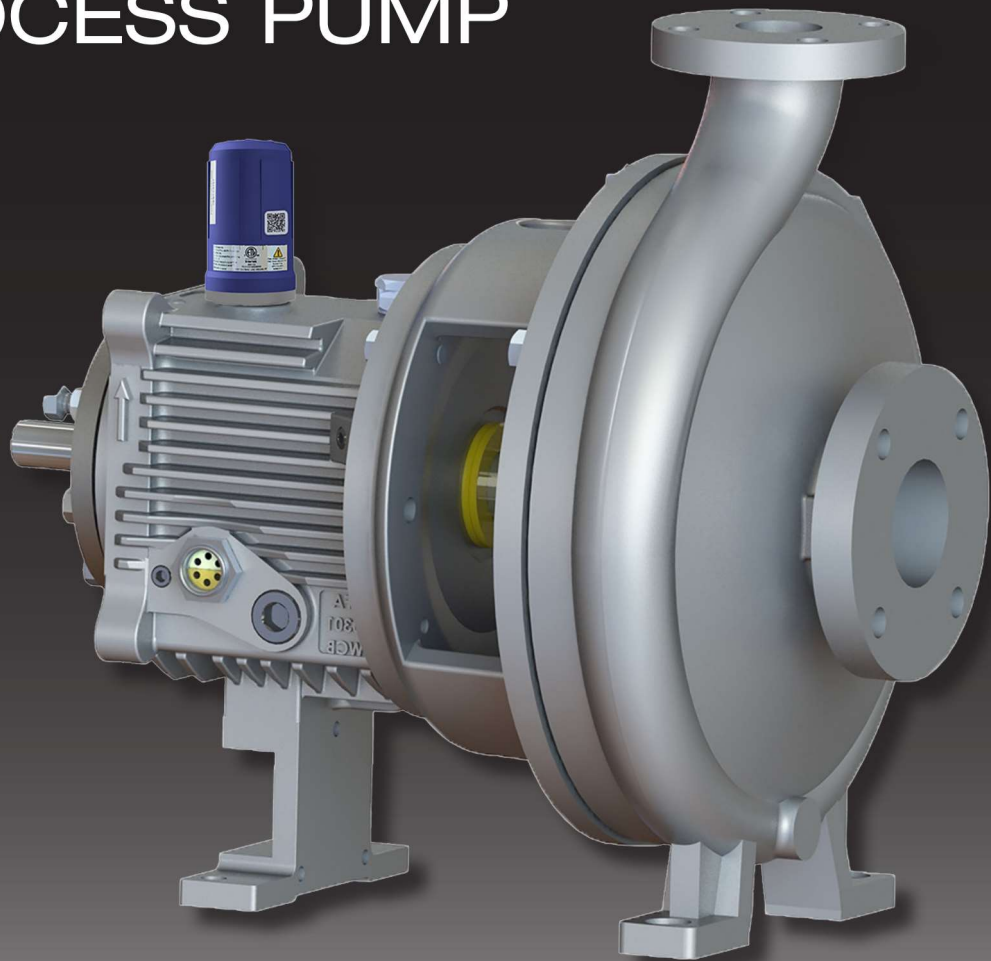


PWA GEN 2

ANSI/ASME B73.1
PROCESS PUMP



 Engineered, Assembled, & Tested in the USA



PWA | GEN 2 ANSI/ASME B73.1 PROCESS PUMP

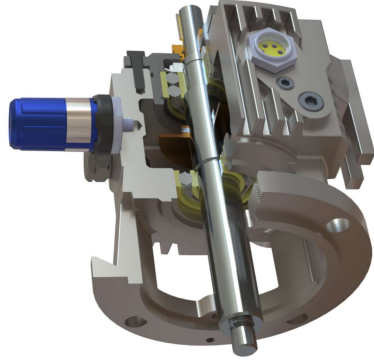
COMPETITIVE ADVANTAGES

| Carbon Steel vs. Ductile Iron

High strength, impact resistant Carbon Steel liquid ends for improved durability and pressure containment.

Replaces non-repairable, ductile iron casing and impellers, with repairable carbon steel, for extended component life.

