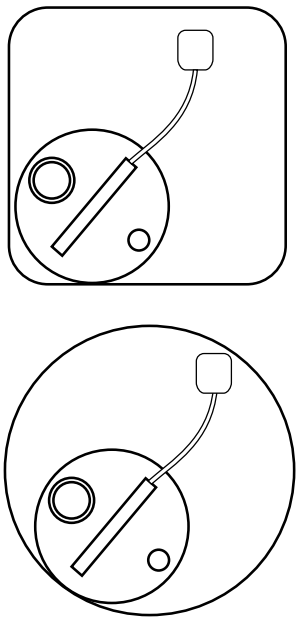
Note: Obtain thrust constant from curve sheets

Discharge Head (in feet of fluid pumped) $= \frac{Discharge\ Pressure\ (psi) \times 2.31}{Sp.\ Gr.\ of\ Fluid\ Pumped}$

SUMP PUMP TYPICAL INSTALLATIONS

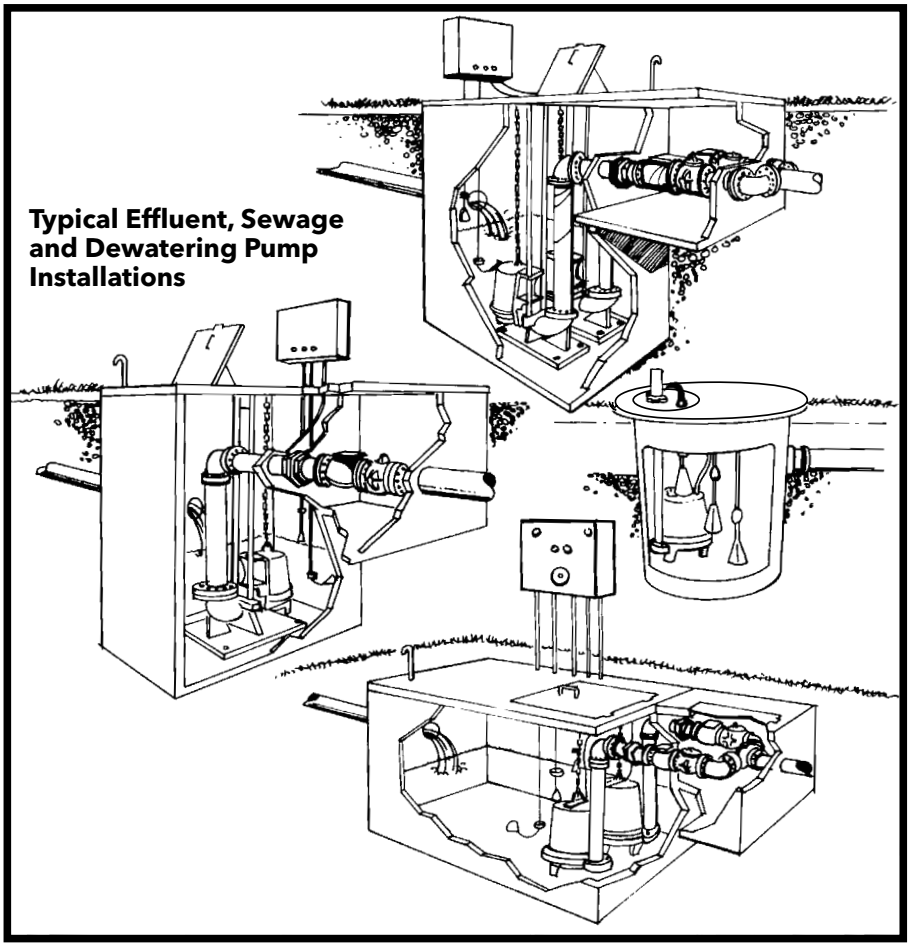


Typical Pump Installation in Sump



Suggested Pump Positioning in Sump

EFFLUENT AND SEWAGE PUMPS TYPICAL INSTALLATIONS



Typical Effluent, Sewage and Dewatering Pump Installations

VARIABLE SPEED DRIVES

WASTEWATER PUMPS AND VARIABLE SPEED DRIVES

It is acceptable and increasingly more common to operate three-phase wastewater pumps using VFD's or variable frequency (speed) drives. We have successfully tested and operated all our premium cast iron construction, three-phase pumps between 30 and 60 hertz operation. The pumps should never be operated below 30 hertz (the VFD must be programmed for a minimum speed of 30 hertz to prevent continuous operation) or above 60 hertz due to increased motor HP loading, higher amperage and the resultant heat rise (see HP in 70 hertz Performance Multipliers).

The "Affinity Laws" state that for a given pump, the capacity will vary directly with a change in speed, the head will vary as the square of the speed change and the required power will vary as the cube of the speed change. (The Affinity Law formulas can be found in the Water Products Technical Manual, TTECHWP). The Performance Multiplier Chart provides shortcut multipliers that eliminate having to solve the Affinity Law equations.

To calculate a pump's total performance range when using a VFD, use the 30 hertz data to create a minimum speed curve, the VFD controlled pump should always be operated between 30 hertz and the published 60 hertz curve. Where it operates at any given moment is irrelevant.

Q_1, H_1 and BHP_1 are determined at the pump's rated speed N_1 (rpm).

Q_2, H_2 and BHP_2 are determined at speed N_2 (rpm).

Use the multipliers with a minimum of 3 data points taken from any standard, 60 Hz curve to determine the performance of that pump at a new speed.

Hertz	Performance Multipliers		
70 –	$Q_2 = Q_1 \times 1.17$	$H_2 = H_1 \times 1.37$	$BHP_2 = BHP_1 \times 1.6$
60 –	Use the standard published curve data		
50 –	$Q_2 = Q_1 \times .83$	$H_2 = H_1 \times .69$	$BHP_2 = BHP_1 \times .57$
40 –	$Q_2 = Q_1 \times .67$	$H_2 = H_1 \times .45$	$BHP_2 = BHP_1 \times .3$
30 –	$Q_2 = Q_1 \underline{\times .5}$	$H_2 = H_1 \underline{\times .25}$	$BHP_2 = BHP_1 \underline{\times .125}$

An example would be, solve for Q_2, H_2 and BHP_2 for a 60 Hz pump that produces 100 gpm (Q_1) @ 100' tdh (H_1) using 5 hp (BHP_1) when it is operated at 30 Hz : **Answers:** 100 gpm $\underline{\times .5}$ = 50 gpm, 100' TDH $\underline{\times .25}$ = 25' TDH and 5 hp $\underline{\times .125}$ = .63 hp.

VFD's save energy while reducing the thrust on the motor bearings and the starting torque on the shaft and impeller.

Contact Customer Service for details, pricing and availability of our full line of VFD products.

