

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

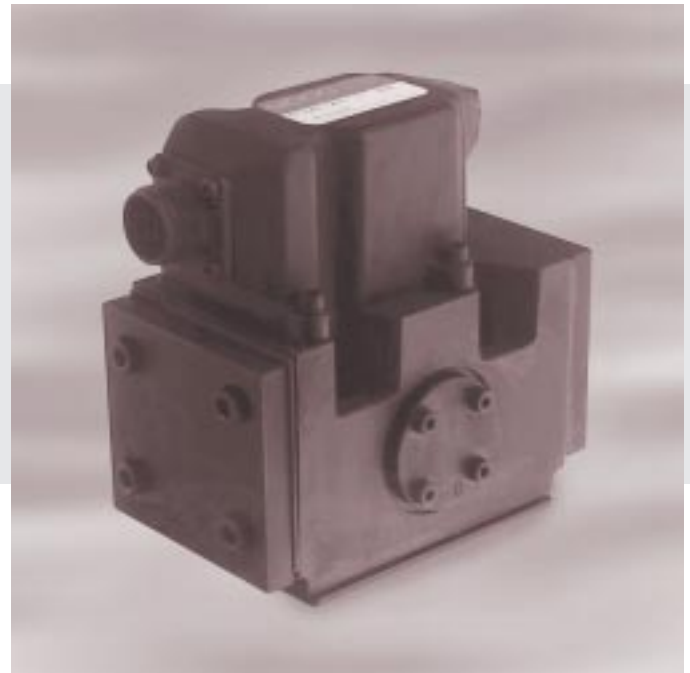
saturation flow from the pilot stage

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

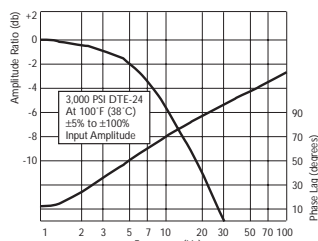


Figure 1 - Frequency Response of Body/Spool Versions

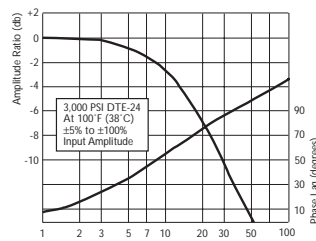


Figure 2 - Frequency Response of BSA Versions

STEP RESPONSE

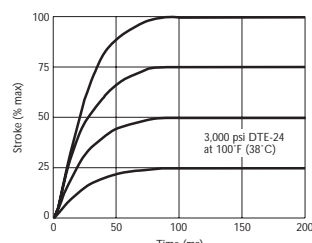


Figure 3 - Step Response of Body/Spool Versions

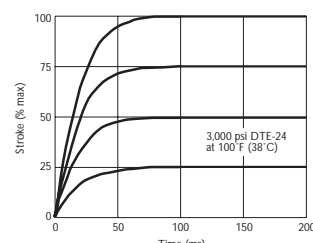
