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SERVO VALVES

PILOT OPERATED FLOW CONTROL VALVE WITH ANALOG INTERFACE

G761/761 SERIES, SIZE 04



Rev. K, December 2016

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

WHAT MOVES YOUR WORLD

MOOG

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.

INTRODUCTION 2
- Product Overview 3
- Features and Benefits 4
- Description of Operation 5

TECHNICAL DATA 6
- G761/761 Series Servo Valves 6
- Electrical connection 8
- Installation Drawing and Null Adjust Instructions 9
- Hole Pattern of Mounting Surface 10

BACKGROUND 11
- Null Flow Adjustment 11
- Flow Calculation 12
- Related Products 13
- Routine Maintenance Guidelines 14
- About Moog 15

ORDERING INFORMATION 17
- Accessories and Spare Parts 17
- Ordering Code 19



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.

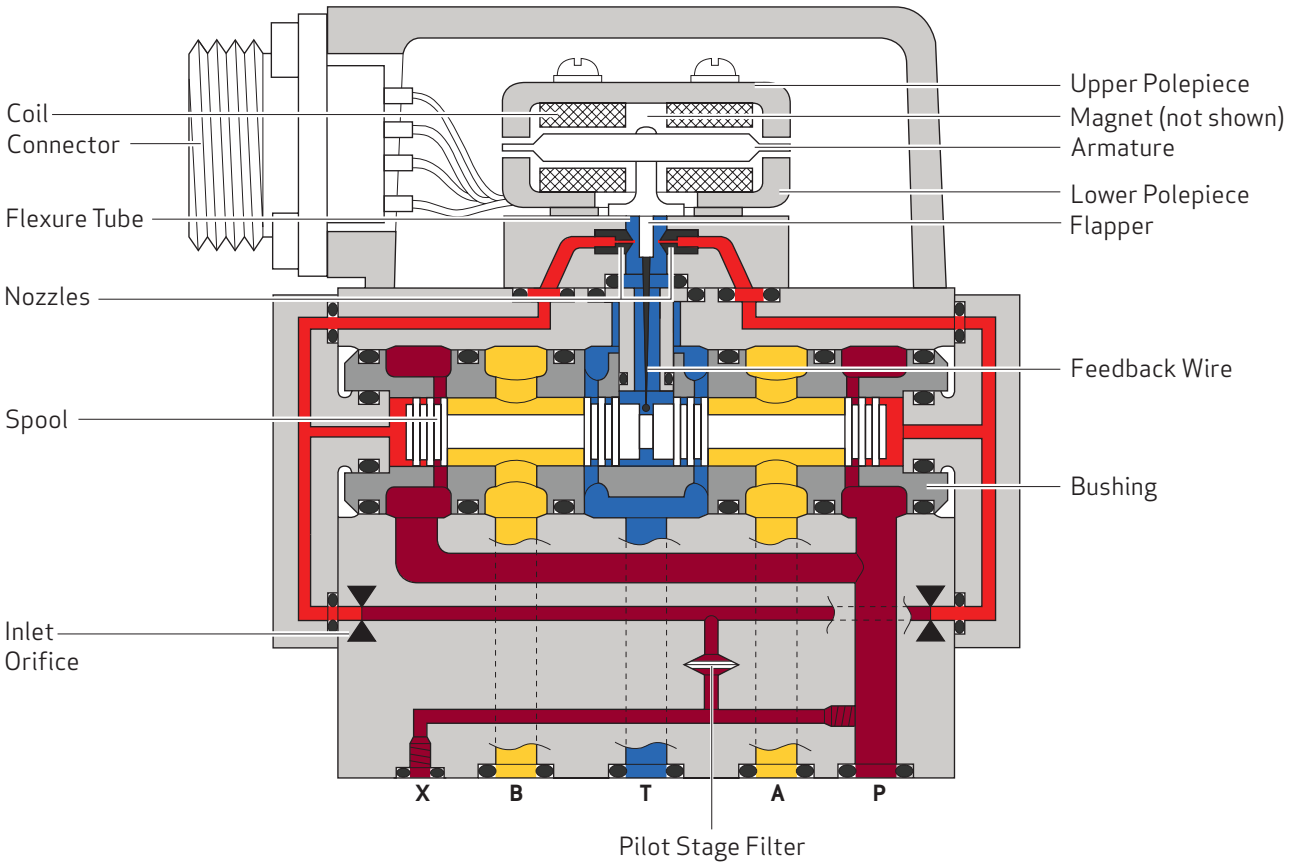
The flapper of the first stage hydraulic amplifier is rigidly attached to the midpoint of the armature. The flapper extends through the flexure tube and passes between 2 nozzles, creating two variable orifices between the nozzle tips and the flapper. The pressure controlled by the flapper and nozzle 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 Data[1)]