30% Higher Thermal conductivity than Cast Iron for improved heat dissipation, lower oil temperature and longer bearing life.



| Shaft and Bearing Assembly

Upgraded 316L SS vs. 4140 steel pump shaft is standard at no additional cost.

Proven finger disk lubrication device to ensure effective bearing lubrication. Provides 30% increased bearing L-10 life and minimum 150°F lower bearing operating temperatures compared to flood oil design.

| Innovative Power Frame Features

All new power frame design for enhanced reliability. US Patent 10,288,081.

25% more cooling surface than PWA GEN 1.

Scaled lubrication chamber.

ISOMAG™ magnetic seals IP65 rated Power Frame sealing.

Sloped and segregated drain for contaminant isolation.

Optional Predict-Plus™ GEN 2 proactive pump monitor.

Zero power frame oil maintenance for up to 5 years when using SHELL Turbo S4 x 32 lubricant.



PWA | GEN 2 ANSI/ASME B73.1 PROCESS PUMP

LEVERAGING TECHNOLOGY

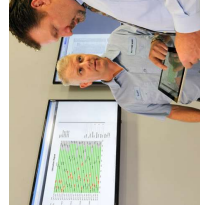
| PumpWorks Industrial leverages technology by providing:

- Superior manufacturing capabilities.
- Extensive inventory selection.
- Professional, reliable service.



| Manufacturing

All of our pumps are engineered, assembled and tested in the United States of America, utilizing exclusive state-of-the-art manufacturing equipment for all castings. This ensures consistent quality, product availability, and low cost of ownership.



| FOUNDRY PumpWorks Castings

Precision investment cast impellers yields exceptionally smooth surface finish ensuring repeatable, efficient hydraulic performance.

One ton piece part capacity.

Metallurgies from Carbon Steel through Titanium.

Complete in house casting inspection includes certified spectrographic, hardness, physical properties and live casting X-ray analysis.



| Inventory

Pump and component inventory in a variety of material options are strategically located through the Northern Hemisphere ensuring consistent, rapid shipment tailored to customer requirements.





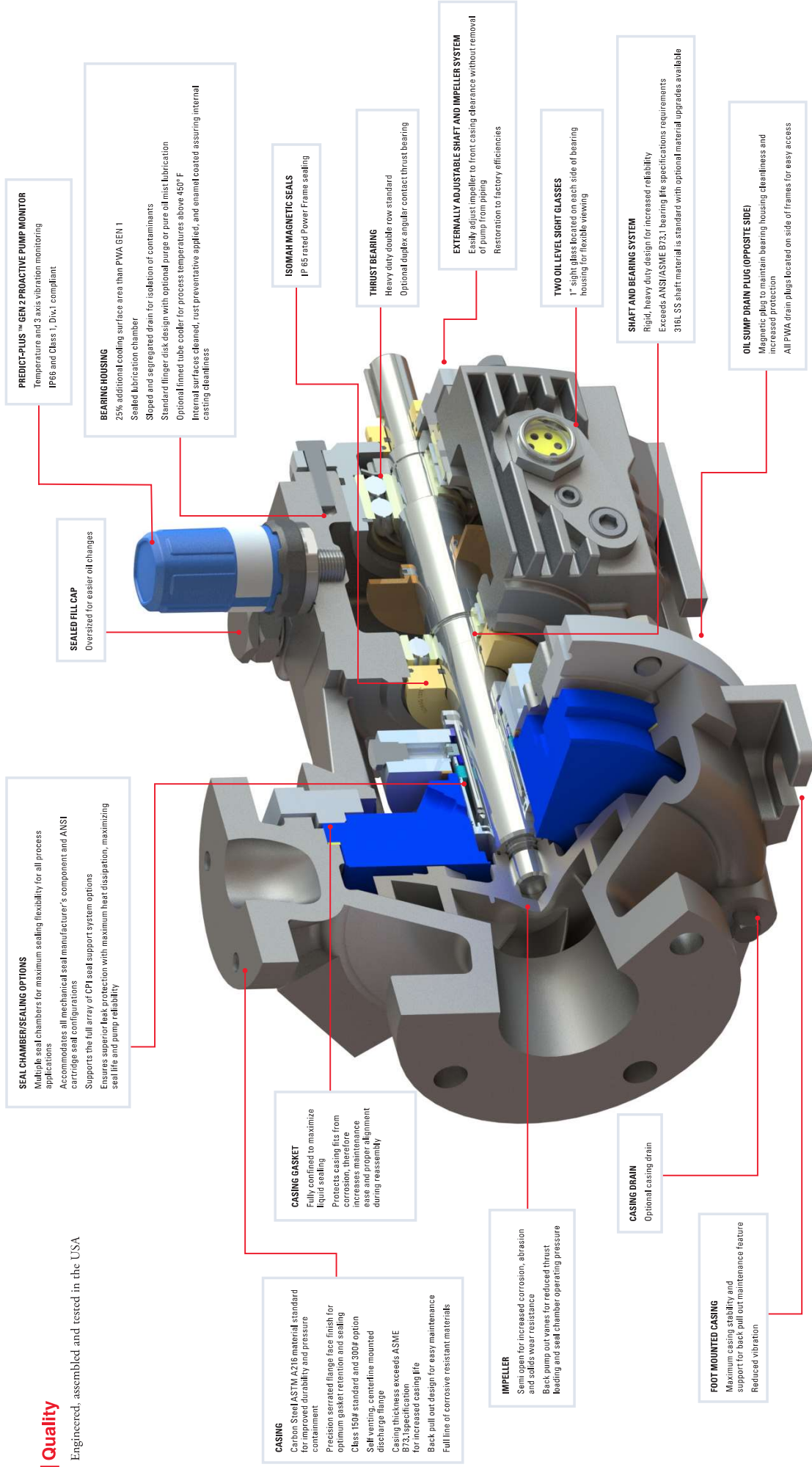
PWA | GEN 2 ANSI/ASME B73.1 PROCESS PUMP



