GC Series Hydraulic Pumps
## G.C. Series Hydraulic Pumps

Concentric G.C. Series Hydraulic Pumps are compact, external gear models for use in pumping fluids with lubricating qualities. Suitable for use in a wide variety of material handling, agricultural, and construction equipment in addition to machine tools, robotics, and other types of machinery.

Designed to provide reliable, long-life service under rugged conditions, G.C. Series pumps are built with cast iron bodies and hardened steel gears. Among their other standard, extra-value features are:

- Speeds to 4000 RPM
- Pressures to 4000 PSI
- Superior volumetric efficiency
- Needle bearing construction
- High mechanical efficiency
- Temperature ratings to 250°F (120°C)*
- Wide variety of options

* Higher temperatures, consult factory.

See the chart on this page for basic sizes. Dimensional and option information is listed on pages 3-5 and performance curves are shown on pages 6 & 7. See page 8 for complete ordering information.

### Order Code

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Displacement Revolution (cu. in. cc.)</th>
<th>Flow At 1800 RPM</th>
<th>Flow At 3600 RPM</th>
<th>Pressure Rating Continuous Intermittent</th>
</tr>
</thead>
<tbody>
<tr>
<td>04</td>
<td>0.065 1.07</td>
<td>0.50 1.93</td>
<td>1.00 3.86</td>
<td>3000 207 4000 275</td>
</tr>
<tr>
<td>06</td>
<td>0.097 1.59</td>
<td>0.75 2.86</td>
<td>1.50 5.72</td>
<td>3000 207 4000 275</td>
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<td>08</td>
<td>0.129 2.11</td>
<td>1.00 3.80</td>
<td>2.00 7.60</td>
<td>3000 207 4000 275</td>
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<td>▲10</td>
<td>0.161 2.64</td>
<td>1.25 4.75</td>
<td>2.50 9.50</td>
<td>3000 207 4000 275</td>
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<tr>
<td>12</td>
<td>0.194 3.18</td>
<td>1.50 5.72</td>
<td>3.00 11.44</td>
<td>3000 207 4000 275</td>
</tr>
<tr>
<td>▲14</td>
<td>0.226 3.70</td>
<td>1.75 6.66</td>
<td>3.50 13.32</td>
<td>2600 179 4000 275</td>
</tr>
<tr>
<td>16</td>
<td>0.258 4.23</td>
<td>2.00 7.61</td>
<td>4.00 15.22</td>
<td>2300 159 4000 275</td>
</tr>
<tr>
<td>▲18</td>
<td>0.291 4.77</td>
<td>2.25 8.59</td>
<td>4.50 17.18</td>
<td>2100 145 3500 241</td>
</tr>
<tr>
<td>20</td>
<td>0.323 5.29</td>
<td>2.50 9.52</td>
<td>5.00 19.04</td>
<td>1900 131 3000 207</td>
</tr>
<tr>
<td>24</td>
<td>0.388 6.36</td>
<td>3.00 11.45</td>
<td>6.00 22.90</td>
<td>1600 110 2500 172</td>
</tr>
<tr>
<td>28</td>
<td>0.453 7.42</td>
<td>3.50 13.36</td>
<td>7.00 26.72</td>
<td>1300 90 2250 155</td>
</tr>
<tr>
<td>32</td>
<td>0.517 8.47</td>
<td>4.00 15.25</td>
<td>8.00 30.50</td>
<td>1200 83 2000 138</td>
</tr>
<tr>
<td>†36</td>
<td>0.581 9.52</td>
<td>4.50 17.17</td>
<td>9.00 34.34</td>
<td>2250 155 2475 171</td>
</tr>
<tr>
<td>†40</td>
<td>0.647 10.59</td>
<td>5.00 19.07</td>
<td>10.0 38.15</td>
<td>2000 138 2200 152</td>
</tr>
<tr>
<td>†44</td>
<td>0.711 11.65</td>
<td>5.50 20.98</td>
<td>11.0 41.97</td>
<td>1800 124 2000 138</td>
</tr>
</tbody>
</table>

Flow listed in U.S. gallons. 200 SSU oil.

▲ Available, but not standard (100-piece minimum order).

† For speed above 2400 RPM, 1-in. dia. inlet tube must be used.
OPTIONS

DIMENSIONAL INFORMATION
Pumps use one of two basic castings: One size for gear faces 04 through 16 and a slightly larger size for gear faces 20 to 32. See the drawings for details.

