GOULDS PUMPS

An ITT Brand

3185

Paper Stock/ Process Pump

3185

Worldwide Experience on Process Pumping Services

When Goulds developed the 3185, we utilized 140 years of pump design experience to ensure it would have unmatched mechanical reliability. Today, installations around the world attest to its remarkable performance. The 3185 is the heavy duty process pump designed to handle all of your tough process pumping applications.

World-class Pump Line

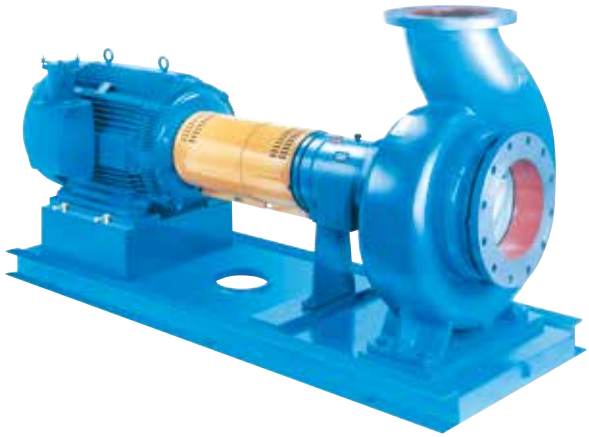
Model 3185 is built to ANSI standards.

- ISO 16 bar flange drilling
- mm-dimensioned OD of mechanical seal sleeve
- mm-dimensioned bearing locknut
- mm-dimensioned shaft and keyway at coupling
- Capacities to 10,220 m^3/h 45,000 GPM (45,000 GPM)
- Heads to 125 m (410 feet)
- Temperatures to 230° C (446° F)
- Pressures to 16 bar (232 PSIG)

Installation at a North American recycle mill.

Installation for a difficult high-temperature service. Spring-mounted baseplate provided to compensate for thermal expansion.

Cooling water pump for primary turbine at a power plant in the Middle East.



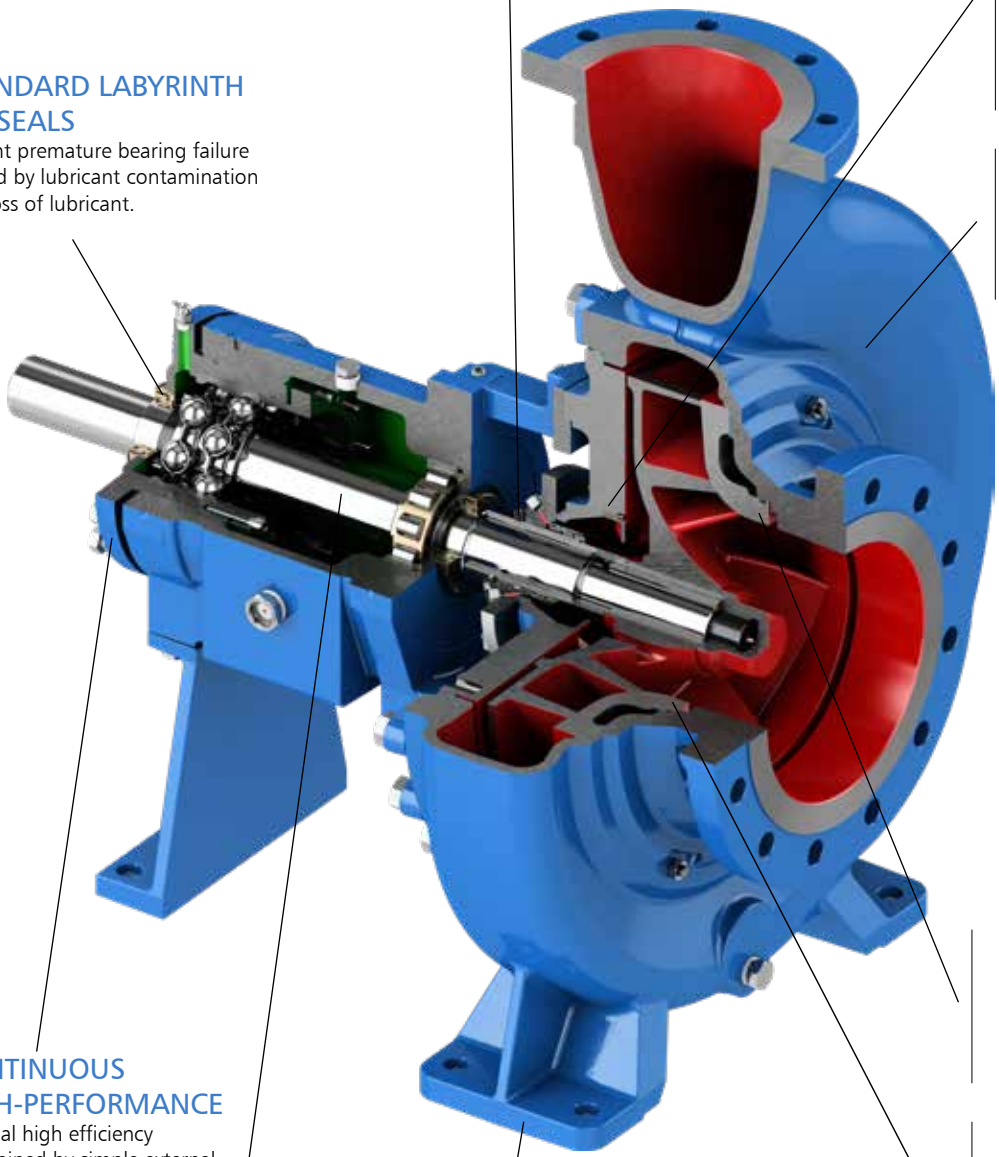
3185

SEALING FLEXIBILITY
Choice of mechanical seal (illustrated), packed box or dynamic seal.

PATENTED TAPERBORE™ PLUS SEAL CHAMBER
Wide range of sealing arrangements available to meet service conditions. Patented seal chambers improve lubrication and heat removal (cooling) of seal faces for extended seal life and pump uptime.

STANDARD LABYRINTH OIL SEALS
Prevent premature bearing failure caused by lubricant contamination and loss of lubricant.

CASING
Top centerline discharge for air handling and self-venting. Special volute design reduces radial loads. Back pull-out design. Foot-mounted.



RENEWABLE SUCTION SIDEPLATE
With open impeller design minimizes maintenance costs. Positively sealed with O-ring and gasket.

CONTINUOUS HIGH-PERFORMANCE
Original high efficiency maintained by simple external impeller adjustment resulting in long-term energy savings.

OPEN IMPELLER
Full back shroud and thick impeller vanes for handling slurries and stringy fibers. Large balance holes and back pump-out vanes minimize stuffing box pressure and axial thrust. Optional enclosed impeller available. Shearpeller™ design available for difficult recycle services.

HEAVY-DUTY SHAFT
Designed for minimum deflection at maximum load. Dry shaft achieved by sealing from pumpage by O-rings at sleeve and impeller nut.

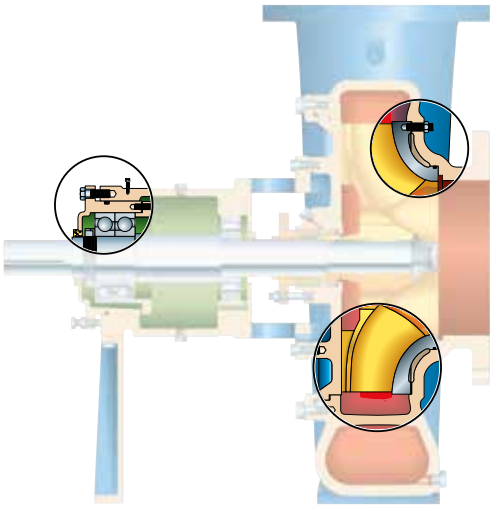
RIGID FEET
Large casing and bearing frame feet maintain driver alignment with high pipe loads; absorb system vibration.