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 (≈ 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	$ß_{10} \leq 75$ (10 µm absolute)				
For longer service life	$ß_5 \leq 75$ (5 µm absolute)				

Typical Static and Dynamic Data[1)]

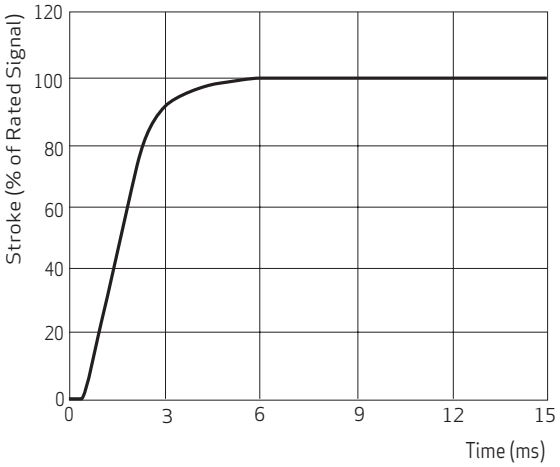
Step response time for 0 to 100 % stroke	5 ms	7 ms	16 ms
Threshold, typical	≤ 0.5 %		
Hysteresis, typical	≤ 3.0 %		
Null shift at ΔT = 55 K (131 °F)	≤ 2.0 %		
Sample deviation of rated flow	±10 %		

1) Measured at 210 bar (3,000 psi) pilot or operational pressure, oil viscosity 32 mm^2/s and oil temperature +40 °C (+104 °F)

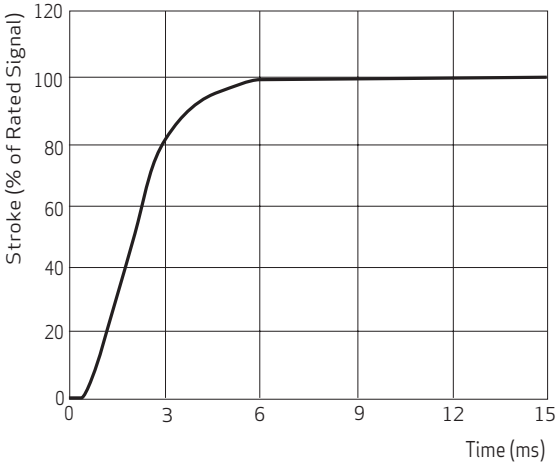
G761/761 SERIES SERVO VALVES

Step Response

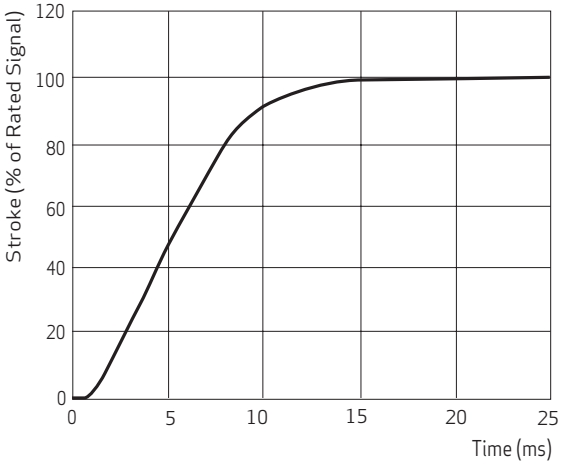
4/10/19 l/min (1/2.5/5 gpm)



