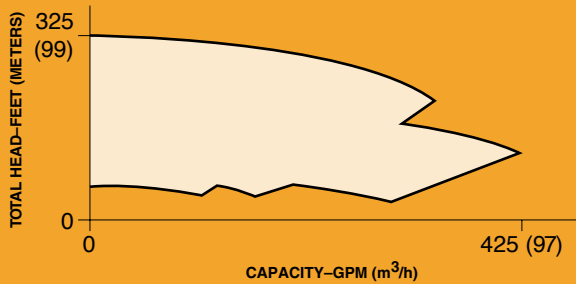
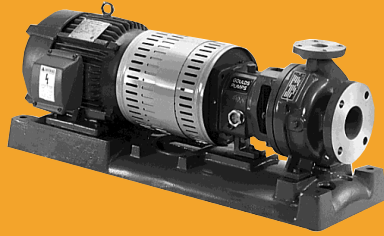
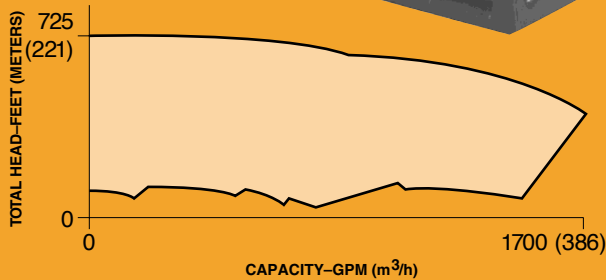
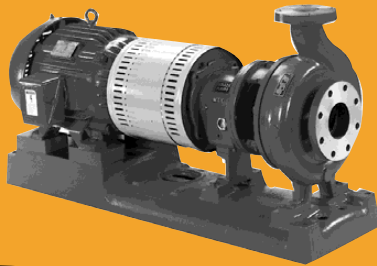


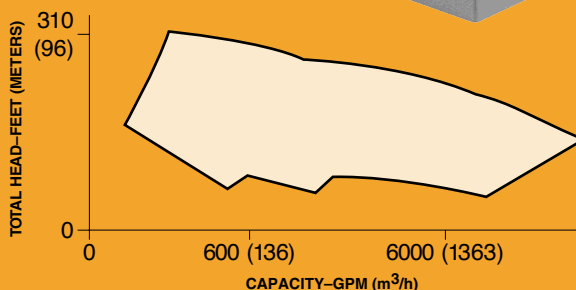
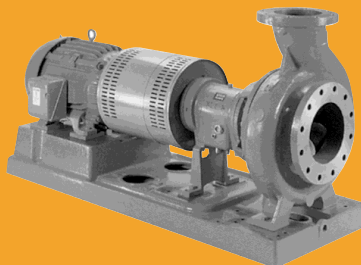
**Model  
3196 STX**  
5 ANSI Pumps



**Model  
3196 MTX**  
15 ANSI Pumps



**Model  
3196 XL7-X**  
9 ANSI Pumps



# Goulds Model 3196

## Chemical Process Pumps Designed for Total Range of Industry Services

- Capacities to 7000 GPM (1364 m<sup>3</sup>/h)
- Heads to 730 feet (223 m)
- Temperatures to 700°F (371° C)
- Pressures to 375 PSIG (2586 kPa)

## Outstanding Features for Outstanding Performance

### Extended Pump Life

- X-Series Power Ends
- Patented TaperBore™ PLUS Seal Chamber
- BigBore™ Seal Chambers
- ANSI PLUS™ Features

### Ease of Maintenance

- Back Pull-out Design
- External Impeller Adjustment
- Maximum Interchangeability
- Optional C-Face Motor Adapter

### Optimum Hydraulic Performance

- Fully Open Impeller
- Full 50/60 Hz Coverage
- 29 Sizes
- Computerized Pump Selection

### Safety

- ANSI B15.1 Coupling Guard
- Ductile Iron Frame Adapter
- Optional Shaft Guard

## Proven Performance

Every day in over 500,000 installations, the Goulds 3196 ASME/ANSI (B73.1M) process pump proves why it's the industry standard for performance. Users in chemical, petrochemical, pulp & paper, primary metals, food & beverage and general industries know they can make no better choice than the best.

# Model 3196 Chemical Process Pumps

## Heavy Duty Design Features for Total Range of Process Services

### STANDARD LABYRINTH OIL SEALS

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

### LUBRICATION FLEXIBILITY

*X-Series* power ends pre-drilled for choice of lubrication. Easy field conversion from standard flood oil to oil mist or grease.

### 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.

### SERRATED FLANGES

For positive sealing against leakage. Meets ANSI B16.5 requirements. Class 150 flanges standard, optional Class 150 RF, 300 FF/RF.

### CASING

- Top centerline discharge for air handling, self-venting.
- Class 150 pumps have Class 300 wall thickness as standard.
- Back pull-out design.
- Integral feet.

### ONE-INCH OIL SIGHT GLASS

For easy monitoring of actual oil level and condition.

### RIGID FRAME (AND CASING) FEET

Reduce effect of pipe loads on alignment.

### SEALING FLEXIBILITY

Wide range of sealing arrangements available to meet service conditions.

### ENGINEERED SEAL CHAMBERS

Designed to provide best seal environment for selected sealing arrangements/services. Standard choices are patented TaperBore™ PLUS, BigBore™, standard bore or jacketed seal chambers.

### FULLY OPEN IMPELLER

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

\*TEFLON is a registered trademark of E.I. DuPont.

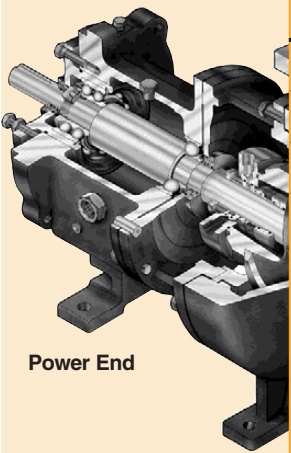
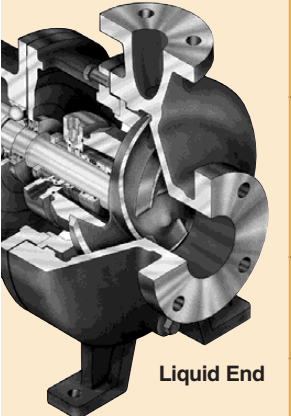
# Construction Details All dimensions in inches and (mm).

		STX	MTX	LTX	XLT-X
Shaft	Diameter at Impeller	.75 (19)	1 (25)	1.25 (32)	1.5 (38)
	Diameter in Stuffing Box/Seal Chamber (Less Sleeve)	1.375 (35)	1.75 (45)	2.125 (54)	2.5 (64)
		(With Sleeve)	1.125 (29)	1.5 (38)	1.875 (48)
	Diameter Between Bearings	1.5 (38)	2.125 (54)	2.5 (64)	3.125 (79)
	Diameter at Coupling	.875 (22)	1.125 (29)	1.875 (48)	2.375 (60)
	Overhang	6.125 (156)	8.375 (213)	8.375 (213)	9.969 (253)
	Maximum Shaft Deflection	0.002 (0.05)			
Shaft Deflection Index ( $L^3/D^4$ ) (With Sleeve)	143	116	48	62	
	(Less Sleeve)	64	63	29	25
Sleeve	O.D. thru Stuffing Box/Seal Chamber	1.375 (35)	1.75 (45)	2.125 (54)	2.5 (64)*
Bearings	Radial	SKF 6207	SKF 6309	SKF 6311	SKF 6313
	Thrust	SKF 5306 A/C3	SKF 5309 A/C3	SKF 7310 BECBM	SKF 5313 A/C3
	Bearing Span	4.125 (105)	6.75 (171)	6.875 (164)	9.25 (235)
	Average $L_{10}$ Bearing Life	50,000 Hours			
BigBore™ 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)*
Power Limits	HP (kW) per 100 RPM	1.1 (.82)	3.4 (2.6)	5.6 (4.2)	14 (10.5)**
Maximum Liquid Temperature	Maximum Liquid Temperature – Oil/Grease Lubrication without Cooling	350° F (177° C)			
	Maximum Liquid Temperature – Oil Lubrication with High Temp. Option	700°F (370° C)			
Casing	Corrosion Allowance	.125 (3)			

\*17 inch sizes have 2¼ inch (57) shaft diameters in stuffing box/seal chamber with sleeve. Shaft sleeve O.D. is 2¼ inches (70) for packing and 2½ inches (64) for mechanical seals. Seal chamber bore is ¾ inches (121). Stuffing box bore is ¾ inches (92).

\*\*17 inch sizes power limit per 100 RPM is 20HP (15kW).

## Design Features for Extended MTBF

	Component	Feature	Benefit
 <p>Power End</p>	A Shaft	Optimum overhang vs diameter.	Low deflection (less than .002 in.) at seal faces for longer seal and bearing life.
	B Bearings	Optimized size and configuration.	Provide 10-year average bearing life within design operational range.
	C Oil Seals	Carbon-filled Teflon* labyrinth seals.	Prevent primary cause of premature bearing failure—lubricant contamination. Also prevent loss of oil.
	D Bearing Frame	Larger oil sump.	Bearings run cooler, last longer.
		Frame foot.	Rigid design reduces effects of pipe loads on pump/motor shaft alignment. Bearings and seals last longer.
		One-inch oil sight glass.	Allows maintenance of proper oil level.
		Mounting flange.	Allows use of C-Face adapter for factory alignment; eliminates possibility of field misalignment.
Condition monitoring sites.	Allow use of temperature/vibration sensors for predictive maintenance.		
Pre-drilled lubrication ports.	Provide lubrication flexibility. Easy conversion to flood oil lubrication, grease, oil mist as conditions require.		
 <p>Liquid End</p>	E Casing	Extra corrosion allowance.	Bonus thickness—Class 150 pumps feature Class 300 wall thickness—longer life under corrosive/erosive conditions.
		Heavy duty design.	Superior resistance to pipe loads. Available with Class 150 or 300 flanges.
	F Impeller	Fully open design.	Best design for handling corrosives, erosives and stringy material.
			Two times wear area of enclosed impeller.
		Back pump-out vanes.	Reduces positive stuffing box/seal chamber pressure.
		Balancing to ISO 1940 Standards.	Reduced vibration extends seal and bearing life.
	Impeller O-ring.	Protects threaded area against corrosion.	
	G Seal Chamber	Enlarged (BigBore™ and TaperBore™ PLUS) bores designed specifically for mechanical seals.	Improved lubrication and cooling of seal faces extend mechanical seal life.
			Accommodate larger diameter mechanical seals allowing use of “new generation” seal designs.
	H High Performance Gland	Tangential flush connections.	Prevent solids impingement on seal faces.
Metal-to-metal fit with seal chamber.		Assures concentricity and perpendicularity for extended seal life.	

\*E.I. DuPont reg. trademark

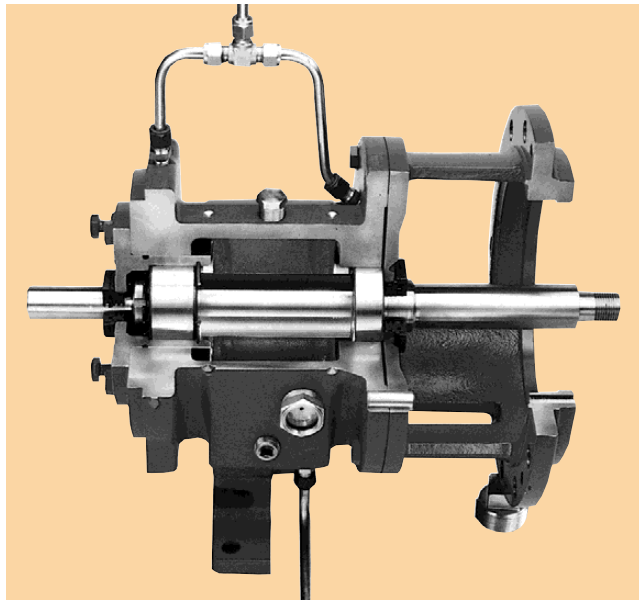
# X-Series Power Ends

## Lubrication Flexibility

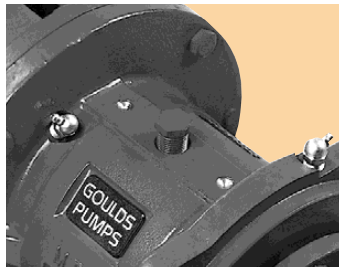
Goulds X-Series Power Ends are designed for any lubrication system of user preference. Choice of flood oil, oil mist, grease lubrication. ANSI PLUS™ sealed power end with magnetic oil seals available as an option. Pre-drilling at factory allows easy field conversion (flood oil to oil mist back to flood oil lubrication) without modifying parts. Flexible design accommodates oil mist configurations to meet users practices.

**ANSI PLUS™  
SEALED  
POWER END**

**MAGNETIC  
OIL SEALS**



**MTX POWER END  
WITH OIL MIST**



**GREASE  
LUBRICATION**

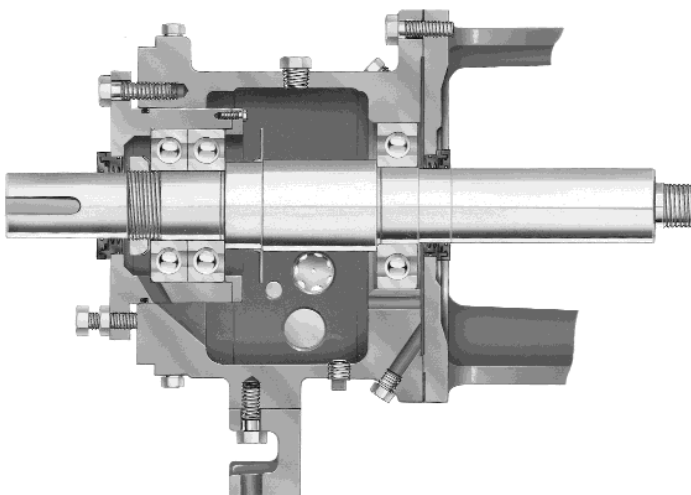


## LTX Power End For High Load Applications

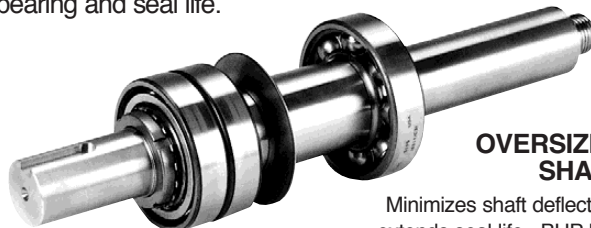
Although Goulds X-Series Power Ends are designed for tough conditions, some applications push a power end beyond ANSI design limits. Three examples are: 1) a pump is operated at reduced flows, 2) pumping high specific-gravity liquids, 3) overhung belt drive

applications. These cause excessive loads which result in increased shaft deflection. This leads to premature bearing and seal failure.

Goulds ANSI PLUS™ LTX Power End is a practical solution. An oversized shaft and bearing assembly significantly expands the limits for long, trouble-free bearing and seal life.



**FLINGER/CHANNEL OIL LUBRICATION SYSTEM**  
Directs oil to thrust bearings for efficient cooling, improved lubrication.



**OVERSIZED  
SHAFT**

Minimizes shaft deflection, extends seal life. BHP limit extended to 200 HP (149 kW).



**DUPLEX  
THRUST  
BEARINGS**

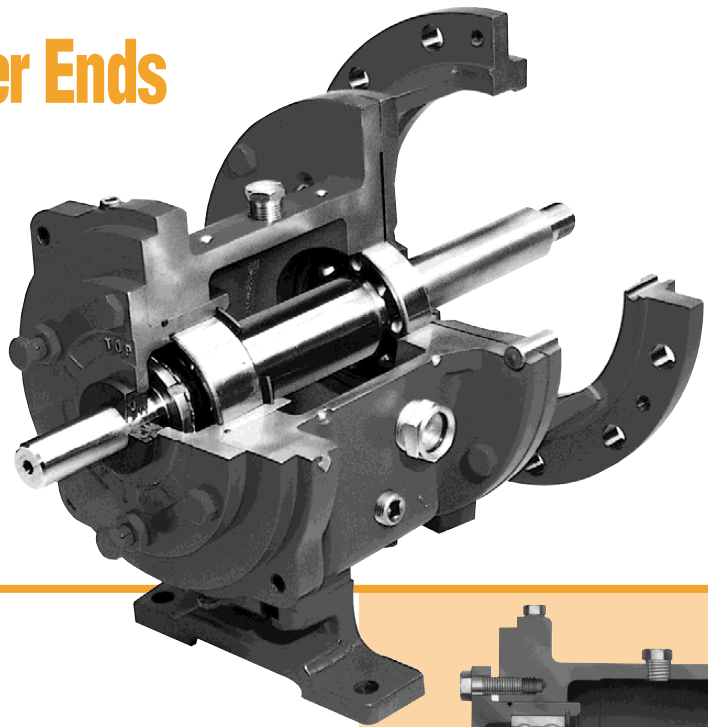
Ideally sized for high-load applications. Standard on LTX.

# Goulds X-Series Power Ends

## Designed for Reliability, Extended Pump Life

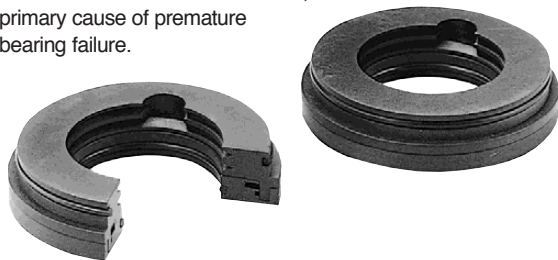
Standard performance features extend pump life. Goulds backs reliability with a three-year unconditional warranty.

X-Series power ends are interchangeable with 7 different Goulds models: 3196 (CHEM-1A), LF 3196 (CHEM-1B), CV 3196 (CHEM-1C), 3796 (CHEM-1D), 3996 (CHEM-1E), NM 3196 (CHEM-2A) and 3198 (CHEM-2B).



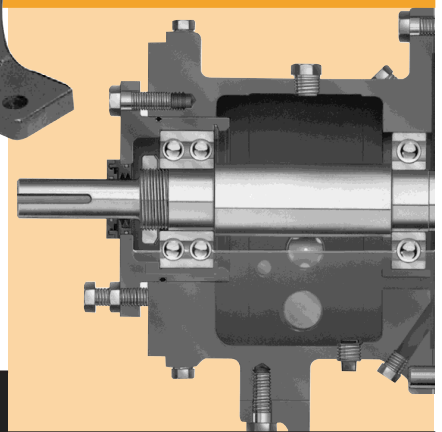
### CARBON-FILLED TEFLON\* LABYRINTH OIL SEALS

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



### EXTRA LARGE OIL SUMP

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



### SHAFT/BEARINGS ASSEMBLY

Shaft designed for minimum deflection for long seal and bearing life. Bearings sized for optimum life. Duplex thrust bearings optional.

