



# Fluorolined <sup>TM</sup> Equipment Pvt. Ltd.



**PVDF Mechanical Seal ISO 2858 / 5199 Pumps**



## 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.

## Introduction of PVDF

The fluorinated polymers are widely appreciated for their remarkable chemical inertness and their excellent resistance to aging. Polyvinylidene Fluoride (PVDF) offers the Specific advantage of easy processing in accordance with all the conventional methods used in plastic industry. PVDF, polymerized, according to its own special process, offer a high degree of crystallinity to that by other processes, resulting among other things in superior thermo-mechanical properties.

The intrinsic technical superiority is one of the reasons for which PVDF has achieved success on the world market for more than 25 years.

But nothing is possible without a genuine quality assurance policy which Fluorolined Equipment follows with their continuous efforts for Total Quality Management over their products & services

## Technical Data

| Operating Frequency           | 50Hz                                   | 60Hz                                 |
|-------------------------------|--|--------------------------------------|
| Capacity[Q] up to             | 500 m <sup>3</sup> /hr ( 2200 US gpm)  | 3100 US gpm (700 m <sup>3</sup> /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 m <sup>3</sup> /hr ( 13 US gpm)      |                                      |
| Maximum Temperature           | PVDF:120°C(250°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 PVDF stuffing box with large bores to accommodate single and double mechanical seal for wider applications of clear liquids and slurries.

### Casing Armour :-

High wall thickness casing armour with encapsulated casing liner resulting in taking effective piping loads-static and dynamic-protecting the expensive casing liner from internal and external corrosion. High walled thickness even provides efficient and smooth flow of the pumping media.

### Casing Liner :-

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

### Impeller :-

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

### Adopter:-

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

### Bearing Housing:-

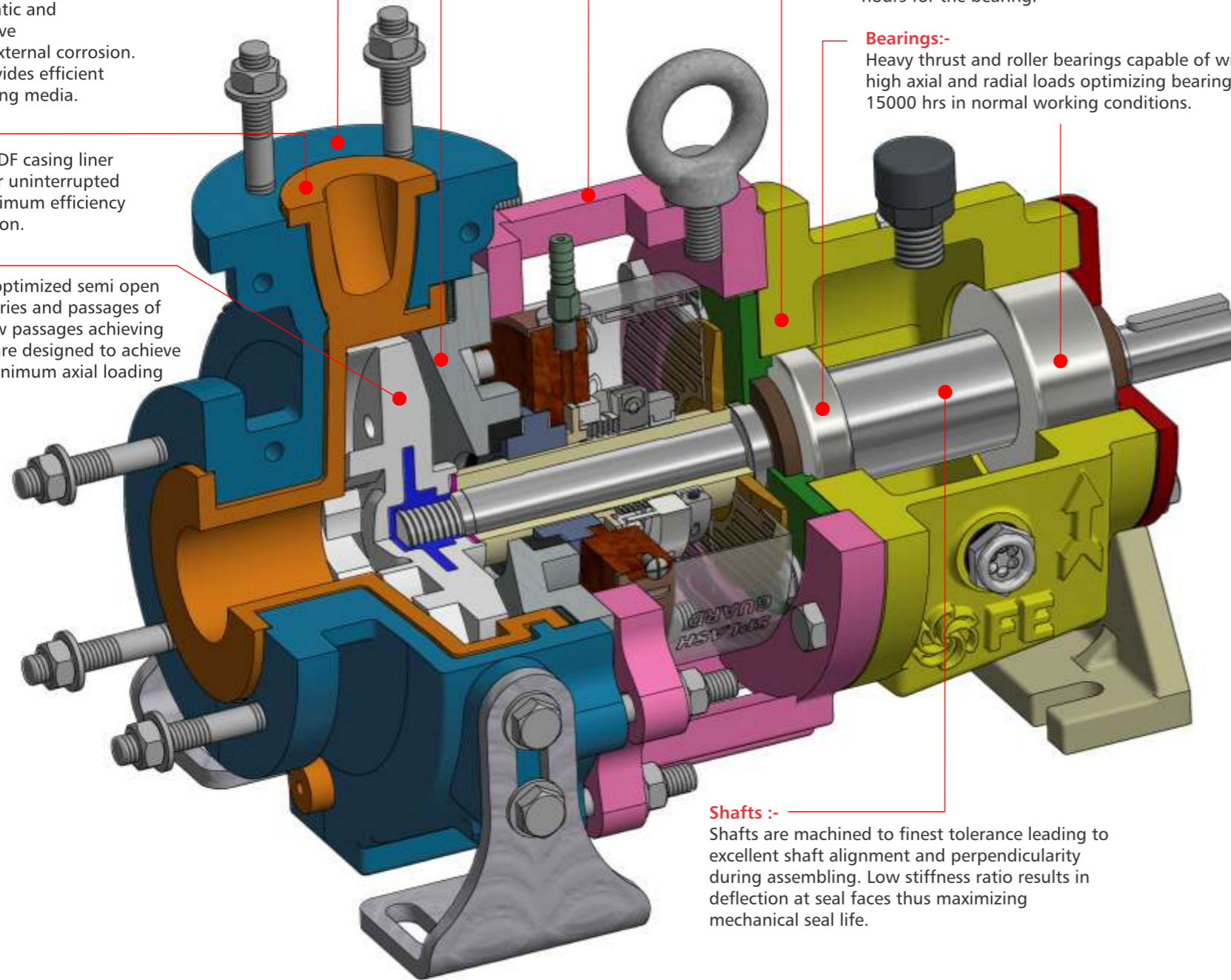
Grease and oil lubricated bearing frames with deep oil sump design enabling longer life in hours for the bearing.

