Sundyne
HMP-3000, HMP-5000 and HMP-7000
Integrally Geared Centrifugal Pumps
HMP Series

Sundyne HMP

For more than 50 years, Sundyne has lead the industry as a fluid handling technology innovator. The HMP series of integrally geared centrifugal pumps continues this tradition of engineering excellence, delivering exceptional power and the rugged reliability people expect from Sundyne in a compact footprint.

Available in scalable configurations – up to three stages on a single gearbox – the HMP series features superior low specific speed hydraulics to deliver maximum efficiency, with each pump engineered to meet the application’s unique Best Efficiency Point (BEP). Additionally, HMP pumps will run continuously for 5 years, as specified by exacting API-610 standards. With this combination of flexible features and reduced lifecycle costs, Sundyne HMP pumps are the clear choice for handling heavy duty applications in fertilizer, urea and PTA production.

Product Description

First developed by Sundyne in 1967, the HMP series has a proven track record of reliability, with over 300 units installed worldwide handling some of the most challenging applications known to industry.

The robust HMP-Series Sundyne Pumps are end-suction, horizontal, high-speed, two-stage centrifugal pumps designed for use in low flow, high pressure applications. The two stages of an HMP pump can operate either in series or parallel, in order to achieve a broad range of flows and pressures.

The HMP is driven by an integral single helical or spur gear mesh speed-increasing gearbox, providing compactness, design simplicity and optimized reliability over conventional multistage and reciprocating pumps.

The wet ends of the HMP use open face impellers with either a single- or dual-throat diffuser design to optimize performance. Our pioneering development work concerning inducer technology may be used where NPSHa (Net Positive Suction Head Available) is low.

Additionally, mechanical seals in single, tandem or double seal arrangements are available to safely isolate the process. A seal support system is typically included in the HMP package, as well as gearbox lubrication and instrumentation.

Key Features and Benefits

- Centrifugal design — A high performance alternative to positive displacement pumps, providing flexible, pulsation-free flows.
- No wear rings — No impeller clearances to set, making for easy assembly.
- Compact design — With low component weight and small foot print, HMP pumps require minimal space to install.
- Modular design — Allows for increased dependability, easy maintenance, reduced spares inventory and reduced costs.
- Engineered packages — Complete designs custom engineered to meet your specific requirements.
- Open impeller blades & clearance — Mitigates concerns relating to handling particulate substances. Ideal for urea production, resin services and PTA slurry applications.
HMP-3000

- Pump Case with Integral Diffuser
- Deflection Pad Radial Bearing
- Impeller
- Lube Oil Pump
- Stage 1
- Stage 2
- Spur Gears
- Integral Gearbox
- Impeller Inducer
- High Speed Shaft Assembly
- Low Speed Shaft Assembly
- Instrumentation Leads
Optional Features

- API seal plans for specific requirements
- Thermocouples or RTDs
- Vibration monitoring
- Parallel arrangement (not shown)
- Proximity probes
- API 614 lube oil console on a common or separate skid
The Sundyne HMP product line consists of three core configurations that are engineered to meet your specific process requirements, allowing for optimal efficiency and rugged reliability even in the most challenging conditions.

Applications

Industrial
- High-Pressure Spray
- Mine Dewatering
- Transfer
- Hydraulic Pressure
- Waste Water Disposal
- Delsing
- High Pressure Cleaning
- Pressure Testing
- Boiler Feed

Oil Production
- Pipeline
- LPG Injection
- Water Injection
- Chemical Injection
- Liquid CO₂ Injection
- Steam Injection
- Transfer Pumps
- Off Shore Installations

Petrochemical
- Resin charge
- LPG Pipeline
- Transfer Service
- PTA Slurry
- Reactor Charge

Urea Production
- Carbamate Recycle
- Ammonia Injection

By their nature, petrochemicals are uniquely challenging to handle. The HMP series is purpose-built to execute applications relating to these often caustic substances, offering robust build quality and unflagging performance.

The Sundyne HMP series is designed to withstand harsh operating conditions and aggressive materials that would trash lesser pumps; and when it comes to urea production, these machines are at the top of their class.
HMP-5000

Stage 1

- Single/Dual Throat Diffuser
- Integral Gearbox
- Deflection Pad Radial & Thrust Bearing
- Lube Oil Pump
- High Speed Shaft Assembly
- Impeller

Stage 2

- Impeller
- Helical Gears
- Instrumentation Leads
- Integral Gearbox
- Lube Oil Pump
- High Speed Shaft Assembly
- Impeller Inducer
- Low Speed Shaft Assembly
- Pump Case
## Performance

![Performance Graph](image)

