

SERVO VALVES

PILOT OPERATED FLOW CONTROL VALVE WITH ANALOG INTERFACE

G761/761 SERIES, SIZE 04



HIGH PERFORMANCE, TWO-STAGE DESIGN
PROVIDING FLOW CONTROL IN A SIMPLE,
RUGGED, DEPENDABLE, LONGLIFE DESIGN

Whenever the highest levels of motion control performance and design flexibility are required, you'll find Moog expertise at work. Through collaboration, creativity and world-class technological solutions, we help you overcome your toughest engineering obstacles. Enhance your machine's performance. And help take your thinking further than you ever thought possible.

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This catalog is for users with technical knowledge. To ensure all necessary characteristics for function and safety of the system, the user has to check the suitability of the products described herein. The products described herein are subject to change without notice. In case of doubt, please contact Moog.

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For the most current information, visit www.moog.com/industrial or contact your local Moog office.

PRODUCT OVERVIEW

The G761/761 Series Flow Control Servo Valves are throttle valves for 3 and preferably 4-way applications. They are a high performance, 2-stage design that covers the range of rated flows from 4 to 63 l/min (1 to 16.5 gpm) at 35 bar (500 psi) valve pressure drop per spool land.

The design is simple and rugged for dependable, long life operation. The output stage is a closed center, 4-way sliding spool. The pilot stage is comprised of a symmetrical, double nozzle dry torque motor. The 2nd stage spool position is controlled by a carbide tipped feedback wire. The carbide ball on the end of the feedback wire is a mandatory design requirement that ensures high accuracy, reliable operation and long service life. All of our Servo Valves are known for high accuracy and reliable operation even in the harshest industrial applications.

These valves are suitable for electrohydraulic position, speed, pressure or force control systems with high dynamic response requirements.

| | | | | | |
|---|--|-----------------------|---------------------|----------------------|------------------------|
| Valve design | 2-stage, with spool and bushing and dry torque motor | | | | |
| Mounting pattern | ISO 10372-04-04-0-92 | | | | |
| Maximum operating pressure - ports P, A, B and X | 315 bar (4,500 psi) | | | | |
| Maximum operating pressure - port T | 210 bar (3,000 psi) | | | | |
| Pilot valve | Nozzle Flapper | | | | |
| Rated flow at Δp_N 35 bar/spool land (500 psi/spool land) | 4 l/min (1 gpm) | 10 l/min (2.5 gpm) | 19 l/min (5 gpm) | 38 l/min (10 gpm) | 63 l/min (16.5 gpm) |
| Step response time for 0 to 100 % stroke | 5 ms | | | 7 ms | 16 ms |



Intrinsically safe valve versions are available for use in potentially hazardous environments. Specific models are certified to FM, ATEX, CSA, TIIS and IECEx standards. Contact Moog for details.

FEATURES AND BENEFITS

The G761/761 Series is proven technology that performs reliably in machines where high performance, stability and accuracy are required. Moog's Mechanical Feedback Valves are designed to provide high reliability and long service life.

| Features | Benefits |
|---|--|
| 100 % factory tested to ensure critical specification performance | Ensures smooth and easy startup, reduces downtime and insures long life in critical industrial applications |
| 2-stage design | Enables high machine performance, faster cycle times and greater accuracy - all resulting in higher productivity |
| Dual Coil torque motor | Redundancy for high reliability |
| Dual Precision Nozzles in Torque Motor | Precision flow control and predictability |
| Dry torque motor design | Eliminates potential contamination issues in the air gaps of the torque motor that could cause machine downtime |
| Hardened 440C Bushing and Spool | Provides for high life, wear resistance when used in the harsh environments; provides for low sliding friction during use |
| Emergency fail-safe positioning | Most valves are set up to return to a fail-safe position when the command signal is interrupted or eliminated |
| Field replaceable pilot stage filter | Enables preventive maintenance in the field, saving precious machine downtime and service costs |
| External null bias adjustment | Enables technicians to manually adjust the null bias of the valve to adapt to the conditions of the machine (see section on null flow adjustment - Page 11). This feature provides a simple adjustment to machine performance without the need to adjust a controller. |
| Standard field configurable 5th port for separate pilot supply | Provides for the precise control of low pressure applications |
| Carbide, ball-in-hole feedback mechanism | Extends lifetime of servo valve when compared to slotted spool and sapphire ball designs |

DESCRIPTION OF OPERATION

The G761/761 Series Flow Control Servo Valve consists of a polarized electrical torque motor and two stages of hydraulic power amplification. The motor armature extends into the air gaps of the magnetic flux circuit and is supported in this position by a flexure tube member. The flexure tube acts as a seal between the electromagnetic and hydraulic sections of the valve. The 2 motor coils surround the armature, one on each side of the flexure tube.

