



PWA-SL

ANSI/ASME B73.3 SEALLESS
HORIZONTAL PROCESS PUMP



PumpWorks PWA-SL Magnetic Coupling Unit (MCU) *Simple, Compact Design*



Drive Hub

- Outside of fluid chamber
- High-torque Neodymium-Iron-Boron magnets
- Stainless steel sleeve protects magnets from damage and corrosion



Stationary Assembly

- Strong containment shell made from long-strand carbon fiber filled PEEK has no eddy current losses
- Durable silicon carbide sleeve and axial thrust faces enhance bushing performance and life



Impeller Assembly

- Impeller vane design matches PumpWorks PWA for proven hydraulic performance
- Driven magnets couple to the drive hub for non-contacting performance
- Premium-grade carbon-graphite bushing provides full support of impeller

INNOVATIVE PATENTED SEALLESS CARTRIDGE DESIGN

Fluid Chamber O-rings

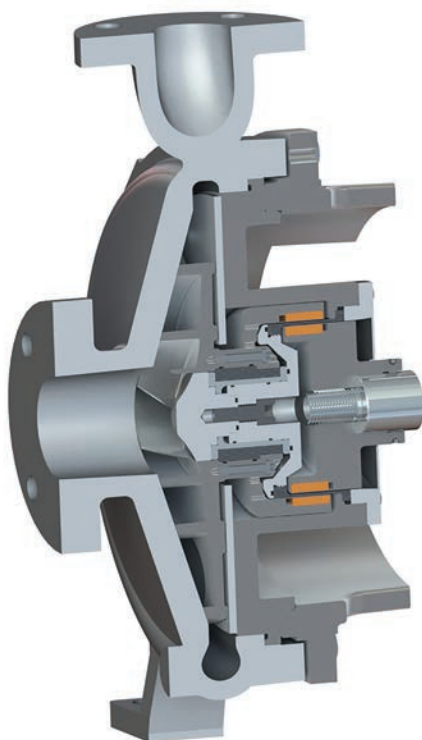
- Provide reliable zero-leak sealing
- Static design never wears out
- Available in many elastomers for fluid compatibility

Bushing System

- Premium-grade carbon-graphite bushing provides full support of impeller
- Durable silicon carbide sleeve and axial thrust faces enhance performance and life
- US Patent 10,208,869

Jack Screws

- Provide simple, safe method of separating magnetic coupling
- Jack screws can be left in place to prevent loss



Expeller Vanes

- Prevents entrained solids from entering recirculation path, reducing clogging and bushing wear
- Reduces thrust load

Containment Shell

- PEEK and long-strand carbon fiber composite
- No heat generation or energy loss from eddy currents
- US Patents 9,920,764 and 10,208,869

Magnetic Coupling

- Drives impeller without contact
- Decouples without damage if impeller becomes jammed
- Neodymium-Iron-Boron magnets for up to 300°F
- Stainless steel sleeve protects magnets from damage and corrosion



PredictPlus

YOUR PUMP WANTS TO TALK TO YOU™

Predict Plus is the Only Wireless and Cloud Connected Machinery Health Monitor Designed Specifically for Proactive Pump Monitoring

- 24/7 online vibration and temperature monitoring device.
- Automatic device registration on the cloud via cellular interface.
- Proactive alerts from the Predict-Cloud.
- Long term storage of trend data including Fast Fourier Transform (FFT).
- Affordable and available as a standard option on all PumpWorks products.
- External or battery powered.



Always On

Predict Plus is CONTINUOUSLY monitoring and logging your pump's health.



Vibration

Self-Calibrating Tri-Axial Accelerometer to capture FFT and RMS vibration data.



Bearing Temperature

Integrated thrust bearing temperature monitoring.

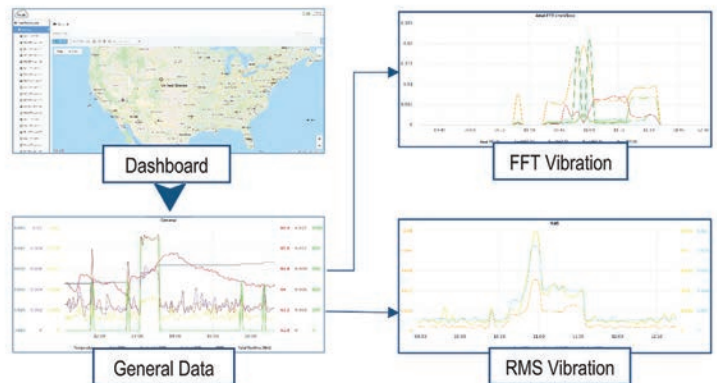


Alerts

Proactive alerts via email and SMS from the Predict-Cloud.



