TECHNICAL BROCHURE

BG3DWS50HZ R2

3DWS 50 Hz

SUBMERSIBLE SEWAGE PUMP

DUAL SEAL WITH SEAL SENSOR PROBE

Bell & Gossett

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

C US

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: 45 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
- 50 Hertz
- Single row ball bearings
- 300 Series stainless steel keyed shaft

Three Phase:

- 1.5 - 3 HP; 380 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.

MODELS AND MOTOR INFORMATION

Order Number	HP	Phase	Volts	RPM	Impeller Dia. (in.)	Impeller Code	Maximum Amps	Locked Rotor Amps	KVA Code	Resistance Start	Resistance Line-Line	Weight (lbs.)
3DWS3F6A6E1A	1½	3	380	1450	5.25	E	2.6	24.2	F	NA	9.3	195
3DWS3F6A6D1A					6.5	D	3.8					
3DWS3G6A6B1A	2				7.25	B	4.9					
3DWS3H6A6A1A	3				8	A	7.2	30	H	NA	7.5	205
3DWS1F9A6E1A	1½	1	220		5.25	E	5.8	32.7	D	2.1	1.2	195
3DWS1F9A6D1A					6.5	D	8.9					
3DWS1G9A6B1A	2				7.25	B	11.9					
3DWS1H9A6A1A	3				8	A	18.6	52.1	A	1.3	0.9	205

NOMENCLATURE DESCRIPTION

1st - 3rd Characters
3 = 3″ 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

7th Character – Voltage
1 = 115
2 = 200/3Ø or 208/1Ø
3 = 230
4 = 460
5 = 575
6 = 380 (50 hz voltage)
9 = 220 (50 hz voltage)

8th Character – Discharge Style
A = ANSI Vertical Flange for Horizontal Discharge

9th Character – Motor RPM / Hertz
2 = 1750/60 6 = 1450/50

10th Character – Impeller Code
A = 8.00" D = 6.50"
B = 7.25" E = 5.25"

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	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

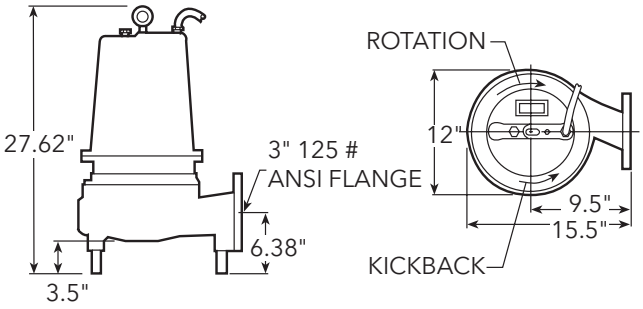
Power Cable – Type	10/3, type STOW: three phase 5 HP, 230 V
Sensor Cable – Type	16/2, type SJTOW: seal sensor only
	18/4, type SJTOW: optional seal/heat sensor
Motor Cover	Gray Cast Iron – ASTM A48 Class 30
Bearing Housing	Gray Cast Iron – ASTM A48 Class 30
Seal Housing	Gray Cast Iron – ASTM A48 Class 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 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 Carbide/Silicon Carbide; 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

DIMENSIONS

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

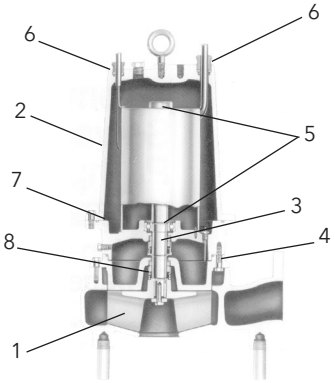


MATERIALS OF CONSTRUCTION

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



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