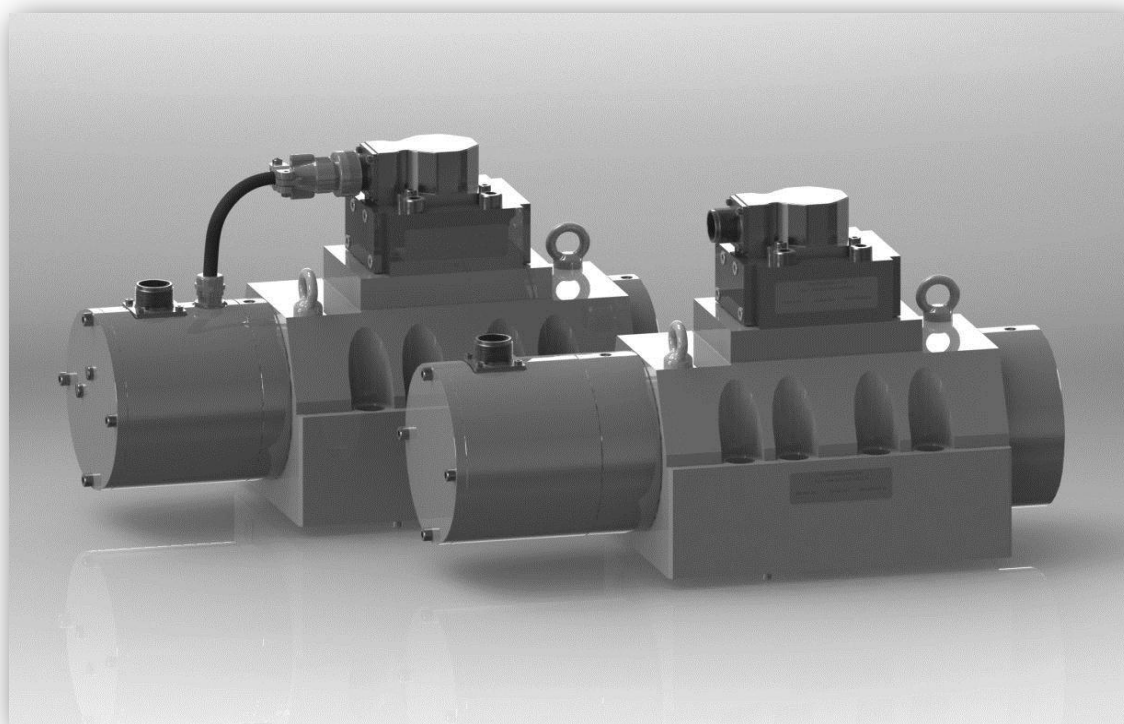


Electric feedback at main stage spool
Available with & without integrated electronics
Long life "Sapphire Technology"
Suitable for 3-way or 4-way applications
Very low hysteresis & zero point drift
Optimized SMT inner control loop
Maximum operating pressure 350 bar
Maximum flow 900 l/min at 70 bar
Internal or external pilot supply & return (4, 5 or 6 port)



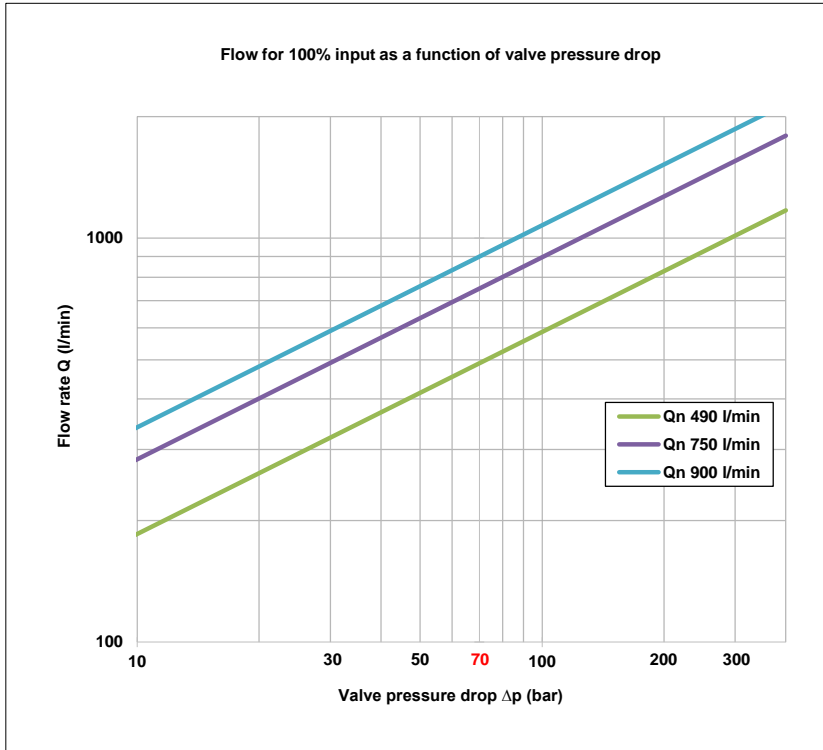
Star Hydraulics Limited
Severn Drive
Tewkesbury Business Park
Tewkesbury
Gloucestershire
GL20 8SF
England (UK)