STANDARD PANEL SELECTION CHECK LIST

PANEL SIZING

Pump Model Chosen: _____

1. Phase: Single____ Three____
2. Amp draw of pump: _____ (found on bulletin)
3. Simplex ("1" Pump) ____ Duplex ("2" Pumps in Pit) ____
4. Does pump have a seal fail circuit: yes or no *(see note)*
   (***NOTE:*** *If Question 4 is yes, add a seal fail option as noted.)*

If Question	1. Single	3. Simplex	**use Chart A**
If Question	1. Three	3. Simplex	**use Chart B**
If Question	1. Single	3. Duplex	**use Chart C**
If Question	1. Three	3. Duplex	**use Chart D**

CHART A

Panel Part Number	Amp / Maximum HP	Enclosure
S10020N1 (non-modifiable)	up to 20	Indoor
S10020	up to 20	Indoor/ Outdoor
S12127	21-27	
S12836	28-36	
S1GD2 (includes caps for 1GD,12GDS after 12/2005)	2 HP	
S1FGC2 (use with1GA/15GDS)	3 HP	
S1FGC3 (use with1/2GA/15/20GDS)	5.4 HP	
S1FGC5 (use with 2GA /20GDS)	9.4 HP	

Add option H for seal fail circuit to all of the above except S10020N1. Except for GA/GDS grinder pumps, seal fail and high temperature are included in panel.

NOTE: Not all models are listed. For more assistance, contact customer service.

CHART B

Panel Part Number	Amp / Maximum HP	Enclosure
S31625	1.6-2.5	Indoor / Outdoor
S32540	2.5-4.0	
S34063	4.0-6.3	
S36310	6.3-10	
S31016	10-16	
S31620	16-20	
S32025	20-25	
S32232	22-32	

Add option H for seal fail circuit to all of the above, unless using a GA/GDS pump, use an "O" option.

CHART C

Panel Part Number	Amp / Maximum HP	Enclosure
D10020N1	up to 20	Indoor
D10020	up to 20	Indoor / Outdoor
D12127	21-27	
D12836	28-36	
D1GD2 (includes caps for 1GD,12GDS after 12/2005)	2 HP	
D1FGC2 (use with 1GA / 15GDS)	3 HP	
D1FGC3 (use with 1/2GA / 15/20GDS)	5.4 HP	
D1FGC5 (use with 2GA / 20GDS)	9.4 HP	

Add option J for seal fail circuit to all of the above except D10020N1. Do not add seal fail for GA/GDS grinder pumps, seal fail and high temperature are included in panel.

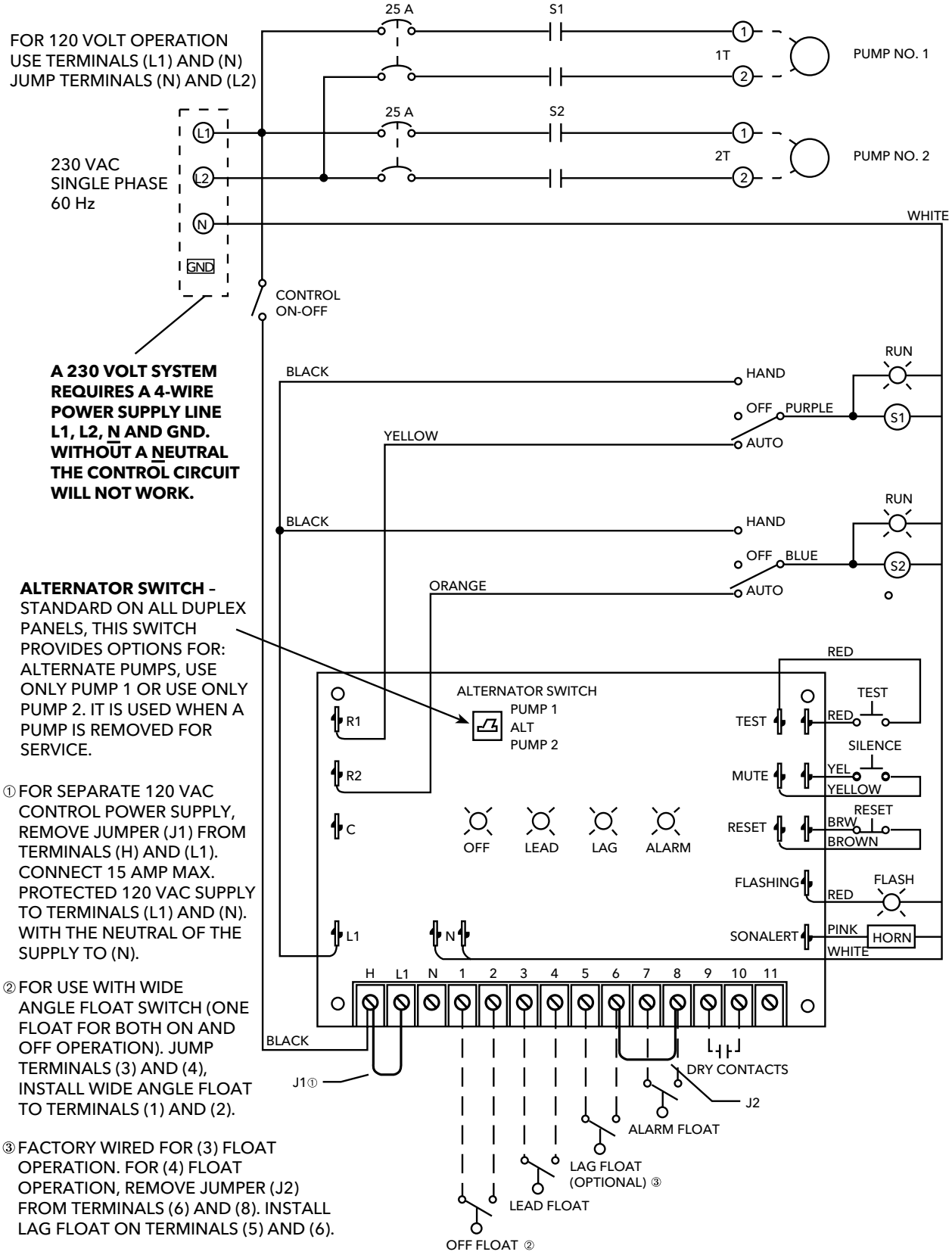
CHART D

Panel Part Number	Amp / Maximum HP	Enclosure
D31625	1.6-2.5	Indoor / Outdoor
D32540	2.5-4.0	
D34063	4.0-6.3	
D36310	6.3-10	
D31016	10-16	
D31620	16-20	
D32025	20-25	
D32232	22-32	