FLANGE OPTIONS
Standard options include three basic flanges:
4-Bolt with 1.78-inch Pilot, 2-Bolt SAE “AA” with 2-inch or 1.78-inch Pilot, and 2-Bolt SAE “A” with 3.25-inch Pilot. Consult factory for other flange requirements.

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Mounting Flange Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4-Bolt w/1.78” Pilot</td>
</tr>
<tr>
<td>2</td>
<td>2-Bolt SAE “AA” w/2.0” Pilot</td>
</tr>
<tr>
<td>▲ 3</td>
<td>2-Bolt SAE “AA” w/1.78” Pilot</td>
</tr>
<tr>
<td>4</td>
<td>2-Bolt SAE “A” w/3.25” Pilot</td>
</tr>
</tbody>
</table>

▲ 100-piece minimum order

SHAFT OPTIONS
Five shaft options are standard: 0.171-inch Tang, 1/2-inch diameter x 1 1/2-inch Extension, Flexible Coupling, Threaded End, and SAE Spline. Consult factory for other shaft options.

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Mounting Flange Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.171” Tang</td>
</tr>
<tr>
<td>2</td>
<td>0.50” Diameter x 1.50” Extension, 1/8” Square Key</td>
</tr>
<tr>
<td>▲ 3</td>
<td>Flexible Coupling</td>
</tr>
<tr>
<td>▲ 4</td>
<td>Threaded End (Specify Thread)</td>
</tr>
<tr>
<td>* 5</td>
<td>SAE Spline (Specify)</td>
</tr>
</tbody>
</table>

▲ 100-piece minimum order

* 9T, 20/40 DP standard with flange option 1, 2 & 3;
9T, 16/32 DP standard with flange option 4. Selected sizes available from stock. Consult factory.
OPTIONS

VALVE OPTIONS
A variety of integral valves and valve combinations are available as standard. Options include: Relief, Check, and Check/Relief combination. A Check, Relief & Solenoid Release valve combination provides the lift-hold-lower function for power up and gravity down applications. Another unique option, for lift-hold-lower applications, incorporates an adjustable needle valve in the pump for controlling the lowering speed of the load.

**Valve Options**

Standard porting is SAE Straight Thread O’Ring Ports. Depending on gear size, porting size varies as shown in the chart below. NPTF and Inlet Tube Ports are not standard, but can be supplied. The second chart shows the Order Code for port type and location.

**Pressure compensated flow control spools are available with options F and G.**

* Available ONLY for gear sizes 04 through 36

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**Minimum full bypass relief valve settings:**
200 psi for gear sizes 04-16 at 1725 rpm, 300 psi for gear sizes 18-44 at 1725 rpm. At speeds above 1725 rpm, the minimum relief valve settings increase. Contact factory for specific information.

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SEAL & BEARING OPTIONS

Five basic seal & bearing configurations are available as shown here. Oil seals are either Buna-N or Viton. Outboard ball bearings are available for “radial load” (bolt or gear drives and thrust loads). High-pressure seals are rated up to 25 PSI at 3000 RPM. Viton seals are rated at 350°F (176°C). Consult factory for other types of sealing materials and mechanical seals. Higher pressure seals available, consult factory.

**Seals & Bearings Options**

1 Single Lip Buna-N Low Pressure Seal
2 Viton Seal
3 Viton High-Pressure Seal w/Outboard Ball Bearing
4 Double Seal w/Overboard Drain
5 Buna-N Seal w/Overboard Ball Bearing

* 100-piece minimum order.
* Not available with shaft option 3.

**Outboard ball bearing settings:**
Maximum overhang load: 150 lbs.
Maximum inward thrust: 75 lbs.
Maximum outward thrust: 50 lbs.

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PORT LOCATION OPTIONS

Standard porting is SAE Straight Thread O’Ring Ports. Depending on gear size, porting size varies as shown in the chart below. NPTF and Inlet Tube Ports are not standard, but can be supplied. The second chart shows the Order Code for port type and location.

**Port Location Options**

* NOTE: Based on CCW rotation.

