

# TITAN PUMPS

Houston, Texas

ISO  
9001:2008  
CERTIFIED

*Engineered for High Performance...*



## **TITAN** 4196 ANSI PUMPS



**ONE TOUGH PUMP!**

***Pumps  
and parts  
available!***

***In Stock!  
.... Give us a call!***

**MANUFACTURING • SALES • SERVICE**

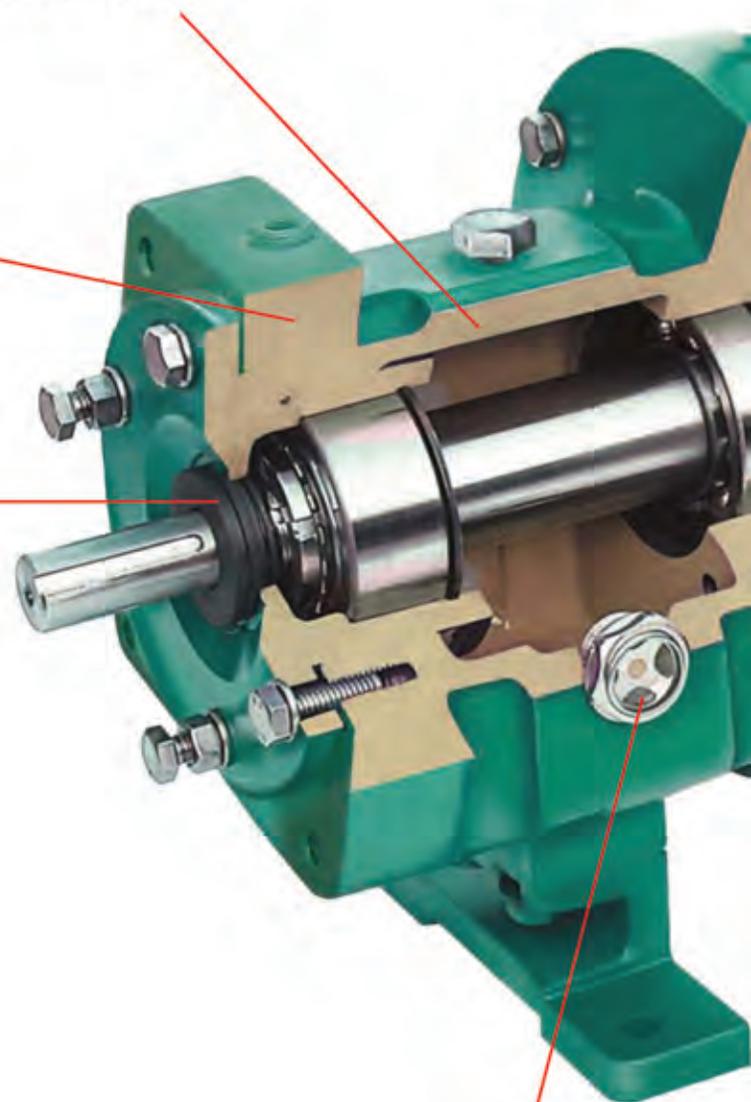
The TITAN ANSI Process Pump is designed primarily for the chemical & process industry, which has very corrosive process conditions. TITAN meets these challenges utilizing the ANSI B73.1M specifications.