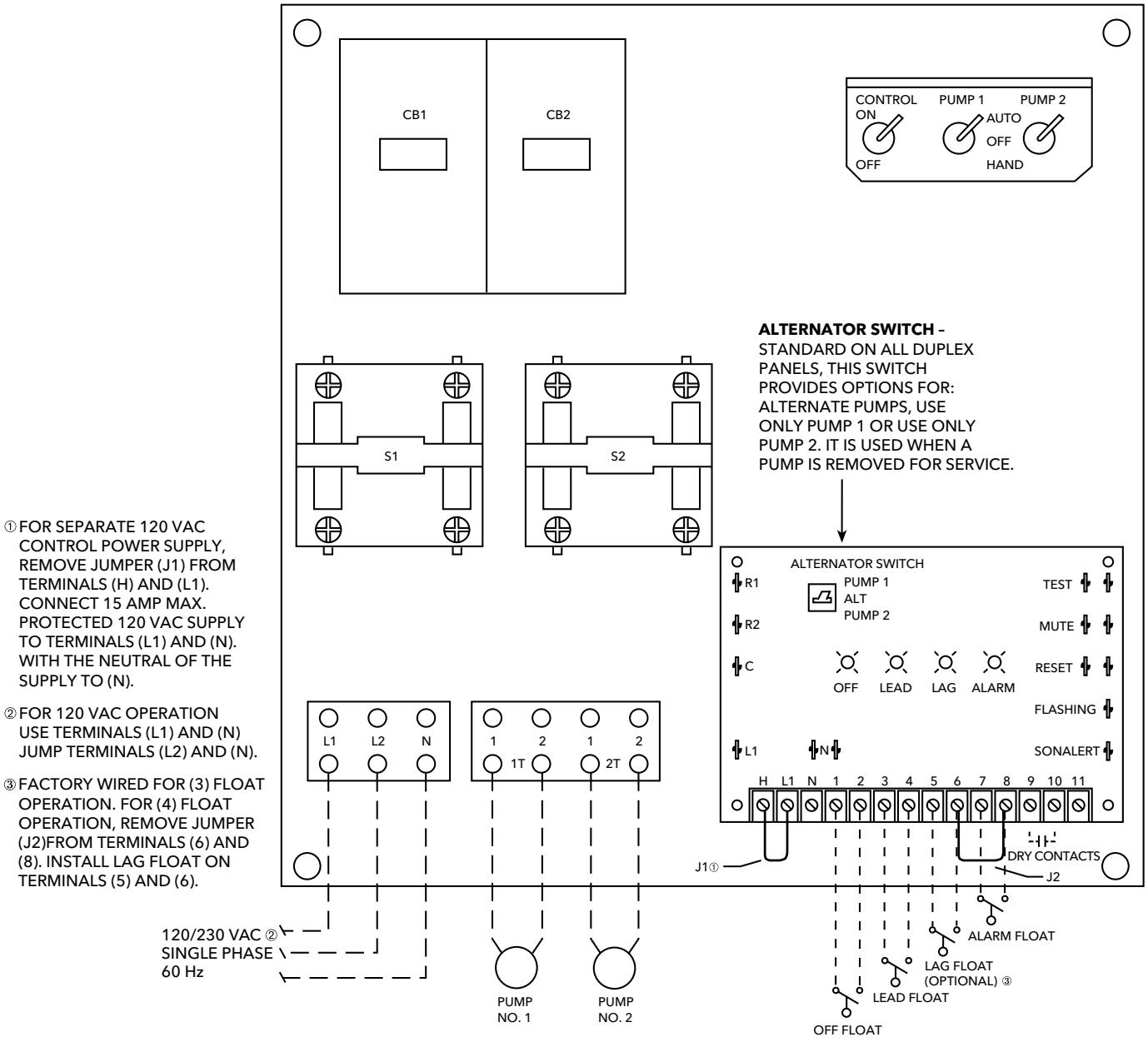
Add option J for seal fail circuit to all of the above except for GA/GDS pumps, use an Option "P". For other panel options see catalog for adders. For adders not found in the catalog, or more than three options a specification is needed for the Customer Service Department to prepare a quotation. Use of the Custom panel selection sheet is advised with more than three options.

DUPLEX SINGLE PHASE WIRING DIAGRAM – D10020

NOTE: The standard panels shown in this book are not designed to be used with pumps requiring external capacitors. See the catalog for panels with built-in capacitor packs.



DUPLEX SINGLE PHASE PANEL LAYOUT – D10020



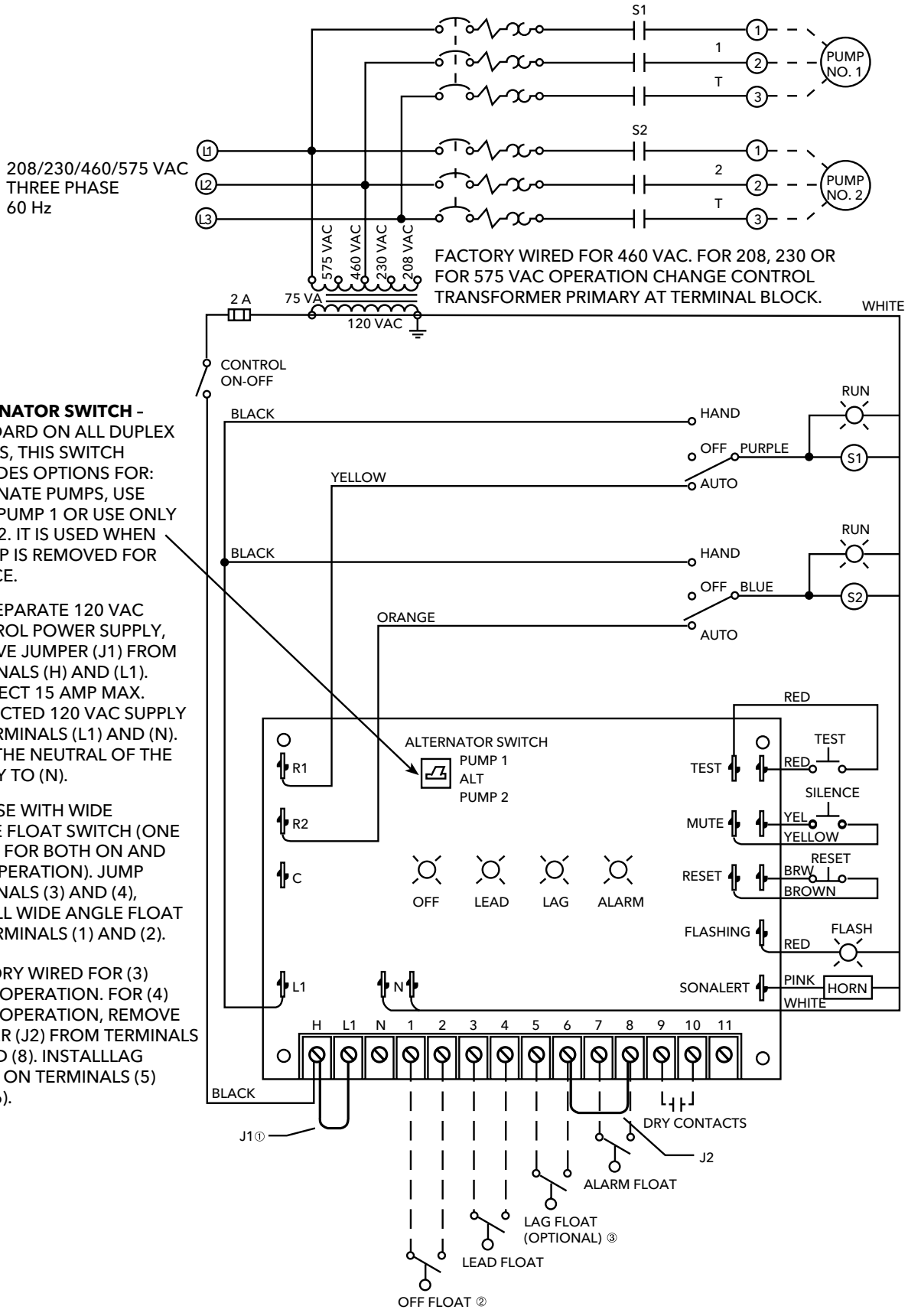
① FOR SEPARATE 120 VAC CONTROL POWER SUPPLY, REMOVE JUMPER (J1) FROM TERMINALS (H) AND (L1). CONNECT 15 AMP MAX. PROTECTED 120 VAC SUPPLY TO TERMINALS (L1) AND (N). WITH THE NEUTRAL OF THE SUPPLY TO (N).