Engineered Impeller and Sideplate

Acknowledged Best Design for Industrial Process Services.

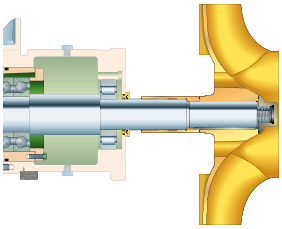
It offers:

- Ease of adjustment to maintain optimum performance
- Clamped sideplate for maximum reliability and zero leakage
- Minimum hydraulic loads for maximum mechanical reliability

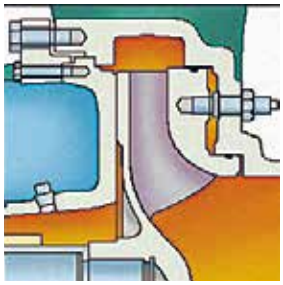


1. Renewable High-Performance

With any impeller adjustment there will be two metal components that will have to move relative to each other. Goulds puts this precision fit in the sealed and lubricated environment of the power end.



VS



Less reliable pumps utilizing adjustable sideplates are difficult to adjust, are not precise in clearances and the adjustment must take place in the corroded casing interior leading to leakage. Improper adjustments lead to broken studs and catastrophic failure.

Easy and accessible adjustments. The Goulds adjustment bolts are very accessible and can be adjusted with one tool.

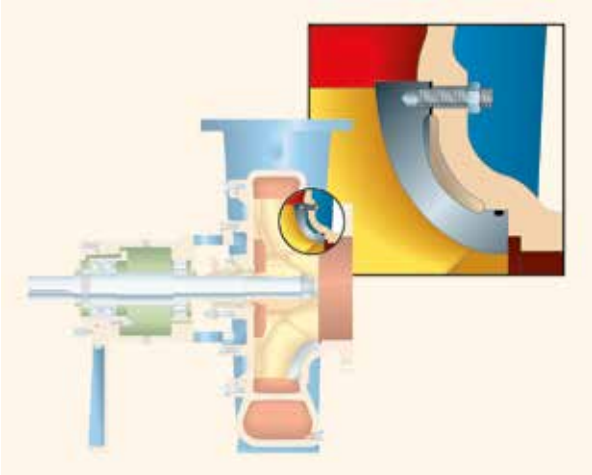
VS

The adjustable sideplate method requires two tools. Additionally, the pump suction flange limits the accessibility to the adjusting screws.

2. Clamped Sideplate

For Maximum Reliability and Zero Leakage

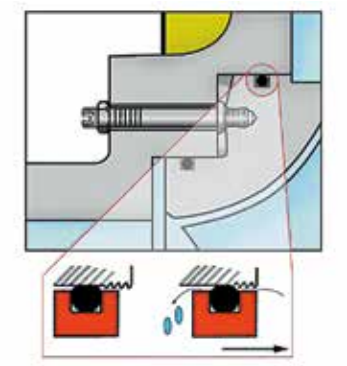
Our sideplate is clamped securely and sealed positively to ensure that it does not lead to breakage or leakage.



Clamped

vs

The "floating" sideplate design must scrape over a casing surface that will be corroded and fouled. This commonly leads to a leakage path through the sideplate studs.



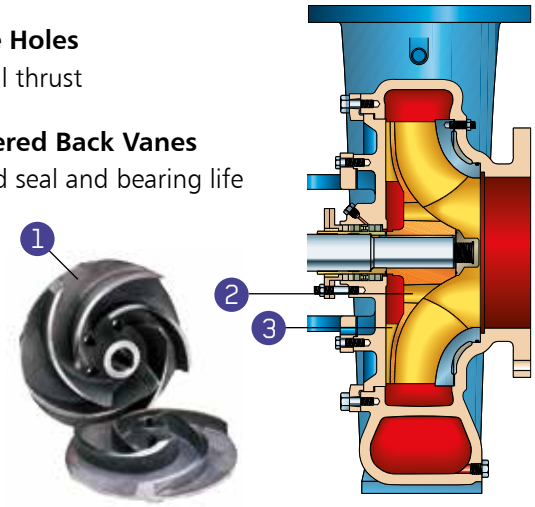
Floating

3. Minimum Hyderaulic Loads

Maximum Mechanical Reliability

Goulds open impeller design was engineered to assure minimum radial and axial thrust loads to maximize seal and bearing life.

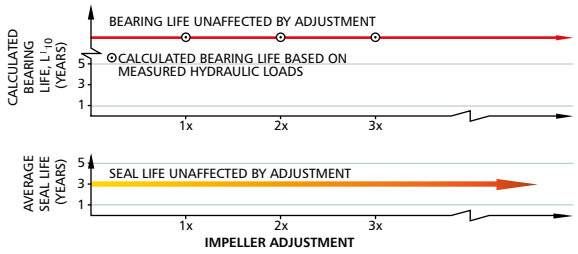
1. **Full Back Shroud**
   Maximizes mechanical integrity
2. **Balance Holes**
   Low axial thrust
3. **Engineered Back Vanes**
   Extended seal and bearing life



Engineered for Long Life

Back vane height / angle and shroud design are engineered to minimize hydraulic loads throughout the life of the pump. Bearing life is guaranteed.

As the open impeller is adjusted and performance renewed, back pump-out vanes control axial thrust. Bearing and seal life are maintained – unaffected by adjustment.



Power Ends Designed for Maximum Reliability

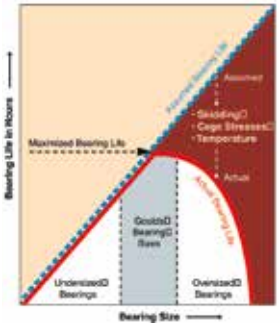
Power End Reliability is vital when thinking about pump mean time between failure (MTBF). To ensure maximum bearing life, the 3185 follows four key factors:

- Bearing Design Life
- Bearing Temperature
- Bearing Environment
- Continuous Condition Monitoring

1. Bearing Design Life

Bearing manufacturers state that skidding, cage stresses and oil temperatures can greatly reduce the bearing life of oversized bearings. The "right" size bearing is vital to overall bearing life.

Bearing Load Measured on Test

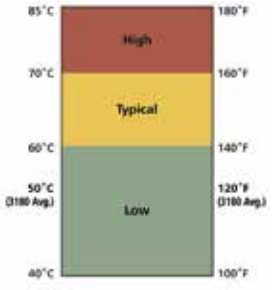


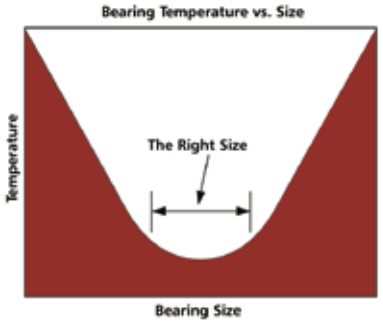
Bigger is NOT Always Better! Bearings are often oversized because pump designers often estimate bearing loads. Goulds measured their loads on test and chose bearing designs that would enable bearing life of 100,000 hours.

2. Bearing Temperature

Keeping the pump loads minimized and selecting the "right" bearing will keep bearing temperature under control.

Typical bearing operating temperatures of competitor's process pumps are between 60-71° C (140–160° F). Goulds Model 3180 bearing temperatures average only 50° C (120° F)!

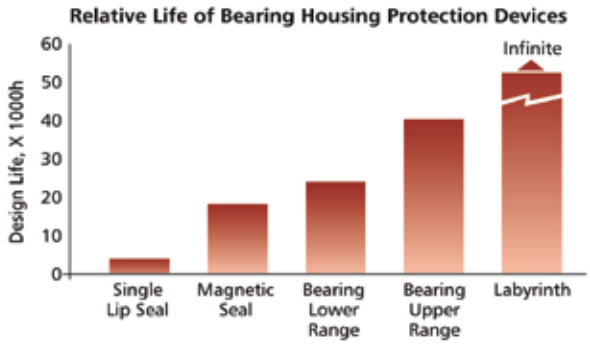




3. Bearing Environment

Labyrinth Oil Seals are Standard

Contamination being the second leading cause of bearing failure requires special attention. Common lip seals were not considered due to their 2,000 hour design life. After wearing out, there will be an open passage way for contamination.



