

# S12 Pro Datasheet

## Product Overview

The Domin S12 Pro is the next evolution in high-performance, high-flow hydraulic valves. It builds on the proven reliability of the S6 Pro, which is now used as the first stage for the most advanced two-stage valve in the world. The S12 Pro delivers unmatched performance with the same trusted dependability. Combining high flow, excellent dynamics, proven reliability, and low power consumption, the S12 Pro sets a new benchmark in demanding applications.

### Key Features

- Onboard electronics with spool position feedback
- Rated flow of up to 250 l/min (5 Bar  $\Delta P$  per edge)
- Based on the NG16 port pattern
- Bandwidth > 70 Hz (-3 dB, up to  $\pm 25\%$  FS)
- Low power consumption of less than 5 W

### Customisation

The S12 Pro is designed to be customised. Standard modifications include:

- Choice of rated flows up to 250 l/min 10 Bar  $\Delta P$
- Multiple voltage or current control options
- Various seal materials available
- Non-standard configurations are available.

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## Contact Us

If you have any questions about using the S12 Pro, or if you need a non-standard configuration, we would be happy to hear from you.

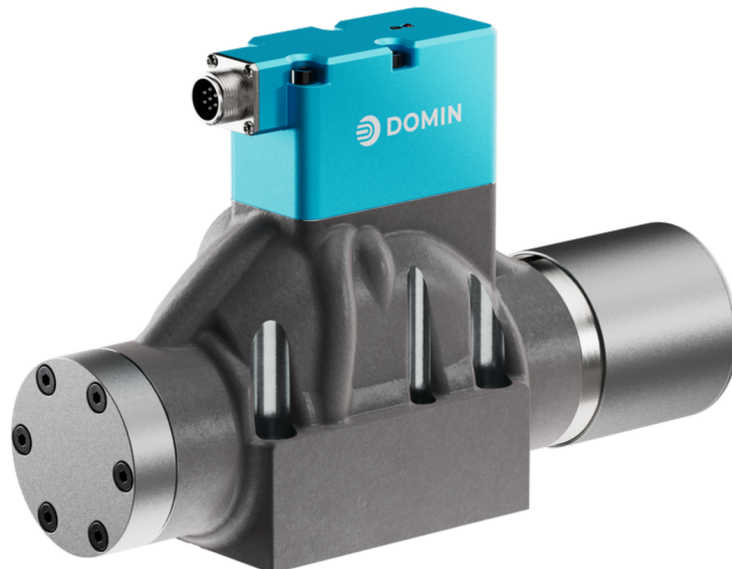
Contact us using the details below and one of our team will be there to assist you.

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[domin.com](http://domin.com)



# Technical Data

## General Data

Design	Two-Stage Servo Valve	
Actuation	Direct Drive Pilot	
Size	NG16	
Mounting Interface	ISO 4401-07-07	
Ambient Temperature	°C (°F)	-20 to +60 (-4 to +140)
Mass	kg (lb)	9 (20)

## Hydraulic Data

Max. Operating Pressure (P, A, B)	Bar (psi)	350 (5,000)
Max. Operating Pressure (T)	Bar (psi)	250 (3,600)
Fluid	Hydraulic Oil DIN 51524-535	
Fluid Temperature	°C (°F)	-20 to +80 (-5 to +175)
Viscosity	cSt	5 to 500
Rated Flow (5 Bar P per edge) <sup>(1)</sup>	l/min (US gal/min)	250 (66)
Rated Flow (35 Bar P per edge) <sup>(1)</sup>	l/min (US gal/min)	660 (174)
Pilot Leakage <sup>(2)</sup>	l/min (US gal/min)	< 0.3 (0.08)
Main Stage Leakage <sup>(2)</sup>	l/min (US gal/min)	< 2.7 (0.7)
Filtration	ISO 4406 (1999) 18/16/13	

## Static/Dynamic Data

Response Time at 100% Step Input <sup>(3)</sup>	ms	< 10
Frequency Response <sup>(3)</sup> (-3dB gain, ±25% signal)	Hz	>70
Frequency Response (-90deg phase, ±25% signal)	Hz	>100
Hysteresis	%	< 0.2
Threshold	%	< 0.1
Null Shift	%	< 1

