PROPORTIONAL CONTROLS

Section / Description page

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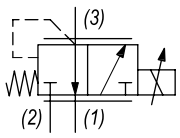
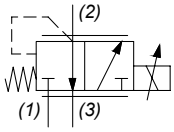
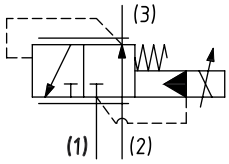
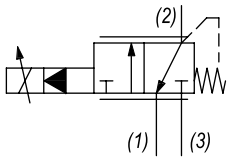
PROPORTIONAL PRESSURE REDUCING / RELIEVING VALVES

DIRECT ACTING	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	1	700	4	50	slip-in	**IP-DAR-250-L**	PD4
	1	700	4	50	slip-in	**IP-DAR-43C-L**	PD6
	1	5000	4	345	slip-in	**IP-DAR-43C-H**	PD6
	7.5	700	30	50	slip-in	**IP-RDS-222-L**	PD8

PILOT OPERATED	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	12	3000	45	207	7/8-14	**EF-PRP**	PD10
	7.9	700	30	50	slip-in	**IP-PRZ-59-AM12**	PD12
	8	450	30	31	7/8-14	**EG-PRZ**	PD14
	30	450	114	31	1 1/16-12	**ES-PRZ**	PD16

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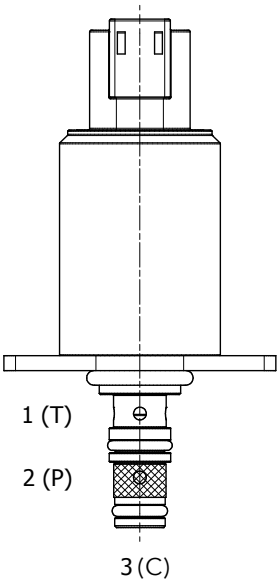
IP-DAR-250 DIRECT ACTING PROPORTIONAL, PRESSURE REDUCING/RELIEVING, SLIP-IN TYPE



DESCRIPTION

Special cavity, slip-in style flange retained, direct acting proportional, pressure reducing/relieving valve.

OPERATION

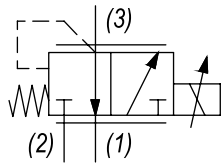
The IP-DAR-250 generates a variable pressure in response to a PWM (Pulse Width Modulated) current signal. With no current applied to the proportional solenoid, the inlet port 2 (P) is blocked and the regulated port 3 (C) is vented to port 1 (T). As current is increased, fluid pressure is proportionally controlled at the regulated port 3 (C). On attainment of proportionally determined pressure at 3 (C), the cartridge shifts to block flow at 2 (P), thereby regulating pressure at 3 (C). In this mode, the valve also will relieve 3 (C) to 1 (T) at a variable value over the set reducing pressure.

FEATURES

- Slip-in style.
- Efficient wet-armature construction.
- Integral waterproof coil.
- Continuous duty rated solenoid.

Flanged retained product. The coil is an integral part of the valve and is not serviceable. Eventual tank pressure exceeding o bar, has to be added to reduced pressure value.

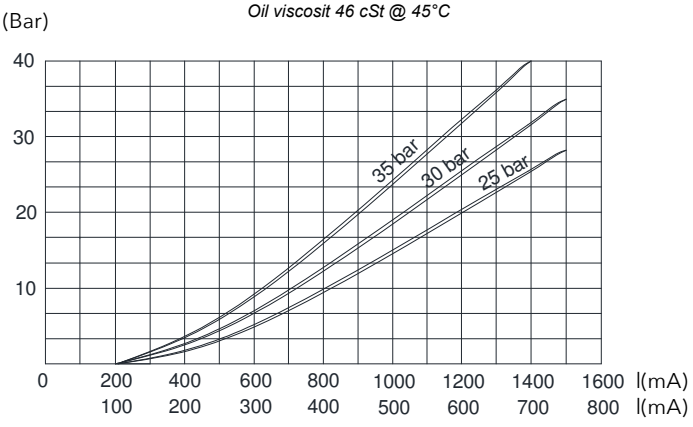
HYDRAULIC SYMBOL



PERFORMANCE

Pressure Vs. Current Characteristic

Oil viscosit 46 cSt @ 45°C



VALVE SPECIFICATIONS

Nominal Flow	1 GPM (4 LPM) @ 8 bar Delta P
Max Inlet Pressure "L" version	700 PSI (50 bar)
Controlled Pressure Range	0÷25 bar / 0÷30 bar / 0÷35 bar (see graph)
Reduced Pressure Tolerance	±5%
Max Back-Pressure at T Port	30 bar
Internal Leakage	15 ml/min @ 500 PSI (35 bar) inlet
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/15/13
Media Operating Temp. Range	-30°C / +100°C
Weight	.43 lbs (.20 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cavity	T250
Cavity Tool Kit	K-T250
Flange Mounting Screws and Torque	M4x10 / 3ft-lbs (4 Nm)

COIL SPECIFICATIONS

Current Supply Characteristics		PWM (Pulse Width Modulation)
Rated Current Range		200÷1500 (12 V coil) 100÷750 (24 V coil)
PWM or Super-Imposed Dither Freq.		100-200 Hz
Coil Resistance	(12 VDC)	4.8 Ohm ±5% at 68°F (20°C)
	(24 VDC)	20 Ohm ±5% at 68°F (20°C)
Max Power Consumption		11 Watt (20°C)
Coil Termination		Deutsch-Integral DT04-2P (DT) AMP Jr. Timer 84-9419 (AJ)
Color Connectors		Black
Protection Degree (according to IEC 529)		IP 69K (DT) IP 67 (AJ)

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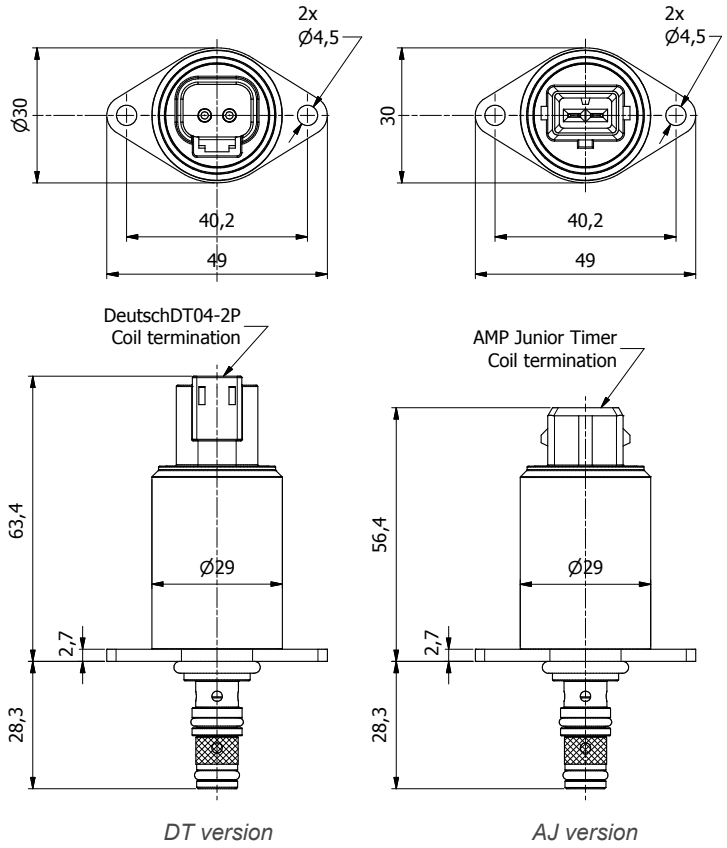
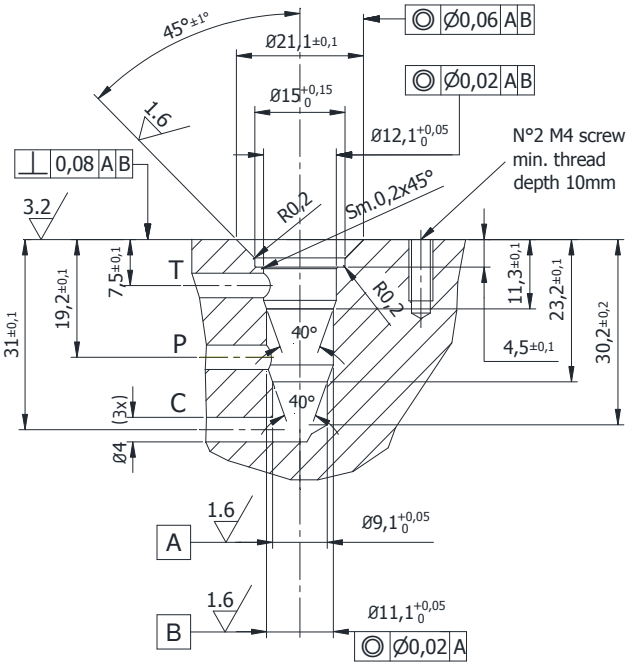
DIMENSIONS



DT version *AJ version*



ORDERING INFORMATION

IP-DAR-250 – ____ – ____ – ____ – ____

COIL TERMINATION	VOLTAGE	INLET PRESSURE	MAX REGULATED PRESSURE	OPTIONS	BODIES
AJ - AMP Jr. Timer	**12** VDC	**L** - up to 700 PSI (50 bar)	**20** bar	**AH** - HNBR seals and 300 µm (50 mesh) screen on port 2	**Blank** - Without body
DT - Deutsch DT04	**24** VDC		**25** bar		**N** - 1/4" BSP Ports
			32 bar		

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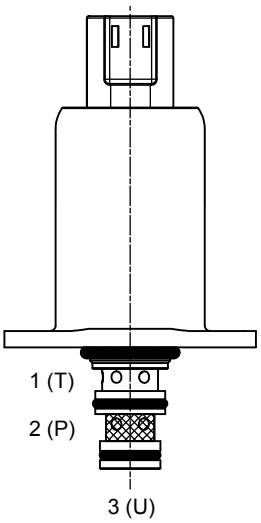
IP-DAR-43C DIRECT ACTING PROPORTIONAL, PRESSURE REDUCING/RELIEVING, SLIP-IN TYPE



DESCRIPTION

Special cavity, slip-in style flange retained, direct acting proportional, pressure reducing/relieving valve.

OPERATION

The IP-DAR-43C-AJ12 generates a variable pressure in response to a PWM (Pulse Width Modulated) current signal. With no current applied to the proportional solenoid, the inlet port 2 (P) is blocked and the regulated port 3 (U) is vented to port 1 (T).

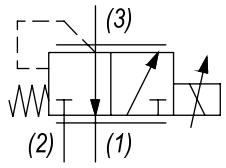
As current is increased, fluid pressure is proportionally controlled at the regulated port 3 (U). On attainment of proportionally determined pressure at 3 (U), the cartridge shifts to block flow at 2 (P), thereby regulating pressure at 3 (U). In this mode, the valve also will relieve 3 (U) to 1 (T) at a variable value over the set reducing pressure.

FEATURES

- Slip-in style.
- Efficient wet-armature construction.
- Integral waterproof coil.
- Continuous duty rated solenoid.

Flanged retained product. The coil is an integral part of the valve and is not serviceable. Eventual tank pressure exceeding 0 bar, has to be added to reduced pressure value.

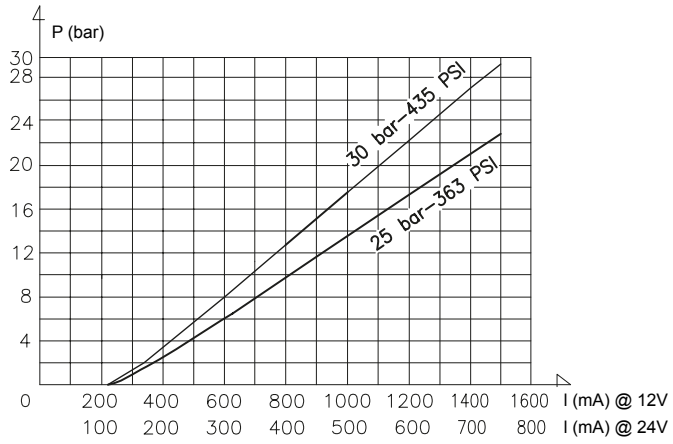
HYDRAULIC SYMBOL



PERFORMANCE

Reduced pressure (bar) vs. Current (mA)

12 V and 24 V Coil



VALVE SPECIFICATIONS

Nominal Flow	1 GPM (4 LPM) @ 8 bar Delta P
Max Inlet Pressure “H” version	5000 PSI (345 bar)
Max Inlet Pressure “L” version	700 PSI (50 bar)
Controlled Pressure Range	0÷25 bar / 0÷30 bar (see graph)
Reduced Pressure Tolerance	±5%
Max Back-Pressure at T Port	20 bar
Internal Leakage	15 ml/min @ 500 PSI (35 bar) inlet 35 ml/min @ 5000 PSI (350 bar) inlet
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/15/13 (ISO 4406)
Media Operating Temp. Range	-25°C / +90°C
Weight	.54 lbs (.25 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cavity	T043
Cavity Tool Kit	K-T043
Flange Mounting Screws and Torque	M4x10 / torque 3ft-lbs (4 Nm)

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	200÷1500 (12V coil) 100÷750 (24V coil)
PWM or Super-Imposed Dither Freq.	100-200 Hz
Coil Resistance (12 VDC)	5.4 Ohm ±5% at 68°F (20°C)
Coil Resistance (24 VDC)	22 Ohm ±5% at 68°F (20°C)
Max Power Consumption	12 Watt (20°C)
Protection Degree	IP 67 according to IEC 529
Coil Termination	Deutsch-Integral DT04-2P AMP Jr. Timer 84-9419
Color Connectors	Black

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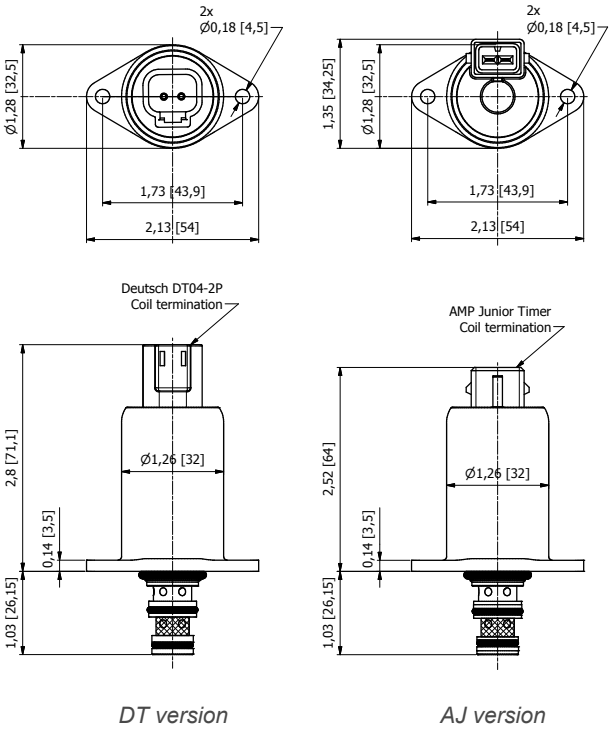
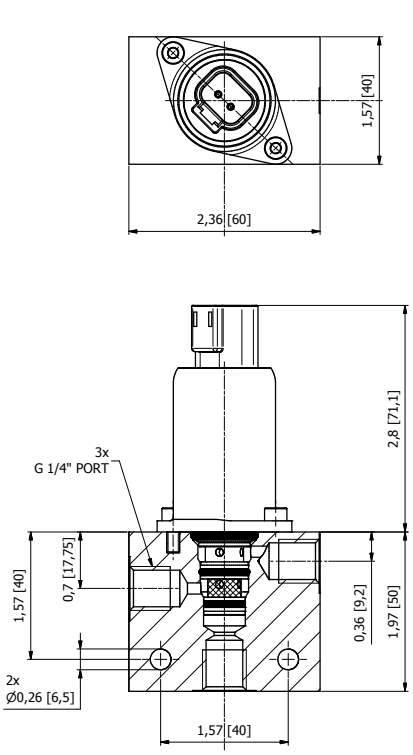
DIMENSIONS





ORDERING INFORMATION

IP-DAR-43C – ____ – ____ – ____ – ____ – ____

COIL TERMINATION	VOLTAGE	INLET PRESSURE	MAX REGULATED PRESSURE	OPTIONS
AJ - AMP Jr. Timer	**1-12** VDC	**L** - up to 700 PSI (50 bar)	**1-25** bar	**00** - HNBR standard
DT - Deutsch DT04	**2-24** VDC	**H** - up to 5000 PSI (345 bar)	**2-30** bar	**A0** - with filter

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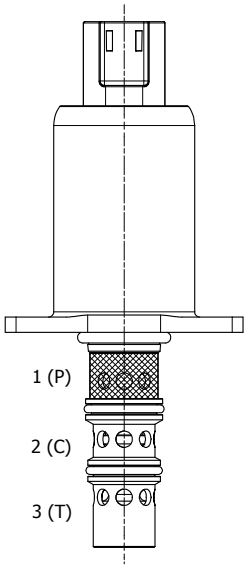
IP-RDS-222 DIRECT ACTING PROPORTIONAL, PRESSURE REDUCING/RELIEVING, SLIP-IN TYPE



DESCRIPTION

Special cavity, slip-in style flange retained, "step bore" direct acting proportional, pressure reducing/relieving valve.

OPERATION

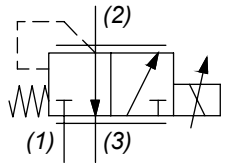
The IP-RDS-222 generates a variable pressure in response to a PWM (Pulse Width Modulated) current signal. With no current applied to the proportional solenoid, the inlet port 1 (P) is blocked and the regulated port 2 (C) is vented to port 3 (T). As current is increased, fluid pressure is proportionally controlled at the regulated port 2 (C). On attainment of proportionally determined pressure at 2 (C), the cartridge shifts to block flow at 1 (P), thereby regulating pressure at 2 (C). In this mode, the valve also will relieve 2 (C) to 3 (T) at a variable value over the set reducing pressure.

FEATURES

- Slip-in style.
- Efficient wet-armature construction.
- Integral waterproof coil.
- Continuous duty rated solenoid.

Flanged retained product. The coil is an integral part of the valve and is not serviceable. Eventual tank pressure exceeding 0 bar, has to be added to reduced pressure value.

