

► Model 425 – 10 to 25 GPM flow

Reliable Control in Power Generation Applications



Jet-Pipe two-stage, four-way electrohydraulic servovalves (EHSVs) are commonly used to control position, velocity, and force in a variety of hydraulic, fuel systems, and engine control applications for steam turbine and nuclear power generation.

Parker's model 425 Jet-Pipe EHSV has been operating in power generation plants for over 30 years. The same aerospace quality, reliability, and performance you'd expect from Parker can be found in our industrial EHSVs.

Parker also offers models 410, 415, and 450 with flow control capabilities up to 70 GPM. All of Parker's servovalves provide unparalleled performance due to their highly reliable Jet-Pipe first-stage and second-stage spool design. The result is an exceptionally stable, contamination-resistant, erosion-tolerant servovalve that's designed to last.

Whether you require an existing or new design, Parker can provide a solution to meet your specific needs

Advantages and Features

Reliability – The model 425 Jet-Pipe servovalve has a “single inlet” first stage, making it a fail-to-center design. There is no risk of unbalance from contamination because there is only a single source of fluid for the first stage. Our second-stage spool design is capable of generating more than 600 lbs. of chip shear force (with a nominal 3000 psi system).

Contamination resistance – Unique jet construction enables most designs to receive and pass particles as large as 200 microns without malfunction.

Low sensitivity to vibration and shock – First stage is balanced and supported along all three axes against the effects of lateral acceleration and vibration. Acceleration and vibration tests show almost no effect on load output from 0 to 3000 Hz.

Stability – The high-velocity first-stage jet flow impinges onto a rigid receiver, solidly mounted in the second stage, and does not impinge on the mechanical feedback element. The rigid connection of the mechanical feedback element to the second-stage spool eliminates a wear point and reduces high gain at null.

Null bias stability – Through symmetrical torque motor design and all welded/brazed construction, null shift resulting from vibration, temperature, and other environmental factors is minimized.

Low maintenance – No filter replacements are required. First-stage oil passes through a single 90-micron screen that is easily removable for inspection without disassembling the valve.

Servo-controlled second stage – The second-stage spool is precisely controlled by a high-gain, position-feedback servo-loop. Pressure balance and high force gain of the hydraulic first stage prevents displacement of the second-stage piston caused by any unexpected disturbance.

Wide dynamic range – Characteristics of phase and amplitude versus frequency are virtually the same for inputs ranging from a few percent points to 50% of full flow.

Dry torque motor – The hermetically sealed torque motor is completely isolated from the hydraulic fluid.

Reduced life cycle cost – The Jet-Pipe servovalve's rugged construction and unique design result in an overall lower life cycle cost as well as unsurpassed reliability when compared to other designs.



General Specifications

Rated flow: 10 to 25 GPM @ 1000 psid (38 to 95 l/m @ 69 bar).

Operating pressure: 300 to 3000 psi (21 to 207 bar).

Supply proof pressure: Up to 4500 psi maximum (310 bar).

Return proof pressure: Up to 3000 psi maximum (207 bar).

Hysteresis: Normally less than 3% of rated current (4% maximum).

Threshold: 0.25% of rated current maximum.

Input power: See coil data for variety of coil resistances.

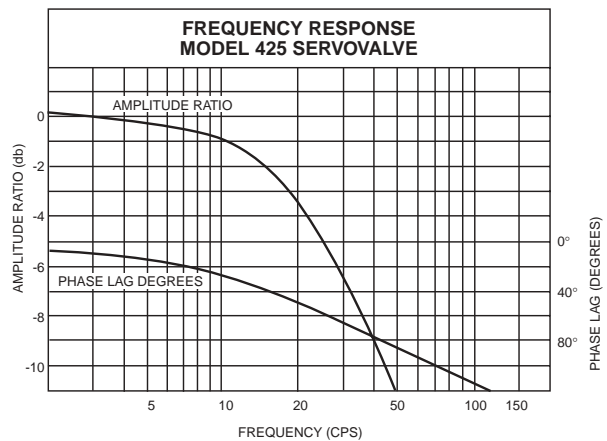
Null leakage: 1.0 GPM (3.7 l/m) maximum at 3000 psi (207 bar) supply, and 25 GPM valve rating. Lower leakage valves available to meet customer requirements.