38 l/min (10 gpm)

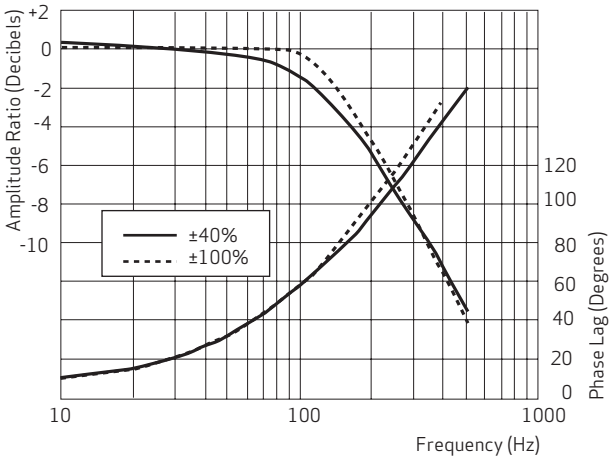


63 l/min (16.5 gpm)

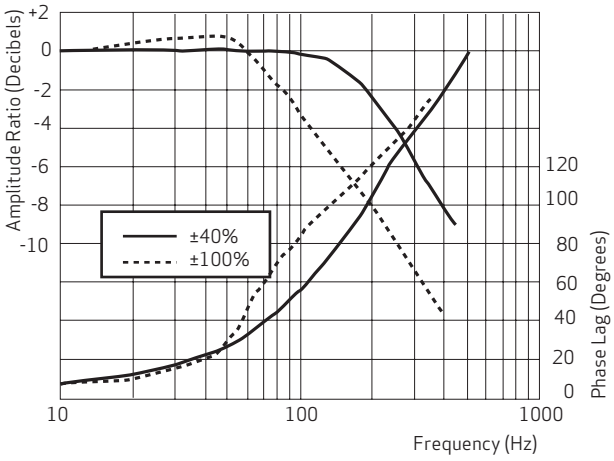


Frequency Response

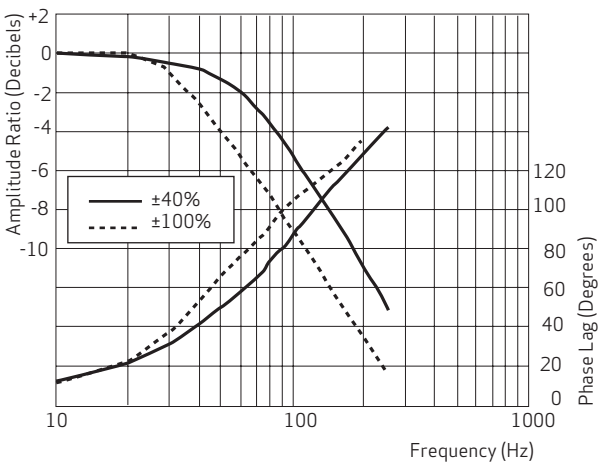
4/10/19 l/min (1/2.5/5 gpm)



38 l/min (10 gpm)



63 l/min (16.5 gpm)



Measured with system pressure p_p of 210 bar (3,000 psi), oil viscosity 32 mm^2/s and oil temperature +40 °C (+104 °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 ±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.

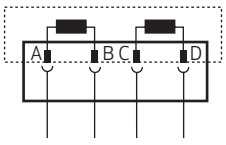
Ordering code	Recommended rated current [mA] Command signal			Coil resistance [Ohms/coil at 25 °C (77 °F)]	Power consumption [W]			Coil inductance [H] Measured at 50 Hz		
	Single coil	Series coil	Parallel coil		Single coil	Series coil	Parallel coil	Single coil	Series coil	Parallel coil
H	±15	±7.5	±15	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.