RIGID FRAME FOOT

Heavy duty foot reduces effects of pipeloads / thermal expansion on bearing life. Bearings continue to run cool.

LARGE OIL SIGHT GLASS

The standard oil sight glass assures oil level is properly set and maintained Condition of oil is also easily monitored.

STANDARD LABYRINTH OIL SEALS

Prevent contamination of lubricant for extended bearing life.

Power End Reliability is Both Designed-In and Guaranteed

Bearing Design Life	>100,000 hours
Bearing Temperature	120° F (50° C) average
Bearing Environment	Superior Oil Seal design
Guarantee	Reliability Guarantee

Our Guarantee

Goulds Pumps backs the 3180 power ends with an unconditional guarantee against defects in workmanship and material for 3 years from date of manufacture.

3185

Impeller Designs to Optimize Performance

The right design for the service results in optimum efficiency and up-time, especially when handling difficult media such as recycle fibers with contaminants.

Open Impeller

Design suitable for most services. Allows for resistance to wear and corrosion. Provides for easily renewable clearances. Designed for optimum efficiency.

Enclosed Impeller

Available for services where efficiency is a consideration and enclosed design is suitable for service conditions. Efficiency can be renewed with axial adjustment and / or wear ring replacement. Also beneficial for high temperature services as it allows the suction sideplate to be eliminated.

Goulds Clog-Free Pumping Solution Patented Design (#6,609,890)

Pumping applications in recycle mills present unique challenges with the presence of plastic and tape along with other contaminants that can readily clog the pump impeller.

The Goulds Shearpeller™ Solves this Problem:

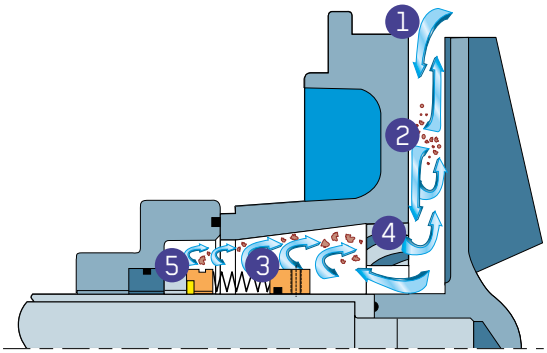
- Generous front clearance with vortex-type design to prevent binding and plugging.
- Patented tapered inlet sleeve prevents contaminants from plugging inlet area. The sleeve is loose to rotate independently from impeller. The slower rotation prevents contaminants from collecting at the impeller eye and prevents erosion of hub.
- Proven in tough services such as repulper dump service in OCC recycle mill. In one service, pump went from a daily outage to clear impeller to uninterrupted, continuous service.
- Component changes only involve the impeller and sleeve. Uses same casing, sideplate, shaft and impeller nut as 3185.

Optimize Seal Configuration for Service and Environment

For services with Solids and Vapor, Goulds Patented* TaperBore™ PLUS

The unique flow path created by the patented Vane Particle Ejector directs solids away from the mechanical seal, not towards the seal as with other tapered bore designs. And, the amount of solids entering the bore is minimized. Air and vapors are also efficiently removed.

On services with or without solids, air or vapors, Goulds patented TaperBore™ PLUS is the effective solution for extended seal and pump life and lower maintenance costs.

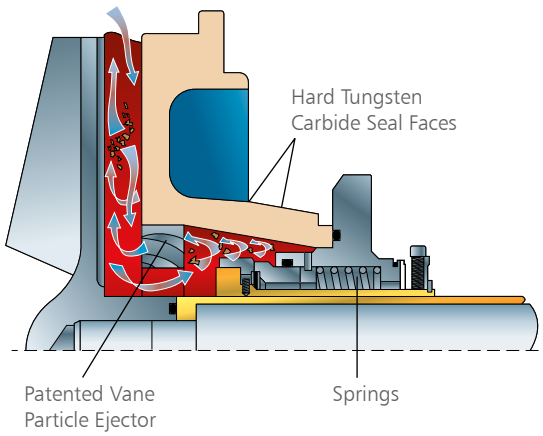


1. Solids / liquid mixture flows toward mechanical seal /seal chamber.
2. Turbulent zone. Some solids continue to flow toward shaft. Other solids are forced back out by centrifugal force (generated by back pump-out vanes).
3. Clear liquid continues to move toward mechanical seal faces. Solids, air, vapors flow away from seal.
4. Low pressure zone created by Vane Particle Ejector. Solids, air, vapor liquid mixture exit seal chamber bore.
5. Flow in patented TaperBore™ PLUS seal chamber assures efficient heat removal (cooling) and lubrication. Seal face heat is dissipated. Seal faces are continuously flushed with clean liquid.

Zero flush water (Mechanical seals)

The 3185 has a revolutionary seal chamber design guaranteed to operate on 6% paper stock without flush water!

Aside from the high cost of flushing mechanical seals and the possible dilution of the product, contaminants in the flush water can also cause seal failures. Disruption of flush water caused by plugging, freezing or inadvertently closing a valve can also cause failures.
The answer to those problems is solved with the Goulds patented TaperBore™ PLUS.



Dynamic seal

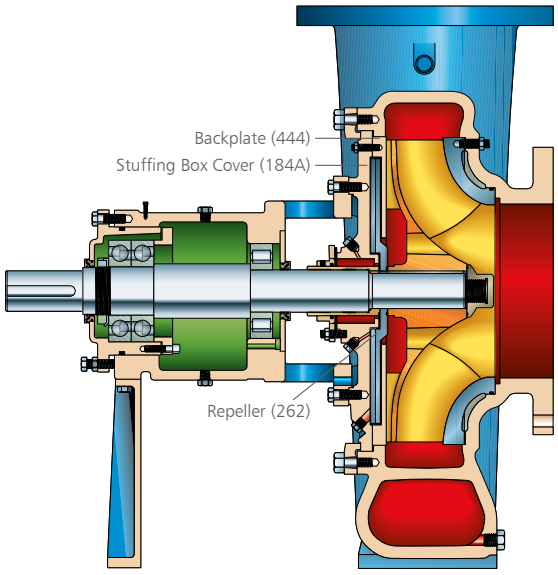
For Elimination of Mechanical Seal Problems; Reduced Maintenance

Goulds Dynamic Seal option is ideally suited to handle the tough applications where conventional mechanical seals or packing require outside flush and / or constant, costly attention. This option allows pumping slurries without an external flush. A repeller between the stuffing box cover and impeller pumps liquid from the stuffing box while the pump is running. A diaphragm seal prevents leakage when the pump is not operating.

The 3185 is easily field converted to Dynamic Seal with retrofit parts – backplate, stuffing box cover, repeller, sleeve.