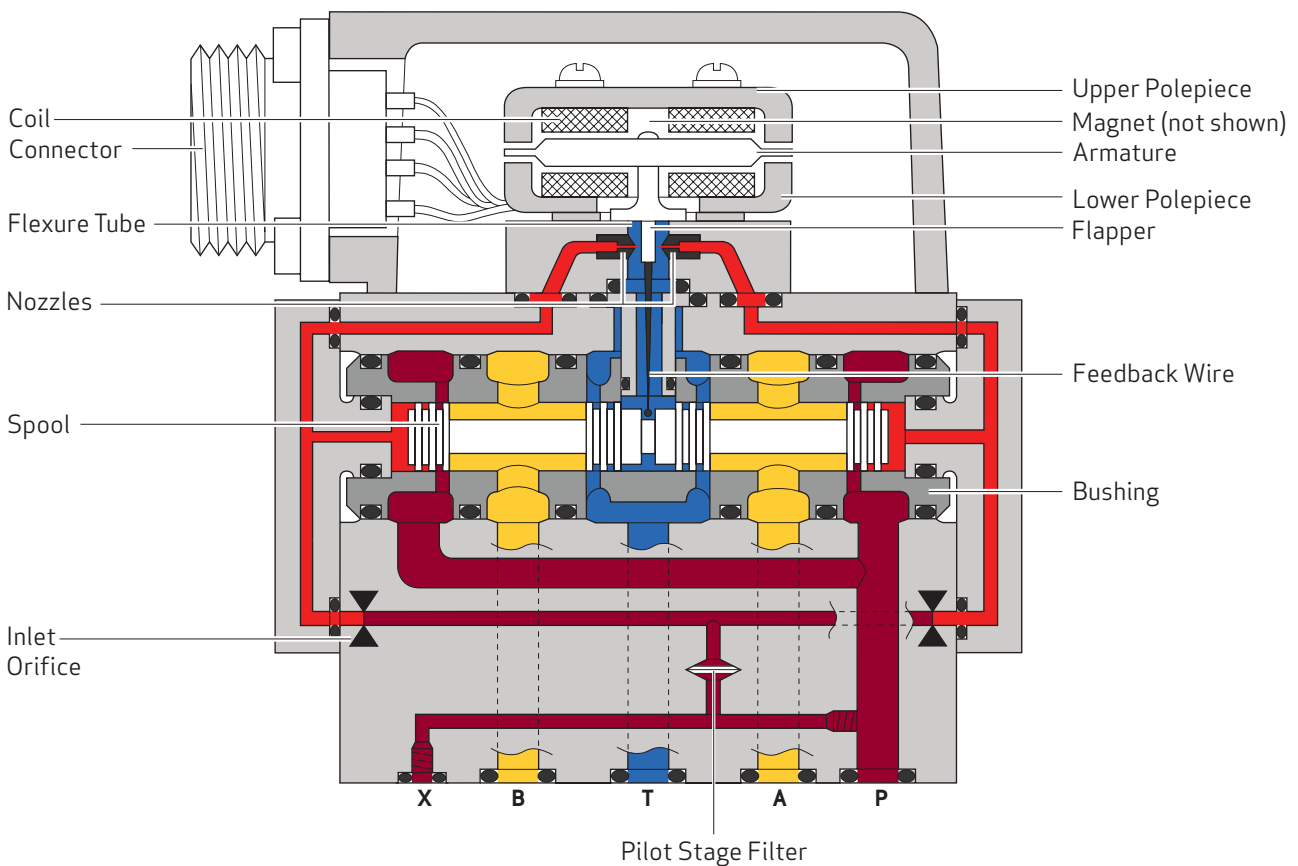
The flapper of the first stage hydraulic amplifier is rigidly attached to the midpoint of the armature. The flapper extends through the flexure tube and passes between 2 nozzles, creating two variable orifices between the nozzle tips and the flapper. The pressure controlled by the flapper and nozzle variable orifice is fed to the end areas of the second stage spool.

The second stage is a conventional four-way spool design in which output flow from the valve, at a fixed valve pressure drop, is proportional to spool displacement from the null position. A cantilever feedback spring is fixed to the flapper and engages a hole in the center of the spool. Displacement of the spool defects the feedback spring which creates a force on the armature/flapper assembly.

Input signal induces a magnetic charge in the armature and causes a deflection of the armature and flapper. This assembly pivots about the flexure tube and increases the size of one nozzle orifice and decreases the size of the other.

The differential pressure created by this action causes spool motion. The resulting spool displacement induces a linear force in the feedback wire which opposes the original input signal torque. Spool movement continues until the feedback wire force equals the input signal force.

Electro-hydraulic Servo Valve Cut-away



G761/761 SERIES SERVO VALVES

General Technical Data

| | |
|----------------------------------|--|
| Valve design | 2-stage, with spool and bushing and dry torque motor |
| Pilot valve | Nozzle Flapper |
| Mounting pattern | ISO 10372-04-04-0-92 |
| Installation position | Any orientation, fixed or movable |
| Weight | 1.08 kg (2.4 lb) |
| Storage temperature range | -40 to +60 °C (-40 to +140 °F) |
| Ambient temperature range | -29 to +135 °C (-20 to +275 °F) |
| Vibration resistance | 30 g, 3 axis, 10 Hz to 2 kHz |
| Shock resistance | 30 g, 3 axis |
| Seal material | FKM 85 Shore Others upon request |

Hydraulic Data¹⁾

| | | | | | |
|--|--|-------------------------|-------------------------|----------------------|------------------------|
| Maximum operating pressure | | | | | |
| Port P, A, B, X | 315 bar (4,500 psi) | | | | |
| Port T | 210 bar (3,000 psi) | | | | |
| Rated flow at Δp_N 35 bar/spool land (500 psi/spool land) | 4 l/min (1 gpm) | 10 l/min (2.5 gpm) | 19 l/min (5 gpm) | 38 l/min (10 gpm) | 63 l/min (16.5 gpm) |
| Maximum flow Q_{max} | 100 l/min (26.4 gpm) | | | | |
| Maximum main stage leakage flow rate (\approx zero lap)¹⁾ | 1.2 l/min (0.31 gpm) | 1.5 l/min (0.38 gpm) | 2.3 l/min (0.60 gpm) | | |
| Null adjust authority | Greater than 10 % of rated flow | | | | |
| Hydraulic fluid | Hydraulic oil as per DIN 51524 parts 1 to 3 and ISO 11158. Other fluids upon request. | | | | |
| Temperature range | -29 to +135 °C (-20 to +275 °F) | | | | |
| Viscosity range | | | | | |
| Recommended viscosity range at 38 °C (100 °F) | 10 to 97 mm ² /s (cSt) | | | | |
| Maximum permissible viscosity range at 38 °C (100 °F) | 5 to 1.250 mm ² /s (cSt) | | | | |
| Recommended cleanliness class as per ISO 4406 | | | | | |
| For functional safety | 17/14/11 | | | | |
| For longer service life | 15/13/10 | | | | |
| Recommended filter rating | | | | | |
| For functional safety | $\beta_{10} \leq 75$ (10 μ m absolute) | | | | |
| For longer service life | $\beta_5 \leq 75$ (5 μ m absolute) | | | | |