### Bearings:-

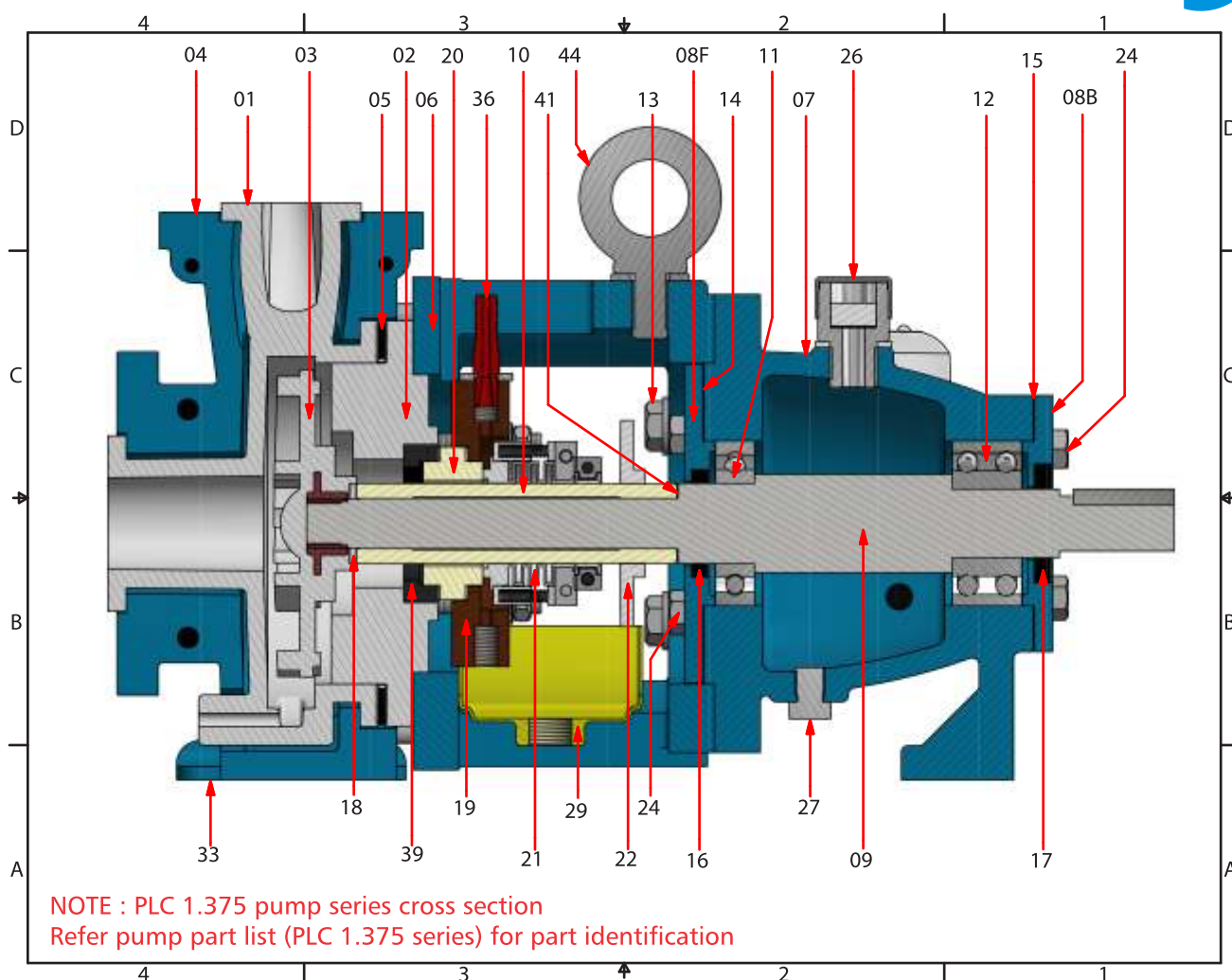
Heavy thrust and roller bearings capable of withstanding high axial and radial loads optimizing bearing life up to 15000 hrs in normal working conditions.

### Shafts :-

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



- CASING LINER
- BACK PLATE
- IMPELLER
- CASING ARMOUR
- 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
- CASING ARMOUR LEG
- SPLASH GUARD
- EYE BOLT
- CFT BRUSH
- OIL LEVEL INDICATOR
- OIL BREATHER
- FASTENERS & KEY
- NOZZLE (COOLING WATER INLET)
- ENVELOPE GASKET