Benefits of Goulds Dynamic Seal:

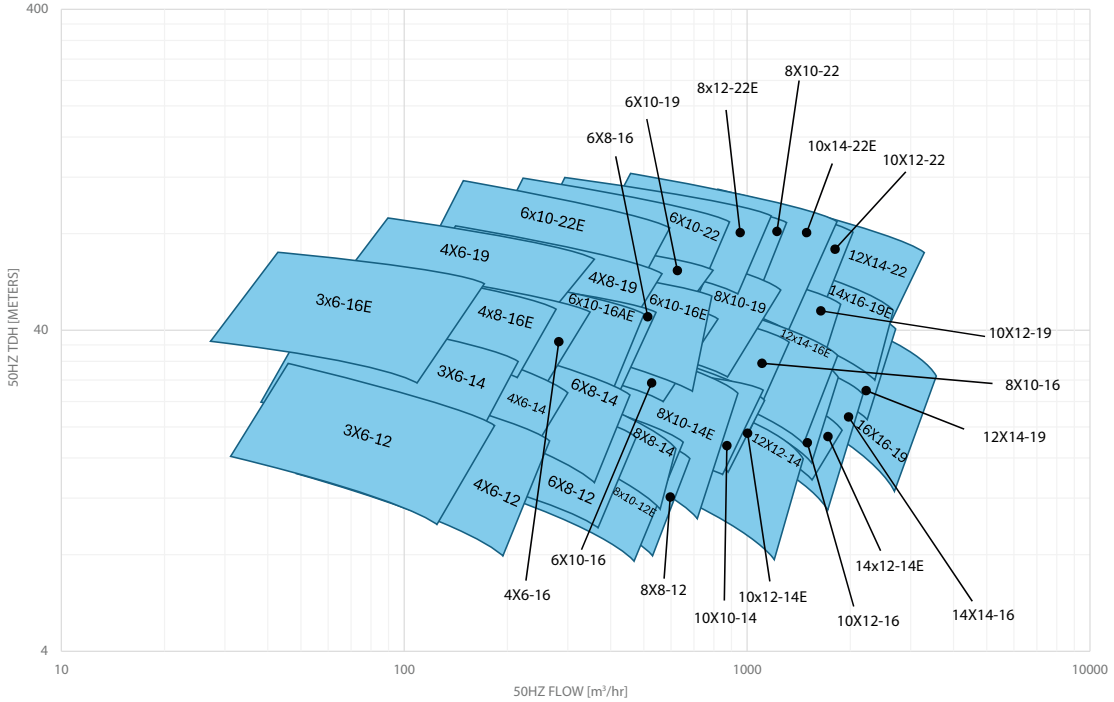
- External seal water not required.
- Elimination of pumpage contamination or product dilution.
- Eliminates problems and costs associated with piping from a remote source.



