NJRP SERIES
ISO Standard End-Suction Centrifugal Pumps
GFRPP | PP-H

Frame Type
Corrosion Resistant Chemical Pumps
NJRP SERIES
ISO Standard End-Suction Centrifugal Pumps
GFRPP | PP-H

Frame Type
Corrosion Resistant Chemical Pumps
NJRP SERIES
Standard Chemical Process Pumps - Frame Type

PRODUCT OVERVIEW
NJRP Series pumps are injection moulded, horizontal, back pull-out, volute casing type, single stage, center line discharge, end-suction centrifugal pumps. Cast iron frames with injection moulded wetted parts are designed to handle higher hydraulic pressures and flange loads suitable for hazardous, corrosive and toxic media. Dimensional and design criteria of NJRP pumps conform to ISO 2858 / ISO 5199 / EN 22858.

TECHNICAL DATA

<table>
<thead>
<tr>
<th>Operating Frequency</th>
<th>50 Hz</th>
<th>60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity [Q]</td>
<td>up to</td>
<td>210 m³/hr (925 US gpm)</td>
</tr>
<tr>
<td>Head [H]</td>
<td>up to</td>
<td>100 m (328 ft)</td>
</tr>
<tr>
<td>Motor Power [P]</td>
<td>up to</td>
<td>55 kW (75 hp)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>up to</td>
<td>150 mPas (cP)</td>
</tr>
<tr>
<td>Suction Lift</td>
<td>up to</td>
<td>8 m (26 ft) with priming chamber*</td>
</tr>
<tr>
<td>Maximum Working Pressure</td>
<td>16 bar (232 psi)</td>
<td></td>
</tr>
<tr>
<td>Maximum Specific Gravity [SG]</td>
<td>1.8 - 3</td>
<td></td>
</tr>
<tr>
<td>Minimum Continuous Flow [MCF]</td>
<td>2.5 m³/hr (11 US gpm)</td>
<td></td>
</tr>
<tr>
<td>Maximum Temperature</td>
<td>GFRPP: 90°C (194°F), PP-H: 82°C (180°F)</td>
<td></td>
</tr>
<tr>
<td>Suction &amp; Delivery Connection</td>
<td>ANSI B16.5 - Class 150, ISO 2084, DIN 2501, BS4504 - PN16*</td>
<td></td>
</tr>
<tr>
<td>Shaft Seal</td>
<td>Single (TB/RA) &amp; Double (DROTT) Mechanical Seals</td>
<td></td>
</tr>
<tr>
<td>Bearings</td>
<td>Rolling Element Bearings</td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Oil</td>
<td></td>
</tr>
<tr>
<td>Motor Compatibility</td>
<td>IS 1231, IEC 72-1, NEMA*</td>
<td></td>
</tr>
</tbody>
</table>

*available on request

MATERIALS

- Casing Frame & Flange
- Casing
- Impeller (Closed/Semi-open)
- O-Ring
- Seal Plate
- Casing Cover
- Seal Cover
- Mechanical Seal
- Bearing Bracket & Cover
- Support Foot
- Rolling Element Bearings
- Sleeve
- Lantern
- Male Hose Barb Nipple
- Shaft
- Fasteners
- Retaining Ring

- Cast Iron*
- GFRPP / PP-H*
- FKM / EPDM / TFE-P
- Cast Iron*
- Ductile Iron* moulded with GFRPP / PP-H
- FRP / GFRPP / Stainless Steel
- Ceramic / SIC / GFT / Carbon
- Cast Iron*
- Steel*
- Carbon Chromium Steel
- Ceramic / SIC / Super Alloys
- Ductile Iron*
- Brass
- SS316 / Super Alloys
- Stainless Steel
- Zinc Plated Steel

1 - Glass Filled Reinforced PP, 2 - Polypropylene - Homopolymer, 3 - Fibre Reinforced Polymer, 4 - Silicon Carbide, 5 - Glass Filled Polytetrafluoroethylene (PTFE)

* with high grade 2C corrosion protection paint. Special coatings available on request.

