



FluorolinedTM Equipment Pvt. Ltd.



**ISO 2858 / 5199 Non-Metallic Chemical Resistant
Mechanical Seal Pumps**

MOC: PP-H / GFRPP / PP-CP



Company Details

Fluorolined Equipment Pvt. Ltd. is one of the largest manufacturers of highly efficient Non-Metallic Pumps in ISO dimensions covering wide spectrum of applications in corrosive environments with over 30 Models to offer.

We are equipped with highly sophisticated and state of the art Manufacturing and Moulding Facilities enabling us to provide highly accurate products for the pumping Industry with wide customer network worldwide offering Sales and Service Support. The company has been serving nearly 80% of the steel and chemical industries since last three decades.

Industries Overview

PLM series pumps are energy efficient complete ISO 2858 standard design, injection moulded, horizontal, back-pull out single stage end suction centrifugal pumps to provide optimum pumping solutions with reduced life cycle costs for all chemical applications.

Technical Data

Operating Frequency	50Hz	60Hz
Capacity[Q] up to	500 m³/hr (2200 US gpm)	3100 US gpm (700 m³/hr)
Head [H] up to	120mts (394 ft)	492 ft (150mts)
Motor Power [P] up to	150HP (115 kW)	170HP (130 kW)
Viscosity up to	150 mPas (cP)	
Suction Lift up to	8 m (26 ft) with priming chamber *	
Maximum Working Pressure	12 bar (175 psi)	
Maximum Specific Gravity [SG]	1.8 - 3	
Minimum Continuous Flow [MCF]	3 m3/hr (13 US gpm)	
Maximum Temperature	PP- H : 82°C (180°F), GFRPP : 90°C(194°F)	
Suction & Delivery Connection	ANSI B16.5 - Class 150 , DIN ND 10	
Shaft Seal	Single (TB / TBR), DROTT, IMS,DMS & SS	
Bearing	Rolling Element Bearing	
Lubrication	Grease / Oil	
Motor Compatibility	IS 1231 , IEC 72 - 1 , NEMA*	
*available on request		



Backplate / Stuffing Box :-

Injection moulded PP stuffing box with large bores to accommodate single and double mechanical seal for wider applications of clear liquids and slurries

Volute Casing :-

High wall injection moulded PP casing liner with intrinsic channel design for uninterrupted flow of the acids achieving maximum efficiency and resulting in power reduction.

Adopter :-

Rugged individual bearing block adopter design for ease of maintenance and assembly.

Bearing Housing :-

Grease and oil lubricated bearing frames with deep oil sump design enabling longer life in hours for the bearings

Bearings :-

Heavy thrust and roller bearings capable of withstanding high axial and radial loads optimizing bearing life upto 15000 hrs in normal working conditions

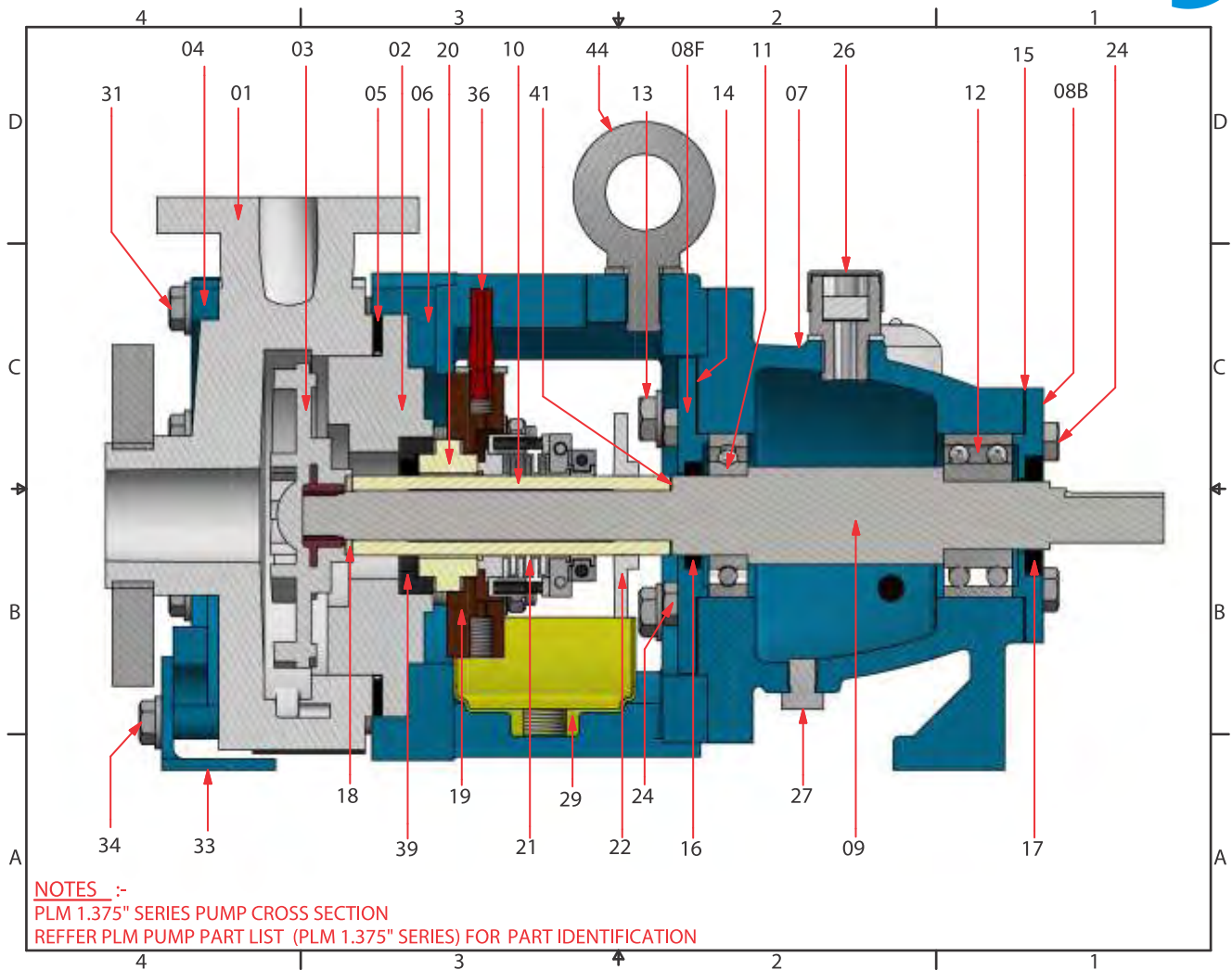
Shafts :-

Shafts are machined to finest tolerance leading to excellent shaft alignment and perpendicularity during assembling. Low stiffness ratio results in less deflection at seal faces thus maximizing mechanical seal life.

Impeller :-

Best in class hydrodynamically optimized semi open radial impeller designed for slurries and passage of small solids with contoured flow passage achieving maximum efficiency. Impellers are designed to achieve low noise and vibration with minimum axial loading on bearings and seal.