② FOR 120 VAC OPERATION USE TERMINALS (L1) AND (N) JUMP TERMINALS (L2) AND (N).

③ FACTORY WIRED FOR (3) FLOAT OPERATION. FOR (4) FLOAT OPERATION, REMOVE JUMPER (J2)FROM TERMINALS (6) AND (8). INSTALL LAG FLOAT ON TERMINALS (5) AND (6).

NOTE: Panel is not to be used with pumps that do not include capacitors.

DUPLEX THREE PHASE WIRING DIAGRAM – D3 – – – –



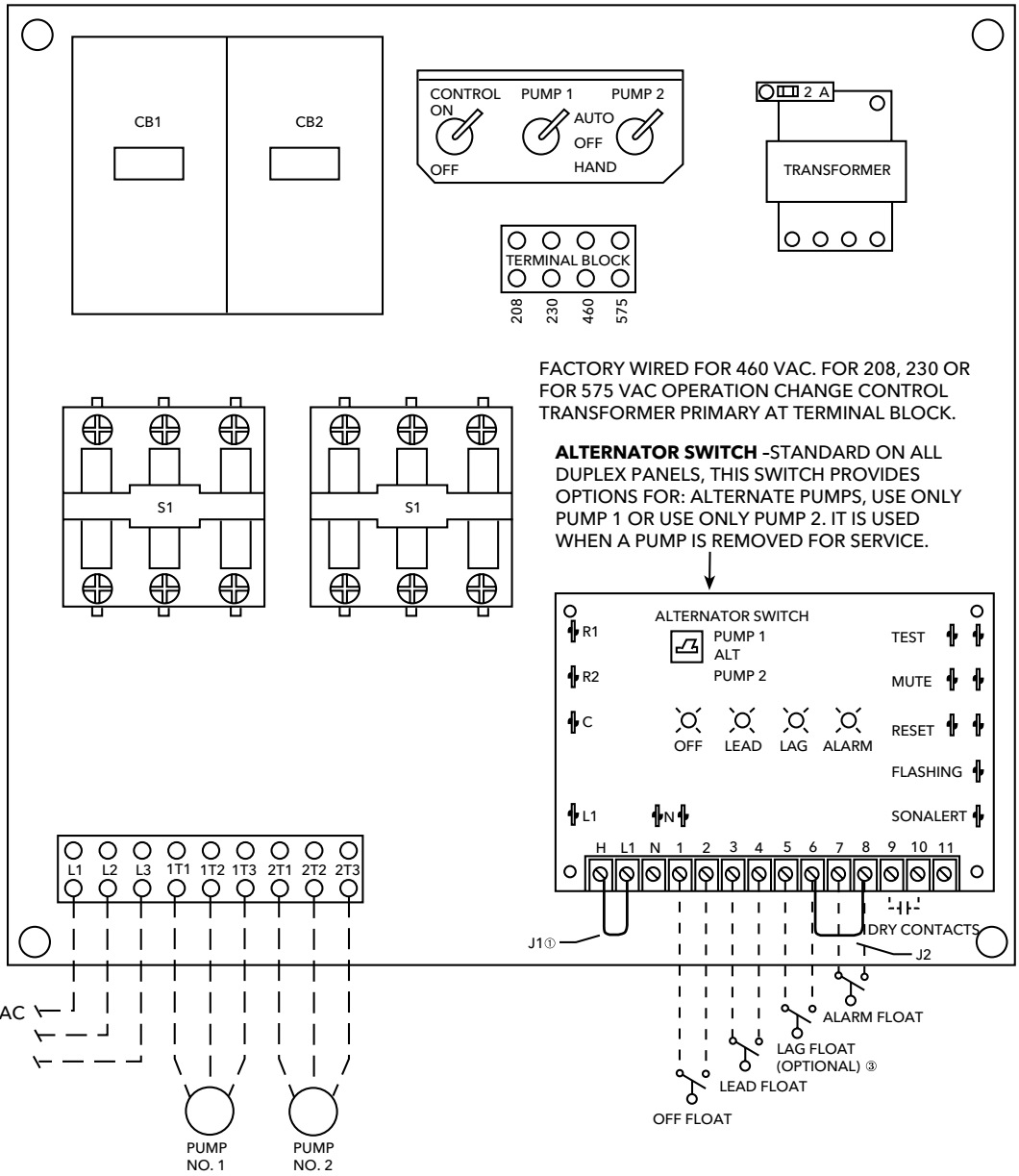
ALTERNATOR SWITCH – STANDARD ON ALL DUPLEX PANELS, THIS SWITCH PROVIDES OPTIONS FOR: ALTERNATE PUMPS, USE ONLY PUMP 1 OR USE ONLY PUMP 2. IT IS USED WHEN A PUMP IS REMOVED FOR SERVICE.

① FOR SEPARATE 120 VAC CONTROL POWER SUPPLY, REMOVE JUMPER (J1) FROM TERMINALS (H) AND (L1). CONNECT 15 AMP MAX. PROTECTED 120 VAC SUPPLY TO TERMINALS (L1) AND (N). WITH THE NEUTRAL OF THE SUPPLY TO (N).

② FOR USE WITH WIDE ANGLE FLOAT SWITCH (ONE FLOAT FOR BOTH ON AND OFF OPERATION). JUMP TERMINALS (3) AND (4), INSTALL WIDE ANGLE FLOAT TO TERMINALS (1) AND (2).

③ FACTORY WIRED FOR (3) FLOATOPERATION. FOR (4) FLOATOPERATION, REMOVE JUMPER (J2) FROM TERMINALS (6) AND (8). INSTALLLAG FLOAT ON TERMINALS (5) AND (6).