PWA | GEN 2 ANSI/ASME B73.1 PROCESS PUMP

| Quality

Engineered, assembled and tested in the USA

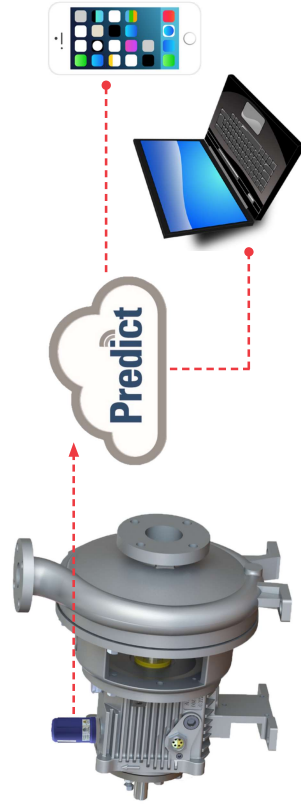




PredictPlus™

YOUR PUMP WANTS TO TALK TO YOU™

Predict-Plus is the only wireless, cloud connected, continuous machinery health monitor designed specifically for your rotating equipment needs.



Always On

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



Class 1, Division 1

Intrinsically safe



Vibration

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



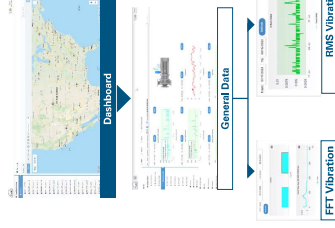
Bearing Temperature

Integrated RTD for bearing temperature monitoring.



Alerts

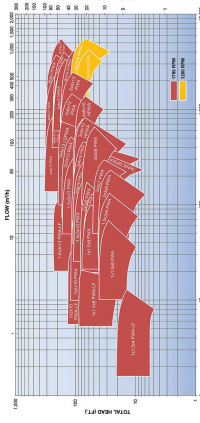
Proactive alerts via email and SMS from Predict-Cloud.