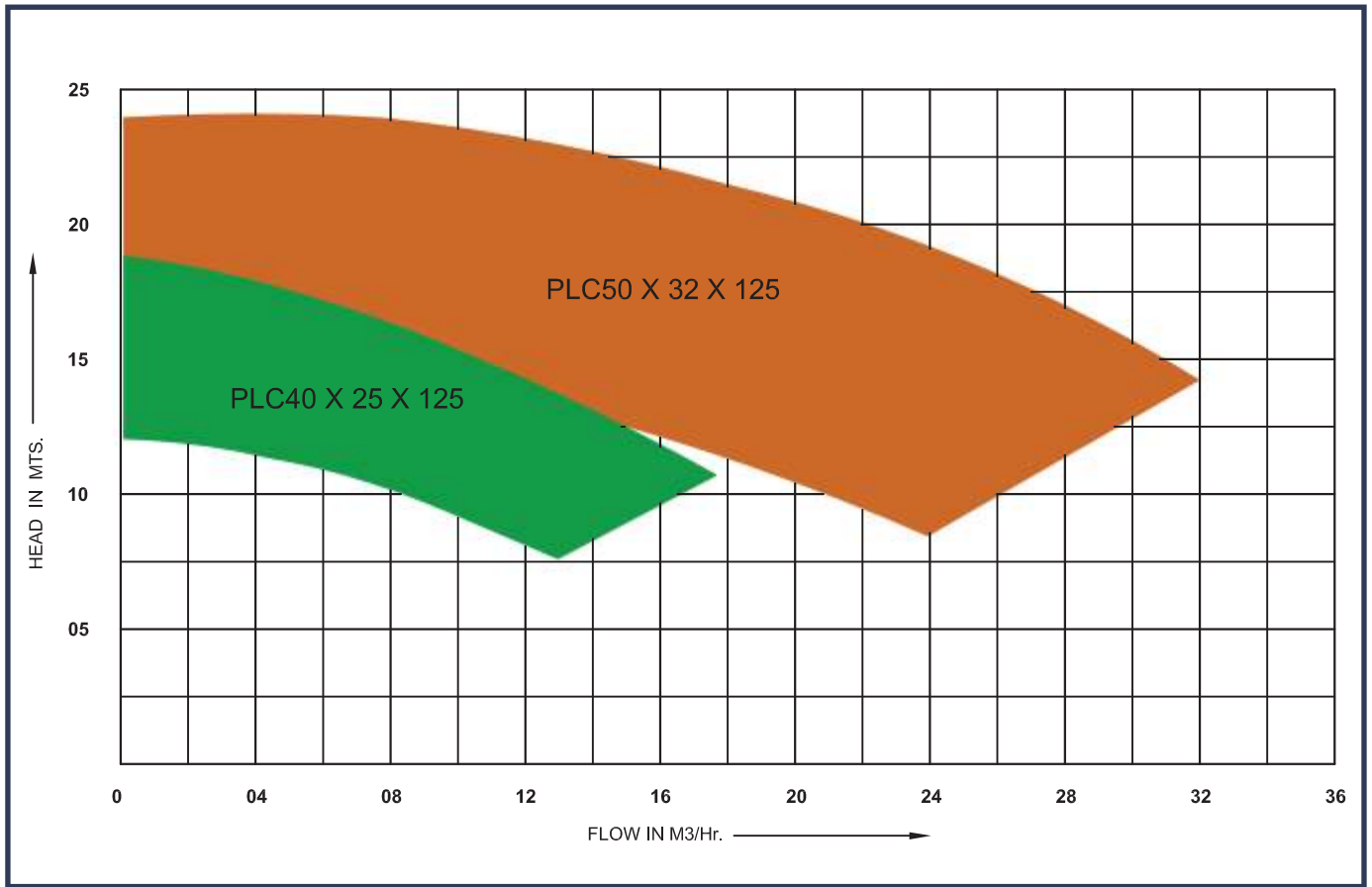
## Part List

| PART NO | DESCRIPTION                          | M.O.C.                  | QTY.             |
|---------|--------------------------------------|-------------------------|------------------|
| 01      | CASING LINER                         | PVDF                    | 01 NO.           |
| 02      | BACK PLATE                           | PVDF                    | 01 NO.           |
| 03      | IMPELLER                             | PVDF                    | 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 WITH LEG               | SG 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                | SKF 6207                | 01 NO.           |
| 12      | BALL BEARING- OUTBOARD               | ZKL 3306                | 01 NO.           |
| 13      | ADAPTOR HARDWARE                     | SS                      | 1 SET<br>(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<br>(08 NOS)  |
| *25     | BOLTS FOR CLAMPING MECH. SEAL               | SS                  | 1 SET<br>(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<br>(08 NOS) |
| 33      | CASING ARMOUR LEG                           | SS 304              | 01 SET<br>(02 NOS) |
| *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.             |
| *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.             |
| *45     | PUMP FLANGE HARDWARE (SUCTION & DELIVERY)   | SS                  | 01 SET<br>(08 NOS) |



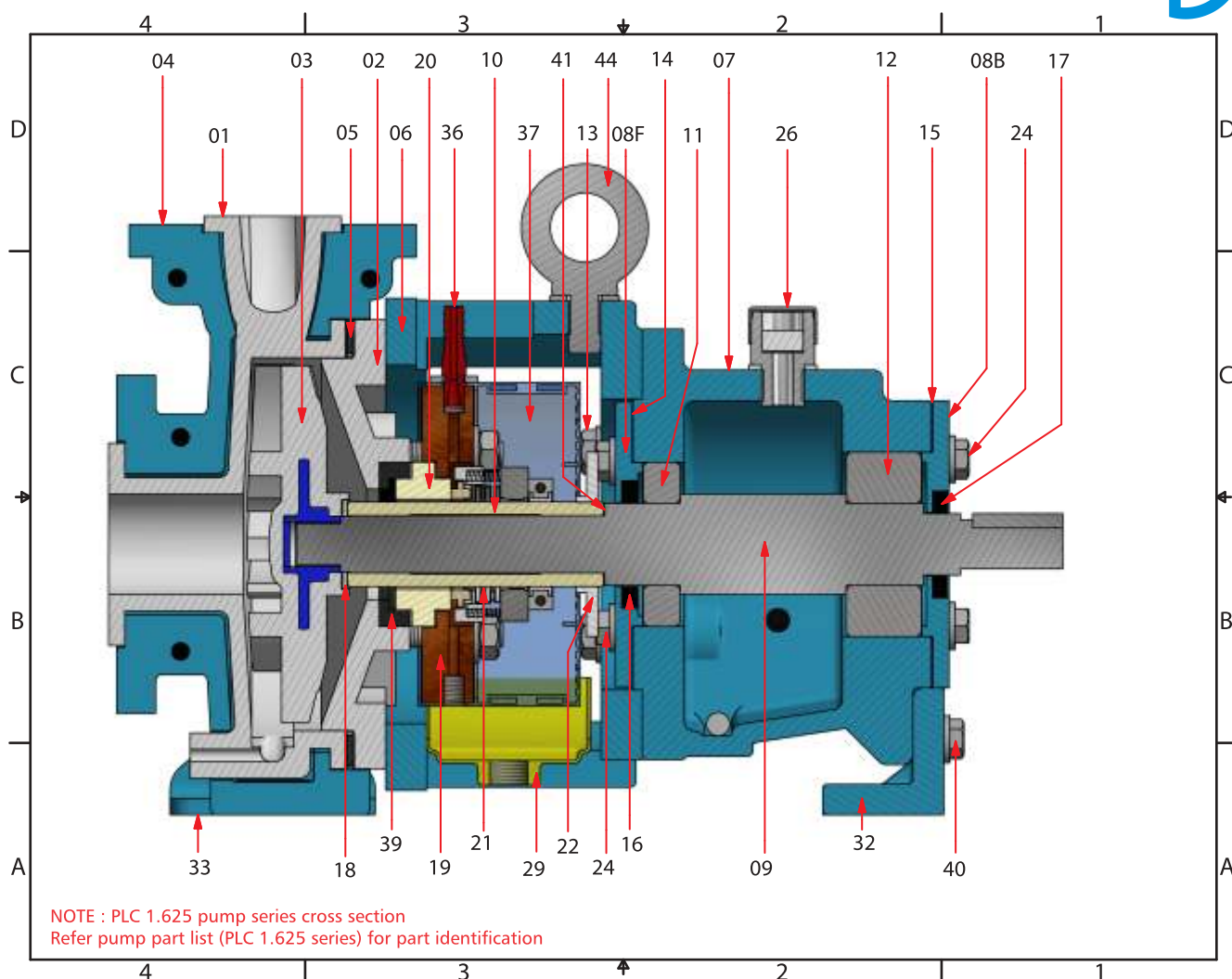
## Pumps Performance Characteristics at 2900 RPM