-  VOLUTE CASING
-  BACK PLATE
-  IMPELLER
-  ADAPTOR
-  BEARING BLOCK
-  FRONT SIDE BEARING COVER
-  BACKSIDE BEARING COVER
-  SHAFT
-  SHAFT SLEEVE
-  BALL BEARING
-  OIL PAPER FRONT & BACK SIDE
-  OIL SEAL
-  WASHER FOR IMPELLER AND SLEEVE SEALING
-  LOCATING FLANGE
-  STATIONARY UNIT
-  ROTARY UNIT
-  DEFLECTOR
-  BEARING BLOCK LEG
-  CAGE RING LEG
-  SPLASH GUARD
-  EYE BOLT
-  CFT BRUSH
-  OIL LEVEL INDICATOR
-  OIL BREATHER
-  FASTENERS & KEY
-  NOZZLE (COOLING WATER INLET)
-  ENVELOPE GASKET
-  SUCTION FLANG



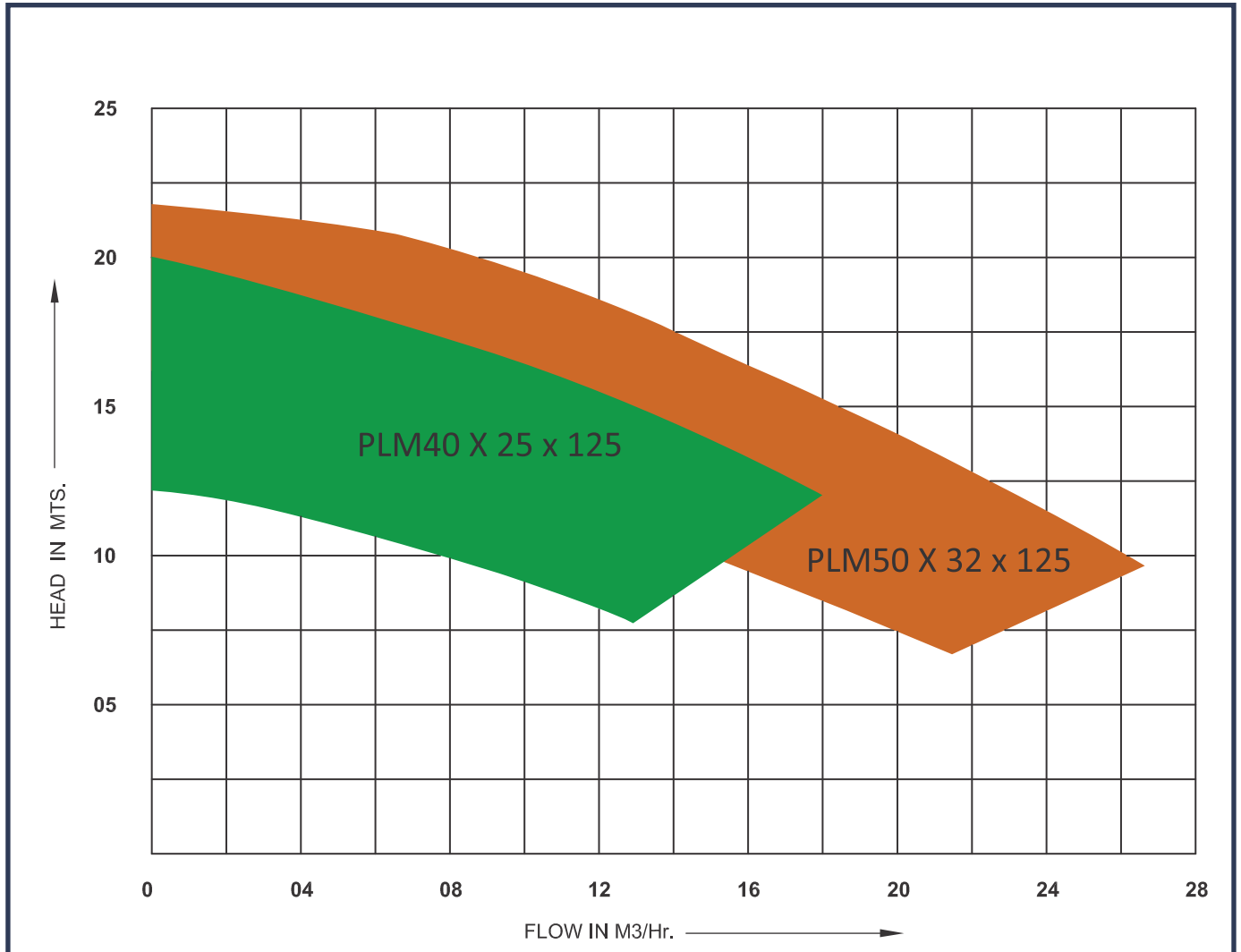
Part List

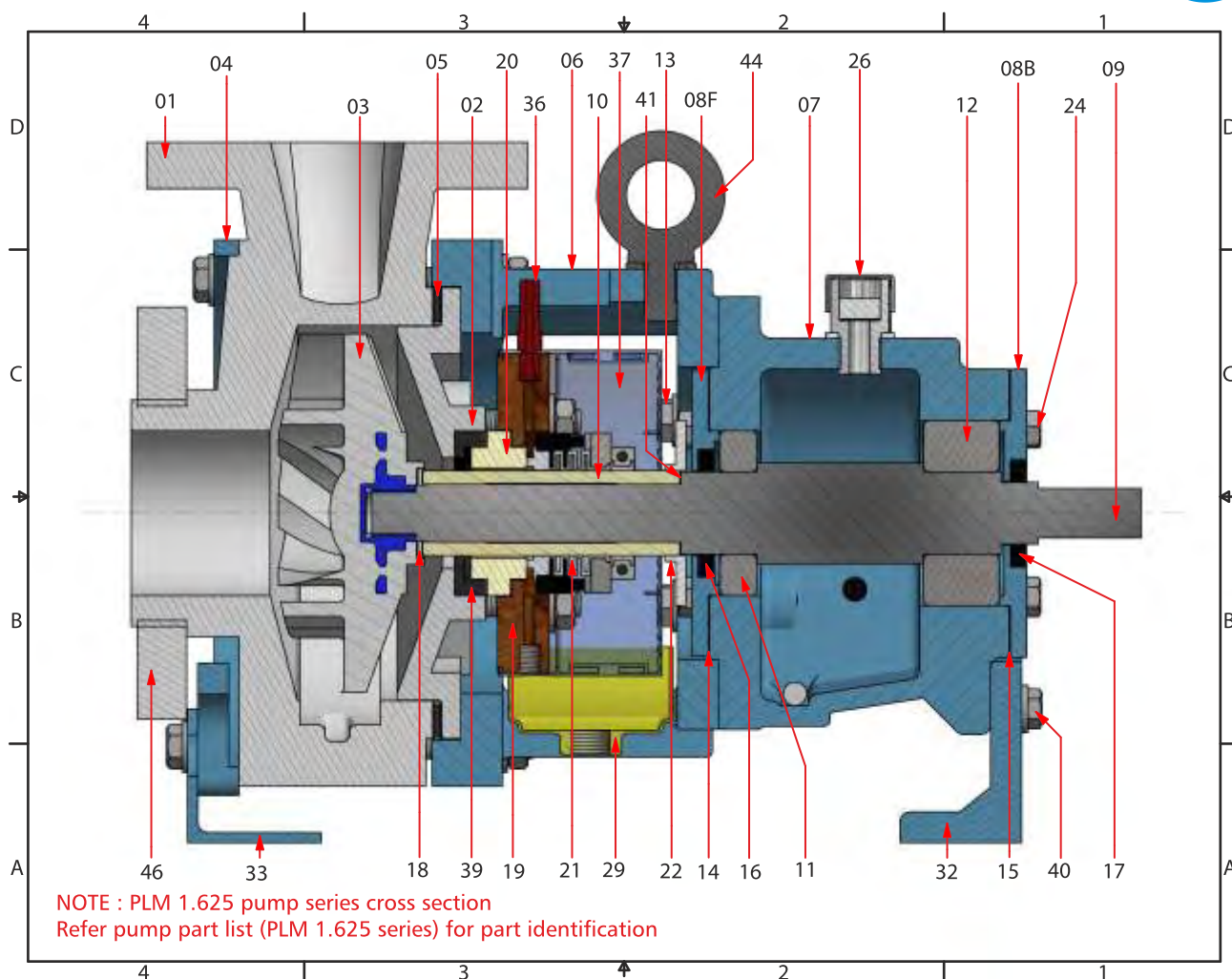
PART NO	DESCRIPTION	M.O.C.	QTY.
01	VOLUTE CASING	PP	01 NO.
02	BACK PLATE	PP	01 NO.
03	IMPELLER	PP	01 NO.
04	CAGE RING	SG IRON	01 NO.
05	ENVELOPE GASKET	EPDM+PTFE	01 NO.
06	ADAPTOR	SG IRON	01 NO.
07	BEARING BLOCK WITH LEG	CAST IRON	01 NO.
08F	FRONT SIDE BEARING COVER	CAST IRON	01 NO.
08B	BACK SIDE BEARING COVER	CAST IRON	01 NO.
09	SHAFT+SHAFT KEY	EN19/SS316/SS410	01 NO.
10	SHAFT SLEEVE	CERAMIC/HAST-C/ALLOY 20	01 NO.
11	BALL BEARING- INBOARD	6207	01 NO.
12	BALL BEARING- OUTBOARD	3306	01 NO.
13	ADAPTOR HARDWARE	SS	1 SET (04NOS)
14	OIL PAPER FOR FRONT BEARING COVER	OIL PAPER	01 NO.
15	OIL PAPER FOR BACK BEARING COVER	OIL PAPER	01 NO.
16	OIL SEAL FRONT SIDE	NEOPRENE	01 NO.
17	OIL SEAL BACK SIDE	NEOPRENE	01 NO.
18	WASHER FOR IMPELLER & SLEEVE SEALING	PTFE	01 NO.
19	LOCATING FLANGE	HYLAM	01 NO.
20	STATIONARY UNIT OF MECH.SEAL	CERAMIC/SIC	01 NO.
21	ROTARY UNIT OF MECH.SEAL	GFT/SIC	01 NO.
22	DEFLECTOR	PP	01 NO.

PART NO	DESCRIPTION	M.O.C.	QTY.
*23	CONSTANT LEVEL OILER	AI. & POLYCARBONATE	01 NO.
24	HARDWARE FOR FRONT & BACK BEARING COVER	SS	1 SET (08 NOS)
*25	BOLTS FOR CLAMPING MECH. SEAL	SS	1 SET (04 NOS)