Impeller Locking Mechanism
Prevents catastrophic failure in case of reverse rotation

Impeller Options
Option of closed and semi-open impeller with efficient blade passage for effective pumping of process media

Drain Plug
Drain plug allows swift drainage of hazardous liquids
**DESIGN FEATURES**

- Hydrodynamically optimized, closed / semi-open radial impeller designed for:
  - Optimum suction behaviour with low NPSH requirement
  - Low noise and vibration
  - Minimum axial loading on bearings and seal

- Lantern provides accurate alignment between casing and bearing bracket

- Large openings on both sides, top and bottom to easily access seal unit for maintenance & connection of auxiliary support units

- Heavy duty bearing bracket & cover and bearing assembly

- Large capacity oil sump results in extended bearing life & minimizes oil contamination

- O-ring seal between bearing bracket to prevent leakage of lubrication oil

- Standard lip type shaft seals at pump inlet for complete leakproof environment for complete seal life

- Telescopic arrangement for semi-open impeller to maintain front clearance to obtain better flow

- Bearings Capable of carrying high load and standard lifetime (17500 hrs)

- Robust shaft with low stiffness ratio to ensure less than 0.05 mm (0.002 in) deflection at seal faces thus maximizes mechanical seal life

- Positive locking of Impeller & shaft prevents failure due to wrong rotation and ensures maximum torque transmission

- Stepped sleeve aids proper sealing at the impeller rear side and accurate alignment of rotary and stationary seal faces

- Injection moulded casing cover with sole plate to accommodate single & double mechanical seals without any modifications

- Back pull out design provides safe, simple and quick assembly & disassembly of pump

- Injection moulded, center line disc handles higher hydraulic pressures

- Effectively collects process media & delivers to discharge connection

- High wall thickness of non metallic materials maximizes pump life for corrosive & abrasive applications

- Option for drain plug for easy & safe draining
**MECHANICAL SEAL OPTIONS**

- **Type TB** is single, outside mounted seal, uses PTFE bellows as secondary seal offering universal chemical resistance for a broad range of clean & corrosive pumping media.

- **Type RA** is single, outside mounted seal, employs fluoroelastomer (FKM/FFKM) as secondary seal to handle highly corrosive & homogenous slurries.

- **Type DROTT** is double, back to back arrangement seal; using fluoroelastomer (FKM / FFKM) & fluoropolymer (PTFE) as secondary seals suitable for handling hazardous chemicals, media with tendency to crystallize and to avoid dry running while pumping volatile liquids. Compatible pressurized buffer liquid needs to be circulated via thermostyphon or other external pressurized systems.

**Operating parameters**

<table>
<thead>
<tr>
<th>Type</th>
<th>TB</th>
<th>RA</th>
<th>DROTT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure</td>
<td>up to 5 bar (75 psi)</td>
<td>10 bar (140 psi)</td>
<td>10 bar (140 psi)</td>
</tr>
<tr>
<td>Temperature</td>
<td>71°C (160°F)</td>
<td>204°C (400°F)</td>
<td>204°C (400°F)</td>
</tr>
<tr>
<td>Shaft Speed</td>
<td>up to 10 m/s (33 fps)</td>
<td>23 m/s (75 fps)</td>
<td>23 m/s (75 fps)</td>
</tr>
</tbody>
</table>

*Values for Flowserve seals. Other seals available on request.

**TESTING FACILITIES**

- **Cast parts**: Chemical / Mechanical tests, Spectrometer and Dye Penetrant test
- **Shaft**: Ultrasonic test
- **Wetted parts**: Spark test and Hydrostatic test
- **Impeller**: Dynamic balancing facility
- **Pump**: Temperature, Noise & Vibration measuring instruments

Pump performance: Pump is tested hydraulically as per IS 5120 standard on a 15kl test bench equipped with calibrated magnetic flow meters, control valves, pressure gauges and motors from 1hp to 100hp (1440 & 2900 rpm).