DUPLEX THREE PHASE PANEL LAYOUT - D3 – – – –



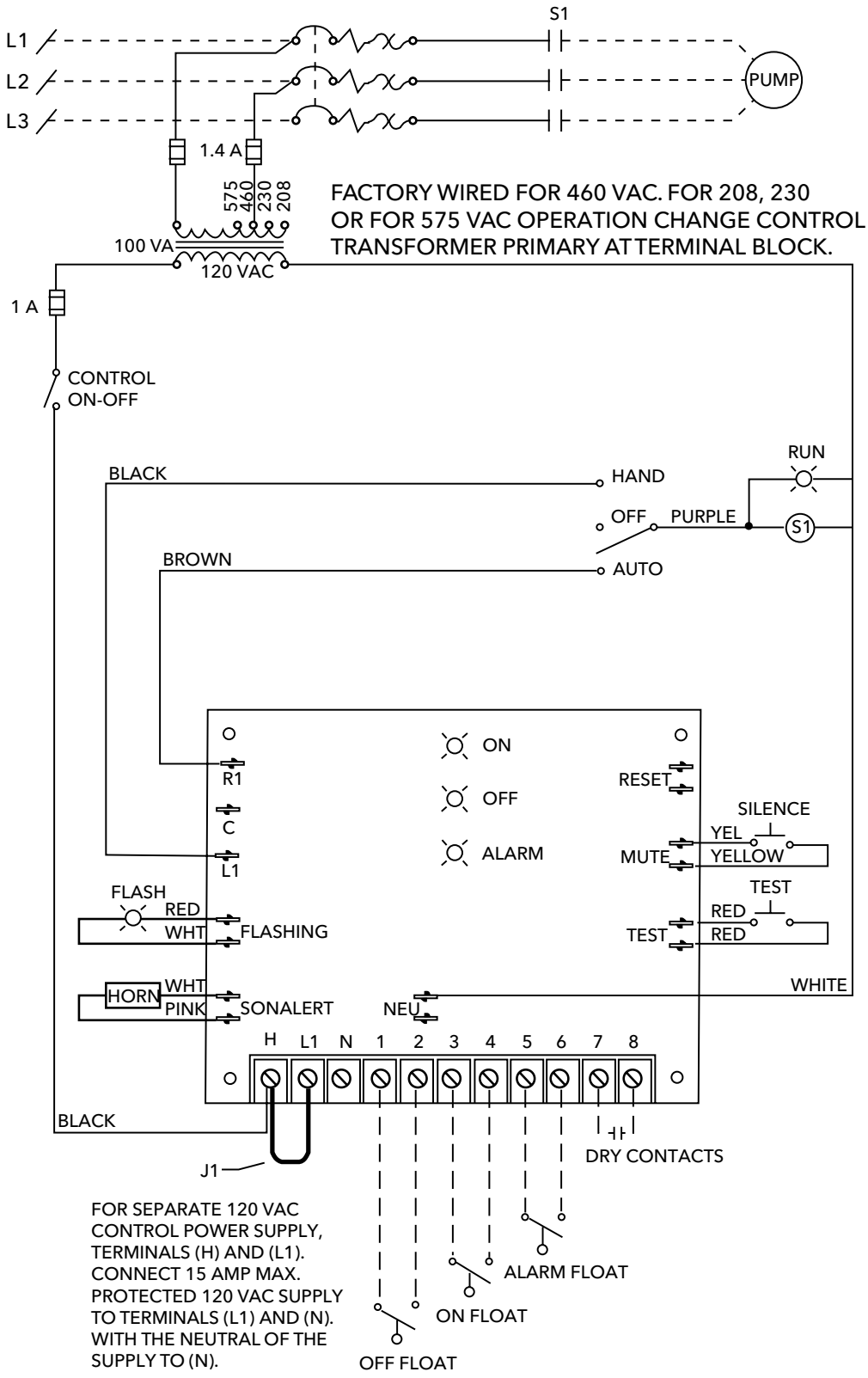
ALTERNATOR SWITCH -STANDARD ON ALL DUPLEX PANELS, THIS SWITCH PROVIDES OPTIONS FOR: ALTERNATE PUMPS, USE ONLY PUMP 1 OR USE ONLY PUMP 2. IT IS USED WHEN A PUMP IS REMOVED FOR SERVICE.

① FOR SEPARATE 120 VAC CONTROL POWER SUPPLY, REMOVE JUMPER (J1) FROM TERMINALS (H) AND (L1). CONNECT 15 AMP MAX. PROTECTED 120 VAC SUPPLY TO TERMINALS (L1) AND (N). WITH THE NEUTRAL OF THE SUPPLY TO (N).

③ FACTORY WIRED FOR (3) FLOAT OPERATION. FOR (4) FLOAT OPERATION, REMOVE JUMPER (J2) FROM TERMINALS (6) AND (8). INSTALL LAG FLOAT ON TERMINALS (5) AND (6).

SIMPLEX THREE PHASE PANEL LAYOUT

NOTE: A fused disconnect or circuit breaker must be provided by installer. Provide disconnect sizing per NEC 430-53(C).

