

"A Trusted Partner in Pump Solutions"

ANSI CHEMICAL PROCESS PUMP LOW FLOW

1196 LF SERIES
ASME B73.1M STANDARD



DESIGN FEATURES

ACCURATE MACHINED FITS MAINTAINS POSITIVE ALIGNMENT

- ▶ Accurate alignment of impeller to casing provides maximum hydraulic efficiency.
- ▶ Concentricity of shaft to stuffing box bore assure low sealing maintenance.

OPEN IMPELLER

- ▶ Ideal for corrosive & abrasive liquid
- ▶ Handles solid & stringy fibres with ease
- ▶ Back Pump out vanes reduces pressure on shaft seal
- ▶ Adjustment of clearance is easy when wear & tear takes place

CASING

- ▶ Top Centre fine discharge
- ▶ Back pull out design

POSITIVE LIQUID SEALING AT IMPELLER

- ▶ PTFE 'O'- Ring in controlled compression protects shaft against corrosion.
- ▶ Metal contact between shaft and impeller transmit torque & assures perfect alignment.

STUFFING BOX

- ▶ STANDARD BORE : Designed for packaging, also able to accommodates mechanical seal.
- ▶ BIG BORE: Enlarged Chamber for Increased seal life through improved cooling & lubrication.
- ▶ TAPER BORE: lower seal face temperature, self venting & draining. Solid & Vapours circulated away from seal face.

MAXIMUM SEALING FLEXIBILITY

- ▶ Choice of packed box or mechanical seal.
- ▶ Any type - inside or outside-single, double, unbalance & balanced mechanical seal.
- ▶ Almost any seal will fit without modifications of pump.

RENEWABLE SHAFT SLEEVE

- ▶ Simplifies Maintenance - renew sealing surface without shaft and bearing disassembly.
- ▶ PTFE 'O'- Ring protects shaft against liquid contact.

SIGHT GLASS

- ▶ To monitor oil level in oil chambers

OIL FILL PLUG

- ▶ To fill oil
- ▶ Vapor / Air circulation in bearing housing

HIGH THRUST CAPABILITY

- ▶ With double row thrust bearing & lock nut. keeps end play less then 0.025mm (0.001")
- ▶ Minimum shaft end play for effective stuffing box sealing.

SHAFT

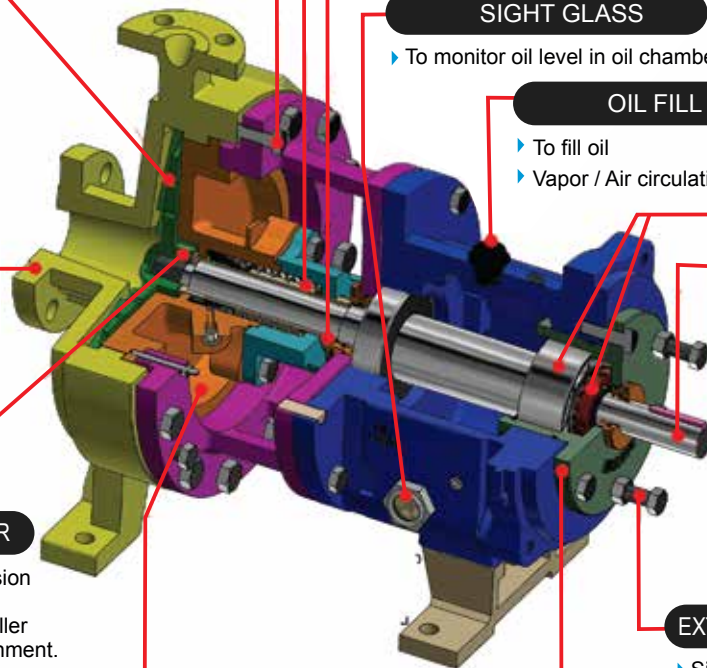
- ▶ Designed for toughest services.
- ▶ Maximum 0.05 mm deflection at stuffing box face at maximum load.
- ▶ 2 types- Sleeves or Solid
 - Standard- SS316 Shaft sleeve with AISI 4140 Shaft
 - Optional- SS316 shaft sleeve with SS316 shaft
- ▶ Solid shaft with SS316 or any other material

EXTERNAL IMPELLER ADJUSTMENT

- ▶ Simple & fast with open end wrench.
- ▶ No shimming required.

