

### Goulds 3175

Paper Stock/Process Pump with i-ALERT® Patented Intelligent Monitoring



### 3175

Designed to Handle the Toughest Jobs in the Pulp & Paper and Process Industries

- Capacities to 28,000 GPM (6360 m3/h)
- Heads to 350 feet (107 m)
- Temperatures to 450°F (232° C)
- Pressures to 285 PSIG (1965 kPa)

#### **Design Features**

- Back Pull-Out
- Fully Open Impeller
- External Impeller Adjustment
- Renewable Wear Parts
- Maximum Sealing Flexibility
- Heavy Duty Construction
- Maximum Parts Interchangeability
- i-ALERT® Condition Monitoring

#### **Applications**

- Pulp & Paper Paper Stock through 6%
   Consistency, Black Liquor, Hydropulper and Broke Service, Low NPSH Digester Circulation, Blow Tank to Screens, Primary Screens Rejects, High Density Chlorine Tower to Washer, Flotation Cell Circulation
- Chemical Evaporator and Reboiler Circulation, Slurry Services
- Petroleum Corrosive/Abrasive Crude, Catalyst Slurry, Coke Fines
- **Steel** Mill Descaling, Waste Treatment, Venturi Scrubber, Electro-Galvanizing Recirculation
- Food Fruit Pulps, Grain Mash and Spent Grains, Evaporator Recirculation, Beet and Cane Sugar, Corn Products
- General Waste Treatment, Air Pollution Abatement, Acid Mine Water, Textile Slurries



#### Wide Range of Materials

Stocked in Cast Iron and 316 Stainless Steel. Available in any machinable alloy including 317SS, 317LSS, 316LSS, Alloy 20, CD4MCuN, 6-7% moly, Titanium, Hastelloy B and C



### A Proven Performer

Since its introduction in 1968, the 3175 has proved itself over and over again. Thousands of installations attest to its remarkable performance even under the severest conditions. And for ease of maintenance, it can't be beat. Customers know they can rely on the 3175 for minimum downtime, increased productivity.



A 3175 installed in a major chemical plant.



Black liquor circulation pump (3175 XL) on spring-loaded baseplate.



Model 3175 handling paper stock



Taking suction from a large stock tank... the 3175 is the preferred pump in the Pulp & Paper Industry



3175's on process service such as multi-effect evaporators.

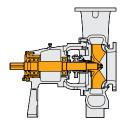


Preventive maintenance is fast and easy on a 3175.

# Long Life/Low Maintenance/Reliable Operation

#### External Impeller Adjustment

Impeller clearance can be easily reset by external adjustment to maintain hydraulic performance. Delivers long time energy savings, while downtime is kept to a minimum.



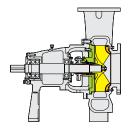
#### Optional TaperBore™ Seal Chamber

Features an enlarged bore for improved lubrication and cooling of the mechanical seal. The tapered throat keeps solids away from seal faces and from building up in the chamber. Seal life is remarkably extended.



#### Renewable Wear Parts

Low maintenance costs because all wear parts...suction sideplate, impeller, stuffing box cover, shaft sleeve and throat bushing...are easily replaced.



#### Fully Open Impeller

Special warped vane, heavy duty open type for paper stock handling. Back pump-out vanes reduce stuffing box pressure, and help prevent solids from entering sealing chamber.



#### **Heavy Duty Shaft**

Designed for continuous service under most severe operating conditions—dry end broke, repulper, hydropulper, blowtank. Low deflection at maximum load for long seal and bearing life, extended MTBF.



#### Patented i-ALERT® Condition Monitor

Constantly measures vibration and temperature at the thrust bearing. Colored LED's indicate general pump health. Provides early warning of improper operation before catastrophic failure occurs.



#### Standard Labyrinth Oil Seals

Prevent contamination of lubricant for extended bearing life.

