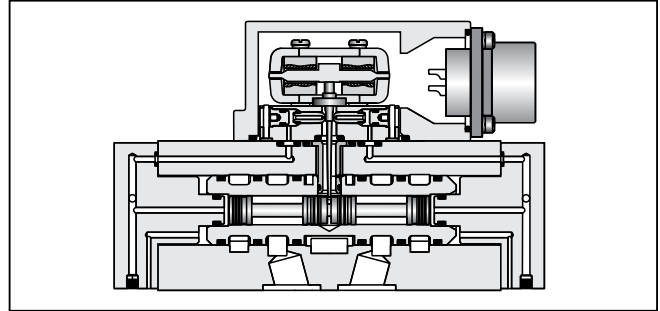
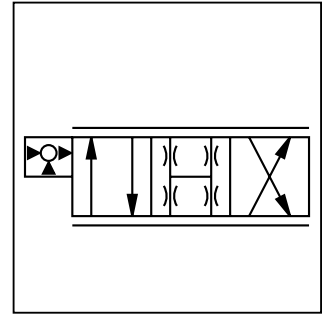


## General Description

Series SE31 is a two stage, 4-way, flapper and nozzle style servovalve. This valve is designed to fit onto DIN NG10 or NFPA D05 port patterns. The SE31 has a wide range of flow ratings and a high performance spool and sleeve design.

A special jewel feedback design enhances durability and prevents ball glitch problems, which can occur in other types of servovalves. This valve is rated for 210 Bar (3000 PSI) service.



**C**

## Features

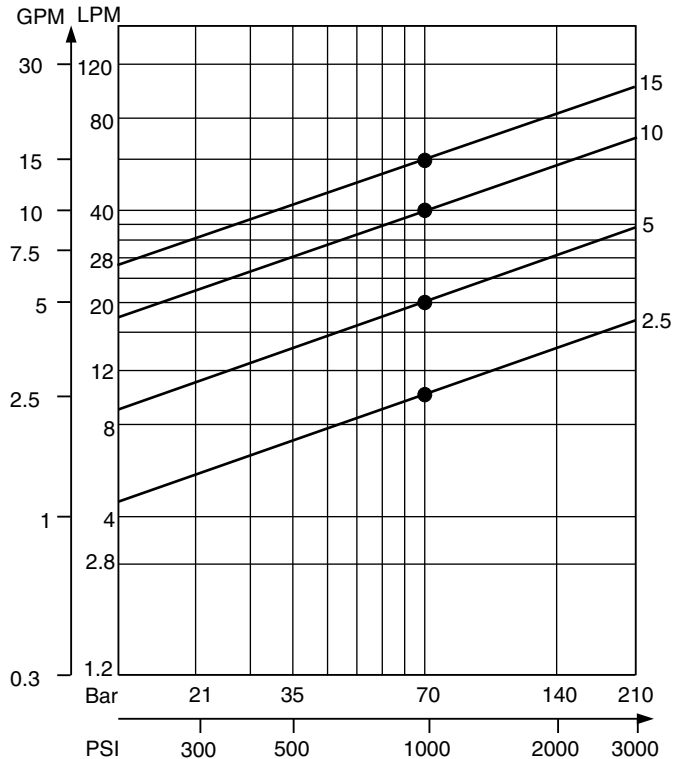
- Lapped spool and sleeve
- Jewel feedback ball for durability
- Aluminum body
- Medium and High performance
- ISO 440 -05-05-0-94 (4-ports), DO5HE (no "Y" port)