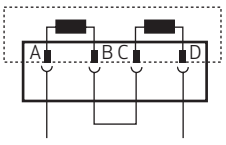
Configuration for valve opening P → B, A → T

Single



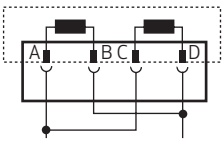
A (+), B (-) or C (+), D (-)

Series



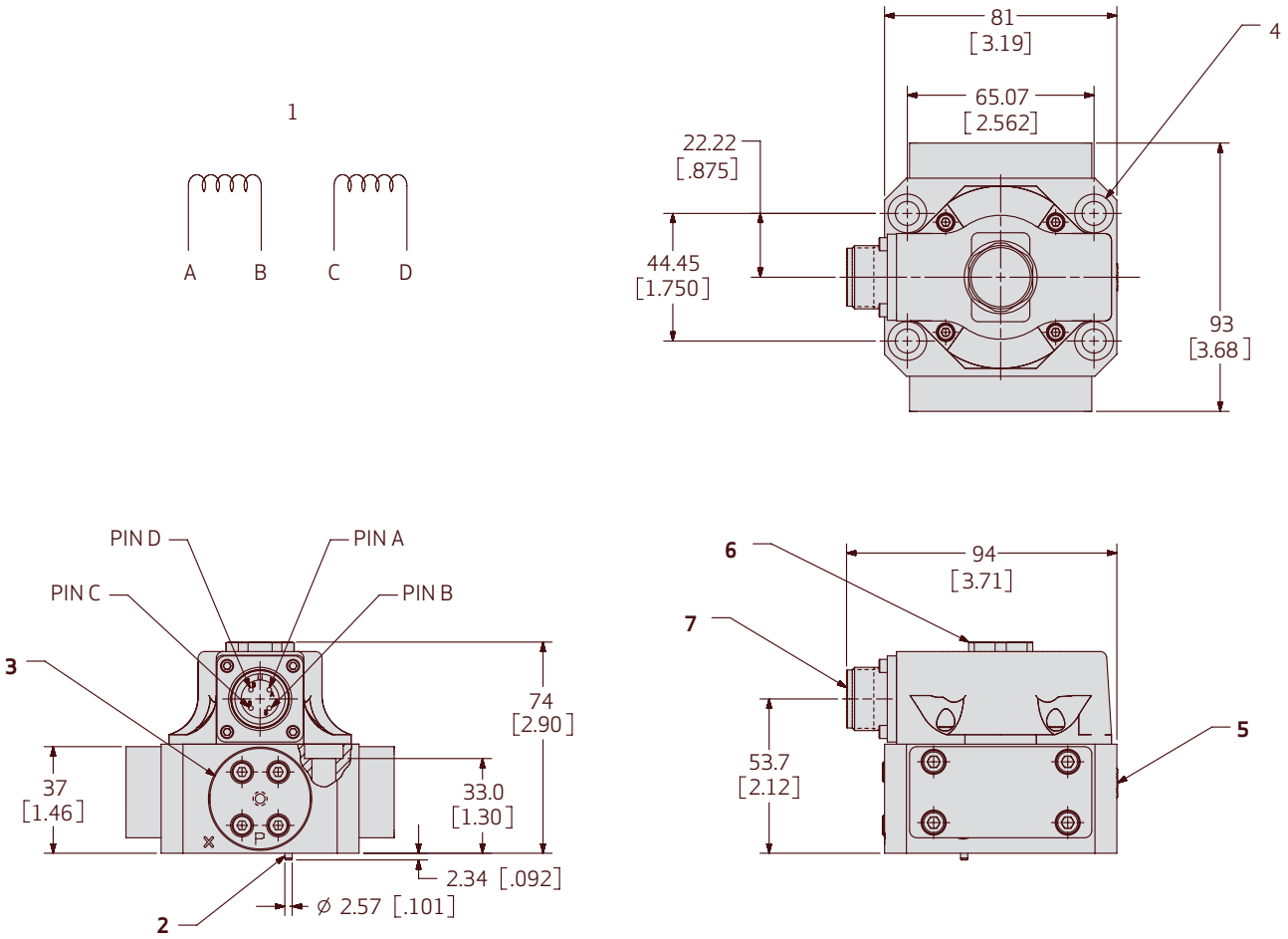
A (+), D (-), B and C connected

Parallel



A and C (+), B and D (-)

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 Ø 8.36 mm (0.329 in) thru ⌴ Ø 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 mm^2/s (cSt) at 38 °C (60 to 450 SUS at 100 °F).