Predict-Cloud is a powerful tool in attaining the goal of reducing maintenance spending and increasing MTBR (Mean Time Between Repairs). By proactively identifying detrimental system conditions prior to catastrophic machine failure.



Go to www.predict-cloud.com

Design Features and Benefits

● Patented Containment Shell

- PEEK and long-strand carbon fiber composite
- No heat generation or energy loss from eddy currents

● Magnetic Coupling

- Drives impeller without contact
- Decouples without damage if impeller becomes jammed
- Neodymium-Iron-Boron magnets for up to 300°F
- Stainless steel sleeve protects magnets from damage and corrosion

● Back Plate

- Maintains clearance for reduced thrust loads

● Casing

- Standard Carbon Steel, ASTM A216 WCB and 316L Stainless Steel, A351 Gr CF3M material for corrosion protection applications
- Precision serrated flange face finish for optimum gasket retention and sealing
- Class 150# suction and discharge flanges
- Self venting, centerline mounted discharge flange
- Casing thickness exceeds ASME B73.1 and ASME B73.3 specifications for increased casing life
- Back pull out design for easy maintenance and replacement

● Impeller

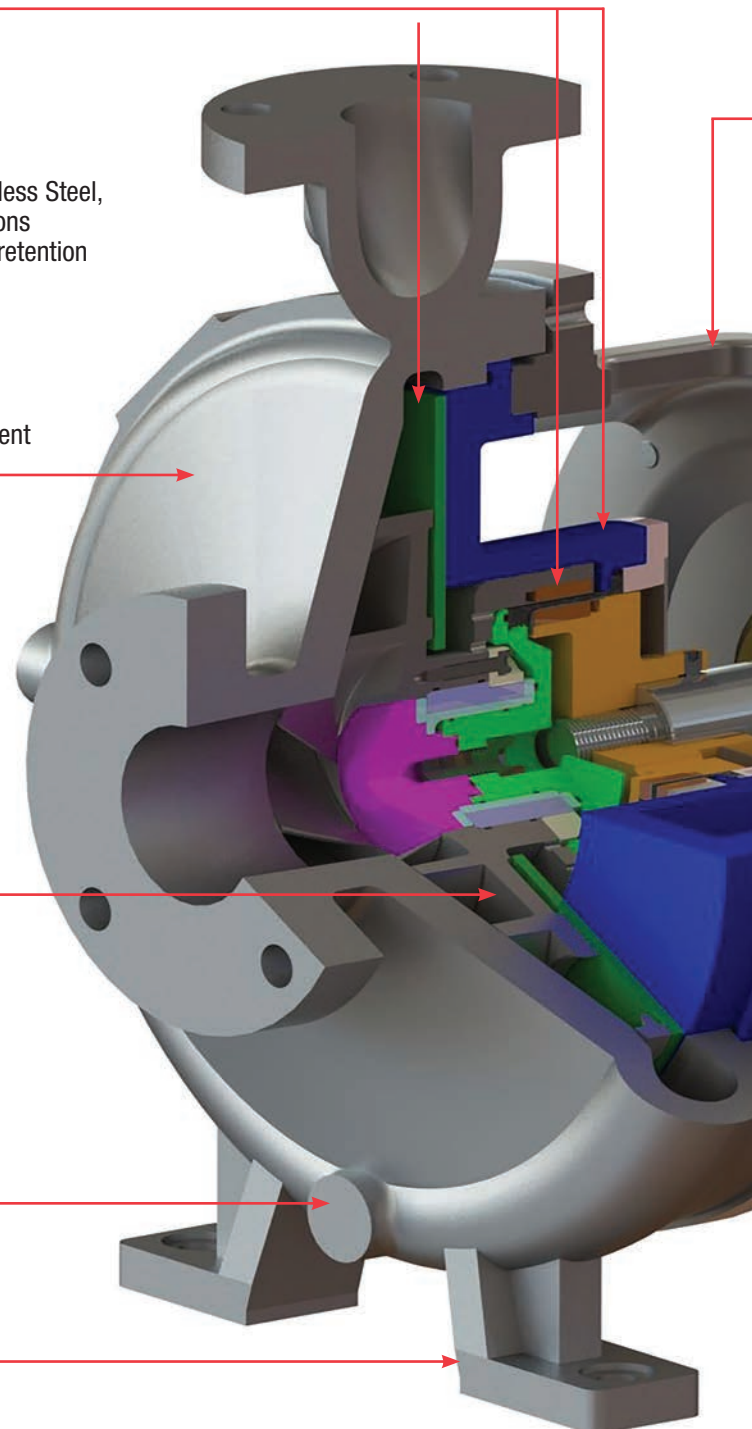
- Standard 316L Stainless Steel, A351 Gr CF3M fully open for increased corrosion, abrasion and solids wear resistance
- Impeller vane design matches PumpWorks PWA for proven hydraulic performance and direct sealed pump replacement
- Expeller Vanes, preventing entrained solids from entering recirculation path, reducing clogging and bushing wear