## Specifications

<table>
<thead>
<tr>
<th></th>
<th>HMP-3000</th>
<th>HMP-5000</th>
<th>HMP-7000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heads To</strong></td>
<td>10,000 ft (3,050 m)</td>
<td>14,500 ft (4,500 m)</td>
<td>15,000 ft (4,570 m)</td>
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<tr>
<td><strong>Flows To</strong></td>
<td>60 - 440 gpm (8 - 320 m³/hr)</td>
<td>60 to 1,000 gmp (1 - 182 m³/hr)</td>
<td>0 to 1,585 gmp (0 - 360 m³/hr)</td>
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<tr>
<td><strong>Max Power</strong></td>
<td>800 hp (600 kW)</td>
<td>2,500 hp (1,865 kW)</td>
<td>0 - 2,000 hp (0 - 1,500 kW)</td>
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<tr>
<td><strong>Temp Range</strong></td>
<td>-200 to 500°F (-129 to 260°C)</td>
<td>-200 to 500°F (-129 to 260°C)</td>
<td>-40 to 550°F (-40 to 288°C)</td>
</tr>
<tr>
<td><strong>Number of Stages</strong></td>
<td>2</td>
<td>2</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td><strong>Max Case Working Pressure</strong></td>
<td>3,750 psi (264 kg/cm²)</td>
<td>6,000 psi (422 kg/cm²)</td>
<td>Consult Factory</td>
</tr>
<tr>
<td><strong>Max Suction Pressure</strong></td>
<td>425 psi (30 kg/cm²)</td>
<td>1,000 psi (70 kg/cm²)</td>
<td>Consult Factory</td>
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<tr>
<td><strong>Standard Delivery</strong></td>
<td>52 weeks</td>
<td>Consult Factory</td>
<td>Consult Factory</td>
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<tr>
<td><strong>Speed Range</strong></td>
<td>8,000 to 22,000 rpm - 60Hz</td>
<td>12,500 to 25,000 rpm - 60Hz</td>
<td>3,000 to 29,000 rpm - 60 Hz</td>
</tr>
<tr>
<td><strong>Materials of Construction</strong></td>
<td>316L SS, Duplex SS</td>
<td>316L SS, Duplex SS</td>
<td>Consult Factory</td>
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<tr>
<td><strong>Bearing Materials Available</strong></td>
<td>Steel, Bronze</td>
<td>Steel, Bronze</td>
<td>Steel, Bronze</td>
</tr>
<tr>
<td><strong>Hydrotest Pressure</strong></td>
<td>5,625 psig (395 kg/cm²)</td>
<td>9,000 psig (633 kg/cm²)</td>
<td>Consult Factory</td>
</tr>
<tr>
<td><strong>Max Viscosity</strong></td>
<td>10 cp</td>
<td>10 cp</td>
<td>API-610, ISO 13709</td>
</tr>
<tr>
<td><strong>Industry Standard</strong></td>
<td>API-610</td>
<td>API-610, ISO 13709</td>
<td>API-610, ISO 13709</td>
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<tr>
<td><strong>Solids Range</strong></td>
<td>0.015” (0.381mm), 400 microns</td>
<td>0.015” (0.381mm), 400 microns</td>
<td>NEC - 505, IEC, CENELEC, etc.</td>
</tr>
<tr>
<td><strong>Motor Details</strong></td>
<td>Custom</td>
<td>Custom</td>
<td>Custom</td>
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<tr>
<td><strong>Mounting Configurations</strong></td>
<td>Horizontal</td>
<td>Horizontal</td>
<td>Horizontal, Engineered Skid</td>
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<tr>
<td><strong>Dimensional Standards</strong></td>
<td>Custom</td>
<td>Custom</td>
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<tr>
<td><strong>Number of Available Hydraulics</strong></td>
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<td>Custom</td>
<td>Custom</td>
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<tr>
<td><strong>Seal Configurations Available</strong></td>
<td>Single, Double, Tandem</td>
<td>Single, Double, Tandem</td>
<td>Single, Double, Tandem</td>
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<tr>
<td><strong>Available Inducer</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td><strong>Available Flanges</strong></td>
<td>300#, 600#, 900#, 1,500#, ANSI</td>
<td>300#, 600#, 900#, 1,500#, 2,500#</td>
<td>ANSI RF or RTJ</td>
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<tr>
<td><strong>Pump Case Corrosion Allowance</strong></td>
<td>0.125” (3.175mm)</td>
<td>0.125” (3.175mm)</td>
<td>ANSI RF or RTJ</td>
</tr>
<tr>
<td><strong>Suction and Discharge Size</strong></td>
<td>4x3</td>
<td>4x4</td>
<td>4x4</td>
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