Typical Static and Dynamic Data¹⁾

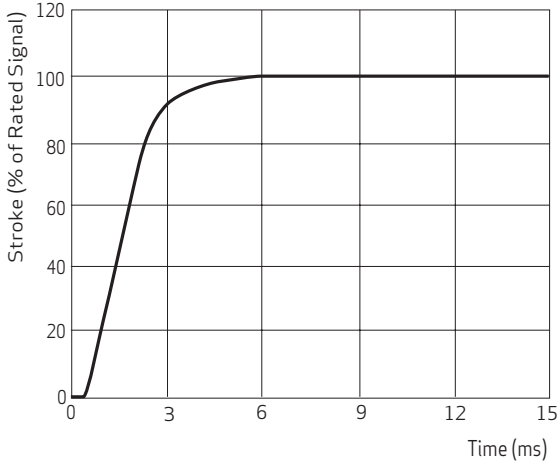
| | | | |
|--|--------------|------|-------|
| Step response time for 0 to 100 % stroke | 5 ms | 7 ms | 16 ms |
| Threshold, typical | ≤ 0.5 % | | |
| Hysteresis, typical | ≤ 3.0 % | | |
| Null shift at $\Delta T = 55$ K (131 °F) | ≤ 2.0 % | | |
| Sample deviation of rated flow | ± 10 % | | |

1) Measured at 210 bar (3,000 psi) pilot or operational pressure, oil viscosity 32 mm²/s and oil temperature +40 °C (+104 °F)

G761/761 SERIES SERVO VALVES

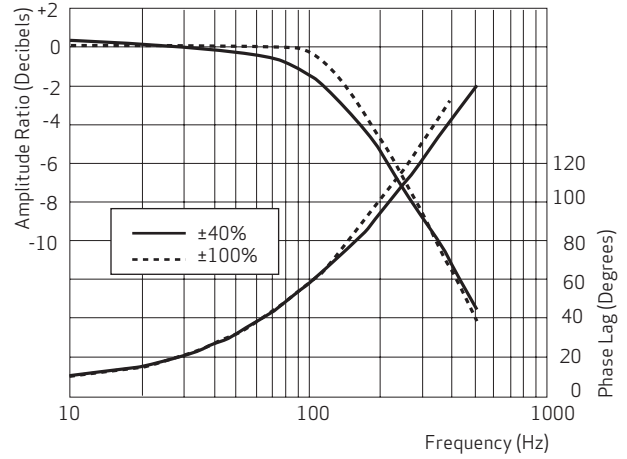
Step Response

4/10/19 l/min (1/2.5/5 gpm)

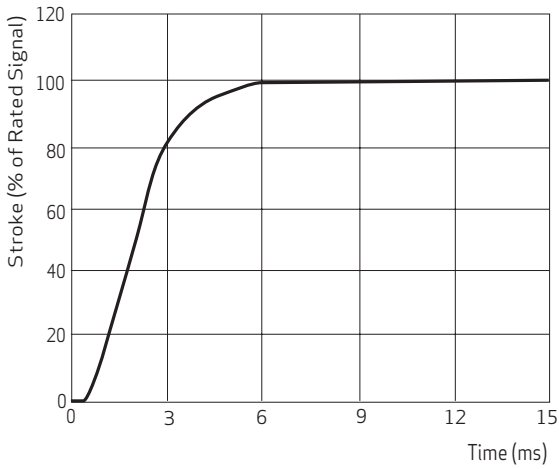


Frequency Response

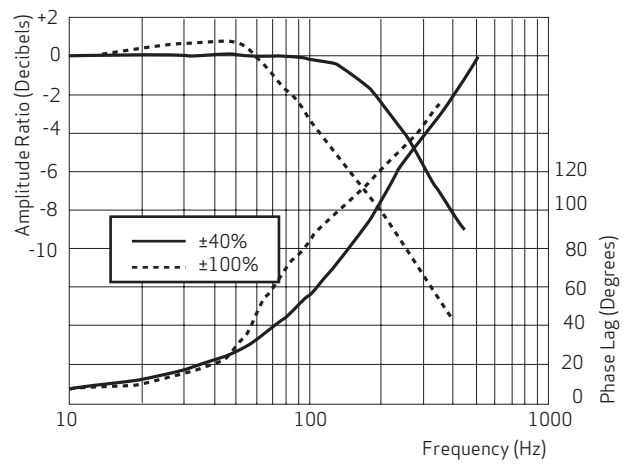
4/10/19 l/min (1/2.5/5 gpm)