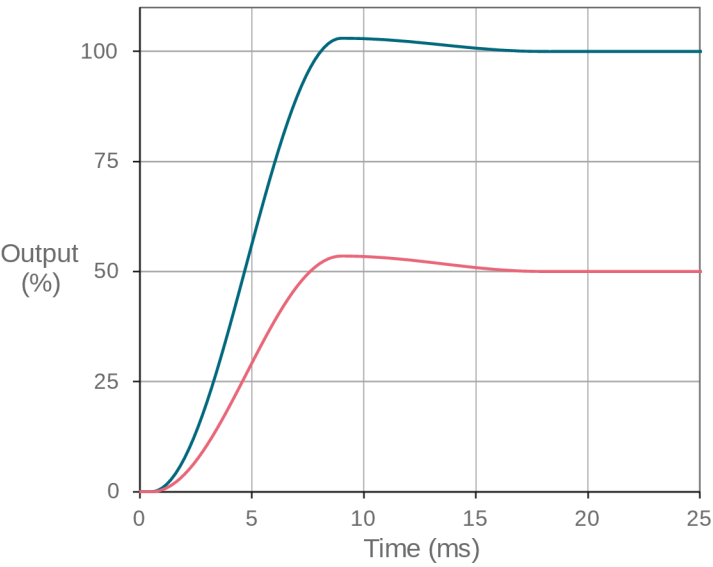
1. Base on an axis cut (A) valve.

2. Measured at a test pressure (P-T) of 100 bar.

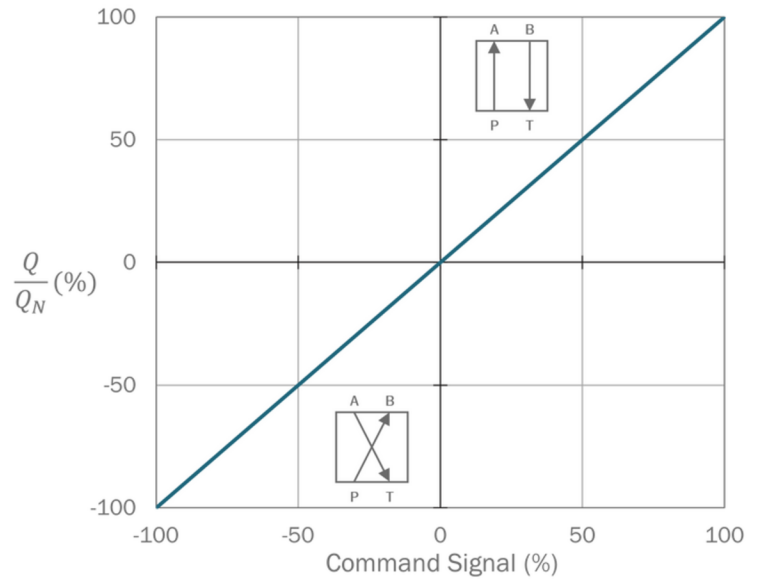
3. Measured as 90% output rise time with Δ70 bar P-T (two control edges).