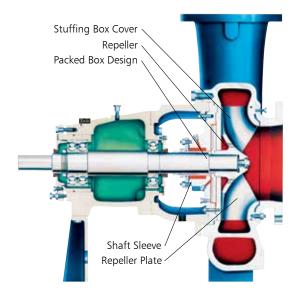


# Maximum Sealing Flexibility

#### Dynamic Seal

### For elimination of mechanical seal problems; reduced maintenance

Goulds Dynamic Seal pumps are designed to handle the tough applications where conventional mechanical seals or packing require outside flush and constant, costly attention. The major advantage is that external seal water is not required, thus eliminating leakage, pumpage contamination, product dilution and problems associated with piping from a remote source.

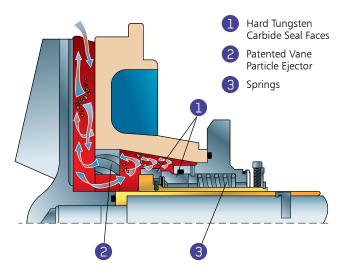


Standard Model 3175 pumps can be fitted with a repeller between the stuffing box and impeller. At startup, the repeller functions like an impeller and pumps liquid from the stuffing box. When the pump is shut down, a conventional static seal prevents pumpage from leaking.

The 3175 is easily field converted to Dynamic Seal. Goulds retrofit kit includes repeller, stuffing box cover, repeller plate, shaft sleeve and choice of static sealing arrangement.

#### TaperBore™ Seal Chamber

Goulds optional TaperBore™ seal chamber features an enlarged bore for improved lubrication and cooling of the mechanical seal. The design features a tapered throat and a vane particle ejector to keep solids away from seal faces and from building up in the seal chamber. Seal life is remarkably extended.



Goulds TaperBore™ seal chamber and cartridge mechanical seal. A full range of other seal types is available.

# 3175

#### Parts List and Materials of Construction

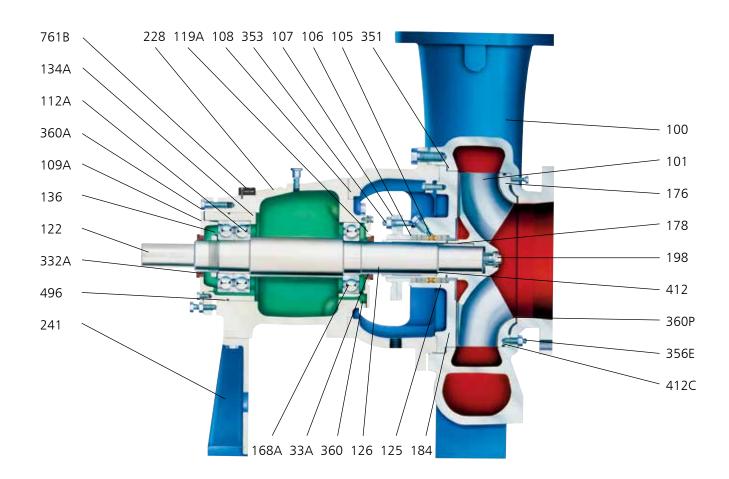
		Material					
Item Number	Part Name	All Iron/ 316SS Trim	All 316SS	All 317SS	All CD4MC		
100	Casing	Cast Iron	316SS	317SS	CD4MCu		
101	Impeller	316SS	316SS	317SS	CD4MCu		
105 <sup>1</sup>	Lantern Ring	Glass-Filled PTFE					
106	Stuffing Box Packing	Graphitized Non-Asbestos Fibers					