● Casing Drain

- Optional casing drain and drain piping

● Foot Mounted Casing

- Maximum casing stability and support for back pull out maintenance feature
- Reduced vibration





● **Frame Adapter**
 ● Carbon Steel standard for increased strength and stability

● **Bearing Lubrication**
 ● Flinger disk lubrication to ensure effective bearing lubrication and lower bearing operating temperatures

● **Optional Predict Plus™ GEN 2 Proactive Pump Monitor**
 ● Temperature and 3 axis vibration monitoring
 ● IP66 rated enclosure and Class 1, Div 2 certified

● **Sealed Fill Cap**
 ● Oversized for easier oil changes

● **ISOMAG Magnetic Seals**
 ● IP 65 rated Power Frame sealing

● **ePOD Pump Selector**
 ● Access to end users and specifiers to select your pump application online at www.pumpworks.com

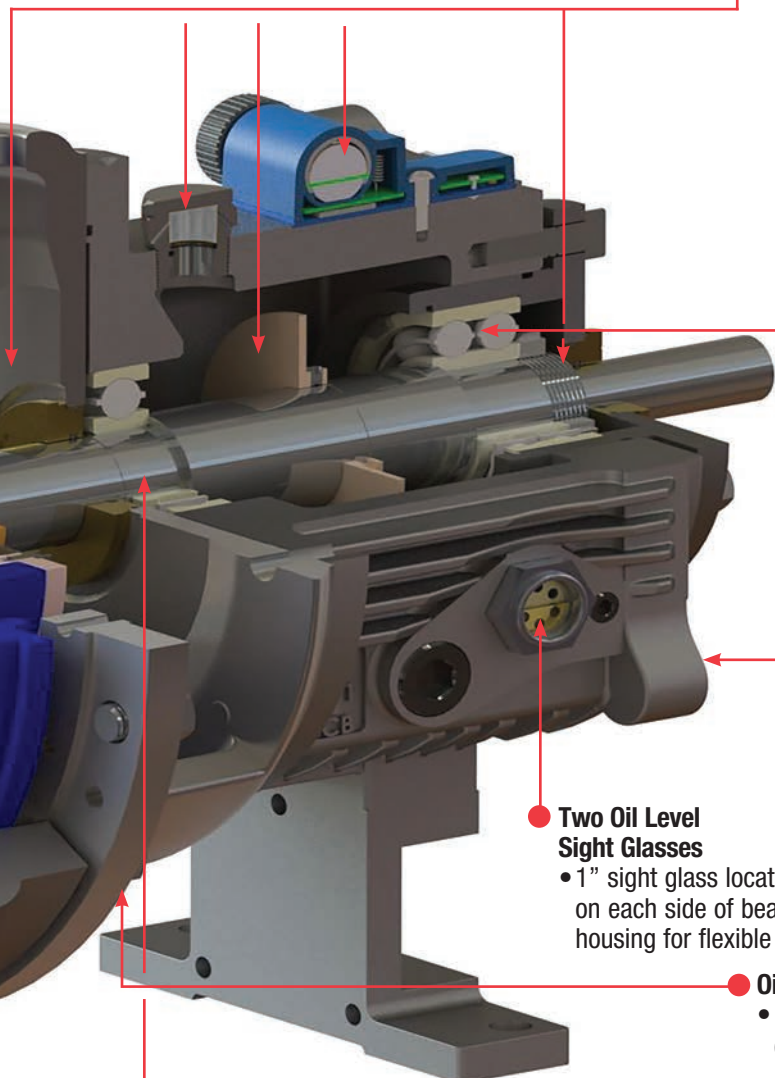
● **Thrust Bearing**
 ● Heavy duty double row standard
 ● Optional duplex angular contact thrust bearing