www.star-hydraulics.co.uk

Technical Data

Nominal flow ratings at 70 bar Δp		490, 750 & 900 l/min
Rated spool stroke (maximum)		± 2.5 mm (± 3.3 mm max.)
Spool drive area	902HF130..., 902HF...S & H	2.85 cm ²
	902HF200D...	7.14 cm ²
	902HF240D...	10.81 cm ²
Internal leakage at 140 bar supply		≤ 9.0 l/min
Mass		26 kg
Hysteresis		$\leq 1.0\%$
Threshold		$\leq 0.5\%$
Null shift		$\leq 2\%$
Load pressure difference at 1% input		$\geq 30\%$ of supply pressure can be as high as 100%
Seal material / shore hardness		NBR or FPM 90 shore
Temperature range (fluid)		-20 to 80 °C
External leakage		zero
Degree of protection EN 50529P		IP 65
Vibration		30 g, 3 axes
Mounting position		Any, fixed or movable
Supply filtration		
non by-pass		Beta 10 = 200 (10 μm abs)
cleanliness control filter		Beta 3 = 200 (3 μm abs)
Fluid cleanliness level per ISO 4406: 1999		
minimum		16/ 14/ 12
recommended		14/ 12/ 10
Operating pressure (max)	main stage	350 bar
	pilot	210 bar (280 bar & 315 bar options)
Supply pressure		Constant
Fluid viscosity		10 to 100 cSt
Fluid type		Petroleum based mineral oil