BEARING HOUSING

- ▶ Sealed to prevent contamination from corrosive atmosphere, leakage & wash down.



Material of Construction: Ductile Iron, Carbon Steel, CF8M, CD4MCUN, Alloy 20, Hastelloy B & C, Nickle

Industry Served : Oil & Gas, Refineries, power plant, Petro-Chemicals, water & waste water, HVAC, Food Processing, Pharma, Sugar and many more



MODEL LF 1196 STR
(1X1 1/2-4, 1X1 1/2-8)



MODEL LF 1196 MTR / LTR
(1X2-10 MTR / LTR, 1 1/2X3-13 LTR)

THE LF 1196 PROCESS PUMP LINE IS SPECIFICALLY DESIGNED TO PROVIDE SUPERIOR PERFORMANCE FOR LOW FLOW SERVICES OF THE CHEMICAL PROCESS INDUSTRIES.

SPECIFICATIONS

- ▶ Capacities up to 220 GPM (50m³/h)
- ▶ Heads up to 925 feet (282 m)
- ▶ Temperatures up to 700°F (371° C)
- ▶ Pressures up to 450 PSIG (3102 kPa)

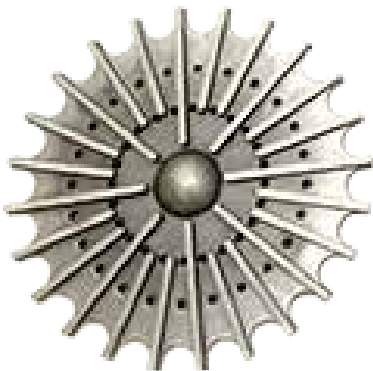
FEATURES

- ▶ Concentric (Circular) Casing
- ▶ Radial Vane Impeller
- ▶ R-Series Power Ends
- ▶ Large Bore Stuffing Box
- ▶ Back Pull-out Design
- ▶ Parts Interchangeable with Rotech Model 1196
- ▶ External Impeller Adjustment
- ▶ Easy Retrofit

SERVICES

- ▶ Corrosive Chemicals
- ▶ Boiler Feed
- ▶ Condensate
- ▶ High Pressure Process
- ▶ Column Reflux
- ▶ Column Bottoms
- ▶ Hot Oil
- ▶ Sea Water

IMPELLER & CASING:



Impeller



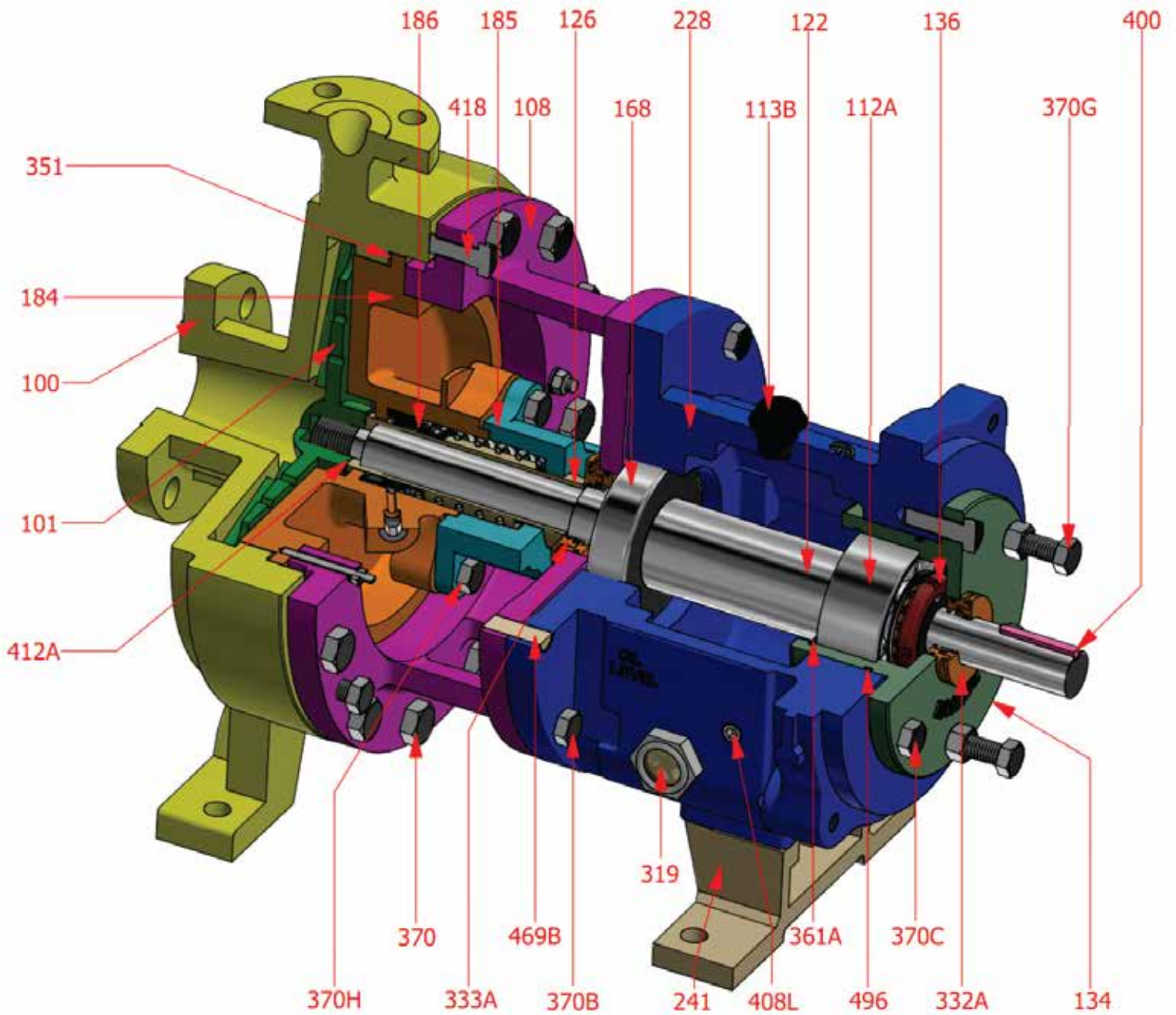
Casing 1x 1.5-8 LF

CONSTRUCTION DETAILS

All Dimensions in inches and (mm)

		STR	MTR	LTR
Shaft		0.75 (19)	1 (25)	1.25 (32)
	Diameter in Stuffing Box/Seal Chamber Without Sleeve	1.375 (35)	1.75 (45)	2.125 (54)
	With Sleeve	1.125 (29)	1.5 (38)	1.875 (48)
	Diameter Between Bearings	1.5 (38)	2.125 (54)	2.5 (64)
	Diameter at Coupling	0.875 (22)	1.125 (29)	1.875 (48)
	Overhang	6.125 (156)	8.375 (213)	8.375 (213)
	Maximum Shaft Deflection	0.002 (0.05)		
Sleeve	O.D.thru Stuffing Box/seal Chamber	1.375 (35)	1.75 (45)	2.125 (54)
Bearings	Radial	SKF 6207	SKF6309	SKF6311
	Thrust	SKF 5306 A/C3	SKF 5309A/C3	SKF 7310 BECBM
	Bearing Span	4.125 (105)	6.75 (11)	6.875 (164)
	Average L'10 Bearing	87.600 hours		
Large Bore Seal	Bore	2.875 (73)	3.5 (89)	3.875 (98)
Stuffing Box	Bore	2 (51)	2.5 (64)	2.875 (73)
Power Limits	HP (kW) per 100 RPM	1.1 (0.82)	3.4 (2.6)	5.6 (42)
Shaft	Oil/Grease Lubrication without Cooling	350° F (177° C)		
	Oil Lubrication with Finned Cooler	500° F (260° C)		
	Oil Lubrication with High Temperature Option	700° F (371° C)		
Casing	Corrosion Allowance	0.125 (3)		