● **GEN 2 Power Frame**
 ● All new power frame design for enhanced reliability. US Patent 10,288,081
 ● 25% more cooling surface than PWA GEN 1
 ● Sealed lubrication chamber
 ● Sloped and segregated drain for contaminant isolation
 ● Optional Predict Plus™ GEN 2 proactive pump monitor
 ● Zero oil power frame oil maintenance for up to 5 years when using SHELL Turbo 54 x 32 lubricant

● **Two Oil Level Sight Glasses**
 ● 1" sight glass located on each side of bearing housing for flexible viewing

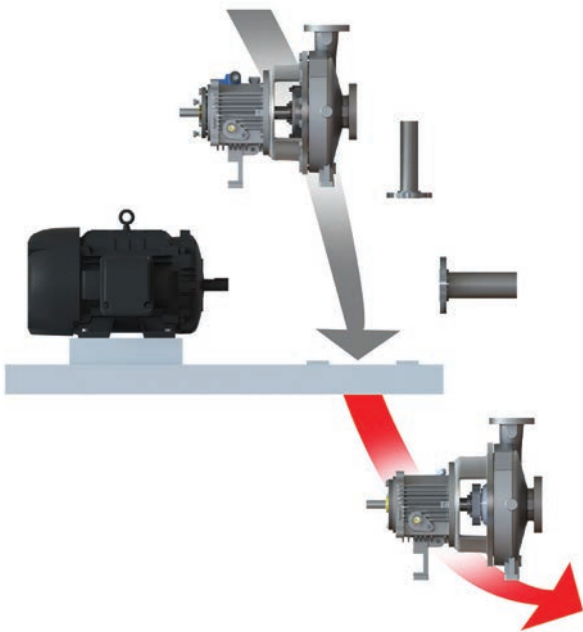
● **Oil Sump Drain Plug**
 ● Magnetic plug to maintain bearing housing cleanliness and increased protection

● **Shaft and Bearing System**
 ● Rigid, heavy duty design for minimal shaft deflection and increased reliability
 ● Exceeds ASME B73.1 and ASME B73.3 bearing life specification requirements
 ● 316L Shaft material is standard with optional material upgrades available



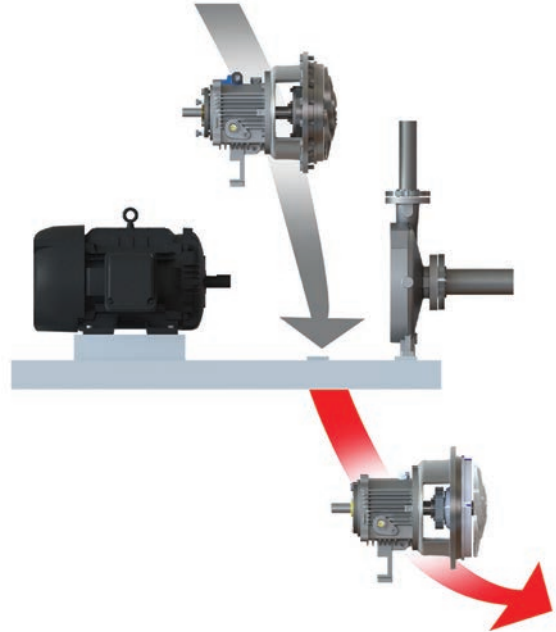
PWA-SL retrofits with all ANSI/AME B73.1 sealed pumps

- Matches all mounting dimensions
- Back pull-out design utilizes same casing as PWA sealed pump