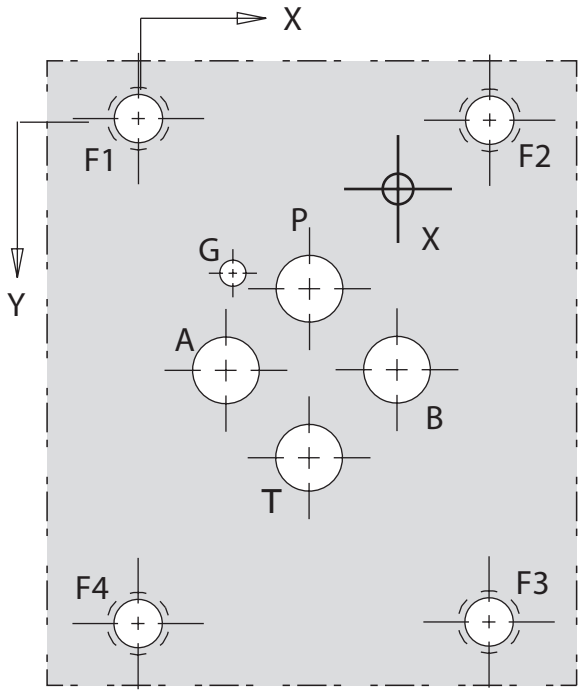
Operating Temperature Range:
Fluid: -29 to +135 °C (-20 to +275 °F)
Ambient: -29 to +135 °C (-20 to +275 °F)

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 µm (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

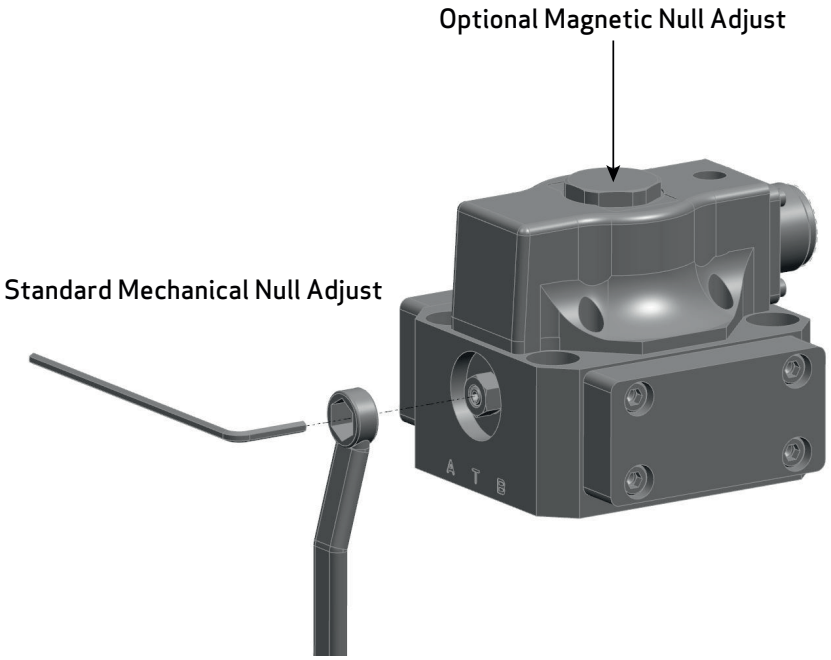
It is often desirable to adjust the null flow of a Servo Valve independently of other system parameters. Valves with mechanical null adjustment allow for at least ±10 % adjustment of null flow. The mechanical null adjustment is an eccentric bushing retainer pin, located above the tank port designation 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 ±90°. The magnetic null adjustment allows at least ±10 % adjustment to the null flow.