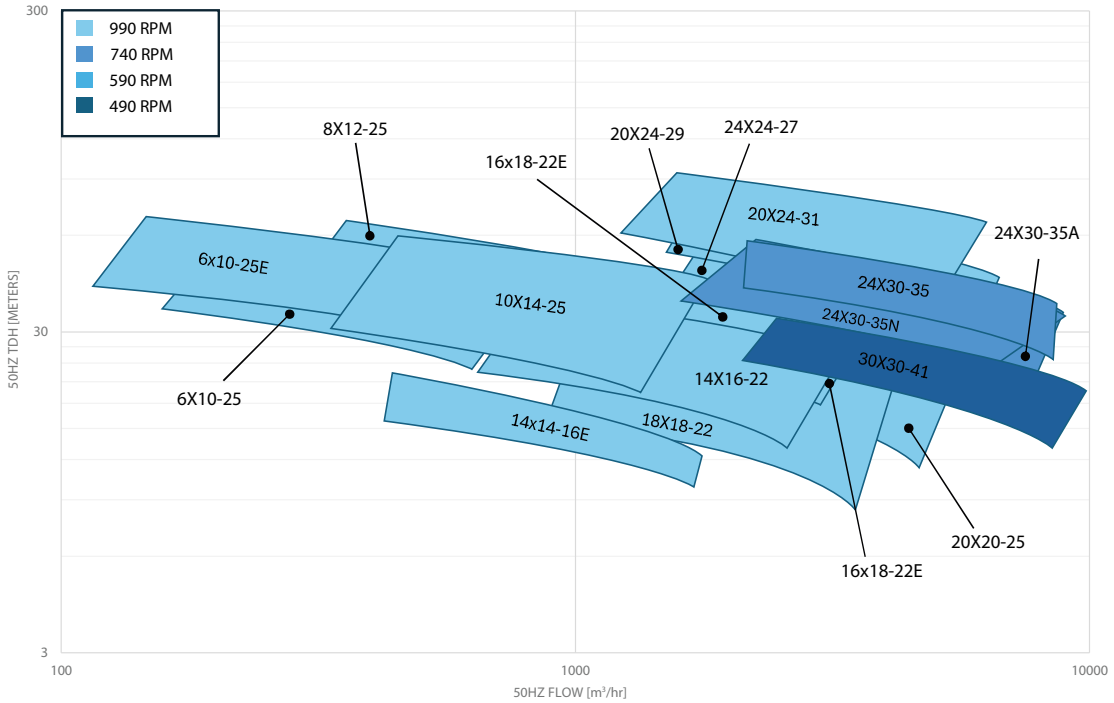
Hydraulic Coverage

50 Hz

1470 RPM

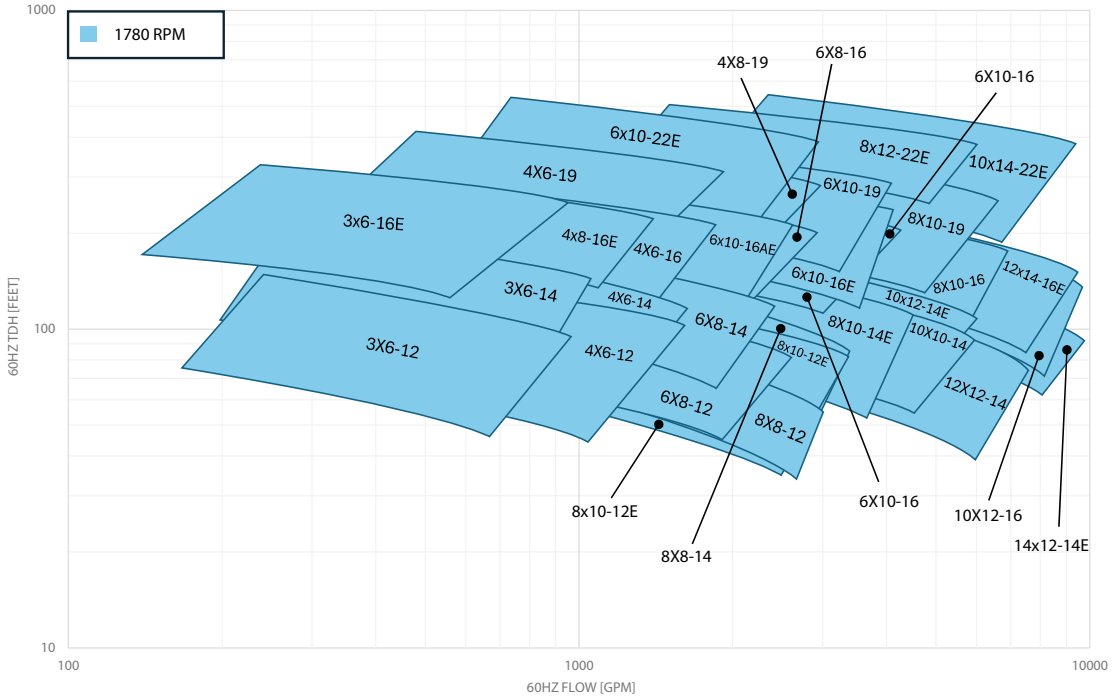


980 RPM

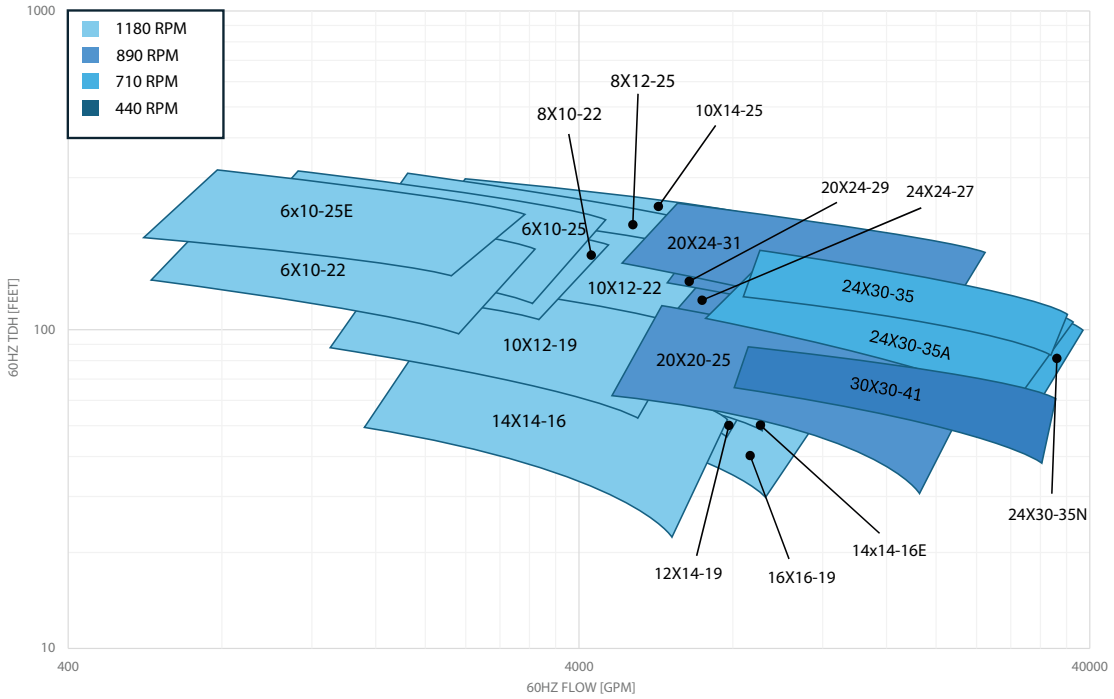


60 Hz

1780 RPM



1180 RPM



Parts List and Materials of Construction

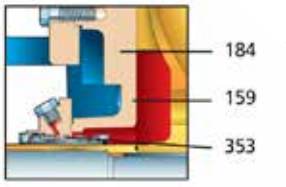
Item Number	Part Name	Material				
		All Iron/CD4 Impeller (E sizes are not available in Iron)	All Iron/CD4 impeller, CD4 Sideplate (E sizes are not available in Iron)	Carbon Steel/ CD4 (E sizes are not available in Iron)	All CD4MCuN	All 317SS
100	Casing	Cast Iron	Cast Iron	Carbon Steel	CD4MCuN	317SS
101	Impeller[1]	CD4MCuN	CD4MCuN	CD4MCuN	CD4MCuN	317SS
105	Lantern Ring	PTFE				
106	Packing	PTFE Impregnated Fibers				
107	Gland	316SS				
108	Frame Adapter[3]	Ductile Iron				
112	Thrust Bearing	Duplex Angular Contact				
122	Shaft	Carbon Steel (4340)				
126	Shaft Sleeve	Duplex SS	Duplex SS	Duplex SS	Duplex SS	317SS
126A	Shearpeller™ Sleeve	N/A	Carbon-filled PTFE			N/A
134A	Bearing Housing	Cast Iron				
136	Bearing Locknut and Lockwasher	Steel				
159	Seal Chamber (Mechanical Seal)	Cast Iron	Cast Iron	Carbon Steel	CD4MCuN	317SS
164	Case Wear Ring (Enclosed Impeller)	316SS	316SS	316SS	CD4MCuN	317SS
176	Suction Sideplate (Open Impeller)	Cast Iron	CD4MCuN	Carbon Steel	CD4MCuN	317SS
178	Impeller Key	AISI 303				
184	Stuffing Box Cover (Packed Box)	Cast Iron	Cast Iron	Carbon Steel	CD4MCuN	317SS
184A	Stuffing Box Cover (Dynamic Seal Option)	316SS	316SS	Carbon Steel	CD4MCuN	317SS
202	Impeller Wear Ring (Enclosed Impeller)[2]	316SS	316SS	Carbon Steel	CD4MCuN	317SS
228	Bearing Frame	Cast Iron				
262	Repeller (Dynamic Seal Option)	316SS	316SS	316SS	CD4MCuN	317SS
304	Impeller Nut	316SS	316SS	316SS	CD4MCuN	317SS
332A	Labyrinth Seal, Outboard	Bronze				
333A	Labyrinth Seal, Inboard	Bronze				
351	Casing Gasket	Aramid Fiber with EPDM Rubber				
353	Mechanical Seal	As Required				
356E	Stud, Casing Wear Ring	304SS				
357A	Nut, Casing Wear Ring	304SS				
358	Casing Drain Plug	Carbon Steel	Carbon Steel	316SS	Alloy 20	317SS
360P	Sideplate/Wear Ring-to-Casing Gasket	Aramid Fiber with EPDM Rubber				
370A	Hex Cap Screw, Adapter to Casing	Carbon Steel				
409	Radial Bearing	Cylindrical Roller[2]	Single Row Deep Groove[3]			
412A	O-ring, Impeller	PTFE				
412C	O-ring, Sideplate-to-Casing	Viton®				
412F	O-ring, Sleeve	PTFE				
444	Backplate (Dynamic Seal Option)	316SS	316SS	316SS	CD4MCuN	317SS
496	O-ring, Bearing Housing	Buna				
748	Casing Lug[2]	Ductile Iron				

Notes: [1]Shearpeller™ available only in Duplex 2205. [2]Available on S,M,L,XL only [3]Available on XL1, XL2-S, XL2 only