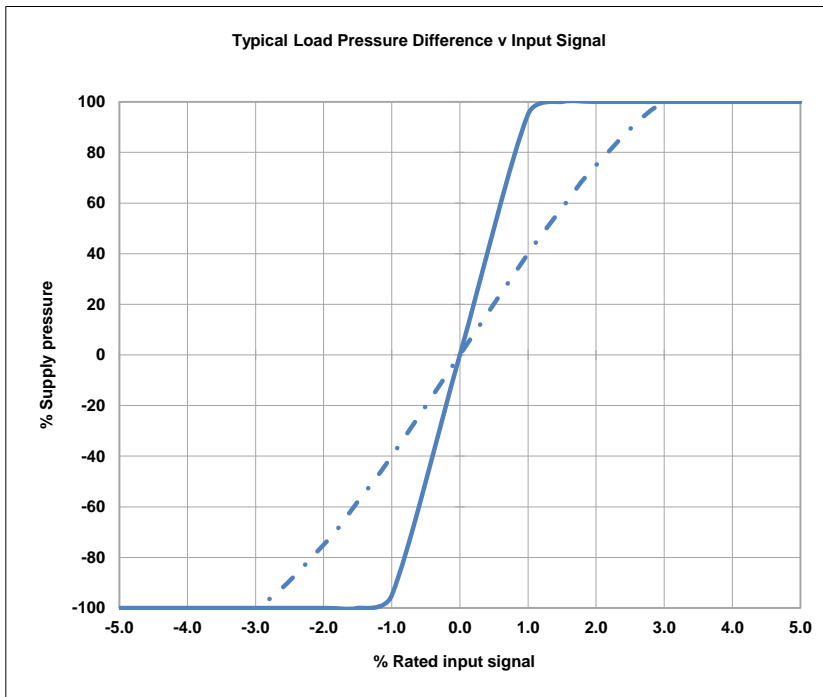
Technical Data



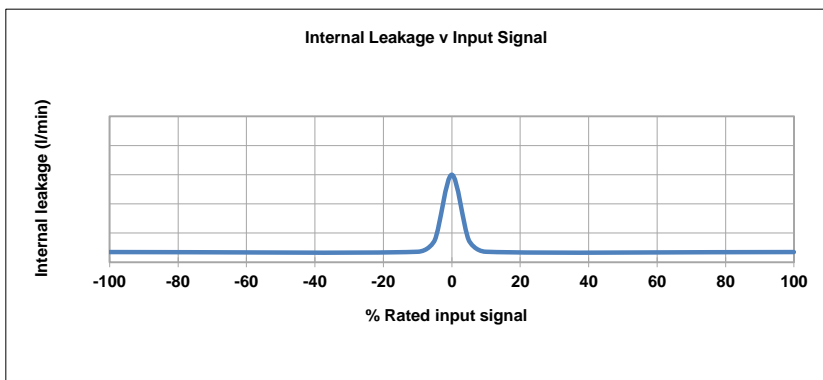
The diagram shows the maximum controlled flow rate according to the valve pressure drop between ports P & T.

The flow tolerance for standard servovalves is $\pm 10\%$ of the rated flow at 100% rated input signal.

The rated flow (Q_n) is quoted at 70 bar Δp bar, 100% rated input signal. Lap condition equates to 1.0% positive lap to 1.0% negative lap per land on standard lap condition units.

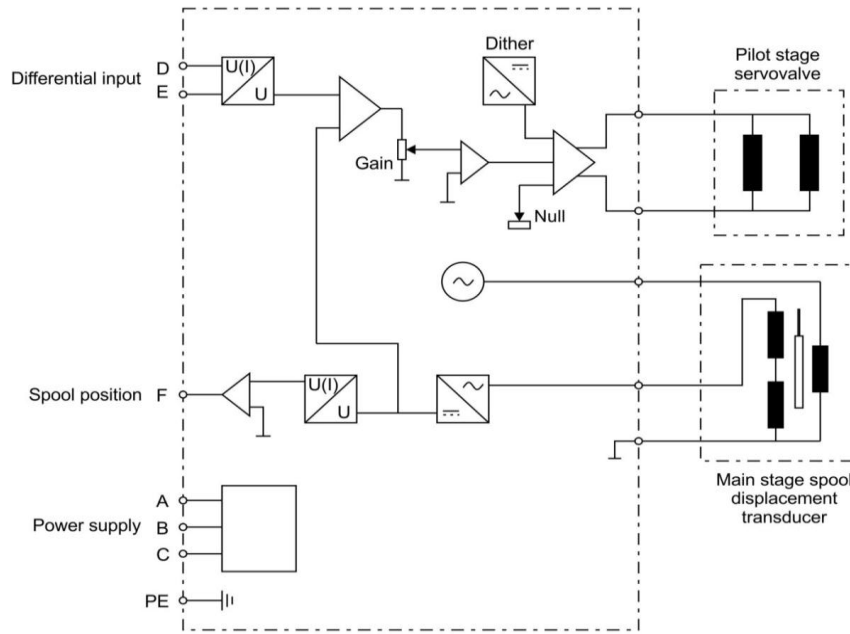


Pressure change characteristic will vary with positive and negative lap conditions. Negative lap will reduce the rate of change which in some applications is beneficial.



Typical null leakage characteristics, max values shown on pages 2.

Electrical Details - Internal Electronics



Connections for valves with +15/0/-15 V dc power supply

Pin	Function	V command	I command	
A	Supply		+15 V \pm 3%, ripple < 1%	
B	Supply		-15 V \pm 3%, ripple < 1%	
C	Supply / signal ground		0 V	
D	Input rated command (differential)	0... \pm 10 V	0... \pm 10 mA	
E				
F	Main stage spool position O/P	0... \pm 10 V	0... \pm 10 mA	

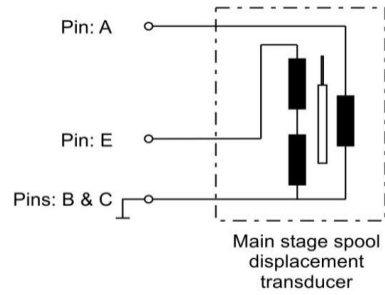
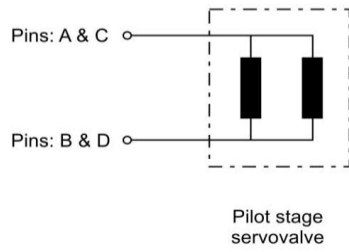
Command signal

When input at pin D = +ve with respect to pin E causes flow from P»B, A»T.

Spool position

Output at pin F is proportional to rated stroke of main stage spool.