Replace Entire Pump

- Remove old pump
- Install new PWA-SL pump



Replace Back Pull-out Assembly

- Remove old back pull-out assembly
- Install new PWA-SL assembly

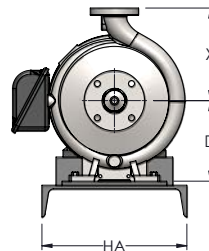
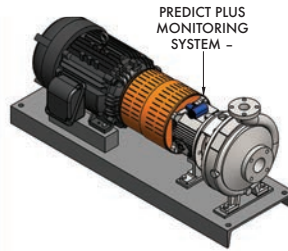
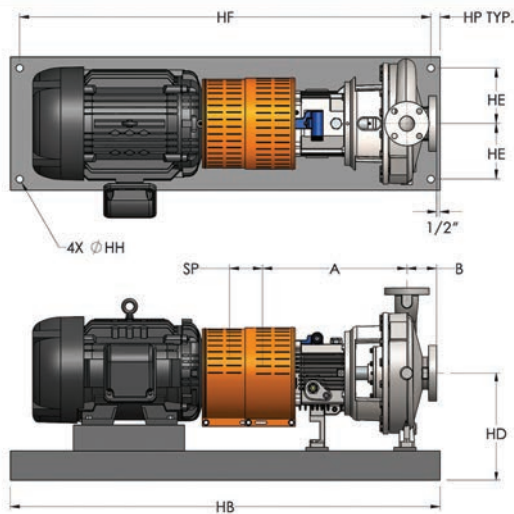
TECHNICAL DATA

All dimensions in inches and (mm)

		Group 1	Group 2
Containment Shell	Radial Wall Thickness	0.06 (1.52)	
	Diameter Between Bearings	1.5 (38)	2.125 (54)
GEN 2 Power Frame	Diameter at Coupling	0.875 (22.23)	1.125 (29)
	Radial bearing	6207	6309
	Thrust bearing	3306	3309
	LT low torque (ft-lb)	26	74
Magnetic Coupling Torque Rating, note 2	HT high torque	73	168
	MAWP PSI (Kpa)	285 PSI (1965 kPa) at 100°F with 150# flanges	
Maximum Allowable Working Pressure, note 1	Oil Lubricated Power Frame	300°F (149°C)	
Maximum Temperature	Corrosion Allowance	0.125 (3.18)	
Casing			

1. Hydrostatic Test Pressure equals 1.5 times Maximum Allowable Working Pressure.

2. Magnetic torque is dependent on operating temperature. Consult factory or ePOD selection software for temperatures above 100°F.



NEMA MOTOR FRAME	WEIGHT LBS AND (Kg)
182T	98 (45)
184T	128 (58)
213T	197 (89)
215T	226 (103)
254T	375 (170)
256T	412 (187)
284T	495 (225)
286T	519 (235)
324T	700 (318)
326T	756 (343)
364T	948 (430)
365T	1009 (458)
405T	1330 (603)
444T	1820 (826)
445T	1893 (859)
447T	2343 (1073)
449T	3020 (1370)

PUMP DIMENSIONS AND WEIGHTS

Dimensions in inches (mm), weights in lbs. (kg)

FRAME	SIZE	ANSI DESIGNATION	DISCHARGE SIZE	SUCTION SIZE	X	A	B	D	SP	WEIGHT BARE PUMP LBS AND (Kg)
GROUP 1	1x1.5x6	AA	1	1.5	6.5 (165)	13.5 (343)	4.0 (102)	5.25 (133)	3.75 (95)	84 (38)
	1.5x3x6	AB	1.5	3						92 (42)
	2x3x6		2	3						95 (43)
	1x1.5x8	AA	1	1.5						100 (45)
	1.5x3x8	AB	1.5	3						108 (49)
GROUP 2	3x4x7	A70	3	4	11 (280)	19.5 (496)	4 (102)	8.25 (210)	3.75 (95)	220 (100)
	2x3x8	A60	2	3	9.5 (242)					200 (91)
	3x4x8	A70	3	4	11 (280)					220 (100)
	3X4x8G	A70	3	4						
	1x2x10	A05	1	2	8.5 (216)					200 (91)
	1.5x3x10	A50	1.5	3						220 (100)
	2x3x10	A60	2	3	9.5 (242)					230 (104)
	3x4x10	A70	3	4	11 (280)					265 (120)
2x3x13	A30	2	3	11.5 (292)	275 (125)					

BASEPLATE DIMENSIONS AND WEIGHTS

Dimensions in inches (mm), weights in lbs. (kg)