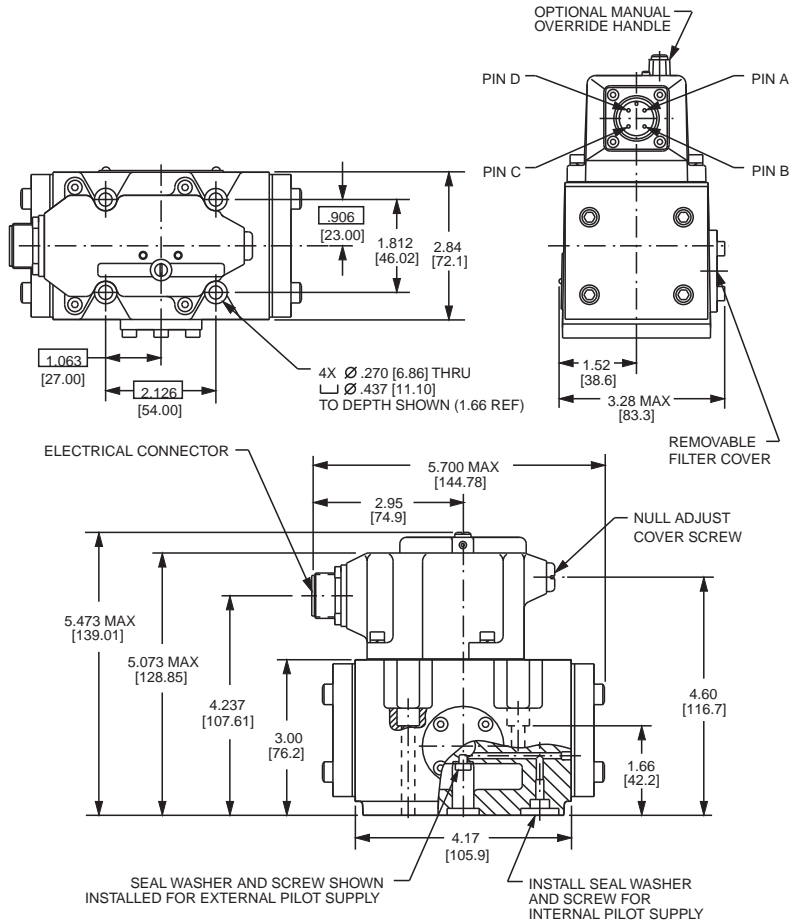


Figure 4 - Step Response of BSA Versions

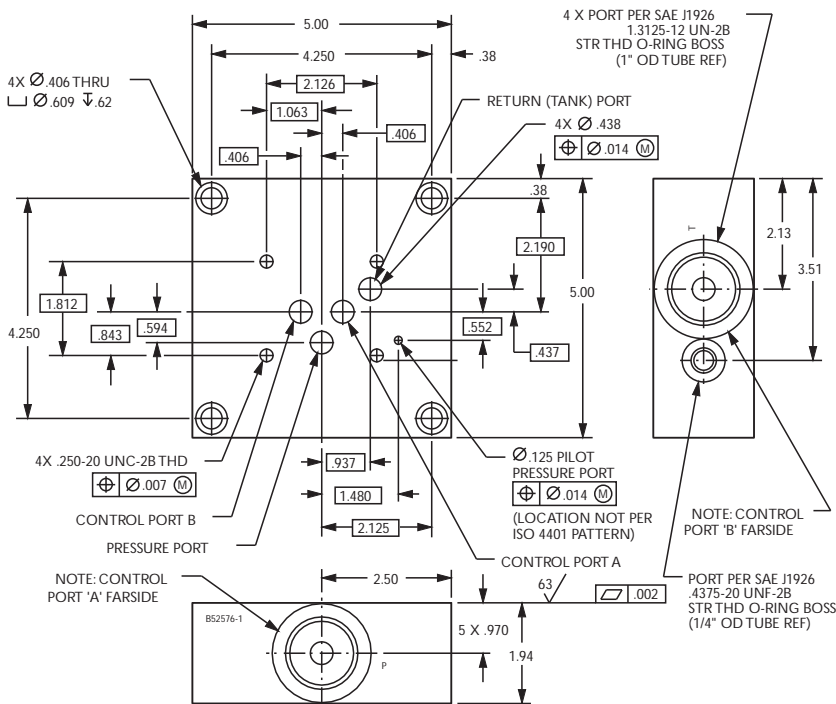
Model	Response	Rated Flow (1,000 psi)		Internal Leakage (1,000 psi)		Rated Current (parallel coils)	Coil Nom. Resistance
		gpm	lpm	gpm	lpm	mA	ohms
631-500A	BSA	30	120	< 1.09	< 4.21	100	28
631-501A	BSA	25	100	< 1.09	< 4.21	100	28
631-550A	Body/Spool	40	160	< 1.27	< 4.91	100	28

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

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