## PART LIST OF PLM 1.875" PUMP

| PART NO. | DESCRIPTION                          | M.O.C.                  | QTY.              |
|----------|--------------------------------------|-------------------------|-------------------|
| 01       | CASING LINER                         | PP                      | 01 NO.            |
| 02       | BACK PLATE                           | PP                      | 01 NO.            |
| 03       | IMPELLER                             | PP                      | 01 NO.            |
| 04       | CASING ARMOUR                        | CAST IRON               | 01 NO.            |
| 05       | 'O' RING FOR BACK PLATE              | VITON                   | 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/SS316/SS410        | 01 NO.            |
| 10       | SHAFT SLEEVE                         | CERAMIC/HAST-C/ALLOY 20 | 01 NO.            |
| 11       | BALL BEARING - INBOARD               | SKF NU310               | 01 NO.            |
| 12       | BALL BEARING - OUTBOARD              | SKF - 3310              | 01 NO.            |
| 13       | ADAPTOR HARDWARE                     | SS                      | 1 SET<br>(04 NOS) |
| 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<br>(08 NOS) |
| * 25     | BOLTS FOR CLAMPING MECH. SEAL               | SS                  | 1 SET<br>(06 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     | CASING ARMOUR HARDWARE                      | SS                  | 1 SET<br>(06 NOS) |
| 32       | BEARING BLOCK LEG                           | SG IRON             | 01 NO.            |
| * 35     | COUPLING GUARD                              | PP / M.S. / ALU.    | 01 NO.            |
| 36       | NOZZLE ( COOLING WATER INLET )              | PVDF                | 01 NO.            |
| 37       | SPLASH GUARD WITH 2 SCREW                   | PP                  | 01 NO.            |
| * 38     | OIL LEVEL INDICATOR                         | ALUMINUM + GLASS    | 01 NO.            |
| 39       | CFT BUSH FOR BACK PLATE                     | CFT                 | 01 NO.            |
| 40       | HARDWARE FOR LEG TO BAERING BLOCK           | SS                  | 02 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                  | 02 NO.            |
| 44       | EYE BOLT                                    | STEEL               | 01 NO.            |
| * 45     | PUMP FLANGE HARDWARE ( SUCTION & DELIVERY ) | SS                  | 1 SET             |



NOTE : PLC 1.625 pump series cross section  
Refer pump part list (PLC 1.625 series) for part identification

## Part List

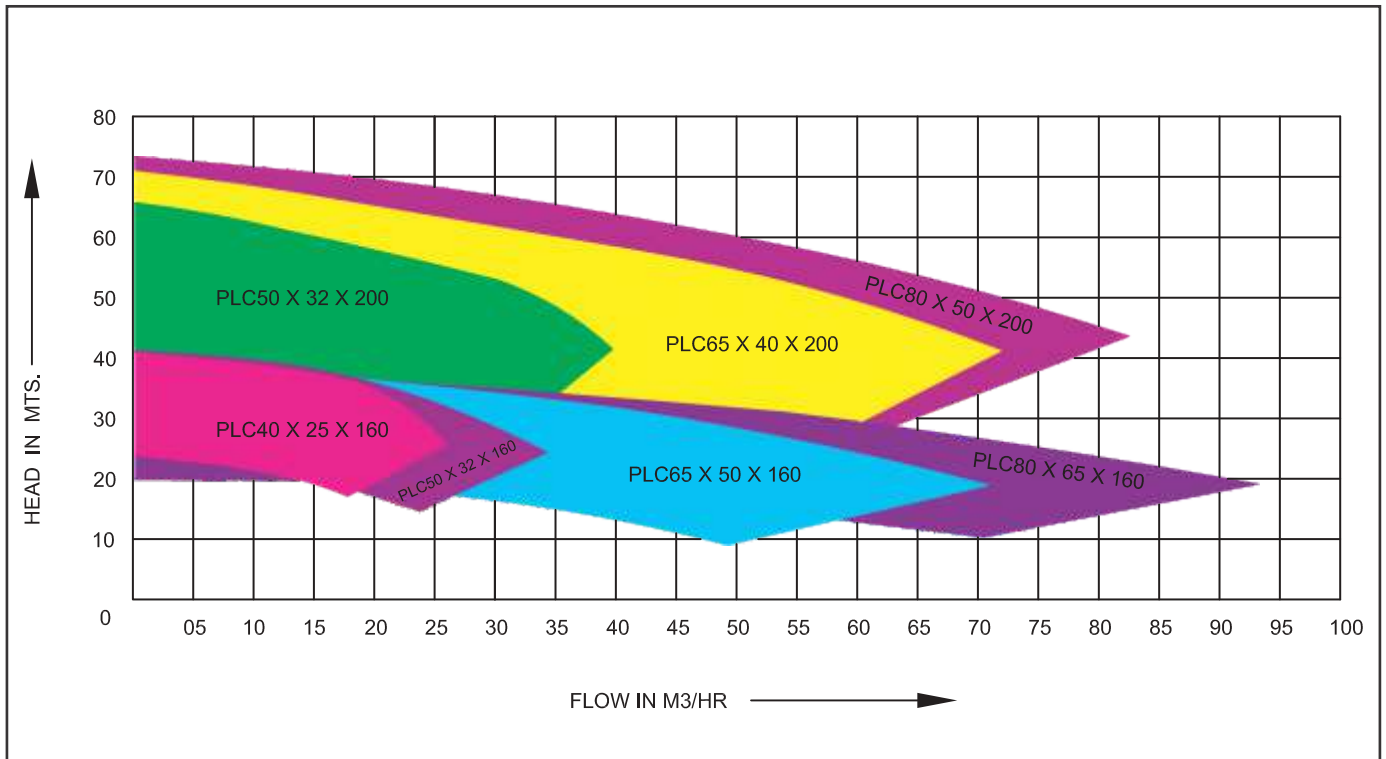
| PART NO | DESCRIPTION                          | M.O.C.                    | QTY.             |
|---------|--------------------------------------|---------------------------|------------------|
| 01      | CASING LINER                         | PVDF                      | 01 NO.           |
| 02      | BACK PLATE                           | PVDF                      | 01 NO.           |
| 03      | IMPELLER                             | PVDF                      | 01 NO.           |
| 04      | CASING ARMOUR                        | CAST 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/SS316/SS410          | 01 NO.           |
| 10      | SHAFT SLEEVE                         | CERAMIC/HAST-C/ALLOY 20   | 01 NO.           |
| 11      | BALL BEARING- INBOARD                | 6208-ZZ SKF               | 01 NO.           |
| 12      | BALL BEARING- OUTBOARD               | 5308-ZZ NACHI/3308-ZZ SKF | 01 NO.           |
| 13      | ADAPTOR HARDWARE                     | SS                        | 1 SET<br>(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<br>(08 NOS)  |
| *25     | BOLTS FOR CLAMPING MECH. SEAL               | SS              | 1 SET<br>(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     | CASING HARDWARE                             | SS              | 01 SET<br>(08 NOS) |
| 32      | BEARING BLOCK LEG                           | SG IRON         | 01 NO.             |
| 33      | CASING ARMOUR LEG                           | SS 304          | 1 SET<br>(02 NOS)  |
| *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 SCREW                     | 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<br>(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.             |
| 45      | SUCTION FLANGE                              | SS              | 01 NO.             |

