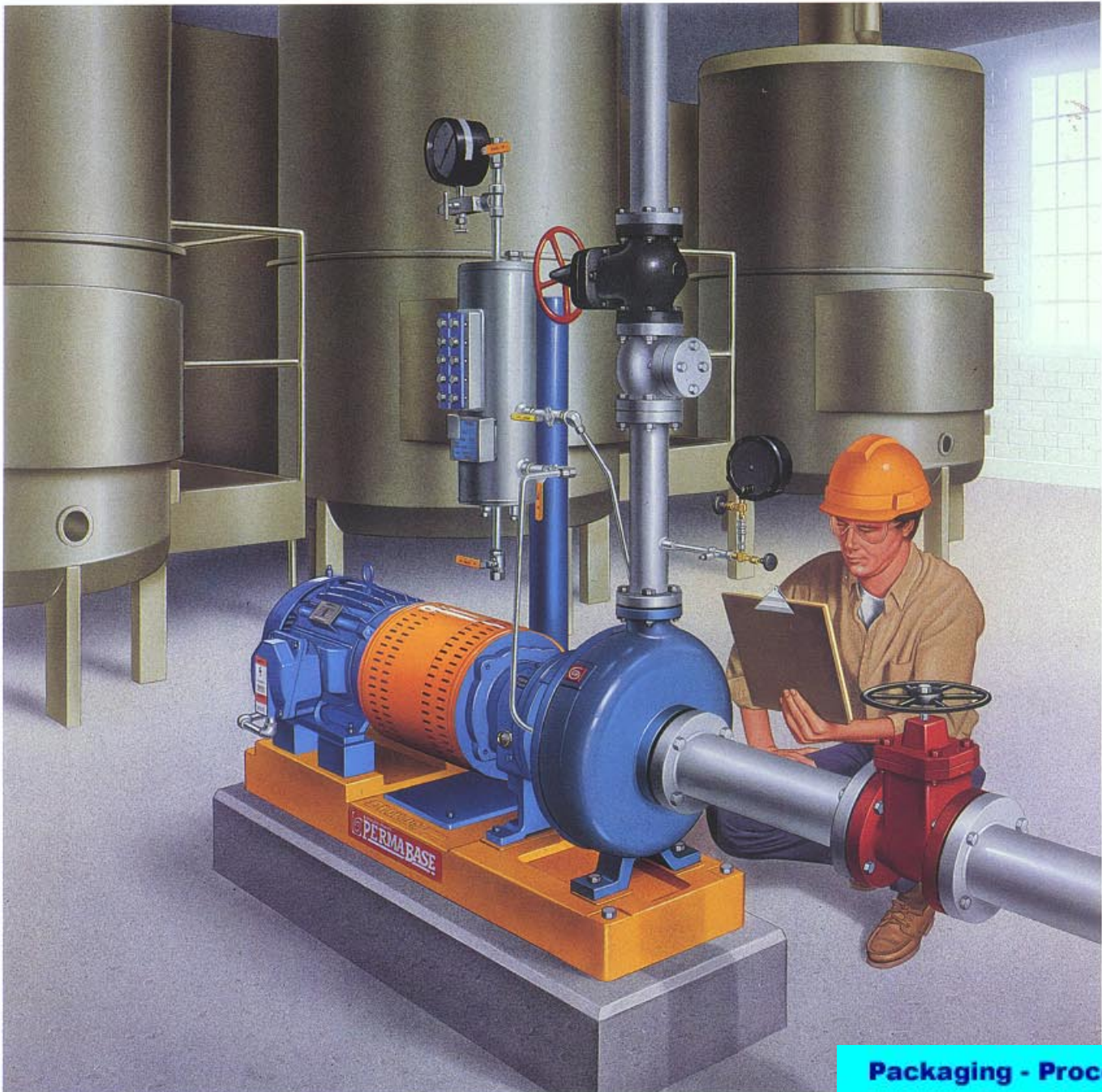




# GOULDS PUMPS

## Goulds Model 3198 PFA Teflon-Lined Process Pumps



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# Goulds Model 3198

## PFA Teflon-Lined Process Pumps Designed for Total Range of Severe Corrosive Services

- Capacities to 800 GPM (182 m<sup>3</sup>/h)
- Heads to 450 feet (137 m)
- Temperatures to 300° F (149° C)
- Pressures to 225 PSIG (1552 kPa)