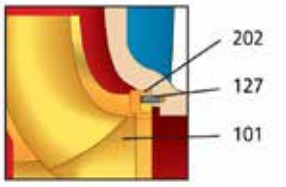
Sectional View

S, M, L and XL

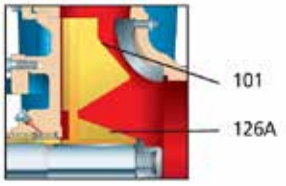
Mechanical Seal Option

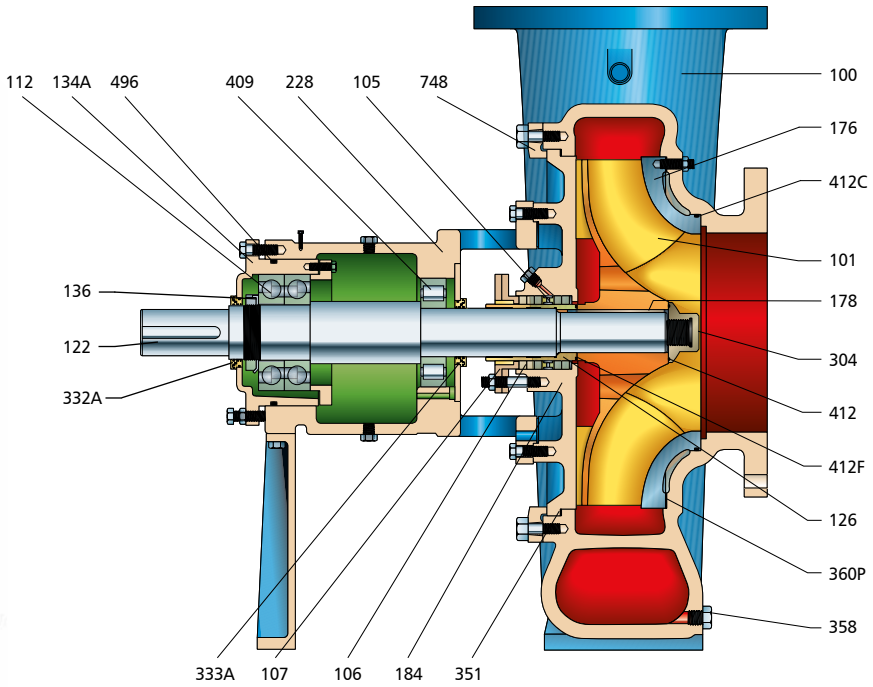


Enclosed Impeller Option



Shearpeller™

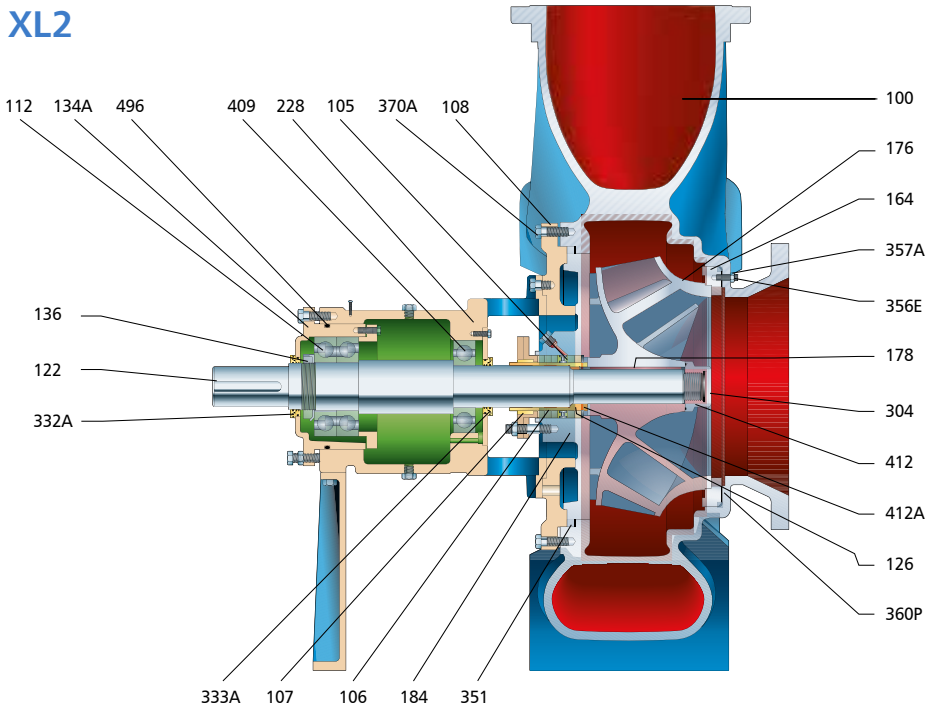




Illustrated:

- Packed Stuffing Box
- Oil Lubrication
- Open Impeller

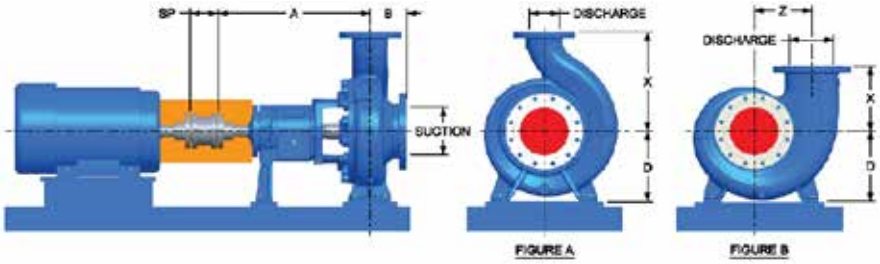
XL1 and XL2



Illustrated:

- Packed Stuffing Box
- Oil Lubrication
- Open Impeller

Dimensions



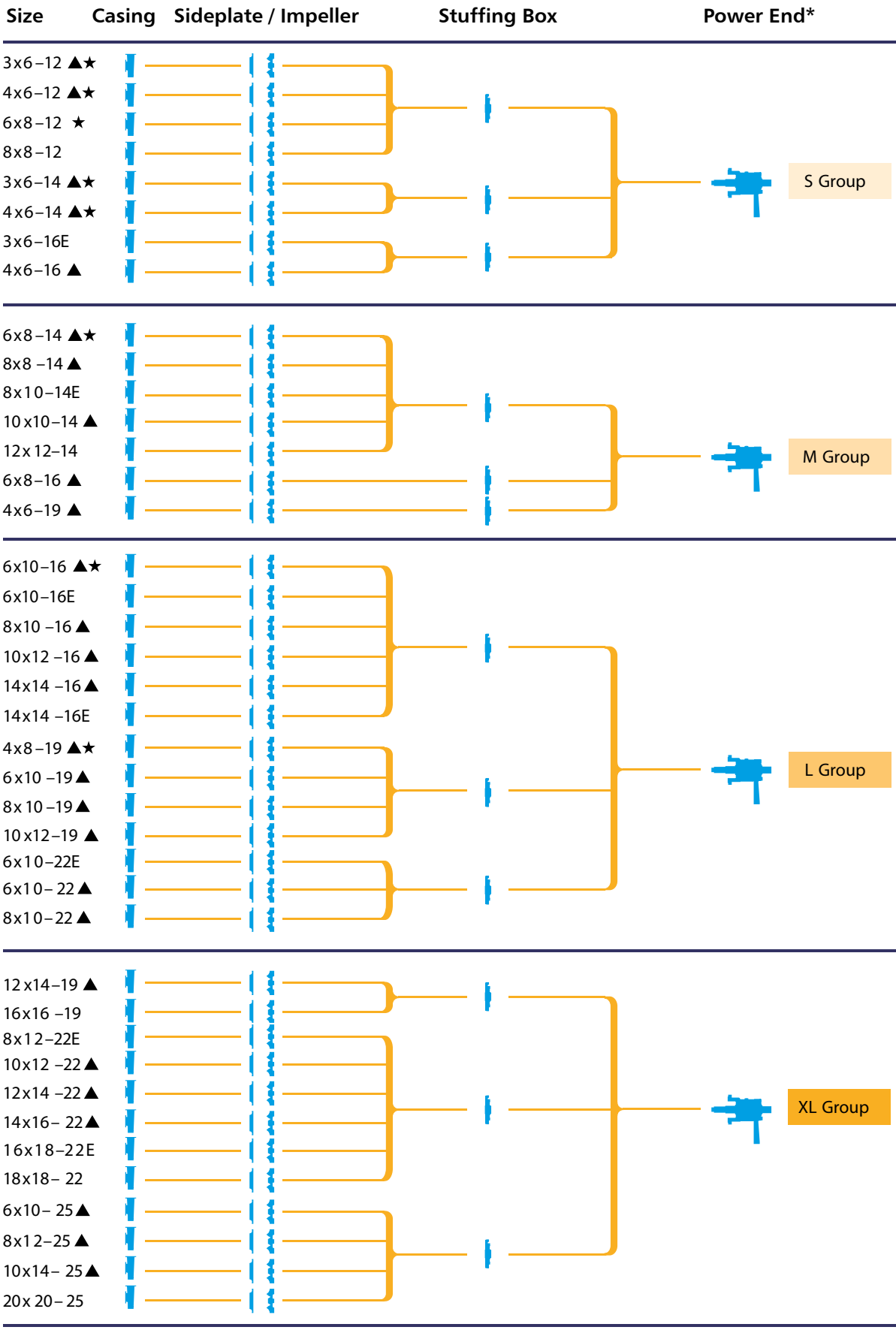
DIMENSIONS											
Group	Size	Figure	Discharge	Suction	D	X	Z	B	A	SP	Pump Weight (lbs.)
S	3X6-12	A	3	6	250	315	-	125	530	140	167
	4X6-12	A	4	6	250	355	-	140	530	140	176
	6X8-12	A	6	8	280	375	-	160	530	140	236
	8X8-12	A	8	8	315	416	-	200	530	140	295
	8X10-12E	A	8	10	355	485	-	200	530	140	310
	3X6-14	A	3	6	250	315	-	125	530	140	212
	4X6-14	A	4	6	280	355	-	140	530	140	228
	3X6-16E	A	3	6	315	406	-	140	530	140	259
	4X6-16	A	4	6	315	400	-	140	530	140	257
	4X8-16E	A	4	8	355	480	-	180	530	140	290
M	6X8-14	A	6	8	315	400	-	160	670	180	247
	8X8-14	A	8	8	315	450	-	180	670	180	281
	8X10-14E	A	8	10	355	560	-	225	670	180	414
	10X10-14	A	10	10	355	475	-	225	670	180	351
	12X12-14	A	12	12	425	560	-	250	670	180	418
	6X8-16	A	6	8	315	450	-	160	670	180	284
	4X6-19	A	4	6	315	425	-	160	670	180	305
	10X12-14E	B	10	12	425	394	305	250	670	180	442
L	6X10-16	A	6	10	355	500	-	180	750	180	372
	6X10-16E	A	6	10	355	500	-	180	750	180	447
	6X10-16AE	A	6	10	355	500	-	180	750	180	440
	8X10-16	A	8	10	425	500	-	225	750	180	414
	10X12-16	A	10	12	425	600	-	265	750	180	489
	14X14-16	A	14	14	500	670	-	280	750	180	606
	4X8-19	A	4	8	355	450	-	160	750	180	318
	6X10-19	A	6	10	355	500	-	180	750	180	420
	8X10-19	A	8	10	425	560	-	200	750	180	451
	10X12-19	A	10	12	425	600	-	250	750	180	505
	6X10-22	A	6	10	425	560	-	180	750	180	493
	6X10-22E	B	6	10	500	600	-	180	750	180	620
	8X10-22	A	8	10	425	600	-	225	750	180	543
	14X12-14E	B	14	12	500	406	372	280	757	180	662
	12X14-16E	B	12	14	500	465	359	225	750	180	662
	14X14-16E	B	14	14	500	457	400	280	788	180	801
XL	12X14-19	A	12	14	500	670	-	280	830	250	698
	8X12-22E	A	8	12	500	670	-	225	830	250	775
	10X12-22	A	10	12	500	670	-	225	830	250	658
	12X14-22	A	12	14	560	670	-	265	830	250	763
	14X16-22	A	14	16	630	750	-	335	830	250	915
	6X10-25	A	6	10	425	560	-	200	830	250	630
	6X10-25E	A	6	10	500	670	-	225	788	250	824
	8X12-25	A	8	12	500	630	-	225	830	250	687
	10X14-25	A	10	14	560	750	-	250	830	250	766
	10X14-25E	A	10	14	560	750	-	250	830	250	989
	10X16-25E	A	10	16	560	750	-	265	830	250	1015
	16X16-19	A	16	16	560	750	-	300	850	250	837
	18X18-22	A	18	18	630	850	-	355	850	250	1053
	20X20-25	A	20	20	750	1000	-	400	720	250	1216
	10X16-19E	B	20	16	500	432	400	300	820	250	818
	14X16-19E	B	14	16	560	536	415	280	817	250	946
	18X16-19E	B	18	16	650	550	505	325	830	250	1354
	20X18-21E	B	20	18	750	610	578	355	850	250	1828
	10X14-22AE	B	10	14	560	460	578	300	816	250	989
	16X18-22E	B	16	18	650	610	514	355	850	250	1321
XL1-S1	18X14-16E	B	18	14	600	508	411	325	1275	318	1542
XL1-S2	20X18-19E	B	20	18	675	500	495	400	1250	457	1888
XL1	10X14-22E	A	10	14	525	750	-	367	1205	256	1327
	14X16-27	A	14	16	600	1016	-	492	1242	356	1956
	24X24-27	A	24	24	850	1096	-	445	1251	454	2740
	20X24-29	A	20	24	788	1070	-	445	1264	480	2960
	28X24-29E	B	28	24	1000	950	784	457	1329	457	4546
XL2-S	16X20-29E	B	16	20	773	635	630	400	1413	356	3142
	20X24-31	A	20	24	850	1100	-	432	1429	419	3205
XL2	24X28-35E	B	24	28	1000	1000	772	508	1432	533	5368
	24X30-35	A	24	30	960	1300	-	540	1458	597	5318
	24X30-35A	A	24	30	960	1300	-	540	1458	597	5230
	24X30-35N	A	24	30	960	1300	-	540	1458	597	5322
	30X30-41	A	30	30	1100	1702	-	610	1477	597	7042

