HUSCO

Electro-Hydraulic Pressure Reducing Valve

F01 2P3W EPRV

Product Specification Sheet

Rev A00

F01 EPRV

Description:

Part of Husco's new F Series family of EH cartridge valves, the F01 is a direct acting, solenoid controlled, proportional pressure reducing and relieving valve. Control Port pressure is proportional to current applied to the coil and is independent of Supply pressure.

Operation:

When de-energized, the valve will drain from Control Port to Tank Port. When energized, the valve will meter between the Supply Port and Control Port (reducing), and Control Port to Tank Port (relieving) to maintain the Control Port pressure proportional to the coil current.

Standard Product Features:

Feature	Characteristic
Maximum supply pressure	250 bar (contact HUSCO for other requirements)
Environmental rating	IP67 & IP6K9K rating
Corrosion resistance	Maintains function after 200 hr Salt Spray ASTM B117 NSS
Installation type	Flange mounted, standard cavity
Control pressure options	20, 25, 30 bar minimum
Seal types	All hydraulic seals are HNBR
Installation	Requires (2X) M4 x 0.7 x 10 mm Socket Head Cap Screw, Class 10.9, Plating: black oxide (sold separately) - Torque to 2.70 +/-0.7 N-M
Fluid compatibility	ISO VG32, ISO VG46, SAE10W or similar petroleum based hydraulic oil
Leakage	< 800 cc/min energized leakage at 250 bar
	< 400 cc/min de-energized leakage at 250 bar
	No external leakage per SAE J1176: Class 0 & Class 0D
Durability	6 million full shift durability cycles
Hysteresis	< 2% of maximum current at all metering currents
Flow	7 lpm @ 10 bar pressure drop – largest flow per package size available
Response	Market leading response characteristics
Overshoot / undershoot	Best in class overshoot / undershoot characteristics
Size	Cartridge diameter ∅ 30.8 mm
Contamination resistant	100 µm supply filter
System cleanliness	System cleanliness level required shall be < 20/18/15 per ISO 4406:1999
Product cleanliness	Ship-away cleanliness to be below -/18/15 per ISO 4406:1999 with a max particle size of 0.25 mm

Pressure Ratings:

Connection	Max	Unit	Comment
Control [1]	40	Bar	Fatigue Rated
Supply [2]	250		
Tank [3]	30		

Temperature:

Condition	Parameter	Value	Unit
Ambient	Operating	-40 to 105	°C
	Storage	-55 to 125	°C
Hydraulic Oil	Specified Operation	20 to 100	°C
	Predictable Operation	-40 to 105	°C

Electrical Properties:

Parameter	Value						Unit	Test Condition / Comment
	12V			24V				
	20	25	30	20	25	30	Bar	
Coil Resistance	4.9	5.1	5.2	20.3	20.6	21.0	Ohms	@ 20°C, ± 5% tolerance
Coil Current	0 – 1500			0 – 750			mA	Current Controlled
Metering Current	300 – 1500			150 – 750			mA	Proportional Valve Metering Range
PWM Drive	100						Hz	No superimposed dither
HIPOT - Electrical Insulation	< 1						mA	Current leakage to coil housing, with 1000V applied to coil

Connector Options:

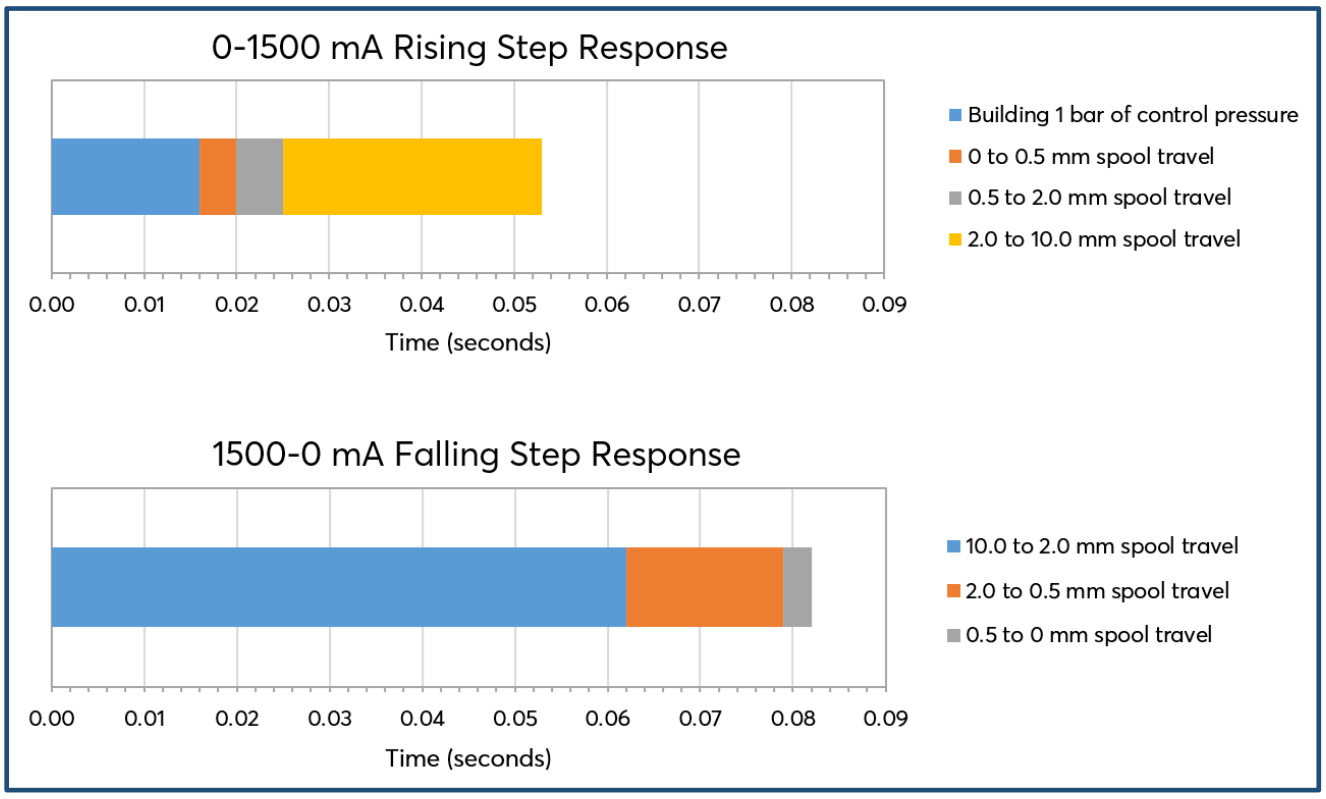
Connector Type	Coil Connector	Mating Connector	Rating
Deutsch (180° or 90° orientation)	DT04-2P	DT06-2S	IP67 & IP6K9K**
Ampseal 16 (180° or 90° orientation)	776428-X	776427-X	IP67 & IP6K9K

**With back shell installed. Deutsch Part No. 61031-23.

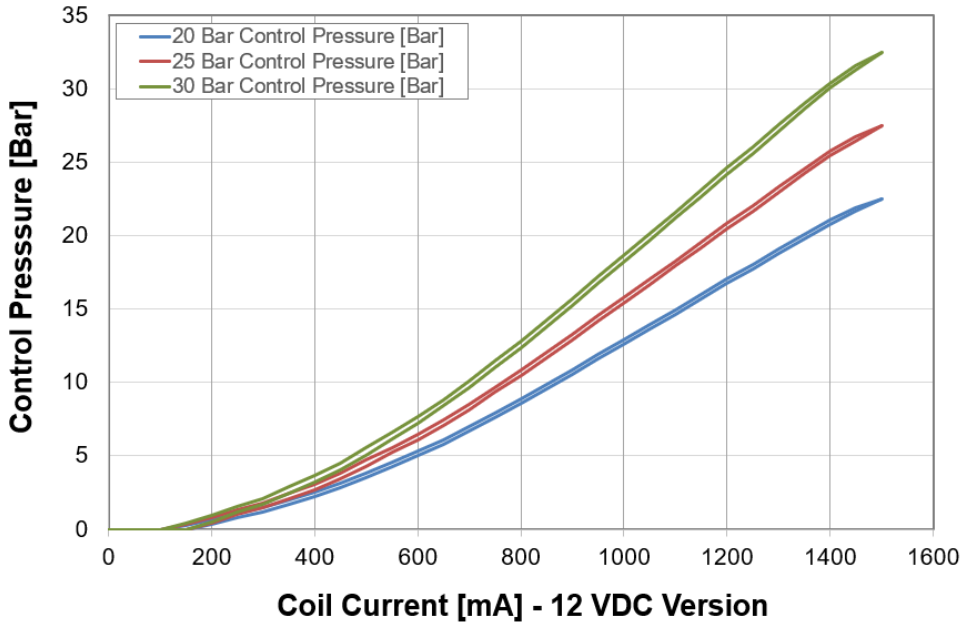
Response Characteristic:

Response characteristics have been tested in a real-world application by using EPRVs to control the spool position on a spool-type control valve. One EPRV provides control pressure to shift the spool valve (metering pressure from Supply [2] to Control [1]), while fluid displaced by the spool passes through the second EPRV on the opposite end of the control valve (passing displaced fluid from Control [1] to Tank [3]). Both EPRVs are direct mounted in spring end caps on the ends of the main control valve. Tests were completed using a 12 VDC coil and 100 Hz PWM command signal.