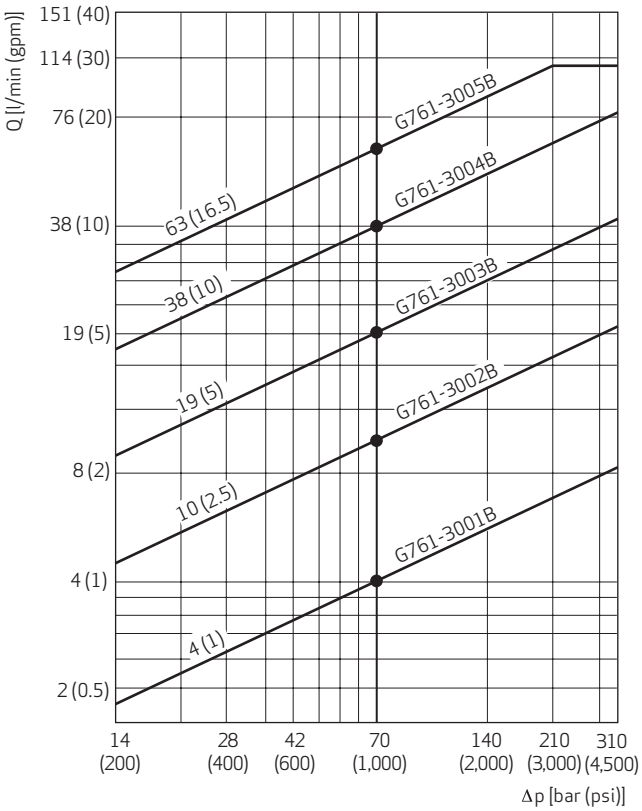
FLOW CALCULATION

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.

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

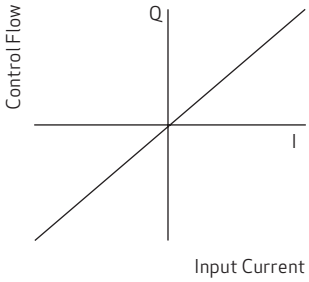
Q [l/min (gpm)]	actual flow
Q_N [l/min (gpm)]	rated flow
Δp [bar (psi)]	actual pressure drop per spool land
Δp_N [bar (psi)]	rated pressure drop per spool land

Flow Diagram



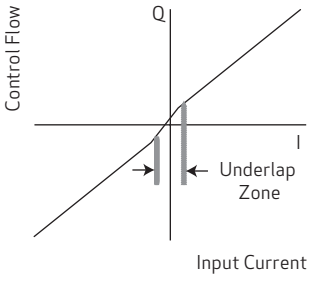
Null Cut Options

Standard Axis Cut



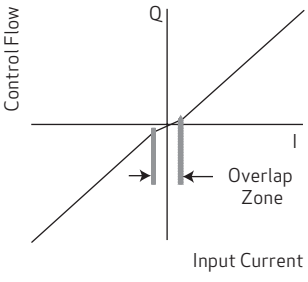
Default, without request for optional cuts

Open Center Spool Valves



Normally used in hydraulic motor applications

Closed Center Spool Valves



Normally used in failsafe applications

RELATED PRODUCTS

DIN Rail Modules - Analog Control Cards

Moog's DIN rail mounted module analog control cards are ideal for use in enclosures where space is limited. Modules include servoamplifers, transducer conditioning electronics, command and auxilliary function modules, valve drive amplifiers and power supplies. All of these modules are CE marked and require a 24 V_{DC} supply. The modules mount to standard 35 mm DIN rail mount for easy installation and removal.



DIN Rail Module

Portable Valve Testers - Evaluates Valves in the Field

Valve testers are a cost effective method for evaluating valves in the field. They provide a quick and easy means of differentiating between hydraulic and electronic problems.

There are five models to choose from, each with different levels of capability and flexibility to meet your specific requirements. All valve testers have a compact, easily portable design.