- **Bearing Frame**
- **C-Face and Coupling Guard Mounting Flange**

- **INPRO/SEAL® Labyrinth Oil Seals**

- **Bearing Frame**



- **Sight Glass**

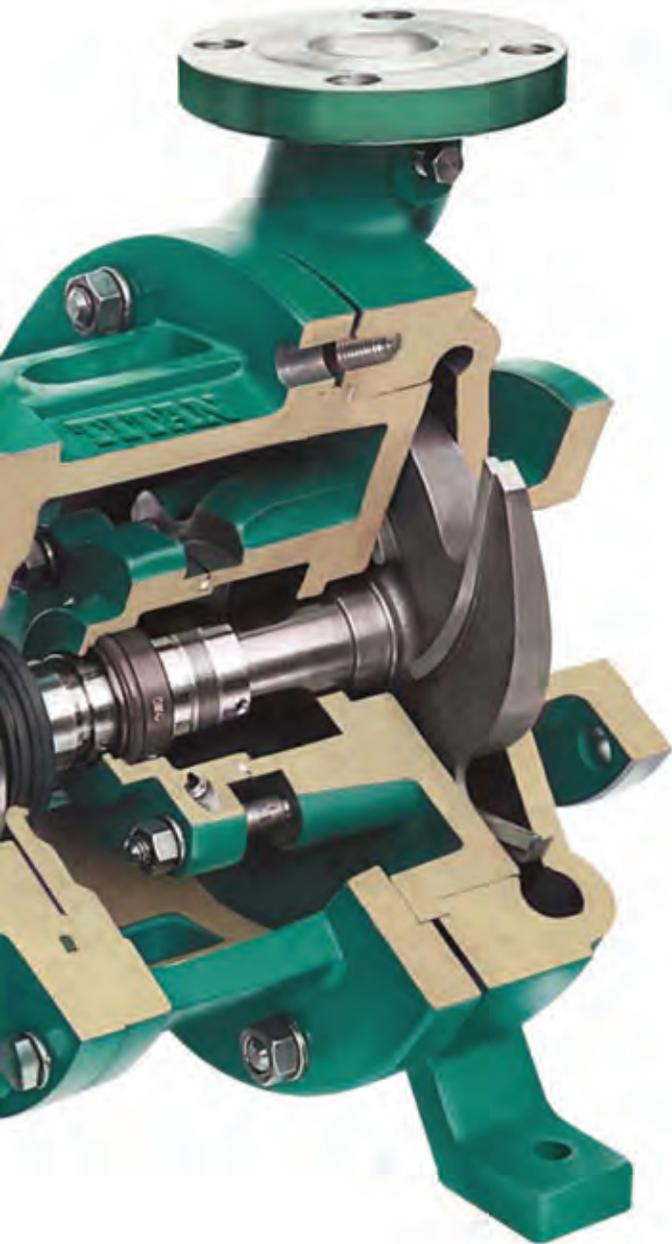
**APPLICATIONS:**

- Chemical Process Industry
- Pulp & Paper
- Oil & Gas
- Textile
- Breweries • Food Processing
- Water Treatment
- Power Generation
- Grain Processing
- Petrochemical

**Call: (713) 283.7700 Fax: (713) 283.7600**

Offered in 29 different sizes

**Titan**  
ANSI PUMPS



**MODEL & SIZES**

ST	MT	TXLT
1x1½-6	3x4-7	6x8-13
1½x3-6	2x3-8	8x10-13
2x3-6	3x4-8	6x8-15
1x1½-8	3x4-8G	8x10-15
1½x3-8	1x2-10	8x10-15G
	1½x3-10	8x10-16H
	2x3-10	4x6-17
	3x4-10	6x8-17
	3x410-H	8x10-17
	4x6-10G	
	4x6-10H	
	1½x3-13	
	2x3-13	
	3x4-13	
	4x6-13	

Experience the power of..... **Titan!**

## ANSI SERIES MODEL T-4196

 TITAN pumps & parts are 100% Interchangeable with leading ANSI pump brands.



### Consider this:

#### *Titan's heavy duty design features:*

- ✓ 100% interchangeability with leading brands
- ✓ High performance pump
- ✓ Extra Metal in wear areas
- ✓ Engineered seal chambers
- ✓ Mechanical sealing solution
- ✓ Shaft & bearings engineered for high performance for high load applications.
- ✓ Lubrication flexibility
- ✓ Components Interchangeability

### Heavy Duty Power Frame



- INPRO™ Labyrinth oil seals
- Large sight glass
- Heavy duty shafts & bearings

The TITAN PUMP features a heavy duty shaft assembly for high load applications and when conditions push the power frame beyond ANSI limits. Duplex angular contact bearings insure zero end play for improved sealing and mechanical seal life.



When quality counts....count on **Titan!**

*Mechanical seals for different applications...*

*...In Stock!*



Single Inside Seal



Conventional Double Seal



Double Cartridge Seal



Double Gas Barrier Seal



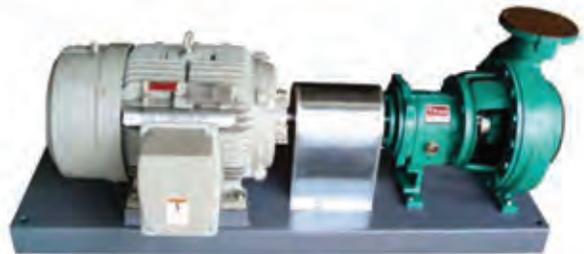
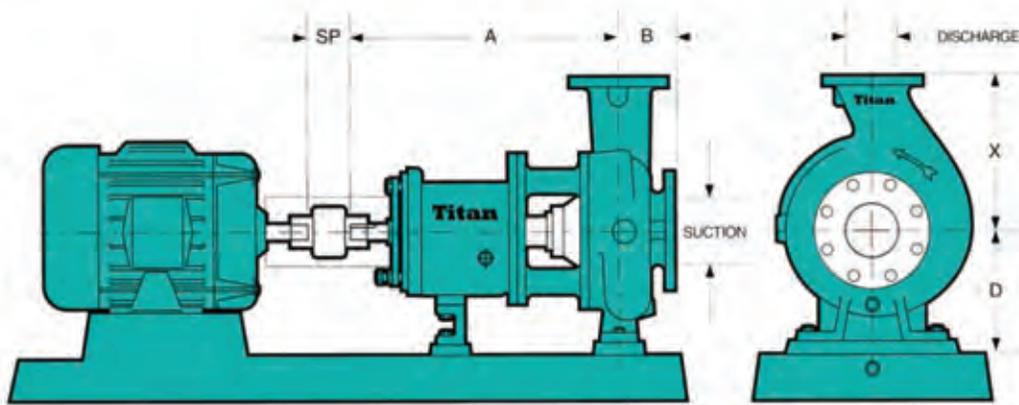
Single Cartridge Seal