26	OIL BREATHER/ OIL PRIMING PLUG	STEEL	01 NO.
27	OIL DRAIN PLUG	STEEL	01 NO.
*28	COUPLING	CAST IRON	01 NO.
29	DRIP TRAY WITH NOZZLE	PP	01 NO.
*30	BASE PLATE	M.S.FAB.	01 NO.
31	CAGE RING HARDWARE	SS	01 SET (06 NOS)
33	CAGE RING LEG	M.S	01 NO.
34	CAGE RING LEG HARDWARE	SS	02 NO.
35	COUPLING GUARD	PP/M.S/ALU.	01 NO.
36	NOZZLE (COOLING WATER INLET)	PVDF	01 NO.
*38	OIL LEVEL INDICATOR	ALUMINIUM+GLASS	01 NO.
39	CFT BUSH FOR BACK PLATE	CFT	01 NO.
41	WASHER FOR SHAFT & SHAFT SLEEVE (BACK SIDE)	PTFE	01 NO.
*42	DRIP PAN TRAY FOR BASE FRAME WITH NOZZLE	PP	01 NO.
*43	LOCATION BOLT	SS	02NO.
44	EYE BOLT	STEEL	01 NO.
*46	SUCTION FLANGE	PP	01 NO.



Pumps Performance Characteristics at 2900 RPM





Part List

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01	VOLUTE CASING	PP	01 NO.
02	BACK PLATE	PP	01 NO.
03	IMPELLER	PP	01 NO.
04	CAGE RING	SG IRON	01 NO.
05	ENVELOPE GASKET	EPDM+PTFE	01 NO.
06	ADAPTOR	CAST IRON	01 NO.
07	BEARING BLOCK	CAST IRON	01 NO.
08F	FRONT SIDE BEARING COVER	CAST IRON	01 NO.
08B	BACK SIDE BEARING COVER	CAST IRON	01 NO.
09	SHAFT+SHAFT KEY	EN19/SS31/SS410	01 NO.
10	SHAFT SLEEVE	CERAMIC/HAST-C/ALLOY 20	01 NO.
11	BALL BEARING- INBOARD	6208-ZZ	01 NO.
12	BALL BEARING- OUTBOARD	5308-ZZ	01 NO.
13	ADAPTOR HARDWARE	SS	1 SET (04NOS)
14	OIL PAPER FOR FRONT BEARING COVER	OIL PAPER	01 NO.
15	OIL PAPER FOR BACK BEARING COVER	OIL PAPER	01 NO.
16	OIL SEAL FRONT SIDE	NEOPRENE	01 NO.
17	OIL SEAL BACK SIDE	NEOPRENE	01 NO.
18	WASHER FOR IMPELLER & SLEEVE SEALING	PTFE	01 NO.
19	LOCATING FLANGE	HYLAM	01 NO.
20	STATIONARY UNIT OF MECH.SEAL	CERAMIC/SIC	01 NO.
21	ROTARY UNIT OF MECH.SEAL	GFT/SIC	01 NO.
22	DEFLECTOR	PP	01 NO.
*23	CONSTANT LEVEL OILER	AI. & POLYCARBONATE	01 NO.