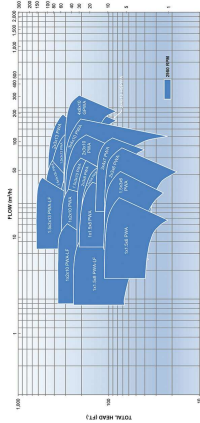
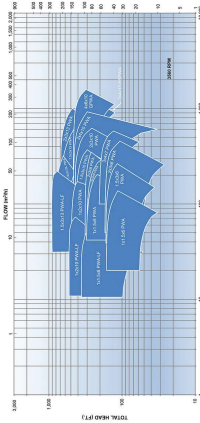
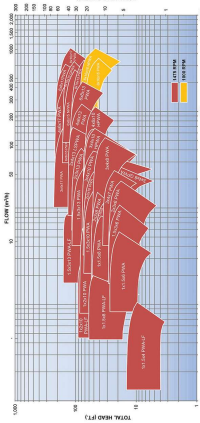
- 24/7 online vibration and temperature monitoring device
- Automatic device registration on the cloud via cellular interface
- Proactive alerts from the Predict-Cloud
- Long term storage of trend data including Fast Fourier Transform (FFT)
- Affordable & available for new and existing rotating equipment

HYDRAULIC PERFORMANCE COVERAGE

| 60 Hz Performance Coverage



| 50 Hz Performance Coverage



| Capabilities

- Capacities to 1,364 m³/h | 7,000 GPM
- Heads to 223 m | 730 ft
- Temperatures to 371° C | 700° F
- Pressures to 26 bar | 375 PSIG

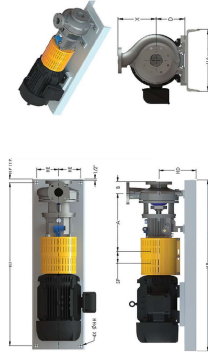
| Capabilities

- Capacities to 1,130 m³/h | 5,800 GPM
- Heads to 154 m | 503 ft
- Temperatures to 371° C | 700° F
- Pressures to 26 bar | 375 PSIG



Performances shown are nominal and are to be used for preliminary selection only.

PUMP DIMENSIONS & WEIGHTS



NEMA MOTOR FRAME		WEIGHT lbs (kg)
182T		96 (43)
184T		128 (58)
213T		197 (89)
215T		226 (103)
254T		375 (170)
256T		417 (187)
284T		495 (225)
286T		519 (235)

Not to be used for construction unless certified by manufacturer.

FRAME	SIZE	ANSI DESIGNATION	DISCHARGE SIZE	SUCTION SIZE	X	A	B	D	SP	WEIGHT BARE PUMP lbs (kg)
GROUP 1	1 x 1.5 x 6	AA	1	1.5						88 (40)
	1.5 x 3 x 6	AB	1.5	3						97 (43)
	2 x 3 x 6	AC	2	3	6.5 (195)	13.5 (343)	4.0 (102)	5.25 (133)	3.75 (95)	180 (81)
	1 x 1.5 x 8	AA	1	1.5						105 (47)
	1.5 x 3 x 8	AB	1.5	3						113 (51)
	3 x 4 x 7	A70	3	4	11 (282)					211 (104)
	2 x 3 x 8	A60	2	3	9.5 (242)					210 (95)
	3 x 4 x 8	A70	3	4	11					231 (104)
	3 x 4 x 8G	A70	3	4	(280)			8.25 (210)	6.25 (159)	231 (104)
	1 x 2 x 10	A05	1	2	8.5 (218)					210 (95)
GROUP 2/ GROUP 3	1.5 x 3 x 10	A50	1.5	3	9.5 (242)					210 (95)
	2 x 3 x 10	A60	2	3	9.5 (242)					231 (104)
	3 x 4 x 10	A70	3	4	11 (280)	18.5 (498)	4 (102)		3.75 (95)	242 (109)
	3 x 4 x 10H	A40	3	4	12.5 (318)					278 (125)
	4 x 6 x 10S	A80	4	6	13.5 (343)					268 (120)
	4 x 6 x 10H	A80	4	6	13.5 (343)					320 (144)
	1.5 x 3 x 13 x 13L	A20	1.5	3	10.5 (267)			10 (254)		257 (116)
	2 x 3 x 13	A30	2	3	11.5 (292)					289 (130)
	3 x 4 x 13	A40	3	4	12.5 (318)					347 (158)
	4 x 6 x 13	A60	4	6	13.5 (343)					425 (191)
	9 x 6 x 13	A90	6	8	16 (408)					588 (265)
	8 x 10 x 13	A100	8	10	18					704 (317)
	9 x 6 x 15	A10	6	8	(457)					641 (288)
	8 x 10 x 15	A120	8	10	19 (463)	22.9 (585)	6 (152)	14.5 (368)	5.25 (133)	746 (336)
	8 x 10 x 16G	A120	8	10	19 (463)					833 (402)
GROUP 4/ GROUP 4-17	8 x 10 x 18H	A120	8	10						620 (278)
	3 x 4 x 17	-	3	4	4					663 (307)
	4 x 6 x 17	A05	4	6	(406)					630 (279)
	6 x 6 x 17	A10	6	8						767 (345)
	8 x 10-17 & 17H	A120	8	10	19 (463)					872 (392)