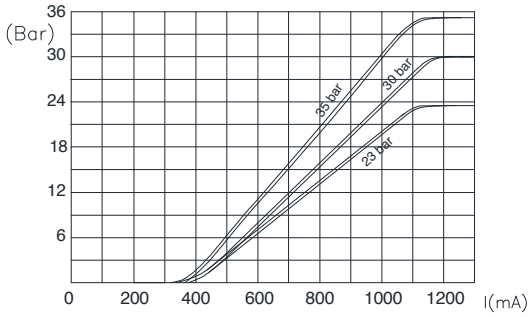
HYDRAULIC SYMBOL



PERFORMANCE

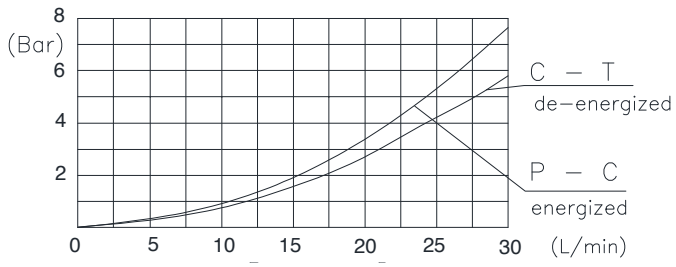
Pressure Vs. Current Characteristic

Oil viscosit 46 cSt @ 45°C and PWM 100 Hz



Pressure Drop

Oil viscosit 46 cSt @ 45°C



VALVE SPECIFICATIONS

Nominal Flow	7.5 GPM (30 LPM) @ 6 bar Delta P
Max Inlet Pressure “L” version	700 PSI (50 bar)
Controlled Pressure Range	0÷23 bar / 0÷30 bar / 0÷35 bar (see graph)
Reduced Pressure Tolerance	±5%
Max Back-Pressure at T Port	25 bar
Internal Leakage	15 ml/min @ 500 PSI (35 bar) inlet
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/15/13
Media Operating Temp. Range	-30°C / +100°C
Weight	.58 lbs (.27 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cavity	T222
Cavity Tool Kit	K-T222
Flange Mounting Screws and Torque	M4x10 / 3ft-lbs (4 Nm)

COIL SPECIFICATIONS

Current Supply Characteristics		PWM (Pulse Width Modulation)
Rated Current Range		200÷1500 (12 V coil) 100÷750 (24 V coil)
PWM or Super-Imposed Dither Freq.		100-200 Hz
Coil Resistance	(12 VDC)	5.4 Ohm ±5% at 68°F (20°C)
	(24 VDC)	22 Ohm ±5% at 68°F (20°C)
Max Power Consumption		12 Watt (20°C)
Coil Termination		Deutsch-Integral DT04-2P (DT & DH) AMP Jr. Timer 84-9419 (AJ)
Color Connectors		Black
Protection Degree (according to IEC 529)		IP 69K (DT & DH) IP 67 (AJ)

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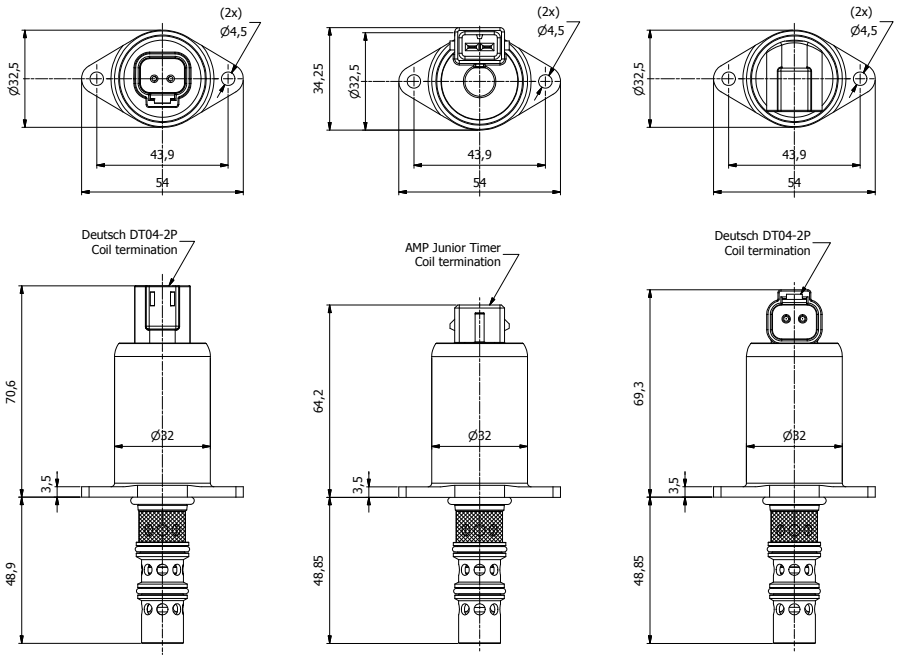
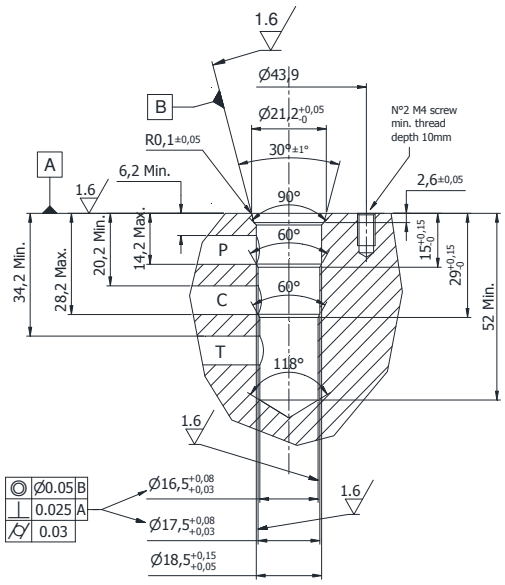
DIMENSIONS



DT version *AJ version* *DH version*



ORDERING INFORMATION

IP-RDS-222 – ____ – ____ – ____ – ____

COIL TERMINATION	VOLTAGE	INLET PRESSURE	MAX REGULATED PRESSURE	OPTIONS	BODIES
AJ - AMP Jr. Timer	**12** VDC	**L** - up to 700 PSI (50 bar)	**23** bar	**A0** - NBR seals and 300 µm (50 mesh) screen on port 2	**Blank** - Without body
DT - Deutsch DT04	**24** VDC		**30** bar		**N** - 3/8" BSP Ports
DH - Deutsch DT04 Horizontal			**35** bar		

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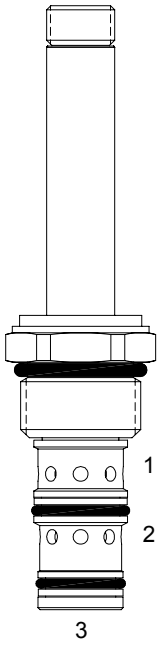
EF-PRP 3 WAY 2 POSITION, PILOT OPERATED, PRESSURE REDUCING, RELIEVING VALVE



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, pilot operated, 3 way 2 position, proportional pressure reducing/relieving valve.

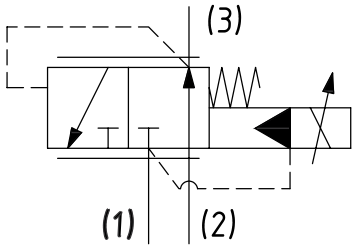
OPERATION

When de-energized and with a passive load at port (3), the EF-PRP passes sufficient flow from port (2) to port (3) to regulate a minimum pressure of approximately 3-10 bar (45-145 PSI). With a supplied flow from an external source into port (3) the valve will regulate the minimum pressure as shown on curve below by bypassing flow to port (1). When energized, the actuator creates a force proportional to the applied current to then determine the pressure that will be regulated at port (3). Oil is supplied from port (2) to port (3) until desired pressure is reached. If pressure at port (3) exceeds desired level, excess oil is vented to port (1) until desired level is reached. Pressures at port (1) are additive to regulated pressure at port (3).

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.
- Optional “I” Coil: Weatherproof, Thermal Shock, Immersion Safe

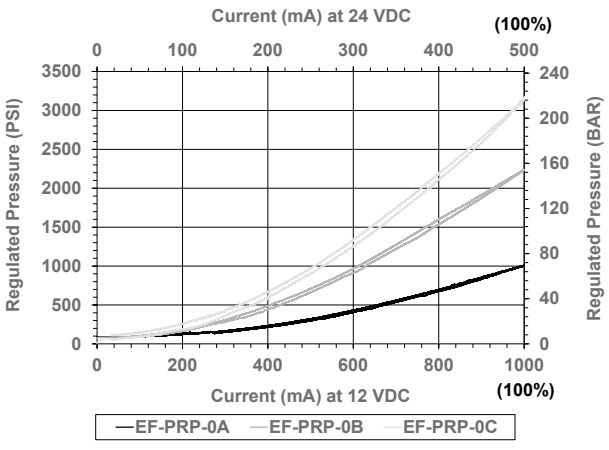
HYDRAULIC SYMBOL

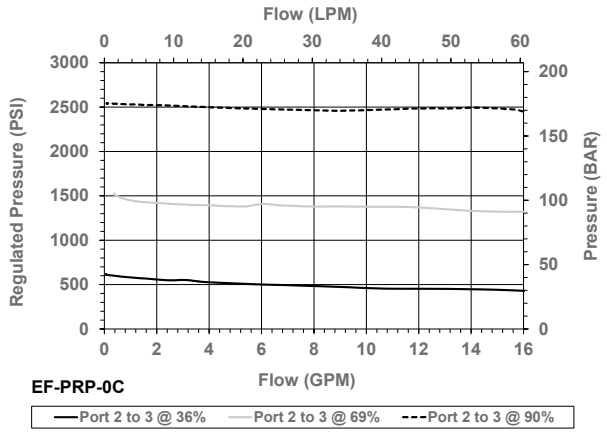


VALVE SPECIFICATIONS

Nominal Flow	12 GPM (45 LPM)
Rated Operating Pressure	3000 PSI (207 bar)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40°C to 250°F (-40°C to 120°C)
Weight	.59 lbs (.27 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Cavity	DELTA 3W
Cavity Form Tool (Finishing)	40500001
Seal Kit	21191206

PERFORMANCE





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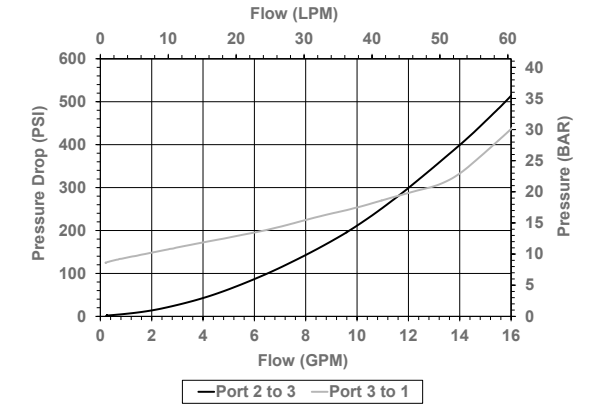
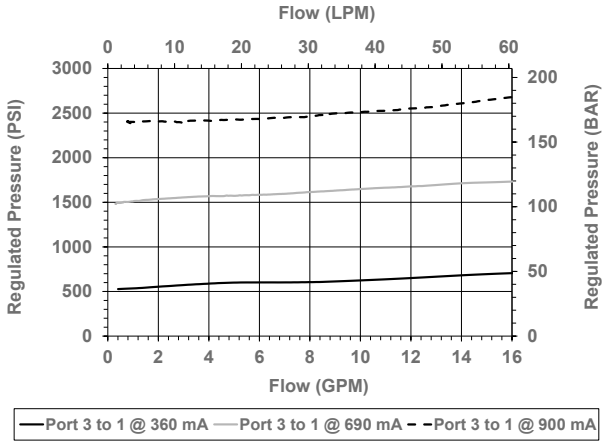
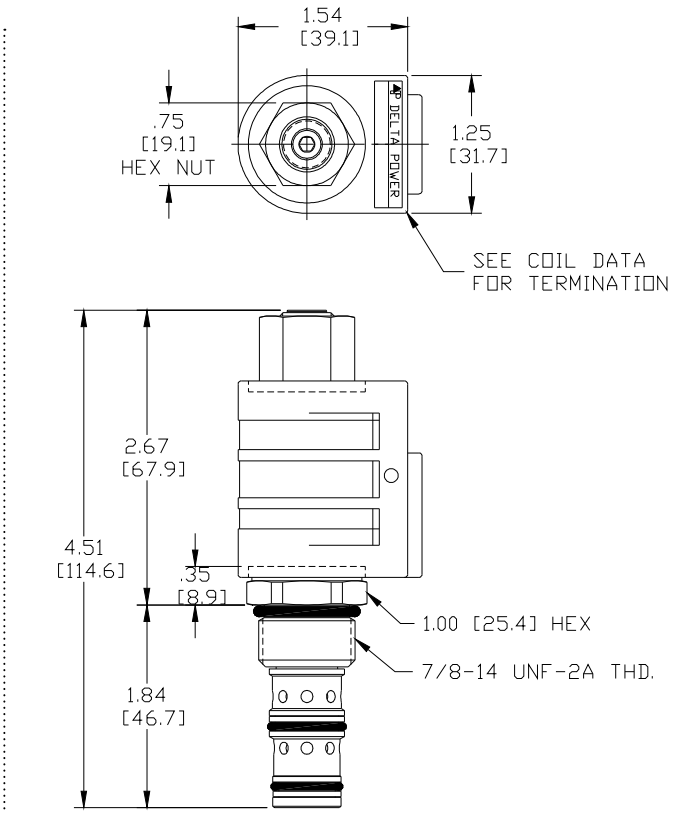
DIMENSIONS







ORDERING INFORMATION

Approximate Coil Weight: .30 lbs (.14 kg)

EF-PRP – ____ – ____ – ____ – ____

OPTIONS

Buna, 150-1015 PSI range	**0A**
Viton, 150-1015 PSI range	**VA**
Buna, 150-2175 PSI range	**0B**
Viton, 150-2175 PSI range	**VB**
Buna, 150-3000 PSI range	**0C**
Viton, 150-3000 PSI range	**VC**

BODIES

Blank	Without Body
N	1/4" NPTF Ports
S	#6 SAE Ports

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
25	24 VAC
11	120 VAC
22	220 VAC
44	440 VAC

"P" COIL TERMINATION

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade
HC	DIN 43650 (Hirschmann) - (AC & DC)
CL	Conduit Lead – (AC Only)
DI	Deutsch – Integral DT04-2P

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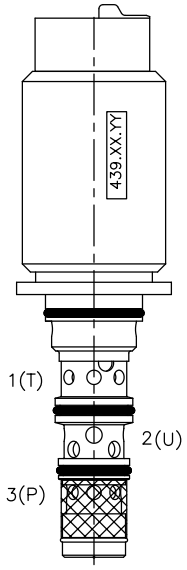
IP-PRZ-59-AM12 PILOT OPERATED PROPORTIONAL, PRESSURE REDUCING/RELIEVING, SLIP-IN TYPE



DESCRIPTION

Special cavity, flange retained, slip-in proportional pressure reducing/relieving valve.

OPERATION

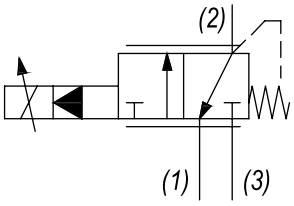
The IP-PRZ-59-AM12 generates a variable pressure in response to a PWM (Pulse Width Modulated) current signal. With no current applied to the proportional solenoid, the inlet port 3 (P) is blocked and the regulated port 2 (U) is vented to port 1 (T). As current is increased, fluid pressure is proportionally controlled at the regulated port 3 (P). On attainment of proportionally determined pressure at 2 (U), the cartridge shifts to block flow at 3 (P), thereby regulating pressure at 2 (U). In this mode, the valve also will relieve 2 (U) to 1 (T) at a variable value over the set reducing pressure.

FEATURES

- Economical slip-in style.
- Integral waterproof coil.
- Efficient wet-armature construction.
- Hardened parts for long life.

Flanged Retained Product. The coil (12 VDC) is an integral part of the valve and is not serviceable. Inlet pressure up to 50 bar.
Max regulated pressure can be increased up to 35 bar (factory preset).
Tank Pressure level above zero is additive to the valves expected reduced pressure value.

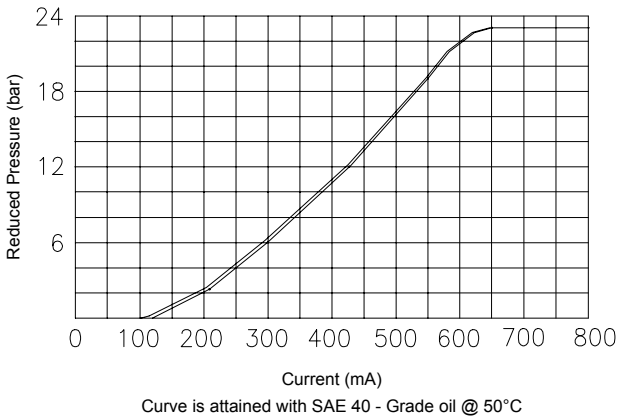
HYDRAULIC SYMBOL



PERFORMANCE

Reduced pressure (bar) vs. Current (mA)

12 V coil, 24 bar inlet pressure



Curve is attained with SAE 40 - Grade oil @ 50°C

VALVE SPECIFICATIONS

Nominal Flow	7.9 GPM (30 LPM) @ 3 bar DeltaP
Max Inlet Pressure	700 PSI (50 bar)
Controlled Pressure Range	(see graph)
Max Internal Leakage	<500 cc/min @ 35 bar
Viscosity Range	5 to 5000 cSt
Filtration	ISO 18/15/13
Media Operating Temp. Range	-25°C / +85°C
Weight	.63 lbs (.29 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cavity	T059
Cavity Tools Kit (form tool, reamer, tap)	K-T059
Flange Mounting Screws and Torque	M6x10 / 4 ft-lbs (6 Nm)

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	100-900 mA
PWM or Super-Imposed Dither Frequency	100-150 Hz
Coil Resistance (12 VDC)	10 Ohm ±5% at 68°F (20°C)
Max Power Consumption	14 Watt
Protection Degree	IP 67 according to IEC 529
Coil Termination	AMP Superseal 1.5 Series 282080-1 Type
Color Connectors	Green

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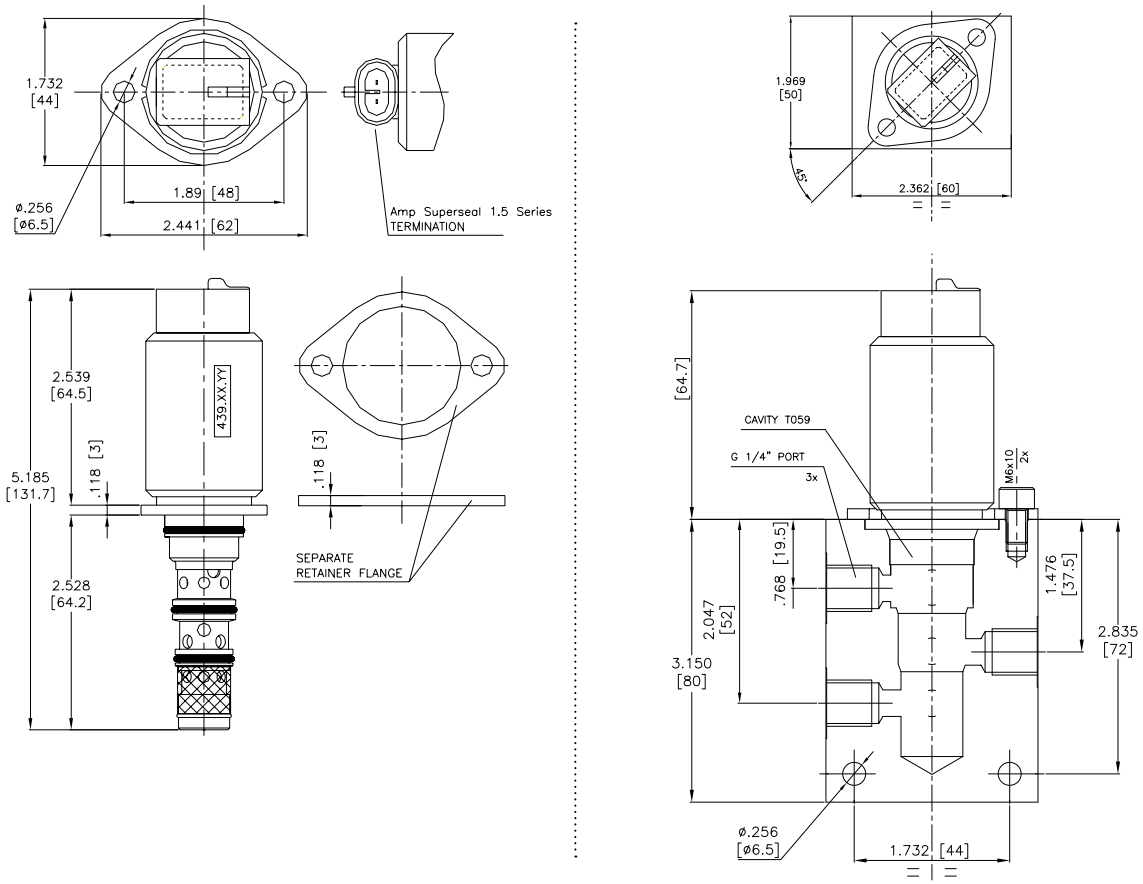
DIMENSIONS



ORDERING INFORMATION

IP-PRZ-59-AM12 – ____ – ____

OPTIONS			BODIES
Buna Standard	**00**	**Blank**	Without Body
Buna, Screen	**A0**	**S**	#6 SAE Ports

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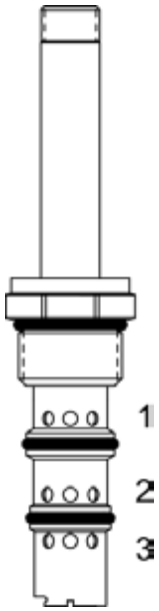
EG-PRZ 3 WAY, PROPORTIONAL PRESSURE REDUCING CONTROL VALVE



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, solenoid operated, proportional pressure reducing control valve.

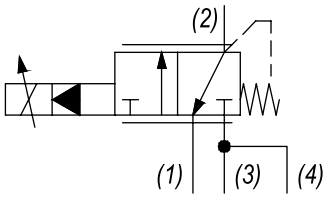
OPERATION

When de-energized the EG-PRZ allows flow from (2) to (1) and blocks flow at (3). When energized, the cartridge’s spool lifts to open (3) to (2) and blocks flow at (1). Outlet pressure is proportional to current applied to the coil.

