

631-500A Series Servovalves

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:

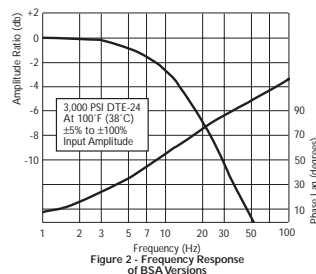
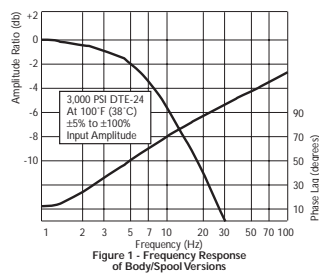
Typical transient responses are shown in Figures 3 and 4. The straight line portion of the response represents saturation flow from the pilot stage which will increase with higher supply pressures.

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.

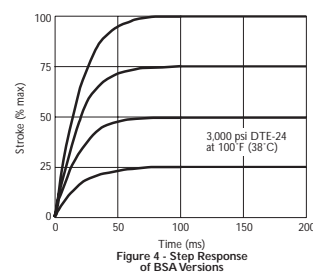
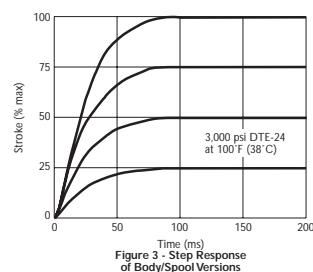
The 631-500A Series features the same long-life, rugged design found in more expensive servovalves. Specific features include our long-life torque motor design, a field replaceable filter, and an auxiliary pilot pressure port.



FREQUENCY RESPONSE



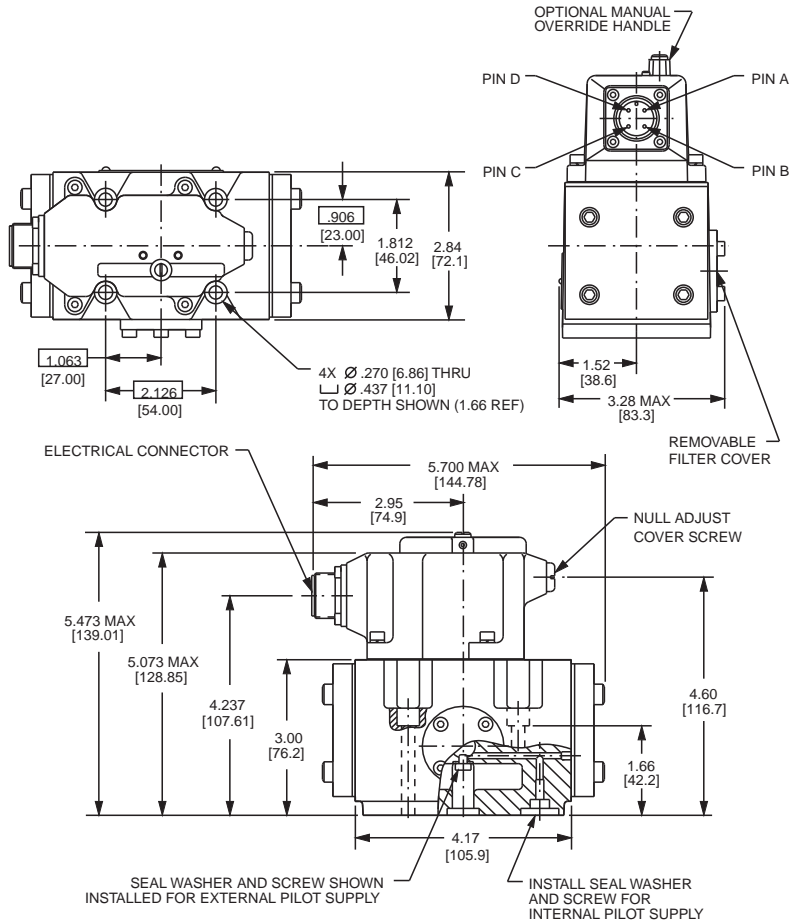
STEP RESPONSE



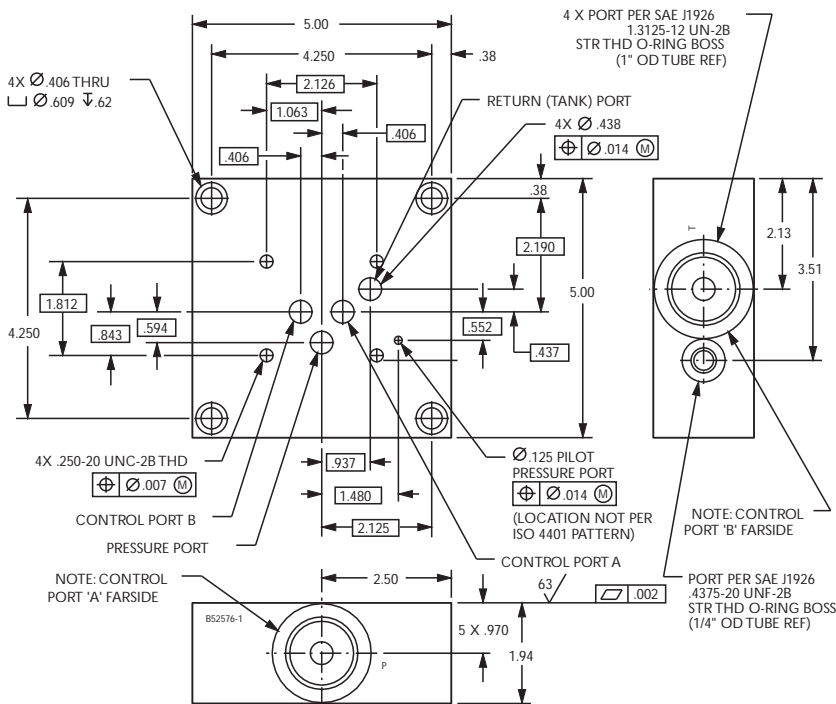
Model	Response	Rated Flow (1,000 psi)		Internal Leakage (1,000 psi)		Rated Current (parallel coils)	Coil Nom. Resistance
		gpm	lpm	gpm	lpm	mA	ohms
631-500A	BSA	30	120	< 1.09	< 4.21	100	28
631-501A	BSA	25	100	< 1.09	< 4.21	100	28
631-550A	Body/Spool	40	160	< 1.27	< 4.91	100	28

Optional designs are available with special flow null cuts. Available seal materials: BUNA (Std.), VITON or EPR.

631-500A SERIES SERVOVALVES



TYPICAL SUBPLATE MANIFOLD



STANDARD ELECTRICAL CONFIGURATION

Torque motor coils



Connector A B C D pins

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+, 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 49054F14S2S (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)

P,T,A, & B Port O-Ring Size:

(5) 0.070 [1.8] section x .489 [12.4] I.D.

(universal size -014)

X Port O-Ring Size:

(2) 0.070 [1.8] section x 0.614 [15.6] I.D.

(universal size -016)

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 $\sqrt{0.002}$ finish, flat within 0.002 [0.05] TIR.

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