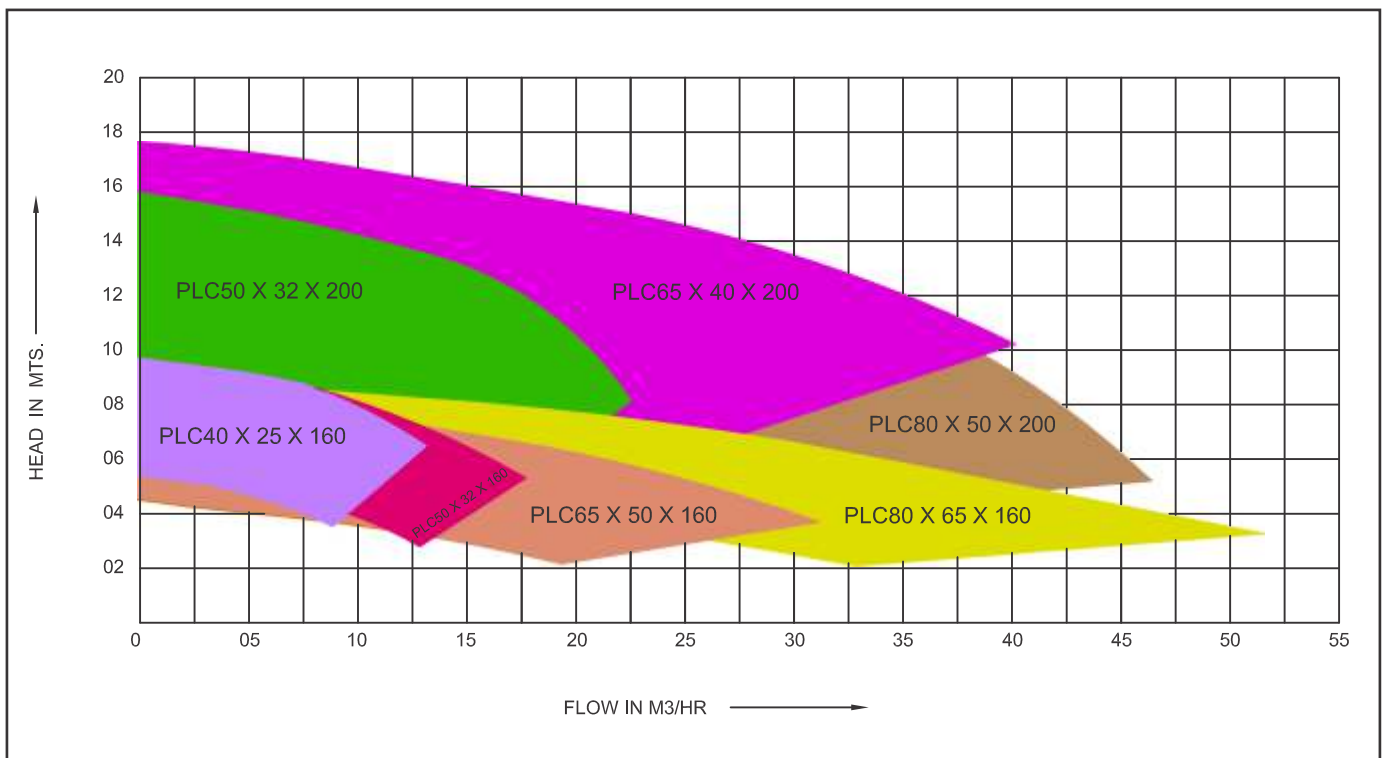


## Pumps Performance Characteristics

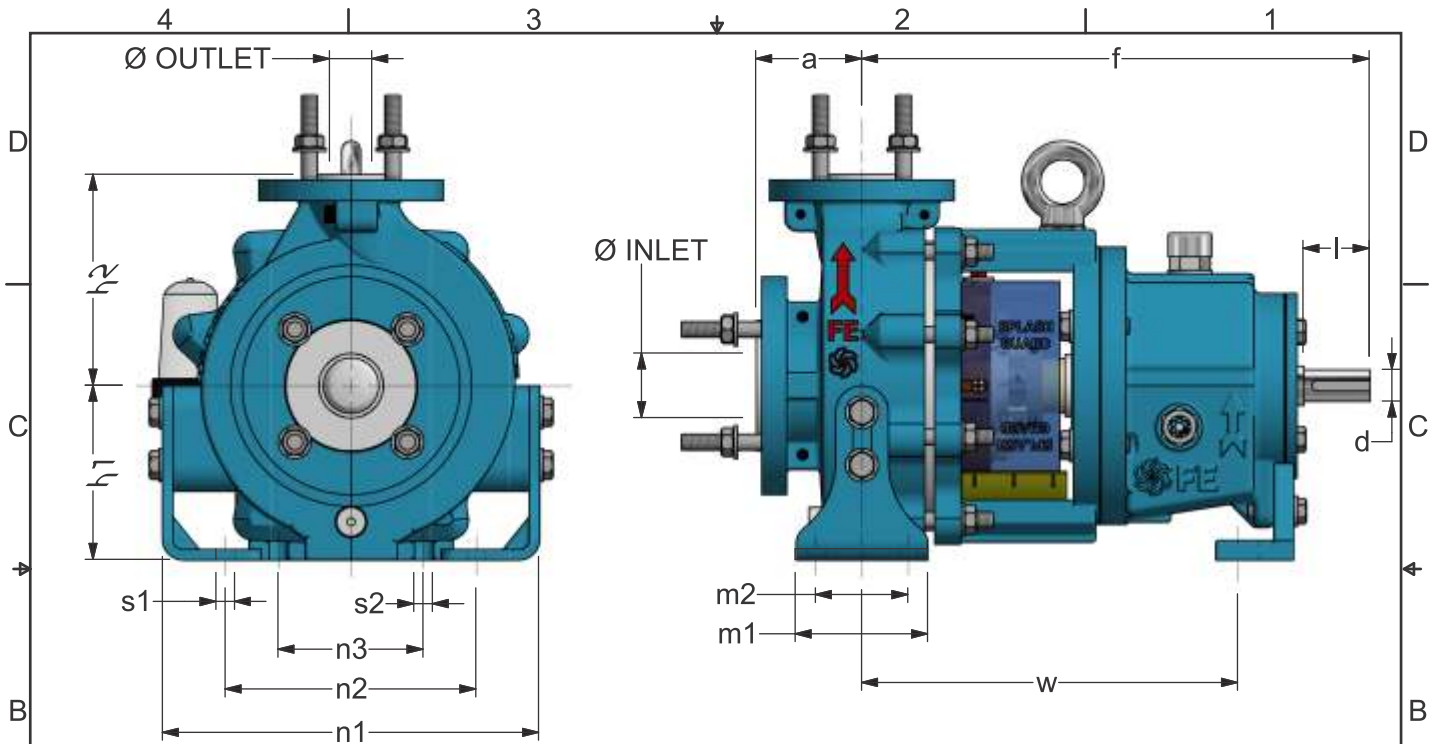
2900 RPM



1440 RPM







## Mechanical Seal Size : 1.375"

| MODELS       | Ø inlet | Ø outlet | a  | f   | h1  | h2  | l  | m1  | m2 | n1  | n2  | n3  | w   | s1  | s2  | d  |
|--------------|---------|----------|----|-----|-----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|----|
