The 30 Series is a two-stage, flow control, double-nozzle, mechanical feedback servo valve with a stainless steel body and integrated torque motor in an environmentally sealed compartment. The valve's nozzle-flapper design is a reliable and proven technology for applications that require high response, stability and accuracy within a compact package.

The 30 Series Servo Valve is designed to perform reliably over a long service life even in potentially extreme environments, where temperatures might drop to -40 °F (-40 °C) or be as high as 400 °F (204.4 °C). The stainless steel body and a self-contained envelop provide a rugged construction, that allows the valve to be used in environments with potentially high acceleration, or where they are exposed to high shock and vibration. This product is part of our micro-hydraulic offering which delivers high power to weight ratio and high efficiency. It achieves this all while delivering high dynamics and precise flow control for better overall system control.

ADVANTAGES
• High response improves control capability
• Compact light weight package for mobile applications
• Can be used in extreme temperature environments
• Stainless steel body suitable for use in aggressive operational settings
• Magnetically adjusted null flow independent of other system parameters allows for adjustment in the field

APPLICATIONS
• Remotely operated vehicle
• Automated guided vehicle
• Manipulators
• Downhole tools
• Entertainment
• Mobile robotics including construction

Compact, light-weight package with a high power to weight ratio. Micro-hydraulics are ideal for applications requiring high power density.
Typical responses for peak sinusoidal inputs of ±25 % and ±100 % rated current

Supply 210 bar (3,000 psi)

Oil temperature 38°C (100°F)

Response limits at +/- 25 % input and 210 bar (3,000 psi) supply per table:

<table>
<thead>
<tr>
<th>Frequency of 90 degree phase</th>
<th>200 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step response time for 0 to 100 % stroke</td>
<td>2.5 ms</td>
</tr>
<tr>
<td>Amplitude ratio</td>
<td>&lt; 2 dB</td>
</tr>
<tr>
<td>First order time constant</td>
<td>1.5 ms</td>
</tr>
<tr>
<td>2nd order natural frequency</td>
<td>200 Hz</td>
</tr>
<tr>
<td>Damping ratio</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Dynamic Technical Specifications:

- Weight: 185 g (6.5 oz)
- Maximum operating pressure: 310 bar (4,500 psi)
- Rated flow: 0.47 to 6.9 l/min (0.125 to 1.85 gpm) @ ∆p 70 bar (1,000 psi)
- Mounting pattern: 0.48 in. port circle (ISO 10372-02-02-0-92)
- Static performance:
  - Rated flow tolerance: ±10 %
  - Linearity: < ±7 %
  - Null region: < ±3 %
  - Null bias: < ±3 % initial; < ±5 % long term
  - Hysteresis: < ±3 %
  - Threshold: < ±1 %
- Operating temperature:
  - Standard model with FKM seals (option 8, V): -20 °F to +300 °F (-29 °C to +149 °C)
  - Standard model with BUNA seals (option 8, N): -40 °F to +275 °F (-40 °C to +135 °C)
  - High temperature model with FKM seals and high temperature components (contact Moog for ordering information): -20 °F to +400 °F (-29 °C to +204 °C)
- Internal leakage @ 3,000 psi: < ±3 % rated flow plus < 0.50 cts tare
- Proof pressure: 415 bar (6,000 psi) max (supply), 275 bar (4,000 psi) (return)
- Burst pressure: 690 bar (10,000 psi) max (supply), 345 bar (5,000 psi) (return)
- Shock resistance: Will withstand 100 g peak any axis
- Vibration resistance: Will withstand 25 grms (5 to 2,000 Hz) 30 minutes per axis
COIL RESISTANCE

The effects of coil resistance changes can be essentially eliminated through the use of a current feedback servoamplifier having a high output resistance, such as the Moog G123-825 buffer amplifier.

