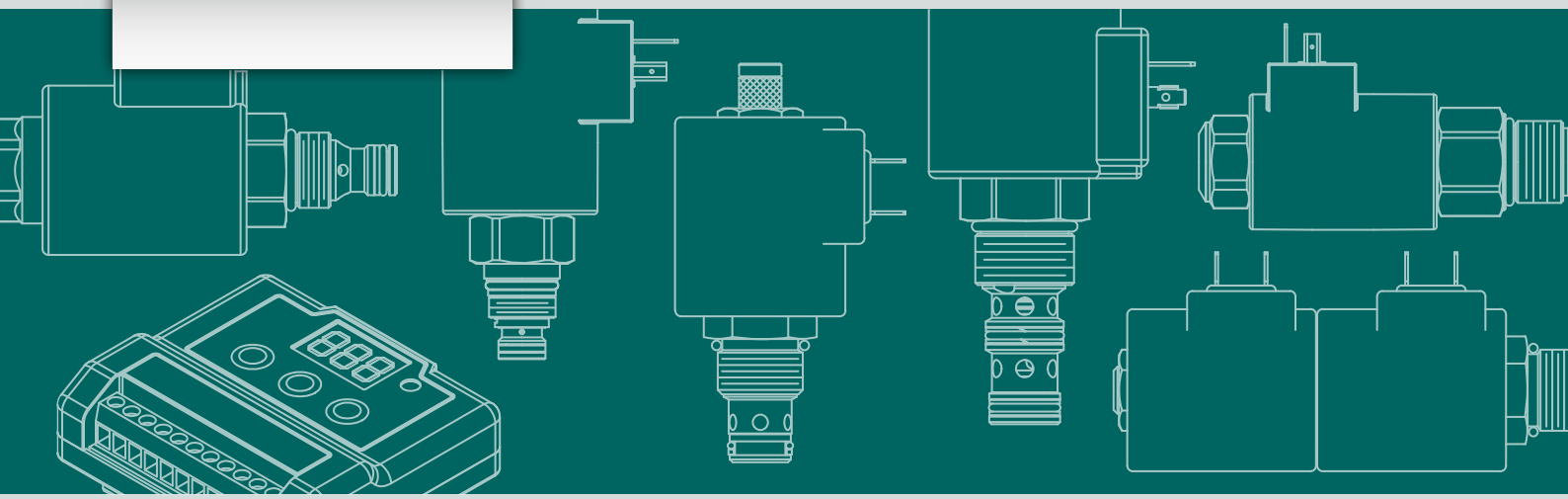
STEED
HYDRAULIC TECHNOLOGY



Proportional Cartridge Valve

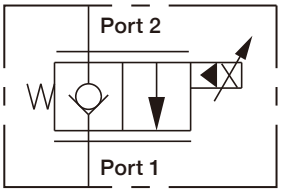
Flow Control
Pressure Control
Directional Control
Electronic Amplifier P-C Board

www.steedmachinery.com.tw

Contents

HSP-20

SYMBOLS



ORDER CODES

HSP 10 - 20 M S - D1 - DR - N

1	Valve Size	08, 10, 12	
2	Model Name	HSP-20	
3	Control Manner	none	without manual override
		M*	manual override
4	Screen	none	without screen
		S*	with screen
5	Voltage (coil)	D1	12 VDC
		D2	24 VDC
6	Connector (coil)	DG	DIN connector type
		DL	wiring type
		DR	Deutsch DT04-2P
7	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane

* Only for HSP08-20, HSP10-20.

MODEL SPEC.

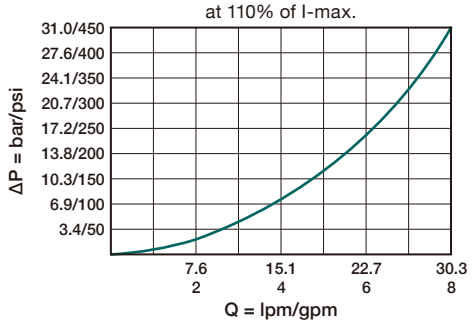
Model	Cavity	Capacity (l/min) (at 34.5bar)	Operating Pressure (bar)	Min. Operating Dither / Pulse Frequency (Hz)	Hysteresis	Installation Torque (Nm)	Weight (kg)
HSP08-20	SAE-08-2	22	207	70	less than 5% up to 85% of I-max. ; less than 10% above 85% of I-max.	25.8 ~ 28.5	0.26
HSP08-20M	SAE-08-2	18.4					0.29
HSP10-20	SAE-10-2	68	250		less than 5% up to 75% of I-max. ; less than 10% above 75% of I-max.	44.9 ~ 50.3	0.47
HSP10-20M	SAE-10-2	64.3					0.52
HSP12-20	SAE-12-2	100	250		less than 5% below 60% of I-max. ; less than 10% above 60% of I-max.	44.9 ~ 50.3	0.54