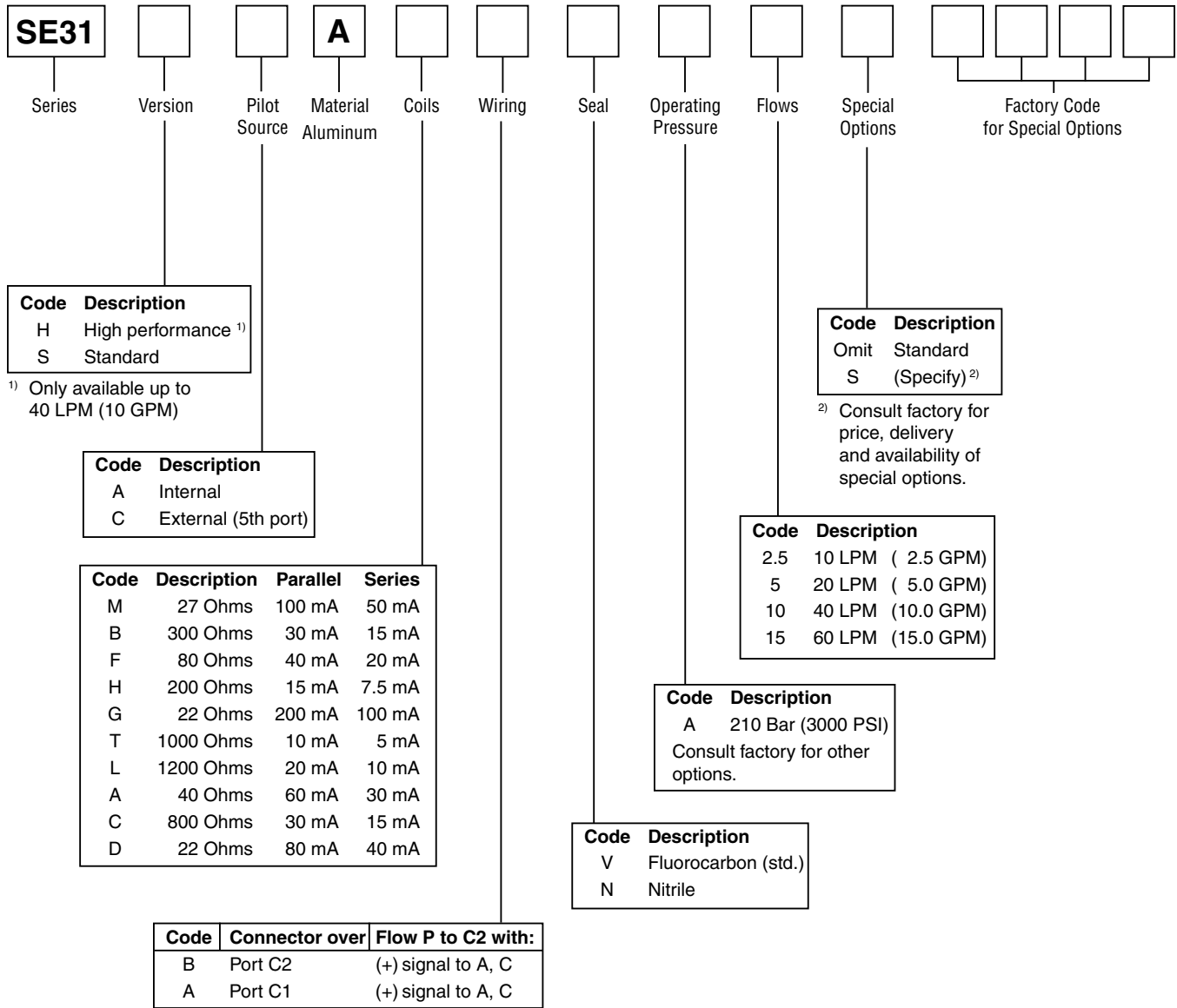
## Specifications

<b>Flow Rating ±10%</b> @ 70 Bar (1000 PSI)	10, 20, 40, 60 LPM (2.5, 5, 10, 15 GPM)
<b>Supply Pressure</b>	10 – 210 Bar (145 – 3000 PSI)
<b>Tank Port Pressure</b>	210 Bar (3000 PSI) Max. < 10 Bar (145 PSI) for best performance
<b>Null Leakage Flow</b> per 70 Bar (1000 PSI)	1.2 – 1.9 LPM (0.3 – 0.5 GPM)
<b>Pilot Flow</b> @ 210 Bar (3000 PSI)	0.4 – 0.7 LPM (0.1 – 0.2 GPM)
<b>Input Command</b>	±100 mA std.
<b>Frequency Response</b> @ 90° phase shift	> 100 Hz (See Performance Curves)
<b>Non-Linearity</b>	≤ 10%
<b>Hysteresis</b>	≤ 3%
<b>Threshold</b>	≤ 0.5%
<b>Null Shift</b> with temperature with pressure	≤ 2% per 55°C (100°F) ≤ 2% per 70 Bar (1000 PSI)
<b>Pressure Gain</b> change in pressure per 1% change in input command	60% typical