Electrical Details - External Electronics



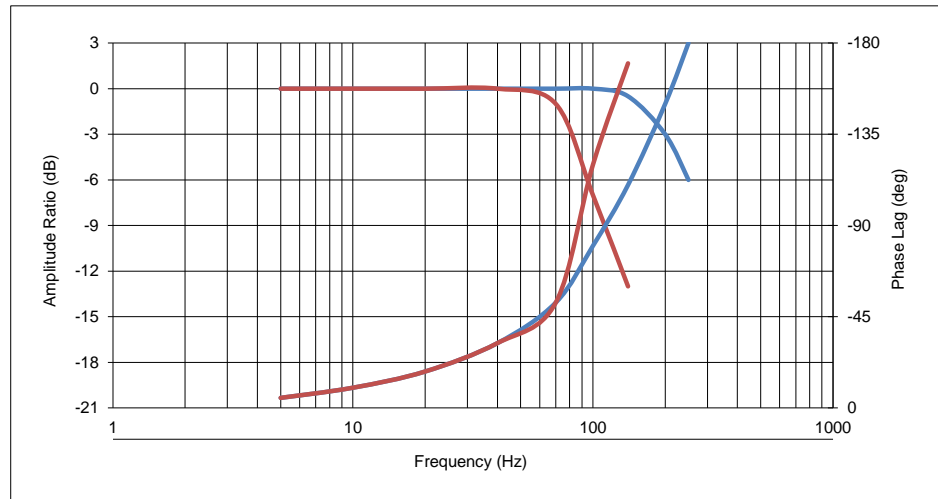
Mating connector MS3106F-14S-2S
Rated Input ±40 mA
Effective resistance 40 ohms

Mating connector MS3106F-14S-5S
Input voltage 3 Vrms sine wave
Input frequency 0.5 to 10 kHz
Sensitivity 95 mV/V/mm @ 2.5 kHz
Resistance primary 70 ohms
Resistance secondaries 102 ohms
Phase shift -3 dB

Frequency Response

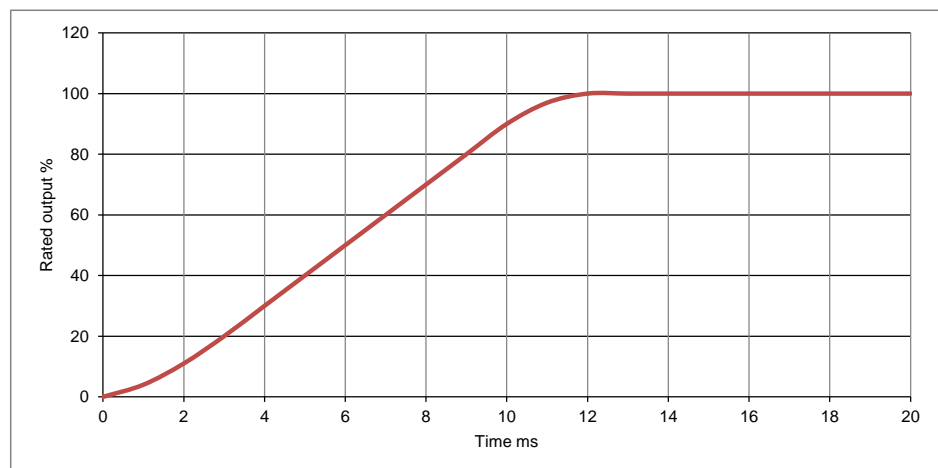
10% In — 100% In —

902HF200D, pilot A or B



Step Response

100% command

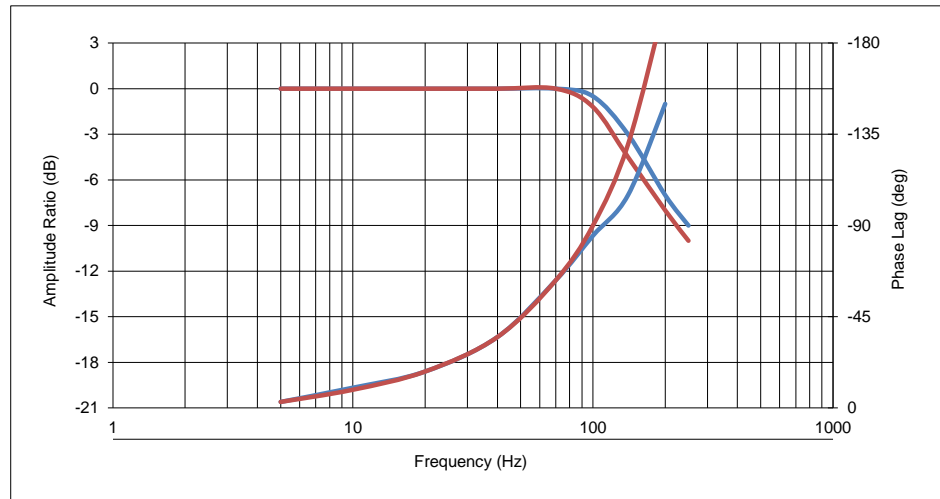


Typical performance curves optimised per 210 bar supply pressure, fluid viscosity 32 cSt at 40 °C