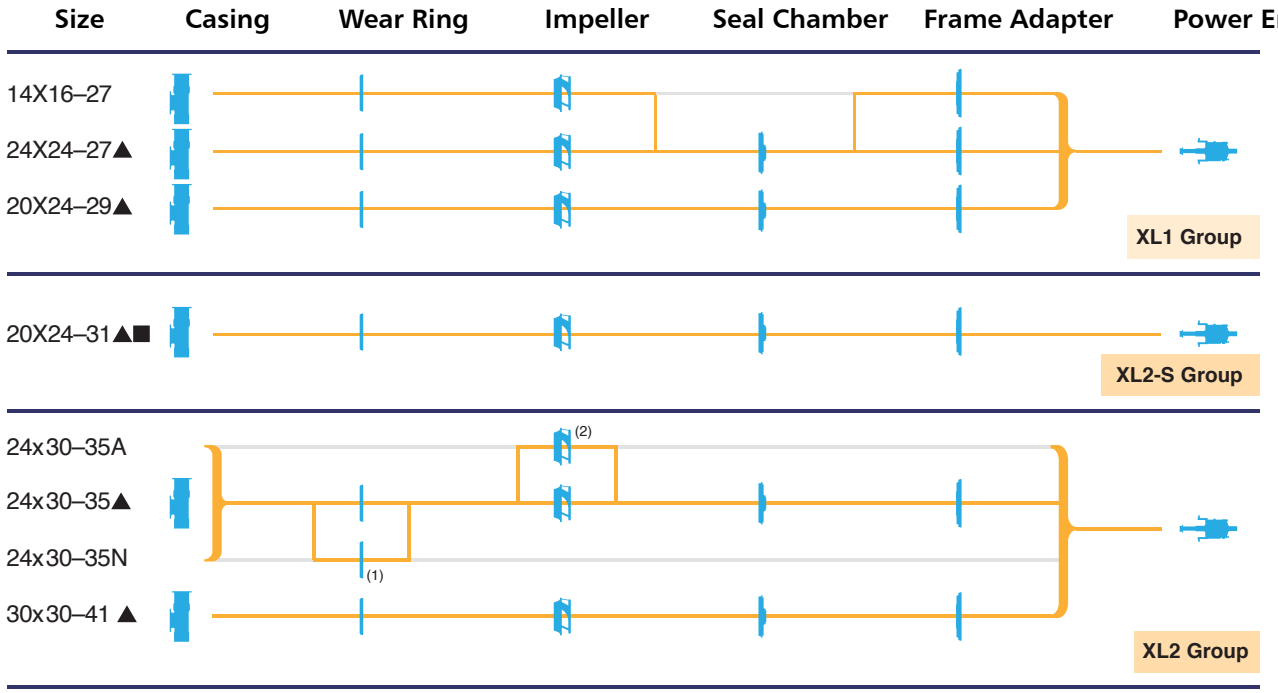
All dimensions in mm. Not to be used for construction.

Construction Details

CONSTRUCTION DETAILS		S Group (ALL)	M Group (ALL)	L Group (ALL)	XL Group (ALL)	XL1 (ALL)	XL2-S (ALL)	XL2 (ALL)
Temperature Limits	Grease Lube	180° C	180° C	180° C	180° C	180° C	180° C	180° C
	Oil Lube w/o Cooling	180° C	180° C	180° C	180° C	180° C	180° C	180° C
	Oil Lube w/ Cooling	230° C	230° C	230° C	230° C	230° C	230° C	230° C
Shaft Diameter (mm)	At Impeller	38.4	45.0	55.9	66.0	100.0	100.0	125.0
	Under Shaft Sleeve	50.0	57.9	68.1	80.0	117.5	146.1	146.1
	At Coupling	41.3	47.6	60.3	73.0	104.8	130.2	130.2
	Between Bearings	66.8	73.2	86.1	103.1	140.0	169.9	169.9
Packed Stuffing Box (mm)	Sleeve Diameter	60.0	70.0	80.0	94.9	135.0	165.0	165.0
	Bore	85.1	95.0	104.9	119.9	160.0	190.0	190.0
	Depth	85.1	85.1	89.9	89.9	89.9	89.9	89.9
	Packing Size	12.7	12.7	12.7	12.7	12.7	12.7	12.7
	# of Packing Rings	5	5	5	5	5	5	5
	Width of Lantern Ring	15.9	15.9	19.1	19.1	19.1	19.1	19.1
	Distance to 1st Obstruction	57.4	79.8	70.1	82.3	186.2	221.0	221.0
Mechanical Seal Chamber (mm)	Sleeve Diameter	60.3	69.9	82.6	95.3	133.4	158.8	158.8
	Bore	85.6	98.6	114.0	127.0	77.8	80.2	80.2
	Depth to VPE Ring	46.0	61.0	54.6	54.6	77.7	80.3	80.3
	Distance to 1st Obstruction	73.4	92.5	87.9	101.1	179.1	214.4	214.4
Taper Bore™ Seal Chamber (mm)	Sleeve Diameter	60.3	69.9	82.6	95.3	123.8	152.4	152.4
	Bore	85.6	98.6	114.0	127.0	170.1	199.9	199.9
	Depth to VPE Ring	46.0	61.0	54.6	54.6	125.0	137.7	137.7
	Distance to 1st Obstruction	73.4	92.5	87.9	101.1	154.9	173.2	173.2