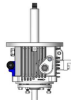
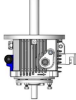
Dimensions in inches (mm), weights in lbs. (kg). Weights and dimensions are approximate and not to be used for construction.

BASEPLATE DIMENSIONS & WEIGHTS

MAX NEWMA FRAME	ANSI BASELINE NUMBER	HA	HB	HD MAX		HE	HF	HH	HP TYP	WEIGHT ID (kg)
				$\theta = 2.5^\circ$ (mm)	$\theta = 4.5^\circ$ (mm)					
164 T	139	12 (381)	38 (991)	3 (128)	4.3 (114)	36.5 (927)	0.75 (19)	1.25 (32)	124 (56)	
255 T	148	18 (573)	43 (1103)	10.5 (272)	6 (152)	49.5 (126)	0.75 (19)	1.25 (32)	195 (89)	
328 TS	153	18 (573)	53 (1368)	12.8 (327)	7.6 (191)	50.5 (128)	0.75 (19)	1.25 (32)	228 (117)	
345 T	165	17 (533)	55 (1421)	13 (335)	4.3 (114)	46.5 (118)	0.75 (19)	1.25 (32)	153 (61)	
355 T	178	17 (533)	57 (1461)	13.5 (348)	4.3 (114)	47.5 (121)	0.75 (19)	1.25 (32)	178 (81)	
386 T	258	38 (1033)	91 (2338)	32 (826)	17 (438)	95.5 (244)	1.125 (29)	1.25 (32)	278 (121)	
395 T	264	21 (533)	54 (1366)	15.8 (405)	7.6 (191)	61.5 (156)	1.125 (29)	1.25 (32)	395 (186)	
405 T	268	21 (533)	56 (1426)	16.3 (418)	7.6 (191)	62.5 (160)	1.125 (29)	1.25 (32)	405 (190)	
443 TS	290	26 (686)	80 (2052)	15.8 (405)	9.5 (241)	72.5 (186)	1.125 (29)	1.25 (32)	437 (186)	
465 T	308	24 (640)	58 (1727)	17.3 (443)	9.5 (241)	66.5 (168)	1.125 (29)	1.25 (32)	466 (203)	
505 T	330	25 (640)	61 (1555)	17.3 (443)	9.5 (241)	77.5 (196)	1.125 (29)	1.25 (32)	500 (230)	

Dimensions in inches (mm), weights in lbs. (kg). Weights and dimensions are approximate and not to be used for construction.

PWA INTERCHANGEABILITY CHART

FRAME	SHAFT & FRAME ASSEMBLY	ADAPTER	COVER	IMPELLER	CASE	SIZE
GROUP 1 1-3/8" Shaft Dia. Max BHP-40 HP						1x1.5x6.4A 1.5x3x6.6AB 2x3x9AC 1x1.5x8.4A 1.5x3x8.4B
GROUP 2 1-3/4" Shaft Dia. Max BHP-122 HP						3x4x7A70 2x5x9A00 3x4x8A70 3x4x8B A70 1x2x10A05 1.5x3x10A50 2x3x10A60 3x4x10A70 3x4x10H A40 3x4x10H A40 4x6x10H A40 1.5x3x13A20 2x5x10A30 3x4x13A40 4x6x13A80
GROUP 3 2-1/8" Shaft Dia. Max BHP-200 HP						1x2x10A05 1.5x3x10A50 2x3x10A60 3x4x10A70 3x4x10H A40 4x6x10H A80 4x6x10H A80 1.5x3x13A20 2x5x13A30 3x4x13A40 4x6x13A80
GROUP 4 Max BHP-250 HP Group 4-17 H Max BHP-350 HP						8x8x13A90 8x10x13A100 6x8x16A10 8x10x15A120 8x10x15E A120 8x10x16H A120 4x6x17A05 6x8x17A10 8x10x17A120