	Standard Bore	Tapered Bore	Large Bore
Services	Services utilizing packing or mechanical seals. For mild fluid at ambient temperatures.	Services up to 10% solids or those containing entrained air or vapors. For lower seal face temperatures, self venting & draining. Circulates solids & vapors away from seal faces.	Most services including those with solids greater than 10%. Increased radial clearance between seal & chamber for improved liquid circulation, lubricant & cooling.
Sealing Flexibility			
Packing	Most Services	Not Available	Not Available
Single Seal/No Flush	Not Recommended	Services with Solids up to 10%	Not Recommended
Single Seal/With Flush	Mild, Clear Fluids	All Services with Solids up to 10%	Most Services including Solids above 10%
Conventional Double Seal with Seal Plan	Zero Leakage Applications	Not Available	Zero Leakage Applications
Cartridge Double Seal with Seal Plan	Zero Leakage Applications	Zero Leakage Applications	Zero Leakage Applications

*Look & Compare....We are Your Best Choice!*

TITAN manufactures skid packages to meet customer requirements!



• Skid Packages •

**DIMENSIONS**

Model	Pump Size	ANSI Designation	Discharge Size	Suction Size	X	A	B	D	SP	Bare Pump Weight Lbs. (kg)			
<b>ST</b>	1x1 1/2-6	AA	1	1 1/2	6.5 (165)	13.5 (343)	4 (102)	5.25 (133)	3.75 (95)	84 (38)			
	1 1/2x3-6	AB	1 1/2	3						92 (42)			
	2x3-6		2	3						95 (43)			
	1x1 1/2-8	AA	1	1 1/2						100 (45)			
	1 1/2x3-8	AB	1 1/2	3						108 (49)			
<b>MT / LT</b>	3x4-7	A70	3	4	11 (280)	19.5 (495)	4 (102)	8.25 (210)	3.75 (95)	220 (100)			
	2x3-8	A60	2	3	9.5 (242)					220 (91)			
	3x4-8	A70	3	4	11 (280)					220 (100)			
	3x4-8G	A70	3	4	11 (280)					220 (100)			
	1x2-10	A05	1	2	8.5 (216)					200 (91)			
	1 1/2x3-10	A50	1 1/2	3	9.5 (242)					220 (100)			
	2x3-10	A60	2	3	9.5 (242)					230 (104)			
	3x4-10	A70	3	4	11 (280)					265 (120)			
	3x4-10H	A40	3	4	12.5 (318)					275 (125)			
	4x6-10G	A80	4	6	13.5 (343)					305 (138)			
	4x6-10H	A80	4	6	13.5 (343)					305 (138)			
	1 1/2x3-13	A20	1 1/2	3	10.5 (267)					19.5 (495)	4 (102)	10 (254)	245 (111)
	2x3-13	A30	2	3	11.5 (292)					275 (125)			
	3x4-13	A40	3	4	12.5 (318)					330 (150)			
4x6-13	A80	4	6	13.5 (343)	405 (184)								
<b>TXLT</b>	6x8-13	A90	6	8	16 (406)	27.875 (708)	6 (152)	14.5 (368)	5.25 (133)	560 (254)			
	8x10-13	A100	8	10	18 (457)					670 (304)			
	6x8-15	A110	6	8	18 (457)					610 (277)			
	8x10-15	A120	8	10	18 (457)					740 (336)			
	8x10-15G	A120	8	10	19 (483)					710 (322)			
	8x10-16H		8	10	19 (483)					850 (385)			
	4x6-17		4	6	16 (406)					650 (295)			
	6x8-17		6	8	18 (457)					730 (331)			
8x10-17		8	10	19 (483)	830 (376)								

# PARTS INTERCHANGEABILITY

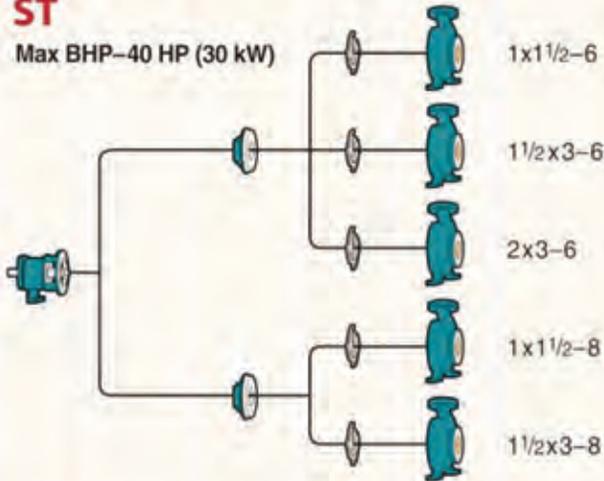
TITAN 4196 ANSI Pump and parts are 100% interchangeable with leading ANSI pump brands.