| PLC40X25X125 | 40      | 25       | 80 | 385 | 112 | 140 | 50 | 100 | 70 | 258 | 140 | 110 | 285 | M12 | M12 | 24 |
| PLC50X32X125 | 50      | 32       | 80 | 385 | 112 | 140 | 50 | 100 | 70 | 258 | 140 | 110 | 285 | M12 | M12 | 24 |

All Dimensions in mm

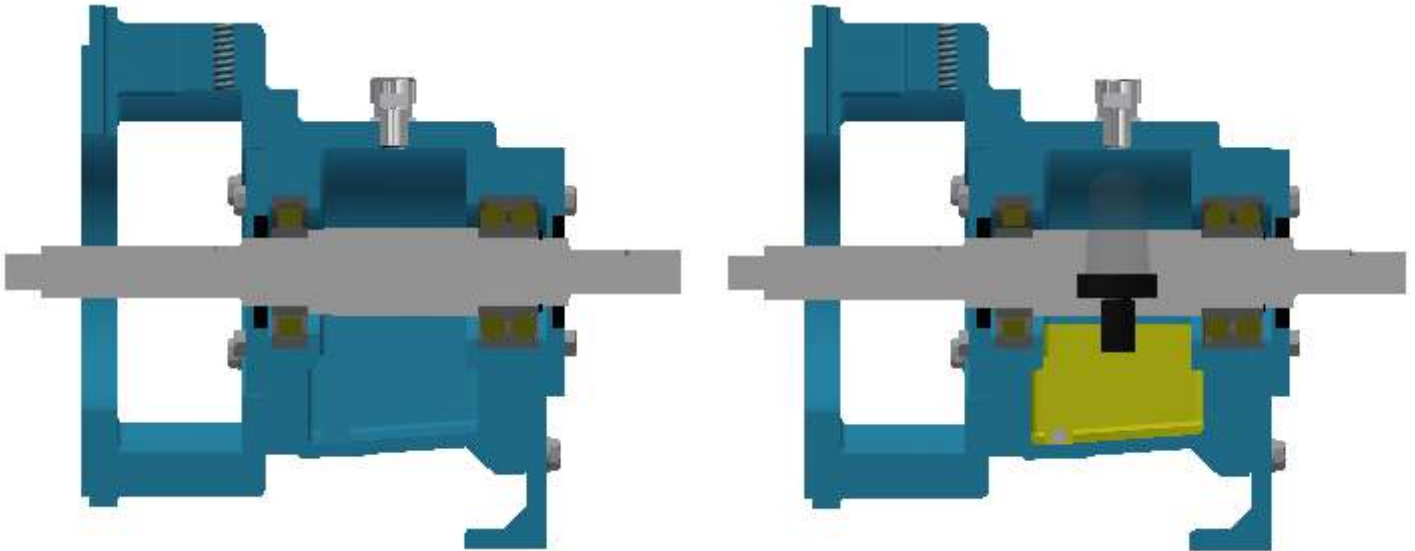
## Mechanical Seal Size : 1.625"