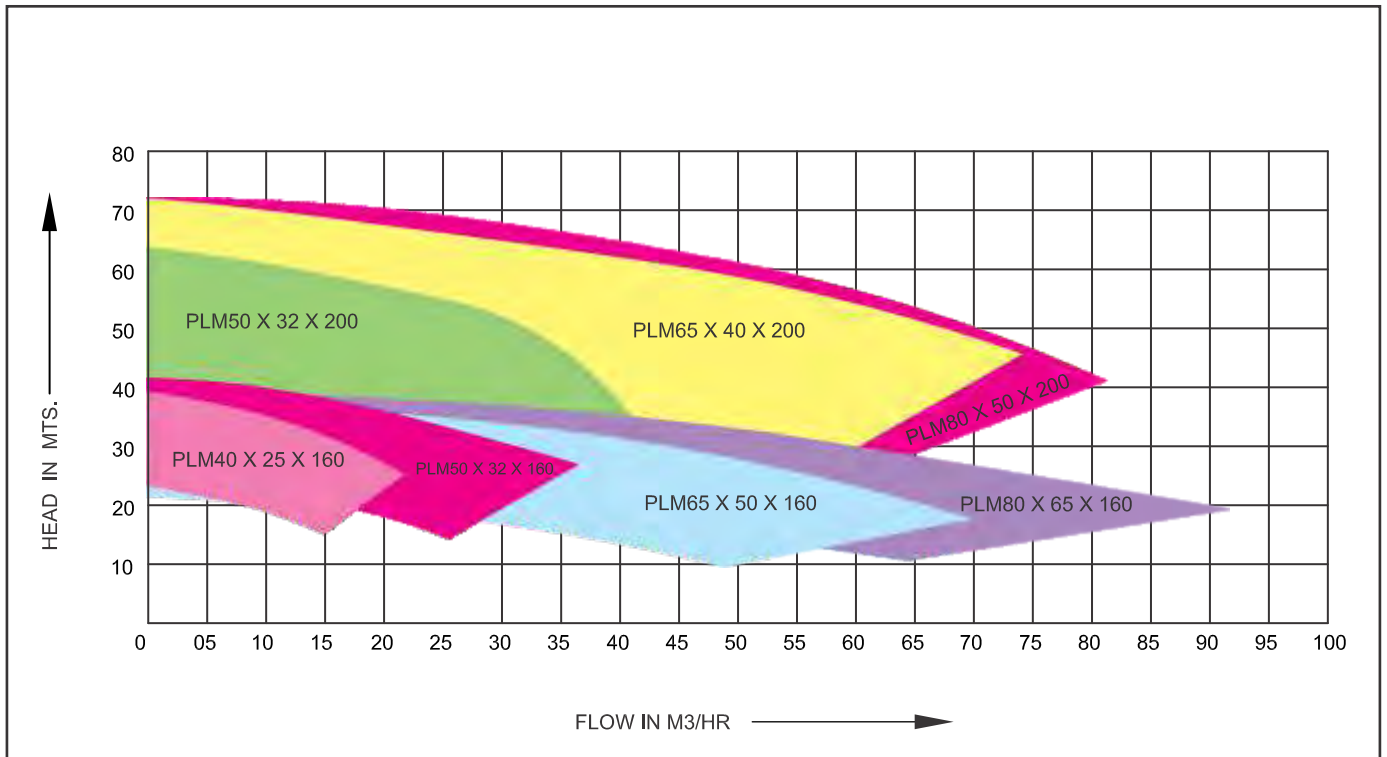
PART NO	DESCRIPTION	M.O.C.	QTY.
24	HARDWARE FOR FRONT & BACK BEARING COVER	SS	1 SET (08 NOS)
*25	BOLTS FOR CLAMPING MECH. SEAL	SS	1 SET (04 NOS)
26	OIL BREATHER/ OIL PRIMING PLUG	STEEL	01 NO.
*27	OIL DRAIN PLUG	STEEL	01 NO.
*28	COUPLING	CAST IRON	01 NO.
29	DRIP TRAY WITH NOZZLE	PP	01 NO.
*30	BASE PLATE	M.S.FAB.	01 NO.
*31	CAGE RING HARDWARE	SS	01 SET (08 NOS)
32	BEARING BLOCK LEG	SG IRON	01 NO.
33	CAGE RING LEG	M.S	01 NO.
*34	CASING ARMOUR LEG HARDWARE	SS	04 NO.
*35	COUPLING GUARD	PP/M.S/ALU.	01 NO.
36	NOZZLE (COOLING WATER INLET)	PVDF	01 NO.
37	SPLASH GUARD WITH	PP	01 SET
*38	OIL LEVEL INDICATOR	ALUMINIUM+GLASS	01 NO.
39	CFT BUSH FOR BACK PLATE	CFT	01 NO.
40	BEARING BLOCK TO LEG HARDWARE	SS	1 SET (02 NOS)
41	WASHER FOR SHAFT & SHAFT SLEEVE (BACK SIDE)	PTFE	01 NO.
*42	DRIP PAN TRAY FOR BASE FRAME WITH NOZZLE	PP	01 NO.
*43	LOCATION BOLT	SS	02NO.
44	EYE BOLT	STEEL	01 NO.
46	SUCTION FLANGE	PP	01 NO.



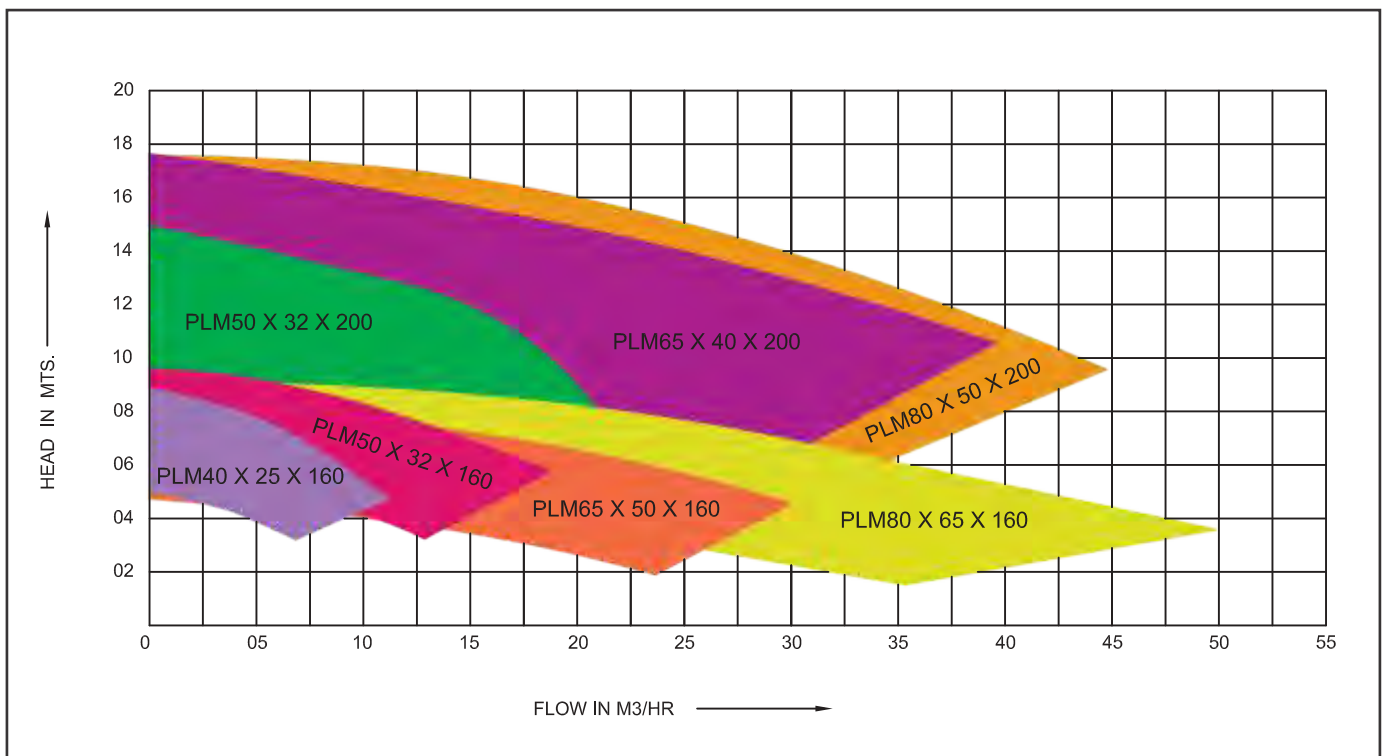
Series II - 1.625"