<b>Step Response</b>	0 - 100%, < 15 ms
<b>Fluid</b>	Petroleum based Mineral Oil, 10 – 110 cSt at 38°C (100°F)
<b>Fluid Cleanliness</b>	ISO 4406 15/12 or better
<b>Operating Temperature</b>	-30°C to +130°C (-22°F to +266°F)
<b>Protection Class</b>	NEMA 4, IP65

## Flow vs. Pressure Drop

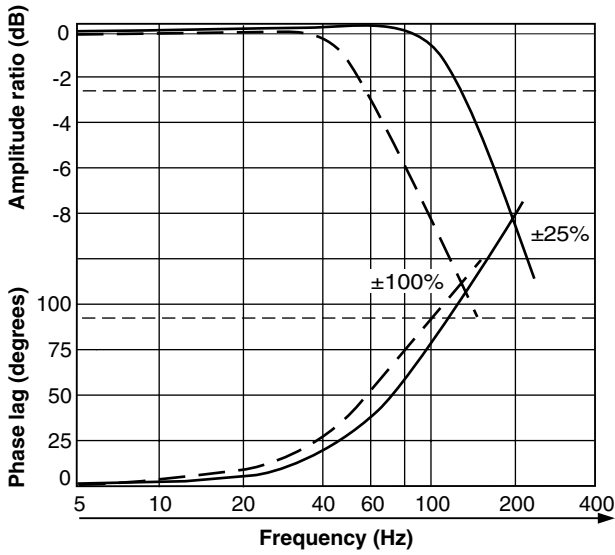
at 100% command  
 Flow Path P → C1 → C2 → R



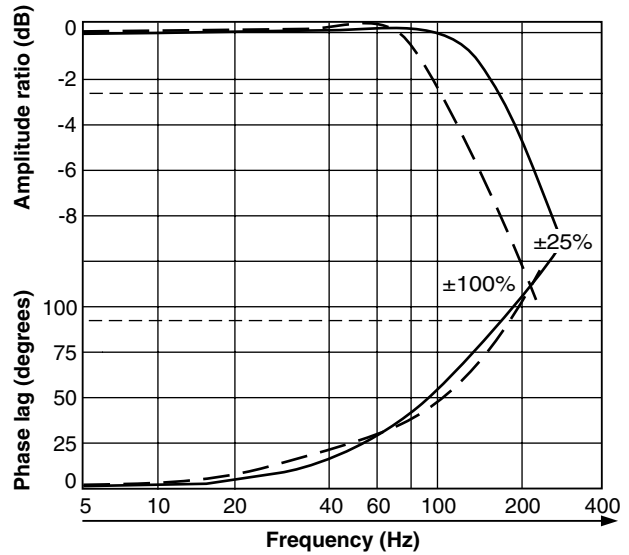


**Weight:** 1.1 kg (2.4 lbs.)  
**Cable with mating connector:** EHC154S  
**Mating connector:** MS3106E-14S-2S  
**Bolt kit:** 4 of M6 x 50 mm, or 4 of 1/4-20x2.00"  
**Flushing valve:** D3L8CV  
**Subplate, 5 ports:** D31D6SA35 (4 side ports #12 SAE, 1 pilot port on P side is #4 SAE)  
**Subplate, 4 ports:** D3H6SA35 (4 side ports #12 SAE)  
**Electronics:** BD101, 23-7030, BD90, or BD95