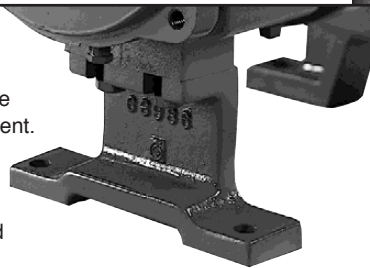


### LARGE OIL SIGHT GLASS

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

### RIGID FRAME FOOT

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



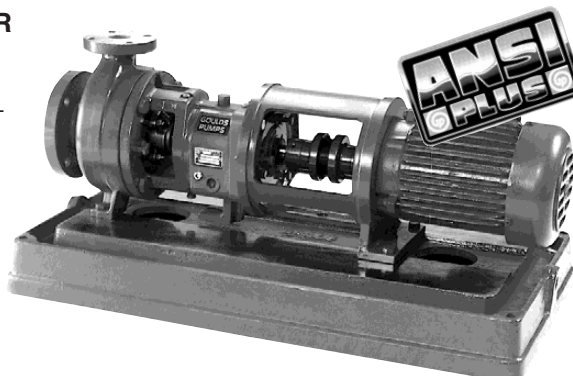
### CONDITION MONITORING SITES

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



### C-FACE ADAPTER

X-Series Power Ends accommodate optional C-Face motor adapter—simplifies pump/motor alignment.



### FRAME ADAPTER

Ductile iron standard for safety and strength.



\*E.I. DuPont reg. trademark

# Parts List and Materials of Construction

Item Number	Part Name	Material							
		Ductile Iron	316SS	CD4MCu	Alloy 20	Monel	Nickel	Hastelloy B & C	Titanium
100	Casing	Ductile Iron	316SS	CD4MCu	Alloy 20	Monel	Nickel	Hastelloy	Titanium
101	Impeller	Ductile Iron	316SS	CD4MCu	Alloy 20	Monel	Nickel	Hastelloy	Titanium
105	Lantern Ring	Glass-Filled Teflon*							
106	Stuffing Box Packing	Teflon* Impregnated Fibers							
108	Frame Adapter	Ductile Iron							
112	Thrust Bearing	Double Row Angular Contact**							
122	Shaft—Less Sleeve (Optional)	SAE4140	316SS		Alloy 20	Monel	Nickel	Hastelloy	Titanium
122	Shaft—With Sleeve	SAE4140				316SS			
126	Shaft Sleeve	316SS			Alloy 20	Monel	Nickel	Hastelloy	Titanium
136	Bearing Locknut and Lockwasher	Steel							
168	Radial Bearing	Single Row Deep Groove							
184	Stuffing Box Cover (Packed Box)	Ductile Iron	316SS	CD4MCu	Alloy 20	Monel	Nickel	Hastelloy	Titanium
184M	Seal Chamber (Mechanical Seal)	Ductile Iron	316SS	CD4MCu	Alloy 20	Monel	Nickel	Hastelloy	Titanium
228	Bearing Frame	Cast Iron (Ductile Iron for STX Group)							
250	Gland	316SS		CD4MCu	Alloy 20	Monel	Nickel	Hastelloy	Titanium
262	Repeller/Sleeve (Dynamic Seal Option)	CD4MCu				Monel	Nickel	Hastelloy	Titanium
264	Gasket, Cover to Backplate (Dynamic Seal)	Teflon*							
265A	Stud/Nut, Cover to Adapter	304SS							
319	Oil Sight Glass	Glass/Steel							
332A	Labyrinth Oil Seal (Outboard)	Carbon-Filled Teflon* with Viton O-ring							
333A	Labyrinth Oil Seal (Inboard)	Carbon-Filled Teflon* with Viton O-ring							
351	Casing Gasket	Aramid Fiber with EPDM Rubber							
358A	Casing Drain Plug (Optional)	Steel	316SS	CD4MCu	Alloy 20	Monel	Nickel	Hastelloy	Titanium
360	Gasket, Frame-to-Adapter	Manila Paper							
360A	Gasket, Bearing End Cover	Vellumoid							
370	Cap Screw, Adapter-to-Casing	Steel	304SS						
418	Jacking Bolt	304SS							
444	Backplate (Dynamic Seal Option)	Ductile Iron	316SS	CD4MCu	Alloy 20	Monel	Nickel	Hastelloy	Titanium
469B	Dowel Pin	Steel							
496	O-ring, Bearing Housing	Buna Rubber							
496A	O-ring, Impeller	Glass-Filled Teflon*							

\*E.I. DuPont reg. trademark

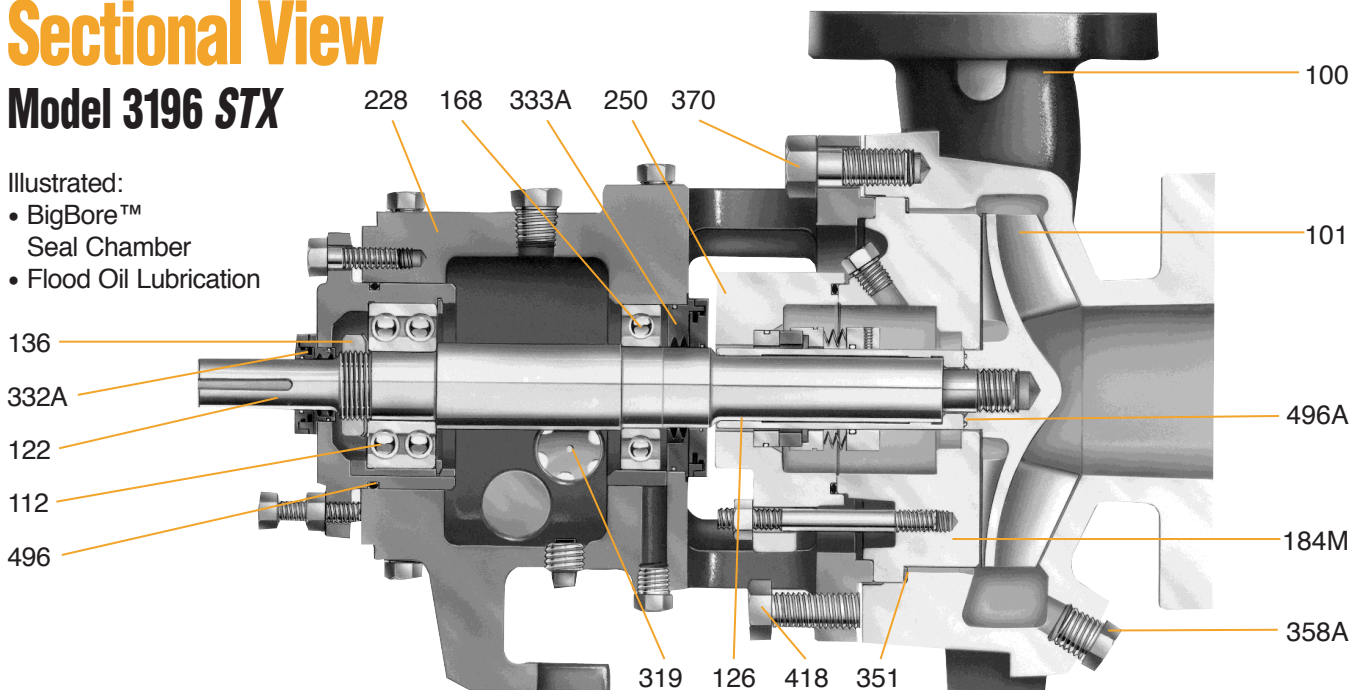
\*\*LTX Power End features Duplex Angular Contact

## Sectional View

### Model 3196 STX

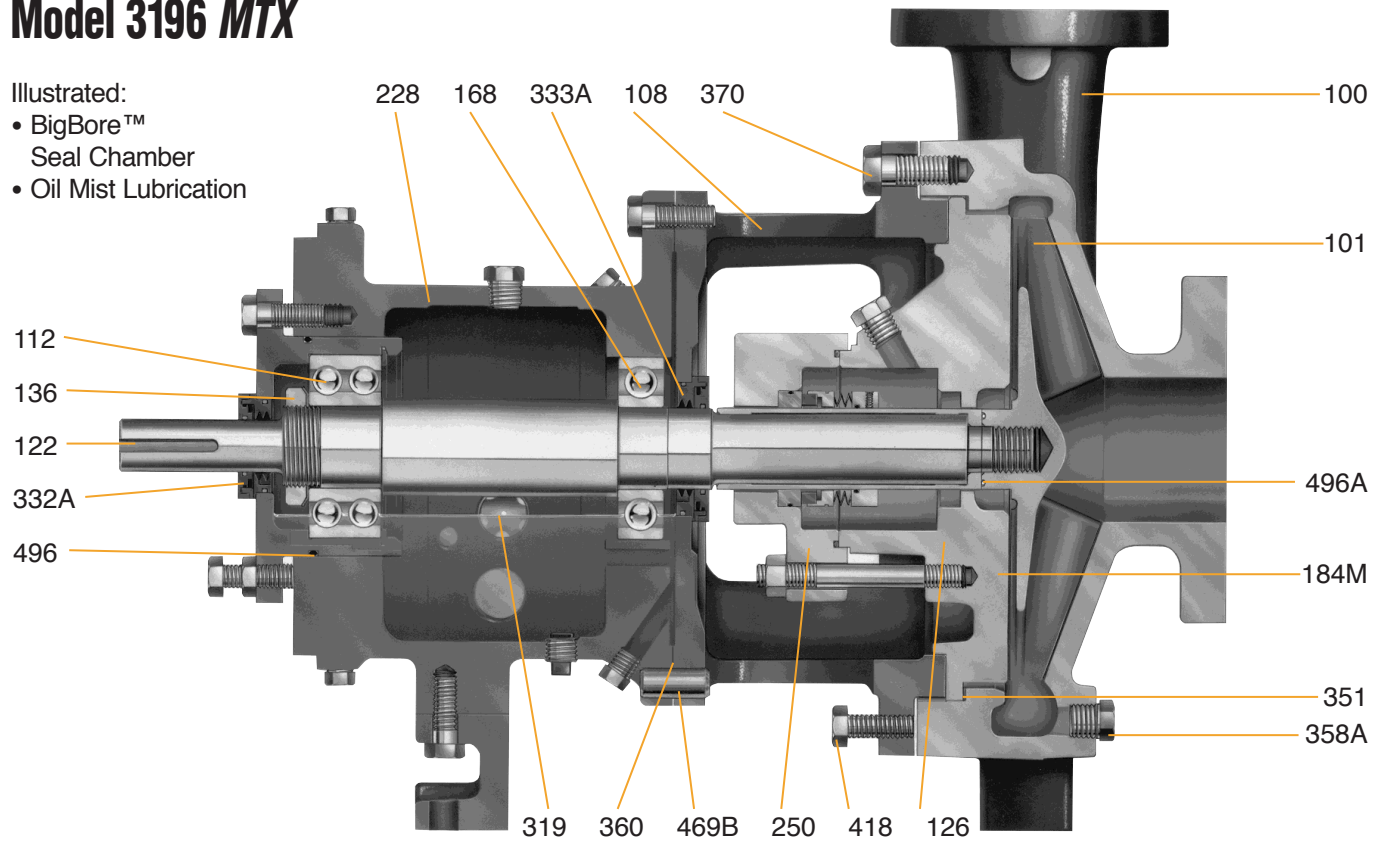
Illustrated:

- BigBore™ Seal Chamber
- Flood Oil Lubrication



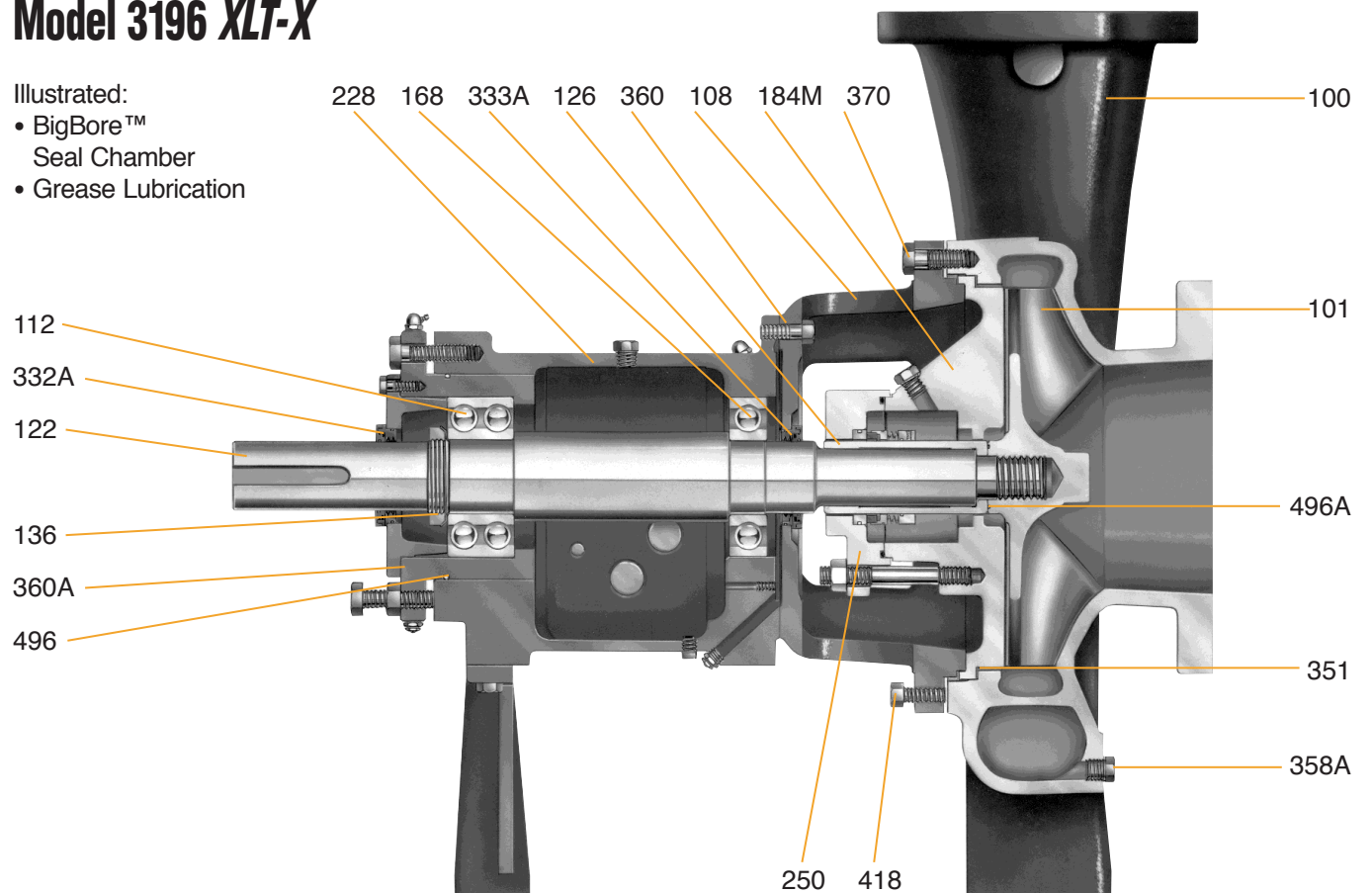
# Model 3196 MTX

- Illustrated:
- BigBore™ Seal Chamber
  - Oil Mist Lubrication



# Model 3196 XLT-X

- Illustrated:
- BigBore™ Seal Chamber
  - Grease Lubrication



# Stocked Options

Goulds offers a variety of options to meet users' specific plant and process requirements. All are stocked for minimum delivery time.

## High and Low Temperature Capability

For high and low temperature applications or where pumpage temperature must be controlled, these options are readily available.

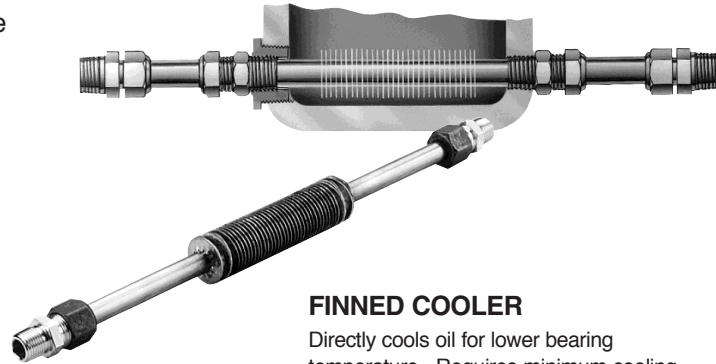
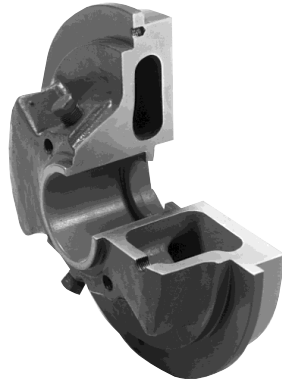


### CONTROL HEAT JACKET

Economical clamp-on jacket provides practical method of heating or cooling the casing. Excellent heat transfer characteristics. Easy to install or remove for pump servicing.

### JACKETED STUFFING BOX OR SEAL CHAMBER

Maintains proper temperature control of sealing environment. Ideal for maintaining temperature for services such as molten sulphur and polymerizing liquids.



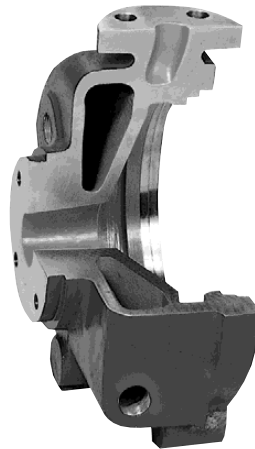
### FINNED COOLER

Directly cools oil for lower bearing temperature. Requires minimum cooling water. Corrosion resistant construction. Recommended for temperatures over 350°F (177°C).

### HIGH TEMPERATURE OPTION

[For operation to 700°F (371°C)]

- \*Jacketed Stuffing Box
- \*Finned Cooler
- \*316 Shaft
- \*Graphite Impeller O-ring
- \*Graphite Casing Gasket

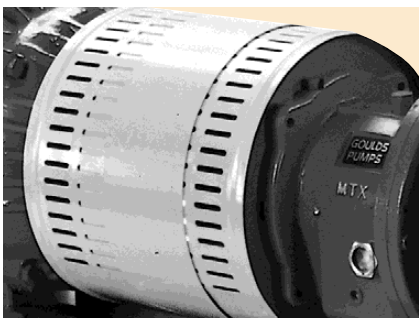


### JACKETED CASING

Cast-in jacket for heating or cooling pumpage.

## Safety Features

Goulds recognizes users' concern for safe pump operation and offers options to meet plant safety requirements.



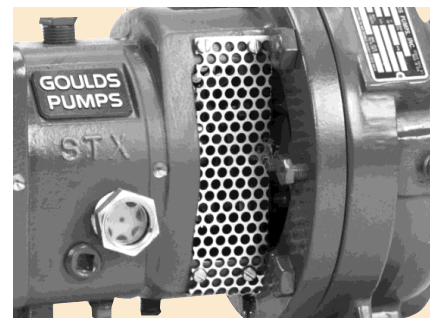
### ANSI COUPLING GUARD

Meets all requirements of ANSI B15.1 specifications.



### CLASS 150 & 300 RAISED FACE FLANGES

Serrated raised face flanges for positive sealing against leakage.



### SHAFT GUARD

When a guard around all rotating shaft parts is preferred.