## Performance Features for Severe Corrosive Services

### *Extended Pump Life*

- Virgin PFA Teflon Lining
  - Optimum lining thickness
  - Superior corrosion resistance
- X-Series power ends
- Fully open impeller

### *Ease of Maintenance*

- Back pull-out design
- External impeller adjustment
- Parts interchangeable with Model 3196
- Easy retrofit
- ANSI standard dimensions

### *Safety*

- ANSI B15.1 coupling guard
- Ductile iron frame adapter

## Services

Hydrochloric acid  
Hydrofluoric acid  
Ferric chloride  
Pickling acid  
Plating acid  
Plating solutions  
Chlorinated brine  
Chlorinated hydrocarbons  
Sodium hypochlorite  
Chlorine dioxide



Model 3198 STX

Goulds 3198 PFA Teflon<sup>+</sup>-lined process pumps are designed specifically to provide superior performance for the severe corrosive services of the Chemical Process Industries.



Model 3198 MTX



# Model 3198 PFA Teflon Process Pumps

## Design Features for Wide Range of Severe Corrosive Services

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### MOUNTING FLANGE

Supports ANSI coupling guard or optional C-face motor adapter.

### STANDARD LABYRINTH OIL SEALS

Carbon-filled Teflon for chemical resistance. Prevent premature bearing failure caused by lubricant contamination and loss of oil.

### CONTINUOUS HIGH PERFORMANCE

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

### HEAVY DUTY SHAFT AND BEARINGS

Shaft designed for minimum deflection—less than .002 in. (.05 mm)—at seal faces. Bearings sized for 2-year minimum and 10-year average life under tough operating conditions.

### ONE-INCH OIL SIGHT GLASS

For easy monitoring of actual oil level and condition.

### RIGID FRAME (AND CASING) FEET

Reduce the effect of pipe loads on alignment.

### LUBRICATION FLEXIBILITY

X-Series power ends pre-drilled for choice of lubrication. Easy field conversion from standard flood oil to oil mist or grease. ANSI PLUS™ sealed power end (magnetic oil seals and sealed expansion chamber) available.

### DUCTILE IRON FRAME ADAPTER

Material strength equal to carbon steel for safety.

### SHAFT SEALING

Goulds 3198 is available with backplate, stuffing box, or BigBore™ seal chamber. Accommodates conventional single inside, single outside, and double mechanical seals. BigBore™ seal chamber accommodates cartridge single and double seals.

### POSITIVE SEALING

Assured by renewable, confined Teflon envelope casing gasket. Compressible filler assures positive seal with low bolt load and without need for retightening.

### ONE-PIECE DUCTILE IRON CASING

Ribs provide maximum support to resist casing distortion and withstand flange loading. No need for expansion joints to reduce pipe loads as 3198 loading same as Model 3196.



### FULLY OPEN IMPELLER

Acknowledged best design for chemical services—solids handling, stringy material, corrosives, abrasives. Back pump-out vanes minimize seal chamber pressure.

Impeller inserts provide uniform low-stress torque transfer and maximum PFA Teflon material support. Assures close tolerance impeller-to-shaft alignment and fit. Metal-to-metal impeller drive.

Teflon impeller O-ring in controlled compression protects threaded area against corrosion.

### THICK PFA TEFLON

Molded in place to ductile iron by high pressure molding technique and mechanically dovetail locked. PFA Teflon is stress relieved to eliminate cracking.

# Designed for Severe Corrosive Services

## Goulds 3198...An Economical Solution



TEFLON IMPELLER



ALLOY IMPELLER



For severe corrosive services, users have traditionally specified pumps constructed of exotic alloys such as titanium, zirconium and monel. The high cost of these alloys, plus the difficulty in making the proper selection, have prompted pump users to seek alternatives.

The 3198 is an economical solution. For less than the price of an exotic alloy ANSI process pump, the 3198 can be reliably used for handling a wide range of severe corrosives.

The 3198 is constructed for optimum reliability. Every day it proves itself in demanding installations, standing up to tough services—and lasting!

## Virgin PFA Teflon-Lined Construction

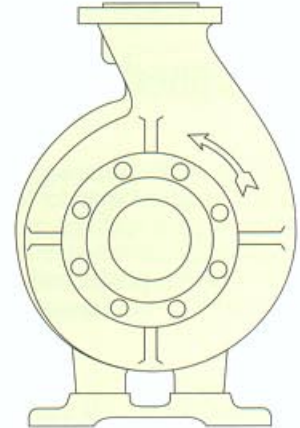
### Corrosion Resistance

The PFA Teflon lining is resistant to most industrial chemicals and solvents with the exception of molten alkali metals and related compounds. It's the acknowledged material of choice for handling severe corrosives.