Frequency Response

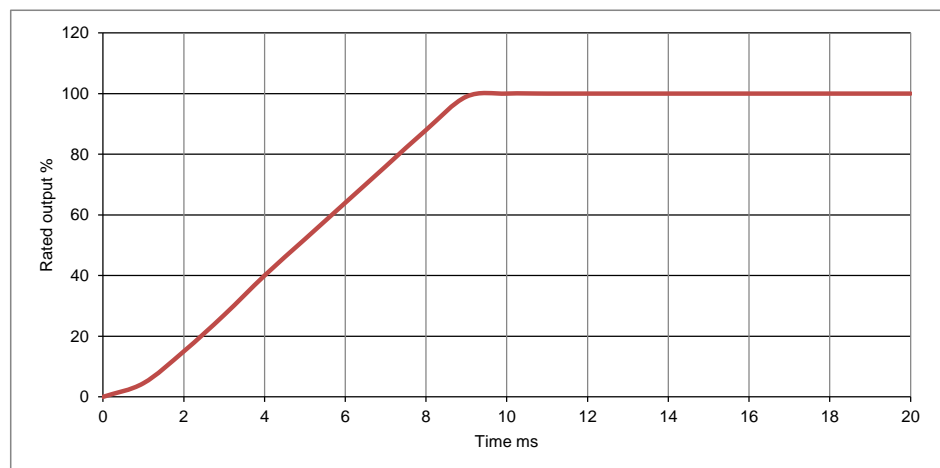
10% In — 100% In —

902HF...S, pilot A or B



Step Response

100% command

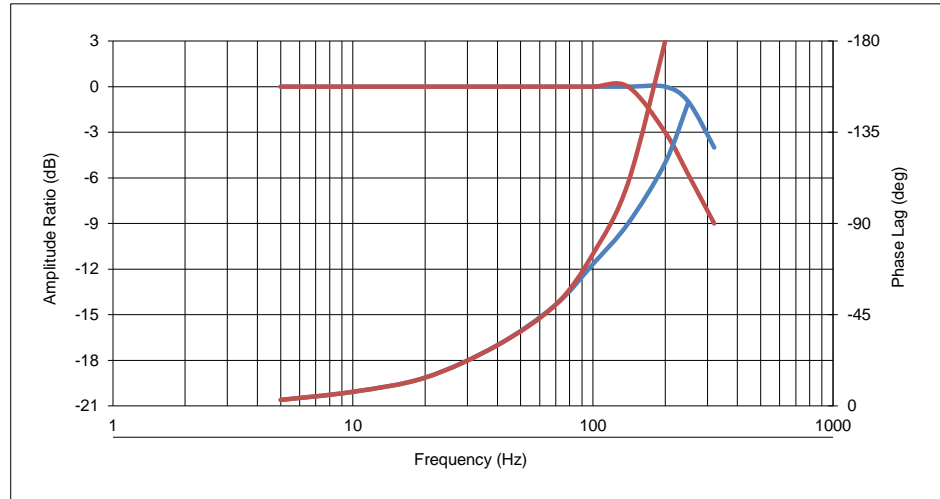


Typical performance curves optimised per 210 bar supply pressure, fluid viscosity 32 cSt at 40 °C