107	Gland, Packed Box	316SS	316SS	317SS	316SS		
108	Frame Adapter	7	Ca	st Iron			
109A	Bearing End Cover—Coupling End	Cast Iron					
112A	Thrust Bearing		Suplex Angular C	ontact-Back-to-E	Back		
119A	Bearing End Cover—Inboard			st Iron			
122	Shaft	AISI	316SS	AISI 4140			
125	Stuffing Box Throat Bushing	Cast Iron	316SS	317SS	CD4MCu		
126 <sup>2</sup>	Shaft Sleeve (Packed Box)	316SS Hard I	Metal Coated	31755	316SS HMC		
134A	Bearing Housing		Ca	st Iron			
136	Bearing Locknut and Lockwasher						
168A	Radial Bearing			Steel			
174	Suction Piece	Cast Iron	316SS	317SS	CD4MCu		
176	Suction Sideplate	Cast Iron	31655	31788	CD4MCu		
178	Impelier Key	AISI 303					
178J	Repeller Sleeve Key (Dynamic Seal)						
184	Stuffing Box Cover	Cast Iron	316SS	317SS	CD4MCu		
198	Impeller Screw	316	31788	316SS			
228	Bearing Frame	Cast Iron					
241	Frame Foot	Cast Iron					
262	Repeller (Dynamic Seal)	316SS	CD4MCu				
264	Gasket - Backplate to S.B. Cover (Dynamic Seal)	A	ramid Fiber with	EPDM Rubber B	inder		
265	Stud/Nut-Repeller Plate to S.B. Cover (Dynamic Seal)	AISI 303/AISI 304					
332A	Labyrinth Oil Seal—Coupling End		В	ronze			
333A	Labyrinth Oil Seal—Inboard		В	ronze			
351	Gasket-S.B. Cover to Casing	A	ramid Fiber with	EPDM Rubber B	inder		
353	Gland Stud/Nut		AISI 30	3/AISI 304	Water -		
356E	Stud/Nut-Suction Sideplate		AISI 30	3/AISI 304			
360	Gasket-Inboard Bearing End Cover			lumoid			
360A	Gasket-Outboard Bearing End Cover		Vel	lumoid			
360P	Gasket - Sideplate to Casing	Aramid Fiber with EPDM Rubber Binder					
412	O-ring-Shaft Sleeve	PTFE PTFE					
412B	O-ring - Impeller Screw			TFE			
412C	O-ring—Suction Sideplate		Bu	ina-N			
412U	O-ringRepeller (Dynamic Seal)			TFE			
444	Backplate (Dynamic Seal)	316SS	316SS	31788	CD4MCu		
494	Cooling Coil (Optional)	147		er/Steel	-		
496	O-ring—Bearing Housing			ina-N			
761B	£-ALERT Condition Monitor		10000000	Steel/Epoxy			

