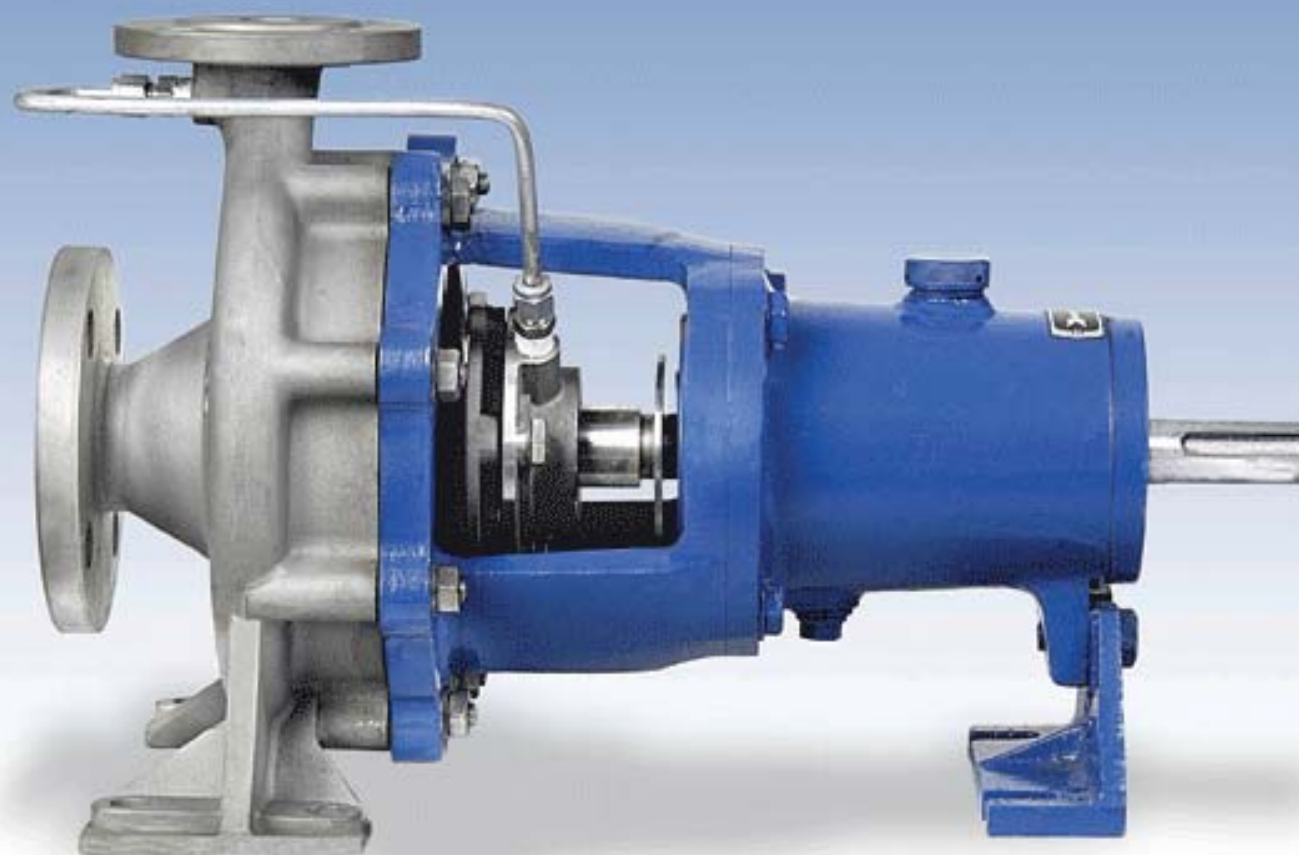


Engineering Excellence

**CHEMICAL PROCESS PUMPS
TYPE PPF
AS PER ISO 2858 / DIN 24256**

Sando group

Assured Quality
Competent
Dependable Services
Overall Economy



Chemical Process Pump - PPF

SANDO ROTARY EQUIPMENTS PVT. LTD. HAS BEEN PROMOTED BY TWO YOUNG TECHNOCRATES HAVING MORE THAN TWENTY YEARS OF EXPERIENCE IN THE FIELD OF ROTARY EQUIPMENTS.