Power End	Adapter	Stuffing Box/Seal Chamber	Impeller	Casing	Size
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Power End	Adapter	Stuffing Box/Seal Chamber	Impeller	Casing	Size
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## ST

Max BHP-40 HP (30 kW)



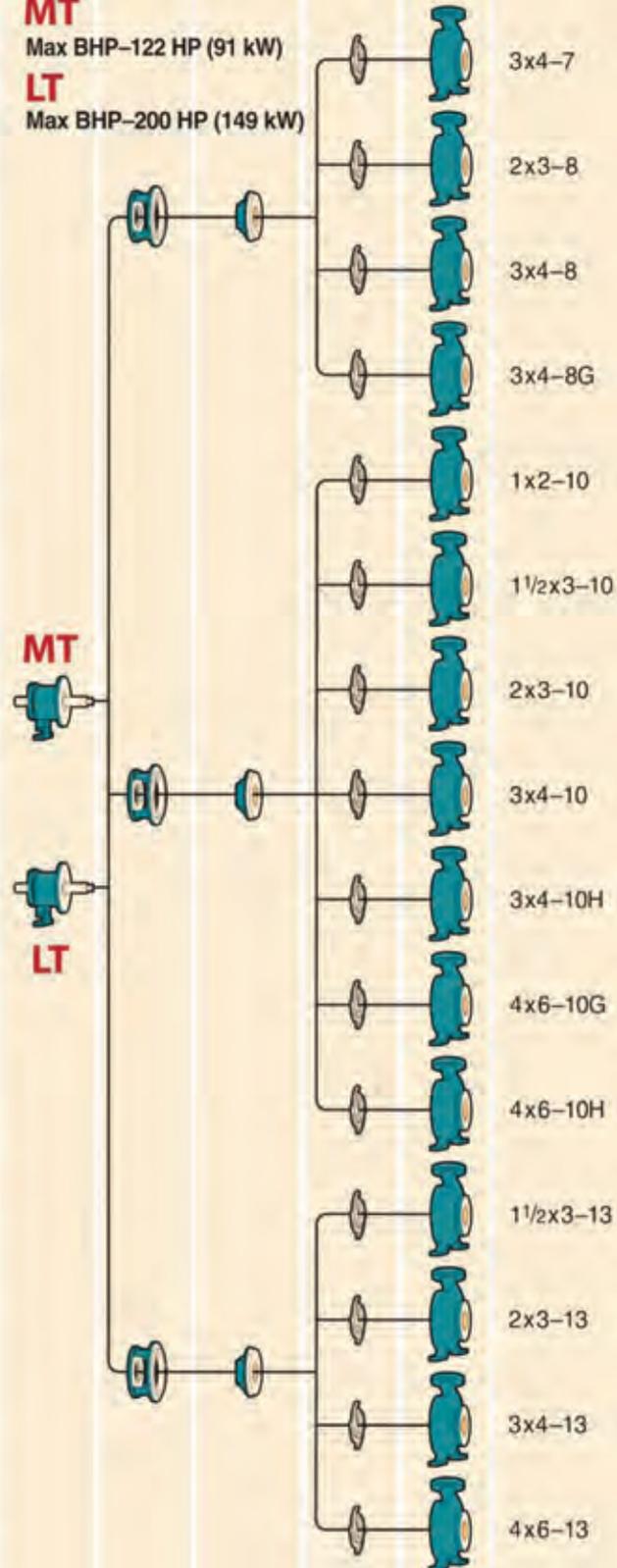
- 1x1½-6
- 1½x3-6
- 2x3-6
- 1x1½-8
- 1½x3-8

## MT

Max BHP-122 HP (91 kW)

## LT

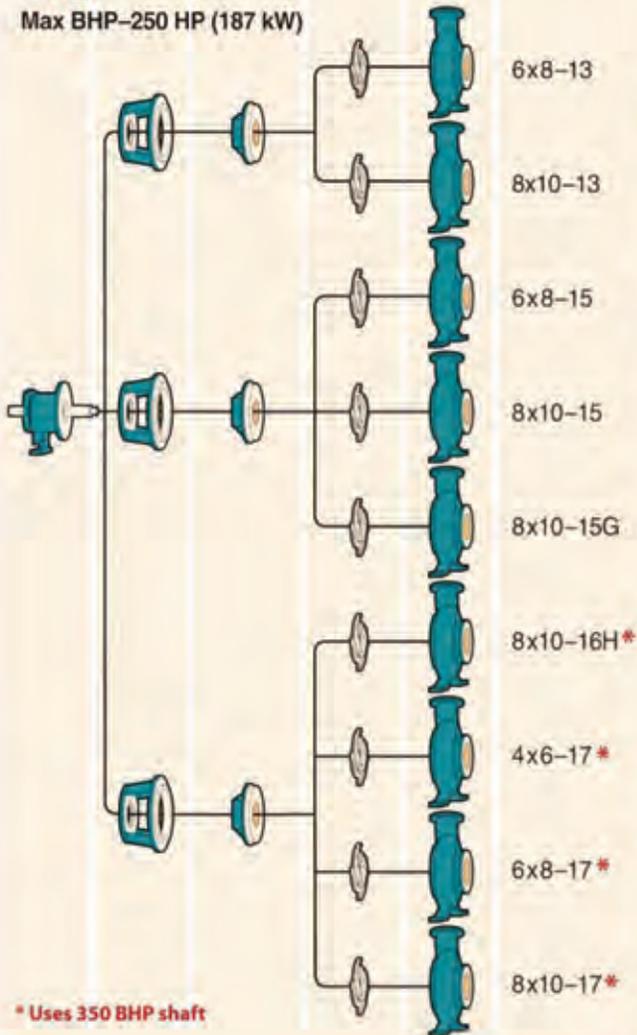
Max BHP-200 HP (149 kW)