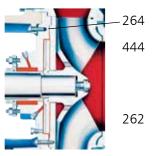
#### **Materials of Construction**

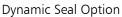
Cast Iron	Cast Iron—ASTM A48, Class 20, 25, 30	303SS	303 Stainless Steel—ASTM A582 Type 303
316SS	316 Stainless Steel—	304SS	304 Stainless Steel—ASTM A276 Type 304
	(Cast) ASTM A743 Gr CF-8M	317SS	317 Stainless Steel—ASTM A743 Gr CG-8M
	(Wrought) ASTM A276 Type 316	CD4MCu	Iron-Chrome-Nickel Alloy—ASTM A743 Gr CD4MCu
		Steel	Carbon Steel—ASTM A322 Gr 4140

Group XI. only: Cast fron for Al/316SS frim, 316SS for All 316SS, 317SS for All 317SS, 316SS for All 317SS and is not hard-coated. Standard sleeve for 317SS pumps with packed box is 317SS and is not hard-coated. Standard sleeve for pumps with 2 mechanical seal is 316SS (317SS on all 317SS).

## **Sectional View**

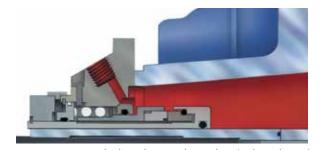




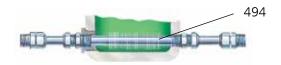




Optional Suction Piece



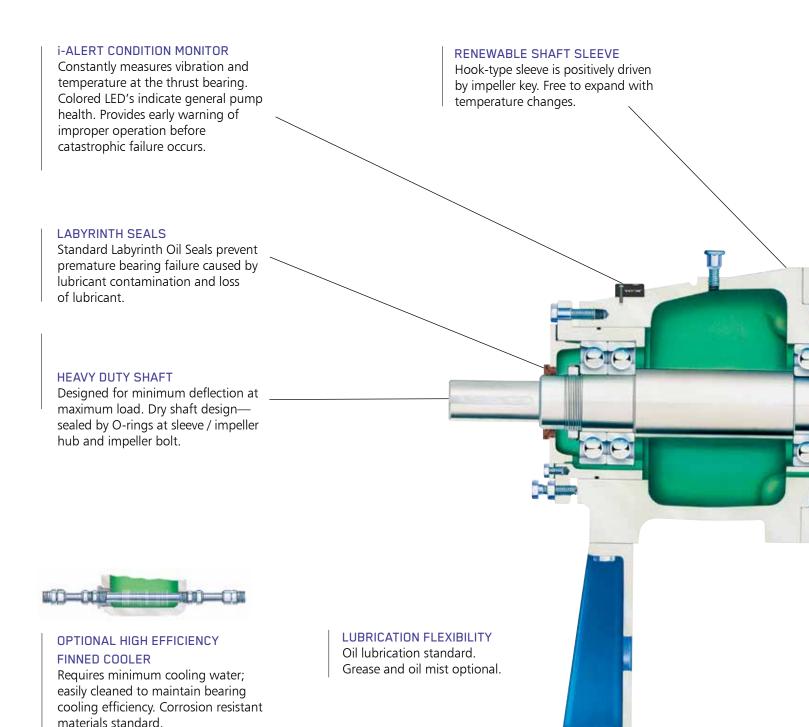
TaperBore™ Seal Chamber and Mechanical Seal Option

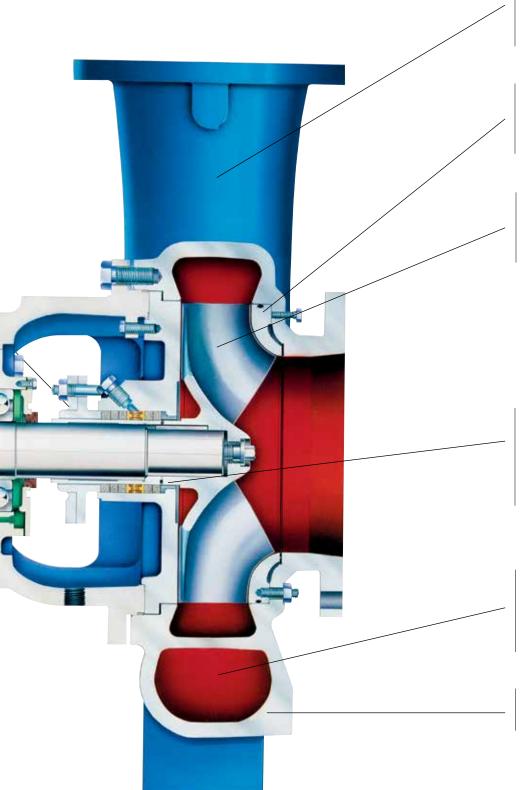


Optional High Efficiency Finned Cooler

# 3175 Paper Stock / Process Pumps

Heavy Duty Design Features for Handling the Toughest Services with i-ALERT® Patented Intelligent Monitoring





#### VERTICAL CENTERLINE DISCHARGE

Self-venting design for air handling. Casing provides maximum piping support.

#### RENEWABLE SIDEPLATE

Heavy suction sideplate minimizes maintenance costs. Positively sealed with O-ring and gasket.

#### **FULLY OPEN IMPELLER**

Designed for full range of services. Back pump-out vanes minimize stuffing box pressure, help prevent solids from entering seal chamber.

### REPLACEABLE STUFFING BOX BUSHING

Minimizes packing and sleeve maintenance.

