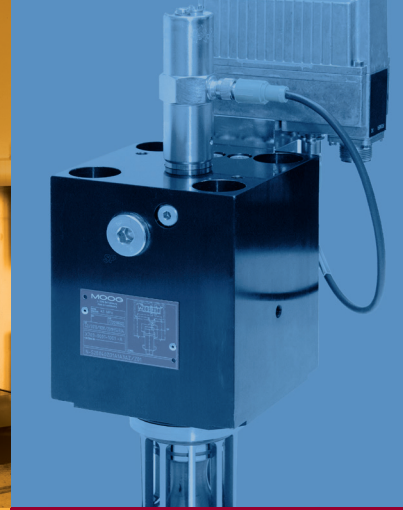


X700 SERIES 2-WAY SERVO CARTRIDGE VALVES

Sizes 63, 80, 100

Fast response time and very
high flow performance

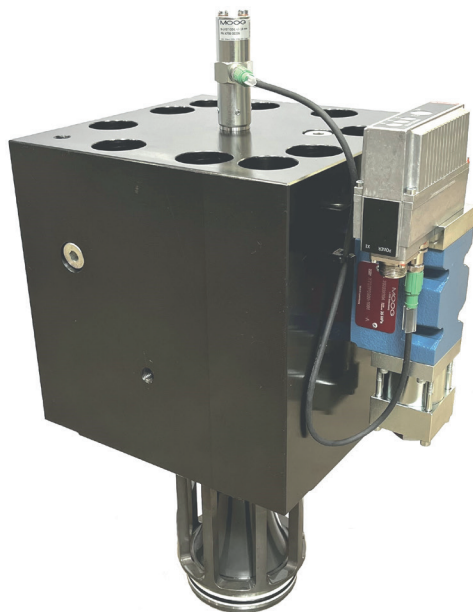


Moog's X700 Series Servo Cartridge Valves are throttle valves for use in 2-way applications. These valves are suitable for electrohydraulic flow control systems, including those with high dynamic response requirements.

The X700 product family is equipped with a dynamic Moog D637 Direct Drive Pilot Valve ensuring high energy efficiency and low internal leakage. The integrated electronics of the D637 provide closed-loop position control for the main stage cartridge poppet. For maximum flexibility customers can choose an analog and/or fieldbus interface.

The innovative new design of the main stage cartridge valve results in very high flow performance. Combined with its robustness, the Moog X700 Series provides reliable control for die casting machines, presses and heavy industrial equipment, as well as for other applications.

This product family is easily integrated and configurable to meet your exact application and performance needs. Fail-safe options are available for applications with safety requirements ensuring a defined main stage valve position to avoid uncontrolled machine movements.

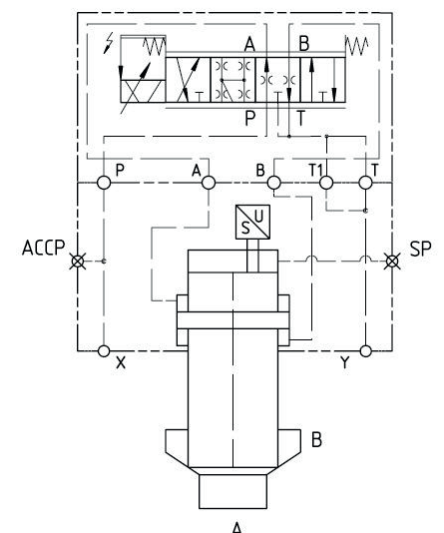


ADVANTAGES

- Downsizing of valve size due to flow-optimized design with highest nominal flows
- Robust design for a nominal pressure of 420 bar (6,000 psi)
- Fast response time for high machine dynamics
- Reduced internal leakage to increase energy efficiency
- No alignment of sleeve in manifold required for flexibility in manifold design and ease of installation
- Optional field bus interface (IoT ready)
- Two different flow characteristics available

