The CROSS Series 40 gear pumps/motors feature a gear tooth design that provides more displacement within a given package size. The gear tooth design and pressure balanced loading plates provide for a high volumetric and overall efficiency while operating at a low noise level. Available in 6 sizes, with displacements from 0.50 to 1.80 cubic inches per revolution, this compact unit can deliver up to 17.5 US. gpm. in a space less than 5” x 5-1/4” x 5-1/4”.

**MATERIAL SPECIFICATIONS**
- Body and end covers: Die cast aluminium alloy
- Gears: Sintered metal
- Shafts: Hardened steel
- Seals: Buna N
- Bearings: Pressure lubricated, Teflon impregnated sleeve

**GENERAL SPECIFICATIONS**
- **Displacement sizes**
<table>
<thead>
<tr>
<th>cu.in./Rev</th>
<th>cc/Rev</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50</td>
<td>8.2</td>
</tr>
<tr>
<td>0.75</td>
<td>12.3</td>
</tr>
<tr>
<td>1.00</td>
<td>16.4</td>
</tr>
<tr>
<td>1.25</td>
<td>20.5</td>
</tr>
<tr>
<td>1.50</td>
<td>24.6</td>
</tr>
<tr>
<td>1.80</td>
<td>29.5</td>
</tr>
</tbody>
</table>

**HYDRAULIC PUMPS**
- Rated working pressure (max. relief valve setting at full flow): 3000 psi (207 bar)
- Maximum shock & surge pressure: 3500 psi (242 bar)
- Maximum flow rate (delivery): 17.5 gpm (66 l/m)
- Maximum speed (continuous - see Inlet Vacuum Curves): 3600 RPM
- Maximum horsepower (at rated speed and pressure): 41 hp (30.5 kw)
- Mounting (any position): SAE ‘A’ size, 2-Bolt
- Weight: Approx. 7 lbs (3.2 kg)

**HYDRAULIC MOTORS**
- Rated working pressure (max. relief valve setting at full flow): 3000 psi (207 bar)
- Maximum shock & surge pressure: 3500 psi (242 bar)
- Maximum flow rate (input): 20.45 gpm (77.4 l/m)
- Maximum speed (continuous): up to 4000 RPM
- Maximum horsepower (at rated speed and pressure): 49 hp (36.5 kw)
- Mounting (any position): SAE ‘A’ size, 2-Bolt
- Weight: Approx. 7 lbs (3.2 kg)
STANDARD FEATURES
- Rotation: Bi-directional (Dual Rotation)
- Ports: Side, SAE #12 (1-1/16” - 12) U.N. O’Ring thread
- Internal check valves (no external drain required if back pressure is below shaft seal rating)
- Shaft: 5/8” Dia Woodruff keyed (short)
- Shaft Seal: 250 psi. (17 bar)

OPTIONAL FEATURES AVAILABLE
- Ports: Rear inlet and outlet location
- Shaft: 5/8” Dia SAE splined (9 tooth); 3/4” Dia Woodruff keyed (long)

NOTE: Shafts ‘D’ and ‘J’ are available for quantity indent order only.

DIMENSIONAL DATA in inches and (millimeters)

<table>
<thead>
<tr>
<th>Displacement cu.in./Rev. (cc/Rev.)</th>
<th>Dim. ‘A’ inches (mm)</th>
<th>Dim. ‘B’ inches (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.50 (8.2)</td>
<td>4.25 (108)</td>
<td>3.23 (82)</td>
</tr>
<tr>
<td>.75 (12.3)</td>
<td>4.44 (113)</td>
<td>3.42 (87)</td>
</tr>
<tr>
<td>1.00 (16.4)</td>
<td>4.62 (117)</td>
<td>3.60 (91)</td>
</tr>
<tr>
<td>1.25 (20.5)</td>
<td>4.81 (122)</td>
<td>3.79 (96)</td>
</tr>
<tr>
<td>1.50 (24.6)</td>
<td>4.99 (127)</td>
<td>3.97 (101)</td>
</tr>
<tr>
<td>1.80 (29.5)</td>
<td>5.22 (133)</td>
<td>4.20 (107)</td>
</tr>
</tbody>
</table>

OUTPUT SHAFT
- Shaft A
- Shaft C*
- Shaft D
- Shaft J
- Shaft K

Shaft ‘A’: 9 Tooth, 16/32 pitch, 30° pressure angle, flat root side fit, Class I.

Shaft ‘C’ and ‘D’: Woodruff key - 3/4” dia x 5/32.

Shaft ‘J’ and ‘K’: Woodruff key - 3/4” dia x 5/32.
GEAR PUMP - DELIVERY CHARACTERISTICS

TYPICAL PERFORMANCE DATA

MODEL 40P005

MODEL 40P012

MODEL 40P007

MODEL 40P015

MODEL 40P010

MODEL 40P018
TYPICAL PERFORMANCE DATA

DO NOT operate above the RPM-inlet vacuum curve or 8 in. Hg. for specific inlet port sizes shown.
TYPICAL PERFORMANCE DATA

STARTING ENGINE TORQUE (in. lbs.) vs. PRESSURE (PSI)

VOLUMETRIC EFFICIENCY (%) vs. RPM (TYPICAL)
**HOW TO ORDER**

<table>
<thead>
<tr>
<th>Series</th>
<th>Type</th>
<th>Special Options</th>
<th>Size cu.in./rev x 0.1</th>
<th>Rotation</th>
<th>Mounting</th>
<th>Shaft Size &amp; Type</th>
<th>Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>P</td>
<td>O None</td>
<td>05 07 10 12 15 18</td>
<td>D* Dual</td>
<td>A* SAE ‘A’ 2-Bolt</td>
<td>A 5/8” Spline</td>
<td>SA 1-5/16” UN O’Ring</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>H* 250 psi</td>
<td></td>
<td>R Right</td>
<td>C* 5/8” Dia Keyed</td>
<td>J 3/4” Dia Keyed</td>
<td>SC* 1-1/16” UN O’Ring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shaft Seal</td>
<td></td>
<td>L Left</td>
<td>D 5/8” Dia Keyed (Long)</td>
<td>K 3/4” Dia Keyed (Long)</td>
<td>RB 1-5/16” UN O’Ring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RD 1-1/16” UN O’Ring</td>
</tr>
</tbody>
</table>

* Standard

**EXAMPLE: 40PH10DACSC**
Describes a Series 40 Gear Pump/Motor fitted with a high pressure shaft seal; a displacement of 1.0 cu.in./rev; Bi-directional rotation; SAE ‘A’ 2-Bolt Mount, 5/8” Dia keyed shaft and 1-1/16” UN O’Ring side Inlet & Outlet Ports.

**NOTE:** Series 40 Pumps only are stocked. Because of the high pressure shaft seal and the dual rotation feature they can be substituted where required for use as motors. When used as a motor a case drain connection is only required when the outlet/return pressure is likely to exceed 250 psi.