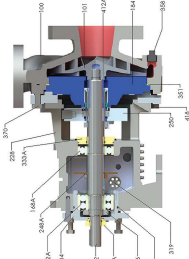


PARTS LIST AND MATERIALS OF CONSTRUCTION

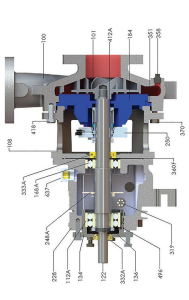
ITEM REF NUMBER	PART NAME	CARBON STEEL	CARBON 316L SS IMPELLER	CARBON 316L SS	CA6NM (12% CHROME)	DUPLEX SS CD4 G-18	DUPLEX SS CD4 G-18	ALLOY 20	MONEL	NICKEL	HASTELLOY B, C, & G	TITANIUM
100	Casing	•	•	•	•	•	•	•	•	•	•	•
101	Impeller	•	•	•	•	•	•	•	•	•	•	•
105	Leak-off Ring	•	•	•	•	•	•	•	•	•	•	•
106	Packing, Stuffing Box	•	•	•	•	•	•	•	•	•	•	•
107	Shaft	•	•	•	•	•	•	•	•	•	•	•
112A	Thrust Bearing	•	•	•	•	•	•	•	•	•	•	•
112B	Thrust Washer	•	•	•	•	•	•	•	•	•	•	•
122	Shaft-Loss Sleeve	•	•	•	•	•	•	•	•	•	•	•
123	Shaft with Sleeve	•	•	•	•	•	•	•	•	•	•	•
124	Shaft Sleeve	•	•	•	•	•	•	•	•	•	•	•
134	Thrust Bearing	•	•	•	•	•	•	•	•	•	•	•
135	Thrust Washer	•	•	•	•	•	•	•	•	•	•	•
136	Bearing-Motor and Lock Washer	•	•	•	•	•	•	•	•	•	•	•
164A	Radial Bearing	•	•	•	•	•	•	•	•	•	•	•
164B	Radial Washer	•	•	•	•	•	•	•	•	•	•	•
164	Radial Chamber	•	•	•	•	•	•	•	•	•	•	•
164	Radial Seal	•	•	•	•	•	•	•	•	•	•	•
238	Flange with Set Screws	•	•	•	•	•	•	•	•	•	•	•
242A	Flange	•	•	•	•	•	•	•	•	•	•	•
250	Stud Bolt	•	•	•	•	•	•	•	•	•	•	•
270	Stud Bolt	•	•	•	•	•	•	•	•	•	•	•
318	Split (Blue-Oil)	•	•	•	•	•	•	•	•	•	•	•
322A	Laying-in Oil	•	•	•	•	•	•	•	•	•	•	•
332A	Uniflow Oil	•	•	•	•	•	•	•	•	•	•	•
350	Guest, Casing	•	•	•	•	•	•	•	•	•	•	•
358	Plug, Casing	•	•	•	•	•	•	•	•	•	•	•
360F	Guest, Frame to Adapter	•	•	•	•	•	•	•	•	•	•	•
368C	Guest, Frame to Adapter	•	•	•	•	•	•	•	•	•	•	•
370	Gas Screw, Adapter	•	•	•	•	•	•	•	•	•	•	•
412A	Gas Screw, Adapter	•	•	•	•	•	•	•	•	•	•	•
418	Gas Screw, Adapter	•	•	•	•	•	•	•	•	•	•	•
488B	Down Pin, Frame to Adapter	•	•	•	•	•	•	•	•	•	•	•
496	Gas Screw, Adapter	•	•	•	•	•	•	•	•	•	•	•
827	Filter Vent	•	•	•	•	•	•	•	•	•	•	•

(1) Duplex angular contact bearing Standard on Group 3, Bearing Frame and optional on Group 1, 2, and 4.