### Outstanding Strength

Ductile iron and carbon steel backing provide strength equal to all-metal pump components. Outstanding strength reduces the effect of pipe loads on shaft alignment (flange loading capability is the same as all-metal Model 3196).

*True volute casing provides performance and efficiencies similar to the standard of the industry—Goulds Model 3196.*



## Interchangeability

Goulds X-Series Power Ends minimize inventory, reduce downtime. STX and MTX power ends fit 7 different pumps.



**Model 3196**  
X-Series Chemical Process Pumps

**Model NM 3196**  
FRP Process Pumps

**Model LF 3196**  
Low Flow ANSI Process Pumps

**Model CV 3196**  
Chemical Vortex Process Pumps

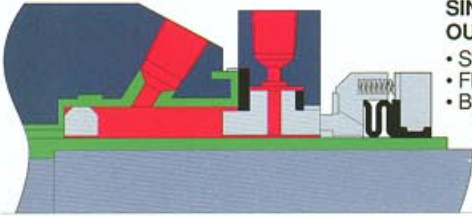
**Model 3198**  
PFA Teflon-Lined Process Pumps

**Model 3796**  
Self-Priming Process Pumps

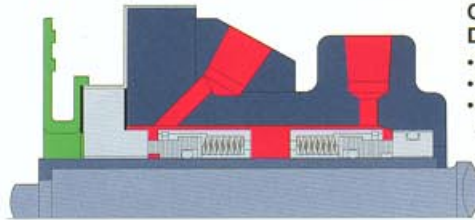
**Model 3996**  
In-Line Process Pumps

# Sealing Flexibility

A wide range of sealing arrangements are readily available to meet specific user requirements. Your Goulds representative can recommend the best solution for any service. Some are illustrated here.



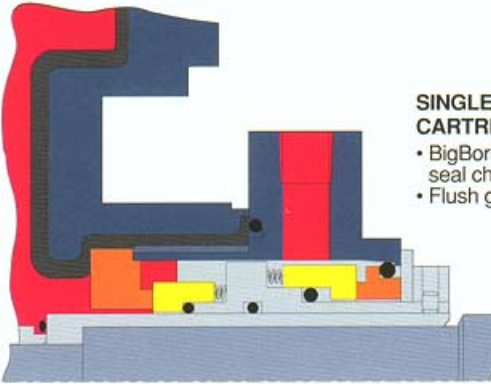
**SINGLE OUTSIDE SEAL**  
 • Stuffing box design  
 • Flush gland  
 • By-pass flush



**CONVENTIONAL DOUBLE SEAL**  
 • Backplate design  
 • Seal chamber  
 • External flush or CPI Plan 7353



**CONVENTIONAL SINGLE SEAL**  
 • Stuffing box design  
 • Flush gland  
 • By-pass flush

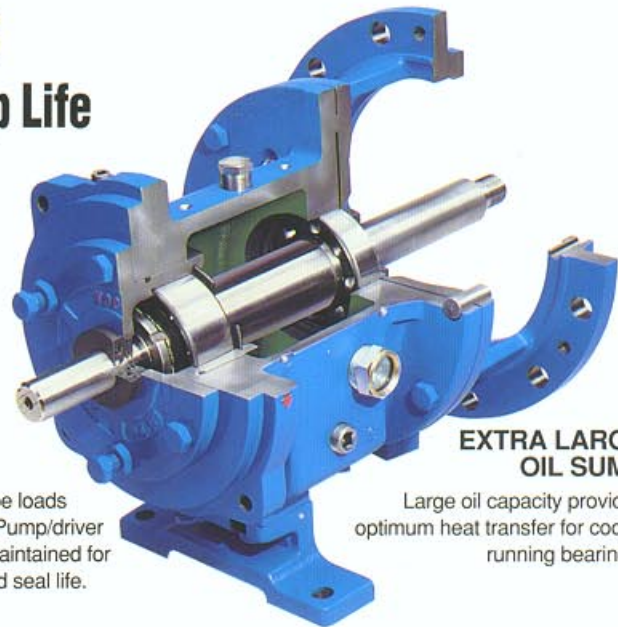


**SINGLE CARTRIDGE SEAL**  
 • BigBore™ seal chamber  
 • Flush gland

# Goulds X-Series Power Ends

## Designed for Reliability, Extended Pump Life

Goulds X-Series power ends (STX, MTX) are the result of users' requirements for longer pump life. Standard performance features extend pump life without compromising Goulds remarkable interchangeability. Goulds backs the X-Series power ends with a 2-year unconditional warranty. . . 100% guaranteed and hassle-free.