- 3x4-7
- 2x3-8
- 3x4-8
- 3x4-8G
- 1x2-10
- 1½x3-10
- 2x3-10
- 3x4-10
- 3x4-10H
- 4x6-10G
- 4x6-10H
- 1½x3-13
- 2x3-13
- 3x4-13
- 4x6-13

## TXLT

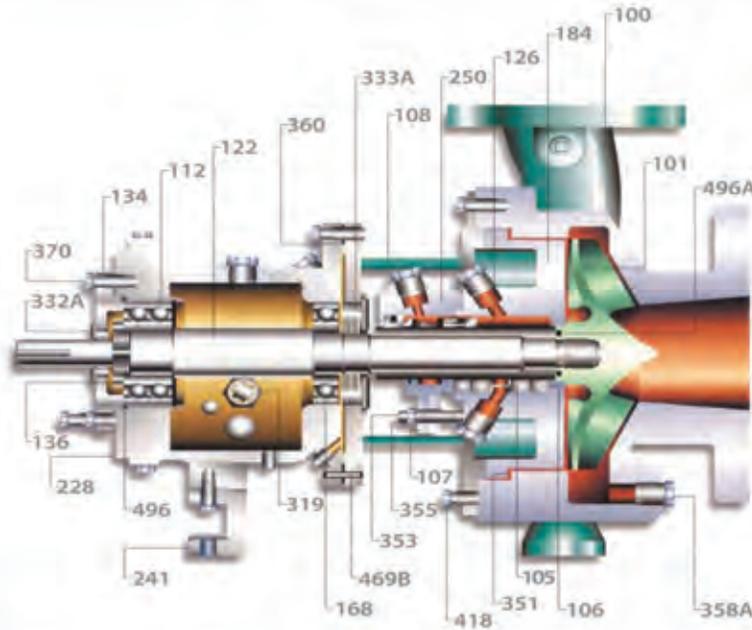
Max BHP-250 HP (187 kW)



