



4DWS

SUBMERSIBLE SEWAGE PUMP

DUAL SEAL WITH SEAL SENSOR PROBE



Bell & Gossett

a xylem brand

Wastewater

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 #LR218526

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 stainless 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.

Wastewater

MODEL AND MOTOR INFORMATION

Order No.	HP	Phase	Volts	RPM	Impeller		Maximum Amps	L.R. Amps	KVA Code	Power Cable	F.L. Motor Efficiency %	Resistance		Weight (lbs.)
					Dia. (in.)	Code						Start	Line-Line	
4DWS1F2A2E1A	1.5	1	208	1750	5.63	E	17.2	50.8	B	14/3	80	1.1	0.9	195
4DWS1F3A2E1A			230				14.7	29.5	E		70	1.4	1.8	
4DWS3F2A2E1A		3	200				11.5	40.9	H	14/4	81	NA	1.7	
4DWS3F3A2E1A			230				10.0	40.0	F		83		2.3	
4DWS3F4A2E1A			460				5.0	20.0	F		83		9.3	
4DWS3F5A2E1A			575				4.0	14.4	H		74		14.8	
4DWS1F2A2D1A	1.5	1	208	1750	6.25	D	17.2	50.8	B	14/3	80	1.1	0.9	195
4DWS1F3A2D1A			230				14.7	29.5	E		70	1.4	1.8	
4DWS3F2A2D1A		3	200				11.5	40.9	H	14/4	81	NA	1.7	
4DWS3F3A2D1A			230				10.0	40.0	F		83		2.3	
4DWS3F4A2D1A			460				5.0	20.0	F		83		9.3	
4DWS3F5A2D1A			575				4.0	14.4	H		74		14.8	
4DWS1G2A2C1A	2	1	208	1750	6.63	C	20.3	50.8	B	14/3	80	1.1	0.9	200
4DWS1G3A2C1A			230				17.3	36.9	D		75	1.4	1.5	
4DWS3G2A2C1A		3	200				13.3	40.9	H	14/4	81	NA	1.7	
4DWS3G3A2C1A			230				11.6	40.0	F		83		2.3	
4DWS3G4A2C1A			460				5.8	20.0	F		83		9.3	
4DWS3G5A2C1A			575				4.6	14.4	H		74		14.8	
4DWS1H2A2B1A	3	1	208	1750	7.00	B	25.5	50.8	B	10/3	80	1.1	0.9	208
4DWS1H3A2B1A			230				21.5	46.4	C		79	1.0	1.0	
4DWS3H2A2B1A		3	200				16.6	53.8	G	10/4	85	NA	1.3	205
4DWS3H3A2B1A			230				14.4	49.5	H		83		1.9	
4DWS3H4A2B1A			460				7.2	24.8	H		83		7.5	
4DWS3H5A2B1A			575				5.8	17.3	G		78		11.6	
4DWS1J3A2A1A	5	1	230	1750	7.25	A	26.5	57.7	A	10/3	80	1.0	0.8	210
4DWS3J2A2A1A			200				19.1	73.9	F		84	NA	0.9	
4DWS3J3A2A1A		3	230				16.6	63.6	E	14/4	85		1.2	
4DWS3J4A2A1A			460				8.3	31.8	E		85		4.8	
4DWS3J5A2A1A			575				6.6	22.8	E		80		7.4	
4DWS3K3A2F1A			230				23.0	105.0	G		83	NA	0.7	
4DWS3K4A2F1A	7.5	3	460	1750	7.69	F	11.5	52.5	G	10/4	83		2.8	225
4DWS3K5A2F1A			575				9.2	42.0	E		84		4.4	

NOMENCLATURE DESCRIPTION

1st, 2nd and 3rd Characters

4 = 4" 125# ANSI Flanged Discharge

D = Dual Seal with Seal Fail (moisture) Sensors

W = Wastewater (Sewage)