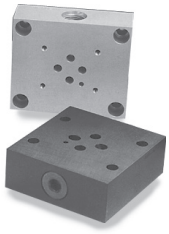


Valve Tester

Mounting Manifolds - Easier Installation and Maintenance

Various mountings manifolds are available for standard industrial valves, including base and adapter types for mounting and flushing requirements. Other hardware such as bolts and connectors are also available.

The specific accessories you may need for a particular model are listed in the relevant product catalogs and can be ordered through your local office.



Mounting Manifolds

Filtration - Oil Filtration Requirements for Industrial Servo Systems

The most effective way to reduce life cycle costs of an oil hydraulic system is through close attention to contamination control.

For industrial servo systems with G761/761 Series Servo Valves the ideal system filter arrangement is summarized as follows:

- Use a 10 micron (Beta 10 ≥ 75) high pressure filter without by-pass just before the valve or critical parts of the valve (e.g. pilot)
- Use a 5 micron (Beta 5 ≥ 75) low pressure filter in the return or bypass line.
- Use a filter in the tank breather that is at least the same filtration level as the finest filter in the system.

This recommendation is based on the fact that most servo and proportional valves can accept the odd particle up to 25 microns so the pressure filter will protect the valve from catastrophic failure. The real work is done by the low pressure filter reducing small particle contamination which is the prime contributor to component wear and silting.



Hydraulic Filters

Assuming that the filters are properly dimensioned and care is taken during initial installation and maintenance, the aim should be to limit oil contamination to ISO 4406 17/14/11.

For long life, the maximum levels are 15/13/10, respectively. It is important to note that these are maximum contamination levels and with proper care and regular filter change, significantly lower levels can and should be achieved. Attention must also be paid to a number of other factors that contribute to oil condition problems such as elevated temperatures, high tank humidity, "dirty" new oil.

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.

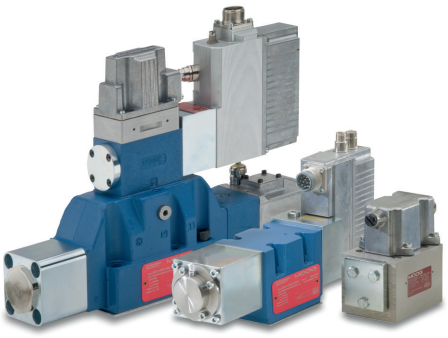
Storage Time > 10 Years
After a storage time of more than 10 years the valves have to be checked by us or one of our authorized service centers.

ABOUT MOOG

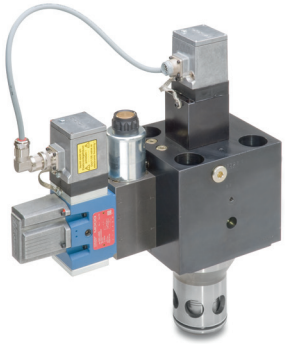
Moog Inc. is a worldwide designer, manufacturer and integrator of precision control components and systems. Moog's Industrial Group designs and manufactures high performance motion control solutions combining electric, hydraulic, and hybrid technologies with expert consultative support in a range of applications including energy production and generation machinery, industrial production machinery and simulation and test equipment. We help performance-driven companies design and develop their next-generation machines. Moog Industrial Group, with fiscal year 2015 sales of USD 522 million and over 40 locations worldwide, is part of Moog Inc. (NYSE:MOG.A and MOG.B) which has sales of USD 2.53 billion.

This vast scope ensures that our engineers remain close to the needs of machine builders and provide flexible design solutions and technical expertise tailored to our customers' toughest challenges.

Moog experts work in close collaboration with machine builders and application engineers to design motion control systems for greater productivity, higher reliability, superior connectivity, less costly maintenance and more effective operations. Our regional presence, industry knowledge and design flexibility ensures Moog motion control solutions are tailored to their environment — from meeting operating regulations and performance standards, to taking machine performance to a higher level.