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

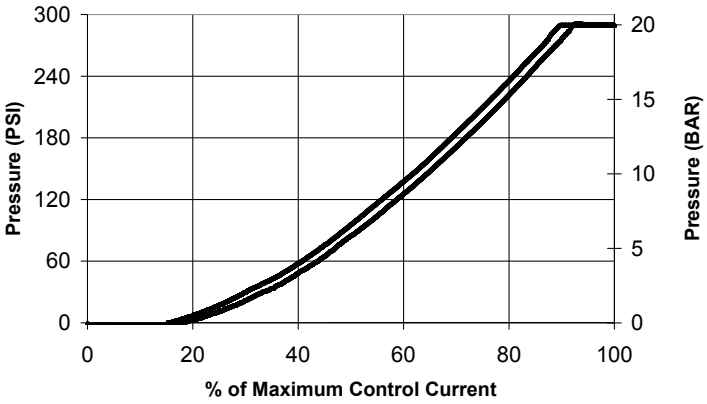
HYDRAULIC SYMBOL



Low Wattage coils are available. Consult Factory

PERFORMANCE

Pressure vs. Current Graph for EG-PRZ at 300 Psi Inlet Pressure



VALVE SPECIFICATIONS

Nominal Flow	8 GPM (30 LPM)
Max System Pressure	450 PSI (31 bar)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40° to 250°F (-40° to 120°C)
Weight	.38 lbs (.17 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	12 ft-lbs (16.3 Nm)
Coil Nut Torque Requirements	4 - 6 ft-lbs (5.4 - 8.1 Nm)
Cavity	DELTA 4W
Cavity Form Tool (Finishing)	40500002
Seal Kit	21191204

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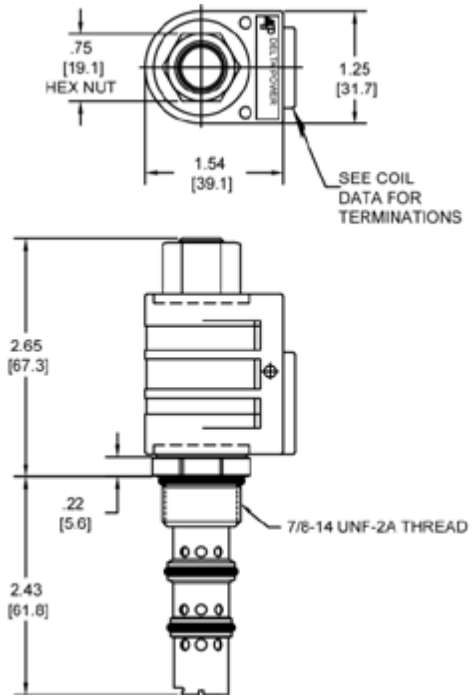
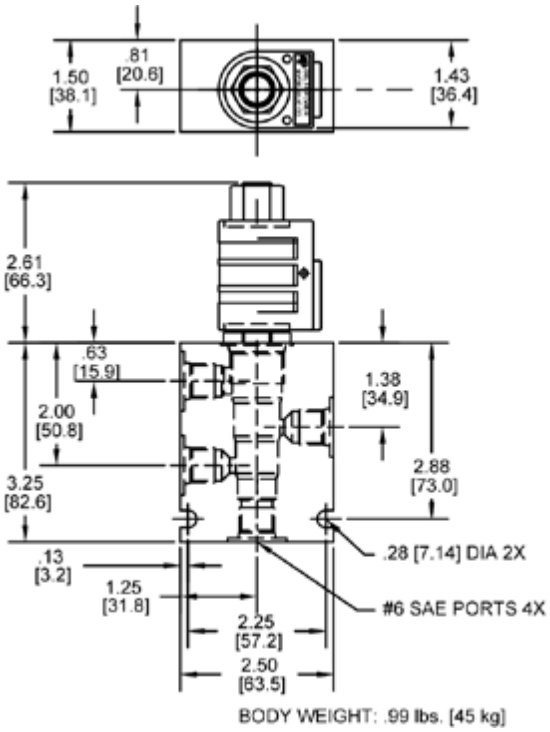
DIMENSIONS





ORDERING INFORMATION

Approximate Coil Weight: .42 lbs (.19 kg)

EG-PRZ – ____ – ____ – ____ – ____

OPTIONS

Buna Standard	**00**
Viton Standard	**V0**

BODIES

Blank	Without Body
N	1/4 NPTF Ports
S	#6 SAE Ports

VOLTAGE

12	12 VDC (.825 Amps Max.)
24	24 VDC (.412 Amps Max.)

"P" COIL TERMINATION

(All DC Except as Noted)

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade
HC	DIN 43650 (Hirschmann) - (DC)
DI	Deutsch - Integral DT04-2P

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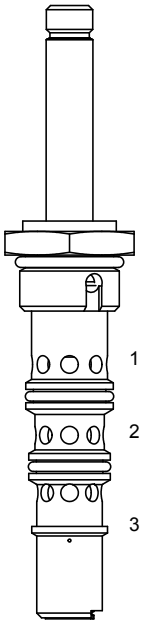
ES-PRZ PROPORTIONAL PRESSURE REDUCING CONTROL VALVE



DESCRIPTION

12 size, 1 1/16-12 thread, “Tecnord” series, solenoid operated, proportional pressure reducing control valve.

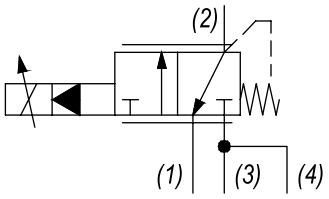
OPERATION

When de-energized the ES-PRZ allows flow from (2) to (1) and blocks flow at (3). When energized, the cartridge’s spool lifts to open (3) to (2) and blocks flow at (1). Outlet pressure is proportional to current applied to the coil.

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

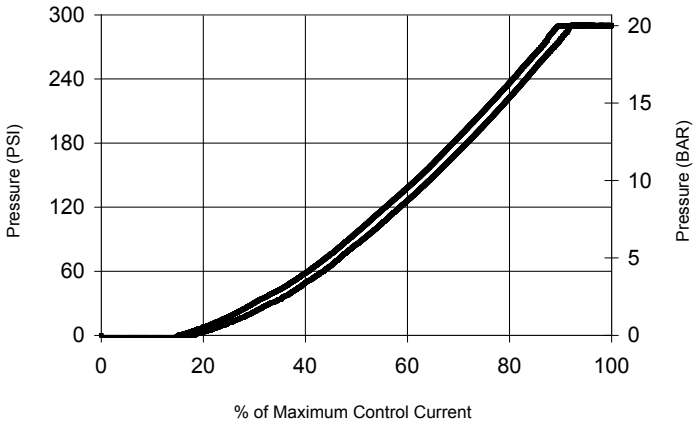
HYDRAULIC SYMBOL



Low Wattage coils available. Consult Factory.

PERFORMANCE

Pressure vs. Current Graph for ESPRZ at 300 PSI inlet



VALVE SPECIFICATIONS

Nominal Flow	30 GPM (114 LPM)
Max System Pressure	450 PSI (31 bar)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40° to 250°F (-40° to 120°C)
Weight	.67 lbs (.3 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	70 ft-lbs (94.9 Nm)
Coil Nut Torque Requirements	4-6 ft-lbs (5.4-8.1 Nm)
Cavity	40200043

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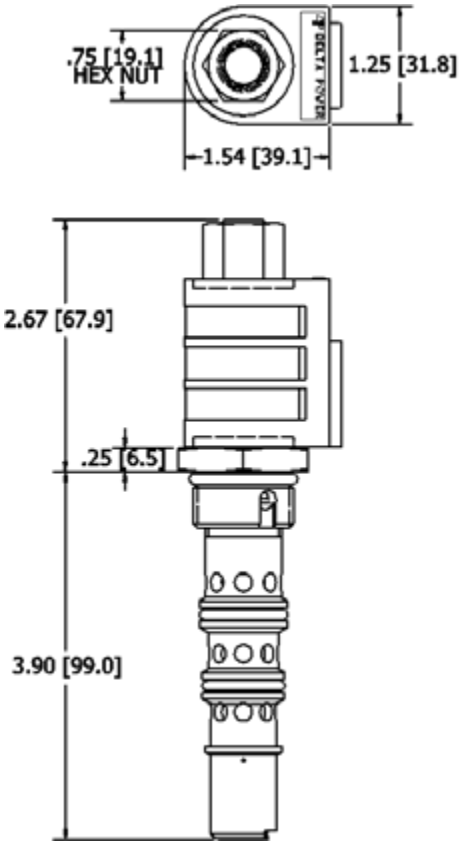
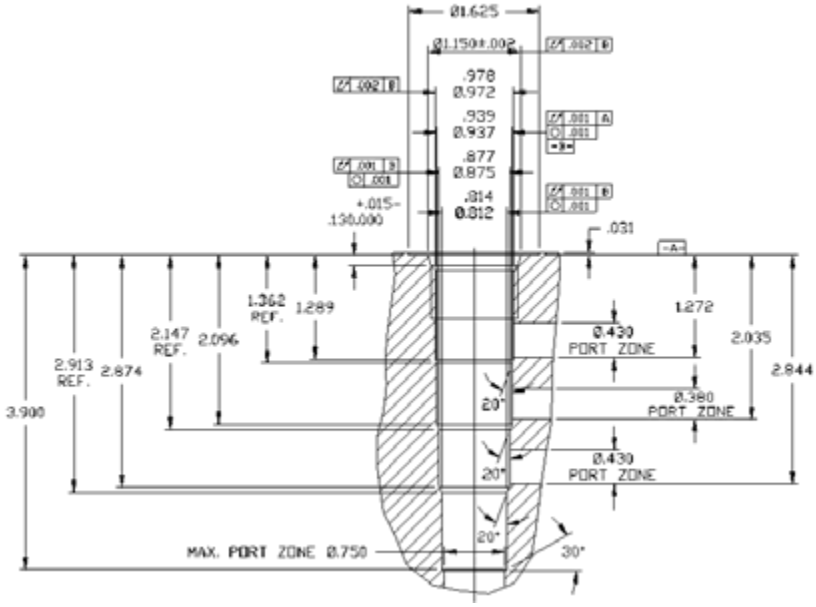
DIMENSIONS





ORDERING INFORMATION

Approximate Coil Weight: .42 lbs (.19 kg)

ES-PRZ – ____ – ____ – ____ – ____

OPTIONS

Buna Standard	**00**
Viton Standard	**V0**

BODIES

Blank	Without Body
-	Consult Factory

VOLTAGE

12	12 VDC (.825 Amps Max.)
24	24 VDC (.412 Amps Max.)

"P" COIL TERMINATION

(All DC Except as Noted)

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade
HC	DIN 43650 (Hirschmann) – (DC)
DI	Deutsch – Integral DT04-2P

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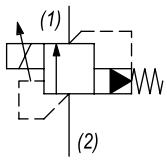
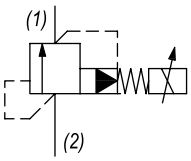
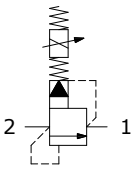
PROPORTIONAL PRESSURE RELIEF VALVES

NORMALLY CLOSED	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	20	3000	76	207	7/8-14	**EE-PRB**	PD20

NORMALLY OPEN	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	20	3000	76	207	7/8-14	**EE-PRD**	PD22
	20	3000	76	207	7/8-14	**EE-SRD**	PD24

TYPICAL SCHEMATIC

Typical application for the PRL and PRB is for fan or motor speed control.

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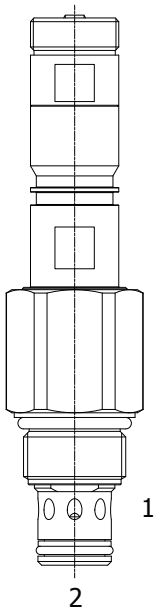
EE-PRB 2 WAY NORMALLY CLOSED, PROPORTIONAL RELIEF VALVE



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, solenoid operated, 2 way normally closed, pilot operated spool type relief valve.

OPERATION

The EE-PRB blocks flow from (2) to (1) until sufficient pressure is present at (2) to offset a spring induced force. As solenoid current is increased, it offsets a portion of this force, resulting in a lower relief pressure. Can be infinitely adjusted across a prescribed range in response to a PWM (Pulse Width Modulated) current. Pressure output is inversely proportional to the current input. With full current applied to the solenoid, the valve will free flow from (2) to (1), at approximately 100 PSI (7 bar).

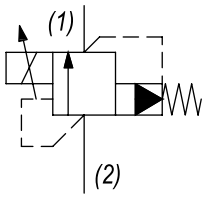
Note: backpressure on port (1) becomes additive to the pressure setting at a 1:1 ratio.

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

Great for fan drive motor control.

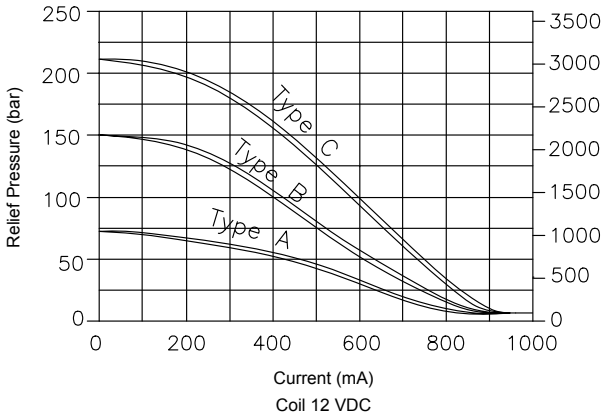
HYDRAULIC SYMBOL



PERFORMANCE

Relief pressure vs. Current

Costant flow 10 LPM (2.6 GPM)



VALVE SPECIFICATIONS

Nominal Flow	0÷20 GPM (0÷76 LPM)
Operating Range	100-3000 PSI (7-207 bar)
Typical Hysteresis	10% Max
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Weight	.62 lbs (.28 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	DELTA 2W
Cavity Tools Kit (form tool, reamer, tap)	40500000
Seal Kit	21191202

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	100÷1000 mA
PWM or Super-Imposed Dither Frequency	120÷200 Hz
Coil Resistance (12 VDC)	7.2 Ohm ±5% at 68°F (20°C)

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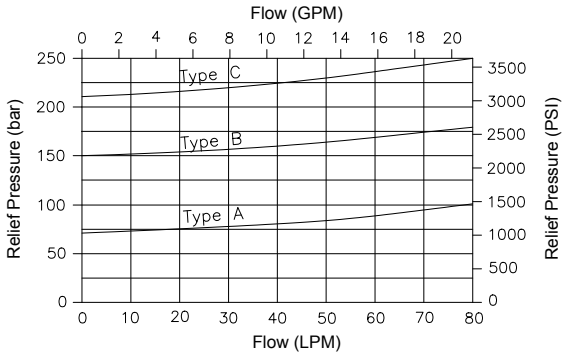
DIMENSIONS

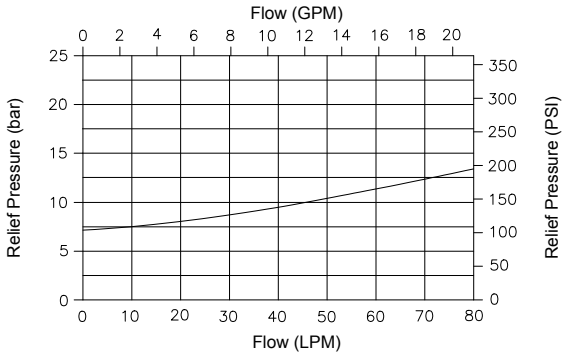
Relief pressure vs. Flow - No current applied

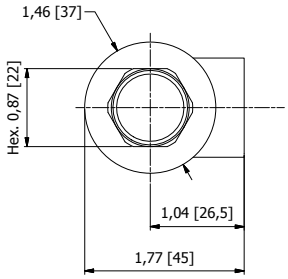
Costant flow 10 LPM (2.6 GPM)

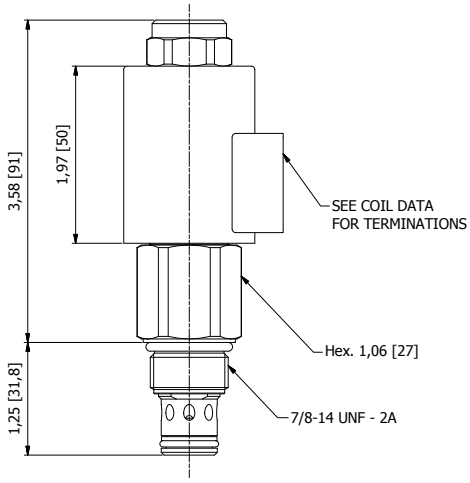


Pressure Drop vs. Flow

Coil energized







(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EE-PRB – ____ – ____ – ____ – ____

OPTIONS

Buna, 100-1015 PSI range (7-70 bar)	**0A**
Viton, 100-1015 PSI range (7-70 bar)	**VA**
Buna, 100-2175 PSI range (7-150 bar)	**0B**
Viton, 100-2175 PSI range (7-150 bar)	**VB**
Buna, 100-3000 PSI range (7-207 bar)	**0C**
Viton, 100-3000 PSI range (7-207 bar)	**VC**

"F" COIL TERMINATION

DIN 43650 (Hirschmann)	**HC**
Deutsch - Integral DT04-2P	**DI**
AMP Jr. Timer	**JT**

BODIES

Blank	Without Body
N	3/8" BSP Ports
S	#8 SAE Ports

VOLTAGE *(other voltages available on request)*

12	12 VDC
24	24 VDC

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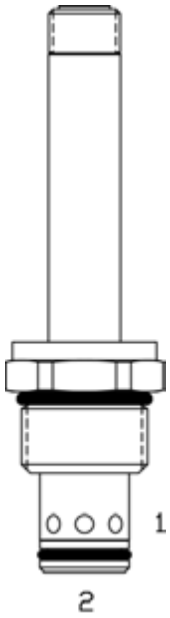
EE-PRD 2 WAY NORMALLY OPEN, PROPORTIONAL RELIEF VALVE



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, solenoid operated, 2 way normally open, hydraulic relief valve.

OPERATION

The EE-PRD blocks flow from (2) to (1) until sufficient pressure is present at (2) to offset the electrically induced solenoid force. Can be infinitely adjusted across a prescribed range using a variable electric input.
Pressure output is proportional to DC current input. This valve is intended for use as a pressure limiting device in demanding applications.
With no current applied to the solenoid, the valve will free flow from (2) to (1) at approximately 50 PSI.
Note: backpressure on port (1) becomes additive to the pressure setting at a 1:1 ratio.

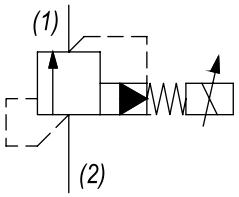
FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

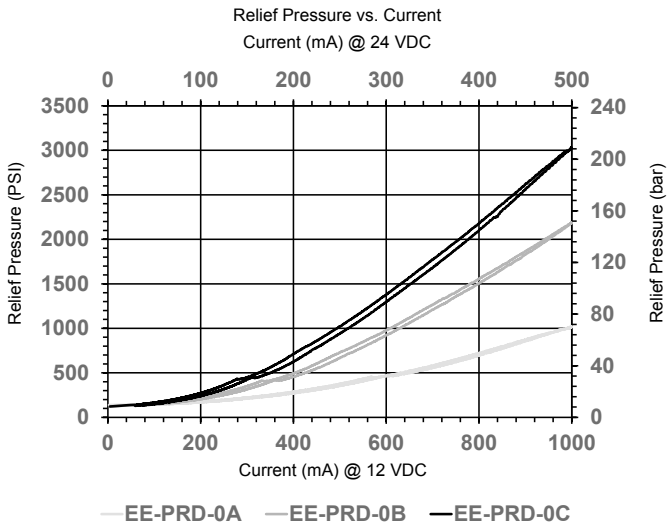
If low voltage is expected on the machine, 12 or 24 Volt systems will require the use of 10 volt or 20 volt coils respectively. Consult Factory for availability of these coil options.

For best performance valve must be purged of air. Locate below reservoir or add check valve to return. Recommended vehicle installation is Tube Up or Horizontal after purging. Fastest purging position during bleed/start-up is with tube up.
PWM frequency: 100-200 Hz (200 Hz recommended). For lower minimum or other ranges consult factory.