4th Character - Impeller Design

S = Semi-open Impeller

5th Character - Phase

1 = Single Phase

3 = Three Phase

4 = Three Phase with On-Winding, Pilot Duty, Thermal Sensors

6th Character - Horsepower

F = 1.5 G = 2 H = 3 J = 5 K = 7.5

7th Character - Voltage

1 = 115 2 = 200/3Ø or 208/1Ø 3 = 230

4 = 460 5 = 575

8th Character - Discharge Style

A = ANSI Vertical Flange for Horizontal Discharge

9th Character - Motor RPM / Hertz

2 = 1750/60

10th Character - Impeller Code

A = 7.25" 5 HP D = 6.25" 1.5 HP T = SPECIAL TRIM

B = 7.0" 3 HP E = 5.63" 1.5 HP

C = 6.63" 2 HP F = 7.69" 7.5 HP

11th Character - Lower (outer) Mechanical Seal

1 = Standard Lower Seal - Silicon carbide/silicon carbide, BUNA elastomers and 304 SS metal parts.

2 = Optional Lower Seal - Silicon carbide/tungsten carbide, BUNA elastomers and 304 SS metal parts.

12th Character - Cord Length

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

13th Character - Options

1 = Silicon bronze impeller

2 = Epoxy coating

3 = Both 1 & 2

APPLICATION DATA

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

CONSTRUCTION DETAILS

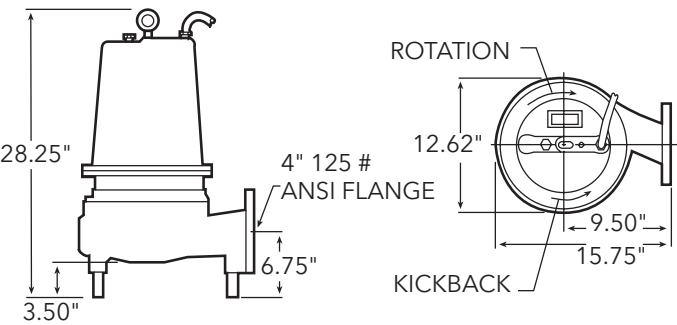
Power Cable - Type	14/3, type SJTOW: single phase, 1/2 and 2 HP
	14/4, type STOW: single phase, 1 1/2 - 3 HP and 5 HP, 460 V
	10/4, type STOW: single phase, 3 and 5 HP, three phase 5 HP, 230 V and 7 1/2 HP
Sensor Cable - Type	16/2, type SJTOW: seal sensor only
	18/4, type SJTOW: seal/heat sensor
Motor 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	1 1/2-5 HP single and three phase: 7 quarts
	7 1/2 HP three phase: 6.5 quarts

STANDARD PARTS

Ball Bearing	Upper	1 1/2 - 5 HP single and three phase: single row ball- SKF™ 6204-2Z
		7 1/2 HP three phase: single row ball - SKF™ 6204-2Z
Ball Bearing	Lower	1 1/2 - 5 HP single and three phase: single row ball - SKF™ 5206-2Z
		7 1/2 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

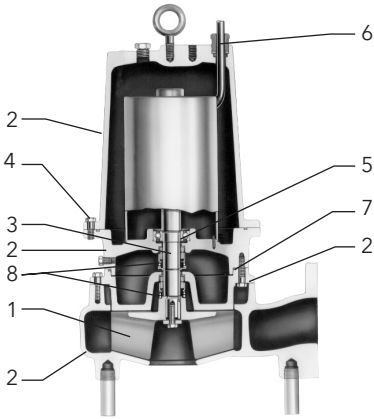
DIMENSIONS

(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	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			



Xylem Inc.
2881 East Bayard Street Ext., Suite A
Seneca Falls, NY 13148
Phone: (866) 325-4210
Fax: (888) 322-5877
www.xylem.com/bellgossett

Xylem and Bell & Gossett are registered trademarks of Xylem Inc. or one of its subsidiaries. All other trademarks or registered trademarks are property of their respective owners.
© 2024 Xylem Inc. B4DWS R4 July 2024