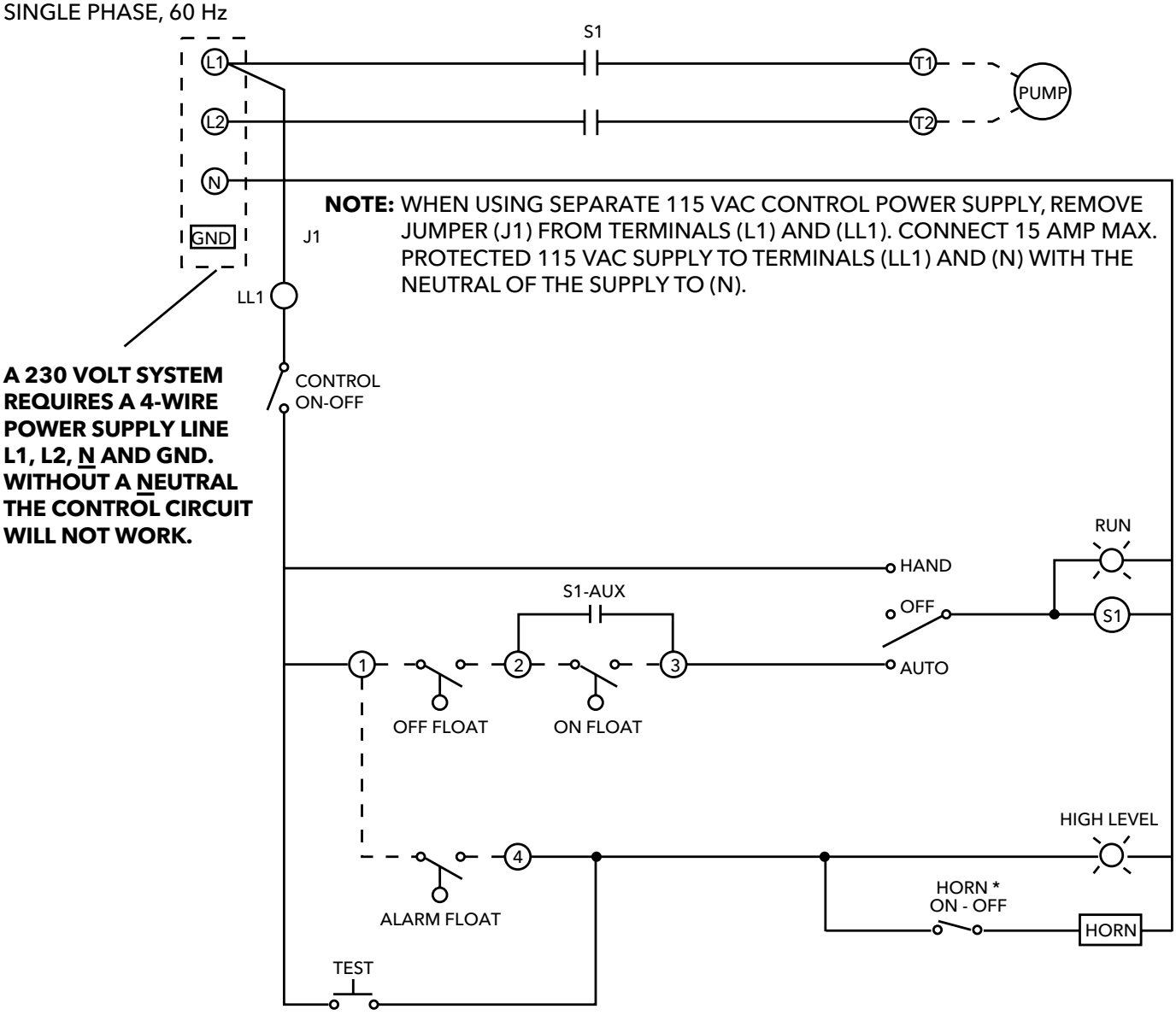


FOR USE WITH WIDE ANGLE FLOAT SWITCH (ONE FLOAT FOR BOTH ON AND OFF OPERATION). JUMP TERMINALS (3) AND (4), INSTALL WIDE ANGLE FLOAT TO TERMINALS (1) AND (2).

SIMPLEX SINGLE PHASE WIRING DIAGRAM – S10020 Before October 1, 2003

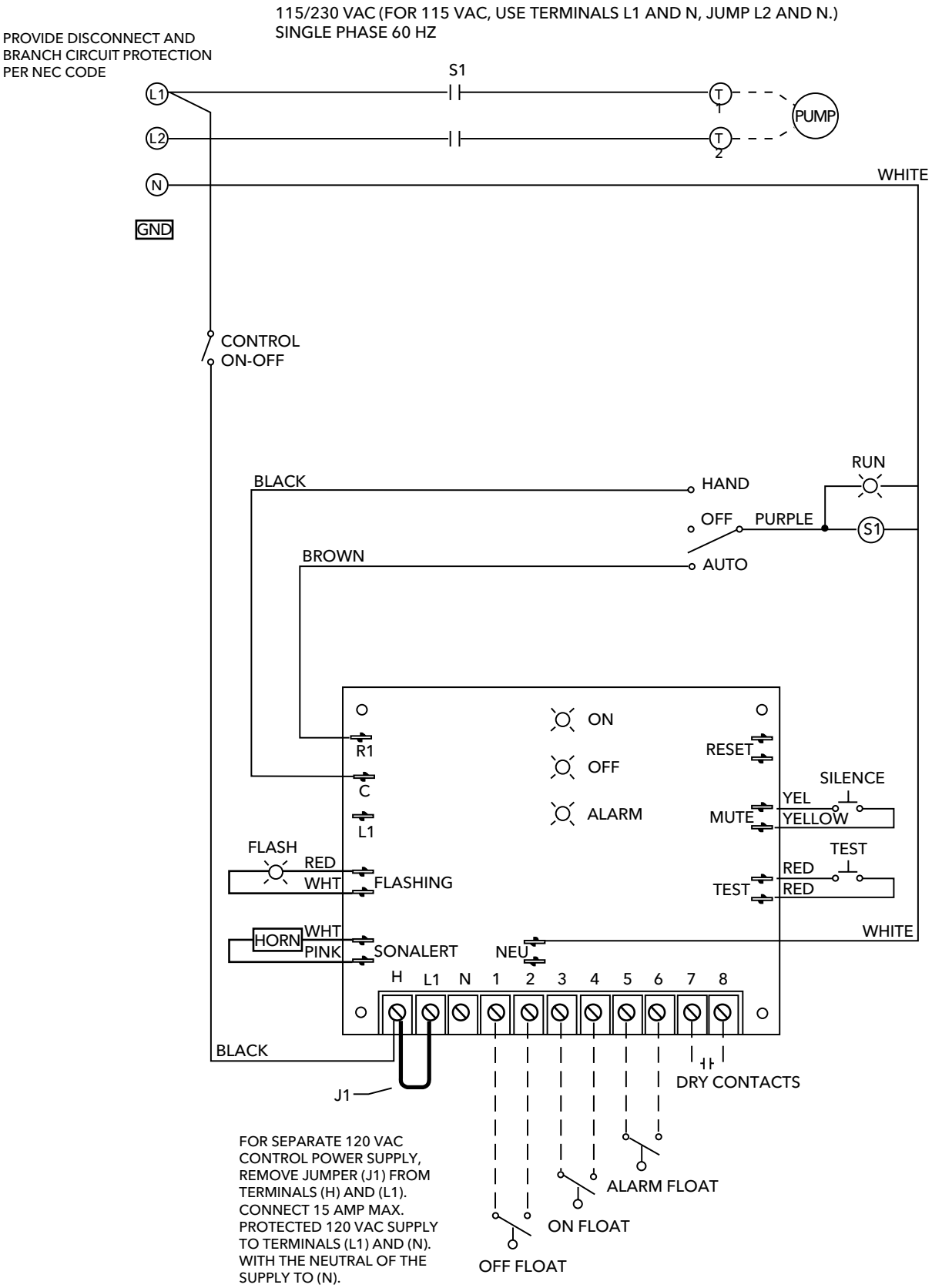
NOTE: The standard panels shown in this book are not designed to be used with pumps requiring external capacitors. See the catalog for panels with built-in capacitor packs.

115/230 VAC (FOR 115 VAC, USE TERMINALS L1 AND N, JUMP L2 AND N).
SINGLE PHASE, 60 Hz

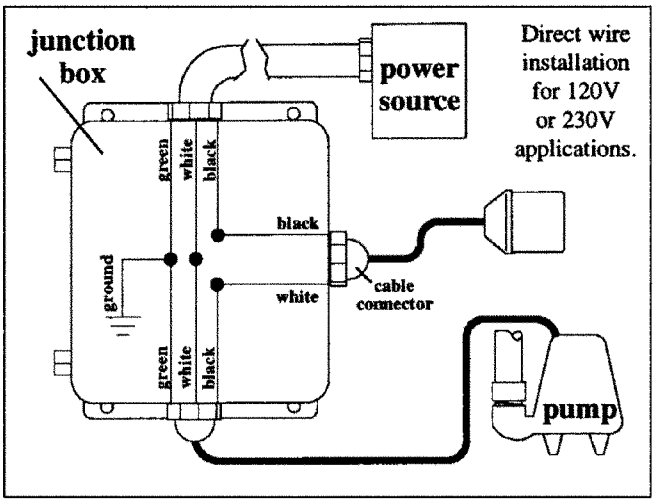


***NOTE:** THE HORN ON/OFF SELECTOR SWITCH MUST BE PLACED BACK INTO THE (ON) POSITION AFTER THE ALARM CONDITION HAS BEEN CORRECTED IN ORDER TO MAINTAIN THE AUDIO ALARM ANNUNCIATION.