### CARBON-FILLED TEFLON\* LABYRINTH OIL SEALS

Prevent contamination of lubricant, the primary cause of premature bearing failure.



### RIGID FRAME FOOT

Reduces effect of pipe loads on shaft alignment. Pump/driver alignment is better maintained for extended bearing and seal life.

### EXTRA LARGE OIL SUMP

Large oil capacity provides optimum heat transfer for cooler running bearings.

### SHAFT/BEARINGS

Shaft designed for minimum deflection for long seal and bearing life. Bearings sized for optimum life. STX/MTX. Double row angular contact thrust bearing standard, duplex bearings optional.



### LARGE OIL SIGHT GLASS

Allows viewing condition and level of oil—critical for bearing life. Frame pre-drilled for optional bottle oiler.



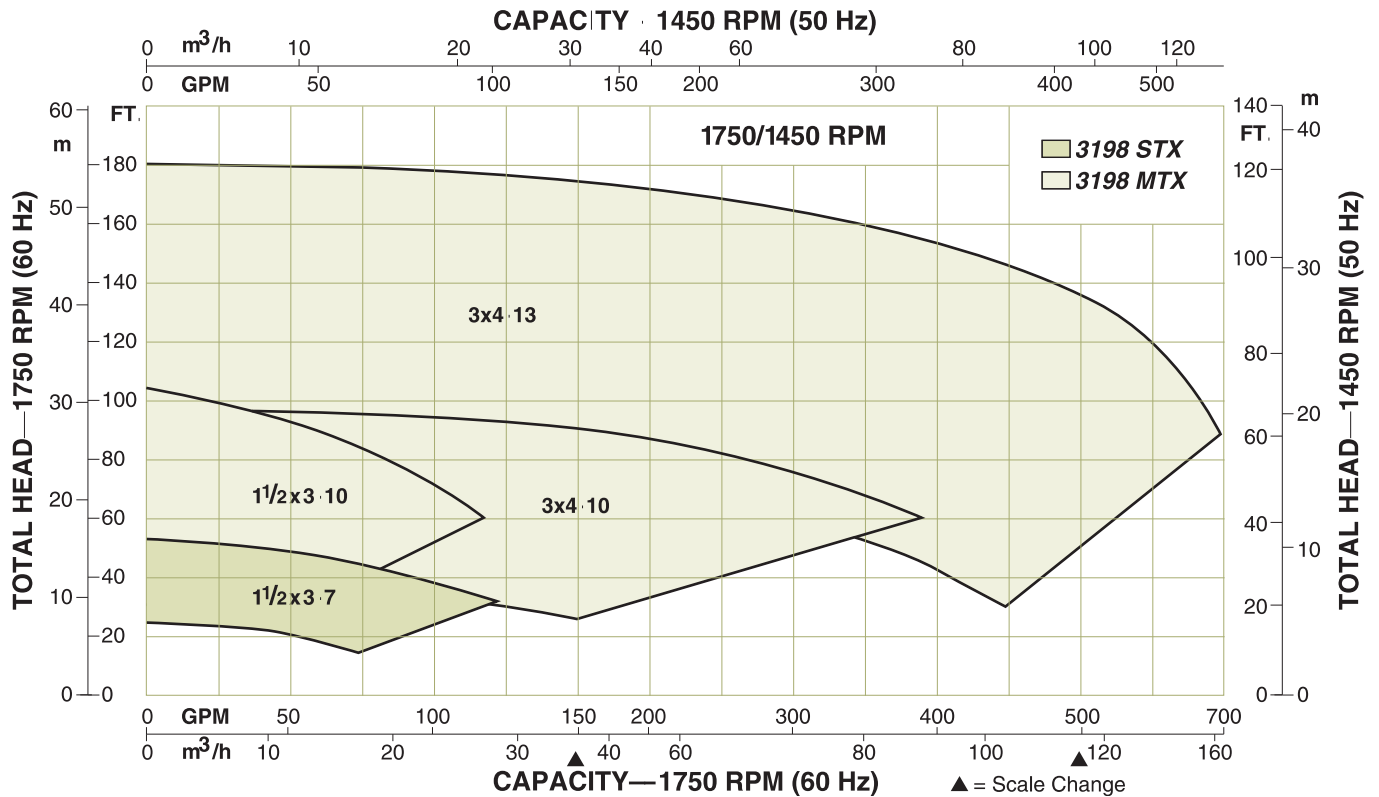
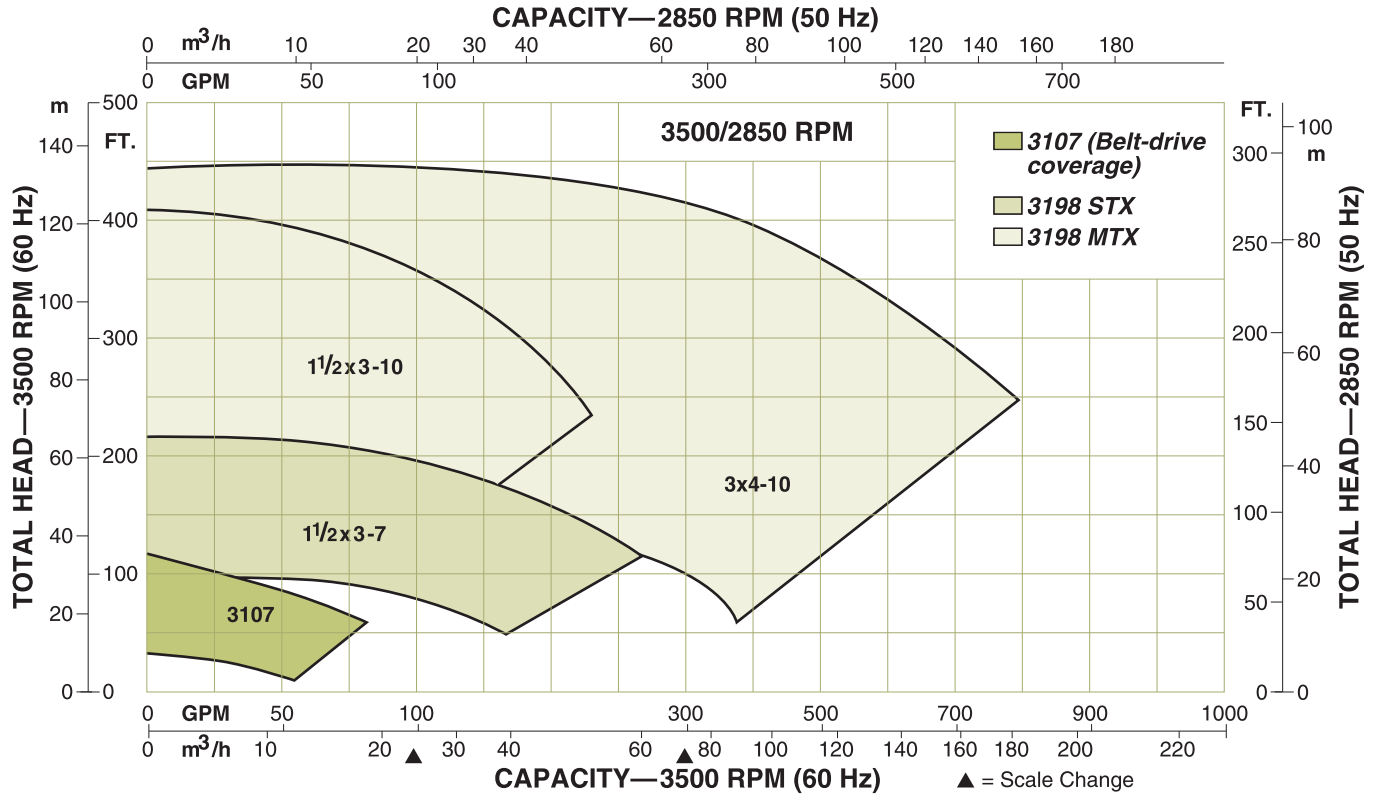
### CONDITION MONITORING SITES

Allow easy and consistent monitoring of temperature and vibration for preventive maintenance. Optional installation of sensors.