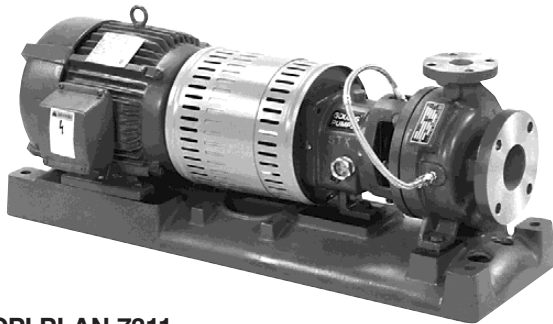
# Special Surface Preparations

Although Goulds cast parts provide exceptionally smooth finish for superior hydraulic performance, many users require special surface finishes including:

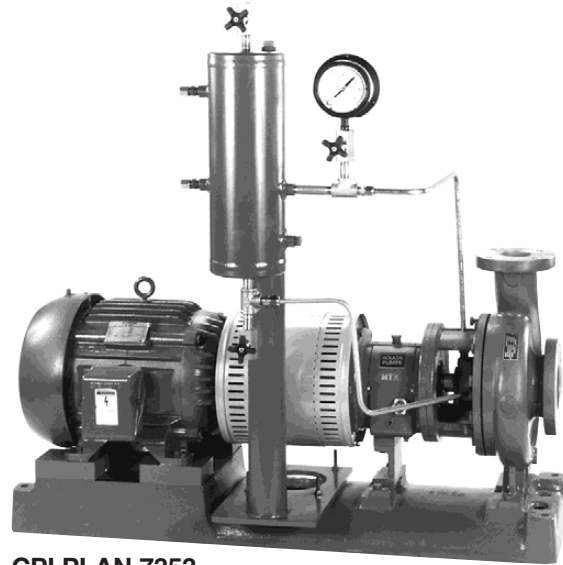
- Passivation
- Electropolishing
- Hard Metal Coatings
- Surface Finish Less Than SIS Grade 2
- Fusion Bonded, Epoxy Coated Power End
- Special Paint Systems

# Seal Flush Plans

To control emission levels and meet seal installation requirements, all ANSI B73.1 seal flush and cooling plans are available. Goulds can also provide other special arrangements of user preference.



**CPI PLAN 7311**  
By-pass flush lubricates single seal faces.



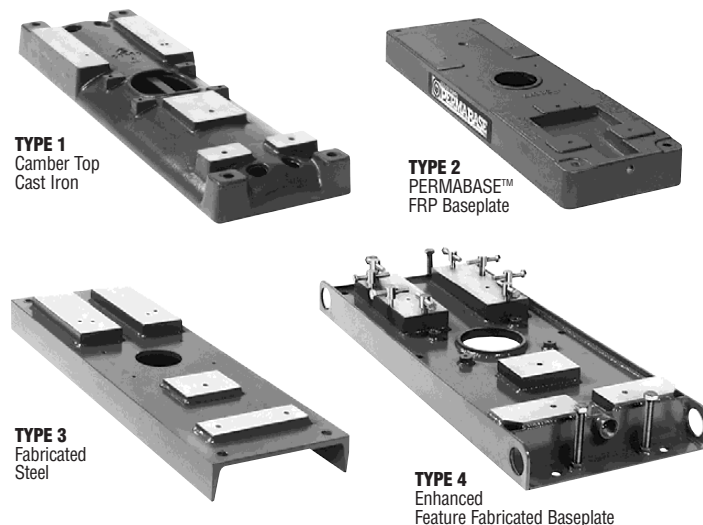
**CPI PLAN 7353**  
Pressurized circulation lubricates double seal faces.

# Baseplate Options

Inadequate pump mounting can lead to a host of maintenance problems. If not rigid, a baseplate can distort, causing pump/motor misalignment leading to coupling, shaft, bearing and mechanical seal failures.

For severe environments, a baseplate must be corrosion resistant or it will have to be replaced periodically. A baseplate must also be able to withstand forces and moments of plant piping systems.

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



# BASEPLATE SELECTION GUIDE

**STANDARD**      **OPTIONAL**




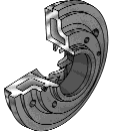
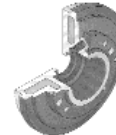
PLANT REQUIREMENTS	TYPE 1 Camber Top Cast Iron	TYPE 2 PERMA- BASE™	TYPE 3 Fabricated Steel	TYPE 4 Enhanced Feature Fabricated Steel
Corrosion Resistance (mild/moderate)	Standard	Optional	Optional	Optional
Corrosion Resistance (severe)	Optional	Optional	Optional	Optional
Machined Pump & Motor Pads	Optional	Optional	Optional	Optional
Circular Grout Holes (4 in. min.)	Optional	Optional	Optional	Optional
Vent Holes (1 in. min.)	Optional	Optional	Optional	Optional
Vent Holes (1/2 in. min.)	Optional	Optional	Optional	Optional
Non-Overhang	Optional	Optional	Optional	Optional
Full Drain Rim	Optional	Optional	Optional	Optional
Built-in Drain Pan (under pump)	Optional	Optional	Optional	Optional
Drain Pan Under Pump	Optional	Optional	Optional	Optional
Baseplate Leveling Screws	Optional	Optional	Optional	Optional
Motor Alignment Adjusters	Optional	Optional	Optional	Optional
Lifting Eyes	Optional	Optional	Optional	Optional
Continuous Welding Used	Optional	Optional	Optional	Optional
Flexibly Mounted	Optional	Optional	Optional	Optional
Spring-Loaded*	Optional	Optional	Optional	Optional
Available in 304 and 316 SS	Optional	Optional	Optional	Optional
ANSI B73.1-1991 Conformance	Optional	Optional	Optional	Optional
API-610 Features	Optional	Optional	Optional	Optional

\*Engineered option—requires special baseplate

# Maximum Sealing Flexibility

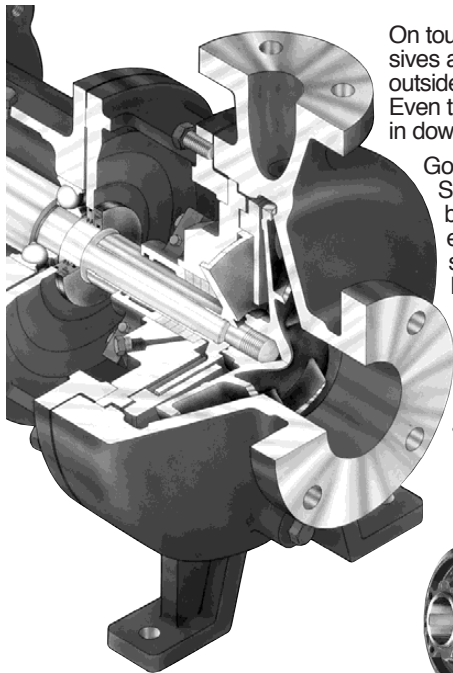
## Engineered Seal Chamber Selection Guide

Goulds engineered seal chambers are designed to provide the best seal environment for selected sealing arrangements/services.

	<b>A</b>	<b>B</b>	<b>C</b>		
<b>A</b>	Ideally Suited				
<b>B</b>	Acceptable				
<b>C</b>	Not Recommended				
	<b>TYPE 1 Standard Bore</b>	<b>TYPE 2 BigBore™</b>	<b>TYPE 3 TaperBore™ PLUS</b>	<b>TYPE 4 Jacketed TaperBore™ PLUS</b>	<b>TYPE 5 Jacketed BigBore™</b>
	Designed for packing. Also accommodates mechanical seals.	Enlarged chamber for increased seal life through improved lubrication and cooling.	Lower seal face temperatures, self-venting and draining. Solids and vapors circulated away from seal faces.	Maintains proper temperature control (heating or cooling) of seal environment.	Maintains proper temperature control (heating or cooling) of seal environment.
					
<b>Service</b>					
Water-Based Liquids with Flush	A	A	A	A	A
Entrained Air or Vapor	C	B	A	A	B
Solids 0-10%, no Flush	C	C	A	A	C
Solids Greater than 10% with Flush	B	A	C	C	A
Paper Stock 0-5%, no Flush	C	C	A	-	-
Paper Stock 0-5%, with Flush	B	A	-	-	-
Slurries 0-5%, no Flush	C	C	A	A	C
High Boiling Point Liquids, no Flush	C	C	A	A	C
Temperature Control	C	C	C	A	A
Self-Venting and Draining	C	B	A	A	C
Seal Face Heat Removal	C	A	A	A	A
Molten or Polymerized Liquid, no Flush	C	C	C	A	C
Molten or Polymerized Liquid with Flush	C	C	C	A	A

## Dynamic Seal

### For Elimination of Sealing Problems—Reduced Maintenance Costs

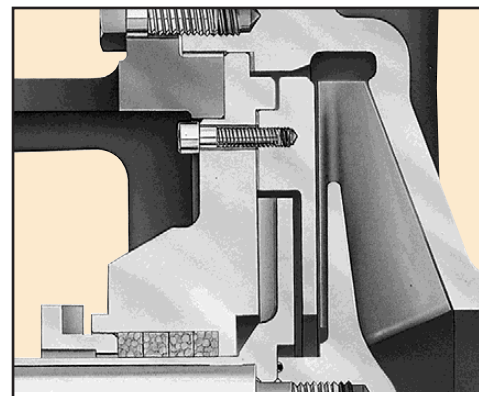


On tough pumping services, especially corrosives and slurries, mechanical seals require outside flush and constant, costly attention. Even then, seal failures are common, resulting in downtime.

Goulds offers the ANSI PLUS™ Dynamic Seal which, simply by fitting a repeller between the stuffing box and impeller, eliminates the need for a mechanical seal.

Benefits of Goulds Dynamic Seal:

- External seal water not required
- Elimination of pumpage contamination and product dilution
- Reduces utility cost
- No need to treat seal water
- Eliminates problems associated with piping from a remote source



At start-up, the repeller functions like an impeller, and pumps liquid and solids from the stuffing box. When pump is shut down, packing (illustrated) or other type of secondary seal prevents pumpage from leaking.



STUFFING BOX COVER



REPELLER

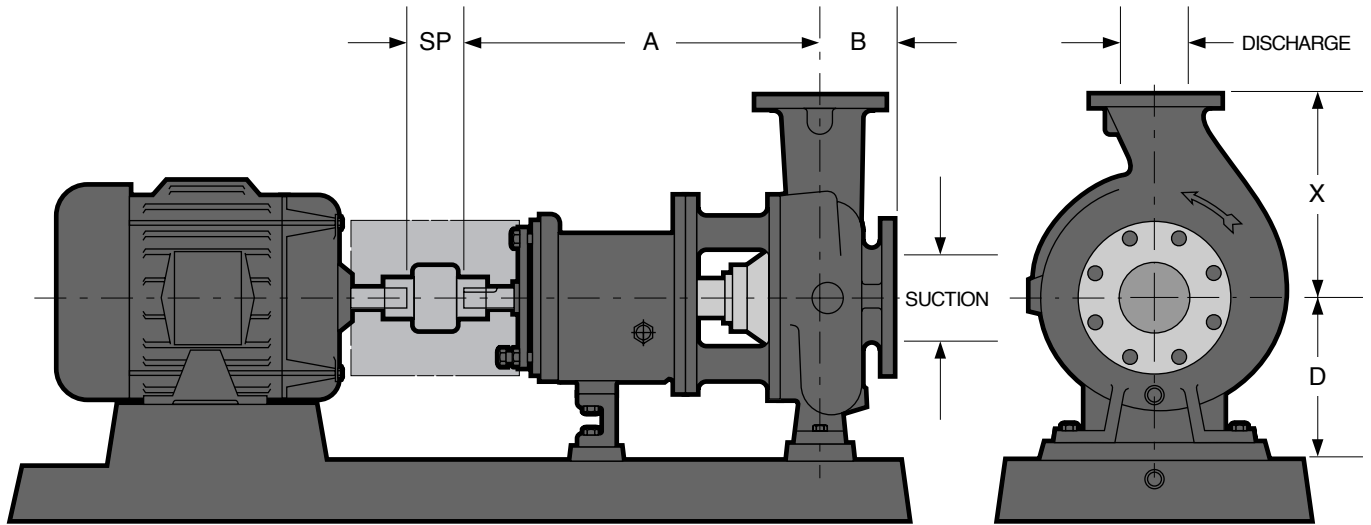


REPELLER PLATE

Besides being available as a complete unit, any Goulds 3196 can be easily field-converted to Dynamic Seal. Retrofit kits are readily available.

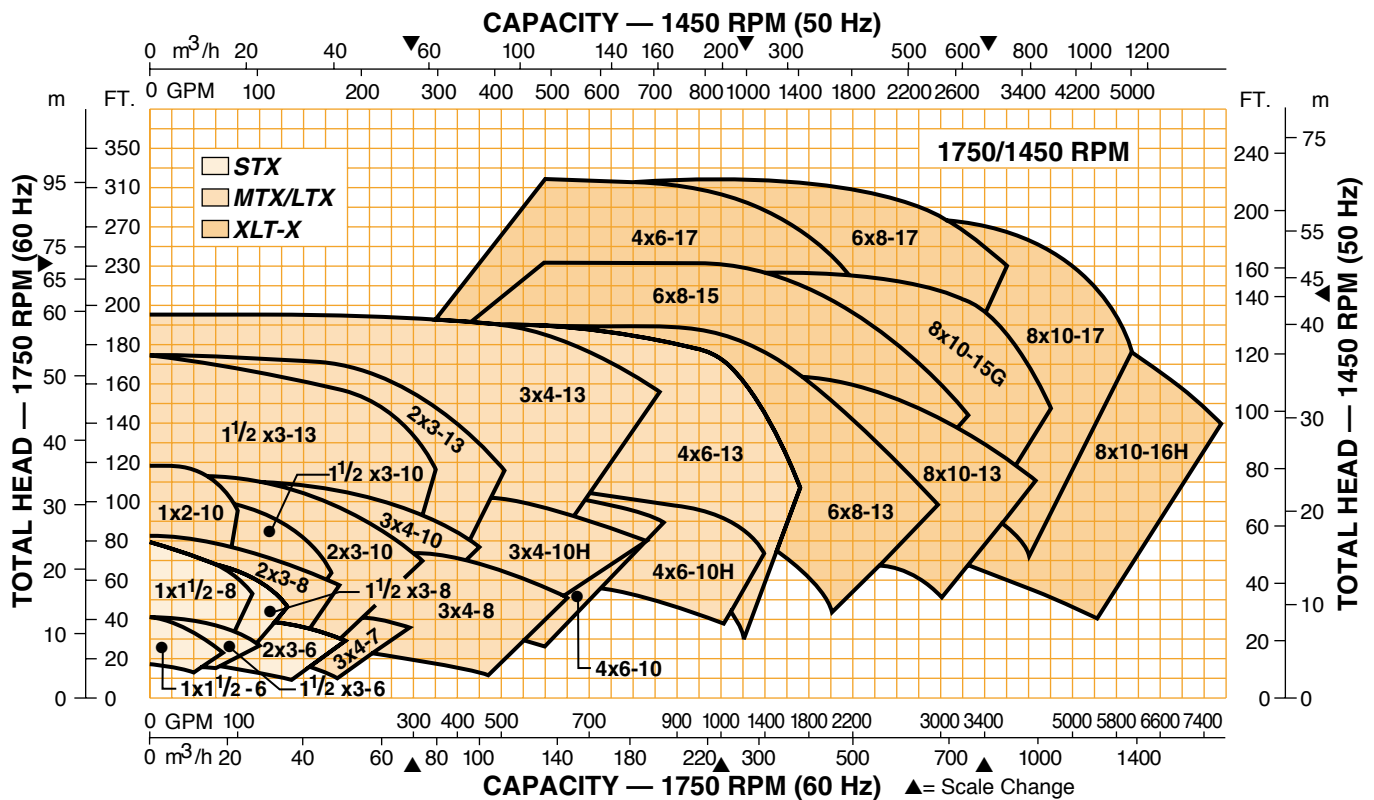
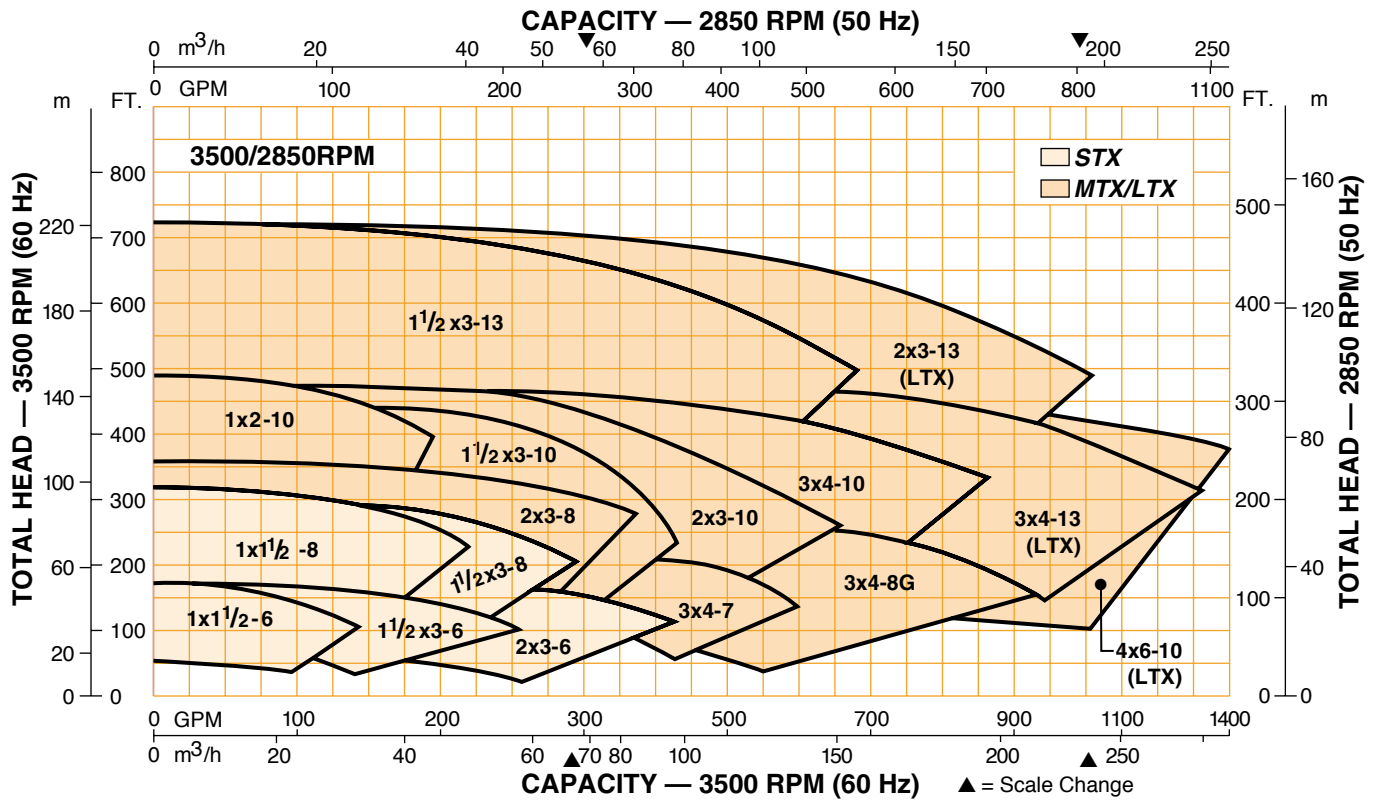
# Dimensions Model 3196