APPLICATIONS

- Die casting
- Metal forming and presses
- General industrial machinery



TECHNICAL DATA

| | | X705 | X706 | X707 |
|---|--------------------------------|--|--|--|
| Valve design | | 2-Way Servo Cartridge Valve, seat design | | |
| Size according to ISO 7368 | | Size 63 | Size 80 | Size 100 |
| Mounting pattern | | ISO 7368-12-11-1-16 | ISO 7368-13-13-1-16 | ISO 7368-14-14-1-16 |
| Main stage: maximum operating pressure of port A, B | | 420 bar (6,000 psi) | | |
| Rated flow at Δp_N 5 bar (75 psi)¹⁾ | flow direction A-B | D1: 6,550 l/min (1,730 gpm) D2: 4,000 l/min (1,057 gpm) | D1: 9,400 l/min (2,483 gpm) D2: 6,200 l/min (1,638 gpm) | D1: 16,000 l/min (4,227 gpm) D2: 10,200 l/min (2,695 gpm) |
| | flow direction B-A | D1: 4,800 l/min (1,268 gpm) D2: 3,600 l/min (951 gpm) | D1: 7,300 l/min (1,928 gpm) D2: 5,600 l/min (1,479 gpm) | D1: 12,200 l/min (3,223 gpm) D2: 9,200 l/min (2,430 gpm) |
| Recommended maximum flow¹⁾ | | 9,000 l/min (2,377 gpm) | 16,800 l/min (4,438 gpm) | 25,500 l/min (6,736 gpm) |
| Step response time according to ISO 10770-1 at $p_x=210$ bar (3,050 psi)²⁾ | | 20 ms | 29 ms | 37 ms |
| Pilot valve | minimum pilot pressure | 50 % of main stage pressure | | |
| | maximum pressure X port | 350 bar (5,000 psi) | | |
| Pilot leakage flow at $p_x=100$ bar (1,450 psi) | | < 1.4 l/min (< 0.37 gpm) | | |
| Peak pilot flow for 100 % step | | 128 l/min (33.8 gpm) | 175 l/min (46.2 gpm) | |

¹⁾ Expected flow values depending on flow direction, flow characteristics (D1 or D2) and recommended cavity diameters of port A and B.

²⁾ Step response time for 0 to 90 % at 0 to 100 % step.

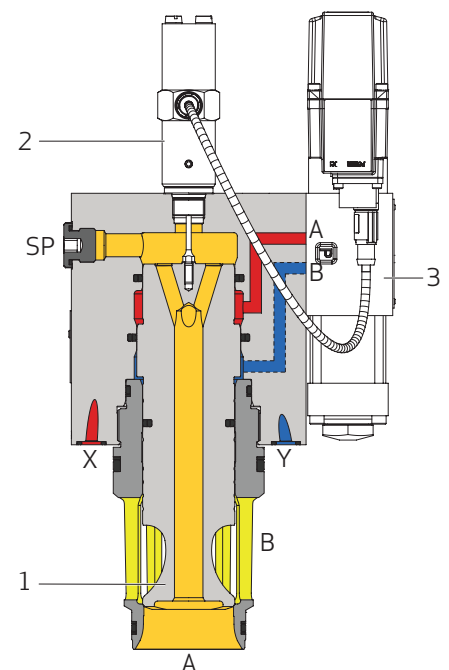
ELECTRICAL FEEDBACK VALVES

Moog's X700 Series 2/2-Way Servo Cartridge Valves are electrical feedback valves (EFBs), which means that the position control loop for the main stage cartridge poppet (1) and the pilot valve (3), is closed through a position transducer (2) by the integrated valve electronics.

An electric command signal (poppet position set point) is applied to the valve electronics. A position transducer (LVDT) measures the actual position of the poppet. The electronics compare the poppet position and the command signal, and control the pulse width modulated (PWM) current to the linear force motor of the pilot valve. The pilot valve moves the main stage cartridge poppet to the desired position, and the position of the main stage cartridge poppet is therefore proportional to the electric command signal.

The valves allow the use of analog or digital fieldbus interfaces like EtherCAT, CANopen, or combined analog and digital interfaces.

The flow direction of the main stage is either from port A to B or from port B to A. The valve has an offset of 2 %. Below a setpoint of 2 %, the poppet is pressed into the seat of the sleeve. The metallic seat closes the connection between port A and B leakage-free.



Moog has offices around the world. For more information or the office nearest you, contact us online.

info@moog.com

www.moog.com/industrial

Moog is a registered trademark of Moog Inc. and its subsidiaries. All trademarks as indicated herein are the property of Moog Inc. and its subsidiaries. ©2022 Moog Inc. All rights reserved. All changes are reserved.

This technical data is based on current available information and is subject to change at any time. Specifications for specific systems or applications may vary.

2-way Servo Cartridge Valve X705 -707
KEM/Rev. -, August 2023, CDL66498-en

MOOG