OUR '**DESIGN & APPLICATION ENGINEERING CELL**' STUDIES THE CUSTOMER REQUIREMENTS BASED ON THE INPUTS MADE AVAILABLE TO US AND THE VAST DATA BASE ON BEHAVIOUR OF THE FLUIDS TO ARRIVE AT THE RIGHT SELECTION OF DESIGN AND SEAL FACE COMBINATION SUITABLE FOR A PARTICULAR APPLICATION PRIOR TO THE FINAL RECOMMENDATIONS.

'**SANDO**' HAS FOUR MANUFACTURING UNITS LOCATED IN THE VICINITY OF MUMBAI AND HAVING THE BRANCH OFFICES AT HYDERABAD, CHENNAI, BANGLORE, KOLKATA, BARODA AND AHMEDABAD. THE COMPANY'S HEAD OFFICE IS LOCATED AT MUMBAI.

PRODUCT APPLICATIONS

| INDUSTRIES | SERVICES |
|---------------------------------------|---------------------------------------|
| Chemicals, Dyes & Intermediates | Organic / Inorganic Chemicals |
| Oil Extraction & Waste Oil Refineries | Hydrocarbons / Volatile Liquids |
| Bulk Drugs & Pharmaceuticals | Dyes & Intermediates |
| Starch / Paper / Sugar Industries | Paper Stock, Starch / Maize Slurry |
| Effluent Treatment Plants | Water Treatment & Distribution System |
| Heating & Air Conditioning Plants | Thermic Fluid/Hot Oil |
| Steam Boilers/thermic Fluid System | Boiler Feed / Booster |
| Cooling Towers | Corrosive / Abrasive Liquids |

MATERIAL OF CONSTRUCTION (As per ASTM / DIN STANDARDS)

- Graded Grey Cast-Iron
- Carbon Steel (WCB) / Alloy Steel
- CF8, CF8M, CF3, CF3M, Alloy 20, CD4MCu
- 2% NiCl, Ni-Resist, D2B,
- 100% Nickel(CZ100) & Nickel Alloys, R 55, Hastalloy B/C
- Gun Metal / Bronze

CONSTRUCTIONAL FEATURES :

Pumps are as per DIN 24256 and ISO 2858 and generally conform to API 610 (7th Edition.) The design is of back pull out type. Large variety of models are available to operate at 1450 rpm and 2900 rpm at 50 Hz and 1750 rpm and 3500 rpm at 60 Hz.

Casing :

The casing has axial suction and top centre line delivery. Smooth hydraulic passages ensure high efficiency. Normal design is for foot mounted pumps. Centre line mounting for special applications are also available.

Impeller :

The impellers are of enclosed type and semi-open impellers can also be supplied. Hydraulic balancing of impellers is achieved either by back vanes or by balancing holes. The impellers are statically and dynamically balanced. Reliable fixing of the impeller on shaft is achieved by using helicoil insert under impeller nut. To improve NPSH performance, inducer can be supplied.

Shaft :

The Shaft is supported by two antifriction bearings to take Residual Axial Thrust and Prevent Axial Float or Radial Run Out. It is fully protected from the liquid handled by means of a Shaft Sleeve and PTFE Gaskets between impeller Nut, Impeller Hub and Shaft Sleeve.

Stuffing Box :

The stuffing box is sealed by gland packing or by mechanical seal. Conversion from gland packing to mechanical seal is achieved by changing some standardised parts. Re-machining of stuffing box is not necessary. Stuffing box cooling is provided for high temperature applications.

Bearings :

The bearings are oil lubricated. For high temperature application, bearing oil cooling arrangement is provided.

Direction Of Rotation :

Clockwise viewed from driving end.