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

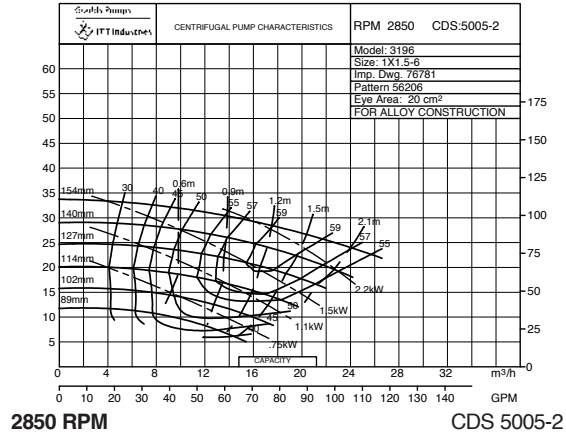


DIMENSIONS										
Group	Pump Size	ANSI Designation	Discharge Size	Suction Size	X	A	B	D	SP	Bare Pump Weight Lbs. (kg)
STX	1x1½-6	AA	1	1½	6.5 (165)	13.5 (343)	4 (102)	5.25 (133)	3.75 (95)	84 (38)
	1½x3-6	AB	1½	3						92 (42)
	2x3-6		2	3						95 (43)
	1x1½-8	AA	1	1½						100 (45)
	1½x3-8	AB	1½	3						108 (49)
MTX/ LTX	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)
	1½x3-10	A50	1½	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)				
	4x6-10	A80	4	6	13.5 (343)	305 (138)				
	4x6-10H	A80	4	6	13.5 (343)	305 (138)				
	1½x3-13	A20	1½	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)					
XLT-X	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	19 (483)					740 (336)
	8x10-15G	A120	8	10	19 (483)					710 (322)
	8x10-16H	A120	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)

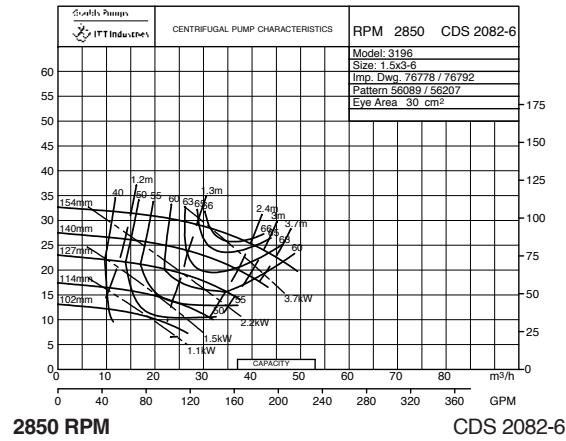
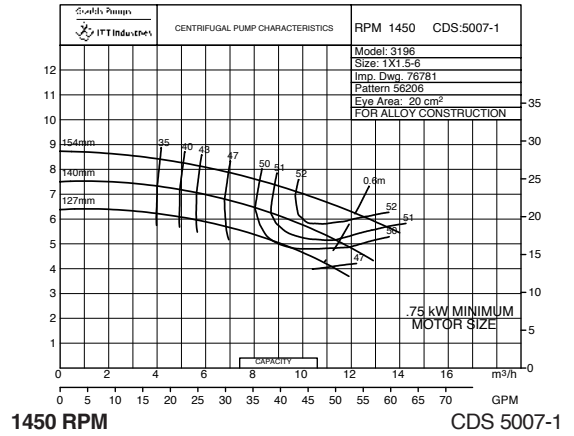
# Hydraulic Coverage Model 3196



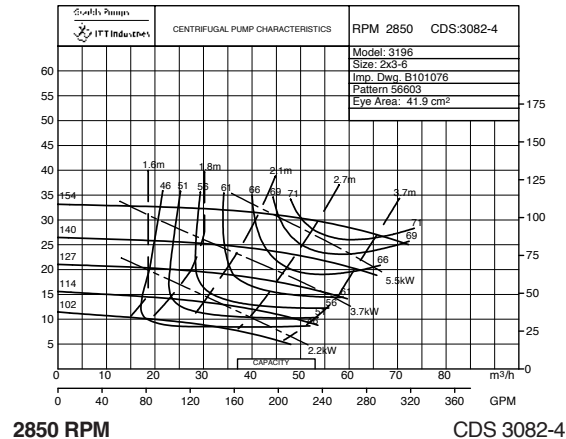
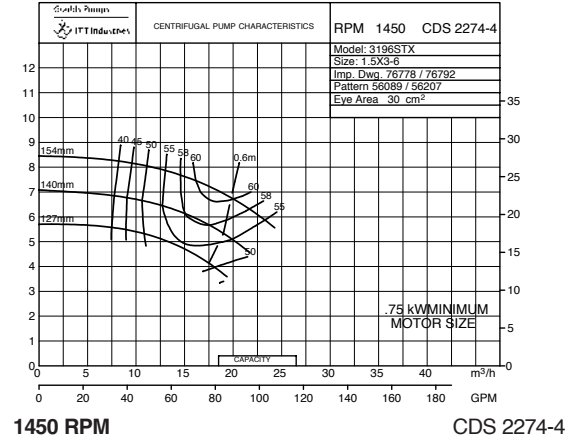
# 50 Hz Performance Curves Model 3196



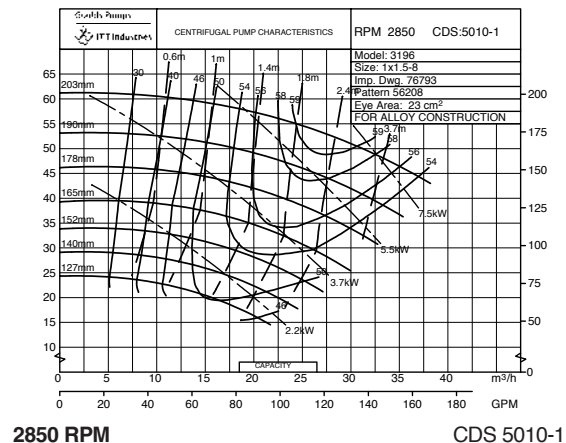
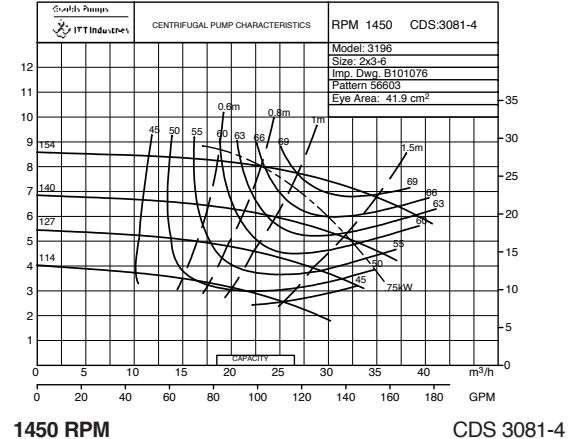
**STX**  
1 x 1½-6  
**AA**



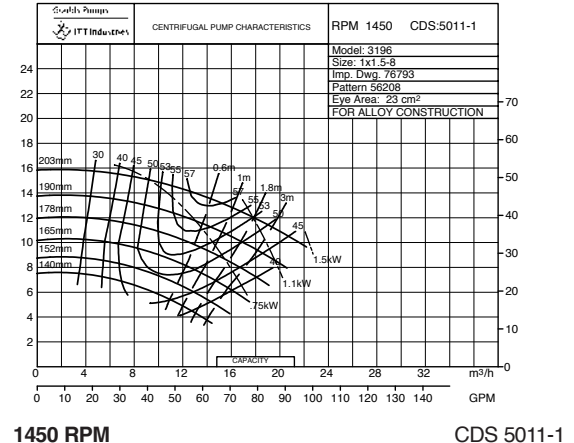
**STX**  
1½ x 3-6  
**AB**



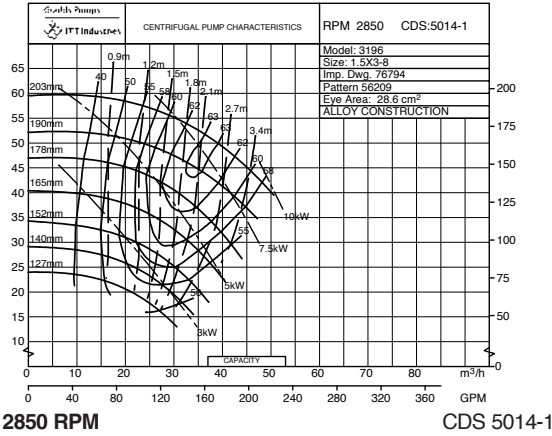
**STX**  
2 x 3-6



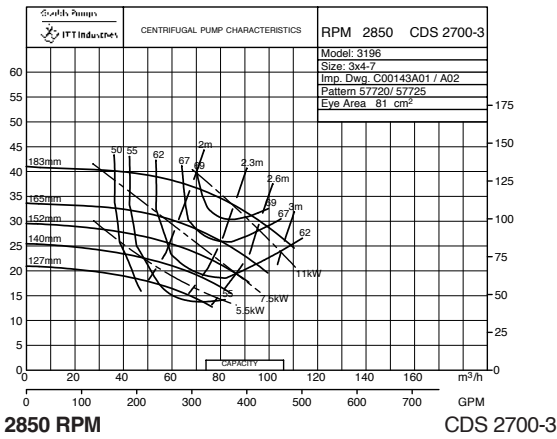
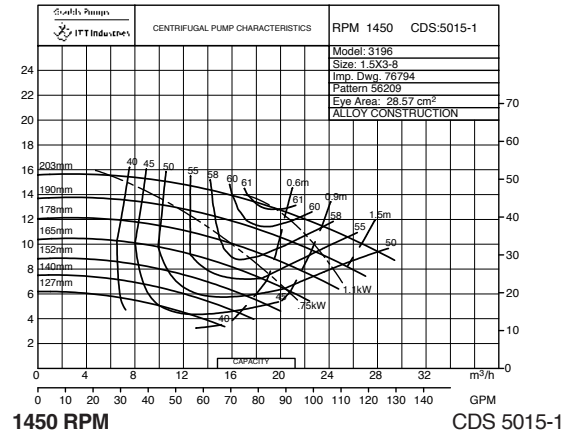
**STX**  
1 x 1½-8  
**AA**



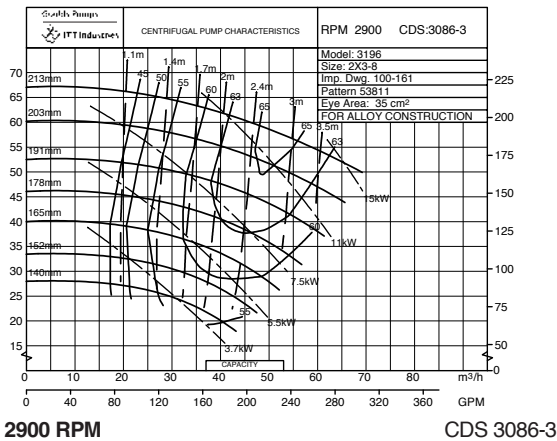
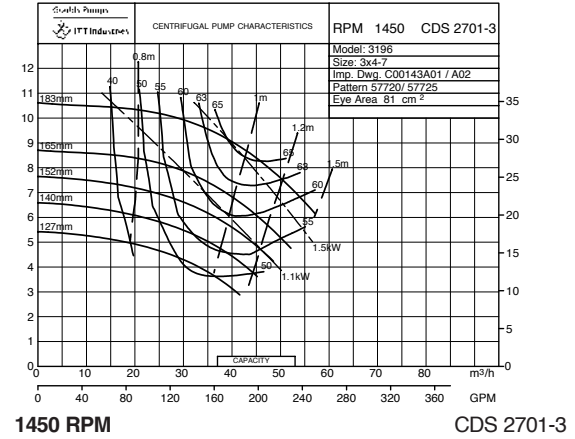
# 50 Hz Performance Curves Model 3196



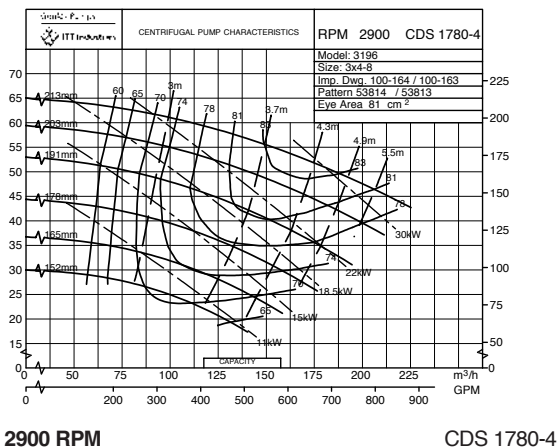
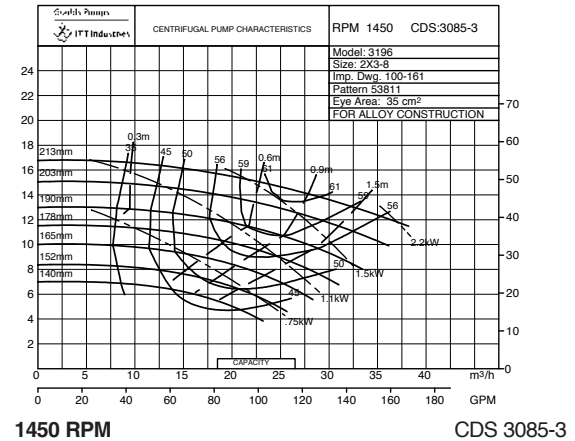
**STX**  
**1 1/2 x 3-8**  
**AB**



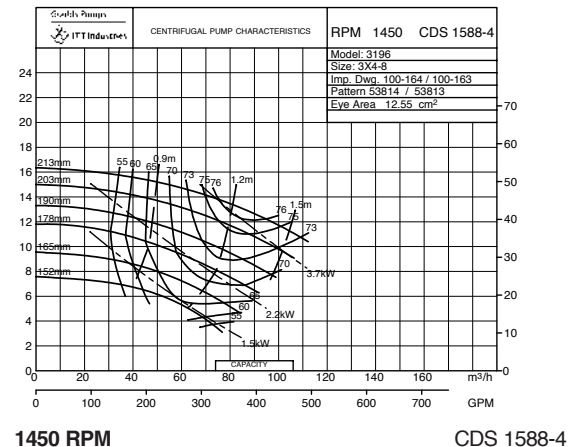
**MTX**  
**3 x 4-7**  
**A70**



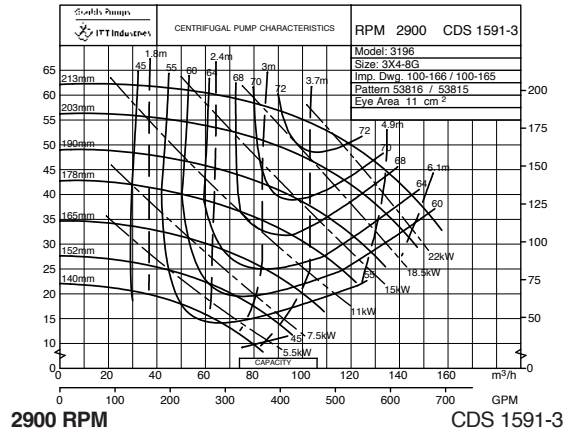
**MTX**  
**2 x 3-8**  
**A60**



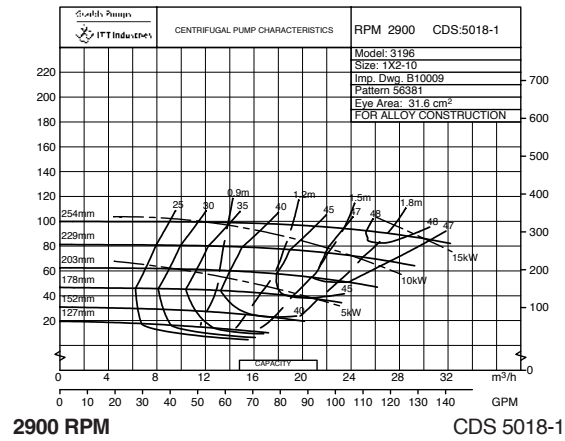
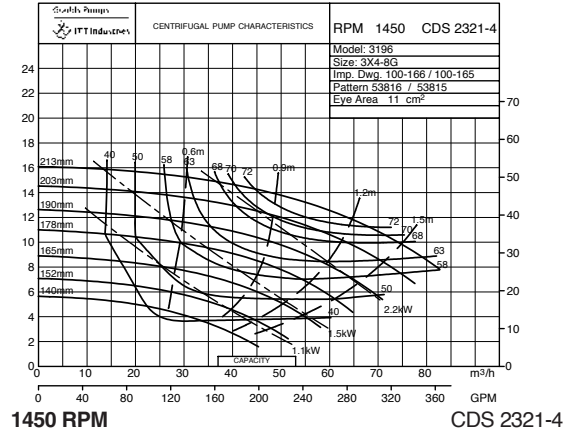
**MTX**  
**3 x 4-8**  
**A70**



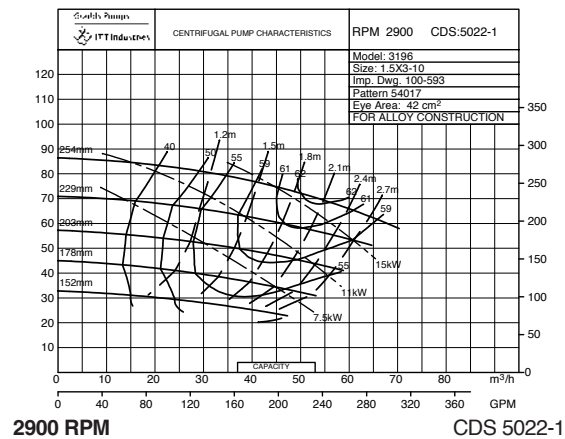
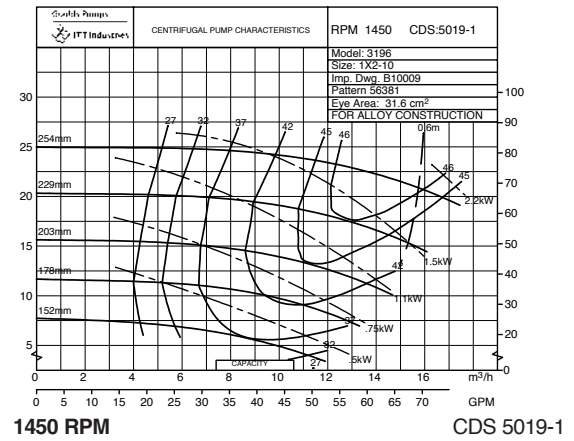
# 50 Hz Performance Curves Model 3196



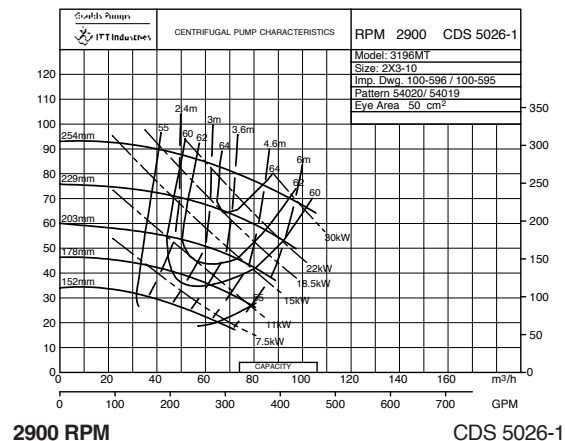
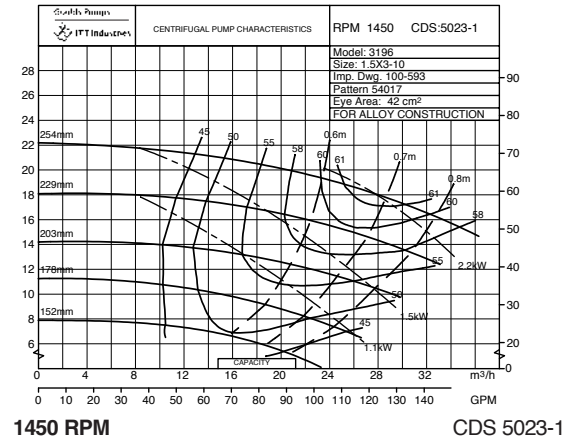
**MTX**  
**3 x 4-8G**  
**A70**