\*E.I. DuPont reg. trademark

# Hydraulic Coverage Models 3198



# Parts List and Materials of Construction

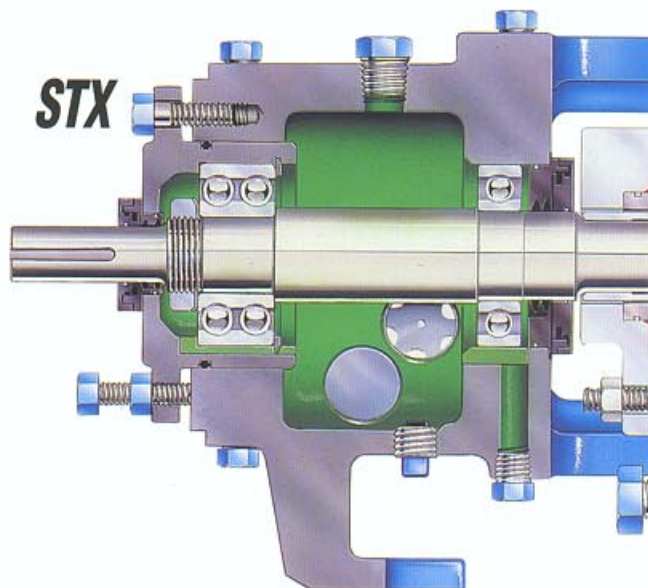
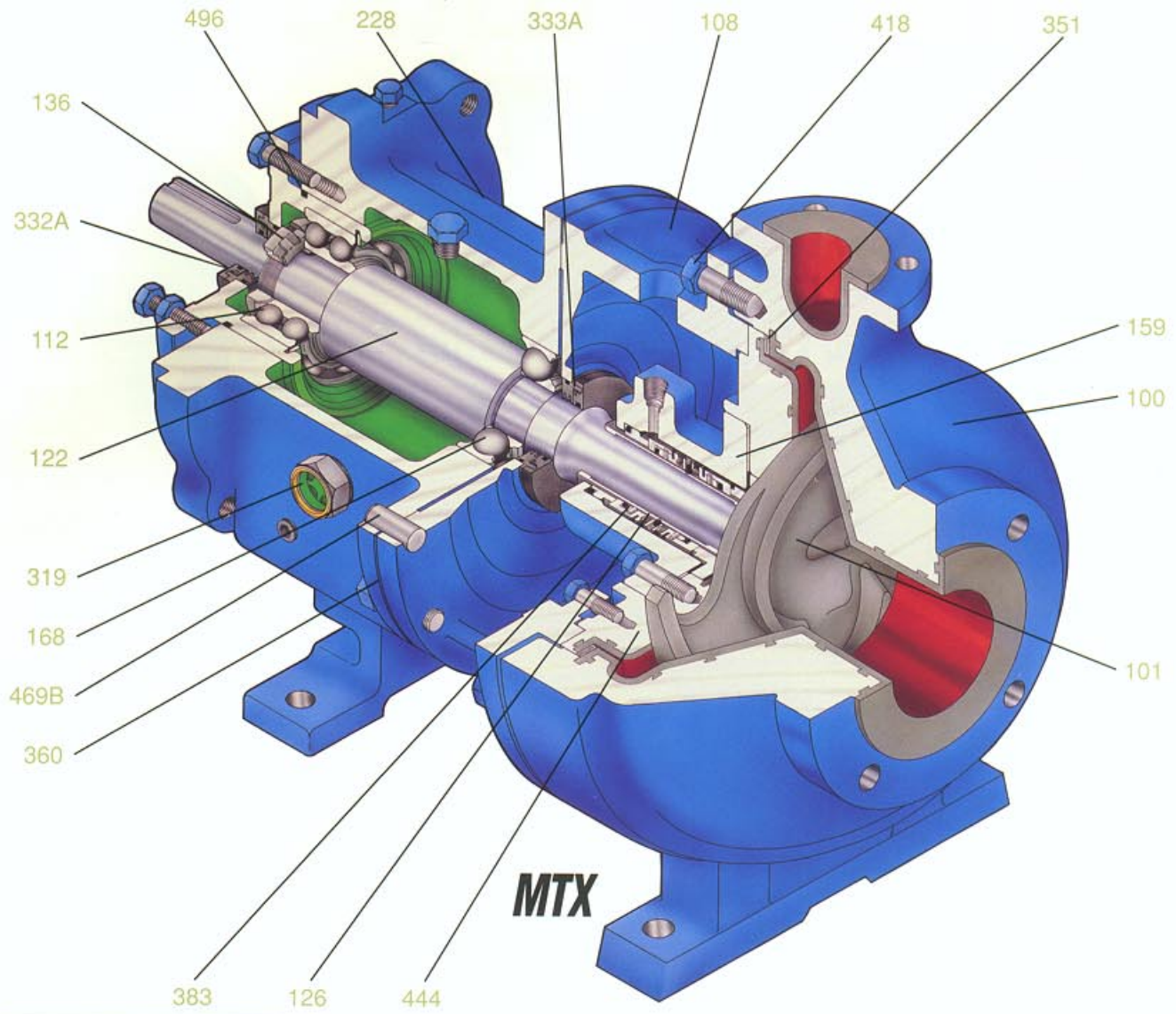
Item Number	Part Name	Material
100	Casing	PFA Teflon Lined Ductile Iron
101	Impeller (with insert)	PFA Teflon Lined Steel
108	Frame Adapter	Ductile Iron
112	Thrust Bearing	Double Row Angular Contact
122	Shaft	316SS (Standard) Optional: Alloy 20, Hastelloy B & C
126	Shaft Sleeve	Choice: PFA Teflon, 316SS, Alloy 20, Hastelloy B & C, Titanium, Zirconium
136	Bearing Locknut and Washer	Steel
159	Seal Chamber (Backplate Design)	316SS
168	Radial Bearing	Single Row Deep Groove
228	Bearing Frame	Cast Iron (Ductile Iron for STX)
319	Oil Sight Glass	Glass/Steel
332A	Labyrinth Seal (Outboard)	Carbon-Filled Teflon with Viton O-ring
333A	Labyrinth Seal (Inboard)	Carbon Filled Teflon with Viton O-ring
351	Casing Gasket	Teflon Envelope
356A	Stud—Casing to Frame or Frame Adapter	316SS
360	Gasket—Frame to Adapter	Vellumoid
370H	Stud and Nut—Backplate/Frame or Frame Adapter	304SS
383	Mechanical Seal	(As Specified)
418	Jacking Bolt	304SS
444	Backplate	PFA Teflon Lined Ductile Iron
469B	Dowel Pin	Steel
496	O-ring—Bearing Housing	Buna Rubber
496A	O-ring—Impeller	Viton A (Teflon Optional)