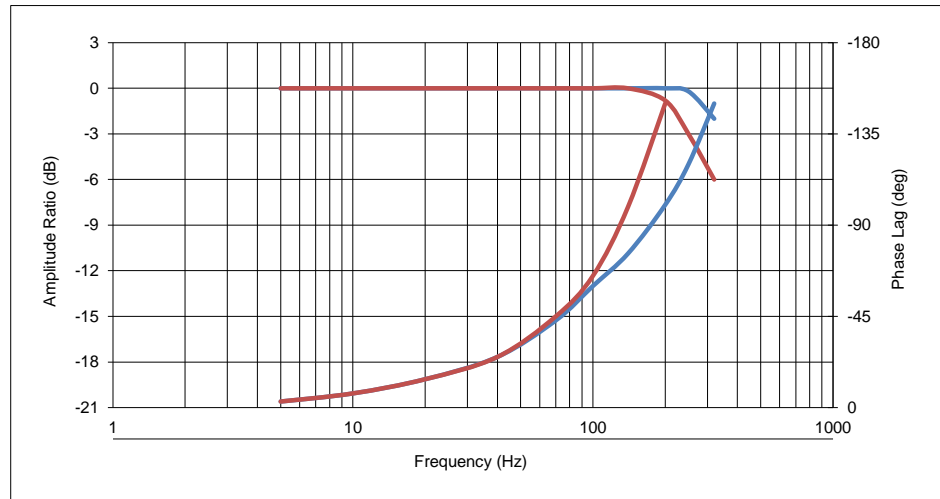
Frequency Response

10% In — 100% In —

902HF...H, pilot A or B

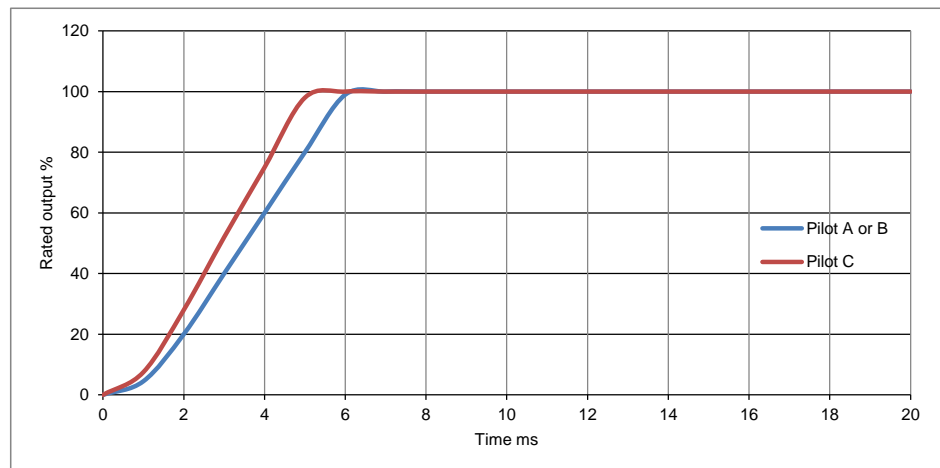


902HF...H, pilot C



Step Response

100% command



Typical performance curves optimised per 210 bar supply pressure, fluid viscosity 32 cSt at 40 °C

Ordering Details



Special order code
Factory defined

Body style

Max. flow	Code
900 l/m	902HF

Rated flow at 70 bar Δp

	Qn	Code
902HF	490 l/m	130
	750 l/m	200
	900 l/m	240

Response level

Description	Code
High stability	D
Standard	S
High response	H

Operating pressure (main stage)

Description	Code
280 bar	28
350 bar	35

Pilot flow

	Description	Code
(std)	X external, Y external	EE
	X internal, Y internal	II
	X external, Y internal	EI

