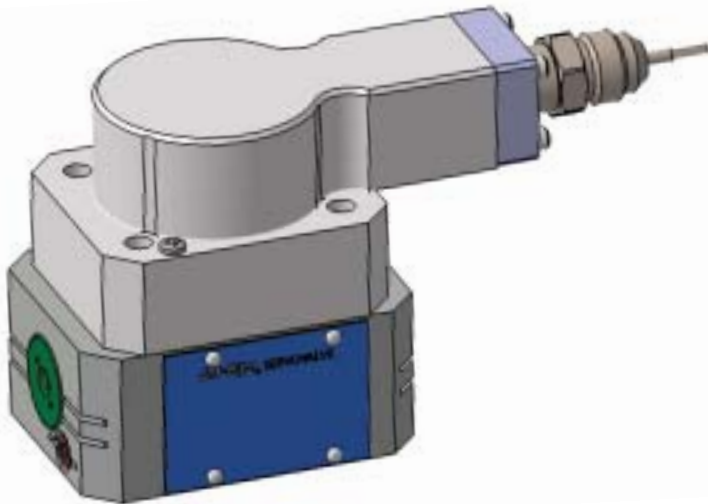


## ▶ Model 415 – Up to 10 GPM flow

### Reliable Control in Power Generation Applications



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

Parker's model 415 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. We offer valves for hazardous and non-hazardous locations. In addition, our non-incendive valves are FM certified for gas turbine, steam turbine, and nuclear power applications.

Parker also offers models 410, 425, 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 415 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 150 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.

**Certified for use in hazardous locations**  
Non-incendive protection: Class 1, Division 2,  
Groups A,B,C,D - T135



Controls Systems Division

Certification:  
NI / 1 / 2 / ABCD / T3C Ta=135°C



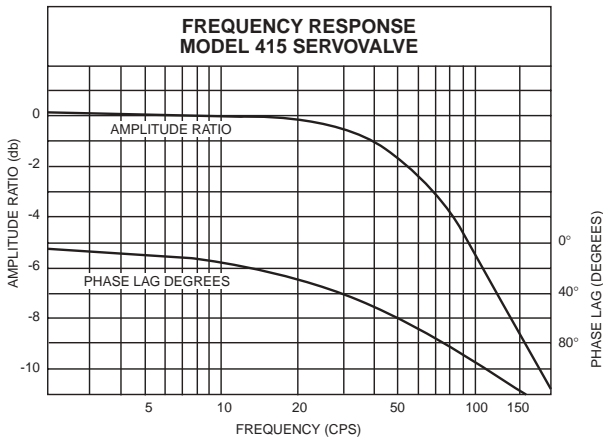
## General Specifications

- Rated flow:** Up to 10 GPM @ 1000 psid (38 l/m @ 69 bar).
- Operating pressure:** 300 to 5000 psi (21 to 345 bar).
- Supply proof pressure:** Up to 6500 psi maximum (448 bar).
- Return proof pressure:** Up to 4500 psi maximum (310 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:** 0.25 GPM (0.95 l/m) maximum at 3000 psi (207 bar) supply @ 10 GPM valve rating. Lower leakage valves available to meet customer requirements.
- Electrical connector:** Four-pin, two-coil connectors standard. Six-pin, three-coil connectors available to meet FM approval. 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:** 14 oz. (.4 kg)

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



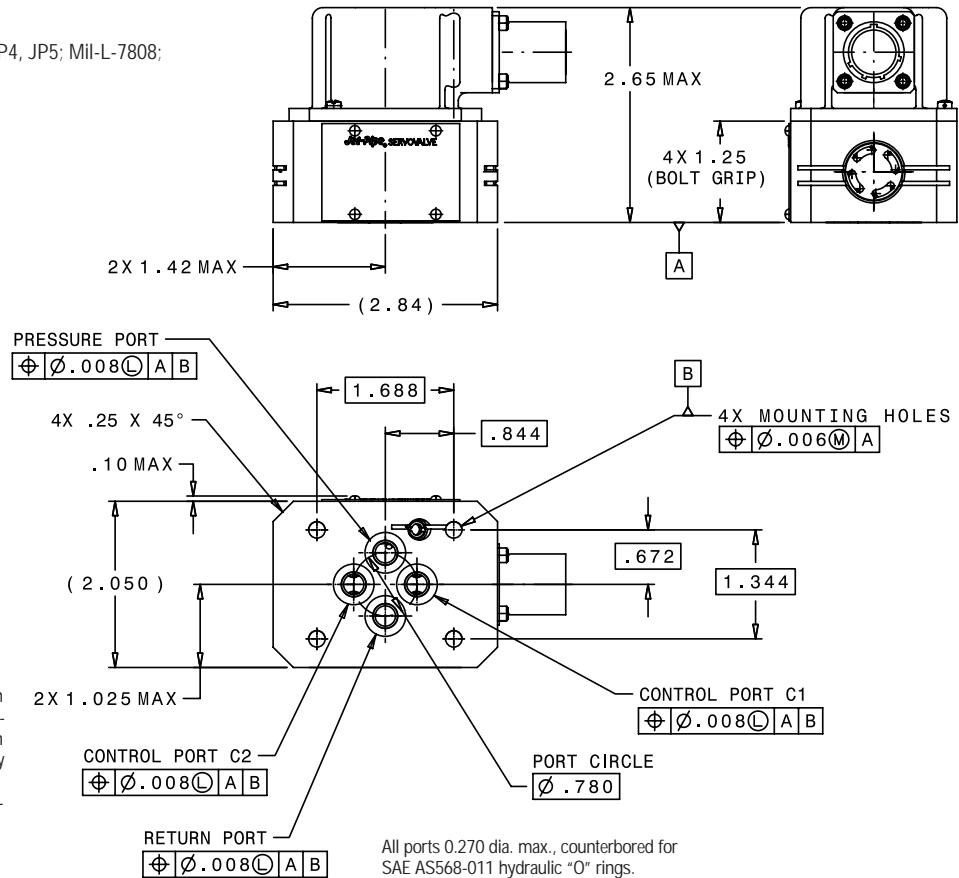
Valve rated at 10 GPM @ 1000 psi drop. Supply pressure 3000 psi.

## 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

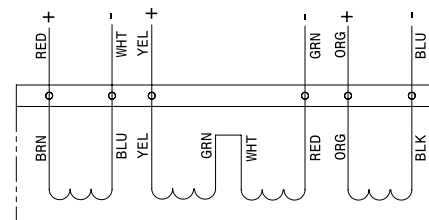
\*Standard two-coil design

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.



All ports 0.270 dia. max., counterbored for SAE AS568-011 hydraulic "O" rings.

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



ELECTRICAL SCHEMATIC



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