CROSS SECTION VIEW



PART LIST & MATERIAL OF CONSTRUCTION

PART NO	PART DESCRIPTION	MATERIAL OF CONSTRUCTION					
100	Casing	DI/CARBON STEEL	SS304	SS316	CD4MCu	Alloy 20	Hastelloy B&C
101	Impeller	DI/CARBON STEEL	SS304	SS316	CD4MCu	Alloy 20	Hastelloy B&C
105	Lantern Ring (Optional)	Glass Filled Teflon*					
106	Stuffing Boc Packing (Optional)	Teflon* Impregnated Fibers					
108	Frame Adapter	Cast Iron / Duct Iron					
112A	Thrust Bearing	Double Row					
113	Oil Fill Plug / Breather	Steel					
122	Shaft - Less Sleeve (Optional)	SS316	SS316	SS316	Alloy 20	Hastelloy	
122	Shaft with Sleeve	SS316	SS316	Shaftless Sleeve, Solid Shaft (Optional)			316SS
126	Shaft Sleeve	SS316		SS316	Alloy 20	Hastelloy	
134	Bearing Housing	Ductile Iron					
136	Bearing Locknut & Lockwasher	Steel					
168	Radial Bearing	Single Row					
184	Stuffing Box Cover	Carbon Steel	SS316	SS316	CD4MCu	Alloy 20	Hastelloy
185	Seal Chamber / Gland	Carbon Stell / SS316	SS316	SS316	CD4MCu	Alloy 20	Hastelloy
186	Mechanical Seal						
187	SBC Gasket	Teflon / Non-Asbestos					
228	Bearing Frame	Ductile Iron					
241	Frame Foot	Ductile Iron					
250	Packing Gland (Optional)	SS316	SS316	CD4MCu	Alloy 20	Hastelloy	
319	Oil Sight Glass	Glass / Aluminium					
332A	Labyrinth Oil Seal (Outboard)	Bronze					
333A	Labyrinth Oil Seal (Inboard)	Bronze					
351	Casing Gasket	Aramid Fiber with EPDM Rubber or PTFE					
358	Casing Drain Plug ***	Steel	SS316	2205	Alloy 20	Hastelloy	
360	Gasket, Frame to Adapter	Neoprene Rubber					
361A	Bearing Snap Ring	Steel					
370	Cap Screw, Adapter-to-Casing	STEEL / SS304					
370B	Bolt, Frame to Adapter	STEEL / SS304					
370C	Bolt, Bearing Housing	STEEL / SS304					
370F	Bolt, Frame Foot***	STEEL / SS304					
370G	Stud c/w Nut	SS304					
370H	Stud/ Nut, Cover-to-Adapter	STEEL / SS304					
400	Shaft Key	STEEL / SS316					
408A	Plug-Oil Draing ***	Steel					
408L	Finned Tube Cooler Inlet Plug 1/2" NPT	Steel					
412A	O-Ring, Impeller	Glass-Filled Teflon*					
418	Jacking Bolt	STEEL / SS304					
469B	Dowel Pin, Frame to Adepter	Steel					
496	O-Ring, Bearing Housing	Buna Rubber					