HYDRAULIC SYMBOL



PERFORMANCE



VALVE SPECIFICATIONS

Nominal Flow	0-20 GPM (0-76 LPM)
Operating Range	50-3000 PSI (3-207 bar)
Typical Hysteresis	5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40°C to 250°F (-40°C to 120°C)
Weight	.30 lbs (.13 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Nut Torque Requirements	4-6 ft-lbs (5.4-8.1 Nm)
Cavity	DELTA 2W
Cavity Tools Kit (form tool, reamer, tap)	40500000
Seal Kit	21191202

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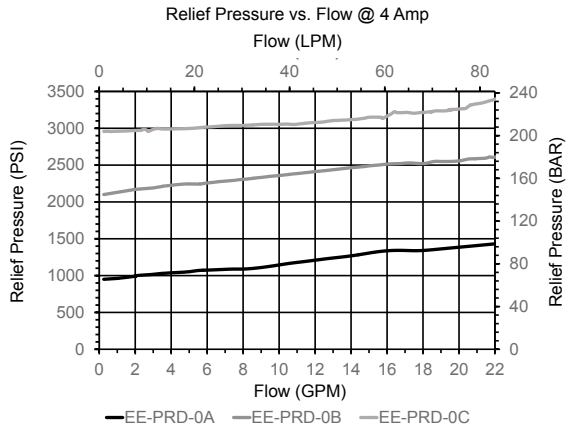
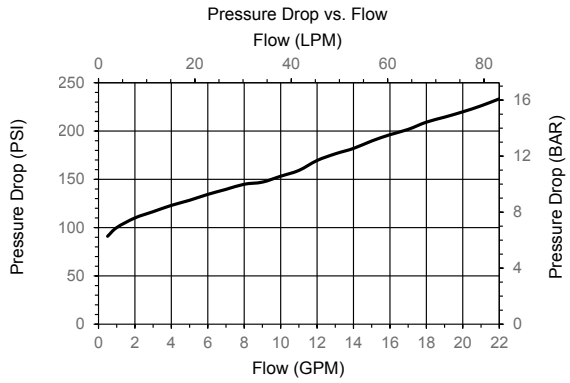
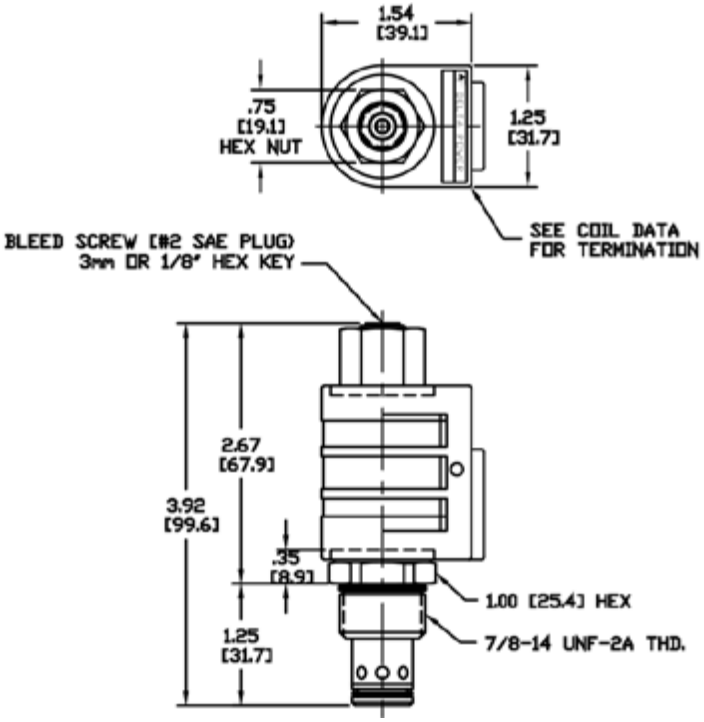
DIMENSIONS







ORDERING INFORMATION

Approximate Coil Weight: .74 lbs (.33 kg)

EE-PRD – ___ – ___ – ___ – ___

OPTIONS

Buna, 100-1200 PSI range	**0A**
Viton, 100-1200 PSI range	**VA**
Buna, 100-2175 PSI range	**0B**
Viton, 100-2175 PSI range	**VB**
Buna, 100-3000 PSI range	**0C**
Viton, 100-3000 PSI range	**VC**

BODIES

Blank	Without Body
N	3/8" NPT Ports
S	#8 SAE Ports

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC

"P" COIL TERMINATION

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade
HC	DIN 43650 (Hirschmann)
DI	Deutsch – Integral DT04-2P

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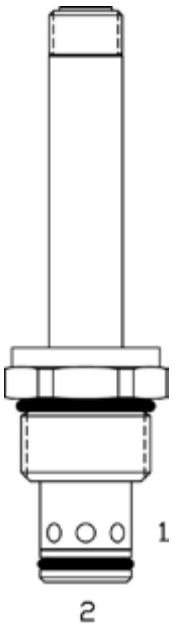
EE-SRD 2 WAY, NORMALLY OPEN, ELECTRO-PROPORTIONAL RELIEF VALVE WITH PRESET MAXIMUM



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, solenoid operated, 2 way normally open, pilot operated relief valve.

OPERATION

The EE-SRD blocks flow from (2) to (1) until sufficient pressure is present at (2) to offset the lower of: the electrically induced solenoid force or the preset maximum setting. Can be infinitely adjusted across a prescribed range using a variable electric input. Pressure output is proportional to DC current input. This valve is intended for use as a pressure limiting device in demanding applications. Can be used as a solenoid operated relief valve. With no current applied to the solenoid, the valve will free flow from (2) to (1) at approximately 50 PSI.

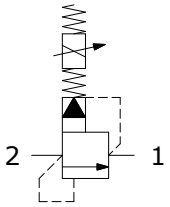
Note: Backpressure on port (1) becomes additive to the pressure setting at a 1:1 ratio.

FEATURES

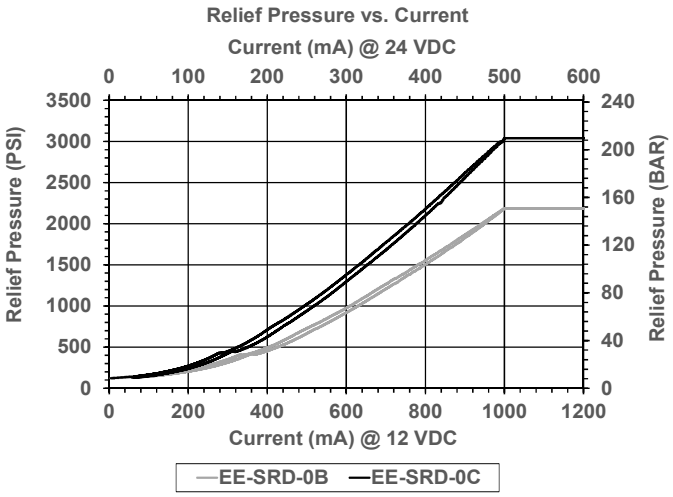
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

If low voltage is expected on the machine, 12 or 24 volt systems will require the use of 10 volt or 20 volt coils respectively. Consult Factory for availability of these coil options.
For best performance valve must be purged of air. Locate below reservoir or add check valve to return. Recommended vehicle installation is Tube Up or Horizontal after purging. Fastest purging position during bleed/start-up is with tube up.
PWM Frequency: 100-200 Hz (200 Hz recommended). For lower minimum or other ranges consult factory

HYDRAULIC SYMBOL



PERFORMANCE



VALVE SPECIFICATIONS

Nominal Flow	0-20 GPM (0-76 LPM)
Operating Range	50-3000 PSI (3-207 bar)
Typical Hysteresis	5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40°C to 250°F (-40°C to 120°C)
Weight	.30 lbs (.13 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Nut Torque Requirements	4-6 ft-lbs (5.4-8.1 Nm)
Cavity	DELTA 2W
Cavity Tools Kit (form tool, reamer, tap)	40500000
Seal Kit	21191202

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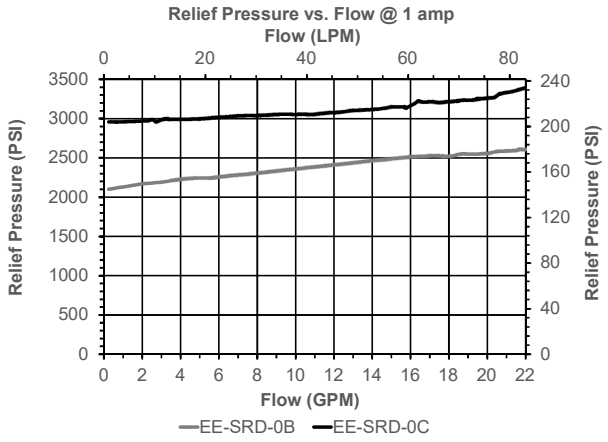
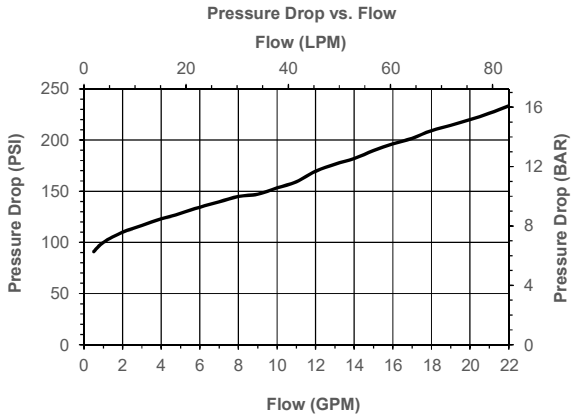
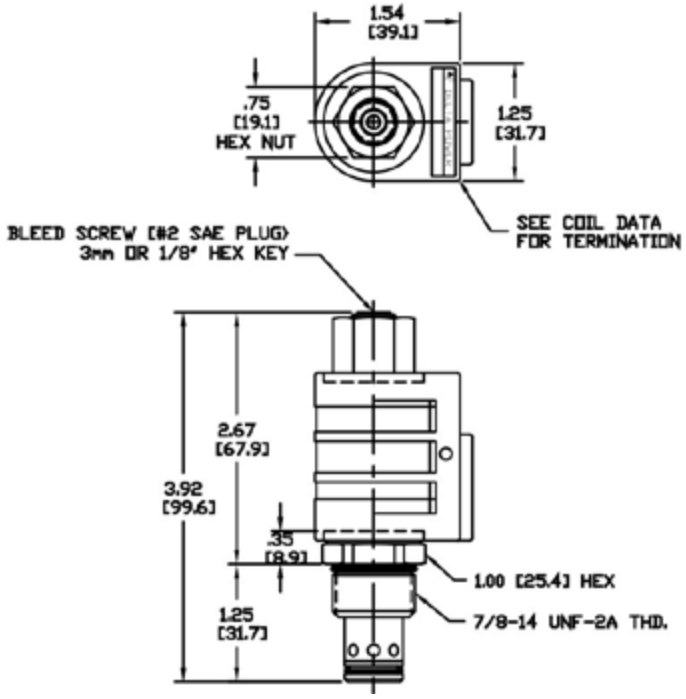
DIMENSIONS







ORDERING INFORMATION

Approximate Coil Weight: .74 lbs (.33 kg)

EE-SRD – ____ – ____ – ____ – ____

OPTIONS

Buna, 100-2175 PSI range	**0B**
Viton, 100-2175 PSI range	**VB**
Buna, 100-3000 PSI range	**0C**
Viton, 100-3000 PSI range	**VC**

BODIES

Blank	Without Body
N	3/8" NPT Ports
S	#8 SAE Ports

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC

"P" COIL TERMINATION

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade
HC	DIN 43650 (Hirschmann)
DI	Deutsch – Integral DT04-2P

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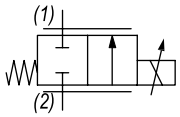
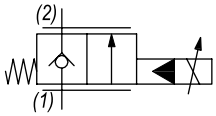
2 WAY NORMALLY CLOSED PROPORTIONAL FLOW CONTROL VALVES

SPOOL TYPE	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	13.2	3500	50	241	7/8-14	**EE-P2G**	PD28
	23.7	3500	90	241	1 1/16-12	**ET-P2S**	PD30

POPPET TYPE	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	6.5	3500	25	241	3/4-16	**EB-P2A**	PD32
	12	3500	45	241	7/8-14	**EE-P2A**	PD34
	29	3500	110	241	1 1/16-12	**ET-P2A**	PD36

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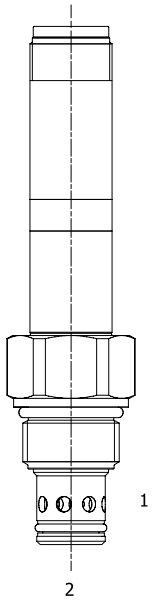
EE-P2G 2 WAY NORMALLY CLOSED, PROPORTIONAL FLOW CONTROL VALVE



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, solenoid operated, 2 way normally closed, proportional flow control valve.

OPERATION

When de-energized the EE-P2G blocks flow at ports (1) and (2). When energized, the valve allows flow from (2) to (1). Flow is proportional to the current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

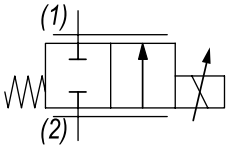
OPERATION OF MANUAL OVERRIDE OPTION: to override, turn the manual override screw clockwise. To release turn the manual override screw counterclockwise.

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

Curves are attained with compensator.

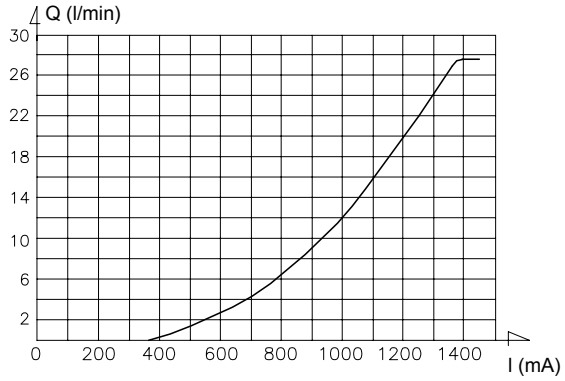
HYDRAULIC SYMBOL



PERFORMANCE

Flow vs. Current - “A” Version

Coil 12 VDC - Delta P = 14 bar - Oil 26 cSt (121 SSU) @ 50°C (104°F)



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	Max 50 cc/min at 245 bar
Hysteresis	±3%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40°C to 250°F (-40°C to 120°C)
Weight	.58 lbs (.26 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	26 ft-lbs (35 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	DELTA 2W
Cavity Tools Kit (form tool, reamer, tap)	40500000
Seal Kit	21191200

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	200-1450 mA
PWM or Super-Imposed Dither Frequency	100-150 Hz
Coil Resistance (12 VDC)	7.2 Ohm ±5% at 68°F (20°C)

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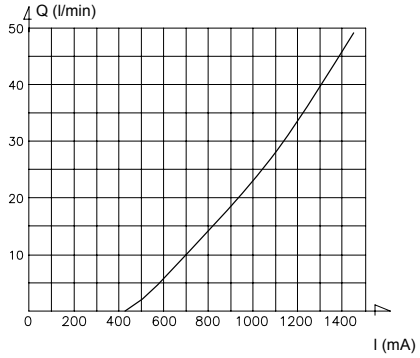
DIMENSIONS

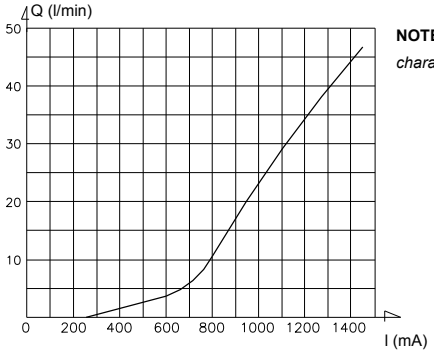
Flow vs. Current - "B" Version

Coil 12 VDC - Delta P = 14 bar - Oil 26 cSt (121 SSU) @ 50°C (104°F)

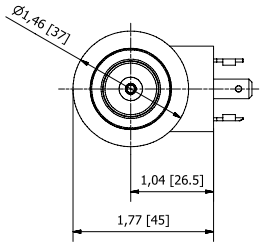


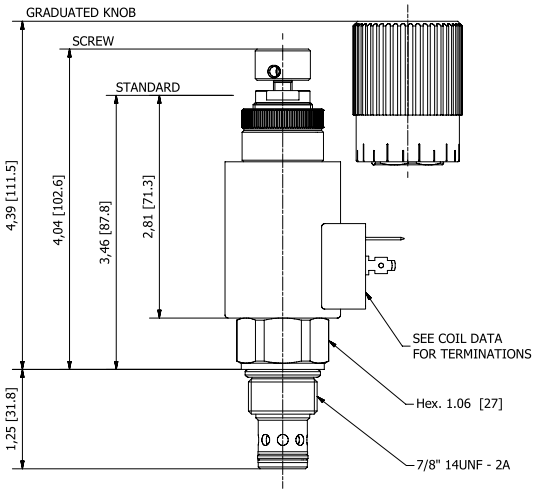
Flow vs. Current - "C" Version

Coil 12 VDC - Delta P = 14 bar - Oil 26 cSt (121 SSU) @ 50°C (104°F)



NOTE: *non linear characteristics*





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EE-P2G – ____ – ____ – ____ – ____

OPTIONS

Buna, Push Type Override Standard	**AP**	Up to 22 l/min
Buna, Screw Type Override (Knob)	**AS**	Up to 22 l/min
Buna, Screw Type Override (Grad. Knob)	**AK**	Up to 22 l/min
Buna, Push Type Override Standard	**BP**	Up to 50 l/min
Buna, Screw Type Override (Knob)	**BS**	Up to 50 l/min
Buna, Screw Type Override (Grad. Knob)	**BK**	Up to 50 l/min
Buna, Push Type Override Standard	**CP**	Up to 50 l/min
Buna, Screw Type Override (Knob)	**CS**	Up to 50 l/min
Buna, Screw Type Override (Grad. Knob)	**CK**	Up to 50 l/min

"F" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

VOLTAGE

12	12 VDC
24	24 VDC

BODIES

Blank	Without Body
S	#8 SAE Ports

NOTES: 1) Flows refer to a 14 bar Delta P
2) For other seals, consult factory

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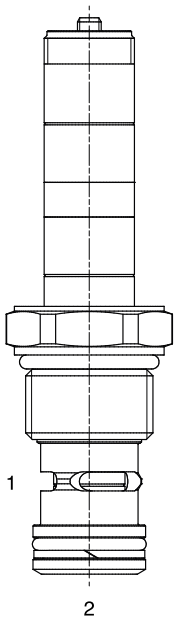
ET-P2S 2 WAY NORMALLY CLOSED, PROPORTIONAL FLOW CONTROL VALVE



DESCRIPTION

12 size, 1 1/16-12 thread, “Tecnord” series, solenoid operated, 2 way normally closed, proportional flow control valve.

OPERATION

When de-energized the ET-P2S blocks flow at ports (2) and (1). When energized, the valve allows flow from (1) to (2). Flow is proportional to the current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

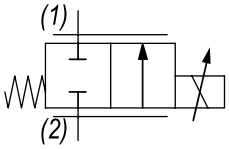
OPERATION OF MANUAL OVERRIDE OPTION: to override, turn the manual override screw counterclockwise. To release turn the manual override screw clockwise.

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

Curves are attained with Tecnord QC-CP3 compensator.