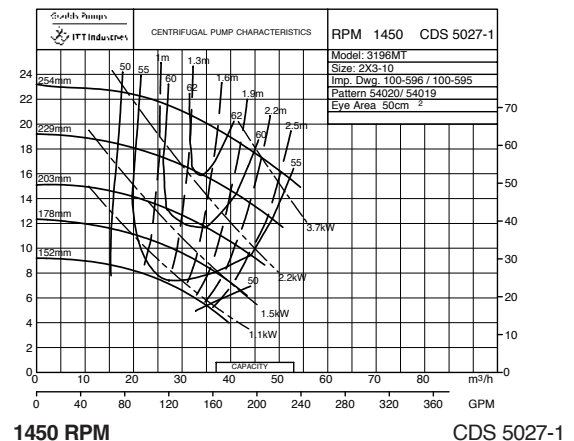
**MTX**  
**1 x 2-10**  
**A05**



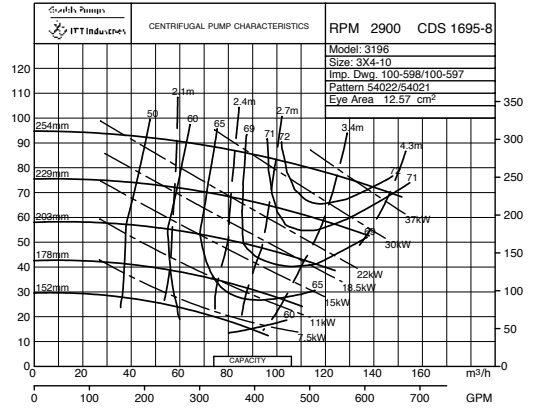
**MTX**  
**1½ x 3-10**  
**A50**



**MTX**  
**2 x 3-10**  
**A60**

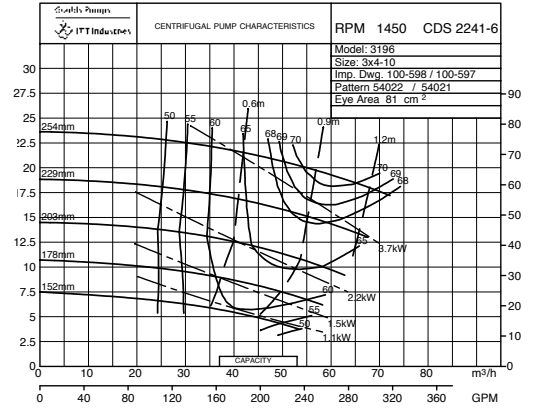


# 50 Hz Performance Curves Model 3196

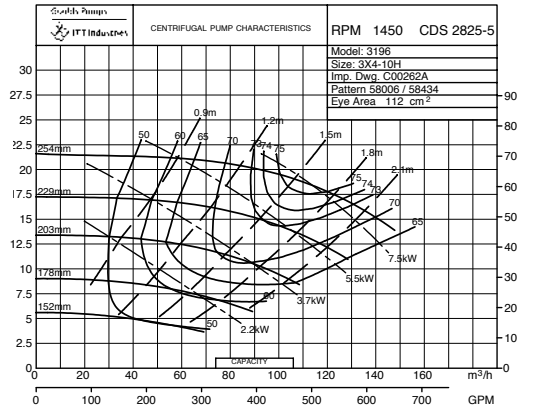


2900 RPM CDS 1695-8

**MTX**  
**3 x 4-10**  
**A70**

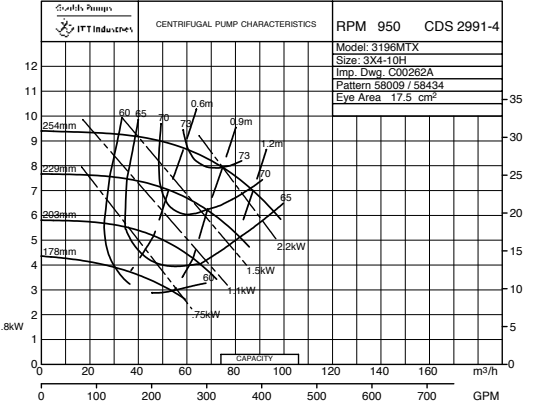


1450 RPM CDS 2241-6

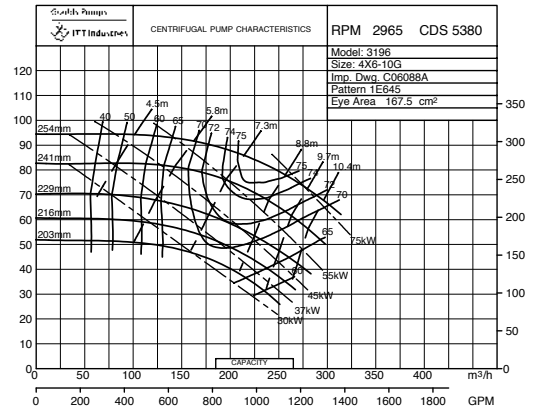


1450 RPM CDS 2825-5

**MTX**  
**3 x 4-10H**  
**A40**

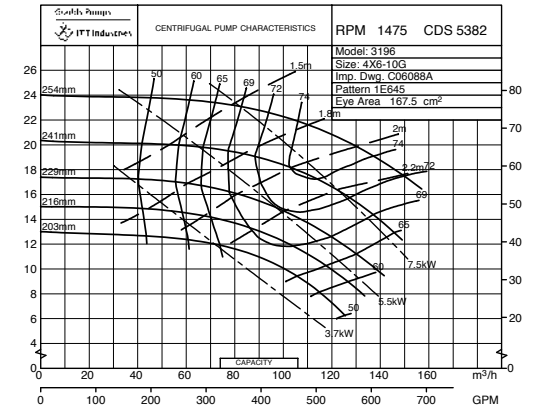


950 RPM CDS 2991-4

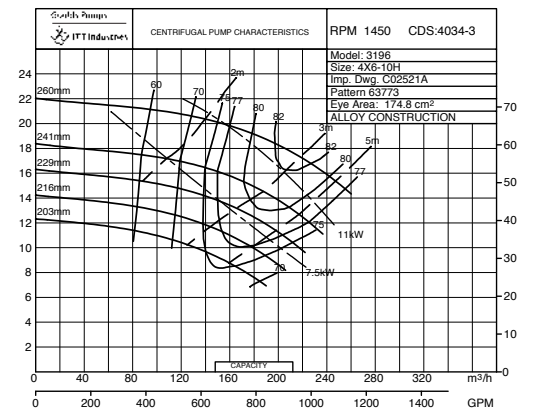


2965 RPM CDS 5380

**MTX**  
**4 x 6-10G**  
**A80**

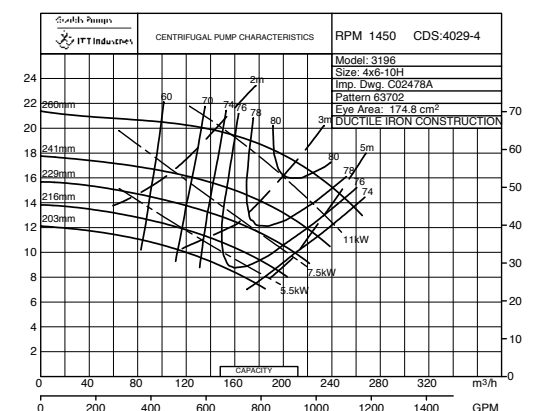


1475 RPM CDS 5382



1450 RPM CDS 4034-3

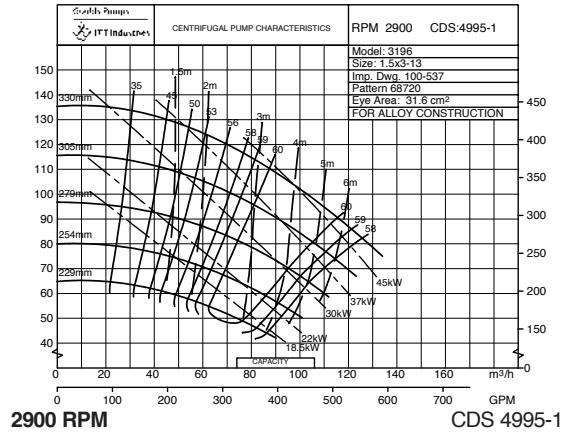
**MTX**  
**4 X 6-10H**  
**A80**



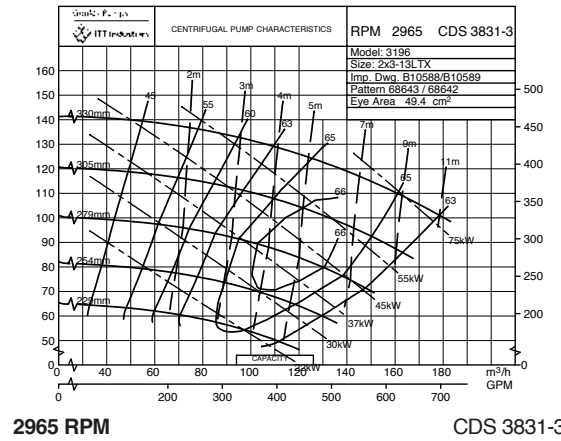
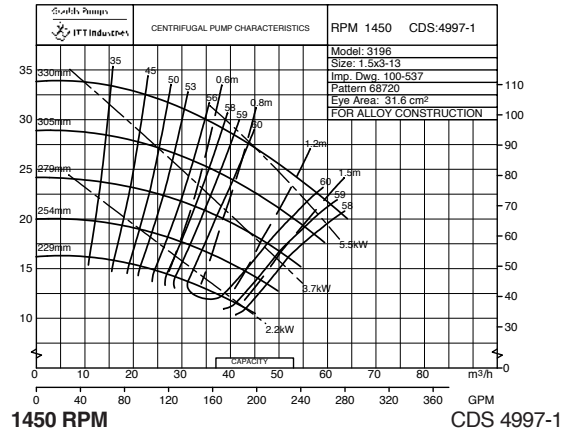
1450 RPM CDS 4029-4



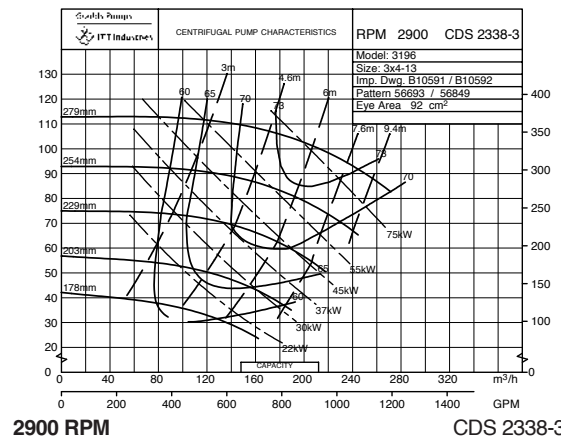
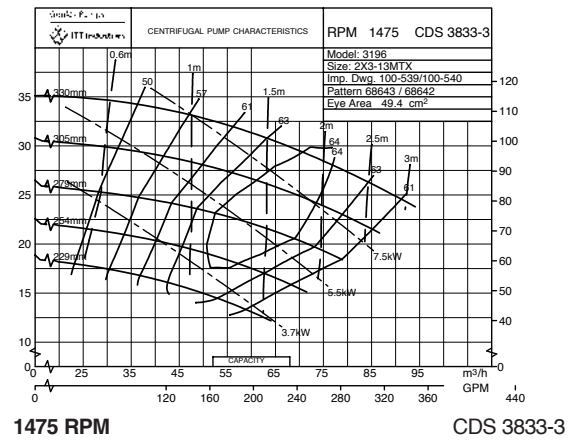
# 50 Hz Performance Curves Model 3196



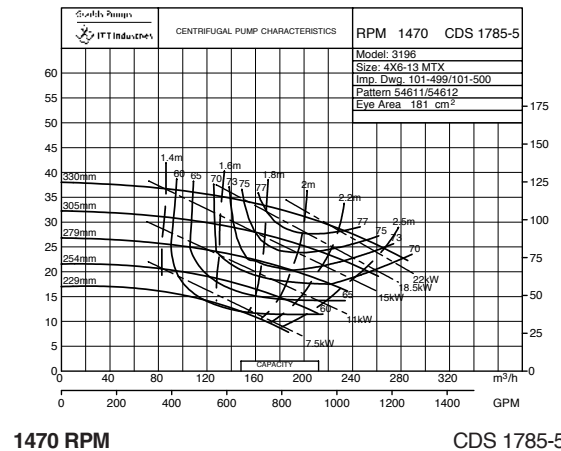
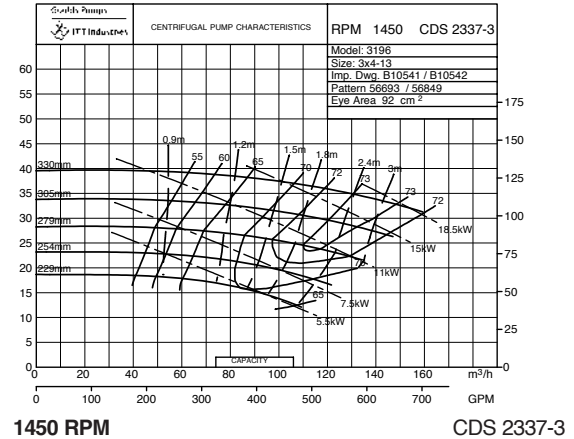
**MTX/LTX**  
**1½ x 3-13**  
**A20**