# Performance Graphs

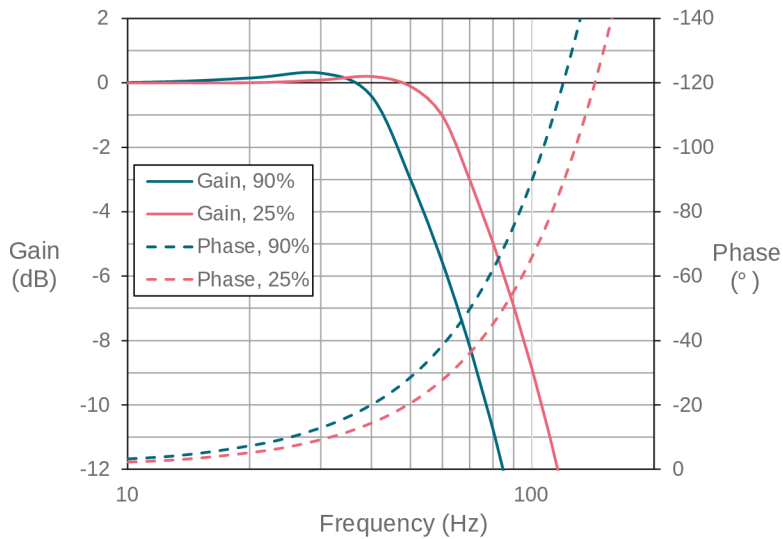
Step Response <sup>(1)</sup>



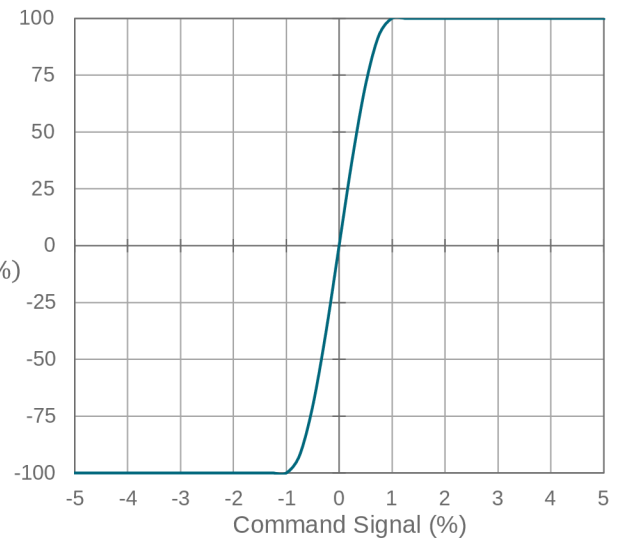
Flow vs Command



Frequency Response <sup>(1)</sup>



Pressure Gain



1. Measured at a 70 bar pressure drop.



# Electronics Data

Normal Operating Conditions <sup>(1)</sup>		Min.	Typical	Max.
Supply Voltage	V	22	24	30
Absolute maximum current draw <sup>(2)</sup>	A	-	-	4.5

## ±10 V

Normal Operating Conditions		Min.	Typical	Max.
Differential Input Signal	V	-10	-	10
Output Signal	V	-10	-	10

## ±20 mA

Normal Operating Conditions		Min.	Typical	Max.
Differential Input Signal	mA	20	-	20
Output Signal	mA	20	-	20

## +4 to +20 mA

Normal Operating Conditions		Min.	Typical	Max.
Differential Input Signal	mA	4	-	20
Differential Input Signal for drive off	mA	-20	-	2

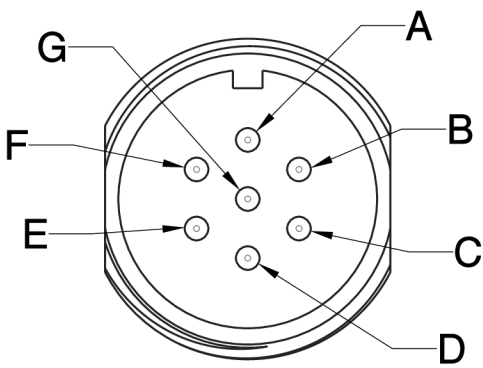
1. Operation of the product outside of the nominal operating conditions is not guaranteed and may affect product reliability.

2. The valve supply must be protected with a 5 AT fuse or equivalent overcurrent protection device.

# Electronic Interface Diagrams

## 6 + PE Circular Connector (Code E)

Type:	Case-Mounted
Termination:	Connector according to EN 175201-804/MIL 5015 equivalent, shell size 14
Number of Contacts:	7



Pin	Function	Description
A	Supply +	+24 V
B	Supply 0 V	0 V
C	Output – Enable input <sup>(1)</sup>	Output 0 V Reference Drive enable input <sup>(1)</sup>
D	Input +	Differential input signal, +
E	Input –	Differential input signal, –
F	Output +	Output signal
G	Earth	-

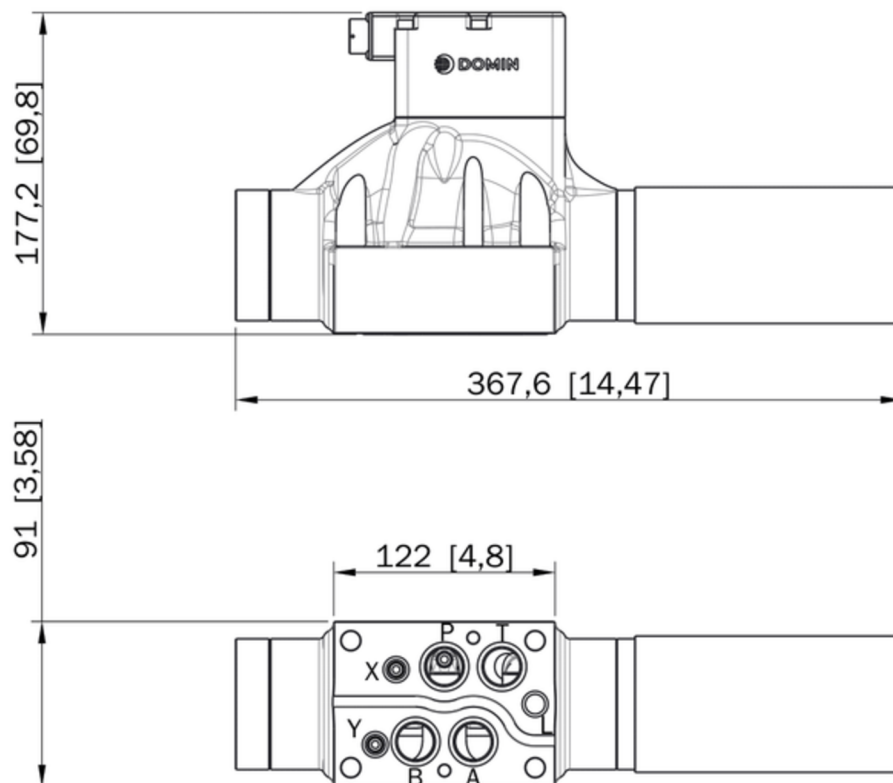
1. When the enable function is selected, the function of pin C is the enable input. This replaces the standard pin function.