Pilot model

Description	Code
Model 550	A
Model 500-2	B
Model 590-2	C

Connector

Code	Description
5	5-Way MS3102 *
6	6-Way MS3102
7	6 + PE-pole
X	Special

Lap condition

Code	Description	
A	-1% to 1% positive, linear	(std)
X	Special	

De-energized control spool position

Code	Description
A	100% P » C2, C1 » T
B	100% P » C1, C2 » T
X	Not defined

Seal material

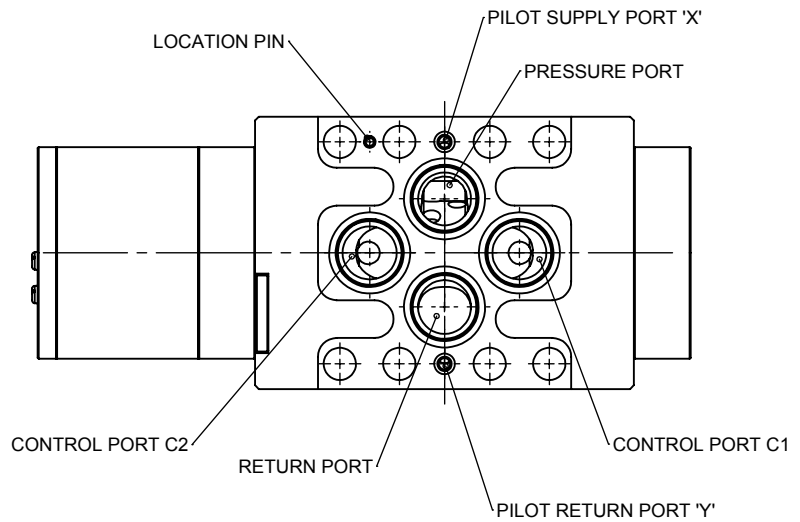
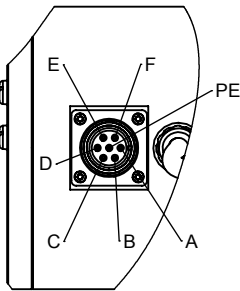
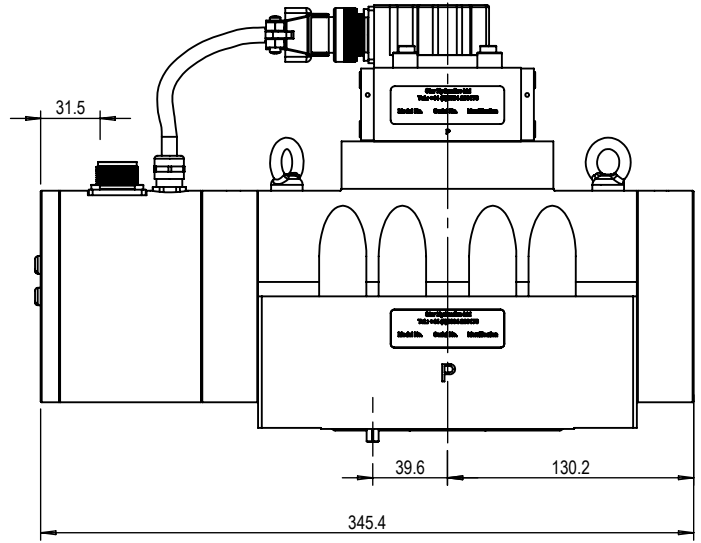
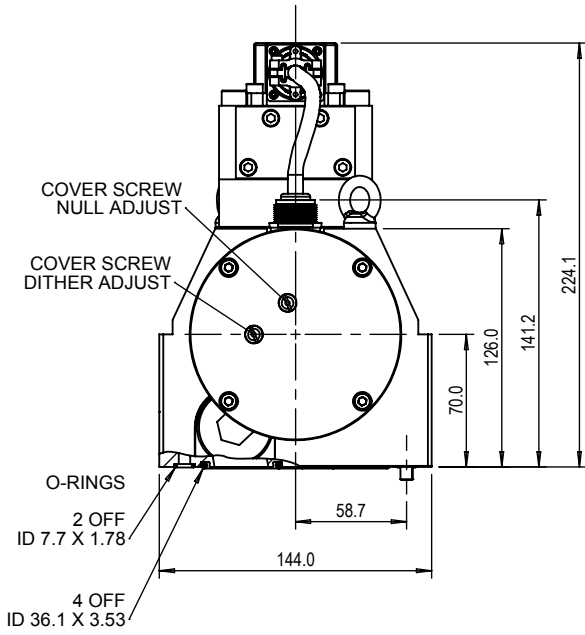
Code	Description
N	NBR
V	FPM (Viton)

Electronics Input signal / Spool position output

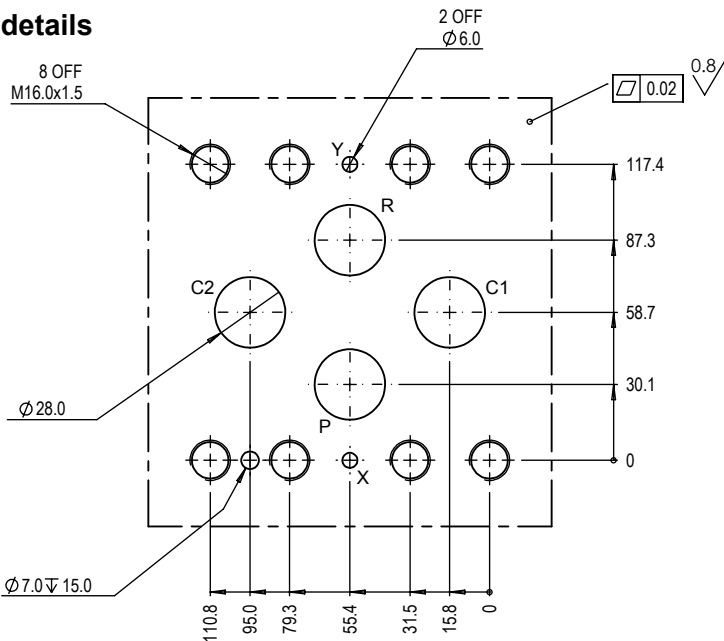
Code	Description	Supply
1	±10 V / ±10 V	Integrated +15/0/-15 Vdc
2	±10 mA / ±10 mA	
3	4...20 mA / 4...20 mA	
X		External