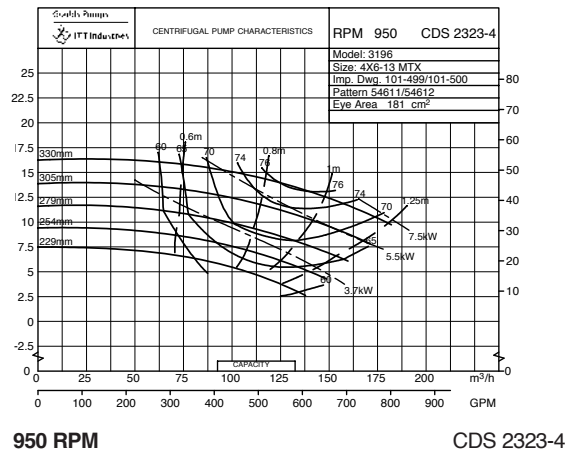
**MTX/LTX**  
**2 x 3-13**  
**A30**



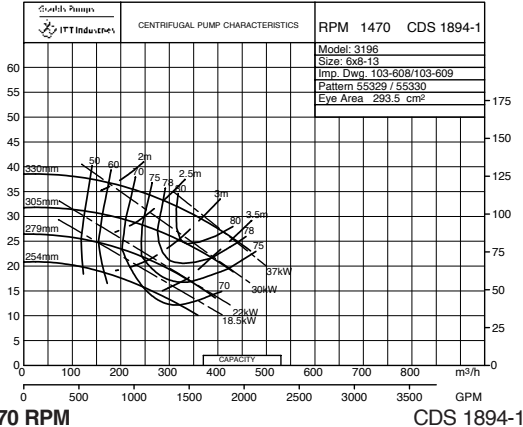
**MTX/LTX**  
**3 x 4-13**  
**A40**



**MTX**  
**4 x 6-13**  
**A80**

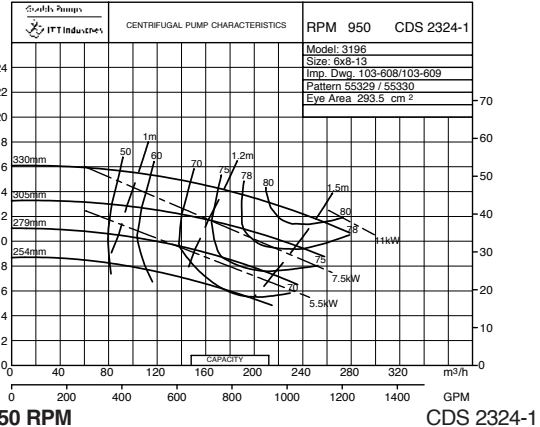


# 50 Hz Performance Curves Model 3196

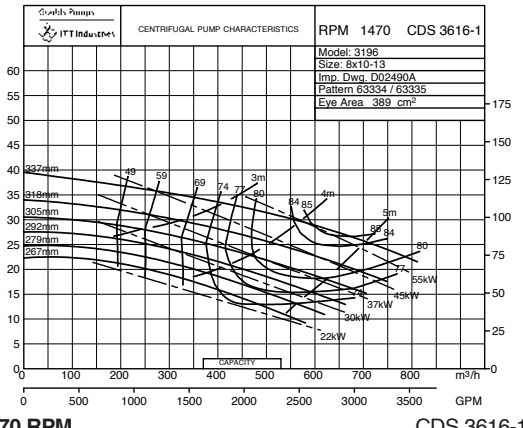


1470 RPM CDS 1894-1

**XLT-X**  
6 x 8-13  
A90

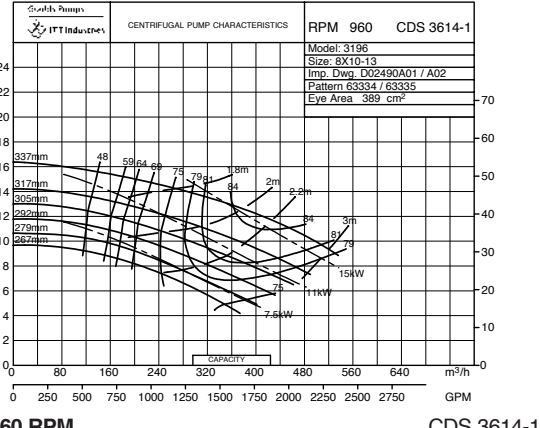


950 RPM CDS 2324-1

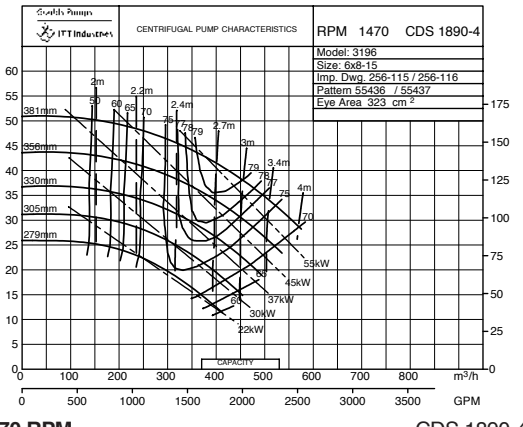


1470 RPM CDS 3616-1

**XLT-X**  
8 x 10-13  
A100

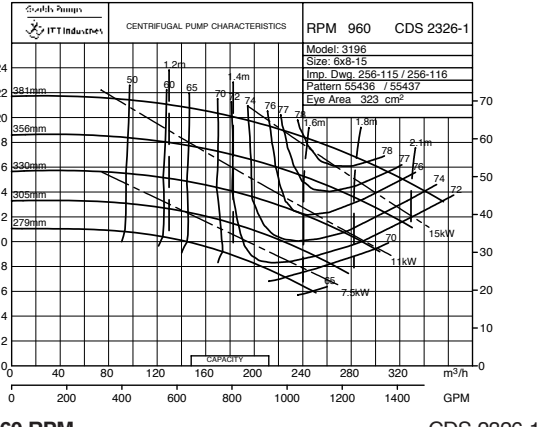


960 RPM CDS 3614-1

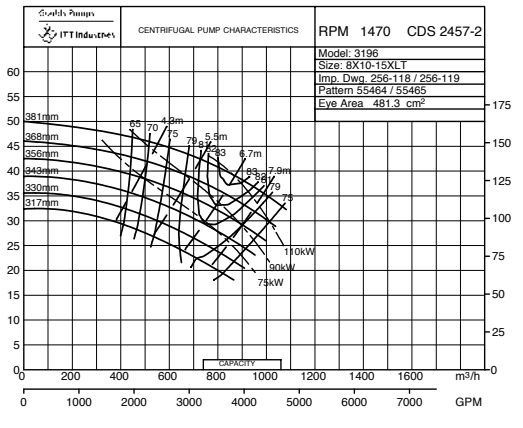


1470 RPM CDS 1890-4

**XLT-X**  
6 x 8-15  
A110

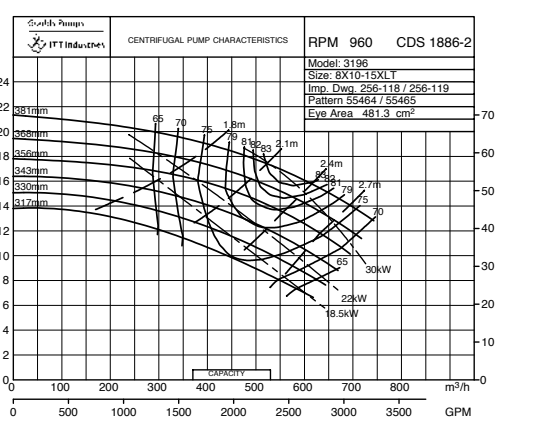


960 RPM CDS 2326-1



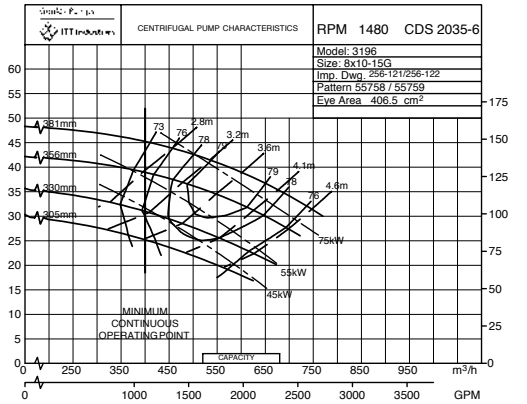
1470 RPM CDS 2457-2

**XLT-X**  
8 x 10-15  
A120



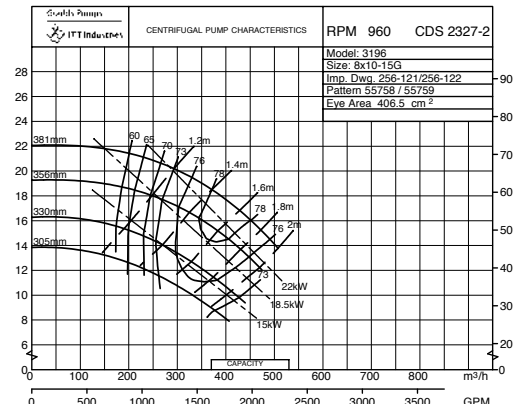
960 RPM CDS 1886-2

# 50 Hz Performance Curves Model 3196

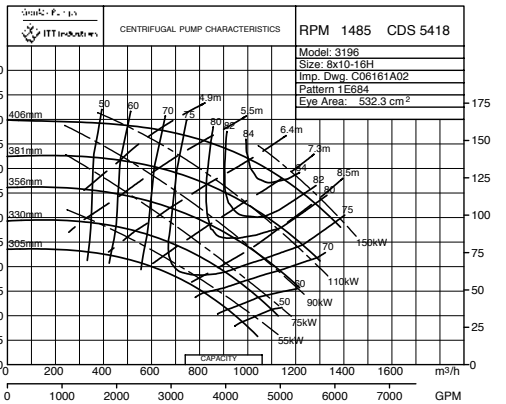


1480 RPM CDS 2035-6

**XLT-X**  
8 x 10-15G  
A120

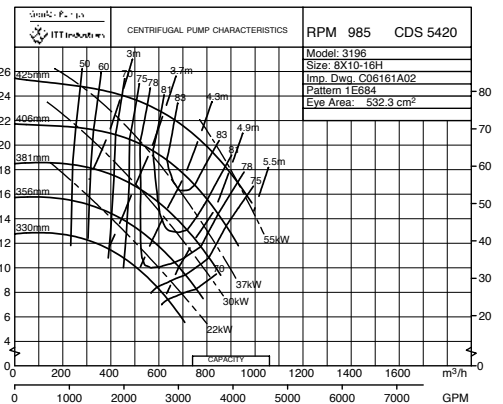


960 RPM CDS 2327-2

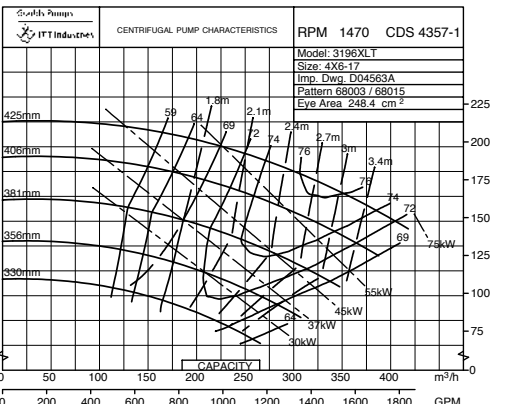


1485 RPM CDS 5418

**X-17**  
8 x 10-16H  
A120

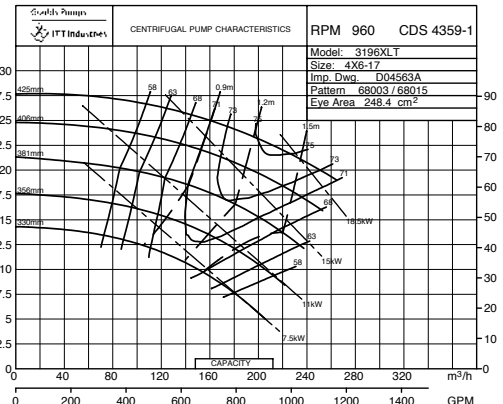


985 RPM CDS 5420

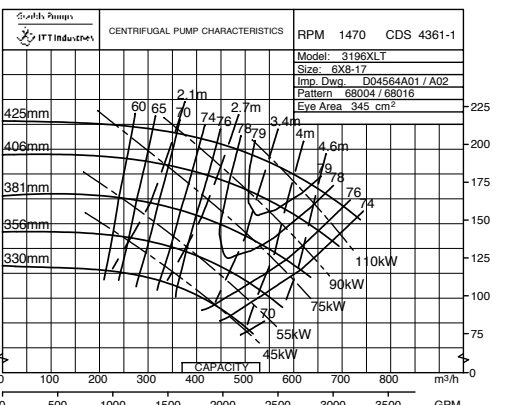


1470 RPM CDS 4357-1

**X-17**  
4 x 6-17  
A120

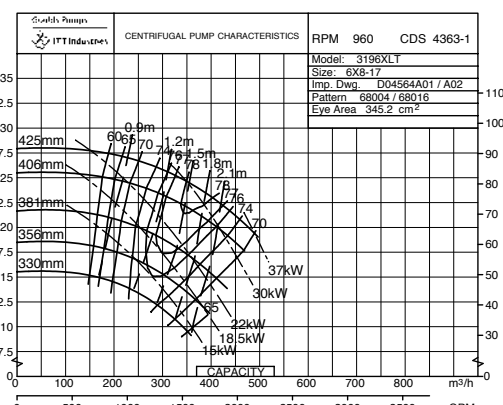


960 RPM CDS 4359-1



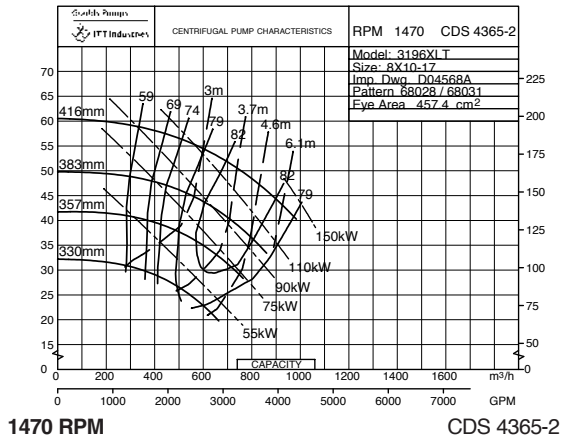
1470 RPM CDS 4361-1

**X-17**  
6 x 8-17

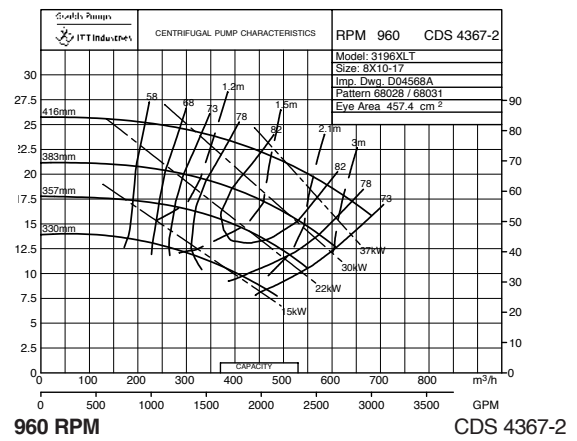


960 RPM CDS 4363-1

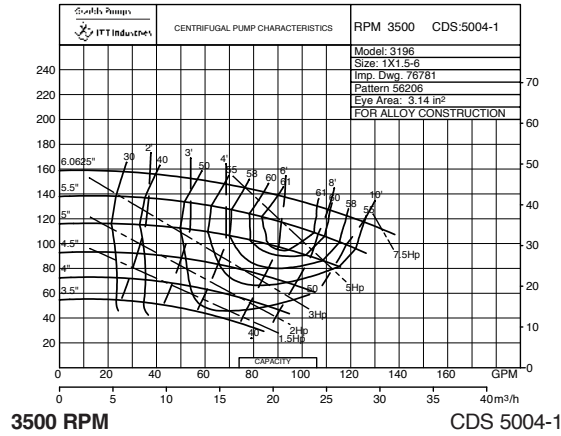
# 50 Hz Performance Curves Model 3196



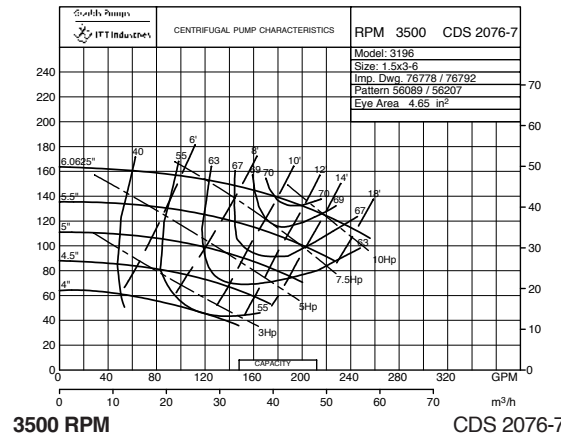
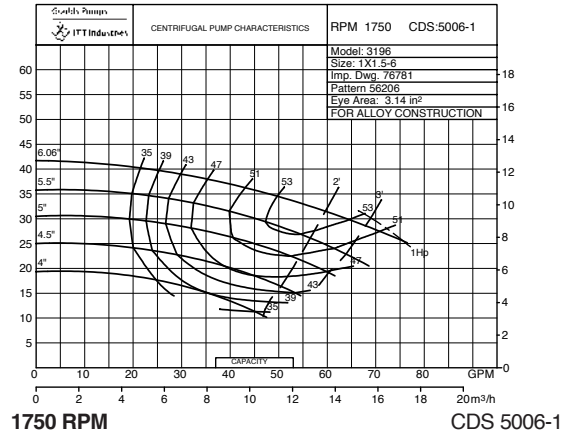
**X-17**  
**8 x 10-17**



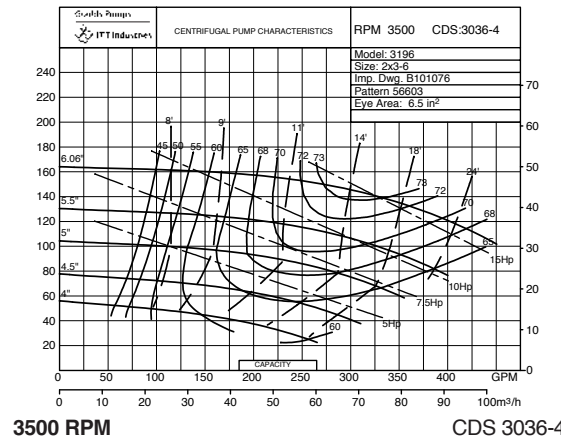
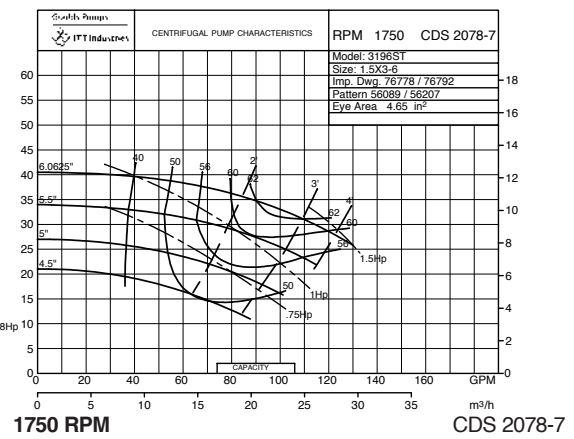
# 60 Hz Performance Curves Model 3196



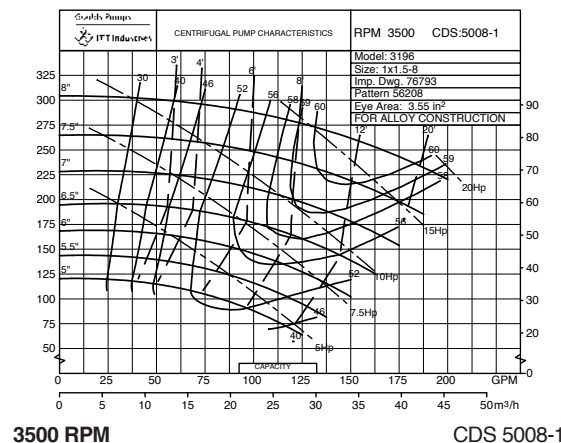
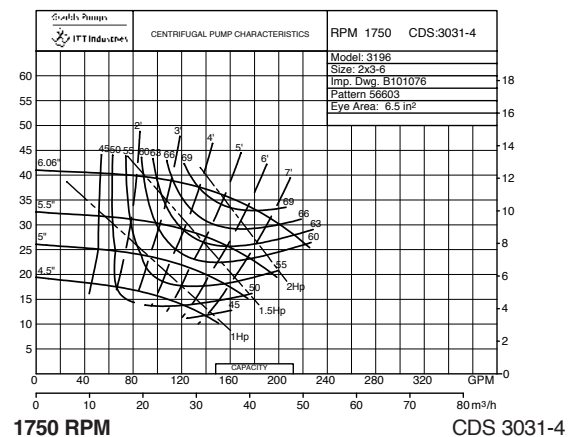
**STX**  
1 x 1½-6  
AA