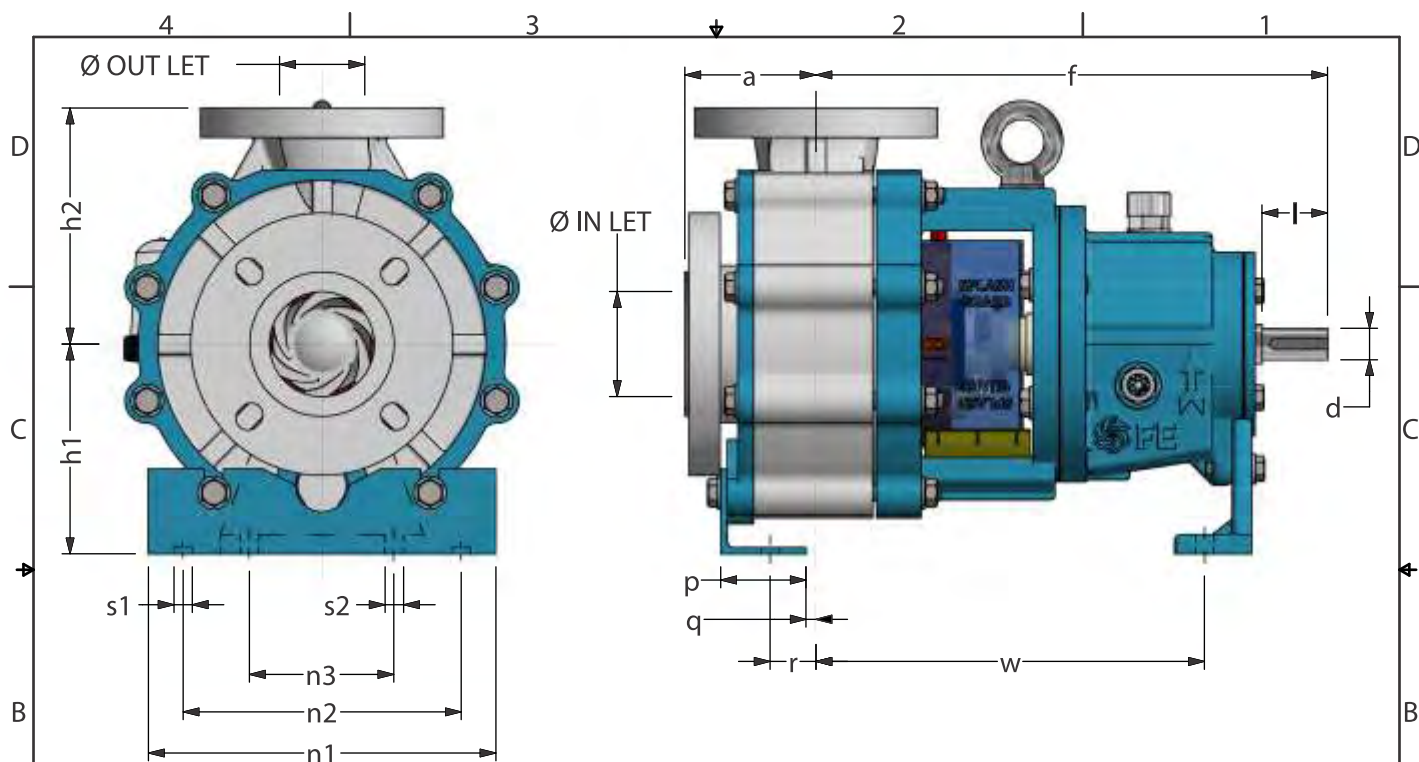
Pumps Performance Characteristics

2900 RPM



1400 RPM





Mechanical Seal Size : 1.375"

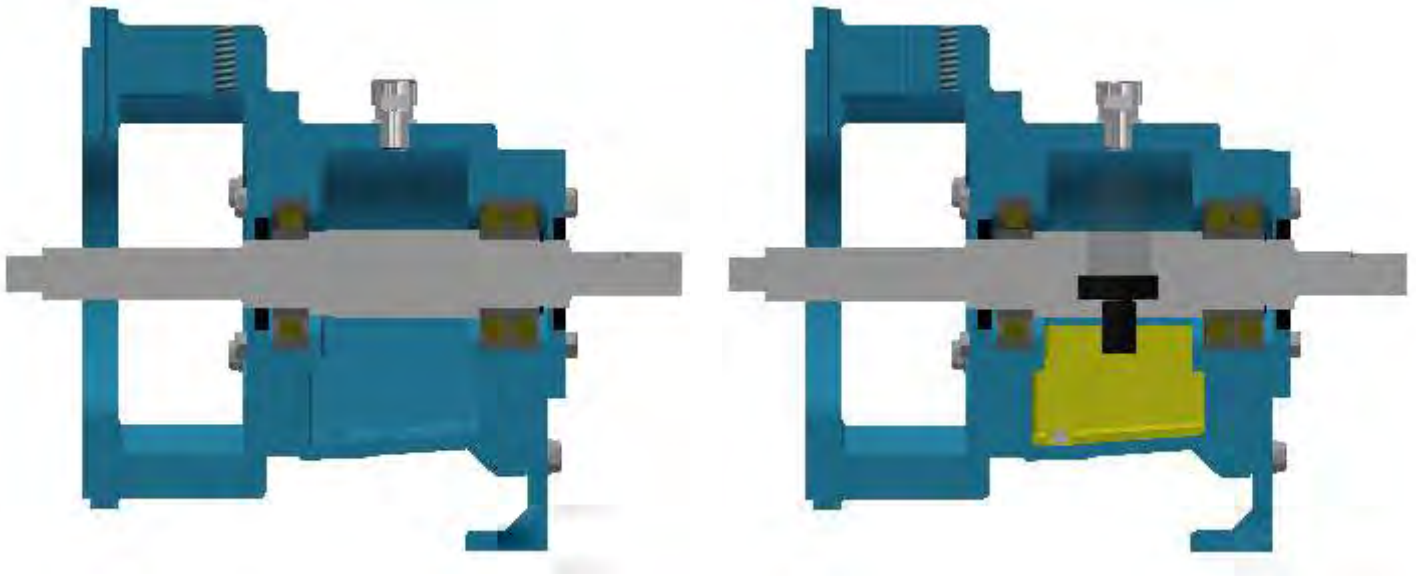
MODELS	Ø inlet	Ø outlet	a	f	h1	h2	l	p	q	r	n1	n2	n3	w	s1	s2	d
PLM40X25X125	40	25	80	385	112	140	50	50	5	35	190	140	110	285	M8	M12	24
PLM50X32X125	50	32	80	385	112	140	50	50	6	35	190	140	110	285	M8	M12	24