Drive :

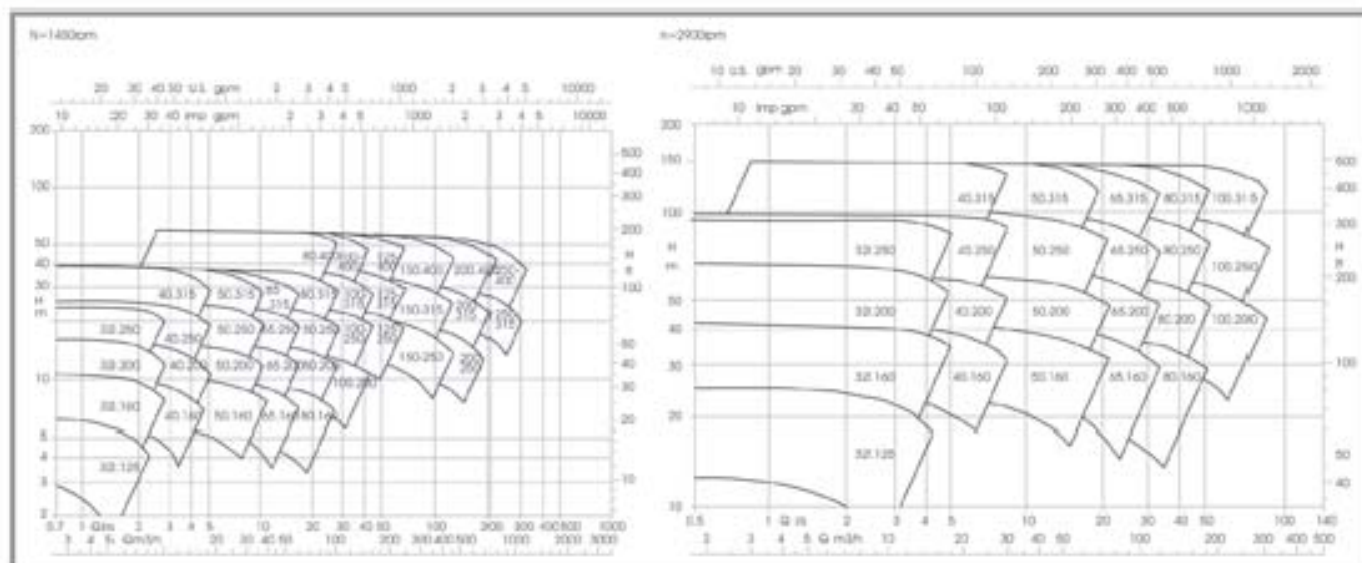
Pumps can be driven by electric motor.

Flanges :

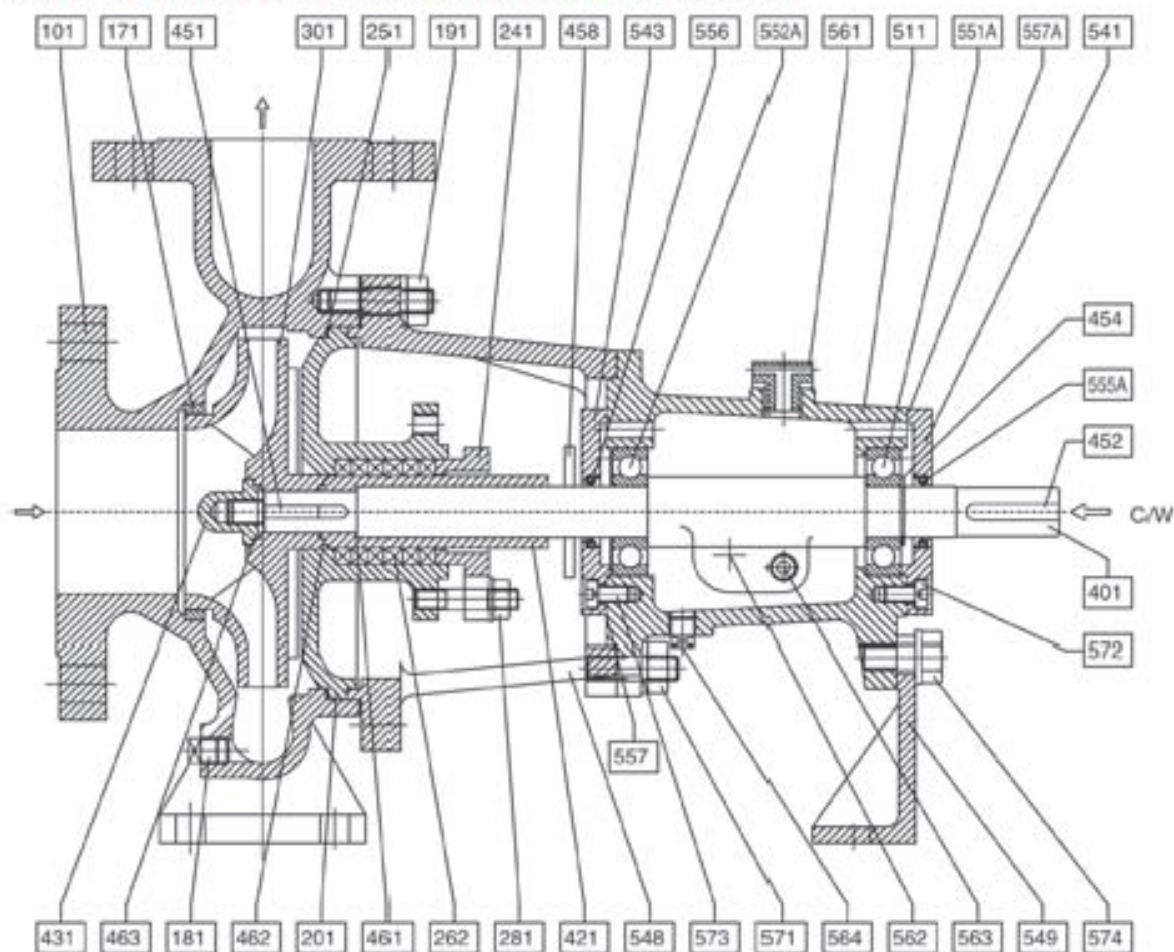
| | |
|----------------------------------|--------------------------|
| Standard | Optional |
| Drilling as per ND 16 | DIN ND 10, ND 25 |
| DIN 2533 (Cast Iron-Raised face) | ASA 150 BS 10 Table F |
| DIN 2543 (Steel-Plain face) | BS 4504-16 bar or 25 bar |

