

TECHNICAL BROCHURE

B2DWS R6



2DWS

SUBMERSIBLE 2" NON-CLOG SEWAGE PUMP

DUAL SEAL WITH SEAL SENSOR PROBE



Bell & Gossett

a xylem brand

FEATURES

Impeller: Cast iron, semi-open, 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 seal:** SILICON CARBIDE VS. SILICON CARBIDE sealing faces for superior abrasive resistance, stainless steel metal parts, BUNA-N elastomers.
- **Upper seal:** 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 #218526

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 38' TDH.
- Discharge size: 2" NPT threaded companion flange on standard. 3" option available but must be ordered separately.
- Temperature: 104° F (40° C) continuous, 140° F (60° C) intermittent.

MOTORS

- **Oil-Filled:** 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 molded NEMA three prong grounding 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.
- **Motor Cover and Seal Housing O-ring:** Assures positive sealing against contaminant and oil leakage.

NOMENCLATURE DESCRIPTION

1st - 4th Character

2 = 2" Discharge with a Bolt-on 2" N.P.T. Threaded Flange (For 3" discharge order an A1-3, 3" discharge flange)
 D = Dual Seal with Seal Fail (moisture) Sensors
 W = Wastewater (Sewage)
 S = Semi-open Impeller

5th Character - Phase

1 = Single Phase
 3 = Three Phase
 4 = Three Phase with Pilot Duty, Thermal Sensors

6th Character - Horsepower

A = .33 C = .5 D = .75 E = 1.0

7th Character - Voltage

1 = 115 3 = 230
 2 = 200/3Ø or 208/1Ø4 = 460

8th Character - Discharge Style

F = Bolt-on Flange with N.P.T. Threads

9th Character - Motor RPM / Hertz

(Not all available on all models, see pump specifications)
 1 = 3500/60 3 = 1150/60
 2 = 1750/60

10th Character - Impeller Code

A = 5.75" 1 HP C = 5.00" .5 HP
 B = 5.38" .75 HP D = 4.69" .33 HP

11th Character - Lower (outer) Mechanical Seal

1 = Standard - Silicon carbide/silicon carbide, BUNA and 304 SS metal parts.
 2 = Optional - Silicon carbide/tungsten carbide, BUNA and 304 SS metal parts.

12th Cord Length

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

13th Options

1 = Silicon bronze impeller
 2 = Epoxy coating
 3 = Both 1 & 2

MODEL AND MOTOR INFORMATION

Order No.	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	
2DWS1A1F2D1A	0.33	1	115	1750	4.69	D	10.7	30.0	M	54	11.9	1.7	90
2DWS1A2F2D1A			208				6.8	19.5	K	51	9.1	4.2	
2DWS1A3F2D1A			230				4.9	14.1	L	53	14.5	8.0	
2DWS1C1F2C1A	0.5	1	115		5.00	C	14.5	31.1	J	55	9.3	1.4	94
2DWS1C2F2C1A			208				8.0	19.5	K	51	9.1	4.2	
2DWS1C3F2C1A			230				7.3	16.5	J	54	11.7	5.6	
2DWS3C2F2C1A		3	200				3.8	12.3	K	75	NA	6.7	
2DWS3C3F2C1A			230				3.3	9.7	K	75	NA	9.9	
2DWS3C4F2C1A			460				1.7	4.9	K	75	NA	39.4	
2DWS1D2F2B1A	0.75	1	208		5.38	B	11.0	39.0	K	65	2.6	1.4	98
2DWS1D3F2B1A			230				9.4	24.8	J	57	4.8	2.3	
2DWS3D2F2B1A		3	200				4.1	21.2	H	74	NA	4.3	
2DWS3D3F2B1A			230				3.6	17.3	J	76	NA	5.6	
2DWS3D4F2B1A			460				1.8	8.9	J	76	NA	22.4	
2DWS1E2F2A1A		1	208		5.75	A	14.0	39.0	K	65	2.6	1.4	104
2DWS1E3F2A1A			230				12.3	30.5	H	60	4.3	1.8	
2DWS3E2F2A1A		3	200				6.0	21.2	H	74	NA	4.3	
2DWS3E3F2A1A			230				5.8	17.3	J	76	NA	5.6	
2DWS3E4F2A1A			460				2.9	8.9	J	76	NA	22.4	
2DWS3E5F2A1A			460				2.9	8.9	J	76	NA	22.4	

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

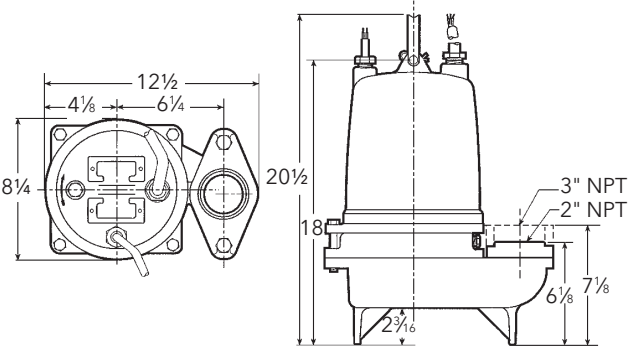
Power Cable - Type	16/3, type SJTOW: single phase, 1/2 HP 14/3, type STOW: single phase, 3/4 & 1 HP 14/4, type STOW: all three phase
Sensor Cable - Type	16/2, type SJTOW: seal sensor only 18/4, type SJTOW: optional seal/heat sensor
Motor Cover	Gray Cast Iron - ASTM A48 Class 30
Bearing Housing	Gray Cast 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 400 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
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

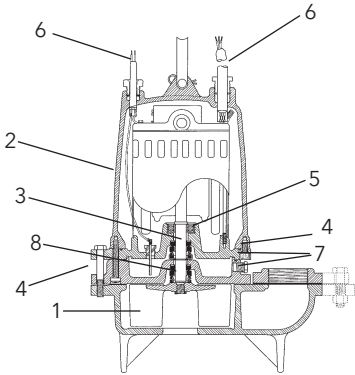
DIMENSIONS

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



MATERIALS OF CONSTRUCTION

Item No.	Part Name			Material		
				Standard		Optional
1	Impeller			1003		1179
2	Motor cover			1003		
3	Shaft			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 C87600			



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