All Dimensions in mm

Mechanical Seal Size : 1.625"

MODELS	Ø inlet	Ø outlet	a	f	h1	h2	l	p	q	r	n1	n2	n3	w	s1	s2	d
PLM40X25X160	40	25	80	385	132	160	50	50	5	35	240	190	110	285	M12	M12	24
PLM50X32X160	50	32	80	385	132	160	50	50	7	35	240	190	110	285	M12	M12	24
PLM65X50X160	65	50	80	385	132	160	50	50	10	35	240	190	110	285	M12	M12	24
PLM80X65X160	80	65	100	385	160	180	50	65	8	35	265	212	110	285	M12	M12	24
PLM50X32X200	50	32	80	385	160	180	50	50	12	35	240	190	110	285	M12	M12	24
PLM65X32X200	65	40	100	385	160	180	50	50	10	35	265	212	110	285	M12	M12	24
PLM80X50X200	80	50	100	385	160	200	50	50	15	35	265	212	110	285	M12	M12	24

All Dimensions in mm




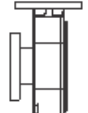


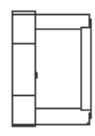
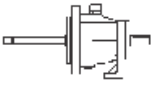
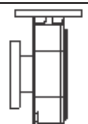

Features

We use bearings from world's most reputed manufacturers like SKF and ZKL providing upto 15000 Service Life Hours for Bearings. Greased for Life bearings enables the user to run smaller Pumps with ease without paying attention to regular maintenance of the bearings. However periodic maintenance can be required.


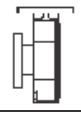


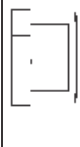
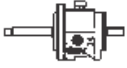

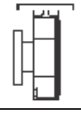

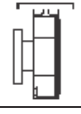


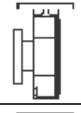


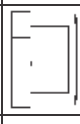
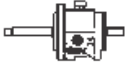

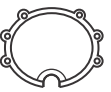
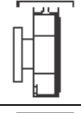

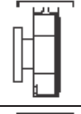

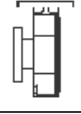

Lubricated Oil Bearings in larger Pumps promises higher service life for the Pumps. Highly intrinsic bearing housing design leads to Lower Temperature, Noise and Vibration levels in Pumps leading to smooth continuous operation.



Series I - 1.375"

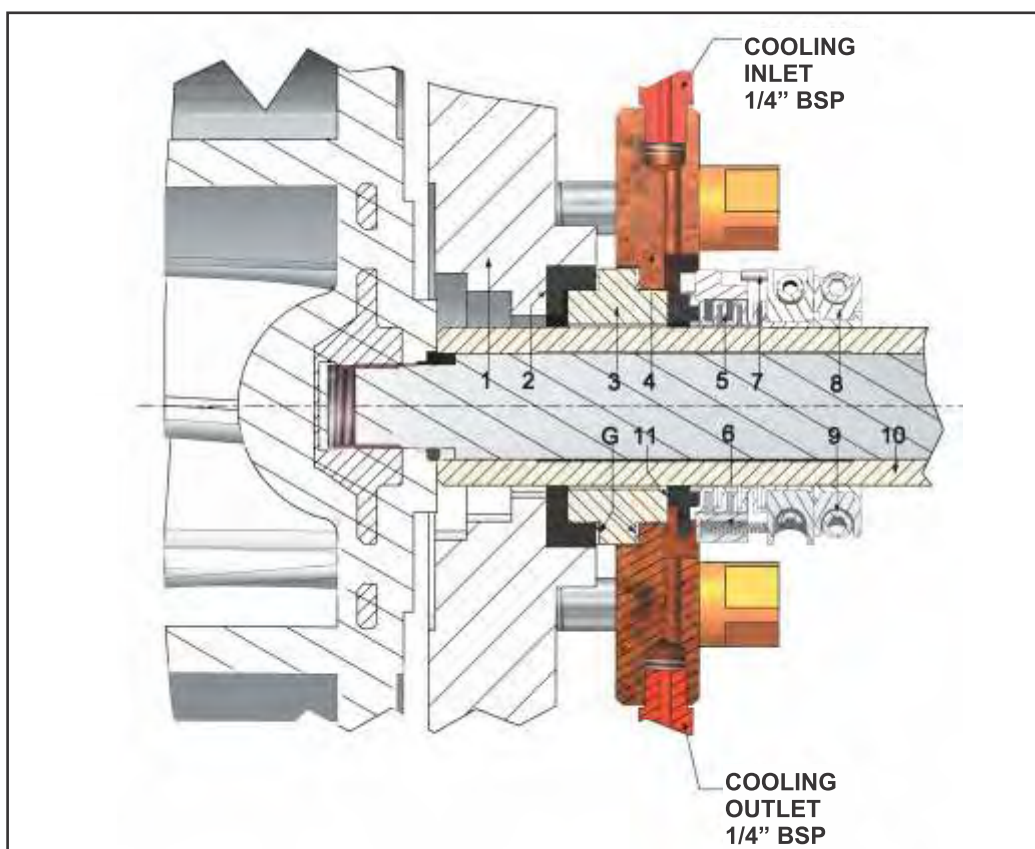
Pump model/Size(suct. Dia x Del. Dia - imp. Dia.)in mm	Cage Ring / Casing Armour		Volute casing		impeller		Stuffing box (Backplate)		Adaptor		Shaft, Bearing block & leg assembly
PLM40X25X125		←		←		←		←		←	
PLM50X32X125		←		←							

Series II - 1.625"

Pump model/Size(suct. Dia x Del. Dia - imp. Dia.)in mm	Cage Ring / Casing Armour		Volute casing		impeller		Stuffing box (Backplate)		Adaptor		Shaft & Bearing Block		Leg
PLM40X25X160		←		←		←		←		←		←	
PLM50X32X160		←		←									
PLM65X50X160		←		←									
PLM80X65X160		←		←		←		←		←		←	
PLM50X32X200		←		←									
PLM65X40X200		←		←									
PLM80X50X200		←		←									