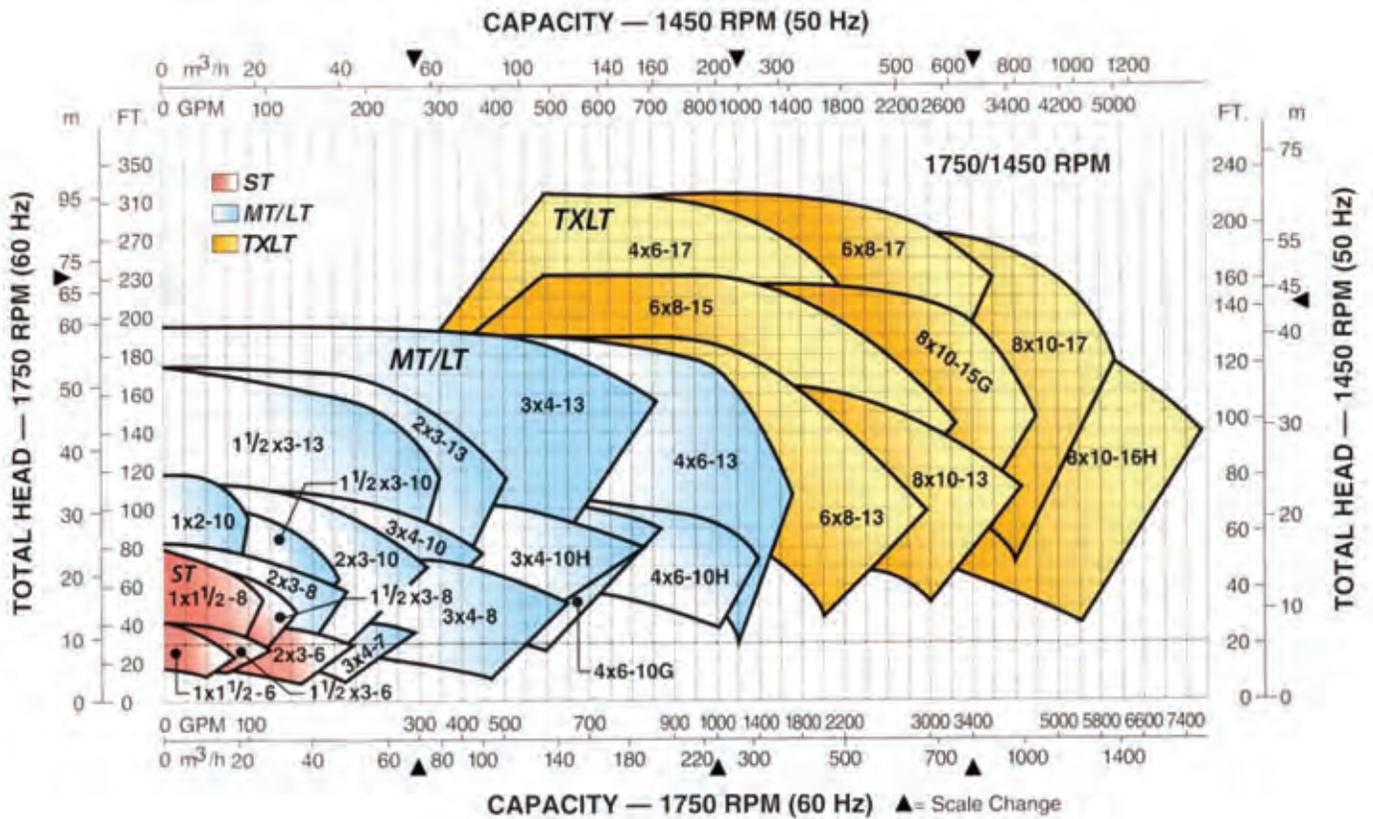
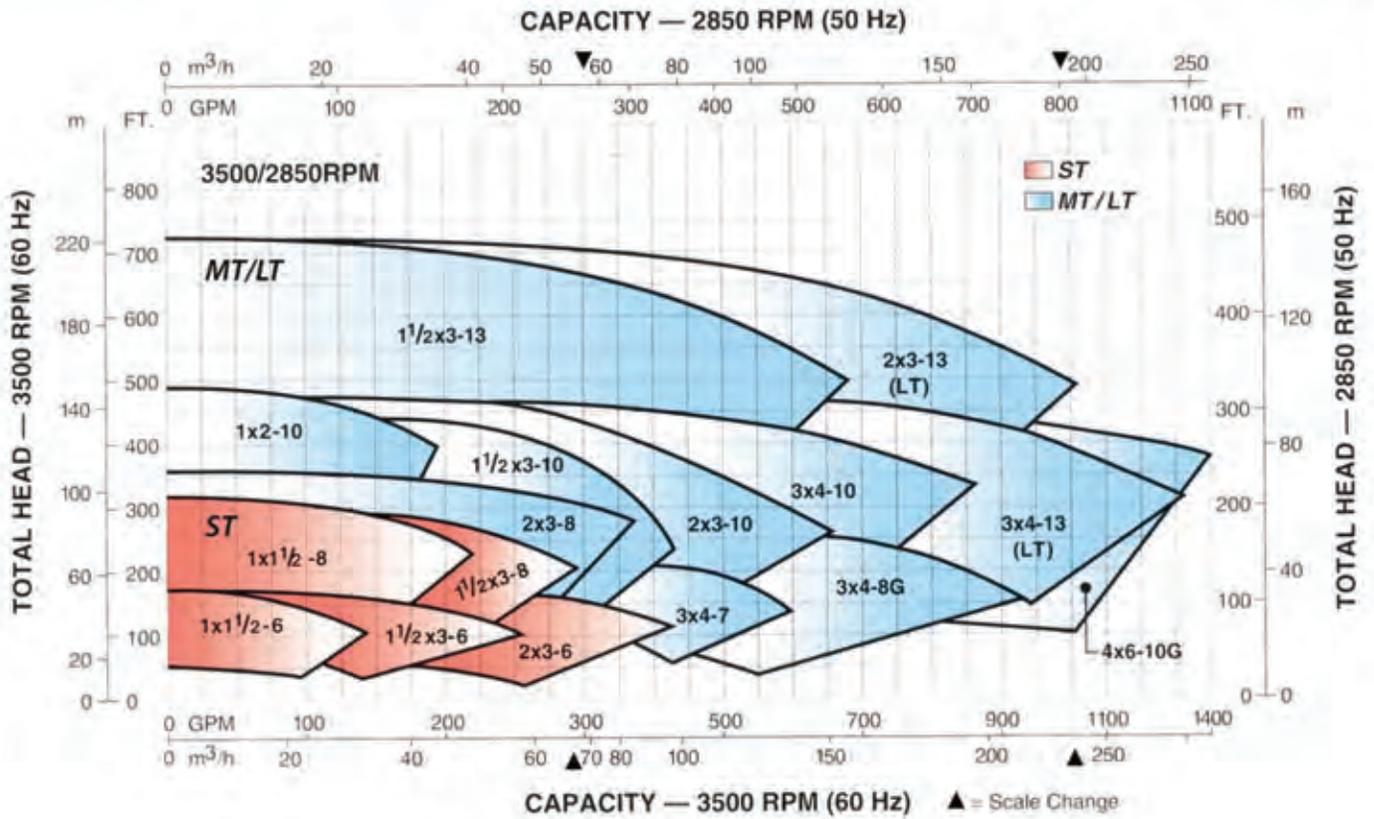
- 6x8-13
- 8x10-13
- 6x8-15
- 8x10-15
- 8x10-15G
- 8x10-16H\*
- 4x6-17\*
- 6x8-17\*
- 8x10-17\*

\* Uses 350 BHP shaft

Top Quality....Lowest Prices!