Electrical connector: Bendix® Pygmy #PC02H-8-4P standard. Other connectors, permanent cable, and location optional.

Temperature range: -65° to 275°F (-53° to 135°C) standard. Higher temperature valves available to meet customer requirements.

Weight: 2.75 lbs. (1.25 kg).

Fluid: Mil-PRF-5605, 83282; Phosphate Ester; JP4, JP5; Mil-L-7808; Others upon request.



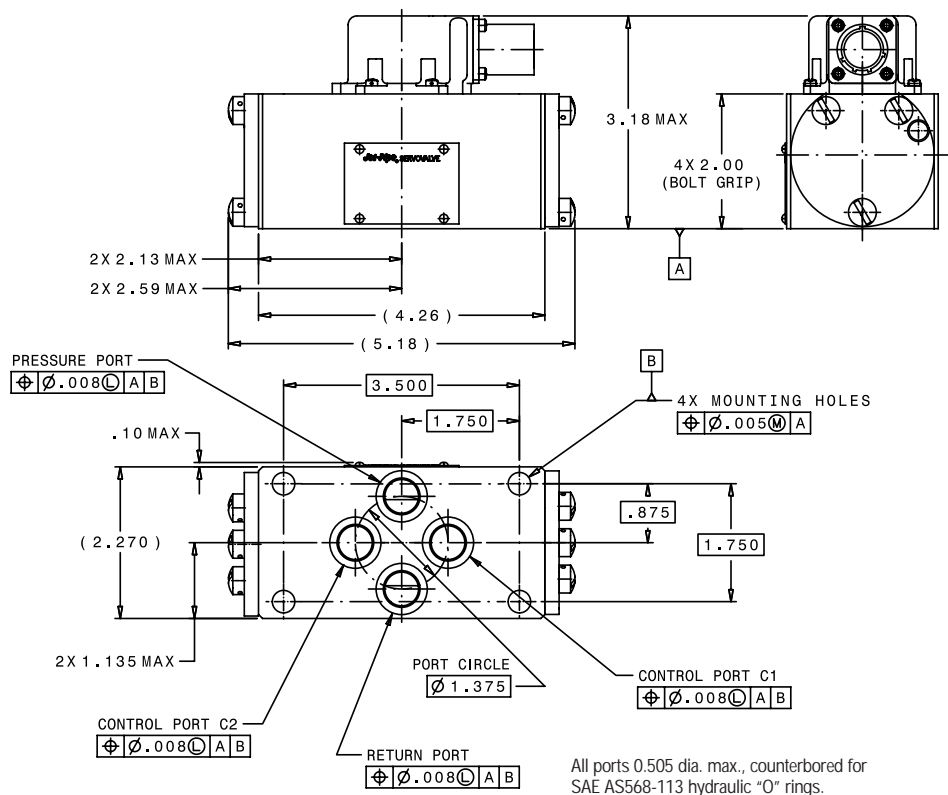
Valve rated at 25 GPM @ 1000 psi drop. Supply pressure 3000 psi.

Servovalve Coil Data

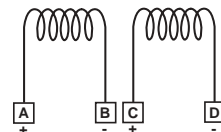
Resistance Ohms per Coil	Current for Full Flow, ma.
4000	4.0
2520	5.0
1590	6.3
*1000	8.0
630	10.1
400	12.7
250	16.0
*158	20.2
100	25.4
63	32.0
40	40.3
25	51.0
16	64.0
10	80.6

*Standard

A wide range of torque motor coils is available to match optimum current capabilities. The coils may be connected in series or parallel aiding when they are to be driven single-ended. With coils connected in series aiding, only half of the rated current is required for full valve flow. With coils connected in parallel aiding, total valve resistance is half of the individual coil resistance, and the valve rated current is the same.



Parker can provide design solutions to meet specific customer needs not included in this bulletin. Contact Parker for further information.



ELECTRICAL SCHEMATIC

With electrical polarity as shown, pressure port is connected to Port 1 and return port is connected to Port 2.



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