* External electronics, pilot valve with 4-Way MS3102 connector

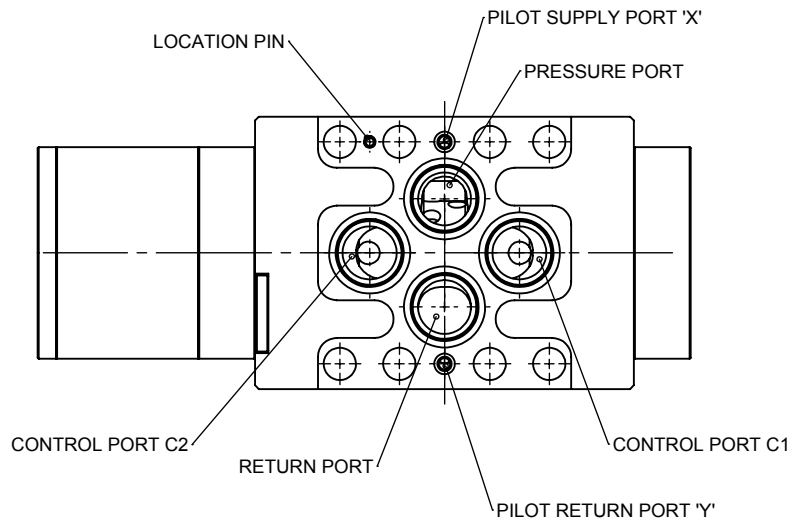
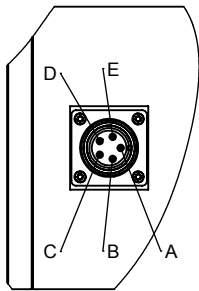
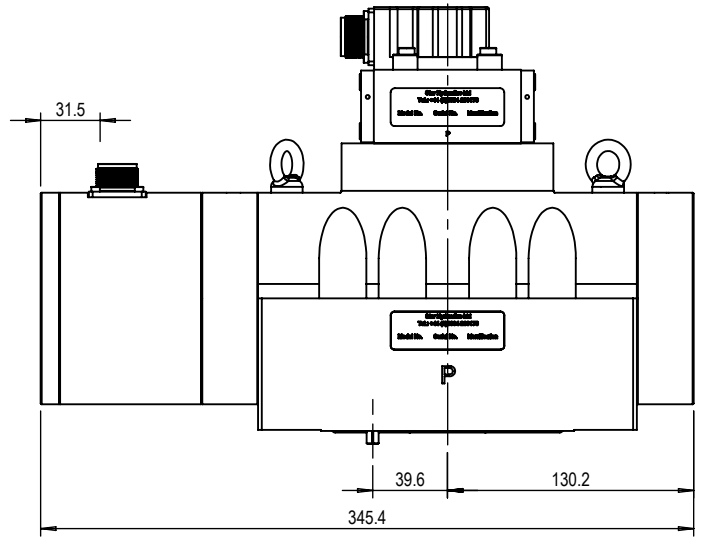
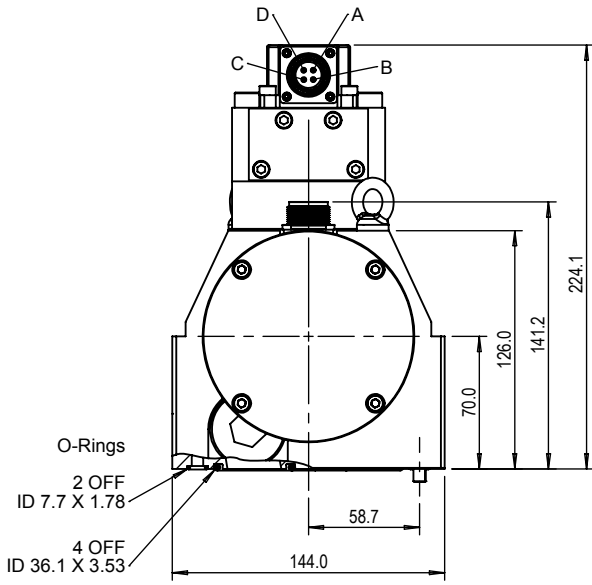
Installation drawing model 902HF...H w/ Internal Electronics
with 500-2 series pilot



Manifold details



Installation drawing model 902HF...H w/ External Electronics
with 500-2 series pilot



Manifold details