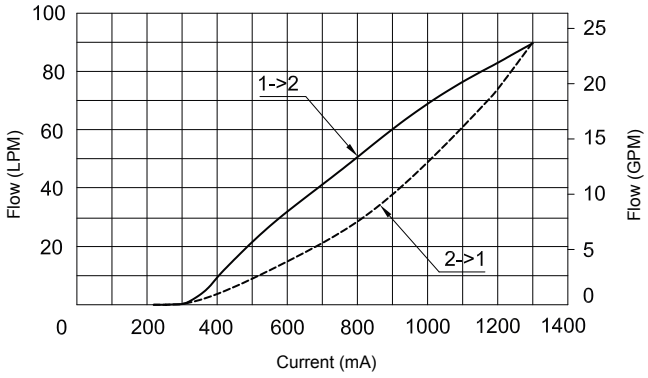
HYDRAULIC SYMBOL



PERFORMANCE

Flow vs. Current

Coil 12 VDC - Press. Drop = 14 bar - Oil 46 cSt (217 SSU) @ 50°C (122°F)



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	Max 50 cc/min at 245 bar
Hysteresis	±3%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Weight	.72 lbs (.32 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	37 ft-lbs (50 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	TECNORD 2W
Cavity Tools Kit (form tool, reamer, tap)	40500032
Seal Kit	21191200

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	400-1400 mA
PWM or Super-Imposed Dither Frequency	100-150 Hz
Coil Resistance (12 VDC)	7.2 Ohm ±5% at 68°F (20°C)

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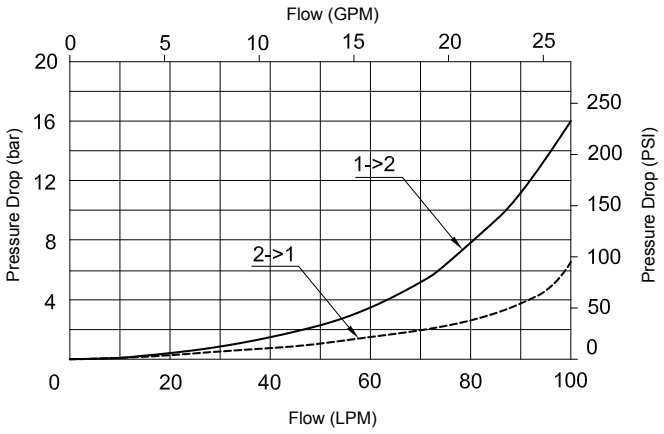
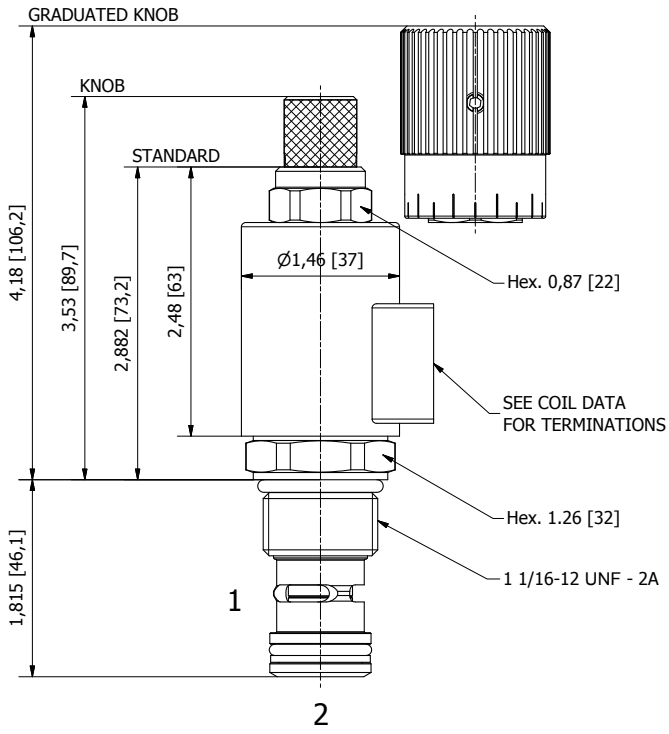
DIMENSIONS

Pressure Drop

With valve fully open - Oil 46 cSt (217 SSU) @ 50°C (122°F)





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

ET-P2S – ____ – ____ – ____ – ____

OPTIONS

Buna Standard	**C0** Up to 90 l/min
Buna, Screw Type Override (Knob)	**CS** Up to 90 l/min
Buna, Screw Type Override (Grad. Knob)	**CK** Up to 90 l/min

"F" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

VOLTAGE

12	12 VDC
24	24 VDC

BODIES

Blank	Without Body
N	3/4" BSP Ports
S	#8 SAE Ports

NOTES: 1) Flows refer to a 14 bar Delta P
2) For other seals, consult factory

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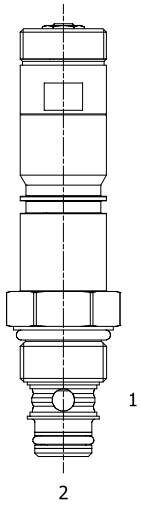
EB-P2A 2 WAY NORMALLY CLOSED, PROPORTIONAL FLOW CONTROL VALVE



DESCRIPTION

8 size, 3/4-16 thread, solenoid operated, 2 way normally closed poppet style, proportional flow control valve.

OPERATION

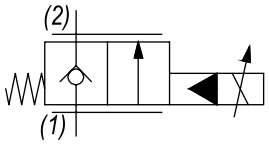
When de-energized the EB-P2A blocks flow from (1) to (2) and allows reverse flow from (2) to (1). When energized, the valve allows flow from (1) to (2). Flow is proportional to current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

Curves are attained without pressure compensator. The valve can work with a pressure drop up to 200 bar.

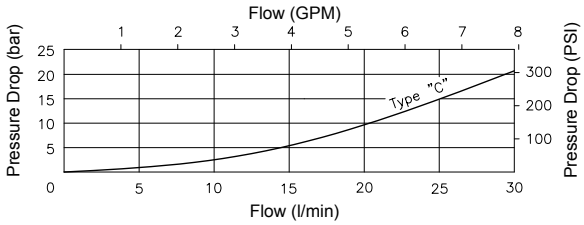
HYDRAULIC SYMBOL



PERFORMANCE

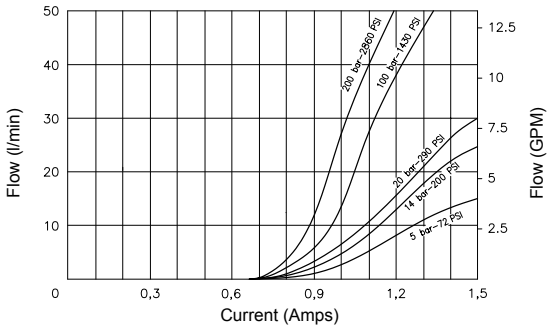
Pressure Drop

1 to 2 with valve completely open



Flow vs. Current at different Pressure Drop

Coil 12 VDC - hyd. - Oil 26 cSt (121 SSU) @ 40°C (104°F)



VALVE SPECIFICATIONS

Flow Range	See curves
Max System Pressure	3500 PSI (241 bar)
Leakage	0-10 drops / min @ 245 bar
Hysteresis	±3%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40°C to 250°F (-40°C to 120°C)
Weight	.72 lbs (.32 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	37 ft-lbs (50 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	POWER 2W
Cavity Tools Kit (form tool, reamer, tap)	40500005
Seal Kit	21191102

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	500 - 1450 mA
PWM or Super-Imposed Dither Frequency	100 Hz
Coil Resistance (12 VDC)	7.5 Ohm ±5% at 68°F (20°C)

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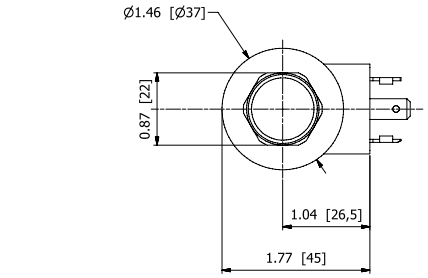
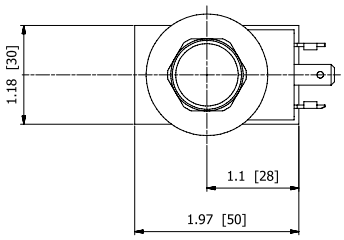
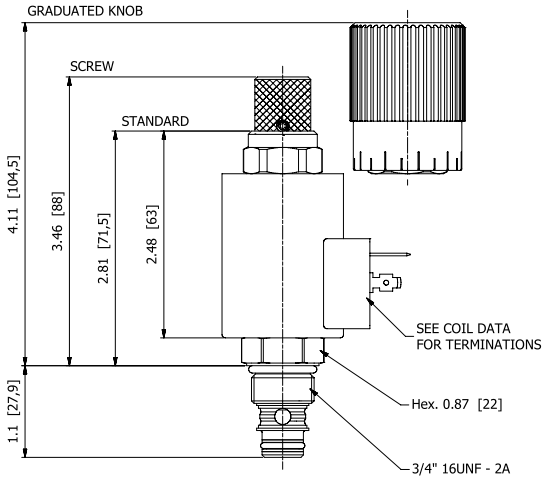
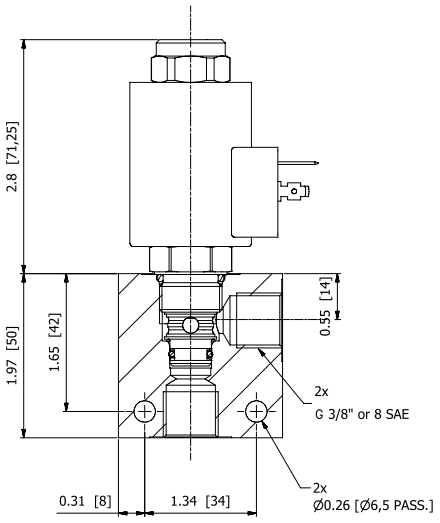
DIMENSIONS









(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EB-P2A – ____ – ____ – ____ – ____

OPTIONS

Buna Standard	**C0** Up to 25 l/min
Buna, Screw Type Override (Knob)	**CS** Up to 25 l/min
Buna, Screw Type Override (Grad. Knob)	**CK** Up to 25 l/min

"F" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

VOLTAGE

12	12 VDC
24	24 VDC

BODIES

Blank	Without Body
S	#8 SAE Ports

NOTES: 1) Flows refer to a 14 bar Delta P
2) For other seals, consult factory

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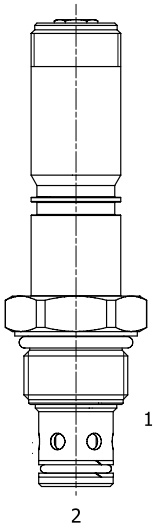
EE-P2A 2 WAY NORMALLY CLOSED, PROPORTIONAL FLOW CONTROL VALVE



DESCRIPTION

10 size, 7/8-14 thread, solenoid operated, 2 way normally closed poppet style, proportional flow control valve.

OPERATION

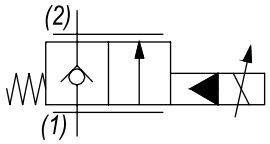
When de-energized the EE-P2A blocks flow from (1) to (2) and allows reverse flow from (2) to (1). When energized, the valve allows flow from (1) to (2). Flow is proportional to current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

Curves are attained without pressure compensator. The valve can work with a pressure drop up to 200 bar.

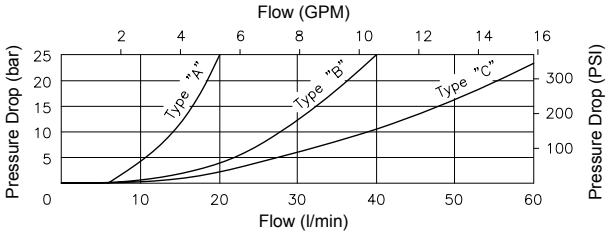
HYDRAULIC SYMBOL



PERFORMANCE

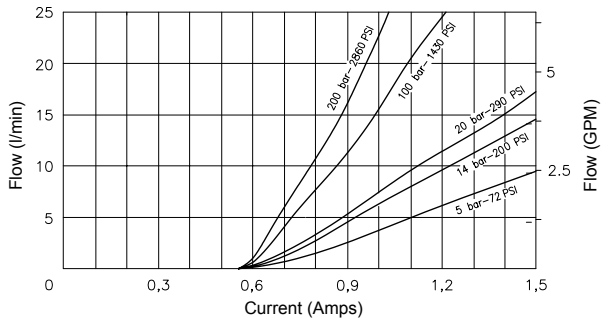
Pressure Drop

1 to 2 with valve completely open



Flow vs. Current at different Pressure Drop

***Poppet type A** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



VALVE SPECIFICATIONS

Flow Range	See curves
Max System Pressure	3500 PSI (241 bar)
Leakage	0-10 drops / min @ 245 bar
Hysteresis	±3%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40°C to 250°F (-40°C to 120°C)
Weight	.72 lbs (.32 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	37 ft-lbs (50 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	DELTA 2W
Cavity Tools Kit (form tool, reamer, tap)	40500000
Seal Kit	21191200

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	500-1450 mA
PWM or Super-Imposed Dither Frequency	100 Hz
Coil Resistance (12 VDC)	7.5 Ohm ±5% at 68°F (20°C)

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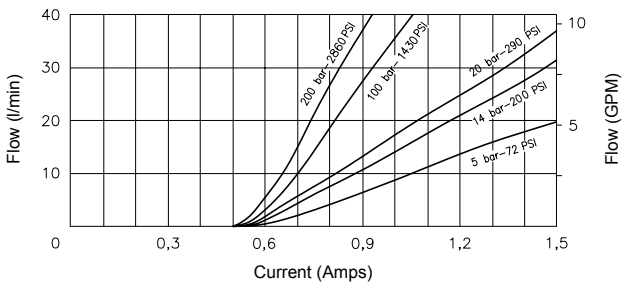
DIMENSIONS

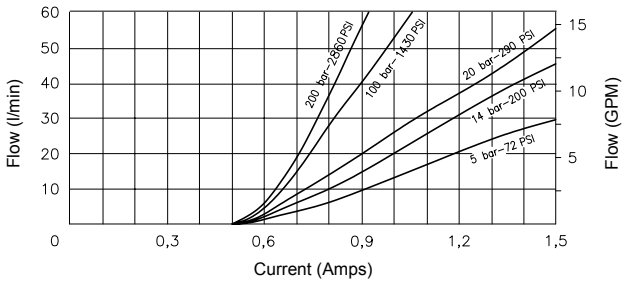
Flow vs. Current at different Pressure Drop

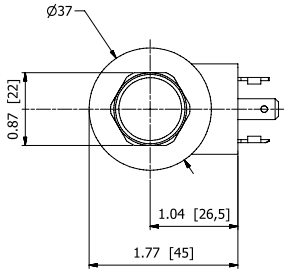
***Poppet type B** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*

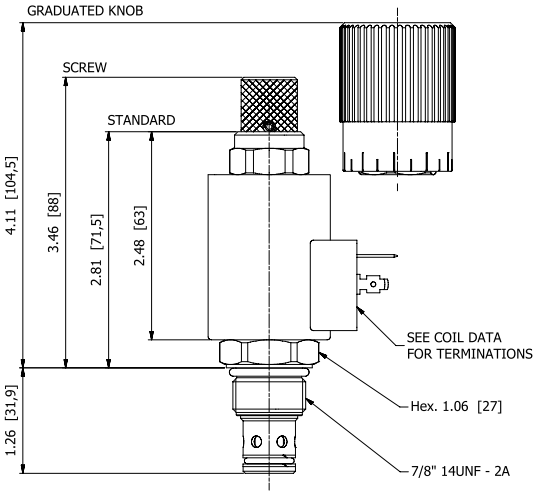


Flow vs. Current at different Pressure Drop

***Poppet type C** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*







(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EE-P2A – ____ – ____ – ____ – ____

OPTIONS

Buna Standard	**A0**	Up to 15 l/min
Buna, Screw Type Override (Knob)	**AS**	Up to 15 l/min
Buna, Screw Type Override (Grad. Knob)	**AK**	Up to 15 l/min
Buna Standard	**B0**	Up to 30 l/min
Buna, Screw Type Override (Knob)	**BS**	Up to 30 l/min
Buna, Screw Type Override (Grad. Knob)	**BK**	Up to 30 l/min
Buna Standard	**C0**	Up to 45 l/min
Buna, Screw Type Override (Knob)	**CS**	Up to 45 l/min
Buna, Screw Type Override (Grad. Knob)	**CK**	Up to 45 l/min

"F" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

VOLTAGE

12	12 VDC
24	24 VDC

BODIES

Blank	Without Body
S	#8 SAE Ports

NOTES: 1) Flows refer to a 14 bar Delta P
2) For other seals, consult factory

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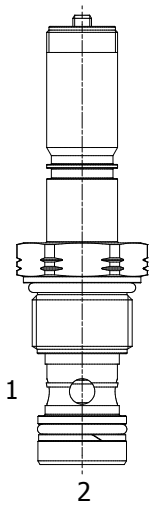
ET-P2A 2 WAY NORMALLY CLOSED, PROPORTIONAL FLOW CONTROL VALVE



DESCRIPTION

12 size, 1 1/16-12 thread, solenoid operated, 2 way normally closed poppet style, proportional flow control valve.

OPERATION

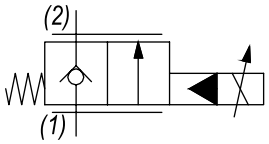
When de-energized the ET-P2A blocks flow from (1) to (2) and allows reverse flow from (2) to (1). When energized, the valve allows flow from (1) to (2). Flow is proportional to current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

Curves are attained without pressure compensator. The valve can work with a pressure drop up to 200 bar.

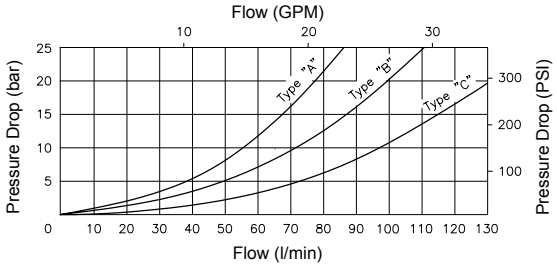
HYDRAULIC SYMBOL



PERFORMANCE

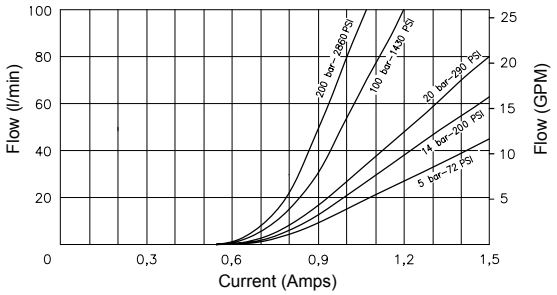
Pressure Drop

1 to 2 with valve completely open



Flow vs. Current at different Pressure Drop

***Poppet type A** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	0-10 drops / min @ 245 bar
Hysteresis	±3%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40°C to 250°F (-40°C to 120°C)
Weight	.72 lbs (.32 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	37 ft-lbs (50 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	TECNORD 2W
Cavity Tools Kit (form tool, reamer, tap)	40500032
Seal Kit	21191301

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	500 - 1450 mA
PWM or Super-Imposed Dither Frequency	100 Hz
Coil Resistance (12 VDC)	7.5 Ohm ±5% at 68°F (20°C)

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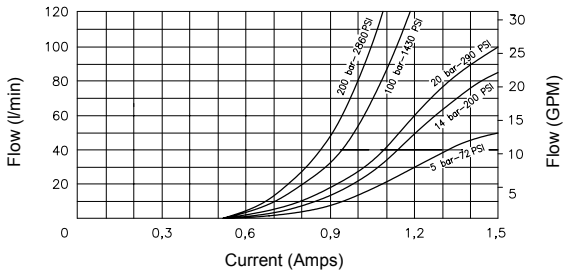
DIMENSIONS

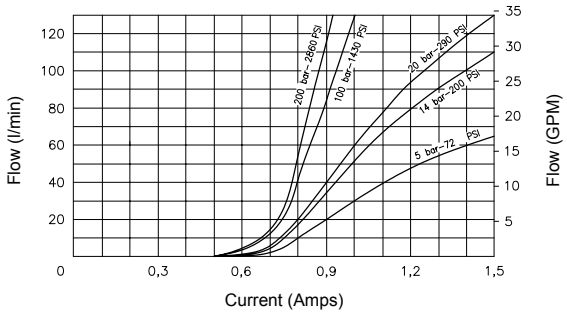
Flow vs. Current at different Pressure Drop

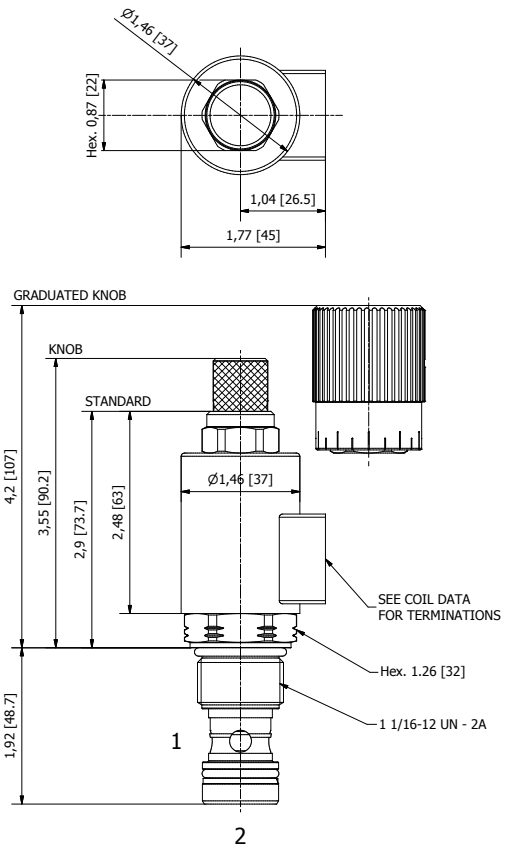
***Poppet type B** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



Flow vs. Current at different Pressure Drop

***Poppet type C** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

ET-P2A – ____ – ____ – ____ – ____

OPTIONS

Buna Standard	**A0**	Up to 65 l/min
Buna, Screw Type Override (Knob)	**AS**	Up to 65 l/min
Buna, Screw Type Override (Grad. Knob)	**AK**	Up to 65 l/min
Buna Standard	**B0**	Up to 85 l/min
Buna, Screw Type Override (Knob)	**BS**	Up to 85 l/min
Buna, Screw Type Override (Grad. Knob)	**BK**	Up to 85 l/min
Buna Standard	**C0**	Up to 110 l/min
Buna, Screw Type Override (Knob)	**CS**	Up to 110 l/min
Buna, Screw Type Override (Grad. Knob)	**CK**	Up to 110 l/min

"F" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

VOLTAGE

12	12 VDC
24	24 VDC

BODIES

Blank	Without Body
S	#8 SAE Ports

NOTES: 1) Flows refer to a 14 bar Delta P
2) For other seals, consult factory

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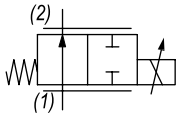
2 WAY NORMALLY OPEN PROPORTIONAL FLOW CONTROL VALVES

SPOOL TYPE	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	8	3500	30	241	7/8-14	**EE-P2H**	PD40

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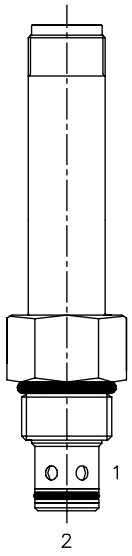
EE-P2H 2 WAY NORMALLY OPEN, PROPORTIONAL FLOW CONTROL VALVE



DESCRIPTION

10 size, 7/8-14 thread, solenoid operated, 2 way normally open, proportional flow control valve.