## Construction Details All dimensions in inches and (mm).

		3107	3198 STX	3198 MTX
Lining Thickness	Casing		3/16 (4.8)	
	Impeller		1/8 (3.2)	
	Stuffing Box Cover		3/16 (4.8)	
	Backplate		3/16 (4.8)	
	Shaft Sleeve		1/8 (3.2)	
Shaft	Diameter at Impeller	.625 (16)	.75 (19)	1 (25)
	Diameter in Seal Chamber (Less Sleeve)	—	1.375 (35)	1.75 (45)
	(With Sleeve)	.687 (17)	1.125 (29)	1.5 (38)
	Diameter between Bearings	1 1/4 (31.8)	1 1/2 (38.1)	2 1/8 (54)
	Diameter at Coupling	5/8 (15.9)	7/8 (22.2)	1 1/8 (28.6)
	Overhang	3.965 (101)	6.125 (156)	8.375 (213)
	Maximum Shaft Deflection		0.002 (0.05)	
Sleeve	Outer Diameter thru Seal Chamber	1 1/8 (28.6)	1 3/8 (34.9)	1 3/4 (44.5)
Bearings	Radial	206SF	SKF6207	SKF6309
	Thrust	305SF	SKF5306 A/C3	SKF5309 A/C3
	Bearing Span	3.25 (83)	4.125 (105)	6.75 (171)
	Average L <sub>10</sub> Bearing Life		87,600 Hours	
Seal Chamber	Bore	—	2.1 (53)	2.6 (66)
Power Limits	HP (kW) per 100 RPM	.55 (.23)	1.1 (.82)	3.4 (2.6)
Maximum Liquid Temperature	Oil/Grease Lubrication		300° F (150° C)	