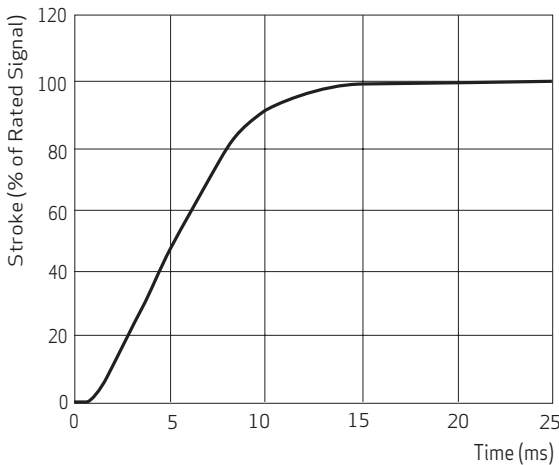
38 l/min (10 gpm)



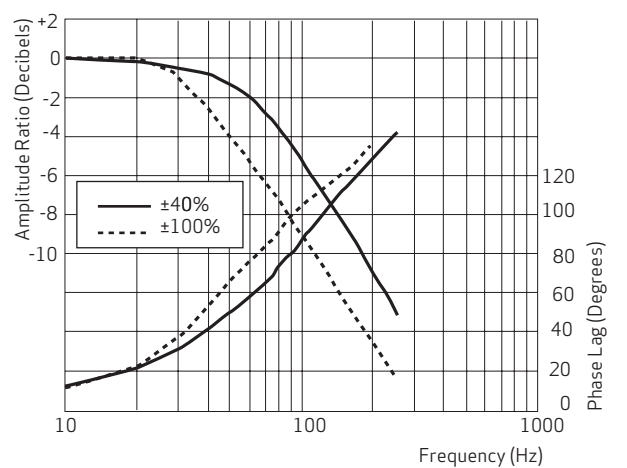
38 l/min (10 gpm)



63 l/min (16.5 gpm)



63 l/min (16.5 gpm)



Measured with system pressure p_p of 210 bar (3,000 psi), oil viscosity $32 \text{ mm}^2/\text{s}$ and oil temperature $+40 \text{ }^\circ\text{C}$ ($+104 \text{ }^\circ\text{F}$)

ELECTRICAL CONNECTION

Rated Current and Coil Resistance

A variety of coils are available for G761/761 Series Servo Valves, which offer a wide choice of rated currents.

Coil Impedance

The resistance and inductance of standard coils are given below. The 2 coils in each Servo Valve are wound with equal turns giving a normal production tolerance on coil resistance of $\pm 10\%$. Copper magnet wire is used, so the coil resistance will vary significantly with temperature. The effects of coil resistance changes can be essentially eliminated through use of a current feedback servoamplifier having high output impedance.

Inductance is determined under pressurized operating conditions and is greatly influenced by back electromagnetic forces of the torque motor. These effects vary with most operating conditions, and vary greatly with signal frequencies above 100 Hz. The apparent coil inductance values given are determined at 50 Hz.

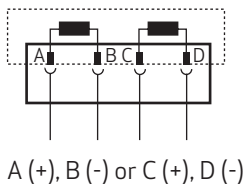
| Ordering code | Recommended rated current [mA] Command signal | | | Coil resistance [Ohms/coil at 25 °C (77 °F)] | Power consumption [W] | | | Coil inductance [H] Measured at 50 Hz | | |
|---------------|--|-------------|---------------|--|-----------------------|-------------|---------------|--|-------------|---------------|
| | Single coil | Series coil | Parallel coil | | Single coil | Series coil | Parallel coil | Single coil | Series coil | Parallel coil |
| H | ± 15 | ± 7.5 | ± 15 | 206 | 0.046 | 0.023 | | 0.72 | 2.2 | 0.59 |
| L | ± 40 | ± 20 | ± 40 | 80 | 0.128 | 0.064 | | 0.22 | 0.66 | 0.18 |
| Z | ± 200 | ± 100 | ± 200 | 22 | 0.88 | 0.44 | | 0.07 | 0.21 | 0.06 |
| 4 | ± 8 | ± 4 | ± 8 | 1,000 | 0.064 | 0.032 | | 3.2 | 9.7 | 2.6 |
| M | ± 50 | ± 25 | ± 50 | 80 | 0.20 | 0.10 | | 0.22 | 0.66 | 0.18 |

Coil Connections

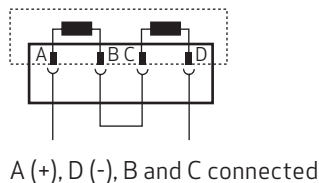
A 4-pin electrical connector that mates with an MS3106F14S-2S is standard. All 4 torque motor leads are available at the connector so that external connections can be made for series, parallel or differential operation. G761/761 Series Servo Valves can be supplied on special order with other connectors or pigtail.