| MODELS       | Ø inlet | Ø outlet | a   | f   | h1  | h2  | l  | m1  | m2 | n1  | n2  | n3  | w   | s1  | s2  | d  |
|--------------|---------|----------|-----|-----|-----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|----|
| PLC40X25X160 | 40      | 25       | 80  | 385 | 132 | 160 | 50 | 100 | 70 | 286 | 190 | 110 | 285 | M12 | M12 | 24 |
| PLC50X32X160 | 50      | 32       | 80  | 385 | 132 | 160 | 50 | 100 | 70 | 286 | 190 | 110 | 285 | M12 | M12 | 24 |
| PLC65X50X160 | 65      | 50       | 80  | 385 | 132 | 160 | 50 | 100 | 70 | 286 | 190 | 110 | 285 | M12 | M12 | 24 |
| PLC80X65X160 | 80      | 65       | 100 | 385 | 160 | 180 | 50 | 100 | 70 | 286 | 212 | 110 | 285 | M12 | M12 | 24 |
| PLC50X32X200 | 50      | 32       | 80  | 385 | 160 | 180 | 50 | 100 | 70 | 356 | 190 | 110 | 285 | M12 | M12 | 24 |
| PLC65X32X200 | 65      | 40       | 100 | 385 | 160 | 180 | 50 | 100 | 70 | 366 | 212 | 110 | 285 | M12 | M12 | 24 |
| PLC80X50X200 | 80      | 50       | 100 | 385 | 160 | 200 | 50 | 100 | 70 | 366 | 212 | 110 | 285 | M12 | M12 | 24 |

All Dimensions in mm



# Bearing Block



## 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.

# Modular Interchangeability Chart



## Series I - 1.375"

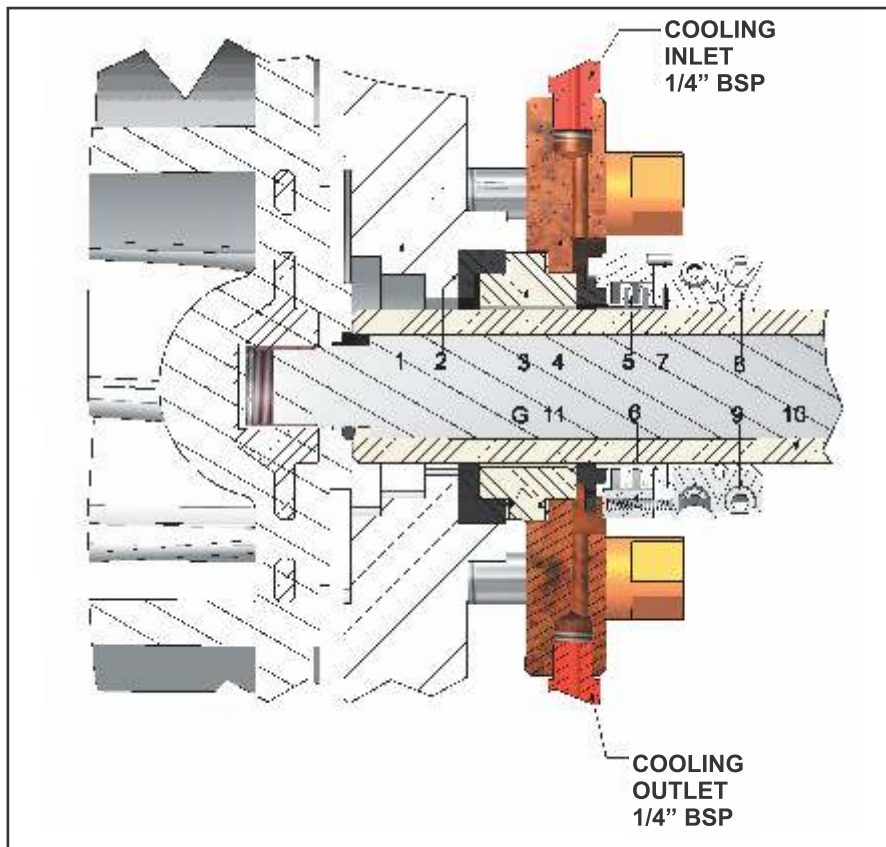
| Pump Model (Suct. Dia. x Del. Dia. - Imp. Dia.) in mm | Casing Armour with Liner |   | Casing Liner |   | Impeller |   | Stuffing Box (Backplate) |   | Adaptor |   | Shaft, Bearing Block and Leg Assembly |
|---|--------------------------|---|--------------|---|----------|---|--------------------------|---|---------|---|---------------------------------------|
| PLC 40X25X125   |                          | ← |              | ← |          | ← |                          | ← |         | ← |                                       |
| PLC 50X32X125   |                          | ← |              | ← |          |   |                          |   |         |   |                                       |

## Series II - 1.625"

| Pump Model (Suct. Dia. x Del. Dia. - Imp. Dia.) in mm | Casing Armour with Liner |   | Casing Liner |   | Impeller |   | Stuffing Box (Backplate) |   | Adaptor |   | Shaft & Bearing Block |   | Leg |
|---|--------------------------|---|--------------|---|----------|---|--------------------------|---|---------|---|-----------------------|---|-----|
| PLC 40X25X160   |                          | ← |              | ← |          | ← |                          | ← |         | ← |                       | ← |     |
| PLC 50X32X160   |                          | ← |              | ← |          |   |                          |   |         |   |                       |   |     |
| PLC 65X50X160   |                          | ← |              | ← |          | ← |                          | ← |         | ← |                       | ← |     |
| PLC 80X65X160   |                          | ← |              | ← |          |   |                          |   |         |   |                       |   |     |
| PLC 50X32X200   |                          | ← |              | ← |          | ← |                          | ← |         | ← |                       | ← |     |
| PLC 65X40X200   |                          | ← |              | ← |          |   |                          |   |         |   |                       |   |     |
| PLC 80X50X200   |                          | ← |              | ← |          | ← |                          | ← |         | ← |                       | ← |     |