<table>
<thead>
<tr>
<th>Parallel coils</th>
<th>Series coils</th>
<th>Single coils</th>
</tr>
</thead>
<tbody>
<tr>
<td>R [Ω]</td>
<td>L [H]</td>
<td>I₀ [mA]</td>
</tr>
<tr>
<td>40</td>
<td>0.18</td>
<td>40</td>
</tr>
<tr>
<td>100</td>
<td>0.59</td>
<td>20</td>
</tr>
<tr>
<td>500</td>
<td>2.6</td>
<td>10</td>
</tr>
</tbody>
</table>

Note:
1. Resistance values at 20°C (68°F) 10 % tolerance
2. Inductance values are typical to 50 Hz, servo valve pressurized.
   Inductance is not normally measured on individual servo valves.

MAGNETIC NULL ADJUST

The null flow of a servo valve can be adjusted independently of other system parameters. The magnetic null adjustment permits a minimum of 15 % adjustment of the null flow. The null adjuster is located at the top of the motor cap which, when rotated, biases the first stage torque motor magnetically. This does not permit the vented motor cap option.
ORDERING INFORMATION

ORDERING CODE

Model number (assigned at the factory)
-030

Model designation
Assigned at the factory

Factory identification (revision level)

Valve version
S Standard response

Rated flow in l/min (gpm)

For \( \Delta p_v = 35 \text{ bar (500 psi)} \) per spool land

\begin{align*}
*01 & \quad 0.95 & \quad (0.25) \\
02 & \quad 1.9 & \quad (0.5) \\
03 & \quad 2.8 & \quad (0.75) \\
*04 & \quad 3.8 & \quad (1.0) \\
06 & \quad 5.7 & \quad (1.5) \\
*07 & \quad 6.9 & \quad (1.8)
\end{align*}

Maximum operating pressure in bar (psi)

\begin{align*}
*H & \quad 275 & \quad (4,000) \\
J & \quad 310 & \quad (4,500)
\end{align*}

Bushing/spool design

C 4-way/\pm 3\% overlap/linear
D 4-way/\pm 10\% overlap/linear
N 4-way/\pm 3\% underlap/linear

Pilot stage design

F Low flow, nozzle-flapper

Motor cap options

*V Standard motor cap
V Vented motor cap
N Magnetic null adjust

Signals for 100 \% spool stroke

G \( \pm 10 \text{ mA single coil} \)
J \( \pm 20 \text{ mA single coil} \)
L \( \pm 40 \text{ mA single coil} \)

Valve connector

A 4-pin MS threaded connector over port A (C1)
B 4-pin MS threaded connector over port B (C2)
1 4-lead (18") pigtail over port B (C2)
2 4-lead (18") pigtail over port A (C1)
3 4-lead (18") pigtail over pressure
4 4-lead (18") pigtail over return

Pilot connections

4 Internal

Spool position without electrical signal

M Mid position

Spare Parts Servo Valve 30 Series

<table>
<thead>
<tr>
<th>Part name</th>
<th>Material</th>
<th>Remark</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>O-rings for ports P, R, C1 and C2</td>
<td>FKM</td>
<td>Quantity 4 required</td>
<td>-42082-078</td>
</tr>
<tr>
<td></td>
<td>NBR</td>
<td></td>
<td>-45122-078</td>
</tr>
</tbody>
</table>

Moog Global Support

Moog Global Support is our promise to help you maximize uptime and get more from your machine investment. Moog has the expertise you can trust to perform the highest quality repairs to ensure like new performance for your servovalves. Only Moog technicians use authentic Moog OEM replacement parts to ensure “like-new” performance after every repair. Moog products are repaired to the original specifications and returned to you with a renewed warranty. Moog standard repair levels are available for this product and Moog offers options for express service in many of our locations.

Moog provides a wide variety of accessories that our customers may need for hydraulic valves. The Moog G123-825 buffer amplifier is a DIN rail mount module that solves the common problem of the input signal being incompatible with the valve drive requirements.

For more info visit www.moog.com or contact your local office.