Configuration for valve opening P → B, A → T

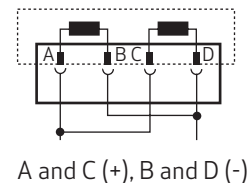
Single



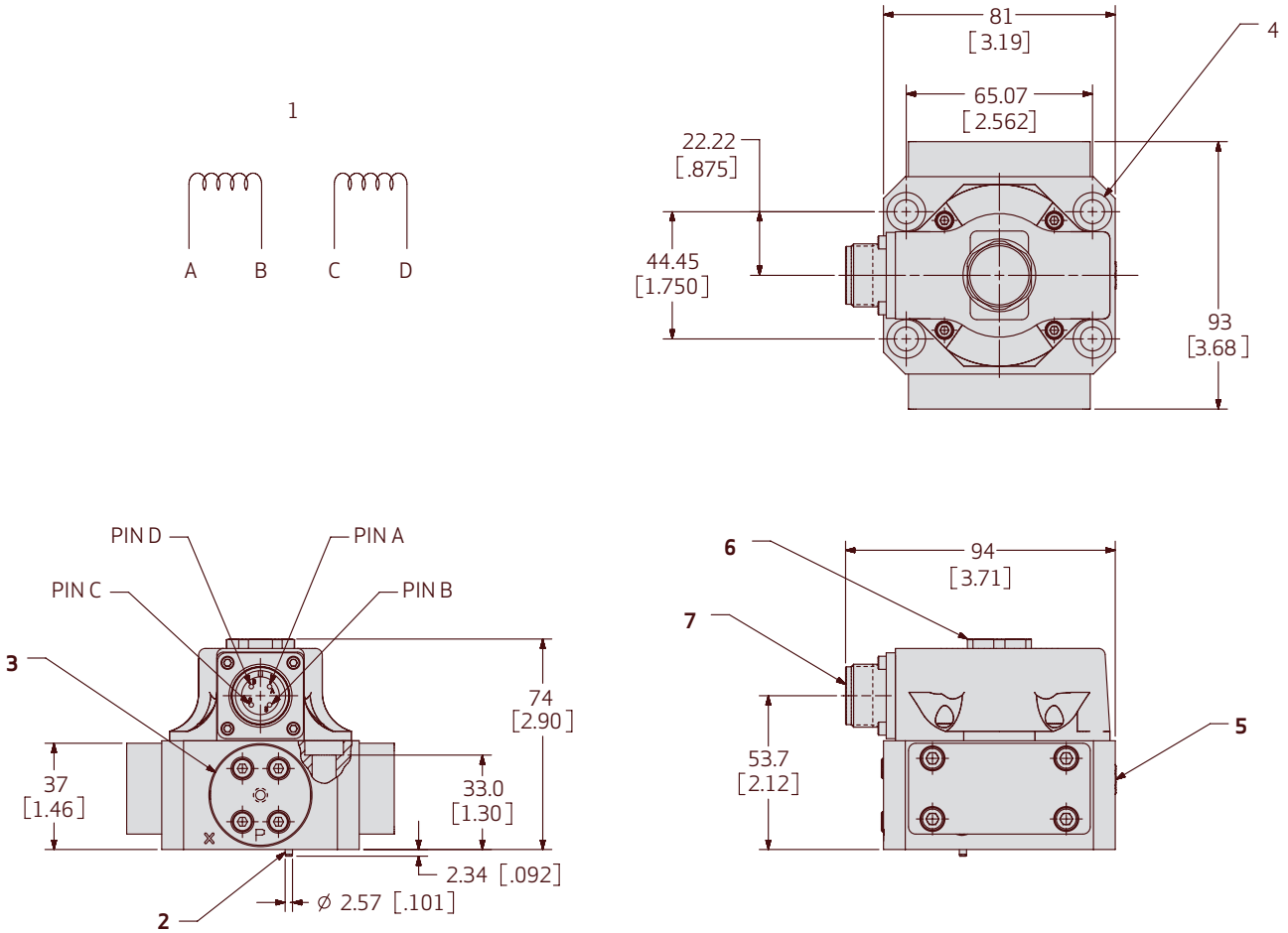
Series



Parallel



INSTALLATION DRAWING AND NULL ADJUST INSTRUCTIONS



- 1 Typical wiring schematic
- 2 Location pin (refer to section Hole Pattern for position)
- 3 Filter location
- 4 4X ϕ 8.36 mm (0.329 in) thru \square ϕ 13.49 mm (0.531 in) to depth shown Mounting Holes
- 5 Mechanical Null Adjust screw (requires 3/8" wrench and 3/32" hex key)
- 6 Optional Magnetic Null Adjust (requires 7/8" wrench)
- 7 Connector mates with MS3106F14S-2S (Moog P/N: -49054F014S002S)

Fluid:
 Industrial type petroleum base hydraulic fluid, maintained to ISO 4406 Code 17/14/11 recommended. For longer life: 15/13/10. Viscosity 10 to 97 mm²/s (cSt) at 38 °C (60 to 450 SUS at 100 °F).

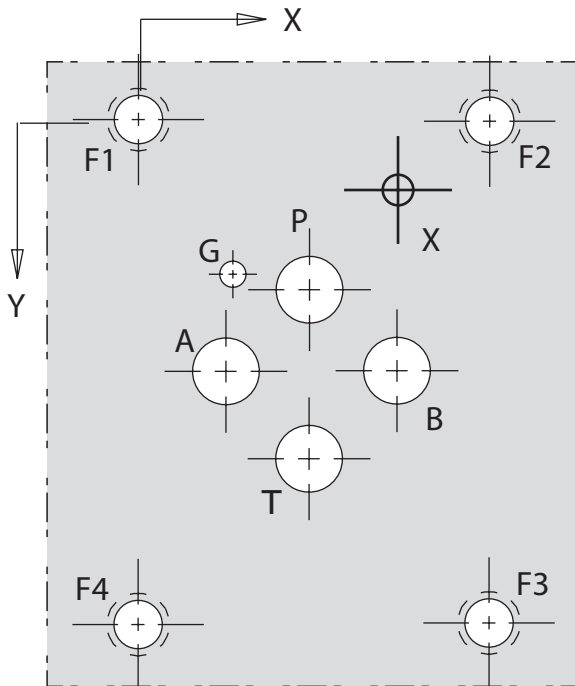
Operating Temperature Range:
 Fluid: -29 to +135 °C (-20 to +275 °F)
 Ambient: -29 to +135 °C (-20 to +275 °F)

Valve Phasing:
 Flow out port B results when:
 Series coils: B and C connected, A+, D-
 Parallel coils: A+/C+, B-/D-
 Single coils: A+/B- or C+/D-

Surface:
 Surface finish 0.8 μ m (0.000032 in), flat within 0.025 mm (0.001 in) TIR

Null Adjust:
 Flow out port B results with the clockwise rotation of the null adjust screw.