OPERATION

When de-energized the EE-P2H allows flow from (1) to (2). When fully energized, the valve blocks flow at port (1) and (2). Flow is proportional to current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

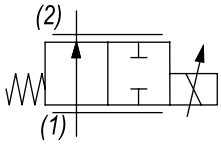
OPERATION OF MANUAL OVERRIDE OPTION: to override, turn the manual override screw clockwise. To release turn the manual override screw counterclockwise.

FEATURES

- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Industry common cavity.
- Unitized, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.

Curve is attained with compensator at with various settings.

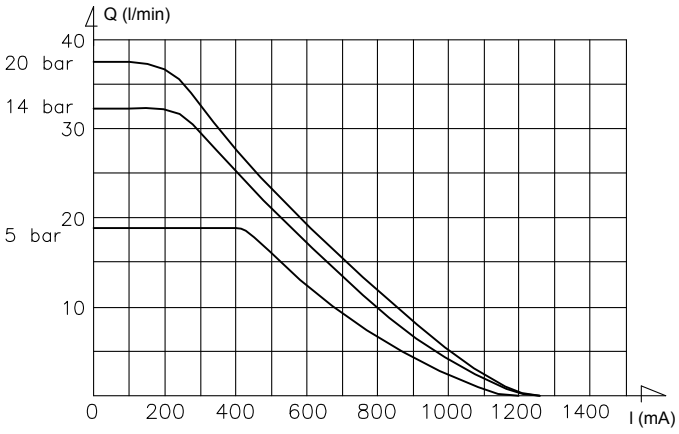
HYDRAULIC SYMBOL



PERFORMANCE

Flow (l/min) vs. Current (mA)

Coil 12 VDC - Delta P = 5, 14, 20 bar; Toil = 40°C



VALVE SPECIFICATIONS

Flow Range	See curve
Max System Pressure	3500 PSI (241 bar)
Leakage	Max 100 cc/min at 245 bar
Hysteresis	±4%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-40°C to 250°F (-40°C to 120°C)
Weight	.58 lbs (.26 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	26 ft-lbs (35 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	DELTA 2W
Cavity Tools Kit (form tool, reamer, tap)	40500000
Seal Kit	21191200

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	0 - 1450 mA
PWM or Super-Imposed Dither Frequency	100-150 Hz
Coil Resistance (12 VDC)	7.5 Ohm ±5% at 68°F (20°C)

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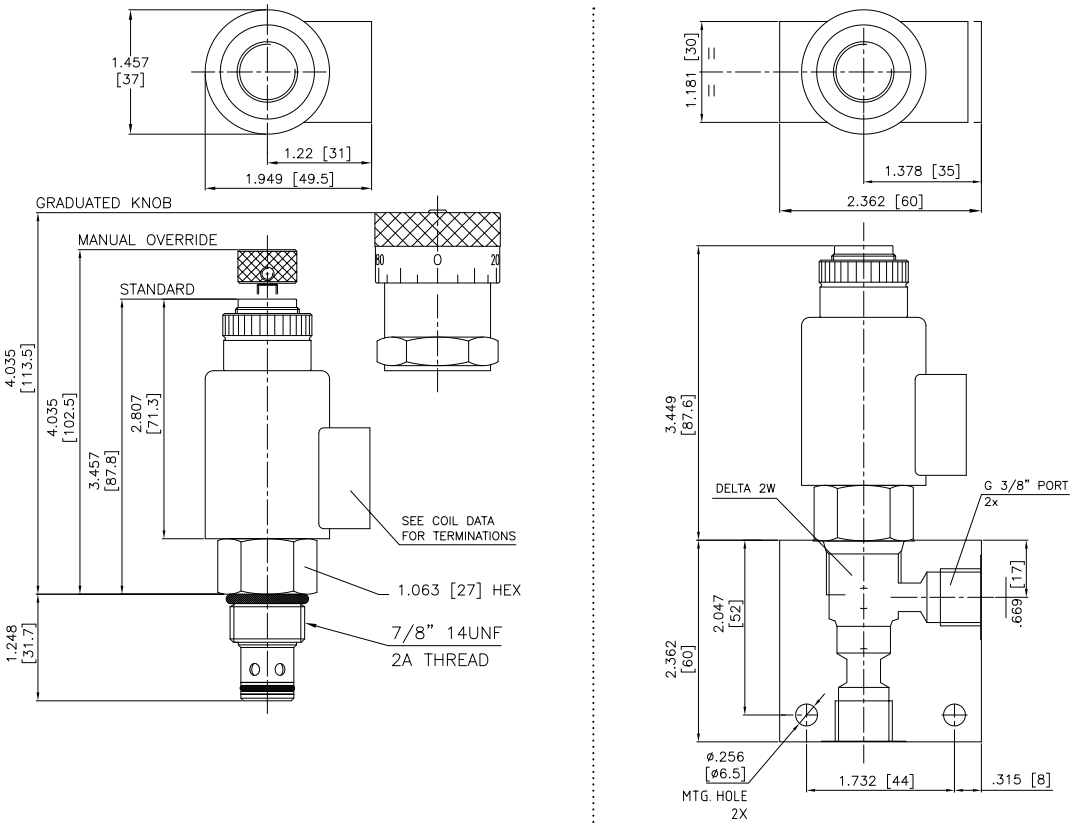
DIMENSIONS



(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EE-P2H – ____ – ____ – ____ – ____

OPTIONS

Buna, Push Type Override Standard	**0P**
Buna, Screw Type Override (Knob)	**0S**
Buna, Screw Type Override (Grad. Knob)	**0K**

BODIES

Blank	Without Body
S	#8 SAE Ports

VOLTAGE

12	12 VDC
24	24 VDC

"F" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

NOTE: for other seals, consult factory.

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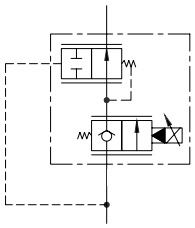
2 WAY NORMALLY CLOSED PRESSURE COMPENSATED PROPORTIONAL FLOW REGULATOR VALVES

POPPET TYPE	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	12	3500	45	241	7/8-14	**EG-F2A**	PD44
	26	3500	100	241	1/16-12	**EU-F2A**	PD46

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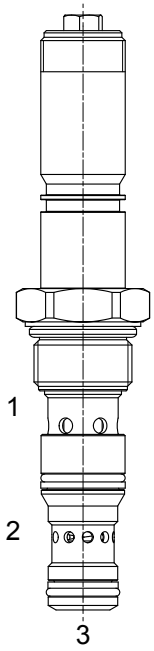
EG-F2A 2 WAY PRESSURE COMPENSATED PROPORTIONAL FLOW REGULATOR



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, solenoid operated, normally closed, poppet style, restrictive type 2 ways pressure compensated proportional flow regulator.

OPERATION

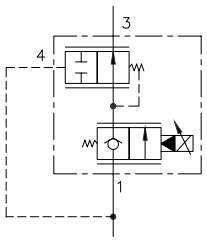
EG-F2A maintains a constant flow rate out of (2) regardless of load pressure variations in the circuit downstream of (1). When coil is not energized, there is no regulated flow out of (2). The valve begins to respond to load variations when the flow through the valve creates a pressure differential across the control spool.
Reverse flow from (2) to (1) returns through the control spool and is not compensated.
OPERATION OF MANUAL OVERRIDE OPTION: to override, turn the manual override screw counterclockwise. To release turn the manual override screw clockwise.

FEATURES

- Hardened parts for long-life.
- Industry common cavity.
- Excellent linearity and low hysteresis characteristics.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations available.
- Unitized, molded coil design.
- Continuous duty rated solenoid.

Port (1) must be connected in the manifold to port (3).

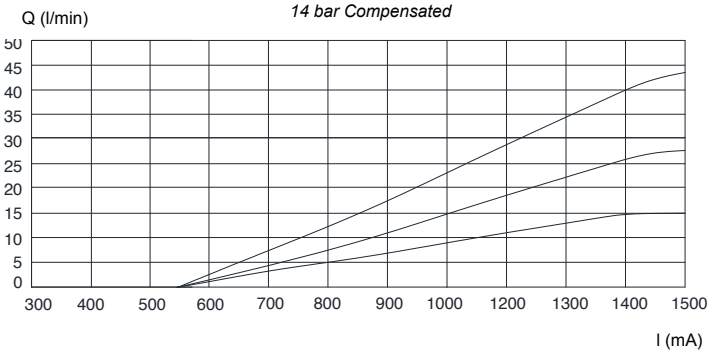
HYDRAULIC SYMBOL



PERFORMANCE

Flow (lt/min) vs. Current (mA - PWM @ 100 Hz)

14 bar Compensated



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	0-10 drops / min @ 245 bar
Hysteresis	±5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	30 ft-lbs (41 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	T308
Cavity Tools Kit (form tool, reamer, tap)	K-T308

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	400-1400 mA
PWM or Super-Imposed Dither Frequency	100 Hz
Coil Resistance (12 VDC)	7.2 Ohm ±5% at 68°F (20°C)

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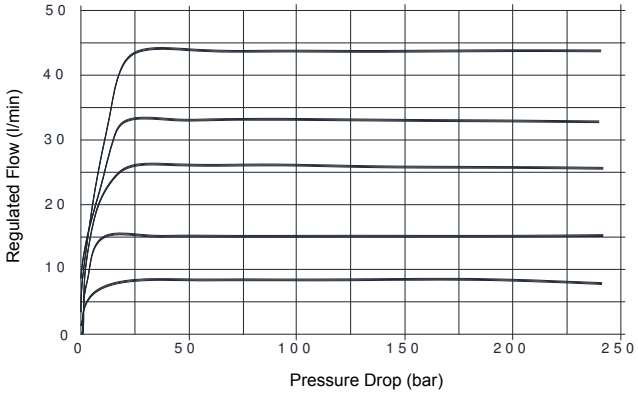
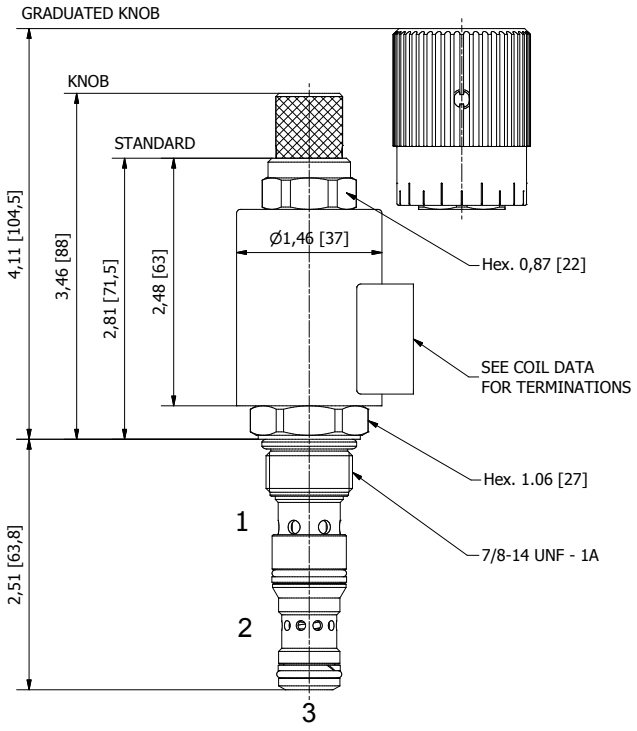
DIMENSIONS

Regulated Flow vs. Pressure

Coil 12 VDC - 130 Hz PWM - Oil 26 cSt (121 SSU) @ 50°C (104°F)





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EG-F2A – ____ – ____ – ____ – ____

OPTIONS

Buna Standard	**A0**	Up to 15 l/min
Buna, Screw Type Override (Knob)	**AS**	Up to 15 l/min
Buna, Screw Type Override (Grad. Knob)	**AK**	Up to 15 l/min
Buna Standard	**B0**	Up to 30 l/min
Buna, Screw Type Override (Knob)	**BS**	Up to 30 l/min
Buna, Screw Type Override (Grad. Knob)	**BK**	Up to 30 l/min
Buna Standard	**C0**	Up to 45 l/min
Buna, Screw Type Override (Knob)	**CS**	Up to 45 l/min
Buna, Screw Type Override (Grad. Knob)	**CK**	Up to 45 l/min

"F" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

VOLTAGE

12	12 VDC
24	24 VDC

BODIES

Blank	Without Body
N	3/8" BSP Ports
S	#6 SAE Ports

NOTE: for other seals, consult factory.

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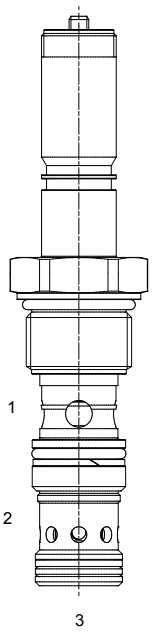
EU-F2A 2 WAY PRESSURE COMPENSATED PROPORTIONAL FLOW REGULATOR



DESCRIPTION

12 size, 1" 1/16-12 thread, "Tecnord" series, solenoid operated, normally closed, poppet style, restrictive type 2 ways pressure compensated proportional flow regulator.

OPERATION

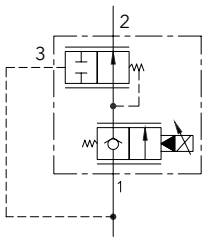
EU-F2A maintains a constant flow rate out of (2) regardless of load pressure variations in the circuit downstream of (1). When coil is not energized, there is no regulated flow out of (2). The valve begins to respond to load variations when the flow through the valve creates a pressure differential across the control spool.
Reverse flow from (2) to (1) returns through the control spool and is not compensated. The manual override increases flow by counter-clockwise rotation of the manual override knob.

FEATURES

- Hardened parts for long-life.
- Industry common cavity.
- Excellent linearity and low hysteresis characteristics.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations available.
- Unitized, molded coil design.
- Continuous duty rated solenoid.

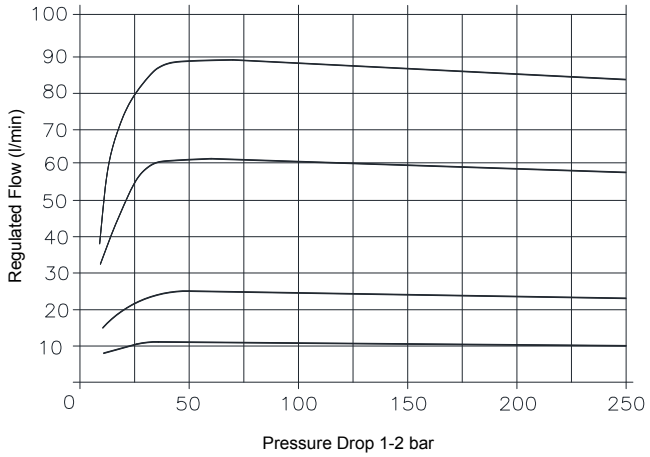
Port (1) must be connected in the manifold to port (3).

HYDRAULIC SYMBOL



PERFORMANCE

Regulated Flow vs. Pressure



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	0-10 drops / min @ 245 bar
Hysteresis	±5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Weight	.72 lbs (.32 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	37 ft-lbs (50 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	TECNORD 3W
Cavity Tools Kit (form tool, reamer, tap)	40500034

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	500-1400 mA
PWM or Super-Imposed Dither Frequency	100 Hz
Coil Resistance (12 VDC)	7.2 Ohm ±5% at 68°F (20°C)

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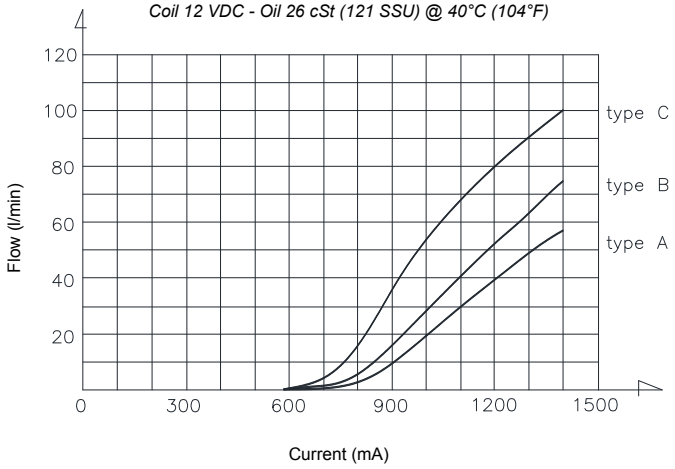
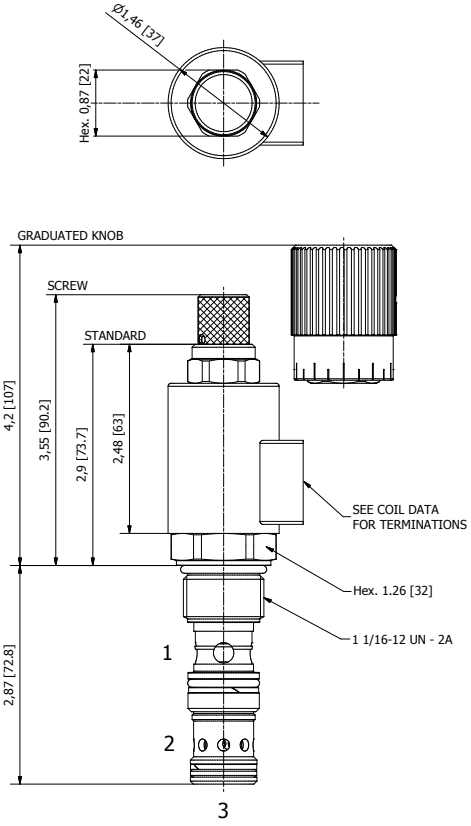
DIMENSIONS

Flow vs. Current

Coil 12 VDC - Oil 26 cSt (121 SSU) @ 40°C (104°F)





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EU-F2A – ____ – ____ – ____ – ____

OPTIONS

Buna Standard	**A0**	Up to 55 l/min
Buna, Screw Type Override (Knob)	**AS**	Up to 55 l/min
Buna, Screw Type Override (Grad. Knob)	**AK**	Up to 55 l/min
Buna Standard	**B0**	Up to 75 l/min
Buna, Screw Type Override (Knob)	**BS**	Up to 75 l/min
Buna, Screw Type Override (Grad. Knob)	**BK**	Up to 75 l/min
Buna Standard	**C0**	Up to 100 l/min
Buna, Screw Type Override (Knob)	**CS**	Up to 100 l/min
Buna, Screw Type Override (Grad. Knob)	**CK**	Up to 100 l/min

"F" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

VOLTAGE

12	12 VDC
24	24 VDC

BODIES

Blank	Without Body
N	3/4" BSP Ports
S	#8 SAE Ports

NOTE: for other seals, consult factory.