Single Outside Mounted Teflon Bellow Seal

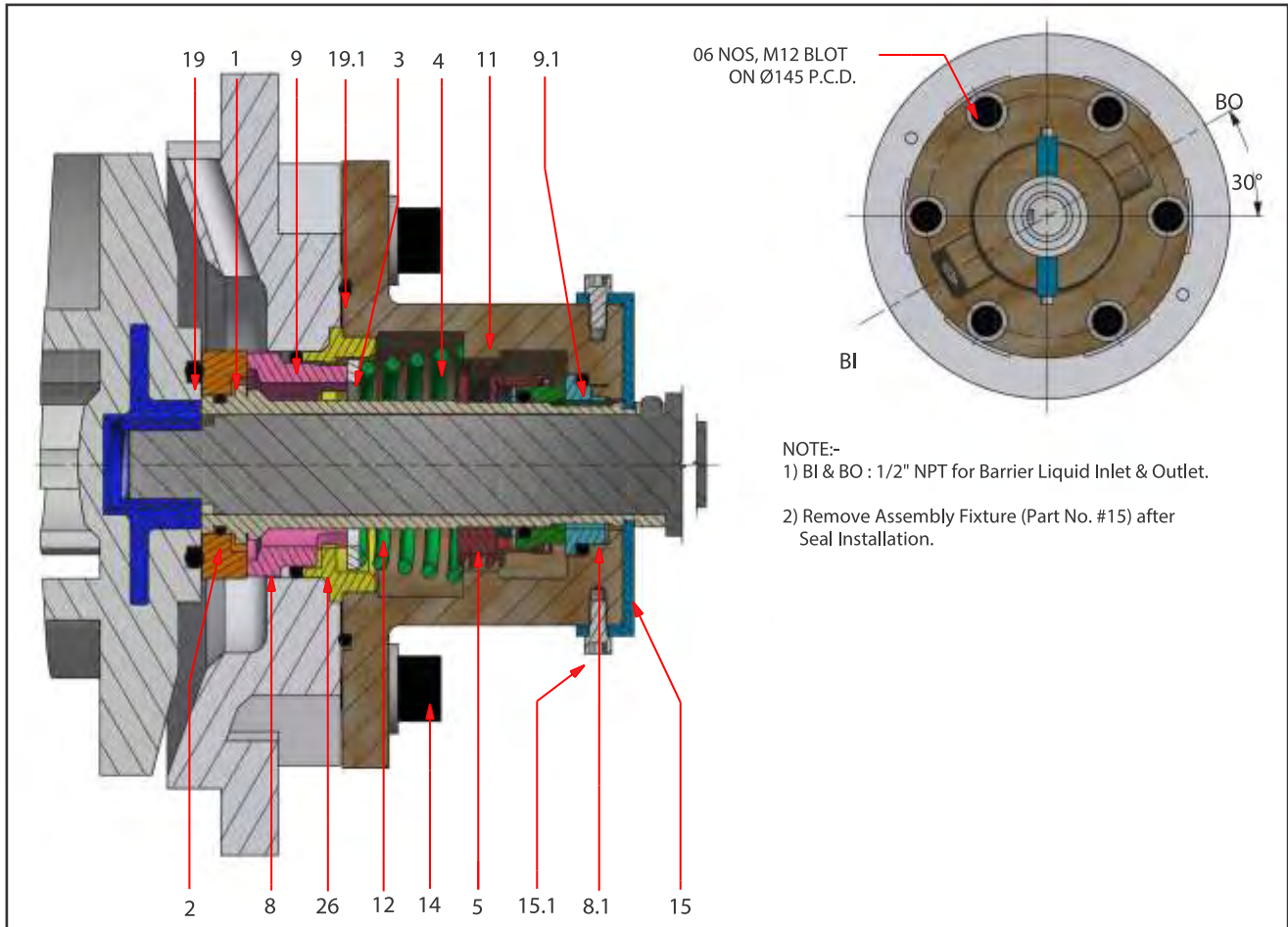


Part List

PART NO	DESCRIPTION	M.O.C.	QTY.
1	BACK PLATE	PVDF	1
2	BACK PLATE BUSH	CFT	1
3	STATIONARY RING	CERAMIC/SIC	1
4	LOCATING FLANGE	HYLAM	1
5	BELLOW	P.T.F.E.	1
6	SPRING	HAST-C	4/6
7	DRIVE PEN	HAST-C	2
8	COLLAR	SS 316	1
9	CAP SCREW	SS 304	2
10	SLEEVE	CERAMIC / SIC / HAST-B / ALLOY 20 / TITANIUM / PVDF - COATED	1
11	ROTARY FACE	GFT / SIC / SIFT / CFT /	1
G	GASKET	P.T.F.E.	2