For Reliability and Efficiency

PUMP SELECTION



CROSS SECTIONAL ASSEMBLY AND MATERIAL EXECUTION



| 301 | IMPELLER | CI | WCB | CF8 | CF8M | CN7M | 1 |
|-------|--------------|----------|-----|-----|------|------|------|
| 241 | GLAND COVER | CI | WCB | CF8 | CF8M | CN7M | 1 |
| 201 | STUFFING BOX | CI | WCB | CF8 | CF8M | CN7M | 1 |
| 171 | CWR | CI | WCB | CF8 | CF8M | CN7M | 1 |
| 101 | CASING | CI | WCB | CF8 | CF8M | CN7M | 1 |
| P. NO | DESCRIPTION | MATERIAL | | | | | QTY. |

| 548 | ADAPTOR | CI FG Gr:200 | | | | | 1 |
|-------|-----------------|--------------|------|-------|-------|-------|------|
| 511 | BEARING HOUSING | CI FG Gr:200 | | | | | 1 |
| 431 | DOME NUT | CS | CS | CF8 | CF8M | CN7M | 1 |
| 421 | SLEEVE | SS410 | | SS304 | SS316 | AL 20 | 1 |
| 401 | SHAFT | EN8 | EN19 | SS304 | SS316 | SS316 | 1 |
| P. NO | DESCRIPTION | MATERIAL | | | | | QTY. |

Engineering Excellence

OUR OTHER PRODUCTS

Capacity : 250 M³/Hr.
Temp. up to : 350° C
TDH : 95 MLC Working Pr. : 40 Bars



PPC

Thermic Fluid Pumps

Capacity : 400 M³/Hr.
Temp up to : 120° C
TDH : 140 MLC Working Pr. : 15 Bars



CWP

Centrifugal Water Pumps

Capacity : 100 M³/Hr.
Temp. up to : 120° C
TDH : 275 MLC Working Pr. : 40 Bars



CMF

Centrifugal Multistage Feed Pumps

Capacity : 400 M³/Hr.
Temp. up to : 120° C
TDH : 55 MLC Working Pr. : 15 Bars



NCS

Non-Clog Slurry Pumps

Capacity : 100 M³/Hr.

TDH : 35 MLC

Temp. up to : 120° C

Working Pr. : 15 Bars



CSP

Centrifugal Self Priming Pumps

Capacity : 400 M³/Hr.

TDH : 55 MLC

Temp. up to : 120° C

Working Pr. : 15 Bars



PPV

Vertical Pumps