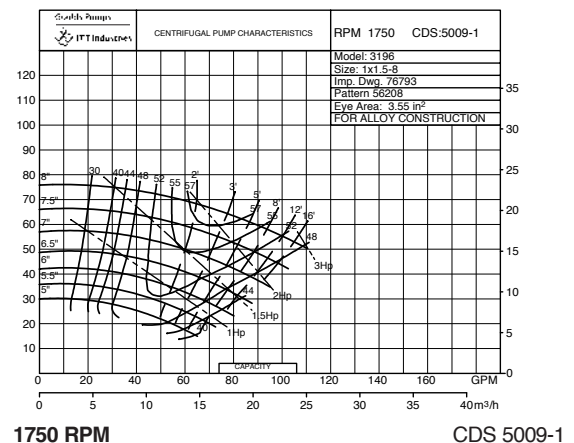
**STX**  
1½ x 3-6  
AB



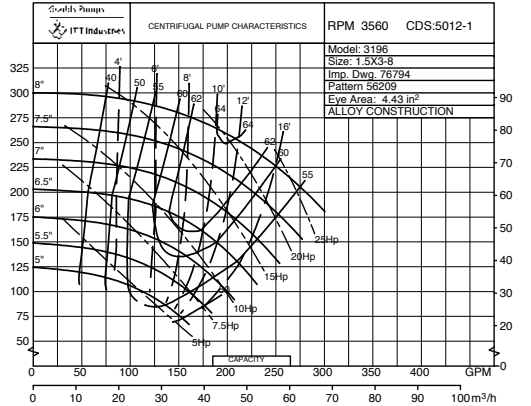
**STX**  
2 x 3-6



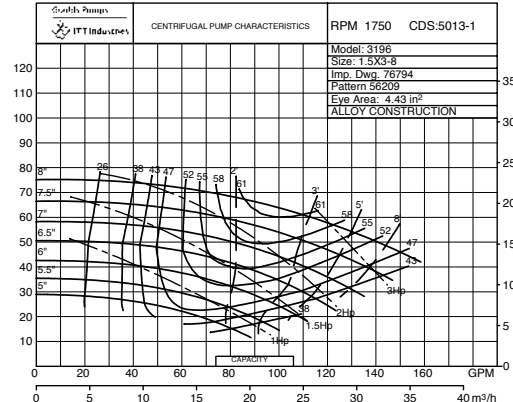
**STX**  
1 x 1½-8  
AA



# 60 Hz Performance Curves Model 3196

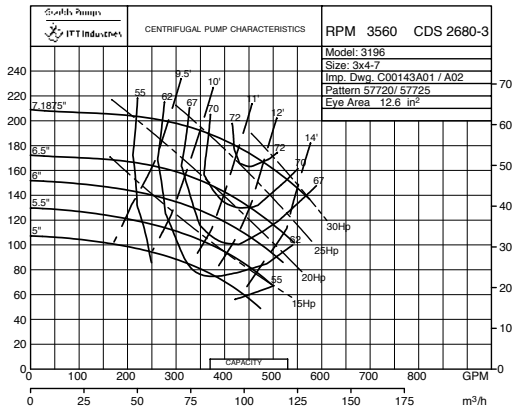


3560 RPM CDS 5012-1

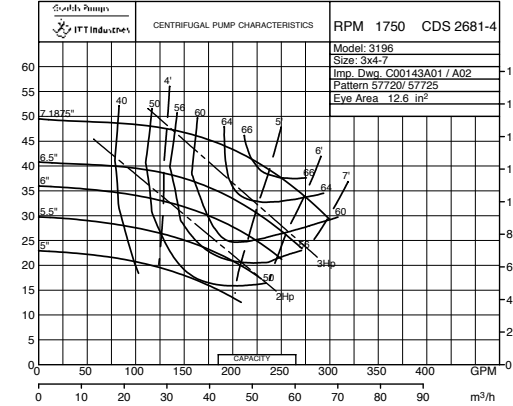


1750 RPM CDS 5013-1

**STX**  
**1 1/2 x 3-8**  
**AB**

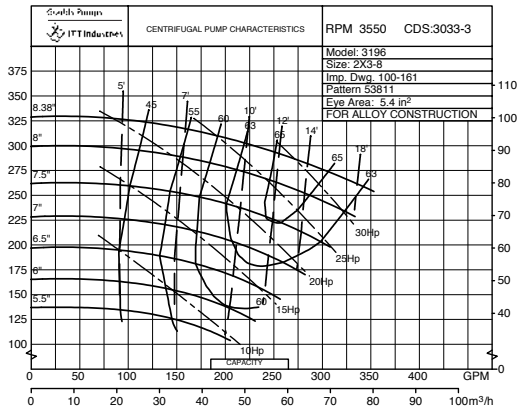


3560 RPM CDS 2680-3

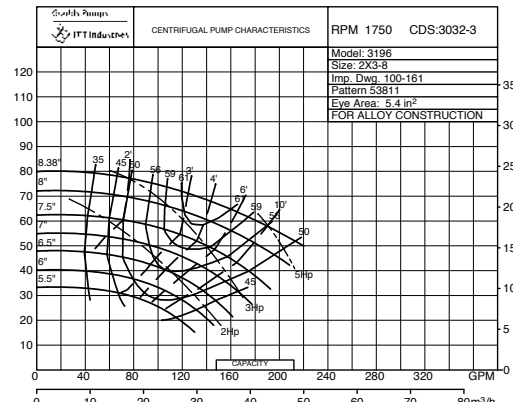


1750 RPM CDS 2681-4

**MTX**  
**3 x 4-7**  
**A70**

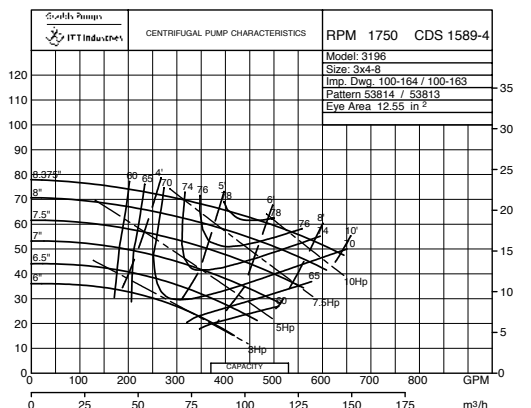


3550 RPM CDS 3033-3

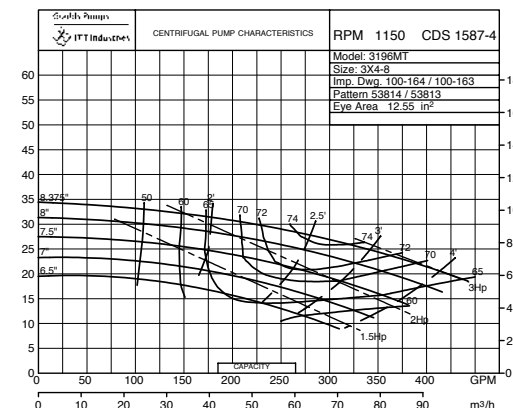


1750 RPM CDS 3032-3

**MTX**  
**2 x 3-8**  
**A60**



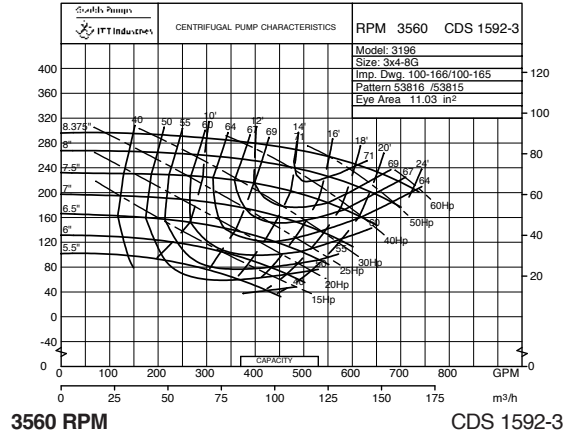
1750 RPM CDS 1589-4



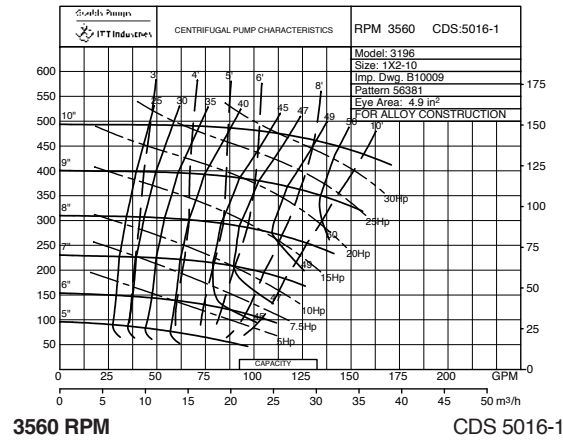
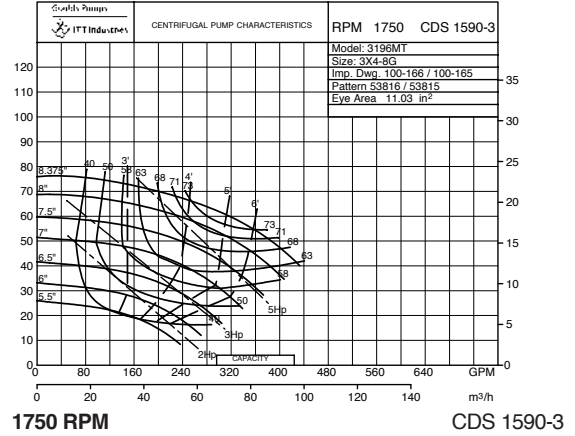
1150 RPM CDS 1587-4

**MTX**  
**3 x 4-8**  
**A70**

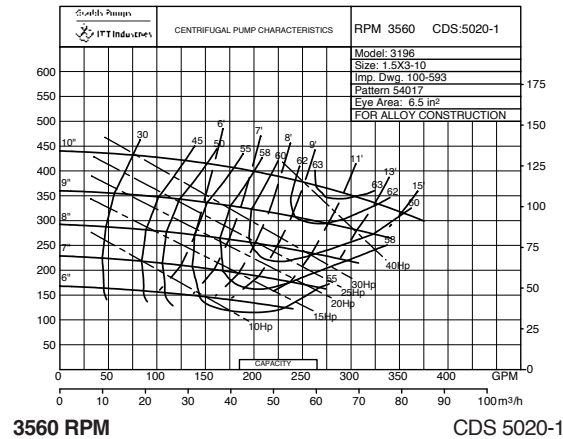
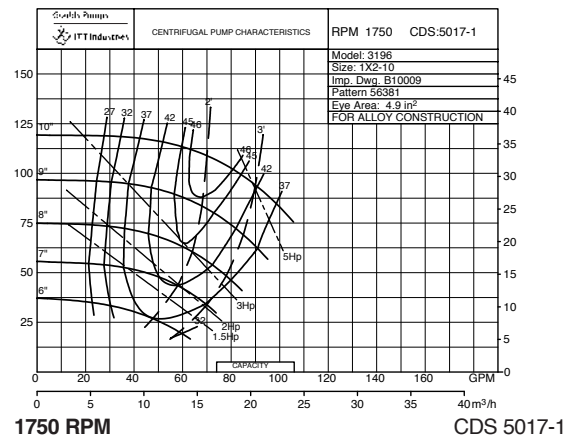
# 60 Hz Performance Curves Model 3196



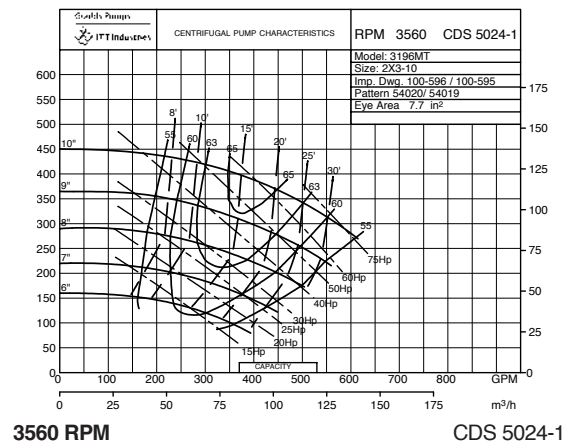
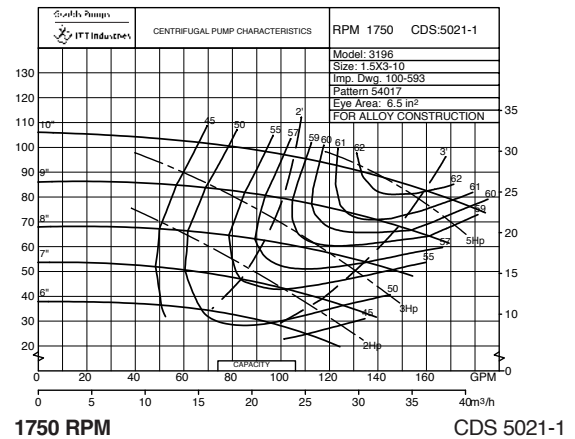
**MTX**  
**3 x 4-8G**  
**A70**



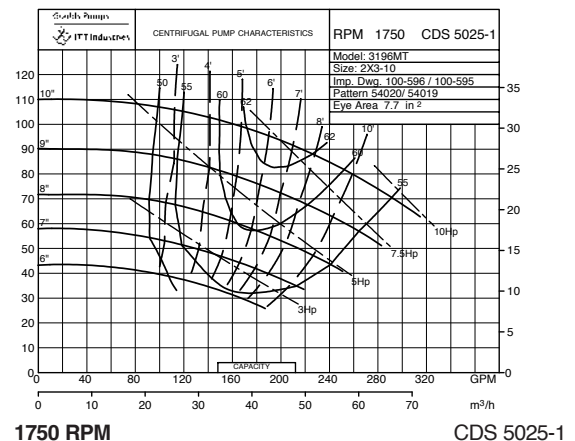
**MTX**  
**1 x 2-10**  
**A05**



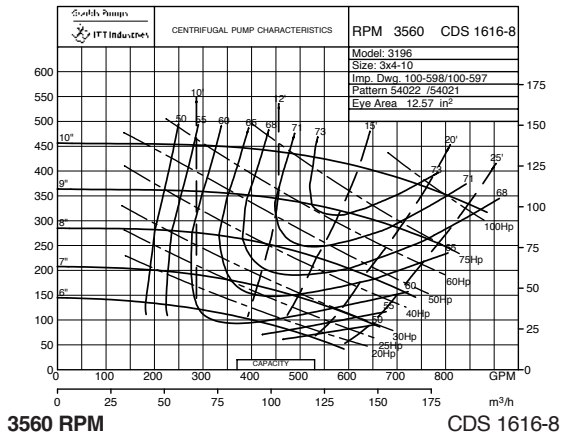
**MTX**  
**1 1/2 x 3-10**  
**A50**



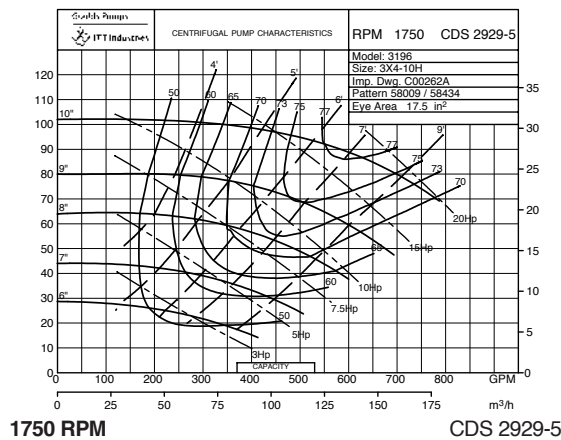
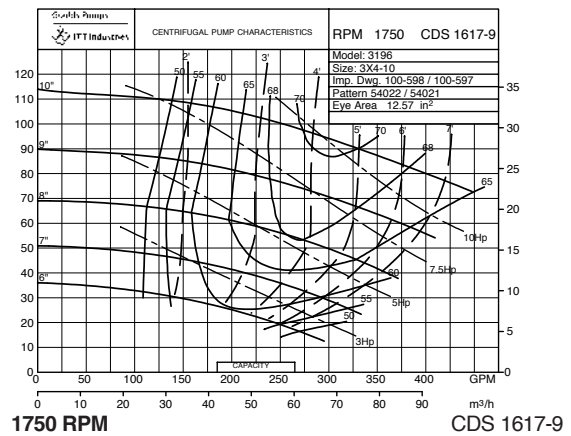
**MTX**  
**2 x 3-10**  
**A60**



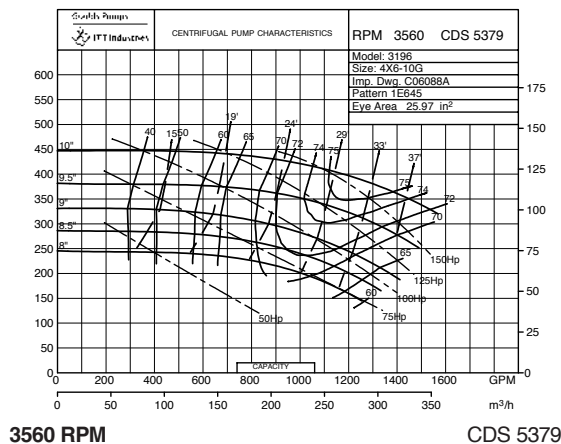
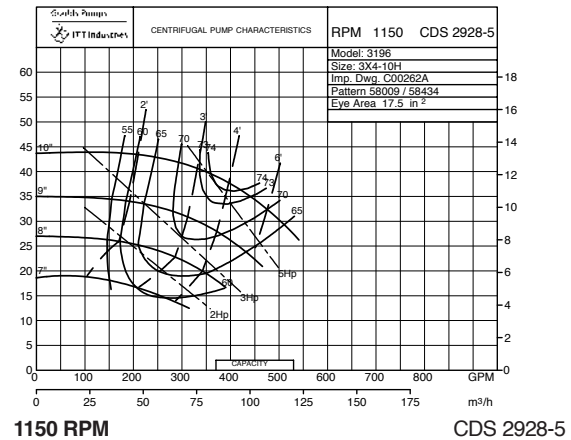
# 60 Hz Performance Curves Model 3196



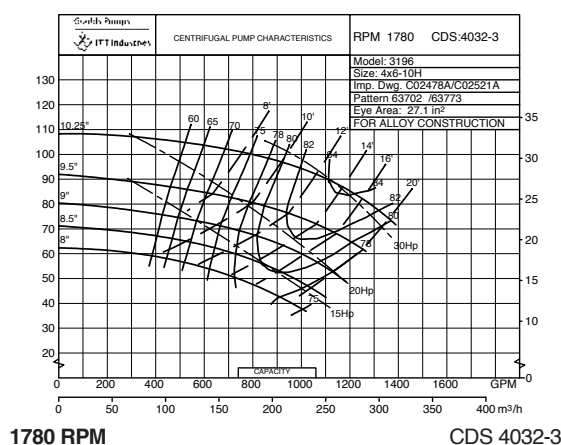
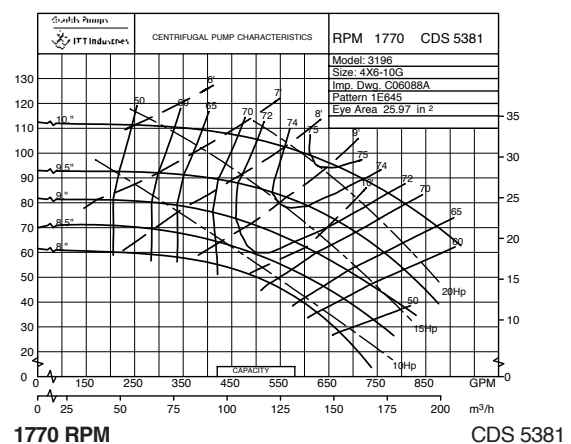
**MTX**  
**3 x 4-10**  
**A70**



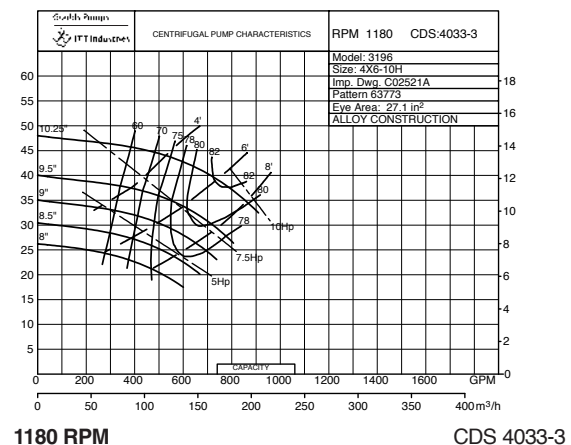
**MTX**  
**3 x 4-10H**  
**A40**



**MTX**  
**4 x 6-10G**  
**A80**

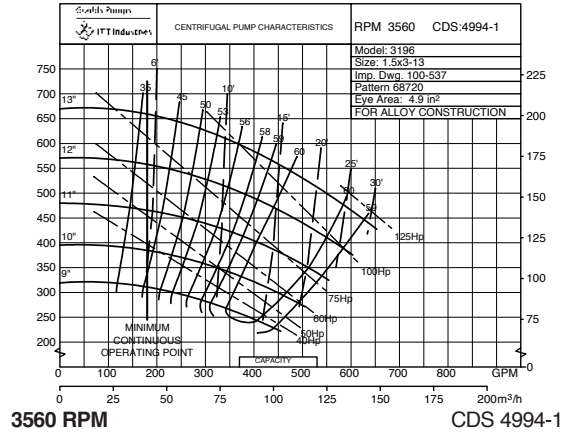


**MTX**  
**4 x 6-10H**  
**A80**

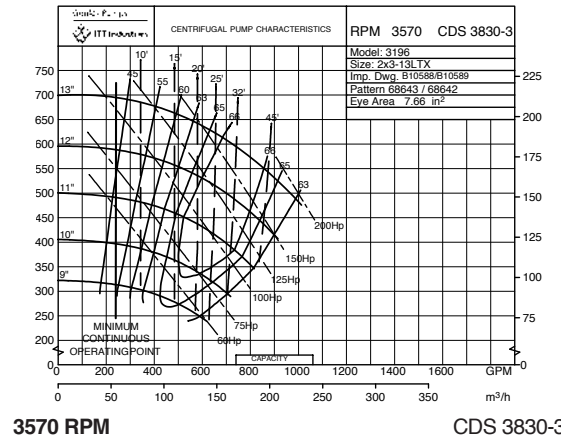
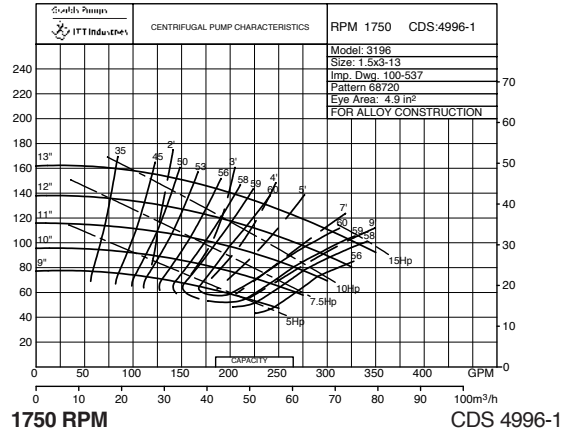