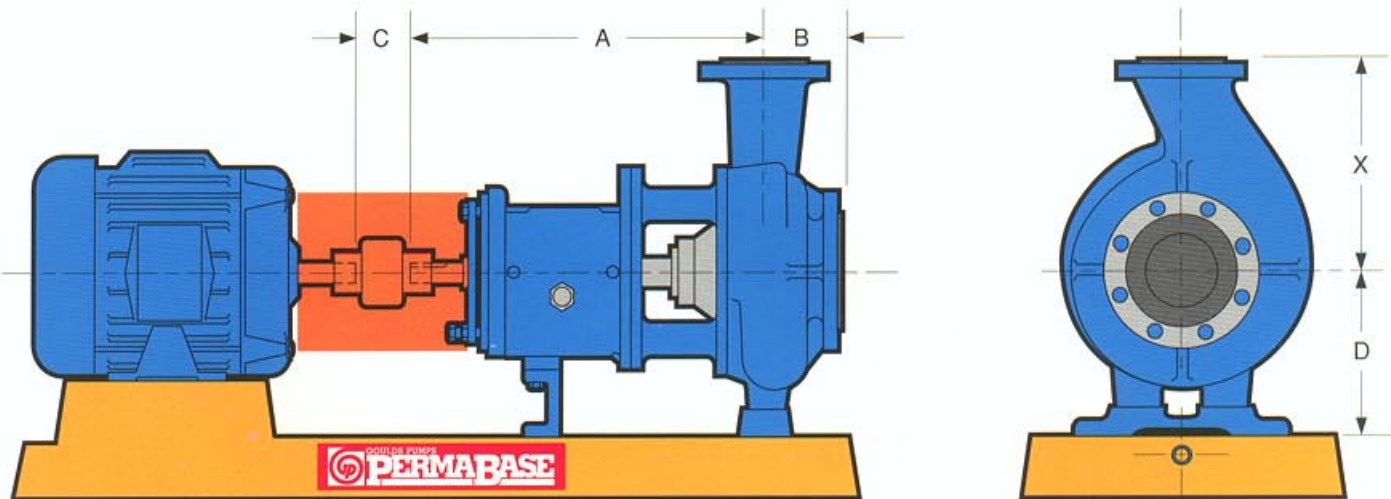
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# Sectional View Model 3198



# Dimensions Models 3107/3198

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



## DIMENSIONS

Group	Pump Size	ANSI Size	Discharge	Suction	A	B	C	D	X	Bare Pump Weight Lbs. (kg)
3107	1x1-6	—	1	1	13 <sup>1</sup> / <sub>2</sub> (343)	2 <sup>3</sup> / <sub>8</sub> (60.3)	<sup>3</sup> / <sub>4</sub> (19.1)	5 <sup>1</sup> / <sub>4</sub> (133)	6 <sup>5</sup> / <sub>16</sub> (160)	70 (32)
3198 STX	1 <sup>1</sup> / <sub>2</sub> x 3-7	AB	1 <sup>1</sup> / <sub>2</sub>	3	13 <sup>1</sup> / <sub>2</sub> (343)	4 (102)	3 <sup>3</sup> / <sub>4</sub> (95)	5 <sup>1</sup> / <sub>4</sub> (133)	6 <sup>1</sup> / <sub>2</sub> (165)	108 (49)
3198 MTX	1 <sup>1</sup> / <sub>2</sub> x 3-10	A50	1 <sup>1</sup> / <sub>2</sub>	3	19 <sup>1</sup> / <sub>2</sub> (495)	4 (102)	3 <sup>3</sup> / <sub>4</sub> (95)	8 <sup>1</sup> / <sub>4</sub> (210)	8 <sup>1</sup> / <sub>2</sub> (216)	230 (104)
	3x4-10	A70	3	4				11 (279)	280 (127)	
	3x4-13	A40	3	4				10 (254)	12 <sup>1</sup> / <sub>2</sub> (318)	343 (156)

## Baseplate Mounting Options

Goolds offers a complete range of mounting systems to meet plant reliability requirements, and to make alignment and maintenance easier.



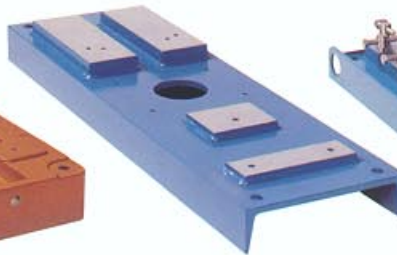
### CAMBER TOP CAST IRON

Rigid and corrosion resistant, it is preferred by many plants.



### PERMABASE™

Fiberglass reinforced vinyl ester construction for superior corrosion resistance.



### FABRICATED STEEL

Economical baseplate that meets ANSI/ASME B73.1M current edition dimensional requirements.



### ENHANCED FEATURE FABRICATED STEEL

Upgraded ANSI baseplate designed to maximize pump operation life and ease installation by meeting API-minded chemical pump users toughest requirements.

For more information, call your nearest Goolds sales office or representative.

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