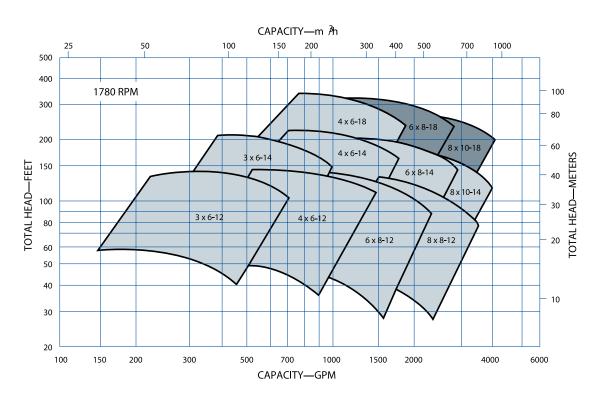
#### **DUAL VOLUTE CASING**

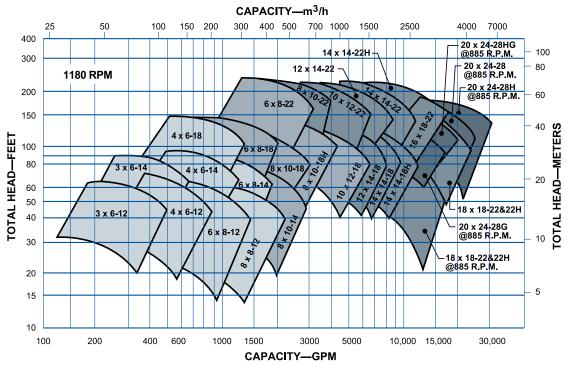
Provided on sizes as required to minimize radial unbalance for long packing, mechanical seal and bearing life.

#### **EXTRA THICK WALL SECTIONS**

For extended wear life and reduced maintenance.