HOLE PATTERN OF MOUNTING SURFACE



| Designation | P | A | B | T | X | G | F1 | F2 | F3 | F4 | |
|-------------------|-----------|-------|-------|-------|-------|-------|-------|---------|---------|---------|---------|
| Size Ø | mm | 8.15 | 8.15 | 8.15 | 8.15 | 5.0 | 3.5 | M8 | M8 | M8 | M8 |
| | in | 0.321 | 0.321 | 0.321 | 0.321 | 0.20 | 0.14 | 5/16-18 | 5/16-18 | 5/16-18 | 5/16-18 |
| Position X | mm | 22.23 | 11.11 | 33.32 | 22.23 | 33.32 | 12.32 | 0 | 44.45 | 44.45 | 0 |
| | in | 0.875 | 0.437 | 1.312 | 0.875 | 1.312 | 0.485 | 0 | 1.75 | 1.75 | 0 |
| Position Y | mm | 21.42 | 32.54 | 32.54 | 43.65 | 8.74 | 19.84 | 0 | 0 | 65.07 | 65.07 |
| | in | 0.843 | 1.281 | 1.281 | 1.718 | 0.344 | 0.781 | 0 | 0 | 2.562 | 2.562 |

Notes

1) Surface:

Surface to which the valve is mounted requires flatness of 0.025 mm (0.001 in) over 100 mm (3.94 in) and an average finish R_a better than 0.8 μm (0.000032 in).

2) Ports:

For maximum flow the ports P, T, A and B must be designed with diameters of 8.2 mm (0.320 in), port X with diameter of 5.0 mm (0.20 in).

3) Recommended Seals:

85 durometer 1.78 mm (0.070 in) cross section, 10.82 mm (0.426 in) inside diameter O-ring for P, T, A and B ports compatible with the hydraulic fluid. Port X 85 durometer 1.78 mm (0.070 in) cross section, 9.25 mm (0.364 in) ID, O-ring compatible with the hydraulic fluid.

Conversion Instructions

For operation with internal or external pilot connection. Screw and seal washer location (M4x6 EN ISO 4762).

| Pilot flow supply | X | P |
|-------------------|--------|--------|
| Internal P | Closed | Open |
| External X | Open | Closed |

NULL FLOW ADJUSTMENT

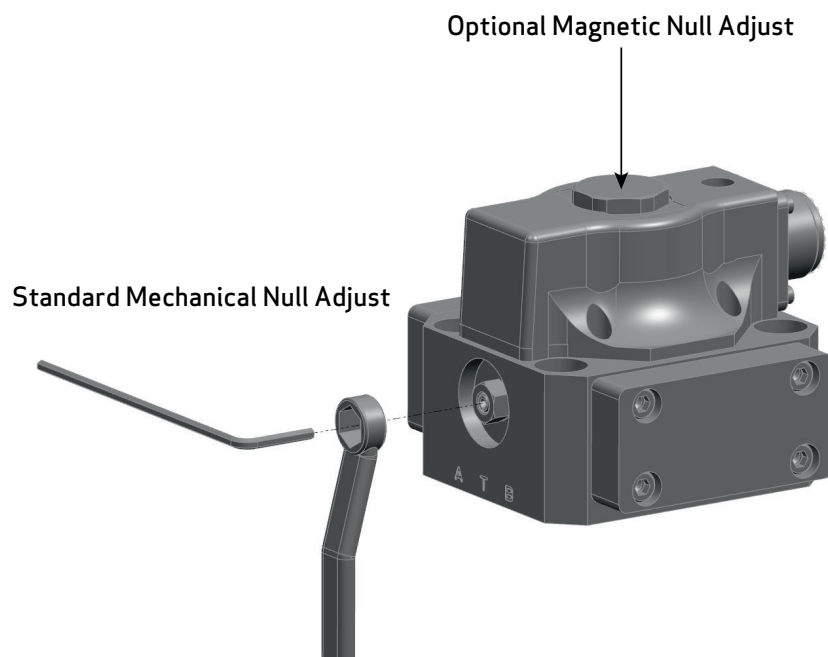
It is often desirable to adjust the null flow of a Servo Valve independently of other system parameters. Valves with mechanical null adjustment allow for at least $\pm 10\%$ adjustment of null flow. The mechanical null adjustment is an eccentric bushing retainer pin, located above the tank port designation on the valve body, which if rotated provides control of the bushing location. Mechanical feedback elements position the spool relative to the valve body for a given input signal. Therefore, a movement of the bushing relative to the body changes the null flow.

Mechanical Adjustment Procedure

With zero current (electrical connector disconnected). Using a $3/8$ inch offset wrench, loosen the self-locking fitting until the null adjustor pin can be rotated. (This should usually be less than $1/2$ turn). DO NOT remove the self-locking fitting. Insert a $3/32$ inch Allen wrench in the null adjustor pin. Use the $3/32$ Allen wrench to rotate the mechanical adjustor pin to obtain the desired null flow. Re-torque the self-locking fitting to 57 in lbs.

Magnetic Adjustment Procedure

If so equipped the magnetic null adjustor is located on top of the motor cap which if rotated magnetically biases the first stage torque motor with zero current (electrical connector disconnected). Using a $7/8$ inch wrench, rotate the magnetic adjustor on top of the motor cap to obtain the desired null flow condition. Maximum adjustment is achieved with rotation of $\pm 90^\circ$. The magnetic null adjustment allows at least $\pm 10\%$ adjustment to the null flow.