Inside Mounted Double Mechanical Seal

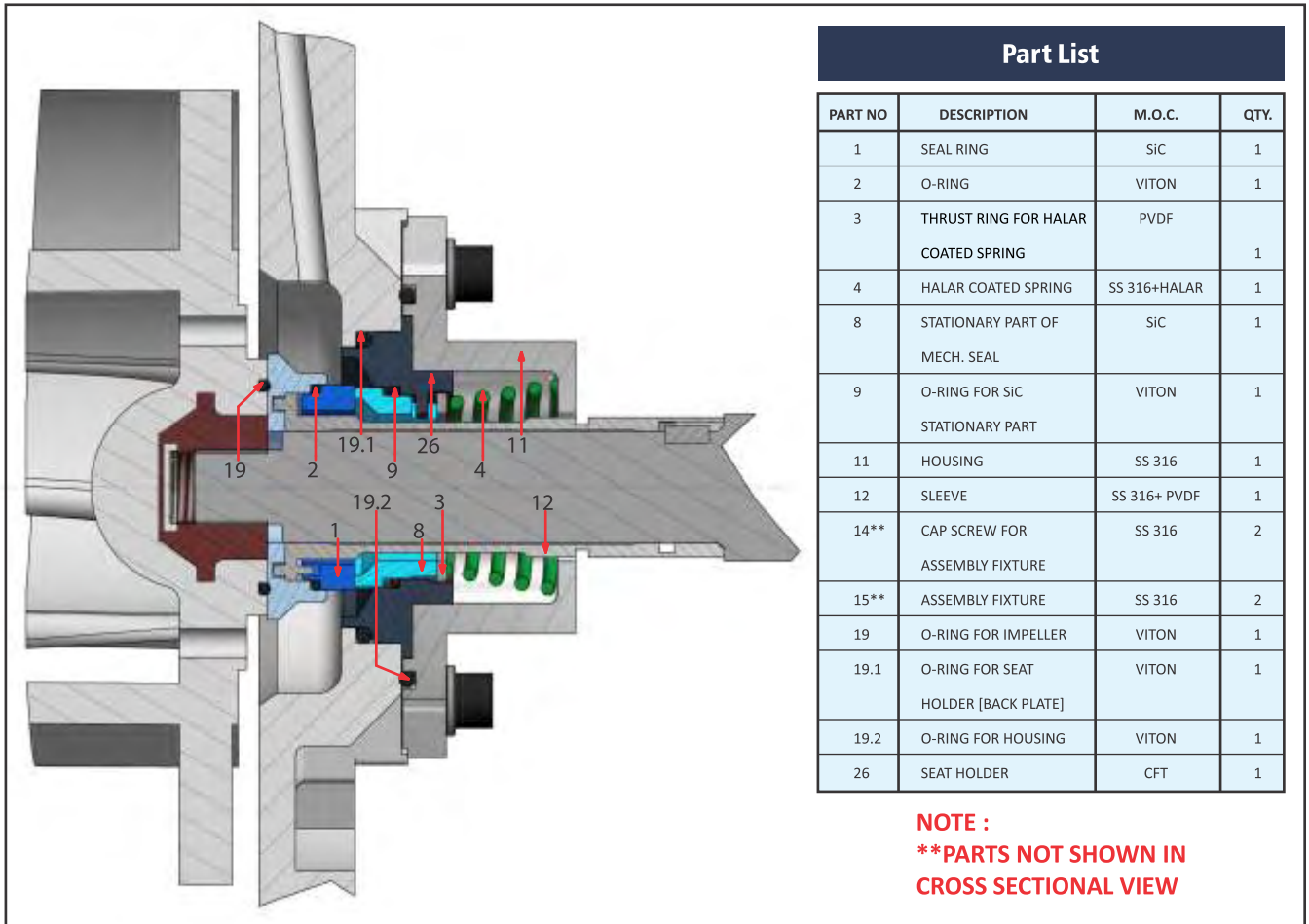


Part List

PART NO	DESCRIPTION	M.O.C.	QTY.
01	PRIMARY ROTARY PART	SiC	01 NO.
02	O RING FOR SLEEVE	VITON	01 NO.
03	THRUST RING FOR HALAR COATED SPRING	PVDF	01 NO.
04	HALAR COATED SPRING	SS 316 + HALAR	01 NO.
05	SECONDARY ROTARY ASSEMBLY	SS 316 + CARBON	01 NO.
08	PRIMARY STATIONARY PART	SiC	01 NO.
8.1	SECONDARY STATIONARY PART	SiC	01 NO.
09	O RING FOR SiC STATIONARY PART	VITON	01 NO.
9.1	O RING FOR SECONDARY SiC STATIONARY PART	VITON	01 NO.
11	HOUSING	SS 316	01 NO.
12	SLEEVE	SS 316	01 NO.
14	ALLEN CAP SCREW + WASHER FOR HOUSING	SS 316	06 NO.
15	ASSEMBLY FIXTURE	SS 316	02 NO.
15.1	ALLEN CAP SCREW FOR ASSEMBLY FIXTURE	SS 316	02 NO.
19	O RING FOR IMPELLER	VITON	01 NO.
19.1	O RING FOR HOUSING	VITON	01 NO.
26	SEAT HOLDER	CFT	01 NO.



Single Inside Mounted Special Seal Without External Water Cooling



Features

1. Complete elimination of water requirement. The seal faces are self lubricated.
2. Advanced flushing arrangement with the use of impeller and the backplate.



Advantages of Internal Mechanical Seal

1. Inside mounted arrangement having a hard silicon carbide face behind the impeller not allowing any liquid (HCL) or slurry particles (FeCl_3 , Fe_3Cl_4) to get out (As compared to outside mounted TBR).
2. All the parts are product protected.
3. Three silicon carbide faces to avoid scoring effect on the stuffing box due to hard and abrasive Ferric Chloride particles.
4. Sleeves and Springs are all PVDF hard coated on the metal parts as compare to brittle ceramic sleeves which develops cracks on failure due to back pressure
5. Cartridge Type assembly easy to install and maintain.
6. Continuous circulation of water should be given.
7. Can be used for high pressure applications due to reverse Balanced Mechanical Seal Construction
8. The ceramic sleeve which is very brittle is totally eliminated and liquid at no point of time will enter the shaft area.
9. The internal seal is backed by two robust silicon carbide out of which one is stationary and the other is rotary and also supported by another SiC which totally stops the liquid from entering the shaft area.
10. It's a foolproof sealing solution for highly corrosive, erosive and abrasive liquids handled by nonmetallic pumps.

Thermosyphon Pot Assembly

1. Extra backup pressure to the Inboard Rotary- Stationary assembly.
2. Offers pressurised cooling to secondary faces eliminating complete seal failure when primary faces being damaged.
3. Thermosyphon pot facilitates zero process emission ,removes frictional heat generated by seal faces and enhances seal face life.



☐ **Steel Pickling Plants**

Pickling acid recirculation, Rinse recirculation Spent/Waste acid transfer, Fresh acid transfer.

☐ **Acid Regeneration Plants**

Concentrated waste pickle liquor, fresh acid transfer

☐ **Pesticide & Insecticide Plants**

Various kinds of toxic and hazardous chemicals with our without slurries

☐ **Caustic Chlorine Plants**

HCL loading/unloading, Chloride destruction, Anolyte blowdown, Drying tower.

☐ **Dyes and Intermediates Plants**

Acidic chemicals with slurries, Filter press application

☐ **Pharmaceutical and Bulk Drug**

Pure to slightly contaminated, Toxic, Explosive or Environmentally harmful media such as acids, alkalis and solvents.

☐ **Environmental**

Industrial waste water treatment (ETP), Scrubber recirculation.

☐ **Electroplating**

☐ **Power plants**

☐ **Auto paint shops**

☐ **Chlorinated Parafin Wax (CPW) industries.**





Robust, User Friendly & Maintenance Free Pumps

- ❑ **Heavy Walled Thickness** PVDF parts for tackling higher corrosion, abrasion and erosion effect with strong mechanical strength. [Thickest in the industry]
- ❑ Encapsulated with casing armour shields the parts for **Heavy Duty** chemical pumping at high temperature.
- ❑ Intrinsic power frame design with **Large Oil Reservoir** as compared to competitors with excellent movements of oil around bearings reduces temperature, noise and vibration.
- ❑ **Magnetic Drain plug** for draining out all contaminations.
- ❑ **Innovative Oil Breather** having best heat dissipation and avoiding the entry of water or any other particles during mashing of the pumps.
- ❑ Bearing Housing bores and shafts finished to **15** microns having no run outs.
- ❑ The best internal mechanical seal developed for aggressive chemicals and installed at **500** trusted customers.
- ❑ **Large Bore Stuffing Box** for higher seal life when pumping abrasive slurries.





Salient features

- ❑ Factory fitted robust base frames (FRP coating option available) with shims and level arrangement bolts for better alignment.
- ❑ PP coupling guards and drip trays which take care of acidic fumes and leakages.
- ❑ Excellent epoxy paint finish to protect against external corrosion.
- ❑ An option for **OSHA STD** coupling guards.
- ❑ The advantage of two piece power frame is that at the time of seal leakage only the adaptor needs to be changed and not the entire power frame.
- ❑ Bearing protectors (Labyrinth Seals) are provided as an optional feature.
- ❑ High Walled Thickness PP Wet Ends Enduring Longer Life in Acids.
- ❑ High Efficient ISO 2858 Dimensioned Pumps.
- ❑ Semi-Open impeller design for better passage of slurries.
- ❑ Lower Stiffness ratio for longer seal life in Longer MTBF.
- ❑ Affordable, Maintenance friendly and Most Parts interchangeable leads to Lesser Inventory at client's end.

FEPL v/s competitors

Competitors : Closed or semi-open with nut design for wrong rotation

Our Answer: Nut is an additional joint which leads to leakage through O-rings resulting in acid penetrating into the shaft area ultimately damaging the entire pump. Closed impeller leads to clogging in slurry applications affecting the pump performance.



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**ISO 9001 : 2008
CERTIFIED COMPANY**

As development is a continuous process any changes in specifications is made without notice

WARRANTEE CLAUSE : We stand guarantee only for the genuinity of PVDF Resin used in our pumps but do not stand guarantee for any kind of chemical, physical, & toxicological effects on the same by the liquid handled with our pumps. Since the conditions of handling and use are beyond our control, we make no guarantee of results. We assume no liability for injuries, damages or penalties resulting from its use whether or not our recommendations are followed. Our recommendations are only on the basis of our past experience and should not be taken as guarantee.