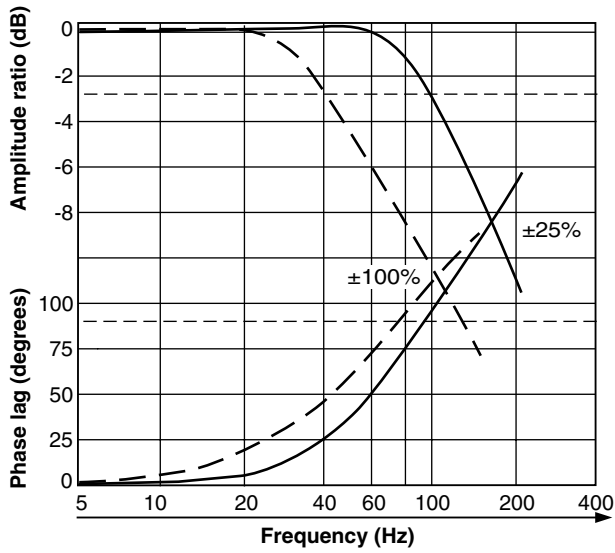
**Frequency Response at 210 Bar (3000 PSI)**  
**Standard Response**  
**SE31 – 4 LPM (1.0 GPM)**



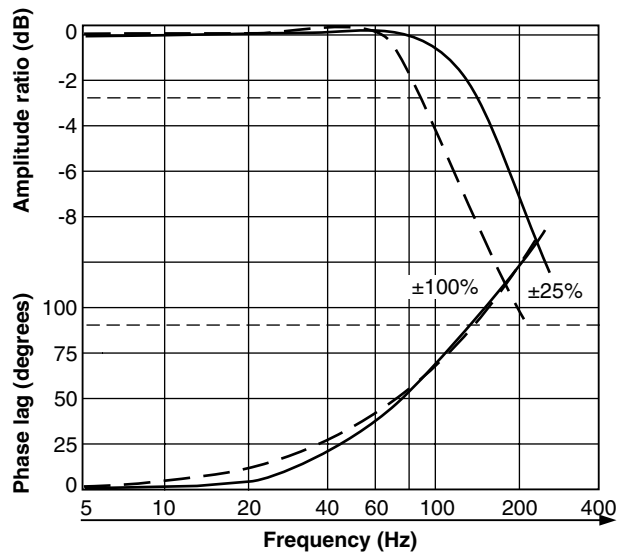
**High Response**  
**SE31 – 4 LPM (1.0 GPM)**



**Standard Response**  
**SE31 – 60 LPM (15 GPM)**



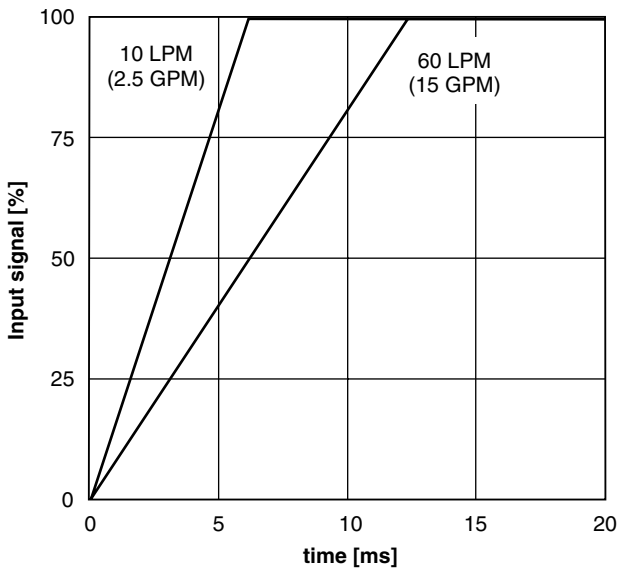
**High Response**  
**SE31 – 40 LPM (10 GPM)**