ITEM NO.	REQ'D PER PUMP	PART NAME	ALL DUCTILE IRON	ALL 316SS	ALL ALLOY 20	ALL CD4MCu	ALL MONEL	HAST-ALLOY B&C
100	1	Casing	DI	316SS	Alloy 20	CD4MCu	Monel	B&C
101	1	Impeller	DI	316SS	Alloy 20	CD4MCu	Monel	B&C
105	1	Lantern Ring	Glass Filled TFE					
106	1	Packing	SIL C-8201 Acid Rest. TFE					
107	1	Packing Gland	316SS	Alloy 20		Monel	B&C	
108	1	Frame Adapter	Ductile Iron					
112	1	Outboard (Thrust) Bearing	Double Row Angular Contact					
122	1	Shaft - Less Sleeve (Optional)	316SS					
122	1	Shaft - With Sleeve	SAE4140			316SS		
126	1	Shaft Sleeve	316SS	Alloy 20		Monel	B&C	
134	1	Bearing Housing	Cast Iron					
136	1	Lock Nut / Lock Washer	Steel					
168	1	Inboard (Radial) Bearing	Single Row Deep Groove					
184	1	Stuffing Box	DI	316SS	Alloy 20	CD4MCu	Monel	B&C
228	1	Frame	Cast Iron (Ductile for Small Frame)					
241	1	Frame Foot	Cast Iron					
250	1	Gland	316SS	Alloy 20				
319	1	Sight Oil Gauge	Cad. Plated					
332A	1	Labyrinth Oil Seal (Outboard)	Bronze (Optional Carbon Filled Teflon)					
333A	1	Labyrinth Oil Seal (Inboard)	Bronze (Optional Carbon Filled Teflon)					
351	1	Casing Gasket	Aramid Fiber with EPDM Rubber					
353	4	Gland Stud	316SS					
355	4	Gland Nut	304SS					
357K	2	Hex Nut	304SS					
358A	1	Casing Drain Plug (Optional)	Steel	316SS	Alloy 20	316SS	Monel	Hastelloy
360	1	"Gasket, Frame-to-Adapter"	Vellumoid					
360A	1	"Gasket, Bearing End Cover"	Vellumoid					
370	3	Brg. Hsg.Hex Bolt	Steel					
418	3	Cas. Jack Screw	Steel					
469B	2	Dowel Pin	Steel					
496	1	Brg. Hsg. O-Ring	Buna Rubber					
496A	1	Impeller O-Ring	Glass Filled TFE					



## Features

- ANSI B73.1M Standard Dimensions.
- Maximum interchangeability, gives minimum spare parts inventory.
- Back-Pull-Out design permits quick inspection of repairs of rotating elements without disturbing electrical and piping connections.
- Standard foundations save installation drawing time, talent and money.
- Wide variety of metallurgy available.

## Range

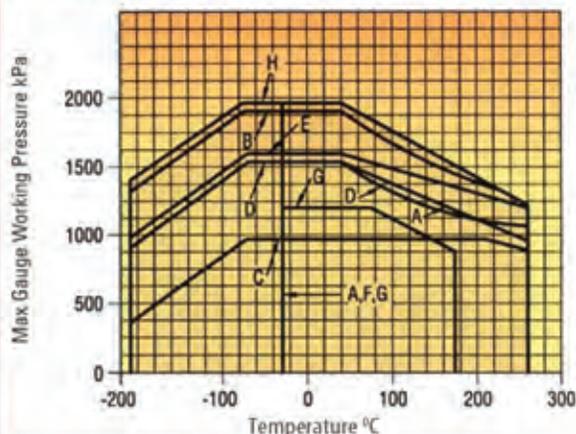
- CAPACITY 6000GPM / 1364 M3/H.
- HEAD 730 FEET/ 223 M.
- TEMPERATURE 300 °F / 149 °C.  
*(Maximum without cooling)*
- WORKING PRESSURE 375 PSI / 2586 kPa

## COMPONENT TITAN PUMP FEATURES

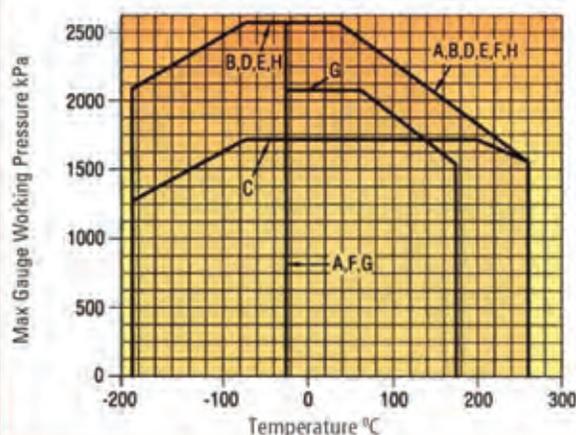
<b>A SHAFT</b>	Optimum overhang vs diameter
<b>B BEARINGS</b>	Optimized size and configuration
<b>C OIL SEALS</b>	Carbon-filled Teflon labyrinth seals Larger oil sump
<b>D BEARING FRAME</b>	Frame foot One - inch oil sight glass Extra corrosive allowance
<b>E CASING</b>	Heavy duty design Fully open design
<b>F IMPELLER</b>	Back pump - out vanes Impeller O - ring Big bore, taper bore and standard bore
<b>G SEAL CHAMBER</b>	seal chambers designed specifically for mechanical seals.