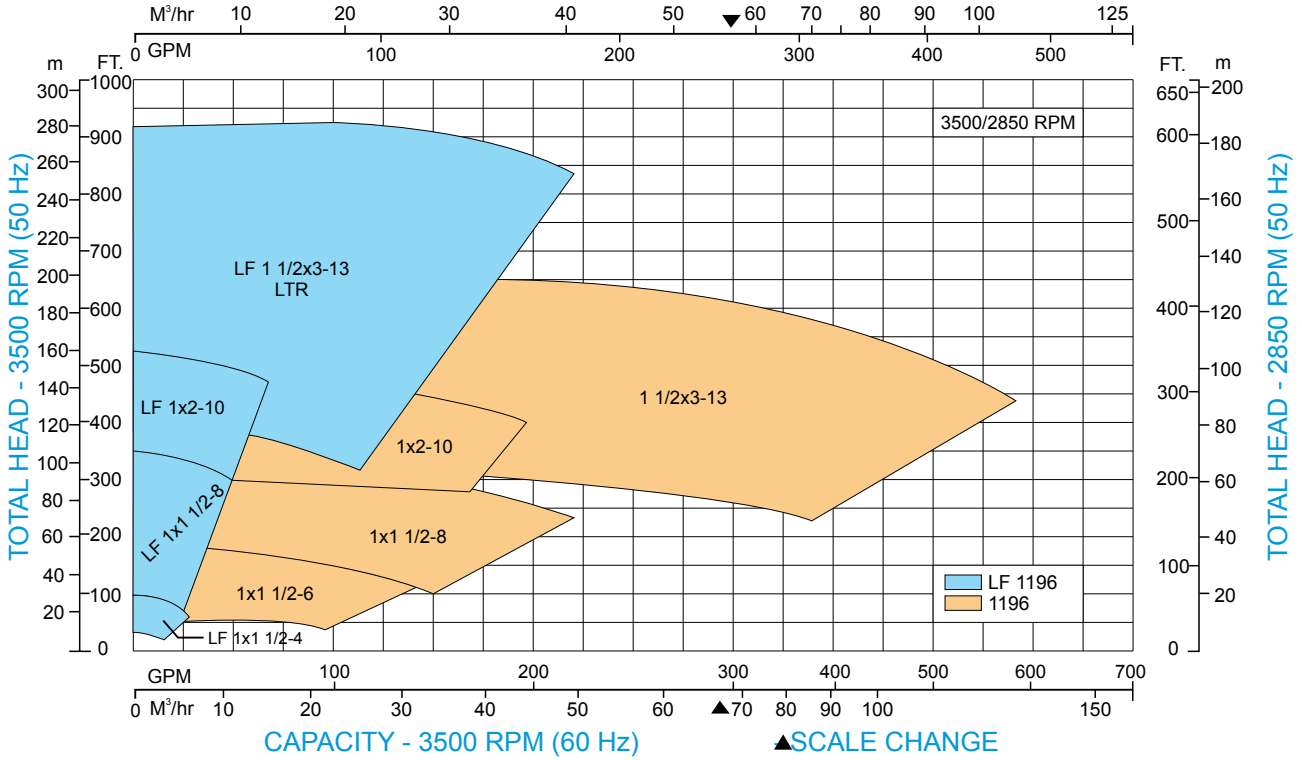
* E.I.DuPont Reg. Trademark

** LTR Power End Features Duplex Angular Contact

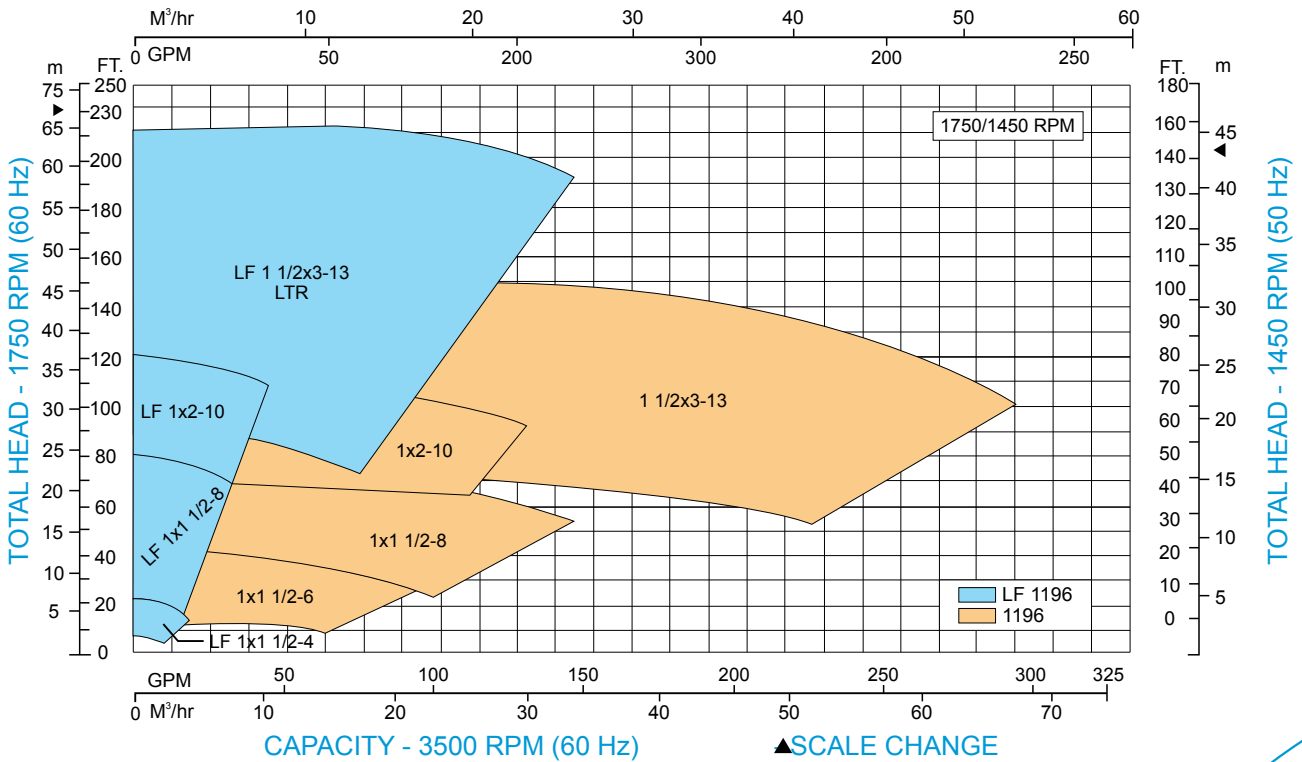
*** Not Illustrated in cross section drawing