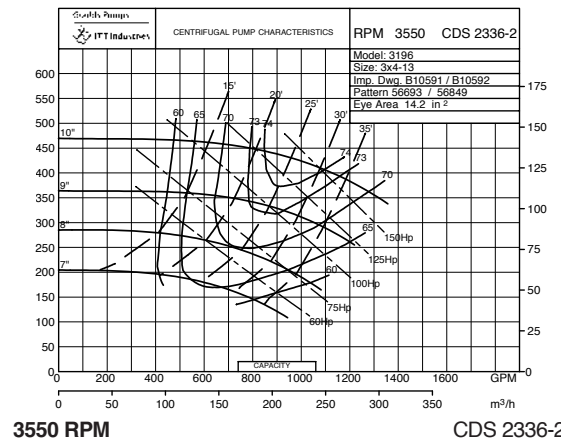
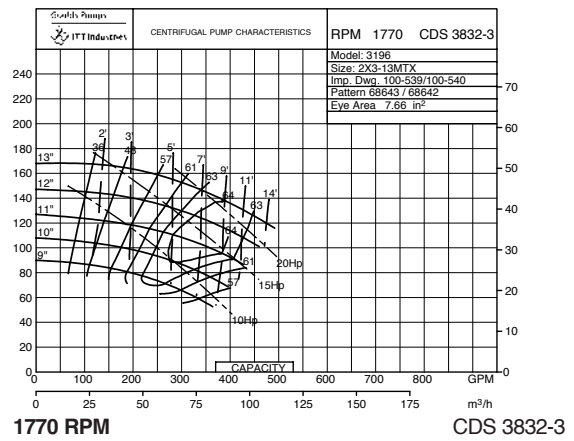
# 60 Hz Performance Curves Model 3196



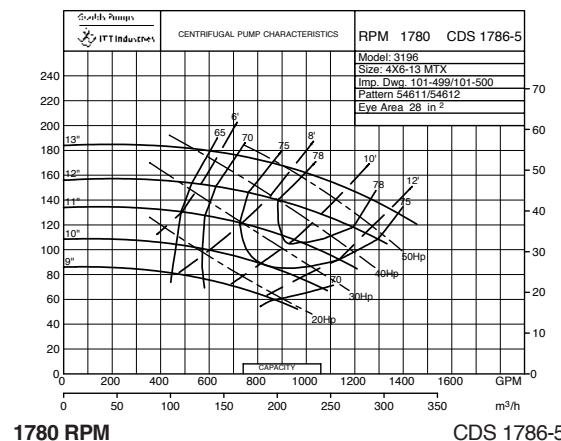
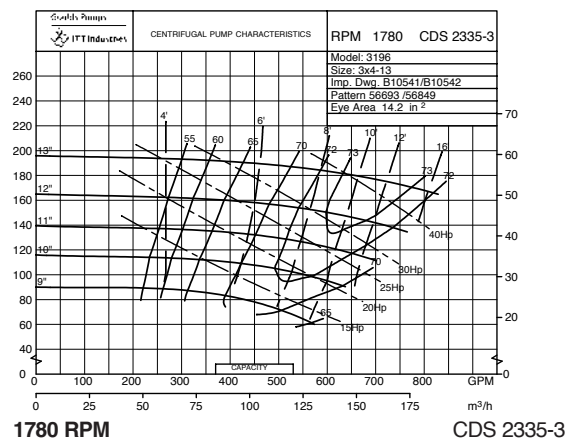
**MTX/LTX**  
1 1/2 x 3-13  
A20



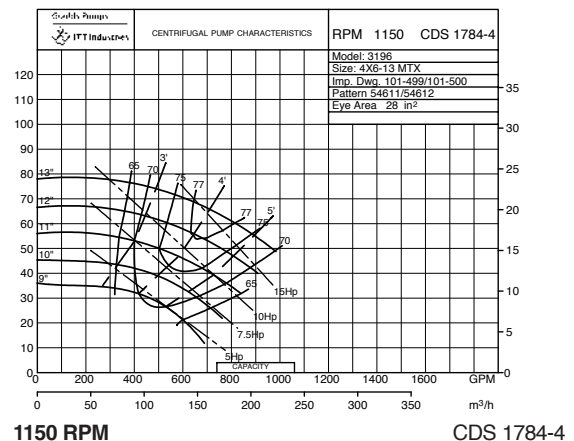
**MTX/LTX**  
2 x 3-13  
A30



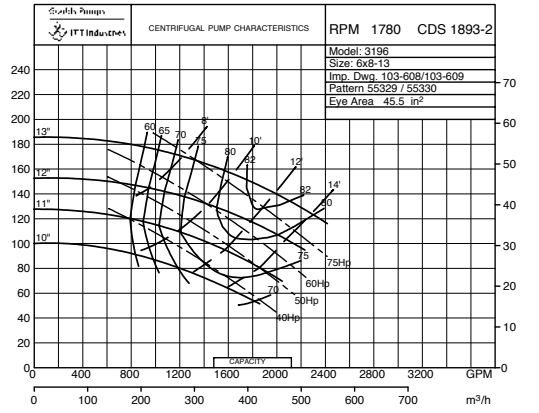
**MTX/LTX**  
3 x 4-13  
A40



**MTX**  
4 x 6-13  
A80

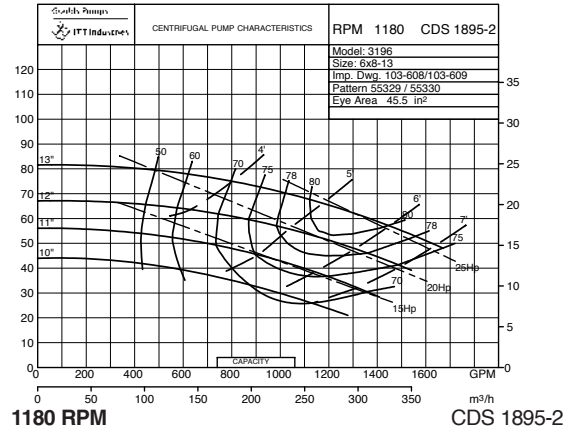


# 60 Hz Performance Curves Model 3196

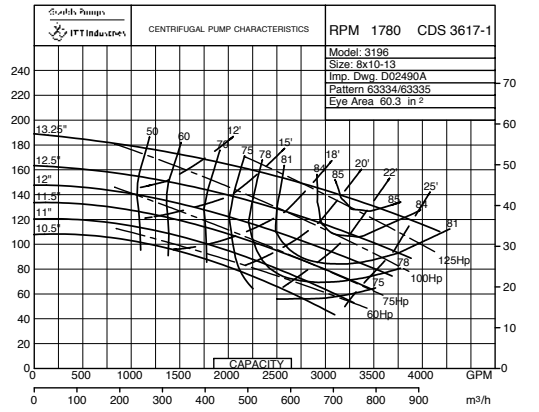


1780 RPM CDS 1893-2

**XLT-X**  
6 x 8-13  
A90

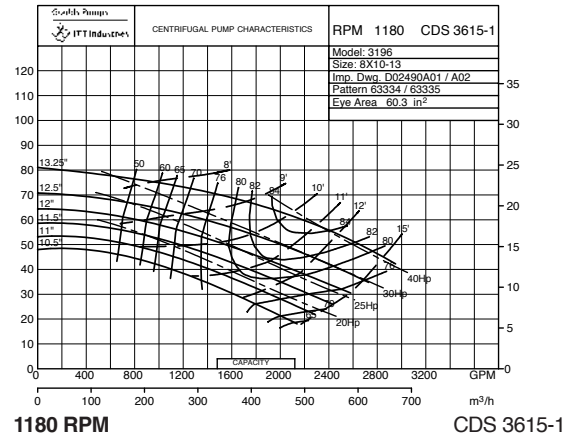


1180 RPM CDS 1895-2

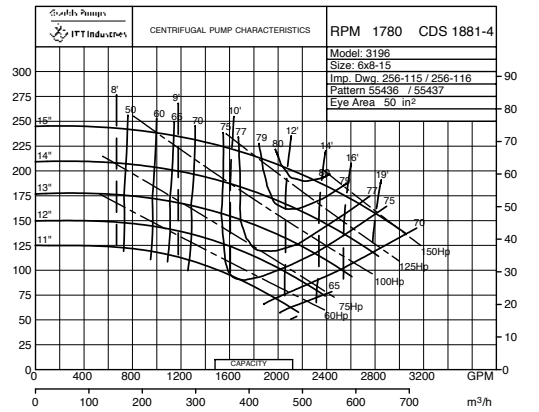


1780 RPM CDS 3617-1

**XLT-X**  
8 x 10-13  
A100

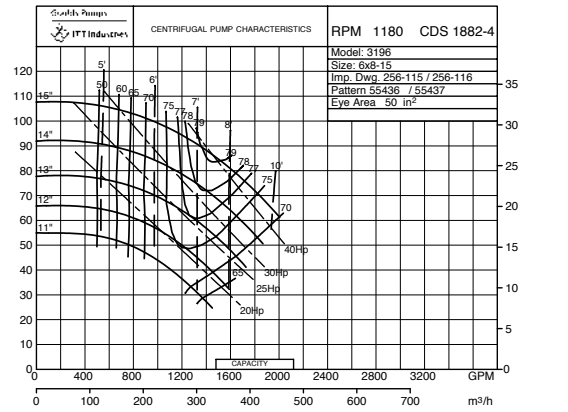


1180 RPM CDS 3615-1

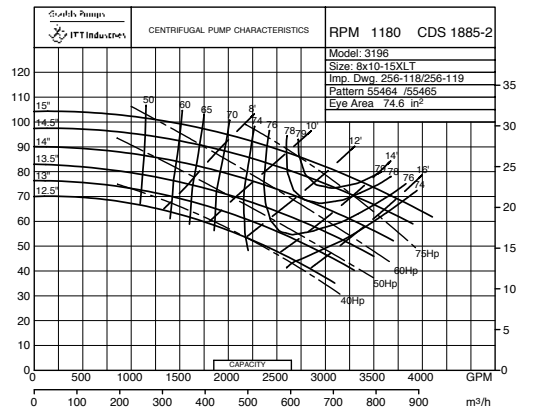


1780 RPM CDS 1881-4

**XLT-X**  
6 x 8-15  
A110

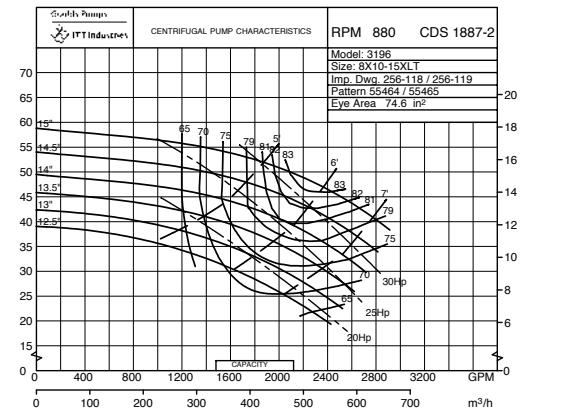


1180 RPM CDS 1882-4



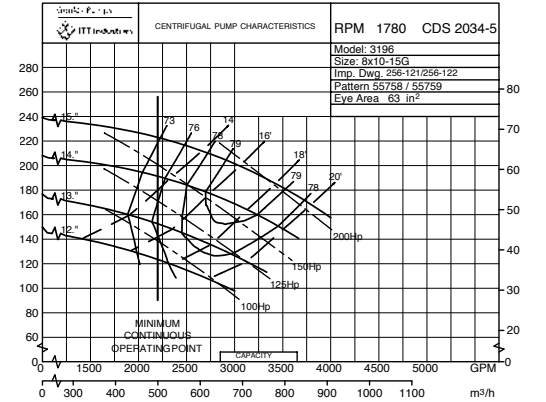
1180 RPM CDS 1885-2

**XLT-X**  
8 x 10-15  
A120



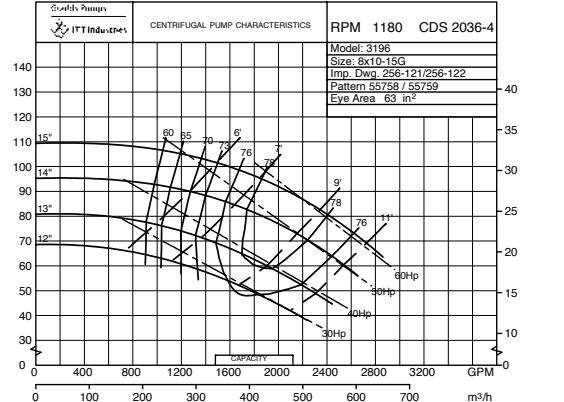
880 RPM CDS 1887-2

# 60 Hz Performance Curves Model 3196

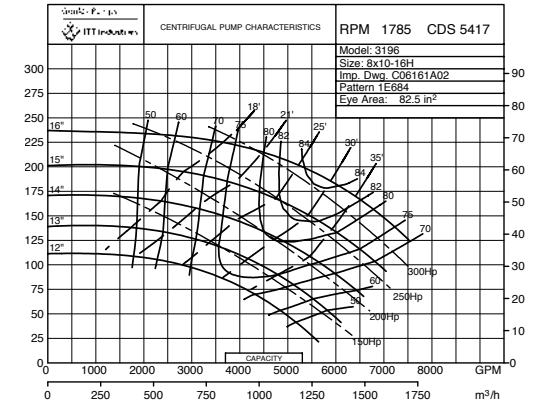


1780 RPM CDS 2034-5

**XLT-X**  
8 x 10-15G  
A120

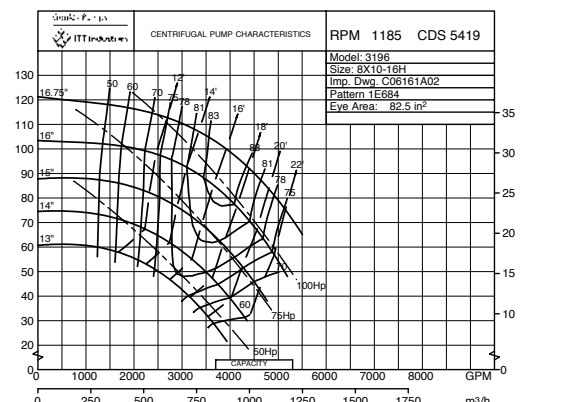


1180 RPM CDS 2036-4

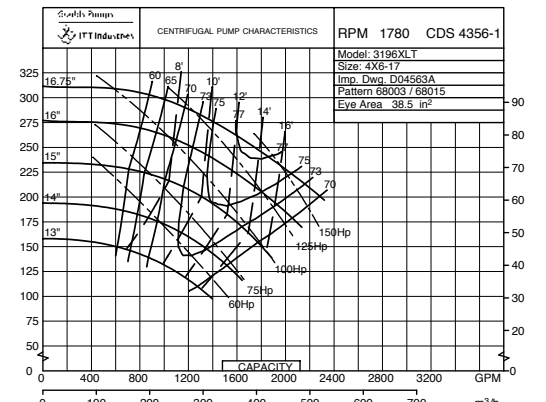


1785 RPM CDS 5417

**X-17**  
8 x 10-16H  
A120

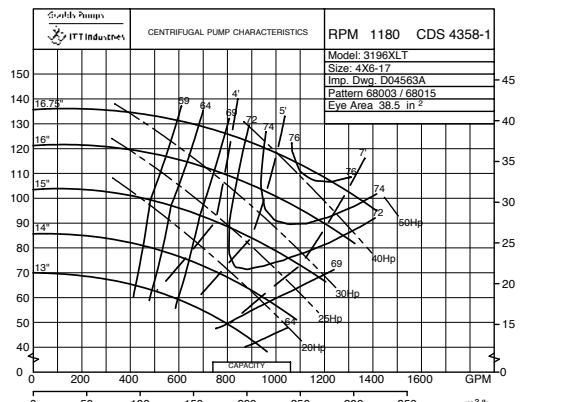


1185 RPM CDS 5419

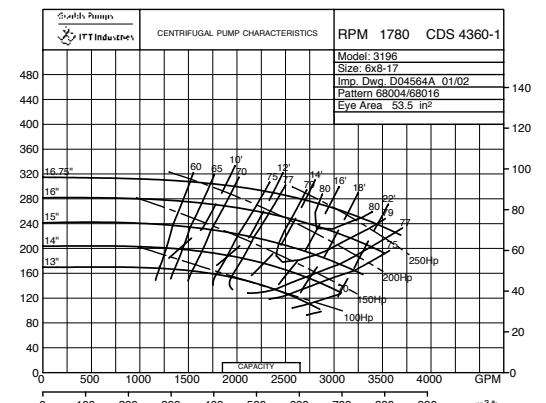


1780 RPM CDS 4356-1

**X-17**  
4 x 6-17

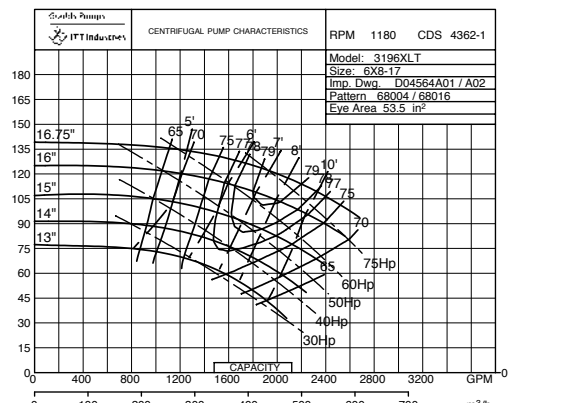


1180 RPM CDS 4358-1



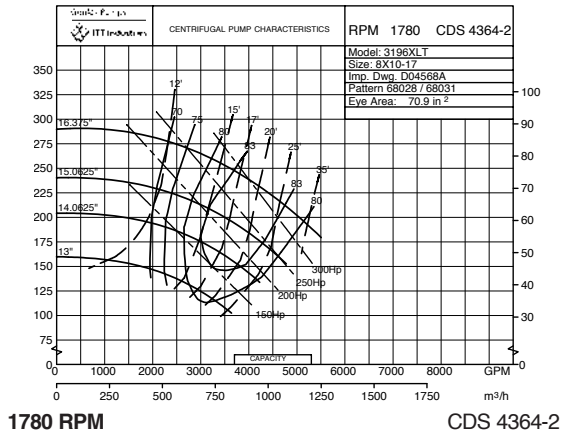
1780 RPM CDS 4360-1

**X-17**  
6 x 8-17



1180 RPM CDS 4362-1

# 60 Hz Performance Curves Model 3196



**X-17**  
**8 x 10-17**