Servo Valves



Servo Cartridge Valves

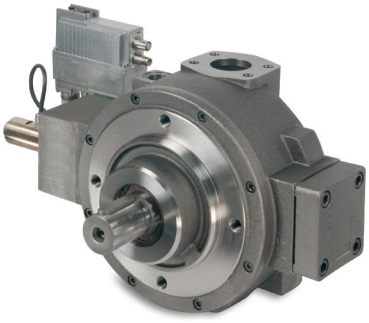
Products

At the heart of every Moog solution is an array of products engineered for precision, high performance and reliability. For more than six decades, Moog products have been specified for critical machine applications.

Some are developed specifically for unique operating environments. Others are standard equipment on machines across many industries. All are continuously improved to take advantage of the latest technology breakthroughs and advancements.

Moog products include:

- Servo Valves and Proportional Valves
- Servo Motors and Servo Drives
- Motion Controllers and Software
- Radial Piston Pumps
- Actuators
- Integrated Hydraulic Manifold Systems and Cartridge Valves
- Slip Rings
- Motion Bases



Radial Piston Pumps



Servo Drives

ABOUT MOOG

Hydraulic Solutions

Since Bill Moog invented the first commercially viable servo valve in 1951, Moog has set the standard for world-class hydraulic technology. Today, Moog products are used in a variety of applications - providing high power, enhanced productivity and ever better performance for some of the worlds most demanding applications.

Electric Solutions

Clean operation, low noise generation, less maintenance and reduced power consumption make Moog electric solutions ideal for applications worldwide. Moog is the ideal partner for applications where transitioning technologies requires special expertise.

Hybrid Solutions

By incorporating the advantages of existing hydraulic and electric technologies - including modular flexibility, increased efficiency and cleanliness - into innovative hybrid solutions, Moog offers new performance potential in specialized applications.



Flight Simulation



Formula One Simulation Table

MOOG GLOBAL SUPPORT

Moog Global Support is our promise to offer world-class Repair and Maintenance Services delivered expertly by our trained technicians. With the reliability only available from a leading manufacturer with facilities around the world, Moog offers you service and expertise you can count on to keep your equipment operating as it should.

This promise offers many benefits to our customers including:

- Reduce your downtime by keeping critical machines running in peak performance
- Protect your investment by ensuring reliability, versatility and long-life of products
- Better plan your maintenance activities and make systematic upgrades
- Leverage our flexible programs to meet the unique service requirements of your facility

Look to Moog for global support including:

- Repair services using OEM parts are performed by trained technicians to the latest specifications
- Stock management of spare parts and products to prevent unplanned downtime
- Flexible programs, tailored to your needs such as upgrades, preventative maintenance and annual/multi-year contracts
- On-site services bring the expertise to you, providing quicker commissioning, set-up and diagnostics
- Access to reliable services that are guaranteed to offer consistent quality anywhere in the world

For more information on Moog Global Support visit www.moog.com/industrial/service.

MOOG GLOBAL SUPPORT®

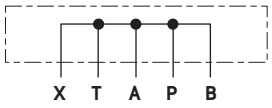
ACCESSORIES AND SPARE PARTS

Series-specific Accessories and Spare Parts

Spare Parts Servo Valves G761 Series

Part name	Description	Material	Part number
Filter replacement kit	Contains the following: • 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

NOTES

ORDERING CODE

Model number (assigned at the factory) **Type designation**

G761/761																			
						-		-											
									1	2	3	4	5	6	7	8	9	10	
											J			M		V			

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 Δp_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

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)

6	Spool position without electrical signal
M	Center position

7	Pilot connections
4	Internal
5	Exernal

8	Seal material
V	FKM

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

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

Note: Other options available upon request

Preferred Models

Model Number	Type Designation	Rated Flow (Δ1,000 psi) l/min	Rated Flow (Δ1,000 psi) gpm	Rated Current (single coil) mA
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

MORE PRODUCTS. MORE SUPPORT.

Moog designs a range of motion control products to complement those featured in this document. Moog also provides service and support for all of our products. For more information, contact the Moog facility closest to you.

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G761/761 Series Flow Control Servo Valves
PIM/Rev. K, December 2016, Id. CDL6642-en

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