# Standards References

EMC Regulations:	Immunity: EN 61000-6-2, Emission: EN 61000-6-3
Performance Tests:	ISO 10770-1
Pressure Rating:	ISO 10771
Hydraulic Interface:	ISO 4401-07-07 <sup>(1)</sup>

1. Ports over-sized to  $\varnothing$  20 mm.

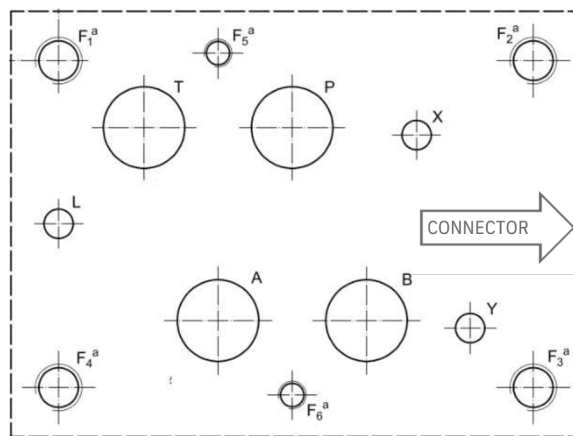
# Unit Dimensions



Nominal dimensions are displayed in mm [inches]. Not to scale.

# Mounting Dimensions

	P	A	B	T	L	X	Y	F1	F2	F3	F4	F5	F6	
Diameter Ø	mm	20	20	20	20	6.3	6.3	6.3	M10	M10	M10	M10	M6	M6
X Position	mm	50	34.1	65.9	18.3	0	76.6	88.1	0	101.6	101.6	0	34.1	50
Y Position	mm	14.3	55.6	55.6	14.3	34.9	15.9	57.2	0	0	69.9	69.9	-1.6	71.5



## Bolts

### (F1, F2, F3, F4)

Type: M10 x 60 DIN 912-12.9  
 Required Torque: 65 Nm (47.95 ft-lbf)

### (F5, F6)

Type: M6 x 60 DIN 912-12.9  
 Required Torque: 13 Nm (9.59 ft-lbf)

## O-Rings

### (P, A, B, T)

Type: 21.89 x Ø 2.62 (ISO 3601)  
 Material: NBR or Viton, 90 Shore A

### (L, X, Y)

Type: 10.32 x Ø 1.78 (ISO 3601)  
 Material: NBR or Viton, 90 Shore A



# Ordering Code

At Domin, we are proud of our ability to offer tailored solutions that meet our customers' specific needs. If you require a non-standard configuration, or a bespoke modification, we are confident we can provide you with the best solution. Talk to us using the contact details provided and one of our technical sales team will respond as soon as possible.

<b>S12 Pro</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>Code 1</b>	<b>Rated Flow</b>								<b>Code 9</b> <b>Custom ID</b>	
Any value in range 250 to 660 <sup>(1)</sup>									Assigned individually to any with customised options upon enquiry	
Rated flow in l/min for 35 bar ΔP per control edge										
R – Suffix for reversal of A and B port e.g. 200R										
<b>Code 2</b>	<b>Spool Lap Condition</b>								<b>Code 8</b> <b>Seal Material</b>	
A	Axis cut (1% overlap linearised)								N Nitrile	
O	3% Overlap (linearised to 50% gain over centre)								V Viton	
D	10% Overlap (with flow dead band)								X For other options please enquire	
X	For other options please enquire									
<b>Code 3</b>	<b>Control Method</b>								<b>Code 7</b> <b>Fluid Type</b>	
A	± 10 V								R Recommended - any hydraulic oil in accordance with DIN 51524.	
B	± 20 mA								X For other options please enquire	
C	4 to 20 mA									
X	For other options please enquire									
For differing input and output signals, use two letters, e.g. AC denotes ± 10V Input and 4 to 20mA output									<b>Code 6</b> <b>Enable Mode</b>	
<b>Code 4</b>	<b>Power off Position</b>								Y Enable mode on	
C	Centre								N No Enable Functionality	
X	For other options please enquire									
									<b>Code 5</b> <b>Electrical Connector</b>	
									E 6 pin + PE circular connector	
									X For other options please enquire	

1. Flow rating set in valve software – dynamic performance measured set at 250 l/min flow.