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**Order Code Valve Options**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Valve Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>No Valves</td>
</tr>
<tr>
<td>B</td>
<td>Relief Valve</td>
</tr>
<tr>
<td>C</td>
<td>Direction Checks (Not Shown)</td>
</tr>
<tr>
<td>D</td>
<td>Check Valve</td>
</tr>
<tr>
<td>E</td>
<td>Check &amp; Relief Valves (Not Shown)</td>
</tr>
<tr>
<td>F</td>
<td>Check, Relief &amp; Normally Closed Solenoid</td>
</tr>
<tr>
<td>G</td>
<td>Check, Relief &amp; Normally Open Solenoid</td>
</tr>
<tr>
<td>H</td>
<td>Check, Relief &amp; Solenoid Cavity Plugged</td>
</tr>
</tbody>
</table>

**Order Code Seals & Bearings Options**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Seals &amp; Bearings Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Single Lip Buna-N Low Pressure Seal</td>
</tr>
<tr>
<td>2</td>
<td>Viton Seal</td>
</tr>
<tr>
<td>3</td>
<td>Viton High-Pressure Seal w/Outboard Ball Bearing</td>
</tr>
<tr>
<td>4</td>
<td>Double Seal w/Overboard Drain</td>
</tr>
<tr>
<td>5</td>
<td>Buna-N Seal w/Outboard Ball Bearing</td>
</tr>
</tbody>
</table>

* 100-piece minimum order.
* Not available with shaft option 3.

**Outboard ball bearing settings:**
Maximum overhang load: 150 lbs.
Maximum inward thrust: 75 lbs.
Maximum outward thrust: 50 lbs.

---

**Order Code Port Location Options**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Port Location Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SAE Side Ports</td>
</tr>
<tr>
<td>B</td>
<td>SAE Rear Ports</td>
</tr>
<tr>
<td>C</td>
<td>NPTF Side Ports</td>
</tr>
<tr>
<td>D</td>
<td>NPTF Rear Ports</td>
</tr>
<tr>
<td>E</td>
<td>Inlet Tube, 1.0” w/SAE Side Outlet Port</td>
</tr>
</tbody>
</table>

**Note:** If ordering NPTF Ports, specify sizes (1/4, 3/8 or 1/2 in.) 100-piece minimum order. * For gear order codes 3, 40 and 44, 1 in. diameter Inlet Tube must be used for speeds above 2400 RPM.
* PERFORMANCE CURVES

* Based on 200 SSU oil.
* PERFORMANCE CURVES (cont.)

Order Code 12 (0.194 cu. in./rev.)

Order Code 16 (0.258 cu. in./rev.)

Order Code 20 (0.323 cu. in./rev.)

Order Code 36 (0.582 cu. in./rev.)

Order Code 40 (0.647 cu. in./rev.)

Order Code 44 (0.711 cu. in./rev.)

* Based on 200 SSU oil.
How To Order G.C. Series Pumps

ORDERING INFORMATION
Each option has been assigned an order code – listed in the tables below – for placement in the sequence shown to the right.

2
Order Code  Mounting Flange Options
1  4-Bolt w/1.78” Pilot
2  2-Bolt SAE “AA” w/2.0” Pilot
▲ 3  2-Bolt SAE “AA” w/1.78” Pilot
4  2-Bolt SAE “A” w/3.25” Pilot
▲ 100-piece minimum order

3
Order Code  Shaft Options
1  0.171” Tang w/ Short Coupling (.3” long) (For DC Motors)
2  0.50” Diameter x 1.50” Extension, 1/8” Square Key
▲ 3  Flexible Coupling
▲ 4  Threaded End (Specify Thread)
5  SAE Spline (9 tooth, 20/40DP standard with flange options 1, 2 and 3; 9 tooth, 16/32 DP standard for flange option 4.)
6  0.171” Tang w/Long Coupling (.8” long) (For AC Motors)
▲ 100-piece minimum order

4 & 5
Order Code  Gear Size Width, Inches Cu. In./Rev. (cc)
04  0.125  0.065 (1.07)
06  0.188  0.097 (1.59)
08  0.250  0.129 (2.11)
▲ 10  0.312  0.161 (2.64)
12  0.375  0.194 (3.18)
▲ 14  0.437  0.226 (3.70)
16  0.500  0.258 (4.23)
▲ 18  0.562  0.291 (4.77)
20  0.625  0.323 (5.29)
24  0.750  0.388 (6.36)
28  0.875  0.453 (7.42)
32  1.000  0.517 (8.47)
36  1.125  0.581 (9.52)
40  1.250  0.647 (10.60)
44  1.375  0.711 (11.85)
▲ 100-piece minimum order
NOTE: Duplex and triple pumps available in minimum 100-piece order.