## PRESSURE TEMPERATURE CAPABILITY

Standard class 150# Flanges



Standard class 300# Flanges



## CODE

A	B	C	D	E	F	G	H	J
DI	316	NI	A20	MO	CS	CI	CD4M	HB HC TI

## BENEFITS

- Low deflection (less than .002 in.) at seal faces for longer seal and bearing life.
- Provide L'10 (B10) bearing life exceeding 2 years within design operational range.
- Prevent primary cause of premature bearing failure - lubricant contamination. Also prevent loss of oil  
"Bearings run cooler, last longer."
- Rigid design reduces effects of pipe loads on pump / motor shaft alignment. Bearings and seals last longer
- Allows maintenance of proper oil level.
- Bonus thickness - Class 150 pumps feature 300 wall thickness - longer life under corrosive / erosive conditions
- Superior resistance to pipe loads. Available with Class 150 or 300 flanges  
"Best design for handling corrosives, erosives and stringy material.  
Five times wear area of enclosed impeller."
- Reduces positive stuffing box / seal chamber pressure
- Protects threaded area against corrosion
- Accommodate larger diameter mechanical seals allowing use of "new generation" seal designs. Improved lubrication and cooling of seal faces extend mechanical seal life.

# TROUBLESHOOTING

# Titan

ANSI PUMPS

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PROBLEM	PROBABLE CAUSE	REMEDY
<b>No liquid delivered.</b>	Pump not primed.	Reprime pump, check that pump and suction line are full of liquid.
	Suction line clogged.	Remove obstructions.
	Impeller clogged with foreign material.	Back flush pump to clean impeller.
	Wrong direction of rotation.	Change rotation to concur with direction indicated by arrow on bearing housing or pump casing.
	Foot valve or suction pipe opening not submerged enough.	Consult factory for proper depth. Use baffle to eliminate vortices.
	Suction lift too high.	Shorten suction pipe.
<b>Pump not producing rated flow or head.</b>	Air leak thru gasket.	Replace gasket.
	Air leak thru stuffing box	Replace or readjust packing/mechanical seal.
	Impeller partly clogged.	Back flush pump to clean impeller.
	Insufficient suction head.	Ensure that suction line shutoff valve is fully open and line is unobstructed.
	Worn or broken impeller.	Inspect and replace if necessary.
<b>Pump starts then stops pumping.</b>	Improperly primed pump.	Reprime pump.
	Air or vapor pockets in suction line.	Rearrange piping to eliminate air pockets.
	Air leak in suction line.	Repair (plug) leak.
<b>Bearings run hot.</b>	Improper alignment.	Re-align pump and driver.
	Improper lubrication.	Check lubricant for suitability and level.
	Lube cooling.	Check cooling system.
<b>Pump is noisy or vibrates.</b>	Improper pump/driver alignment.	Align shafts.
	Partly clogged impeller causing imbalance.	Back-flush pump to clean impeller.
	Broken or bent impeller or shaft.	Replace as required.
	Foundation not rigid.	Tighten hold down bolts of pump and motor or adjust stilts.
	Worn bearings.	Replace.
	Suction or discharge piping not anchored or properly supported.	Anchor per Hydraulic Institute Standards Manual recommendations
	Pump is cavitating.	System problem.
<b>Excessive leakage from stuffing box.</b>	Packing gland improperly adjusted.	Tighten gland nuts.
	Stuffing box improperly packed.	Check packing and repack box.
	Worn mechanical seal parts.	Replace worn parts.
	Overheating mechanical seal.	Check lubrication and cooling lines.
	Shaft sleeve scored.	Remachine or replace as required.
<b>Motor requires excessive power.</b>	Head lower than rating. Pumps too much liquid.	Consult factory. Install throttle valve, trim impeller diameter.
	Liquid heavier than expected.	Check specific gravity and viscosity.
	Stuffing packing too tight.	Readjust packing. Replace if worn.
	Rotating parts bind.	Check internal wearing parts for proper clearances.

## ASSEMBLY TROUBLESHOOTING

Symptom	Cause
Excessive shaft end play.	Bearing internal clearance too great. Replace bearings with correct type. Snap ring loose in bearing housing groove. Reseat.
Excessive shaft/sleeve runout.	Sleeve worn. Replace Shaft bent. Replace.
Excessive bearing frame flange runout.	Shaft bent. Replace. Bearing frame flange distorted. Replace.
Excessive frame adapter runout.	Corrosion. Replace. Adapter-to-frame gasket not seated properly. Reseat.
Excessive seal chamber/stuffing box cover runout.	Seal chamber/stuffing box cover not properly seated in frame adapter. Corrosion or wear. Replace.
Excessive impeller vane tip runout.	Bent vane(s). Replace impeller.



*Excellence in Quality!*



**Custom Pump Packages**



Diesel engine



Standard Bore

Tapered Bore

Large Bore



**Parts  
...In Stock!**



Single Inside Seal



Conventional Double Seal



Single Cartridge Seal



Double Gas Barrier Seal



Double Cartridge Seal



Electric motor



*Call Titan Engineering Department for technical questions or applications assistance*



**(713) 283.7700**

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Titan Facility: 45,000 sq. ft.