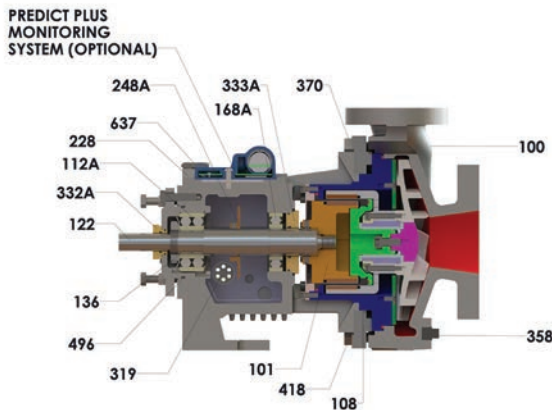
MAX NEMA FRAME	BASEPLATE NUMBER Note (1)	HA Max	HB	HD Max				HE	HF	HH	HP TYP	WEIGHT LBS AND (Kg)
				D=5.25 (133)	D=8.25 (210)	D=10 (254)	D=14.5 (368)					
184T	139	15 (381)	39 (991)	9 (229)				4.5 (114)	36.5 (927)	0.75 (19)	1.25 (32)	199 (90)
256T	148	18 (457)	48 (1219)	10.5 (267)				6 (152)	45.5 (1156)	0.75 (19)	1.25 (32)	245 (111)
326TS	153	21 (533)	53 (1346)	12.88 (327)				7.5 (191)	50.5 (1283)	0.75 (19)	1.25 (32)	258 (117)
184T	245	15 (381)	45 (1143)		12 (305)	13.75 (349)		4.5 (114)	42.5 (1080)	0.75 (19)	1.25 (32)	266 (212)
215T	252	18 (457)	52 (1321)		12.38 (314)	14.13 (359)		6 (152)	49.5 (1257)	0.75 (19)	1.25 (32)	305 (138)
286T	258	21 (533)	58 (1473)		13 (330)	14.75 (375)		7.5 (191)	55.5 (1410)	1 (25)	1.25 (32)	323 (147)
365T	264	21 (533)	64 (1626)		13.88 (353)	14.75 (375)		7.5 (191)	61.5 (1562)	1 (25)	1.25 (32)	346 (157)
405TS	268	26 (660)	68 (1727)		14.88 (378)	14.88 (378)		9.5 (241)	65.5 (1664)	1 (25)	1.25 (32)	372 (169)
449TS	280	26 (660)	80 (2032)		15.88 (403)	15.88 (403)		9.5 (241)	77.5 (1969)	1 (25)	1.25 (32)	437 (198)
286T	368	26 (660)	68 (1727)				19.25 (489)	9.5 (241)	65.5 (1664)	1 (25)	1.25 (32)	493 (224)
405T	380	26 (660)	80 (2032)				19.25 (489)	9.5 (241)	77.5 (1969)	1 (25)	1.25 (32)	580 (263)
449T	398	26 (660)	98 (2489)				19.25 (489)	9.5 (241)	95.5 (2426)	1 (25)	1.25 (32)	

Weights and dimensions are approximate and not to be used for construction.

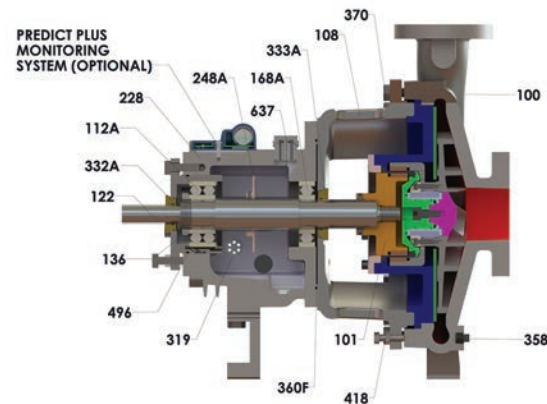
Parts List and Materials of Construction

Item Ref Number	Part Name	Materials of Construction
100	Casing	Carbon Steel or 316L SS
101	Magnetic Coupling Unit	Various
108	Adapter, Frame	Carbon Steel
112A	Thrust Bearing	Double Row Angular Contact
122	Shaft	316L SS
136	Bearing Lock Nut and Lock Washer	Steel
168A	Radial Bearing	Single Row Deep Groove
228	Frame, Bearing	Carbon Steel
248A	Flinger with Set Screws	Aluminum Bronze
319	Sight Glass - Oil	Glass/Steel
332A	Magnetic Oil Seal (Non-Drive End)	Bronze/Bronze
333A	Magnetic Oil Seal (Drive End)	Stainless Steel/Bronze
358	Plug, Casing Drain (Optional)	316SS
360F	O-ring, Frame to Adapter	Buna Rubber
370	Cap Screw, Adapter to Casing	Steel
418	Jacking Bolts	304SS
469B	Dowel Pin, Frame to Adapter (not shown)	Steel
496	O-ring, Bearing Housing	Buna Rubber
637	Fill Plug	Steel

GROUP 1 Sectional View PWA-SL



GROUP 2 Sectional View PWA-SL



**5Year Unconditional
Power Frame
Warranty is Standard at
No Additional Cost**



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