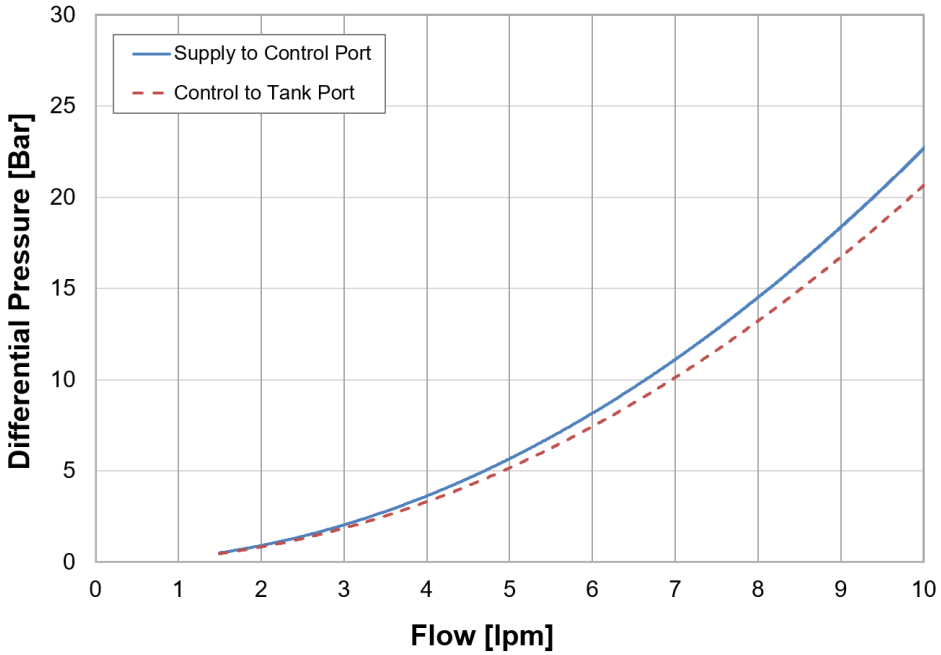
Test Valve Parameters	
Spool Diameter	25.4 mm
Spool Stroke	10.4 mm
Spring Rate	60 N/mm
Spring Preload	121.5 N
Chamber Volume	140 cm^3



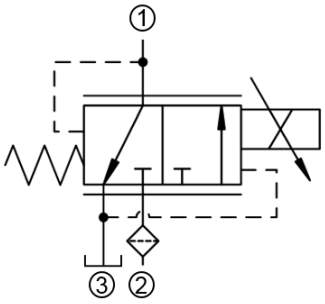
Control Pressure vs. Current:

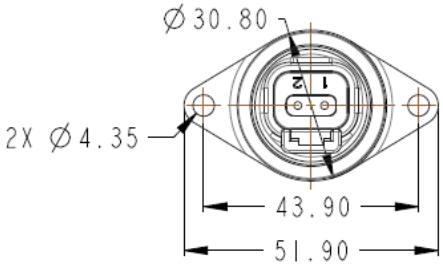


Typical Pressure Drop vs. Flow:

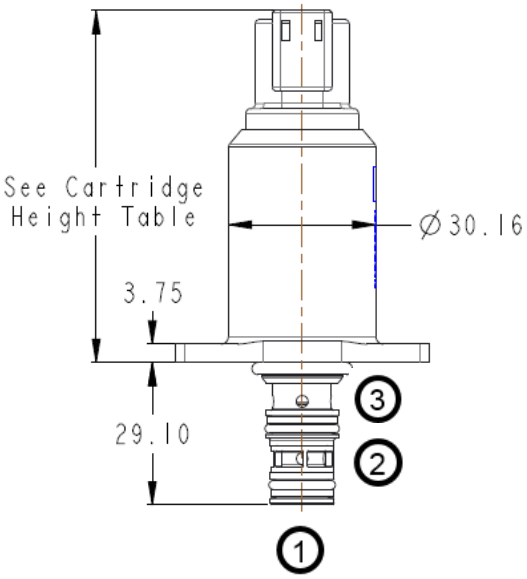


Schematic and Dimensions:



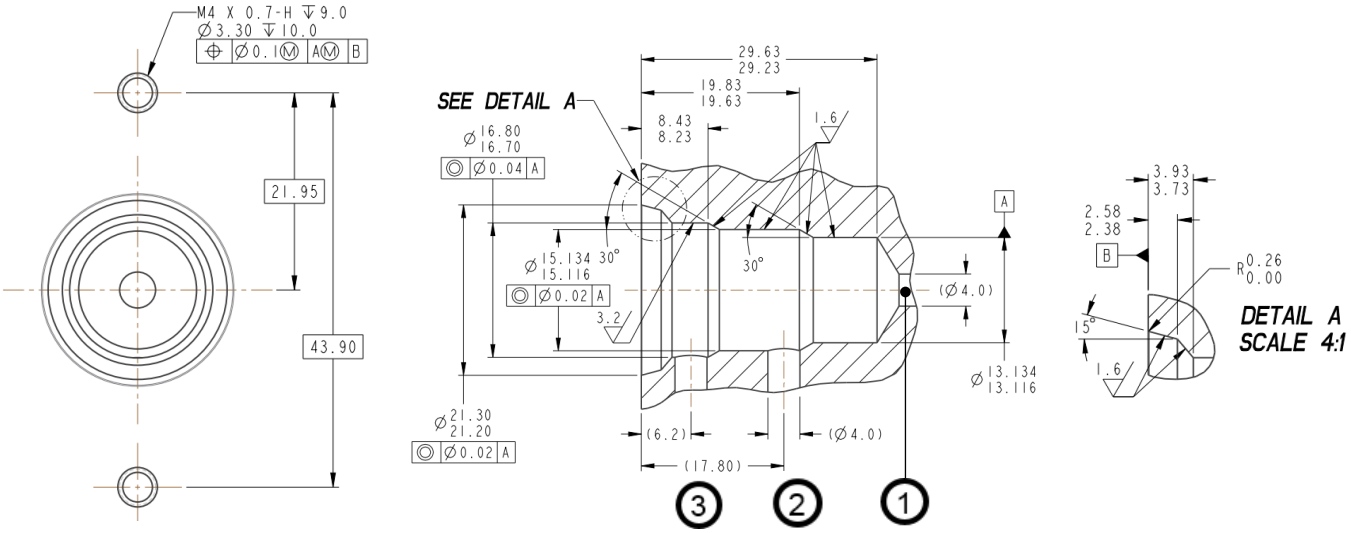


Notes	
Logic:	1 = Control Port
	2 = Supply Port
	3 = Tank Port
Dimensions:	Nominal, [mm]
Connector Type Shown:	Deutsch DT04-2P, 180°

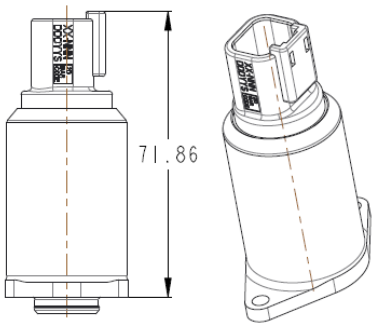
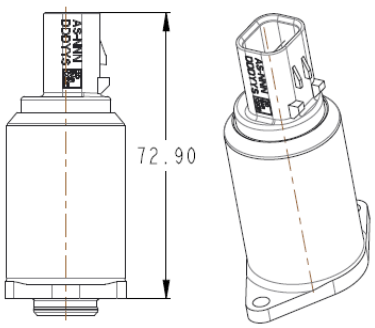
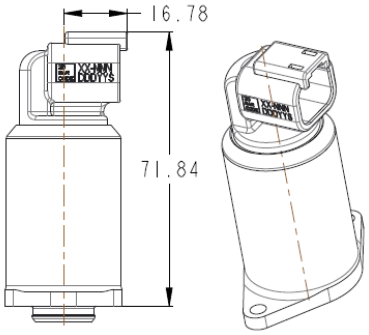
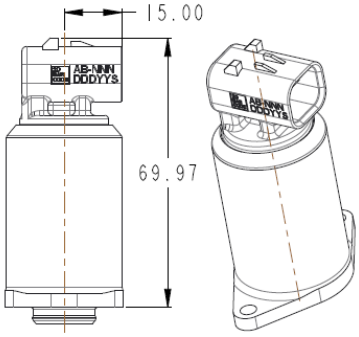


Cavity Details:

Cavity 199-672



Cartridge Height:

Deutsch DT04-2P, 180°	Ampseal 16, 180°
	
Deutsch DT04-2P, 90°	**Ampseal 16, 90°**
	

F01 Model Code

N	F01	-	12	D	1	A	20	-	A00

N prefix
(include for service parts & loose cartridge orders)

Product Type

Voltage
12 = 12 VDC
24 = 24 VDC

Connector Type
A = Ampseal 16
D = Deutsch DT04-2P

Connector Orientation
1 = 180 degrees (straight)
9 = 90 degrees

Connector Key Option

Option	Deutsch DT04	Ampseal 16
A	Standard	776428-1

Control Pressure
20 = 20 bar
25 = 25 bar
30 = 30 bar

Special Feature Combination
A00 = No special features

Contact Husco Sales for other feature options.

Husco Serial Number Code: YYDDDXXXX
YY = Year
DDD = Day of the Year
XXXX = Individual Build Number

Miscellaneous Information:

Seal-Kit	P/N: F01-K001
Deutsch connector paint plug	P/N: 61954
Ampseal 16 connector paint plug	P/N: 63328