Modular Interchangeability





*Shafts for Models 3180 and 3185 are not interchangeable.
Sleeves for mechanical seals on the 3180 and 3185 are not interchangeable.

▲ Available with enclosed impeller.

★ Available with Shearpeller™

■ Uses the XL2-S shaft, sleeve and impeller nut.

(1) 24X30 - 35N uses alternate wear ring

(2) 24X30 - 35A uses alternate impeller

Pick Your Perfect Process Pump

Whether it's for pumping severe corrosives, abrasive slurries, fibrous / stringy solids, high temperature liquids, hazardous fluids, low flow or high capacity services – Goulds has a perfect, reliable solution. The Goulds selection of pump solutions includes horizontal and vertical configurations in a range of alloy and non-metallic constructions, sealed and sealless.

3181/3186

- Capacities to 3,000 m^3/h (13,000 GPM)
- Heads to 125 m (410 feet)
- Temperatures to 300° C (508° F)
- Pressures to 25 bar (360 PSIG)

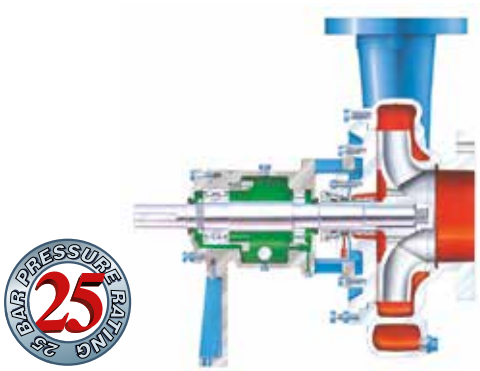
World-Class Pump Line

Model 3181

- ANSI Class 300 flange drilling
- Inch-dimensioned OD of mechanical seal sleeve
- Inch-dimensioned bearing locknut
- Inch-dimensioned coupling extension

Model 3186

- ISO or JIS 40 bar flange drilling
- mm-dimensioned OD of mechanical seal sleeve
- mm-dimensioned bearing locknut
- mm-dimensioned coupling extension



Designed to Handle High Temperature and High Pressure Services of the Pulp and Paper Industries

- **Hydraulic Coverage:** Line designed for full 50 / 60 Hz performance.
- **Back Pull-Out Construction:** Spacer type coupling allows one-craft maintenance.
- **Centerline Supported:** High temperature stability.
- **Labyrinth Seals:** Eliminate loss of lubricant, prevent lubricant contamination for maximum bearing life.
- **Maximum Interchangeability:** Power end and impellers completely interchangeable with Goulds Models 3180 or 3185.
- **International Design:** Metric fasteners and fittings used throughout.

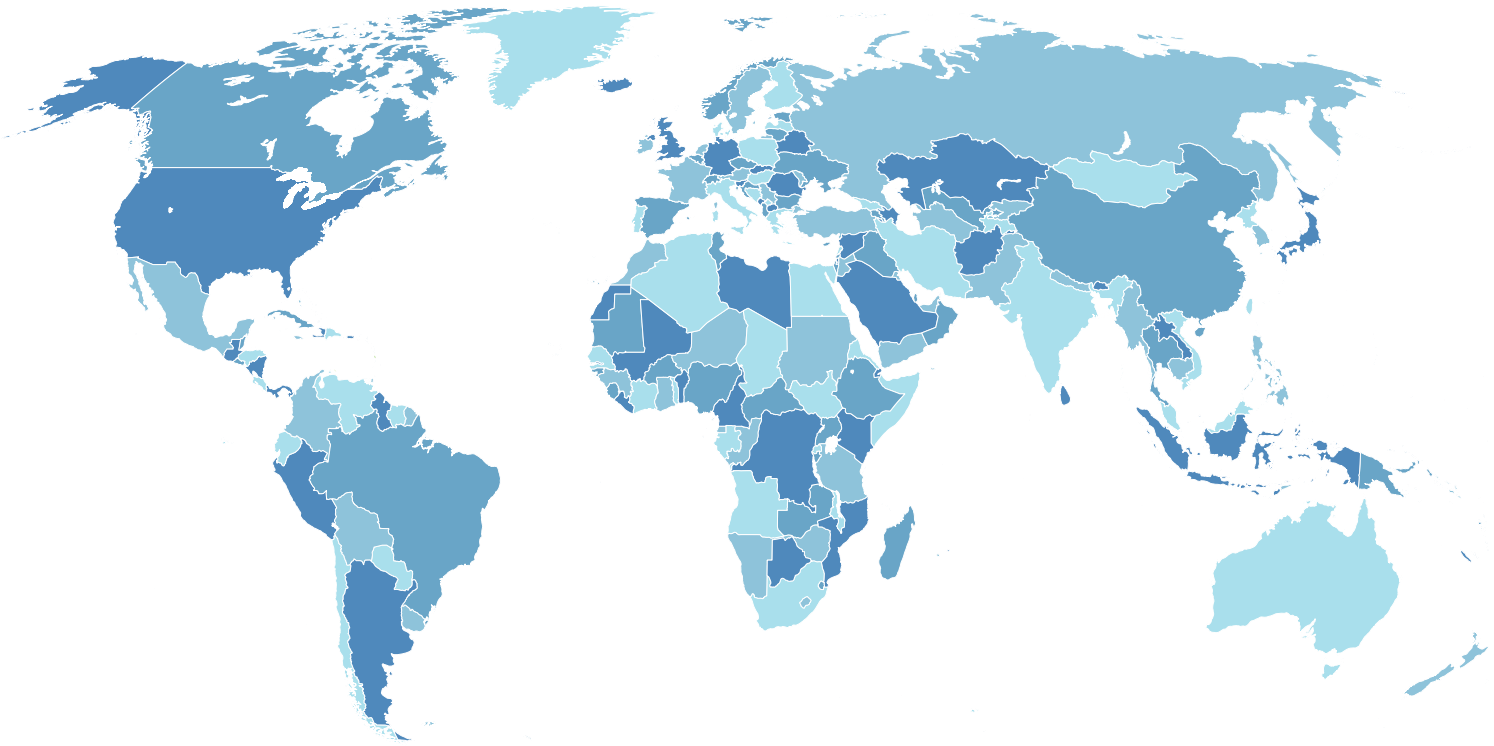
Applications

- Digester recirculation
- Make-up liquor
- White liquor
- Black liquor
- High pressure / high temperature pulp mill services
- Hot oil

For High Pressure / Temperature Services

- Centerline mounted
- Fully-confined spiral wound-casing basket
- Through bolted seal chamber

Notes



Visit www.ittproservices.com & www.gouldspumps.com to find nearest service, sales, and manufacturing locations

GOULDS PUMPS

An ITT Brand

240 Fall Street
Seneca Falls, NY 13148
Phone: 315.568.2811
Fax: 315.568.2418
www.gouldspumps.com

B.3185.en-US.2025-10