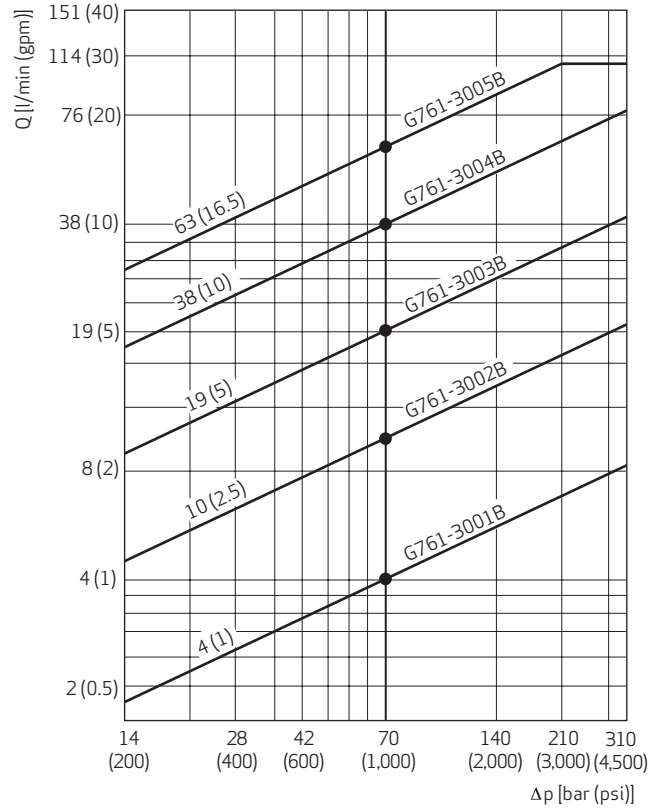
FLOW CALCULATION

The actual flow is dependent upon electrical command signal and valve pressure drop. The flow for a given valve pressure drop can be calculated using the square root function for sharp edge orifices.

$$Q = Q_N \cdot \sqrt{\frac{\Delta p}{\Delta p_N}}$$

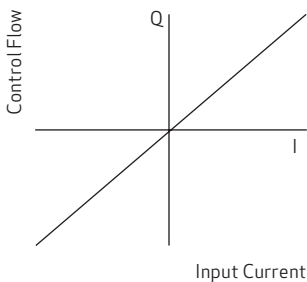
- Q [l/min (gpm)] actual flow
- Q_N [l/min (gpm)] rated flow
- Δp [bar (psi)] actual pressure drop per spool land
- Δp_N [bar (psi)] rated pressure drop per spool land

Flow Diagram



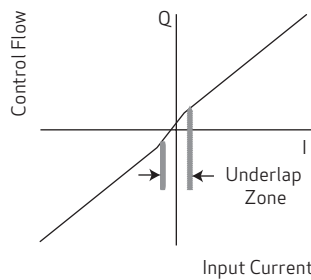
Null Cut Options

Standard Axis Cut



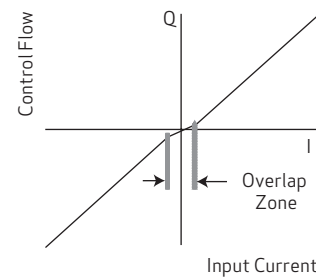
Default, without request for optional cuts

Open Center Spool Valves



Normally used in hydraulic motor applications

Closed Center Spool Valves



Normally used in failsafe applications

ROUTINE MAINTENANCE GUIDELINES

Every six months or 4,000 operating hours, check for proper operation of the control valve assembly by performing the preventative maintenance steps outlined below. These checks do not require removal of the valve from the process line. If a problem is suspected, repair the valve assembly prior to returning the unit to service.

- Replace the hydraulic filter element
- Stroke the valve and check for smooth, full-stroke operation; unsteady motion could indicate a servo valve, actuator or process valve problem

General Information

Effects when Storing Valves

The following effects may occur when storing valves for a long time:

- Sealing materials become brittle, possibly resulting in leaks
- Hydraulic fluid becomes gummy, possibly resulting in friction

Storage Time

The storage time starts at stock receipt and ends at mounting of the valve.

Preservatives

If preservation is carried out, use only preservatives which are compatible with the sealing materials and do not affect the valve, spare parts and accessories.

Before Storage

Note: If the valves are exposed to aggressive environmental influences during storage, vacuum packaging may be necessary. We recommend the following preparatory measures for storage:

Mount the shipping plate on the valve.

This is the only way of adequately protecting the valves against the ingress of dirt and moisture and protecting the seals against the effects of ozone and UV.

Put the valve, spare parts and accessories into the original packaging.

Package each valve separately.

Enclose anti-tarnish paper or package the valve, spare parts and accessories with corrosion inhibiting film. (Only for storage time > 1 year.)

Multipacks of single valves in their individual packages are allowed.

Seal the original packaging properly.

This is the only way of adequately protecting the valves, spare parts and accessories against damage.

Storage Conditions

We recommend the following ambient conditions for storage:

- Dust-free, moderately ventilated
- As vibration-free and shock-free as possible

Shock resistance (as per EN 60068-2-27):
50 g, 6 directions, half-sine 3 ms

Vibration resistance (as per EN 60068-2-6):
30 g, 3 axes, frequency 10 to 2,000 Hz

Temperature

Recommended: +15 to +25 °C (+59 to +77 °F)

Permissible: -40 to +60 °C (-40 to +140 °F)

Temperature fluctuations > +10 °C (+50 °F) must be avoided.

Distance to shielded radiators: > 1 m (3 ft).

No direct exposure to sunlight.

No sources of light with a high UV content.

UV rays generate ozone, which damage sealing materials.