HYDRAULIC COVERAGE

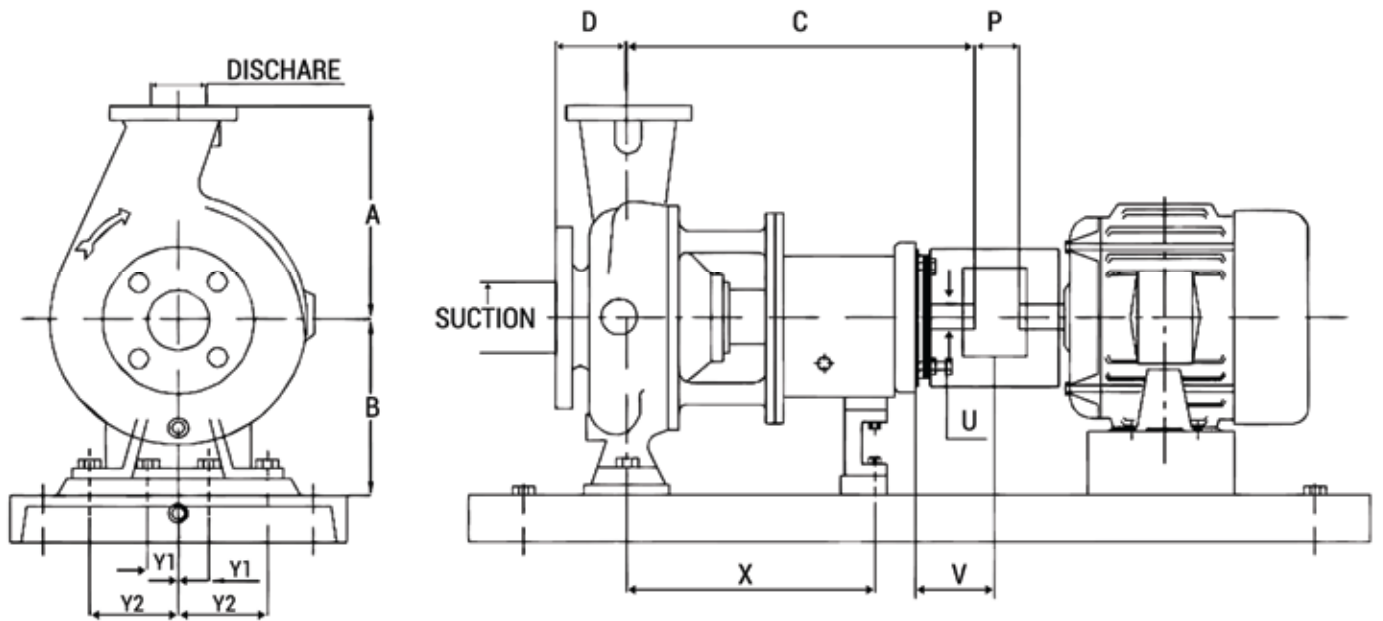
CAPACITY - 2850 RPM (50 Hz)



CAPACITY - 1450 RPM (50 Hz)



DIMENSIONAL DRAWING



DIMENSION DATA

Pump Frame	Pump Size	Discharge Size	Suction Size	A	B	C	D	Y1	Y2	X	H	P	U	V	BARE PUMP WEIGHT LBS. (KG)
STR	1x1.5-4	1	1.5	6.5 (165)	5.25 (133)	13.5 (343)	4 (102)	0	3(76)	7.25(184)	5/8(16)	3.75(95)	0.875(22)	2 (50)	85
	1x1.5-8	1	1.5												102
MTR/LTR	1x2-10	1	2	8.5 (216)	8.25 (210)	19.5 (495)	4 (102)	3.625(92)	4.875(124)	12.5(318)	5/8(16)	3.75(95)	1.125(28.5)(MTR)	2.625 (67)	190
													1.875(47.6)(LTR)	2.625 (67)	250
LTR	1.5x3-13	1.5	3	10.2(267)	10 (254)	19.5 (495)	4 (102)	3.625(92)	4.875(124)	12.5(318)	5/8(16)	3.75(95)	1.875(47.6)(LTR)	2.625 (67)	290

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