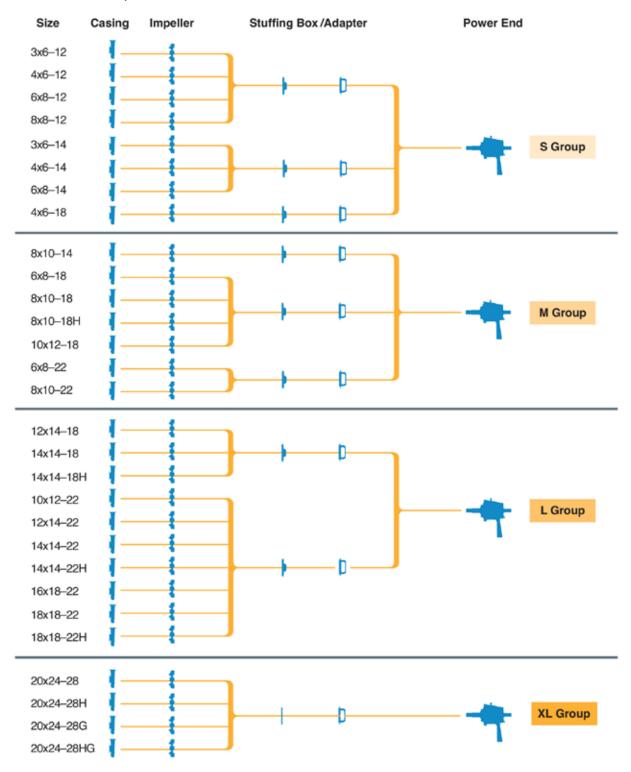
# Hydraulic Coverage



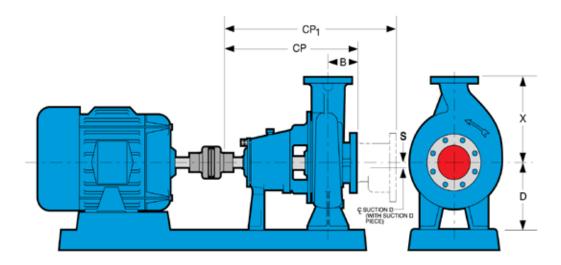


# Modular Interchangeability

#### Minimum Parts Requirements



# **Dimensions**



	DIMENSIONS											
Group	Pump Size	Disch. Size	Suct. Size	Suct. Size*	D	х	В	CP	Ф <sub>1</sub>	s	Shaft Diameter at Coupling	Bare Pump Weight* Lbs. (kg.)
	3x6-12	3	6	8	-	13 (330)				1 (25)		745 (338)
	4x6-12	4	6	10	12½ (318)	141/2 (368)	71/4 (184)	391/4 (1010)	51 (1295)	2 (51)	1.875 (47.63) 1.874 (47.60)	810 (367)
	6x8-12	6	8			16 (406)						975 (442)
s	8x8-12	8	8	12	141/2 (368)	19 (483)	81/s (206)	411/8 (1045)	521/6 (1330)			1205 (547)
1	3x6-14	3	6	8	121/2 (318)	13 (330)	71/4 (184)	39¼ (1010)	51 (1295)	1 (25)	1.875 (47.63)	850 (386)
	4x6-14	4	6	10		141/2 (368)				2 (51)		925 (420)
	4x6-18	4	6	10	12/2 (510)	16 (406)						1050 (476)
	6x8-14	6	8	12		16 (406)						1100 (499)
	6x8-18	6	8	12	14½ (368)	18 (457)	71/4 (184) 391/4 (1010)	E4 (430E)	F)		1525 (692)	
	6x8-22	6	8	12	17 (432)	21 (533)		39% (1010)	51 (1295)	2 (51)	2.375 (60.33) 2.374 (60.30)	1700 (771)
	8x10-14	8	10	14	141/2 (368)	19 (483)	81/8 (206)		53 (1346)			1550 (703)
м	8x10-18	8	10	14	141/2 (368)	21 (533)		411/6 (1045)				1600 (726)
	8x10-18H	8	10	14	17 (432)	21 (533)						1725 (782)
	8x10-22	8	10	14	17 (432)	23 (584)						1800 (816)
	10x12-18	10	12	16	20 (508)	23 (584)						1900 (862)
	10x12-22	10	12	16	20 (508)	25 (635)	81/s (206)	411/6 (1045)	53 (1346)			2050 (930)
	12x14-18	12	14	18	20 (508)	25 (635)				2 (51)		2000 (907)
	12x14-22	12	14	18	20 (508)	27 (686)						2350 (1066)
	14x14-18 14x14-18H	14	14	20	20 (508)	27 (686)	87/s (225)	421/2 (1080) 55 (1397	55 (1397)	3 (76)		2125 (964)
L	14x14-22 14x14-22H	14	14	20	22 (559)	30 (762)			3 (76)	3.374 (85.70)	2800 (1270)	
	16x18-22	16	18	-	28 (711)	32 (813)	121/4 (324)	477/16 (1205)	-	-		3800 (1724)
	18x18-22		431/2 (1105)	-	-		4500 (2041)					
	18x18-22H	18	18	-	28 (711)	34 (864)	16% (422)	501/4 (1276)	-	-		4300 (less suction piece)
ХL	20x24-28 20x24-28H 20x24-28G 20x24-28HG	20	24	-	30 (762)	40 (1016)	171/2 (445)	66¾ (1695)	-	-	3.875 (98.43) 3.874 (98.40)	5300 (2404)

\*With Suction Piece

All dimensions in inches and (mm). Not to be used for construction.