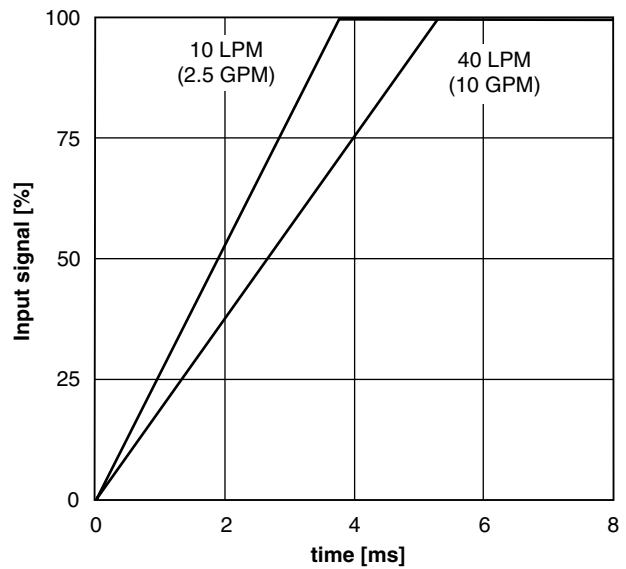
**C**

**Performance Curves**

**Step Response at 210 Bar (3000 PSI)**  
**Standard Response**

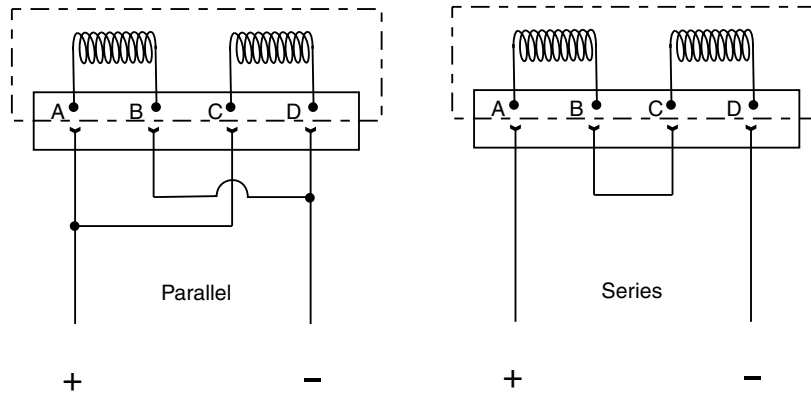


**High Response**



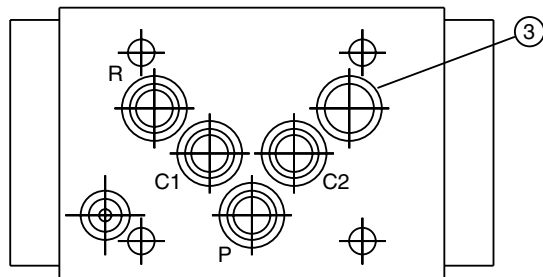
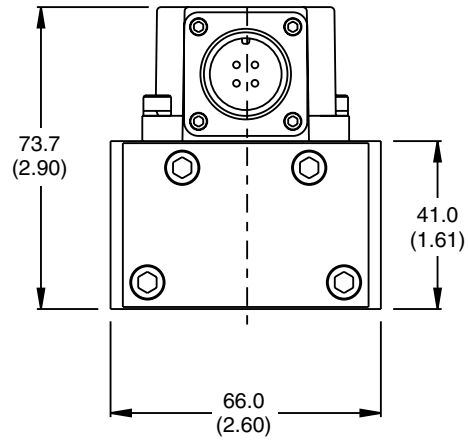
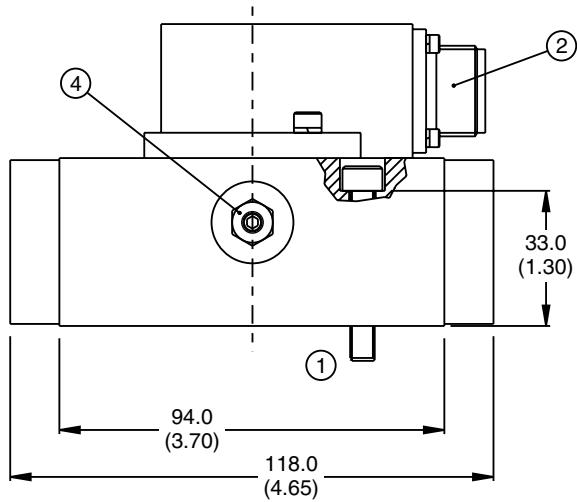
**Installation Wiring Options**

