SPECIFICATIONS

**Fluid Supply:** 631-500A Series servovalves are intended to operate with constant supply pressure.

**Supply Pressure:**
- Minimum: 200 psi (14 bar)
- Maximum standard: 3,000 psi (210 bar)
- Maximum (special order): 5,000 psi (315 bar)

**Proof Pressure:**
- 150% of supply pressure at P, A & B port
- 2,000 psi pressure at R port

**Fluid:**
- Compatible with common hydraulic fluids. Recommended viscosity range: 60-450 SUS @ 100°F (10-97 cSt @ 38°C)

**Cleanliness Level:**
- ISO DIS 4406 code 16/13 max.
- 14/11 recommended

**Operating Temperature:**
- 0°F to +200°F (-18°C to +93°C)
  (maximum fluid viscosity: 6,000 SUS)

**Rated Flow Tolerance:** ±10%
**Symmetry:** < 10%
**Hysteresis:** < 5%
**Threshold:** < 1%
**Null Shift:**
- Temperature 100°F variation: < 5%
- Supply Pressure 1,000 psi change: < 5%
- Back Pressure 0 to 500 psi: < 5%

**Frequency Response:**
Typical response characteristics are shown in Figures 1 and 2.

**Step Response:**
Typical transient responses are shown in Figures 3 and 4. The straight line portion of the response represents saturation flow from the pilot stage which will increase with higher supply pressures.

**631-500A Series Servovalves**

The 631-500A Series is a medium performance servovalve that covers the range of 15 to 40 gpm flow, rated at 1,000 psi valve drop. This servovalve comes with a D05 port pattern for 4 ports and an electrical pilot supply port. The 631-500A Series comes in two configurations - BSA and body/spool. The BSA version is critically lapped to offer less deadband, while the body/spool configuration offers higher levels of flow.

The 631-500A Series features the same long-life, rugged design found in more expensive servovalves. Specific features include our long-life torque motor design, a field replaceable filter, and an auxiliary pilot pressure port.

**FREQUENCY RESPONSE**

**STEP RESPONSE**

<table>
<thead>
<tr>
<th>Model</th>
<th>Response</th>
<th>Rated Flow (1,000 psi)</th>
<th>Internal Leakage (1,000 psi)</th>
<th>Rated Current (parallel coils)</th>
<th>Coil Nom. Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>631-500A</td>
<td>BSA</td>
<td>30</td>
<td>120</td>
<td>&lt; 1.99</td>
<td>100</td>
</tr>
<tr>
<td>631-501A</td>
<td>BSA</td>
<td>25</td>
<td>100</td>
<td>&lt; 1.99</td>
<td>100</td>
</tr>
<tr>
<td>631-555A</td>
<td>Body/Spool</td>
<td>40</td>
<td>160</td>
<td>&lt; 1.27</td>
<td>100</td>
</tr>
</tbody>
</table>

Optional designs are available with special flow null cuts. Available seal materials: BUNA (Std.), VITON or EPR.
631-500A SERIES SERVO VALVES

STANDARD ELECTRICAL CONFIGURATION

External connections and electrical polarity for flow out control port 'B' are:
- Single coil: A+, B-; or C+, D-
- Series coils: tie B to C, A+ to D-
- Parallel coils: tie A to C and B to D;
- A & C+, B & D-

ACCESSORIES

- Flushing Block: P/N A72018-1K1
- Mating Electrical Connector: P/N 49054F14S2 (MS3106F14S-2S)
- Suggested Mounting Bolts: 1/4 - 20 NC x 2.00 long Socket Head Cap Screw or M 6 x 50 Socket Head Cap Screw
- Subplate: 5-port P/N B52576AM1
- Filter: P/N A67999-100

NOTES

- Valve Weight: 4.8 lb (2.2kg)
- F, T, A, & B Port O-Ring Size: (5) 0.070 [1.8] section x 0.489 [12.4] I.D.
- X Port O-Ring Size: (2) 0.070 [1.8] section x 0.614 [15.6] I.D.
- Null Adjust: Flow out of port 'A' will increase with clockwise rotation of null adjust screw (1/8 hex key). Normal adjustment should require less than ± one turn.
- Surface Finish: Surface to which valve is mounted requires smooth, flat within 0.002 [0.05] TIR.

TYPICAL SUBPLATE MANIFOLD

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