#### **Construction Details**

		S Group	M Group	L Group	XL Group			
Temperature Limits	Maximum Uguid Temperature— Oil Lubrication Without Cooling							
	Maximum Liquid Temperature— Oil Lubrication with Frame Cooling							
	Maximum Liquid Temperature— Grease Lubrication	250F (121°C)						
Power	HP (kW) per 100 RPM— 904L and Alloy 20 Construction	9.52 (7.10)	23.8 (17.8)	63.5 (47.4)	113.6 (84.7)			
Limits	HP (kW) per 100 RPM— Constructions other than Alloy 20	17.4 (13.0)	31.9 (23.8)	82.2 (61.3)	129.0 (96.2)			
	At impeller	1 % (48)	2-1/4 (70)	3 1/4 (86)	37/6 (98)			
Shaft	Under Shaft Sleeve	2 1/2 (64)	31/1s (84)	4 1/16 (109)	5 (127)			
Diameter	At Coupling	1 % (48)	2.1/6 (60)	3 (% (86)	37/s (98)			
17. W. 1 - 2.22	Between Bearings	3 1/v (79)	4 (102)	4 ½ (124)	6 (152)			
Sleeve	O.D. through Stuffing Box	3 (76)	3 1/4 (95)	4 1/4 (121)	51/1 (140)			
	Thrust (Coupling End)	SKF 7313 BECBY	SKF 7317 IIEGAM	SKF 7222 BECBM	SKE 7326 BCBM			
	Radial (Inboard or Pump End)	SKF 6313	SKF 6317	SKF 6222	SKF 6326			
Bearings	Bearing Span	12 1/4 (311)	11 11/hi (297)	11 1/4 (283)	18 (457)			
	Shaft Overhang	10 <sup>1</sup> /yie (271) to 11 <sup>27</sup> /s; (301)	11 <sup>13</sup> /sz (290) to 12 <sup>9</sup> /sc (319)	11 ½ (302) to 13 ½ (344)	19 (483)			
	Bore	4 (102)	4 3/4 (121)	5 1/4 (146)	7 1/2 (191)			
	Depth—to Stuffing Box Bushing		3 <sup>11</sup> /m (94)		6-5a (171)			
Stuffing Box	Packing Size		1 x 1 (25 x 25)					
	Distance from End of Stuffing Box to Nearest Obstruction	3.7	y (79)	3 1/4 (83)	3 1/4 (95)			

All dimensions in inches and (mm). Not to be used for construction.

#### World Class Service; Value-Added Capabilities

Goulds is much more than a manufacturer and marketer of pumps. Capabilities that extend from project consultation to on-site testing and start-up evaluation are available to every customer. Many specialized services from Goulds are only evident after the sale and installation of the product: parts, repair, training and more.

#### **Research and Development**

Goulds continually tests and evaluates every product. The R&D team constantly seeks innovative designs, new materials and system improvements.

#### **Fabrication and Casting**

A The most advanced foundry and fabrication concepts are utilized to improve quality. Our own advanced foundries produce metals from cast iron to Hastelloy including the new generation of high alloys. Because we're not dependent on outside suppliers, we have total control over metallurgical quality.

#### **Repair and Overhaul**

Goulds PRO (Pump Repair and Overhaul) Services® Centers repair all types of rotating equipment. Each facility also has special diagnostic equipment to facilitate preventive maintenance. Let the nearest PRO Services® Center demonstrate repair as an economical alternative to replacement.





#### **Field Service**

A staff of highly specialized installation, training and commissioning engineers is available to insure each projects' successful completion and start-up.

#### **Training**

Goulds Pumps offers the most advanced training program of its kind in the industry including product training, maintenance schools, and PRIME™ seminars. Each seminar is structured as an ongoing educational experience for customers around the world.

#### **Parts Availability**

Goulds Pumps Distribution Centers are strategically located worldwide, and are committed to the ready availability of repair parts.

#### **Service and Support**

In addition to direct sales offices around the world, over 200 authorized Goulds representatives and distributors are totally committed to meeting customers' requirements.

### 3180/85







**Top:** A Model 3180 installed in a North American recycle mill.

Middle: Model 3180XL on difficult high temperature service. Spring-mounted baseplate provided to compensate for thermal expansion.

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

### Goulds 3180/85

# Worldwide Experience on Process Pumping Services

When Goulds developed the 3180, 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 3180 is the heavy duty process pump designed to handle all of your tough process pumping applications.

#### World-class Pump Line

#### Model 3180 is built to ANSI standards.

- ANSI class 125/150 lb. flange drilling
- Inch-dimensioned O.D. of mechanical seal sleeve
- Inch-dimensioned bearing locknut
- Inch-dimensioned shaft and keyway at coupling

#### Model 3185 (built to Metric standards)

- ◆ ISO or JIS 16 bar flange drilling
- mm-dimensioned O.D. of mechanical seal sleeve
- mm-dimensioned bearing locknut
- mm-dimensioned shaft and keyway at coupling
- International design 3185 pumps comply to ISO 5199 with eight sizes conforming to ISO 2858 dimensions. Metric fasteners and fittings used throughout.