Single Outside Mounted Teflon Bellow Seal

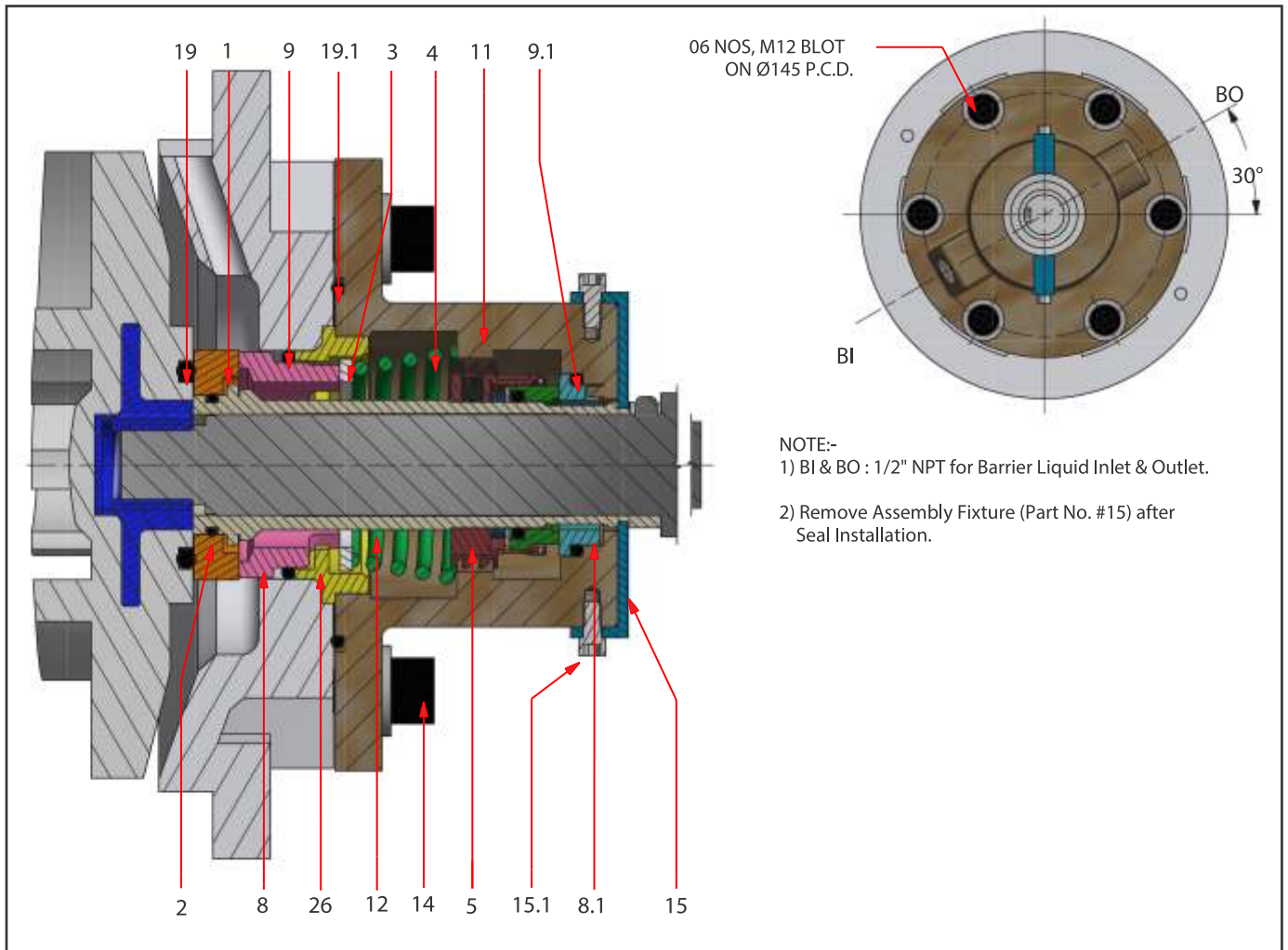


Part List

| 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 /<br>SIC /<br>HAST-B /<br>ALLOY 20 /<br>TITANIUM /<br>PVDF - COATED | 1    |
| 11      | ROTARY FACE     | GFT /<br>SIC /<br>SIFT /<br>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

### Part List

| PART NO | DESCRIPTION                         | M.O.C.       | QTY. |
|---------|-------------------------------------|--------------|------|
| 1       | SEAL RING                           | SIC          | 1    |
| 2       | O-RING                              | VITON        | 1    |
| 3       | THRUST RING FOR HALAR COATED SPRING | PVDF         | 1    |
| 4       | HALAR COATED SPRING                 | SS 316+HALAR | 1    |
| 8       | STATIONARY PART OF MECH. SEAL       | SIC          | 1    |
| 9       | O-RING FOR SIC STATIONARY PART      | VITON        | 1    |
| 11      | HOUSING                             | SS 316       | 1    |
| 12      | SLEEVE                              | SS 316+ PVDF | 1    |
| 14**    | CAP SCREW FOR ASSEMBLY FIXTURE      | SS 316       | 2    |
| 15**    | ASSEMBLY FIXTURE                    | SS 316       | 2    |
| 19      | O-RING FOR IMPELLER                 | VITON        | 1    |
| 19.1    | O-RING FOR SEAT HOLDER [BACK PLATE] | VITON        | 1    |
| 19.2    | O-RING FOR HOUSING                  | VITON        | 1    |
| 26      | SEAT HOLDER                         | CFT          | 1    |

NOTE :  
\*\*PARTS NOT SHOWN IN CROSS SECTIONAL VIEW

### 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 ( $\text{FeCl}_3$ ,  $\text{Fe}_3\text{Cl}_4$ ) 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.





- ❑ Energy efficient complete ISO 2858 standard design - Better efficiencies at lower power consumption.
- ❑ Semi-open impeller with a well contoured vane design for the most abrasive and corrosive clear liquids and slurries.
- ❑ Rugged individual Bearing block - adaptor design for ease of maintenance and assembly.
- ❑ Low Shaft stiffness ration minimizing shaft deflection for improved seal and bearing life , thus longer Mean Time Between Failures
- ❑ Various mechanical seal options- Single Teflon Bellow , Double Seal , Special seal without external water cooling
- ❑ 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 adapter needs to be changed and not the entire power frame.
- ❑ Bearing protectors (Labyrinth Seals) are provided as an optional feature.

## 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.