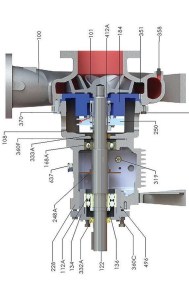
| Group 1 Sectional View PWA Gen 2



| Group 2/3 Sectional View PWA Gen 2



| Group 4 Sectional View PWA Gen 2



TECHNICAL DATA

All dimensions in inches (mm).

		Shaft Diameter at Impeller			
		GP1	GP2	GP3	GP4
Shaft*	Diameter in Stuffing Box/Seal Chamber With Sleeve	1.375 (35) 1.125 (29)	1.375 (35) 1.125 (29)	1.25 (32) 1.00 (25)	1.5 (38) 1.25 (32)
	Diameter Between Bearings	1.5 (38)	2.125 (54)	2.5 (64)	3.125 (79)
	Diameter at Coupling	0.875 (22)	1.125 (29)	1.875 (48)	2.375 (60)
	Overhang	6.125 (156)	8.375 (213)	8.375 (213)	9.563 (253)
	Maximum Shaft Deflection	0.002 (0.05)			
Sleeve*	Shaft Deflection Index (L/D) ¹ With Sleeve	64	63	29	25
	Outside Diameter thru Stuffing Box/Seal Chamber	14.3	116	48	62
Bearings	Radial	6207	6309	6311	6313
	Thrust	3306	3309 A/C3	7310	3313
	Bearing Span	4.125 (105)	6.75 (171)	6.875 (164)	9.25 (235)
Large Bore Seal Chamber*	Bore	2.875 (73)	3.5 (89)	3.875 (98)	4.75 (120)
Stuffing Box*	Bore	2 (51)	2.5 (64)	2.875 (73)	3.375 (86)
Maximum Power Limits	HP (kW) per 100 RPM	1.1 (0.82)	3.4 (2.6)	5.6 (4.2)	14 (10.5)
Maximum Allowable Working Pressure (note 3)	MAWP PSI (Kpa)***	up to 385 PSI (1965 Kpa) at 100°F with 150 # flanges up to 375 PSI (2585 Kpa) 100°F with 300 # flanges *Consult Pressure Temperature chart for various temperatures			
Maximum Temperature (note 4)	Oil or Grease Lubricated Bearing Frame without Optional Cooling	350°F (177°C)			
Casing	Oil Lubricated Power Frame with Optional Cooling	700°F (370°C)			
	Corrosion Allowance	0.125 minimum			

- NOTES:
1. 17 inch pump sizes - Shaft diameter at Stuffing Box / Seal Chamber is 2.25 inches (57 mm) with sleeve. Shaft diameter at Stuffing Box / Seal Chamber is 2.75 inches (70 mm) for packing and 2.5 inches (64 mm) for mechanical seals. Shaft diameter at Coupling is 4.75 inches (121 mm). Shafting box bore is 3.625 inches (92 mm).
 2. 17 inch pump sizes - Shaft diameter at Stuffing Box / Seal Chamber is 2.25 inches (57 mm) with sleeve. Shaft diameter at Stuffing Box / Seal Chamber is 2.75 inches (70 mm) for packing and 2.5 inches (64 mm) for mechanical seals. Shaft diameter at Coupling is 4.75 inches (121 mm). Shafting box bore is 3.625 inches (92 mm).
 3. Hydro-static test pressure is equal to 1.5 times the design pressure. Allowable Working Pressure.
 4. Design ratings to 740 PSI (50.7 MPa) - consult factory.
 5. Tube Fitted Cooler, Jacketed Seal Chamber, On-pipe Impeller, Casted for temperatures between 450°F (232°C) to 700°F (370°C).

Typical Industries

- Chemical/Petrochemical
- Pulp and Paper
- Food and Beverage
- Oil and Gas
- Primary Metals Manufacturing
- Mining
- Power Generation
- Waste Treatment
- General Industrial



Test Facilities

- Test flows up to 7,500 GPM.
- See our Test Facilities Brochure for more information.



Pumpworks Industrial | pumpworksindustrial.com