Relative air humidity: < 65 %, non condensing

After Storage

We recommend to check the original packaging, valve, spare parts and accessories for possible damage or alterations due to storage, that is, before use.

Damaged or not functional valves, spare parts and accessories must not be started up.

Sealing materials with the following characteristics must not be used:

- Contamination
- Cracking
- Hardening/softening
- Stickiness
- Discoloration

Storage Time > 5 Years

We recommend that the valve be checked by us or one of our authorized service centers after a storage time of more than 5 years.

Storage Time > 10 Years

After a storage time of more than 10 years the valves have to be checked by us or one of our authorized service centers.

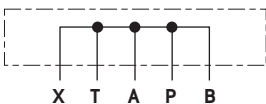
ACCESSORIES AND SPARE PARTS

Series-specific Accessories and Spare Parts

Spare Parts Servo Valves G761 Series

| Part name | Description | Material | Part number |
|-----------------------------|--|--------------|-----------------|
| Filter replacement kit | Contains the following: <ul style="list-style-type: none"> 2 pieces o-ring, inner Ø 3.7 mm (0.15 in) x Ø 1.8 mm (0.07 in) 2 pieces o-ring, inner Ø 13 mm (0.51 in) x Ø 1.5 mm (0.06 in) 1 piece filter disc 60 µm | FKM 85 Shore | B52555RK201K001 |
| O-ring for ports P, T, A, B | 4 pieces, inner Ø 10.8 mm (0.43 in) x Ø 1.8 mm (0.07 in). Equivalent MIL-R-83248 size-013 | FKM 85 Shore | -42082-022 |
| O-ring for port X | 1 piece, inner Ø 9.3 mm (0.36 in) x Ø 1.8 mm (0.07 in) | FKM 85 Shore | -42082-013 |
| Replaceable filter | 60 µm nominal | | A67999-065 |

Accessories Servo Valves G761 Series

| Part name | Description | Remark | Part number |
|------------------------|--|--|---------------------------------|
| AMO manifold | Adjustable metering orifice manifold used to bleed fluid between A and B ports for better pressure control | | -65568AM002 |
| Mounting screws Inch | 4 pieces 5/16-18NC by 1.75 long, tightening torque 11 Nm (97 lbf in) | | C66391-228B |
| Mounting screws Metric | 4 pieces M8x45 ISO 4762-10.9, tightening torque 11 Nm (97 lbf in) | | B64929-008B045 |
| Flushing plate | Manifold employed in place of valve when initially cleaning hydraulic fluids |  | -23718-001K002 |
| Mating connector | 4 pin electrical connector | | -49054F014S002S (MS3106F14S-2S) |
| Mounting manifold | Base mounting manifold, 4 ports | | -43586AM007 |

Documents Servo Valves G761 Series

| Part name | Description | Remark | Part number |
|----------------|--------------------------------------|--|-------------|
| Catalog | G761/761 series general information | Note: Visit www.moog.com/industrial | CDL6642 |
| Service manual | G761/761 standard series | | CDS6673 |
| | G761K/761K intrinsically safe series | | CDS6769 |

ORDERING CODE

Model number (assigned at the factory)

G761/761

Specification status
Series specification

Model designation
Assigned at the factory

Variant

1 Valve type
S Standard response 63 l/min (16.5 gpm)
H High response 4 to 38 l/min (1 to 10 gpm)

2 Rated flow [l/min (gpm)]
 For $\Delta p_N = 35$ bar (500 psi) per spool land
04 4 (1.0)
10 10 (2.5)
19 19 (5.0)
38 38 (10.0)
63 63 (16.5)

3 Maximum operating pressure [bar (psi)] and body material
J 315 (4,500) aluminum

4 Bushing/spool design
O 4-way: Axis cut, linear flow characteristic
D 4-way: ± 10 % overlap, linear flow characteristic
X Others upon request

Type designation

1 2 3 4 5 6 7 8 9 10

- - - - - J - - - - - M - - - - - V - - - - -

| 10 Command signal | | |
|-------------------|-------------------|-------------------------------|
| | Series coil value | Single or parallel coil value |
| H | ± 7.5 mA | ± 15 mA |
| L | ± 20 mA | ± 40 mA |
| Z | ± 100 mA | ± 200 mA |
| 4 | ± 4 mA | ± 8 mA |
| M | ± 25 mA | ± 50 mA |

| 9 Valve connector X1 | |
|----------------------|-----------------------|
| P | Connector over P-side |
| B | Connector over B-side |

| 8 Seal material | |
|-----------------|-----|
| V | FKM |

| 7 Pilot connections | |
|---------------------|----------|
| 4 | Internal |
| 5 | External |

| 6 Spool position without electrical signal | |
|--|-----------------|
| M | Center position |

| 5 Pilot stage design | |
|----------------------|---|
| F | Low flow, nozzle-flapper, ≤ 10 l/min (2.5 gpm) |
| G | High flow, nozzle-flapper, > 10 l/min (2.5 gpm) |

Note: Other options available upon request

Preferred Models

| Model Number | Type Designation | Rated Flow ($\Delta 1,000$ psi) | | Rated Current (single coil) mA |
|--------------|------------------|----------------------------------|------|-----------------------------------|
| | | l/min | gpm | |
| G761-3001B | H04JOFM4VPL | 4 | 1.0 | ± 40 |
| G761-3002B | H10JOFM4VPL | 10 | 2.5 | ± 40 |
| G761-3003B | H19JOGM4VPL | 19 | 5.0 | ± 40 |
| G761-3004B | H38JOGM4VPL | 38 | 10.0 | ± 40 |
| G761-3005B | S63JOGM4VPL | 63 | 16.5 | ± 40 |