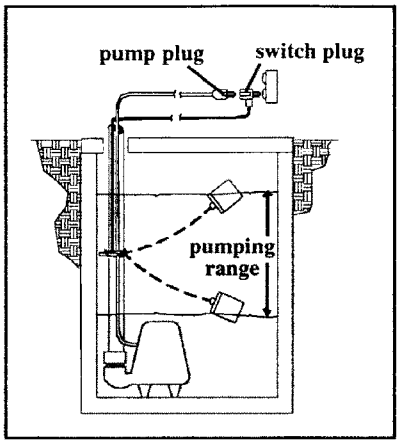
SIMPLEX SINGLE PHASE WIRING DIAGRAM – S10020 After October 1, 2003



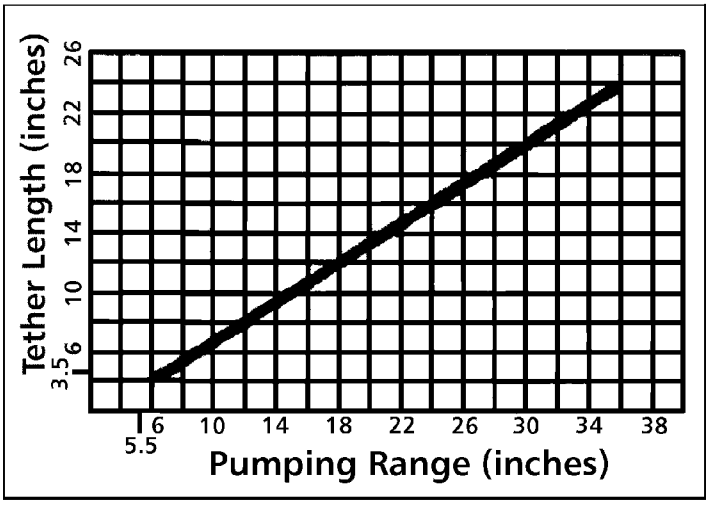
SWITCH DIAGRAMS

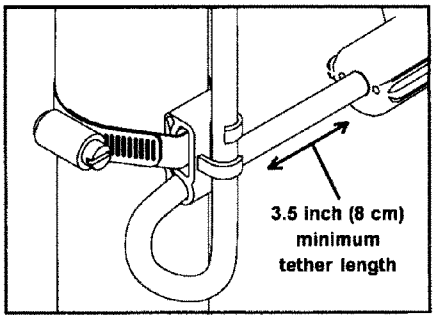


Pumpmaster and Pumpmaster Plus - Hard Wired

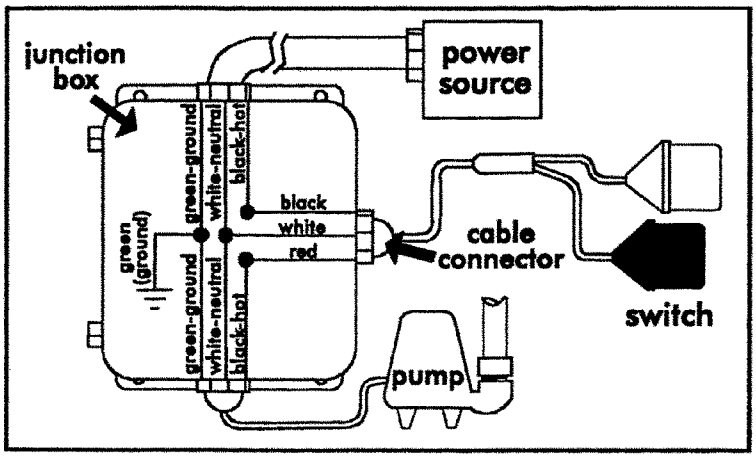


Determining the Pumping Range

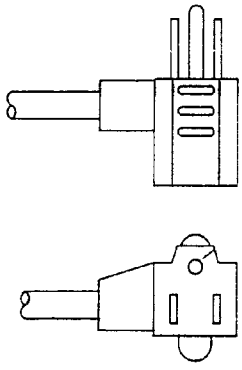




Mounting Strap



Double Float - Hard Wired



Piggyback Plug

SEWAGE CONTROL PANELS AND SWITCHES

There are two basic switches used in sewage and effluent systems. Single-action or narrow-angle float switches perform one function (on or off). They operate over a range of 15°. Wide-angle, or double-action float and diaphragm switches perform two functions (on *and* off). Wide-angle float switches operate over a 90° range and diaphragm switches on a 6" rise in water level.

Control panel wiring diagrams refer to 3 float and 4 float systems, this terminology refers to the use of single-action switches. The following chart shows how many of either type switch to use with different control panels.

Duplex Control Panels

Typical Duplex panels use the following switch set-ups depending on the switch type you use. Most Duplex control panels have a standard high level alarm circuit with a flashing light, most have a horn or bell. Once it turns On - the alarm must be manually reset (turned off) on Duplex panels.

Using a Single-action or Narrow-angle Switch requires:

Three Float Panel Wiring		**Four Float Panel Wiring**	
#1 Bottom	Pumps Off	#1 Bottom	Pumps Off
#2 Middle	1st Pump On	#2 2nd	1st Pump On
#3 Top	2nd Pump & Alarm On	#3 3rd	2nd Pump On
		#4 Top	Alarm On

Using Double-Action or Wide-Angle Switches; A2D23W, A2E21, A2E22, A2E23, A2D11, A2D31 or A2S23 requires:

Three Float Panel Wiring		**Four Float Panel Wiring**	
#1 Bottom	1st Pump On/Both Off	#1 Bottom	1st Pump On/Both Off
#2 Top	2nd Pump and Alarm On	#2 Middle	2nd Pump On
		#3 Top	Alarm On

Simplex Control Panels

Only some Simplex panels have alarms. This is why the switch quantity requirements vary by simplex panel model. All of our SES panels have high level alarms.

Using a Single-action or Narrow-angle Switch requires:

Simplex Panel with Alarm		**Simplex Panel with No Alarm**	
#1 Bottom	Pump Off	#1 Bottom	Pump Off
#2 Middle	Pump On	#2 Top	Pump On
#3 Top	Alarm On/Off		

Using Double-Action or Wide-angle Switches requires:

Simplex Panel with Alarm		**Simplex Panel with No Alarm**	
#1 Bottom	Pump On/Off	#1 Bottom	Pump On/Off
#2 Top	Alarm On/Off		

NOTE: 1st pump may also be referred to as "Lead" pump, 2nd pump may be called "Lag" pump.