**APPLICATIONS**

NJRP Series pumps are best suited for pumping corrosive media with/without contaminants. Typical applications are:

- Acidic Effluents & Fume Extraction Systems of Chemical Process industries
- Plating Solutions of Metal Finishing industries
- Acids & Alkalis of Chlor Alkali industries
NJRP SERIES
Standard Chemical Process Pumps - Frame Type

PUMP IDENTIFICATION

Wetted Parts  Pump Size  Mechanical Seal  Seal Faces  O-rings  Shaft Sleeve
RP - GFRPP  \- \- \-  TB - PTFE Bellows  R - SIC Vs Ceramic  V - FKM  1 - Ceramic  5 - Nickel
P - PP-H  \- \- \-  RA - Single Pusher  G - GFT Vs Ceramic  A - FFKM  2 - SiC  6 - Titanium
\- \- \-  DT - Double Pusher  C - Carbon Vs Ceramic  E - EPDM  3 - FRP  7 - Alloy 20
\- \- \-  S - SIC Vs SIC  F - TFE-P  4 - Hastalloy C  8 - Special

DIMENSIONS

PUMP DIMENSIONS

<table>
<thead>
<tr>
<th>MODELS</th>
<th>DNs</th>
<th>DNd</th>
<th>a</th>
<th>f</th>
<th>h1</th>
<th>h2</th>
<th>b</th>
<th>m1</th>
<th>m2</th>
<th>n1</th>
<th>n2</th>
<th>n3</th>
<th>w</th>
<th>S1</th>
<th>d</th>
<th>l</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-32-125</td>
<td>50</td>
<td>32</td>
<td>80</td>
<td>385</td>
<td>112</td>
<td>140</td>
<td>50</td>
<td>100</td>
<td>70</td>
<td>190</td>
<td>140</td>
<td>110</td>
<td>265</td>
<td>M12</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>50-32-160</td>
<td>50</td>
<td>32</td>
<td>80</td>
<td>385</td>
<td>132</td>
<td>160</td>
<td>50</td>
<td>100</td>
<td>70</td>
<td>240</td>
<td>190</td>
<td>110</td>
<td>265</td>
<td>M12</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>50-32-200</td>
<td>50</td>
<td>32</td>
<td>80</td>
<td>385</td>
<td>160</td>
<td>180</td>
<td>50</td>
<td>100</td>
<td>70</td>
<td>240</td>
<td>190</td>
<td>110</td>
<td>265</td>
<td>M12</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>80-50-200</td>
<td>80</td>
<td>50</td>
<td>100</td>
<td>385</td>
<td>160</td>
<td>200</td>
<td>50</td>
<td>100</td>
<td>70</td>
<td>265</td>
<td>212</td>
<td>110</td>
<td>265</td>
<td>M12</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>80-50-315</td>
<td>80</td>
<td>50</td>
<td>125</td>
<td>500</td>
<td>225</td>
<td>260</td>
<td>85</td>
<td>125</td>
<td>95</td>
<td>345</td>
<td>280</td>
<td>110</td>
<td>370</td>
<td>M16</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>100-65-250</td>
<td>100</td>
<td>65</td>
<td>125</td>
<td>500</td>
<td>200</td>
<td>250</td>
<td>80</td>
<td>160</td>
<td>120</td>
<td>360</td>
<td>260</td>
<td>110</td>
<td>370</td>
<td>M16</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>125-80-315</td>
<td>125</td>
<td>80</td>
<td>125</td>
<td>530</td>
<td>250</td>
<td>315</td>
<td>80</td>
<td>160</td>
<td>120</td>
<td>400</td>
<td>315</td>
<td>110</td>
<td>370</td>
<td>M16</td>
<td>42</td>
<td>110</td>
</tr>
<tr>
<td>125-100-315</td>
<td>125</td>
<td>100</td>
<td>140</td>
<td>530</td>
<td>250</td>
<td>315</td>
<td>80</td>
<td>160</td>
<td>120</td>
<td>400</td>
<td>315</td>
<td>110</td>
<td>370</td>
<td>M16</td>
<td>42</td>
<td>110</td>
</tr>
</tbody>
</table>

All Dimensions in mm

ANTICO  Anticorrosive Equipment Pvt. Ltd.