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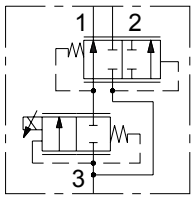
3 WAY NORMALLY CLOSED PRESSURE COMPENSATED PROPORTIONAL FLOW REGULATOR VALVES

SPOOL TYPE	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	6	3500	23	241	7/8-14	**EF-F3G**	PD50
	16	3500	60	241	1/16-12	**EU-F3G**	PD52

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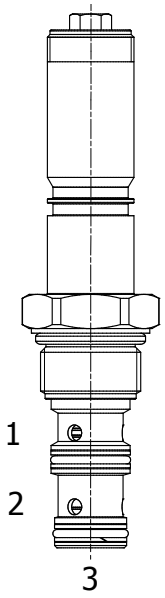
EF-F3G 3 WAY PRESSURE COMPENSATED PRIORITY TYPE PROPORTIONAL FLOW REGULATOR



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, solenoid operated, normally closed, spool style, 3 ways priority type pressure compensated proportional flow regulator. It can also be used as a restrictive-type 2 way, pressure-compensated flow regulator when the bypass line (port 2) is blocked.

OPERATION

EF-F3G maintains a constant flow rate out of (1) regardless of load pressure variations in the circuit downstream of (3) and regardless bypass pressure variations in the circuit downstream of (2). Excess flow bypasses out of (2). When coil is not energized, there is no regulated flow out of (1).

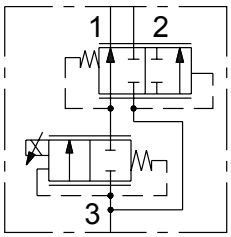
OPERATION OF MANUAL OVERRIDE OPTION: to override, turn the manual override screw counterclockwise. To release turn the manual override screw clockwise.

FEATURES

- Hardened parts for long-life.
- Industry common cavity.
- Excellent linearity and low hysteresis characteristics.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations available.
- Unitized, molded coil design.
- Continuous duty rated solenoid.

It can be used as a restrictive 2-way pressure-compensated flow control valve, blocking bypass line port (2).

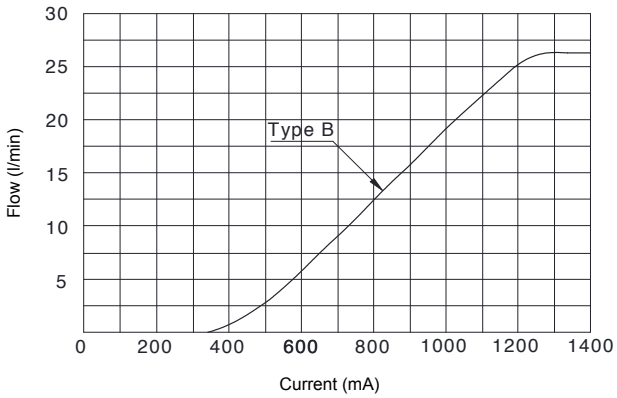
HYDRAULIC SYMBOL



PERFORMANCE

Flow vs. Current

Coil 12 VDC - 130 Hz PWM - Oil 26 cSt (121 SSU) @ 50°C (104°F)



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	10 cu-in/min @ 3000 PSI 160 cc/min @ 207 bar
Hysteresis	±5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Weight	.49 lbs (.22 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	30 ft-lbs (41 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	DELTA 3W
Cavity Tools Kit (form tool, reamer, tap)	40500001

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	400-1400 mA
PWM or Super-Imposed Dither Frequency	120-140 Hz
Coil Resistance (12 VDC)	7.2 Ohm ±5% at 68°F (20°C)

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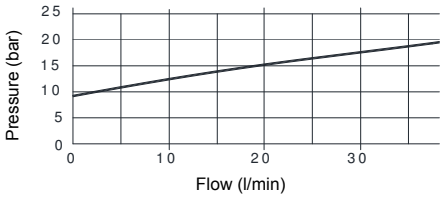
W 6 / 2020

DIMENSIONS

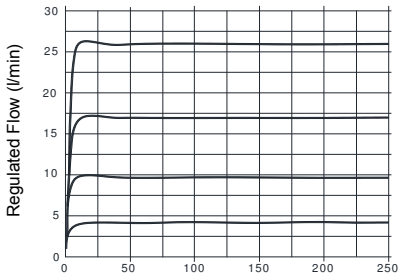
Pressure Drop 3→2 (bar)

Oil 26 cSt (121 SSU) @ 50°C (104°F)



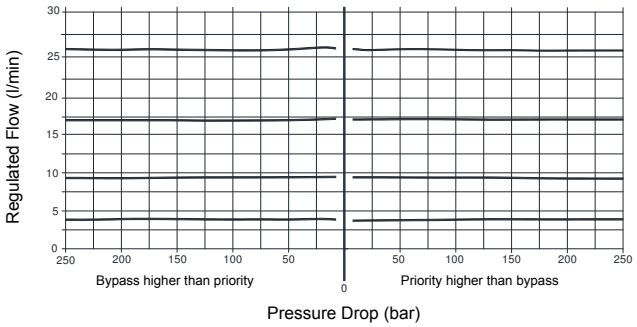
Regulated Flow vs. Pressure

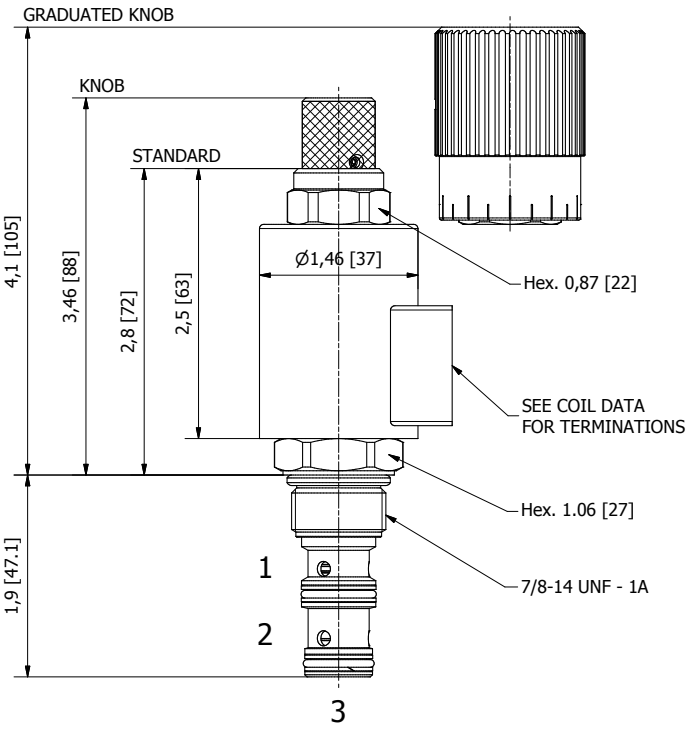
***2 WAYS** - Coil 12 VDC - 130 Hz PWM - Oil 26 cSt (121 SSU) @ 50°C (104°F)*



Pres. Compensation from Inlet to Work Port or Bypass Port

***3 WAYS** - Coil 12 VDC - 130 Hz PWM - Oil 26 cSt (121 SSU) @ 50°C (104°F)*





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EF-F3G – _____ – _____ – _____ – _____

OPTIONS

Buna Standard	**B0** Up to 25 l/min
Buna, Screw Type Override (Knob)	**BS** Up to 25 l/min
Buna, Screw Type Override (Grad. Knob)	**BK** Up to 25 l/min

"F" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

VOLTAGE

12	12 VDC
24	24 VDC

BODIES

Blank	Without Body
N	3/8" BSP Ports
S	#6 SAE Ports

NOTES: 1) For other flow settings, consult factory.
2) For other seals, consult factory.

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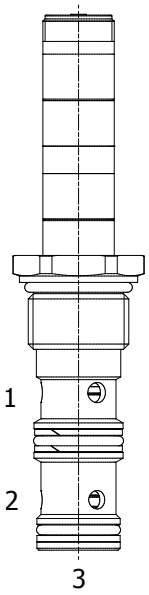
EU-F3G 3 WAY PRESSURE COMPENSATED PRIORITY TYPE PROP. FLOW REGULATOR



DESCRIPTION

12 size, 1" 1/16-12 thread, "Tecnord" series, solenoid operated, normally closed, spool style, 3 ways priority type pressure compensated proportional flow regulator. It can also be used as a restrictive-type 2 way, pressure-compensated flow regulator when the bypass line (port 2) is blocked.

OPERATION

EU-F3G maintains a constant flow rate out of (1) regardless of load pressure variations in the circuit downstream of (3) and regardless bypass pressure variations in the circuit downstream of (2). Excess flow bypasses out of (2). When coil is not energized, there is no regulated flow out of (1).

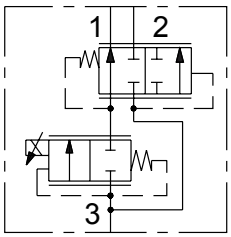
OPERATION OF MANUAL OVERRIDE OPTION: to override, turn the manual override screw counterclockwise. To release turn the manual override screw clockwise.

FEATURES

- Hardened parts for long-life.
- Industry common cavity.
- Excellent linearity and low hysteresis characteristics.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations available.
- Unitized, molded coil design.
- Continuous duty rated solenoid.

It can be used as a restrictive 2-way pressure-compensated flow control valve, blocking bypass line port (2).

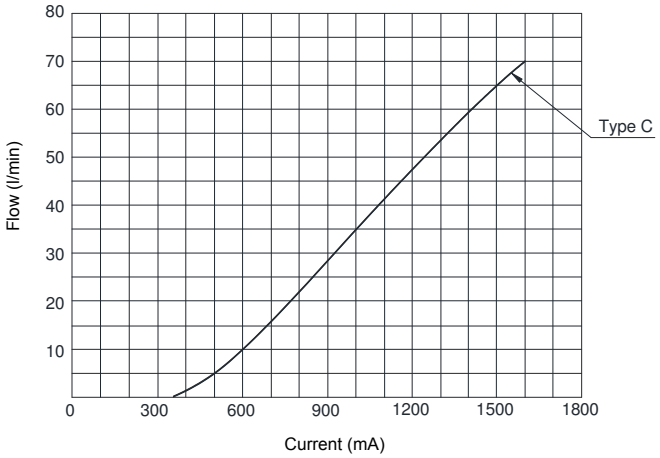
HYDRAULIC SYMBOL



PERFORMANCE

Flow vs. Current

Coil 12 VDC - 130 Hz PWM - Oil 26 cSt (121 SSU) @ 50°C (104°F)



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	15.7 cu-in/min @ 3000 PSI 250 cc/min @ 207 bar
Hysteresis	±5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Weight	.75 lbs (.34 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	37 ft-lbs (50 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	TECNORD 3W
Cavity Tools Kit (form tool, reamer, tap)	40500034

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	400-1400 mA
PWM or Super-Imposed Dither Frequency	120-140 Hz
Coil Resistance (12 VDC)	7.2 Ohm ±5% at 68°F (20°C)

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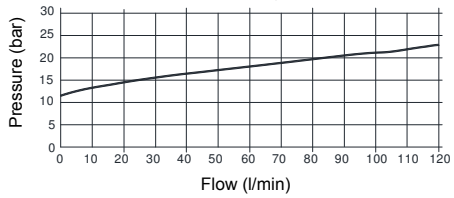
DIMENSIONS

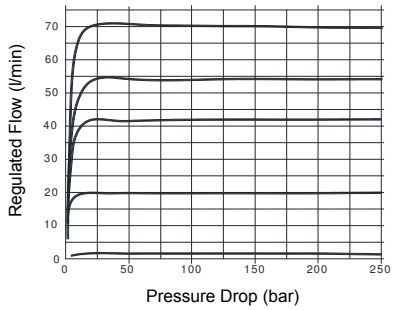
Pressure Drop 3→2 (bar)

Oil 26 cSt (121 SSU) @ 50°C (104°F)



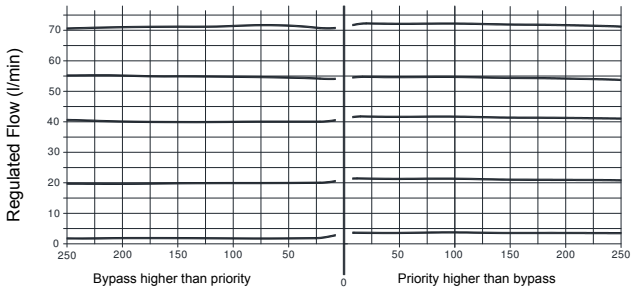
Regulated Flow vs. Pressure

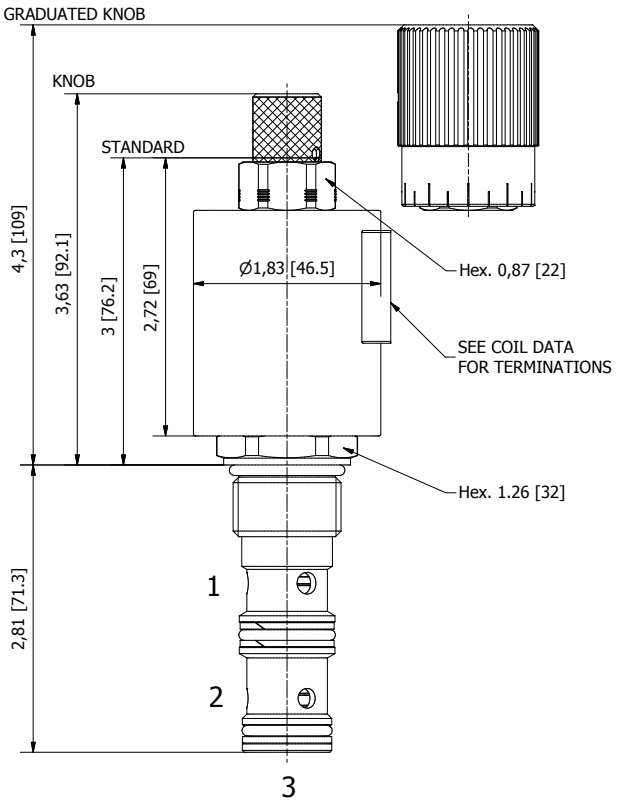
***2 WAYS** - Coil 12 VDC - 130 Hz PWM - Oil 26 cSt (121 SSU) @ 50°C (104°F)*



Pres. Compensation from Inlet to Work Port or Bypass Port

***3 WAYS** - Coil 12 VDC - 130 Hz PWM - Oil 26 cSt (121 SSU) @ 50°C (104°F)*





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EU-F3G – ____ – ____ – ____ – ____

OPTIONS

Buna Standard	**C0** Up to 60 l/min
Buna, Screw Type Override (Knob)	**CS** Up to 60 l/min
Buna, Screw Type Override (Grad. Knob)	**CK** Up to 60 l/min

"Z" COIL TERMINATION

HC	DIN 43650 (Hirschmann)
DI	Deutsch-Integral DT04-2P
JT	AMP Jr. Timer

VOLTAGE

12	12 VDC
24	24 VDC

BODIES

Blank	Without Body
N	3/4" BSP Ports
S	#8 SAE Ports

NOTES: 1) For other flow settings, consult factory.
2) For other seals, consult factory.

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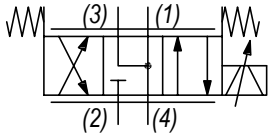
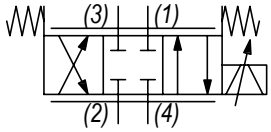
4W/3P PROPORTIONAL DIRECTIONAL CONTROL VALVES

MOTOR SPOOL TYPE	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	3	3500	11	241	3/4-16	**EQ-S4M**	PD56
	6	3500	23	241	7/8-14	**EG-S4M**	PD58

CYLINDER SPOOL TYPE	GPM	PSI	LPM	BAR	CAVITY	MODEL	PAGE
	3	3500	11	241	3/4-16	**EQ-S4P**	PD60
	6	3500	23	241	7/8-14	**EG-S4P**	PD62

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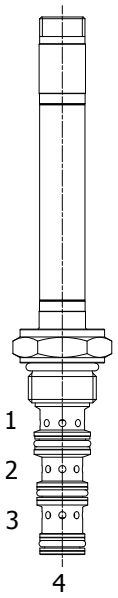
EQ-S4M 4 WAY 3 POSITION, MOTOR SPOOL, PROPORTIONAL DIRECTIONAL VALVE



DESCRIPTION

8 size, 3/4-16 thread, “Power” series, solenoid operated, 4 way 3 position, Motor Spool, proportional directional valve.

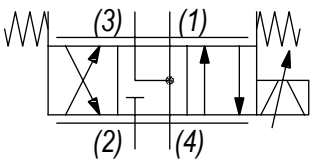
OPERATION

EQ-S4M, when de-energized, blocks flow at (2) and allows flow between (1), (3) and (4). When coil (S1) is energized, flow is allowed from (3) to (4), and from (2) to (1). When coil (S2) is energized, flow is allowed from (3) to (2), and from (4) to (1). Flow is proportional to the current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

FEATURES

- Hardened parts for long-life.
- Industry common cavity.
- Excellent linearity and low hysteresis characteristics.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations available.
- Unitized, molded coil design.
- Continuous duty rated solenoid.

HYDRAULIC SYMBOL

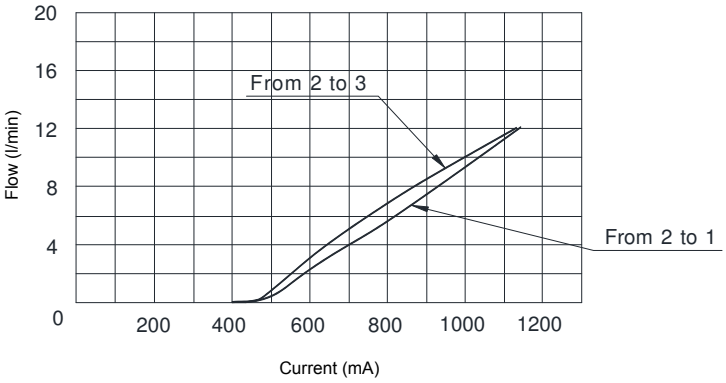


PERFORMANCE

Flow vs. Current

Coil 12VDC – 100 Hz PWM – Oil 26cSt (121 SSU) @ 50°C (122°F)

Operating curves made with circuit having a pressure drop of 14bar



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	10 cu-in/min 160 cc/min bar @ 210 bar
Hysteresis	±5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	18 ft-lbs (26 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	POWER 4W
Cavity Tools Kit (form tool, reamer, tap)	40500029

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	400-1300 mA
PWM or Super-Imposed Dither Frequency	100-200 Hz
Coil Resistance (12 VDC)	6.85 Ohm ±5% at 68°F (20°C)

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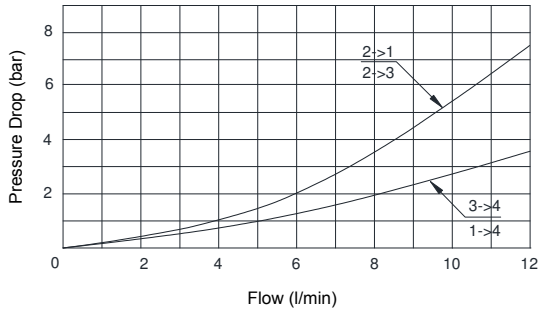
DIMENSIONS

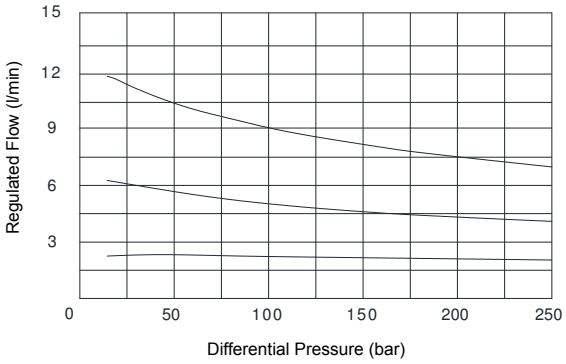
Pressure Drop vs. Flow

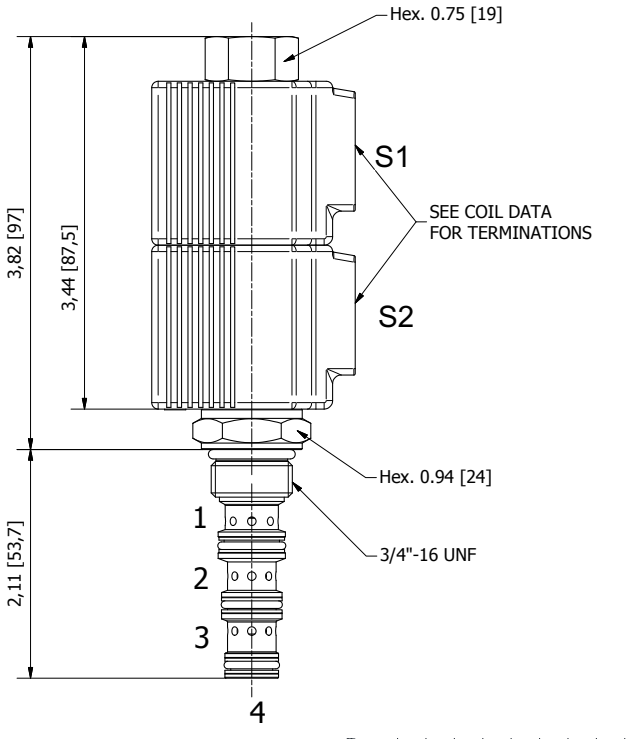
Oil 26cSt (121 SSU)@ 50°C (122°F)



Pressure Compensation from Inlet to Work Port

Oil 26cSt (121 SSU)@ 50°C (122°F)





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EQ-S4M – ____ – ____ – ____ – ____

OPTIONS
Buna Standard **B0** Up to 8 l/min
Buna Standard **C0** Up to 12 l/min

"PJ" COIL TERMINATION
JH DIN 43650 (Hirschmann)
JD Deutsch-Integral DT04-2P
JA AMP Superseal
JJ AMP Jr. Timer

VOLTAGE
12 12 VDC
24 24 VDC

BODIES
Blank Without Body
N 3/8" BSP Ports
S #6 SAE Ports

NOTE: for other seals, consult factory.