Document list (by page)

Sump pumps

Dewatering

Effluent

2" Sewage pumps

3" Sewage pumps

4" Sewage pumps

Grinder pumps

Package systems

Pre-designed basin packages

Accessories

Electrical

Elevator kits and components

Floats and alarms

Basin packages

Fittings

Technical data

Online links to documents (links are "live" for online viewing only)

Sump pumps

GSP CAST IRON SUMP AND EFFLUENT PUMPS (BGSP0305)
LSP03/LSP07 SUBMERSIBLE SUMP PUMPS (BLSP03)
WEHT SERIES MODEL 3885HT SUBMERSIBLE HIGH TEMPERATURE SUMP PUMPS (B3885HT)

Dewatering

1DW SUBMERSIBLE DEWATERING PUMP (B1DW)
2DW SUBMERSIBLE DEWATERING PUMP (B2DW)

Effluent

GFE SERIES CAST IRON EFFLUENT PUMPS (BGFESER)
20AE 4" AEROBIC STAINLES STEEL SUBMERSIBLE EFFLUENT PUMP (B20AE)
PE SUBMERSIBLE EFFLUENT PUMP (BPE)
EP04 & EP05 SERIES MODEL 3871 SUBMERSIBLE EFFLUENT PUMP (B3871)
WE SERIES MODEL 3885 SUBMERSIBLE EFFLUENT PUMPS (B3885)
2ED SUBMERSIBLE EFFLUENT PUMP – DUAL SEAL WITH SEAL SENSOR PROBE (B2ED)
BLASTER® FILTERED EFFLUENT PUMP (BBLASTER)

2" Sewage pumps

GSD SERIES SUBMERSIBLE, CAST IRON SEWAGE PUMPS (BGSD)
PV SUBMERSIBLE VORTEX SEWAGE PUMP (BPV)
PS SUBMERSIBLE SEWAGE PUMP (BPS)
WW05 SERIES MODEL 3872 SUBMERSIBLE SEWAGE PUMPS (B3872)
MODEL 2DM 2" SUBMERSIBLE SEWAGE PUMP (B2DM)
MODEL 2DV 2" SUBMERSIBLE SEWAGE PUMP (B2DV)
VTX SERIES SUBMERSIBLE SEWAGE PUMP (BVTXSERIES)
WS_B SERIES MODEL 3886 SUBMERSIBLE SEWAGE PUMP (B3886)
WS_BF SERIES MODEL 3887BF SUBMERSIBLE SEWAGE PUMP (B3887BF)
WS_BHF SERIES MODEL 3887BHF SUBMERSIBLE SEWAGE PUMP (B3887BHF)
2WD SUBMERSIBLE 2" NON-CLOG SEWAGE PUMP – DUAL SEAL WITH SEAL SENSOR PROBE (B2WD)

Online links to documents (links are "live" for online viewing only)

3" Sewage pumps

WS_D3 SERIES MODEL 3888D3 SUBMERSIBLE SEWAGE PUMPS (B3888D3)
3SD SUBMERSIBLE SEWAGE PUMP – DUAL SEAL WITH SEAL SENSOR PROBE (B3SD)

4" Sewage pumps

WS_D4 SERIES MODEL 3888D4 SUBMERSIBLE SEWAGE PUMPS (B3888D4)
4SD SUBMERSIBLE SEWAGE PUMP – DUAL SEAL WITH SEAL SENSOR PROBE (B4SD)
4NS SUBMERSIBLE 4" NON-CLOG SEWAGE PUMP (B4NS)
4XD SUBMERSIBLE 4" NON-CLOG EXPLOSION PROOF SEWAGE PUMP (B4XD)

Grinder pumps

AGS SERIES AXIAL GRINDER PUMPS (BAGSSERIES)
RGS2012 SUBMERSIBLE GRINDER PUMP (BRGS2012)
1GD SUBMERSIBLE GRINDER PUMP – DUAL SEAL WITH OPTIONAL SEAL SENSOR PROBE (B1GD)
1GA(X) & 2GA(X) 1½" AND 2" DISCHARGE SUBMERSIBLE GRINDER PUMPS (B1GA2GA)

Package systems

SDS1 SINK DRAIN SYSTEM (BSDS1)
G-CUBE SUMP PUMP BASIN (BGCUBE)
GWP18X30 ASSEMBLED WASTEWATER PACKAGES (BGWP18X30)
GWP23X30 ASSEMBLED WASTEWATER PACKAGES (BGWP23X30)

Pre-designed basin packages

RGS GRINDER PACKAGES (BGPGS)
WASTEWATER PACKAGE SYSTEM (BCPBPACK)
3" AND 4" BASIN PACKAGE (BCPBPACK1)

Online links to documents (links are "live" for online viewing only)

Electrical

S10015 1Ø CONTROL PANELS SIMPLEX/WEATHERPROOF CONTROLLER WITH ALARM (BCP0)
SIMPLEX INDOOR PANEL S10020N1 SINGLE PHASE CONTROL PANEL (BCP1)
DUPLEX NEMA1 INDOOR PANEL D10020N1 SINGLE PHASE CONTROL PANEL (BCP2)
SIMPLEX WEATHERPROOF CONTROL PANELS SINGLE AND THREE PHASE CONTROL PANEL (BCP3)
DUPLEX NEMA 4X WEATHERPROOF PANELS SINGLE AND THREE PHASE CONTROL PANELS (BCP4)
SIMPLEX AND DUPLEX SINGLE PHASE PANELS FOR SINGLE PHASE PUMPS REQUIRING EXTERNAL MOTOR COMPONENTS (BCP5)
NOMENCLATURE STANDARD WASTEWATER CONTROL PANELS (NCPSWCP)
CAPACITOR PACKS (BCPCAP)
CUSTOM CONTROL PANEL QUOTE REQUEST (BCPPQRF)
INDOOR AND OUTDOOR PANELS AND ACCESSORIES (BCALARM)
SPECIALTY PANELS (BCPSPECPAN)
SIMPLEX/DUPLEX WASTEWATER DISCONNECT STYLE PANELS (BCPSDWWP)
PUMP/CONTROL PANEL SWITCHES (BCPFS)
ELEVATOR SUMP KITS AND COMPONENTS (BCPELSPKT)
SEAL FAIL AND HIGH TEMPERATURE INDICATORS (BCPSFHTI)
K SERIES SIMPLEX/DUPLEX WASTEWATER PANELS (BCPKSDPANELS)
3SD/4SD CONTROL PANEL
4NS CONTROL PANEL

Basin packages

POLYETHYLENE BASINS AND COVERS (BCPOLY)
BASIN AND PACKAGE ACCESSORIES (BCBASIN)

Fittings

CHECK VALVES/FITTINGS
GUIDE AND DISCONNECT SYSTEMS LESS RAILS 1¼ (BCPGDS)
GUIDE RAIL SYSTEMS AND DISCHARGE PIPE (BCPSSGR)
GUIDE RAIL SYSTEMS EFFLUENT AND SEWAGE (BCPCGR)

Technical data

WASTEWATER TECHNICAL MANUAL (TTECHS)

Facebook - @GouldsWaterTechnology

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