This servovalve has two coils. When connecting the valve to a drive amplifier, the user's external wiring may put the coils either in parallel or in series as needed. Refer to the illustrations below and to the mounting pattern for this valve to insure proper control phasing.



Polarity shown connects flow from P to C2 port.

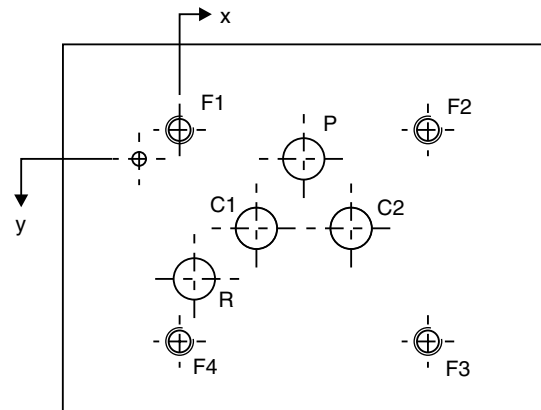
Inch equivalents for millimeter dimensions are shown in (\*\*)



1. Suggested mounting bolts M6 x 50 mm or 1/4-20 x 2.25" long high tensile steel, socket-head cap screws.
2. The 4-pin electrical connector mates with MS3106E-14S-2S or equivalent. The valve connector is available ±90° or 180° from the position shown.
3. Base O-Rings: 12 mm I.D. by 2.0 mm section, 90 durometer.
4. Null adjust requires a 10 A/F ring spanner (10 mm box end wrench) and a 2.5 hexagon key. Flow out of C1 will increase with clockwise rotation of key.

**Mounting Surface**

1. The minimum depth of hole G is 2 mm (0.079 in.). The ISO recommended full-thread depth is 18 mm (0.709 in.).
2. Surface roughness Ra < 0.8 µm [N6], as specified in ISO 468 and ISO 1302.
3. Surface flatness: 0.025 mm (0.001 in.) as specified in ISO 1101.



Metric Dimensions (mm)									
(± 0.1 mm)									
Axis	P	C1	R	C2	X	F1	F2	F3	F4
	Ø 9 max	Ø 9 max	Ø 9 max	Ø 9 max	Ø 3	M6	M6	M6	M6
x	27.0	16.7	3.2	37.3	-8.8	0	54.0	54.0	0
y	6.3	21.4	32.4	21.4	6.3	0	0	46.0	46.0

U.S. Dimensions (inches)									
(± 0.004 in.)									
Axis	P	C1	R	C2	X	F1	F2	F3	F4
	Ø 0.354 max	Ø 0.354 max	Ø 0.354 max	Ø 0.354 max	Ø 0.12	1/4 - 20	1/4 - 20	1/4 - 20	1/4 - 20
x	1.063	0.657	0.126	1.469	-0.347	0	2.126	2.126	0
y	0.248	0.843	1.275	0.843	0.248	0	0	1.811	1.811