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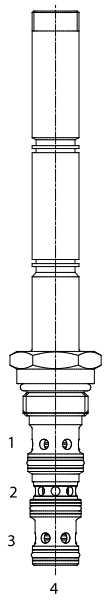
EG-S4M 4 WAY 3 POSITION, MOTOR SPOOL, PROPORTIONAL DIRECTIONAL VALVE



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, solenoid operated, 4 way 3 position, Motor Spool, proportional directional valve.

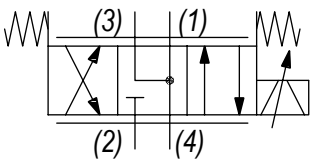
OPERATION

EG-S4M, when de-energized, blocks flow at (2) and allows flow between (1), (3) and (4). When coil (S1) is energized, flow is allowed from (3) to (4), and from (2) to (1). When coil (S2) is energized, flow is allowed from (3) to (2), and from (4) to (1). Flow is proportional to the current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

FEATURES

- Hardened parts for long-life.
- Industry common cavity.
- Excellent linearity and low hysteresis characteristics.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations available.
- Unitized, molded coil design.
- Continuous duty rated solenoid.

HYDRAULIC SYMBOL

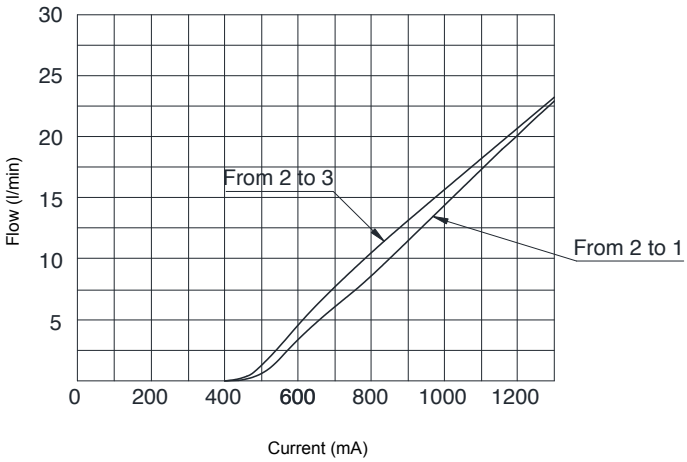


PERFORMANCE

Flow vs. Current

Coil 12 VDC - 100 Hz PWM - Oil 26 cSt (121 SSU) @ 50°C (122°F)

Operating curves made with circuit having a pressure drop of 14bar



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	15 cu-in/min 250 cc/min bar @ 210 bar
Hysteresis	±5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	25 ft-lbs (34 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	DELTA 4W
Cavity Tools Kit (form tool, reamer, tap)	40500002

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	400-1400 mA
PWM or Super-Imposed Dither Frequency	100-200 Hz
Coil Resistance (12 VDC)	5.6 Ohm ±5% at 68°F (20°C)

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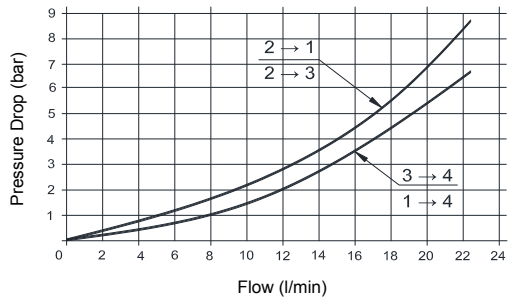
DIMENSIONS

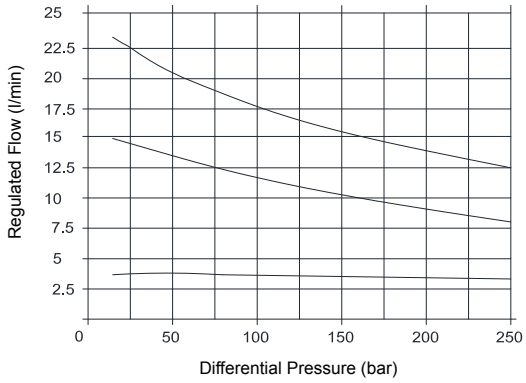
Pressure Drop vs. Flow

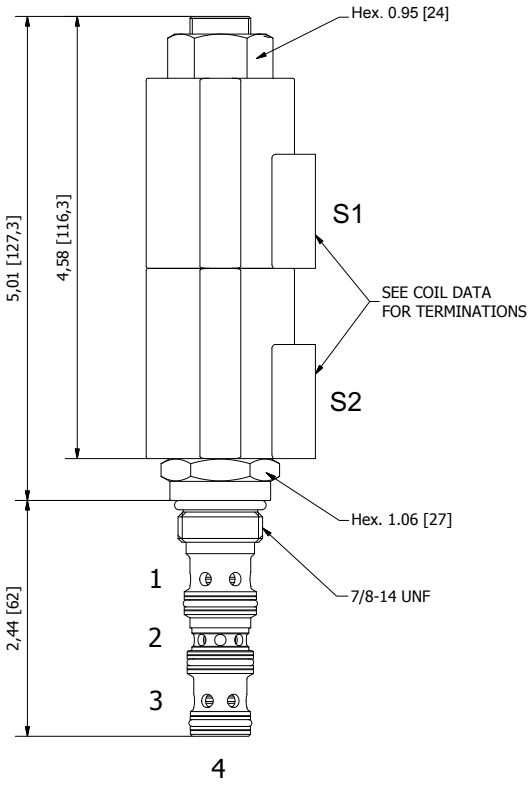
Oil 26cSt (121 SSU) @ 50°C (122°F)



Pressure Compensation from Inlet to Work Port

Oil 26cSt (121 SSU) @ 50°C (122°F)





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EG-S4M – ____ – ____ – ____ – ____

OPTIONS
Buna Standard **B0** Up to 22 l/min

"L" COIL TERMINATION
HC DIN 43650 (Hirschmann)
DT Deutsch-Integral DT04-2P

VOLTAGE
12 12 VDC
24 24 VDC

BODIES
Blank Without Body
N 3/8" BSP Ports
S #6 SAE Ports

NOTE: for other seals, consult factory.

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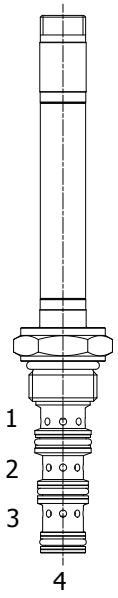
EQ-S4P 4 WAY 3 POSITION, CYLINDER SPOOL, PROPORTIONAL DIRECTIONAL VALVE



DESCRIPTION

8 size, 3/4-16 thread, “Power” series, solenoid operated, 4 way 3 position, Cylinder Spool, proportional directional valve.

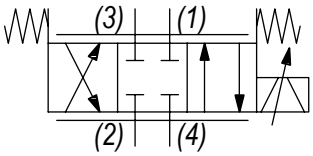
OPERATION

EQ-S4P, when de-energized, blocks flow to all ports. When coil (S1) is energized, flow is allowed from (3) to (4), and from (2) to (1). When coil (S2) is energized, flow is allowed from (3) to (2), and from (4) to (1). Flow is proportional to the current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

FEATURES

- Hardened parts for long-life.
- Industry common cavity.
- Excellent linearity and low hysteresis characteristics.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations available.
- Unitized, molded coil design.
- Continuous duty rated solenoid.

HYDRAULIC SYMBOL

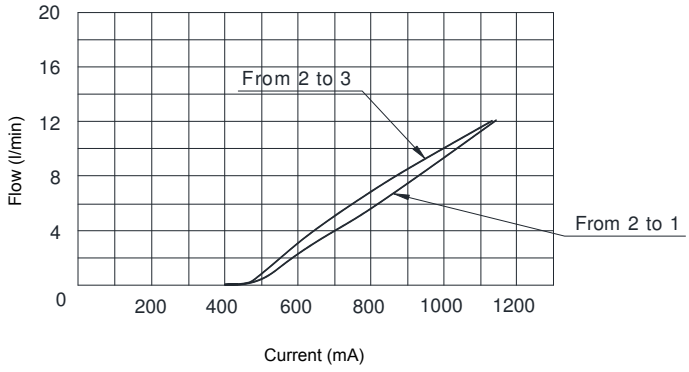


PERFORMANCE

Flow vs. Current

Coil 12VDC – 100 Hz PWM – Oil 26cSt (121 SSU) @ 50°C (122°F)

Operating curves made with circuit having a pressure drop of 14bar



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	10 cu-in/min 160 cc/min bar @ 210 bar
Hysteresis	±5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	18 ft-lbs (26 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	POWER 4W
Cavity Tools Kit (form tool, reamer, tap)	40500029

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	400-1300 mA
PWM or Super-Imposed Dither Frequency	100-200 Hz
Coil Resistance (12 VDC)	6.85 Ohm ±5% at 68°F (20°C)

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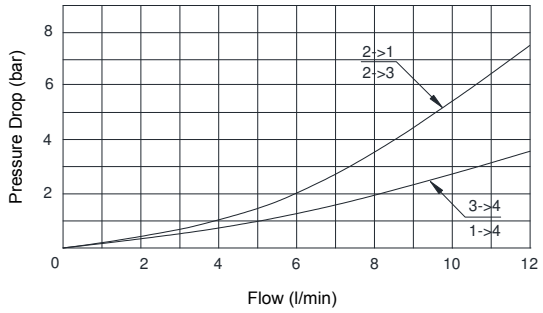
DIMENSIONS

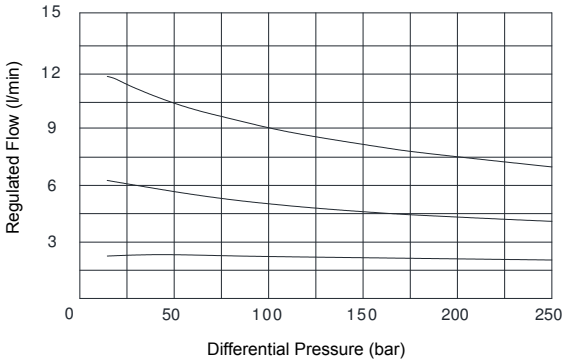
Pressure Drop vs. Flow

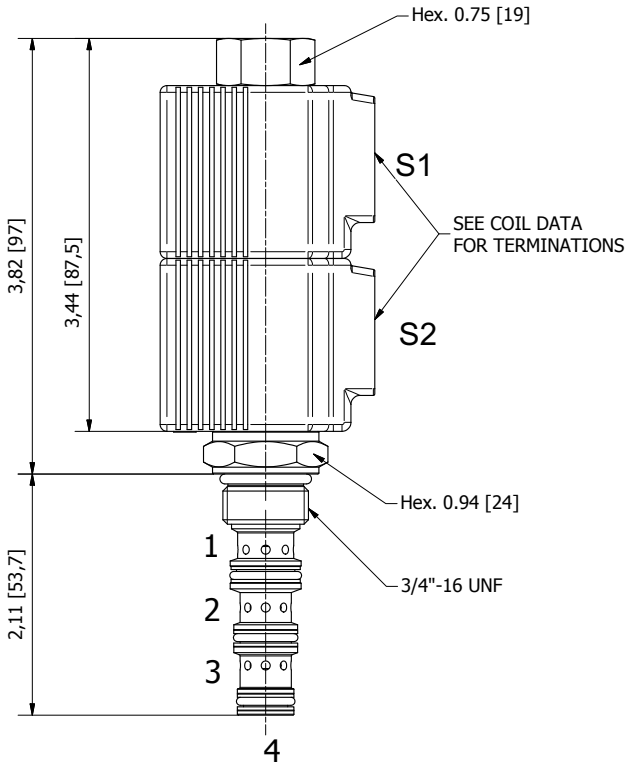
Oil 26cSt (121 SSU)@ 50°C (122°F)



Pressure Compensation from Inlet to Work Port

Oil 26cSt (121 SSU)@ 50°C (122°F)





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EQ-S4P – ____ – ____ – ____ – ____

OPTIONS
Buna Standard **B0** Up to 8 l/min
Buna Standard **C0** Up to 12 l/min

"PJ" COIL TERMINATION
JH DIN 43650 (Hirschmann)
JD Deutsch-Integral DT04-2P
JA AMP Superseal
JJ AMP Jr. Timer

VOLTAGE
12 12 VDC
24 24 VDC

BODIES
Blank Without Body
N 3/8" BSP Ports
S #6 SAE Ports

NOTE: for other seals, consult factory.

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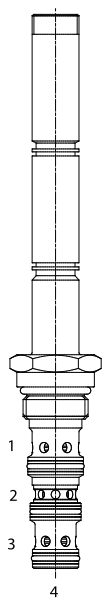
EG-S4P 4 WAY 3 POSITION, CYLINDER SPOOL, PROPORTIONAL DIRECTIONAL VALVE



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, solenoid operated, 4 way 3 position, Cylinder Spool, proportional directional valve.

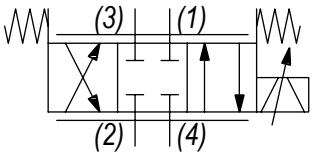
OPERATION

EG-S4P, when de-energized, blocks flow to all ports. When coil (S1) is energized, flow is allowed from (3) to (4), and from (2) to (1). When coil (S2) is energized, flow is allowed from (3) to (2), and from (4) to (1). Flow is proportional to the current applied to the coil. A compensator must be used to create a pressure compensated flow control function.

FEATURES

- Hardened parts for long-life.
- Industry common cavity.
- Excellent linearity and low hysteresis characteristics.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations available.
- Unitized, molded coil design.
- Continuous duty rated solenoid.

HYDRAULIC SYMBOL

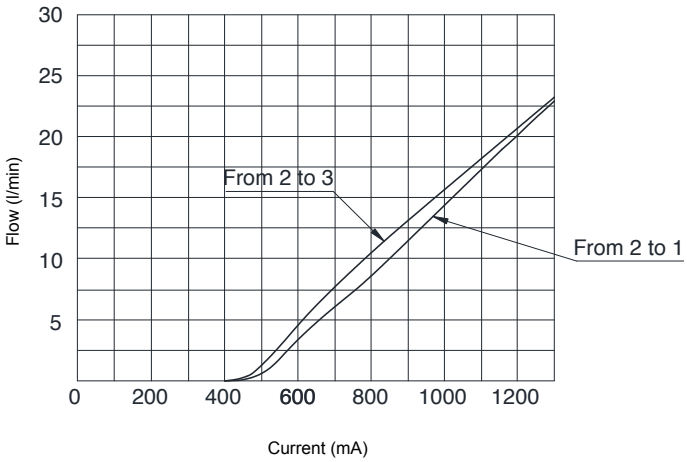


PERFORMANCE

Flow vs. Current

Coil 12 VDC - 100 Hz PWM - Oil 26 cSt (121 SSU) @ 50°C (122°F)

Operating curves made with circuit having a pressure drop of 14bar



VALVE SPECIFICATIONS

Flow Range	See curves for various versions
Max System Pressure	3500 PSI (241 bar)
Leakage	15 cu-in/min 250 cc/min bar @ 210 bar
Hysteresis	±5%
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temp. Range	-30°C / +100°C
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	25 ft-lbs (34 Nm)
Coil Nut Torque Requirements	2-3 ft-lbs (3-4 Nm)
Cavity	DELTA 4W
Cavity Tools Kit (form tool, reamer, tap)	40500002

COIL SPECIFICATIONS

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated Current Range	400-1400 mA
PWM or Super-Imposed Dither Frequency	100-200 Hz
Coil Resistance (12 VDC)	5.6 Ohm ±5% at 68°F (20°C)

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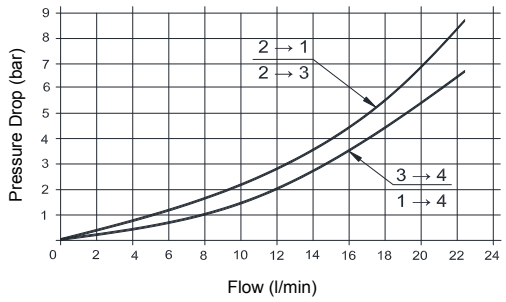
DIMENSIONS

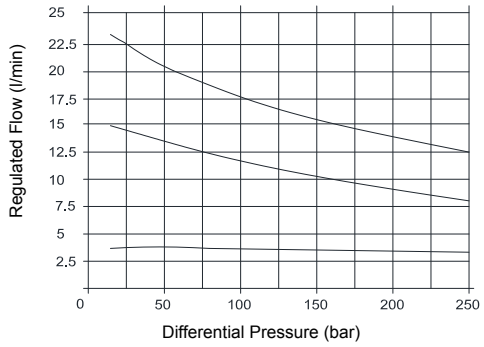
Pressure Drop vs. Flow

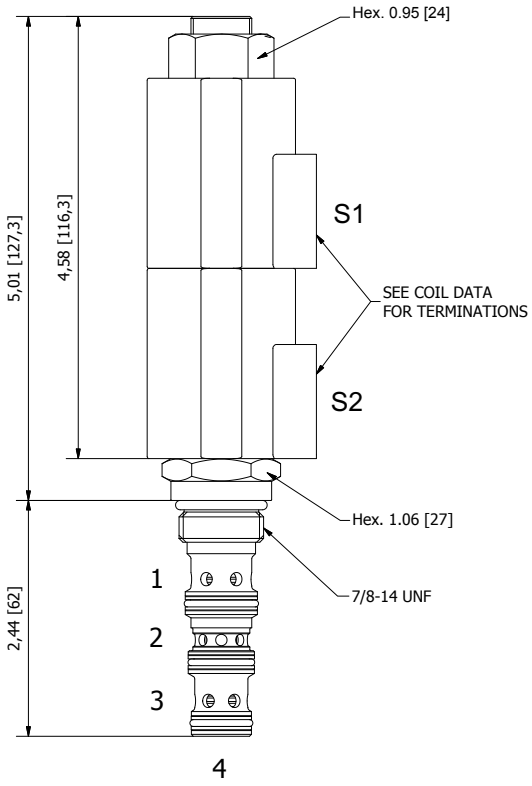
Oil 26cSt (121 SSU) @ 50°C (122°F)



Pressure Compensation from Inlet to Work Port

Oil 26cSt (121 SSU) @ 50°C (122°F)





(for bodies style and sizes see section "Accessories")

ORDERING INFORMATION

Approximate Coil Weight: .47 lbs (.21 kg)

EG-S4P – ____ – ____ – ____ – ____

OPTIONS
Buna Standard **B0** Up to 22 l/min

"L" COIL TERMINATION
HC DIN 43650 (Hirschmann)
DT Deutsch-Integral DT04-2P

VOLTAGE
12 12 VDC
24 24 VDC

BODIES
Blank Without Body
N 3/8" BSP Ports
S #6 SAE Ports

NOTE: for other seals, consult factory.

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