M SERIES
ASTM F998
Close-Coupled Centrifugal Pump
Conforming to the requirements of ASTM F998, including the Navy supplement, hydraulic performance extends to 5,000 GPM and 713 feet of head. This range is covered by 24 sizes in 316 SS and CD4MCuN duplex SS as the standard materials. Units can be mounted either horizontally or vertically.

Designed to meet naval requirements including MIL-S-901 Shock, MIL-STD-167-1 Type I Environmental Vibration, MIL-STD-740-1 Airborne Noise and MIL-STD-740-2 Structureborne Noise. All models are back pull-out designs with replaceable wear rings, enclosed impellers and balance holes with dual volute casings, as required. These features combine to produce shaft deflections of less than 0.002” at shutoff, and overall, offer some of the most efficient hydraulics to be found anywhere in a pump of this type.

Our end-suction pump for handling fresh water, seawater and light hydrocarbons in commercial marine and naval applications.

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CONNECTIONS
Most sizes rotatable in 90° increments for added flexibility in meeting shipboard piping configurations

CASING
Short impeller overhangs maintain shaft deflections under 0.002”. All drain, vent and gauge connections are straight thread, O-ring type for positive sealing

IMPELLER
Enclosed type with features to reduce axial thrust loads, for longer component life

COMPOSITE INTERNALS
Composite impellers, wear rings and shaft sleeves per NAVSEA drawing 803-7236047 reduce corrosion, increase pump life, and greatly decrease weight

BACK PULL-OUT
Allows inspection, maintenance and overhaul of all rotating elements, including the shaft, impeller and mechanical seal, without disturbing system piping

MECHANICAL SEAL
In accordance with ASTM F1511, with carbon-on-silicon carbide faces as standard, and auxiliary throttle bushing for added protection from catastrophic seal failure. Cyclone separators provided on all seawater applications

CLOSE-COUPLING DESIGN
Smaller and lighter envelope than traditional split-case or frame mounted designs, totally eliminating issues with pump bearing, shaft coupling, and pump/motor alignment
**WHY AN M SERIES?**

- Close-coupled to reduce size and weight.
- Enclosed impellers, balance holes and wear rings, for lower thrust loads.
- Dual volute casings for reduced radial loads.
- All casings renewable with wear rings, extending the life of the pump.
- Back pull-out design, for service without disturbing piping.

**STANDARD MATERIALS**

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casing</td>
<td>Composite, 316 SS or CD4MCuN</td>
</tr>
<tr>
<td>Impeller</td>
<td>Composite, 316 SS or CD4MCuN</td>
</tr>
<tr>
<td>Shaft</td>
<td>316 SS or Alloy 20</td>
</tr>
<tr>
<td>Shaft Sleeve</td>
<td>Composite, 316 SS or Alloy 20</td>
</tr>
<tr>
<td>Wear Ring</td>
<td>Composite, 17-4PH SS or CD4MCuN</td>
</tr>
</tbody>
</table>

Other materials available upon request.

**MECHANICAL DATA**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotation</td>
<td>Clockwise from Fan End of Motor</td>
</tr>
<tr>
<td>Input Power</td>
<td>Up to 300 HP</td>
</tr>
<tr>
<td>Connections</td>
<td>ANSI Flanges</td>
</tr>
<tr>
<td>Bearings</td>
<td>Grease Lubricated</td>
</tr>
</tbody>
</table>

**HYDRAULICS**

- Flows to 5,000 US GPM (1,100 m³/hr)
- Heads to 700 feet (213 m)
- Efficiencies to 88%
- Power to 300 HP (224 KW)
- Temperatures to 300° F (150° C)
- Speeds to 3,550 RPM

**APPLICATIONS**

- Marine
- Air Conditioning Chilled Water
- Ballast/Emergency Dewatering
- Central and Auxiliary Seawater
- Chilled Seawater
- Distilling Plant Systems
- Fire Fighting
- Gray Water Management
- Hot Water Circulation
- JP-5 Transfer Service
- Potable Water Supply
- Propulsion and Auxiliary Engine Cooling
- Radar Systems Cooling

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Since we built our first pumps, Carver Pump has become recognized as one of the leading centrifugal pump companies, building to the most demanding engineering specifications and military standards in the world.

We were one of the first American pump companies to attain ISO 9001 certification – the most recognized standard for quality in the world. This certification is your assurance that our commitment to quality includes not only our hardware, but also superior customer service, leading-edge R&D, and continuous improvement in everything we do.

So whether the job is refueling fighter jets on the deck of an aircraft carrier, supplying paint to an auto assembly line, or bringing water to the fountain in a city park, we put our reputation on the line everyday with every pump we build.