#### Model 3181/86

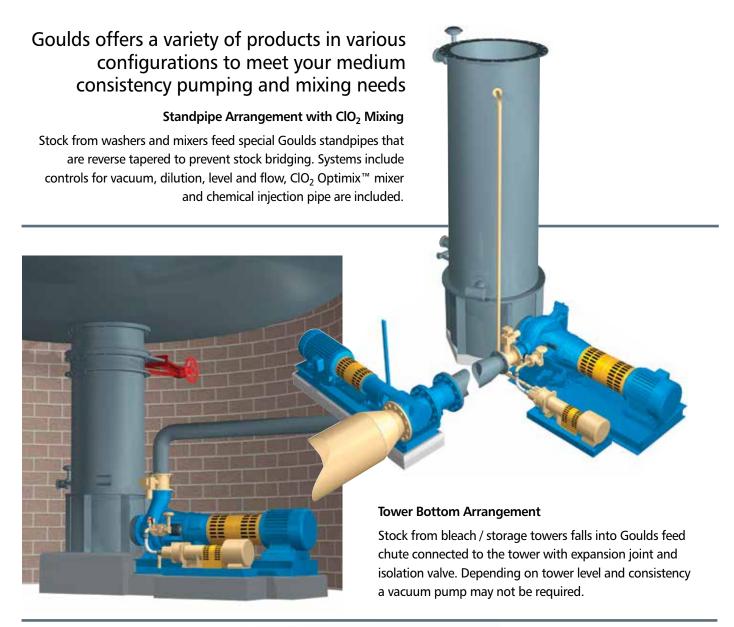
#### For high pressure/ temperature services

- Centerline mounted
- ◆ Same hydraulics as 3180/85
- Power End components are interchangeable with 3180/85





# World-class Paper Stock and Medium Consistency Products





# i-ALERT® Monitoring Solution

### Sensor | App | Ai Platform

www.i-alert.com



#### What it Does:

#### Monitor

Tracks vibration, temperature & run-time hours 24/7/365.



#### Alarm

Takes high resolution data when an alarm condition occurs and stores it for later analysis.

#### Trend

Captures data every 1-60 minutes and has up to 170 days of hourly on-board storage.

#### Analyze

Diagnose machine faults with vibration tools Fast Fourier Transform (FFT) & Time Wave Form Analysis.

#### Environment

Rated for any industrial environment. water & dust resistant. Intrinsically Safe with a 3-year battery life (use dependent).

• ATEX Zone 0 AEx ia IIB Ga (Groups C & D)

#### Wireless

Sync data via Bluetooth Smart enabled smartphones and tablets.

#### Online Monitoring

Monitor and manage all of your i-ALERT enabled machines in one place - i-ALERT Ai Online Platform. This subscription service requires no software to download or dedicated hardware to run.



Spend less time collecting data and more time fixing problems. The i-ALERT mobile app has the ability to scan multiple i-ALERT2 sensors within range to quickly and safely inspect multiple machines.

#### How it Works:

#### 1. ACTIVATE

The i-ALERT2 devices are light activated by removing the sticker. The sensor begins wirelessly broadcasting once activated.



#### 2. AUTO CONFIGURATION

The i-ALERT device averages the vibration over 25 hours of run-time and sets the alarm levels to 2 x average (0.1-1.5ips minimum). Temperature alarm default to 80°C (176°F)

#### OR

#### 2. MANUAL CONFIGURATION

User manually sets the alarm thresholds via the i-ALERT mobile application.



#### 3. Monitor

The i-ALERT2 sensor is configurable to check every 1-5 minutes. If two consecutive readings are above alarm threshold the i-ALERT device will go into alarm.





#### Dashboard

Simple, intuitive dashboard to track vibration, temperature, run-time & battery life.



#### Trending

Trend vibration, temperature, & kurtosis to monitor any changes in the equipment operation.



BOM

Load the as built of materials based on the pump serial number.

# Notes

# Notes

# Notes

# Locations



For more information Please Visit: www.gouldspumps.com | www.ittproservices.com



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