6
Order Code  Valve Options
A  No Valves
B  Relief Valve
† C  Direction Checks (Not Shown)
D  Check Valve
* E  Check & Relief Valves (Not Shown)
* F  Check, Relief & Normally Closed Solenoid
* G  Check, Relief & Normally Open Solenoid
* H  Check, Relief & Solenoid Cavity Plugged
† Available only with option “3” of section 9
* Available ONLY for gear sizes 04 through 36

7
Order Code  Seals & Bearings Options
1  Single Lip Buna-N Low Pressure Seal
2  Viton Seal
▲ 3  Viton High-Pressure Seal w/Outboard Ball Bearing
▲ 4  Double Seal w/Overboard Drain
▲ 5  Buna-N Seal w/Outboard Ball Bearing
▲ 100-piece minimum order.
* Not available with shaft option 3.

8
Order Code  Port Location Options
A  SAE Side Ports
▲ B  SAE Rear Ports
▲ C  NPTF Side Ports
▲ D  NPTF Rear Ports
▲ E  Inlet Tube, 1.0” w/SAE Side Outlet Port
▲ 100-piece minimum order.
NOTE: If ordering NPTF Ports, specify size:  1/4, 3/8 or 1/2 in.
* For gear order codes 36, 40 & 44, 1-in. Diameter Inlet Tube must be used for speeds above 2400 RPM.

9
Order Code  Rotation Options
1  Clockwise
2  Counterclockwise
▲ 3  Birotational
* Must specify option “C” in section 6

10 & 11
Order Code  Relief Valve Setting
02-40  Full bypass pressure in hundreds of PSI.  (Example:  00 = No Relief; 09 = 900 PSI (Full Bypass Pressure); 40 = 4000 PSI (Full Bypass Pressure.)
NOTE: The maximum relief valve full bypass setting for each gear size as listed on page 2, “intermittent rating” pressure chart.
Minimum full bypass relief valve settings: 200 psi for gear sizes 04-16 at 1725 rpm, 300 psi for gear sizes 18-44 at 1725 rpm. At speeds above 1725 rpm, the minimum relief valve settings increase. Contact factory for specific information.

12
Order Code  Solenoid Valve Location
R  Rear Mounted Solenoid Valve
5  Side Mounted Solenoid Valve
N  No Solenoid Valve

13 & 14
Order Code  Solenoid Valve Voltage
12  12 Volts DC
24  24 Volts DC
15  115 Volts AC
*PG  Solenoid Valve Cavity Plugged
00  No Solenoid Valve Cavity
* Must specify option “H” in section 6
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PRODUCT RANGE

HE Powerpacks
12/24/48 VDC 0.3 – 4.5 kW and 0.75 – 3 kW AC modular power packs

HE Box Powerpacks
12/24/48 VDC modular power packs in weatherproof boxes

Pressure Switches
5 - 350 bar, connecting/disconnecting

W100 Hydraulic pumps
0.5 - 2.0 cc 227 bar

W300 Hydraulic pumps
0.8 - 5.7 cc 230 bar

W600 Hydraulic pumps / motors
3 – 12 cc 276 bar

W900 Hydraulic pumps / motors
5 – 31 cc/section 276 bar

Calma The new quiet pumps
6.2 – 23.7 cc/section 250 bar

WQ900 The quiet pumps
5 - 23 cc/section 230 bar

WP900X Hydraulic pumps
16 - 31 cc/section 276 bar

W1500 Hydraulic pumps / motors
19 - 50 cc/section 276 bar

F12 FERRA Heavy duty pumps
16 - 41 cc/section 276 bar

F15 FERRA Heavy duty pumps
19 - 50 cc/section 276 bar

F20/F30 (LS) Hydraulic pumps / motors
23 – 161 cc/section 276 bar

GPA Internal Gear pumps
1.7 – 63 cc/section 100 bar

GC Hydraulic pumps / motors
1.06 – 11.65 cc/section 276 bar

D Hydraulic pumps
3.8 – 22.9 cc/section 207 bar

H Hydraulic pumps
9.8 – 39.4 cc/section 207 bar

Il-Stage Hydraulic pumps
4.2 – 22.8 cc/section 276 bar

Rotary Flow Dividers
3.8 – 13.3 cc/section 300 bar

Transmission pumps