* Operating temperature : -35 ~ 100°C (-31 ~ 212°F)

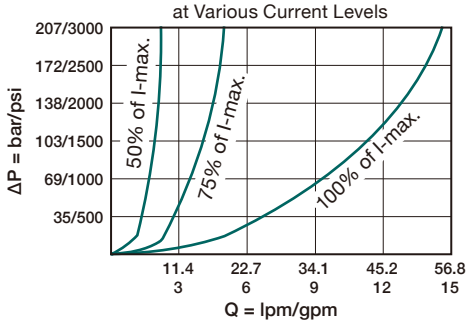
PERFORMANCE CURVES

▸ HSP08-20

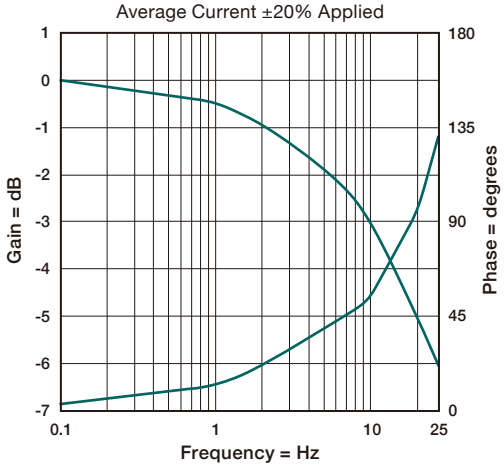
Pressure Drop vs. Flow
Port 2 → Port 1
at 110% of I-max.



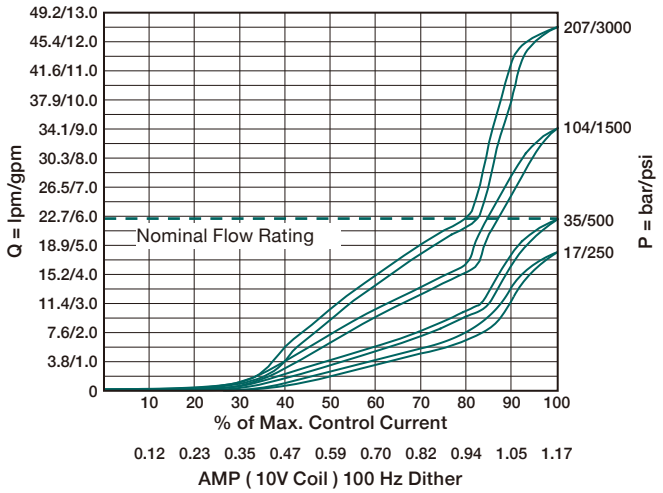
Pressure Drop
Port 2 → Port 1
at Various Current Levels



Frequency Response
Average Current ±20% Applied



Flow vs. Current
at Various Differential Pressures

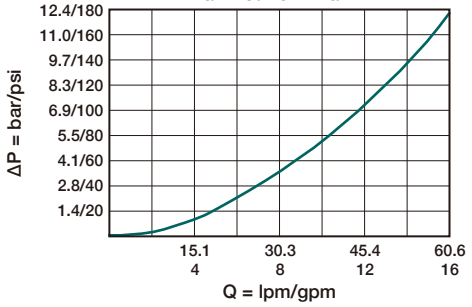


* 32cSt / 150 ssu oil at 40°C

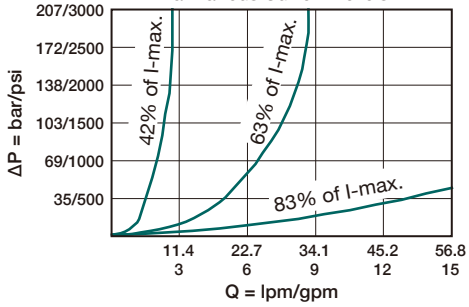
PERFORMANCE CURVES

▸ HSP10-20

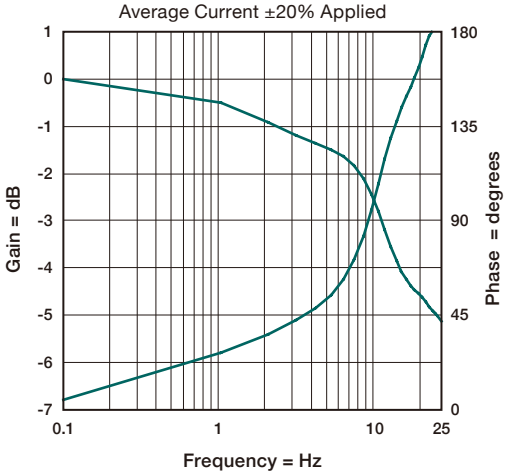
Pressure Drop vs. Flow
Port 2 → Port 1
at 110% of I-max.



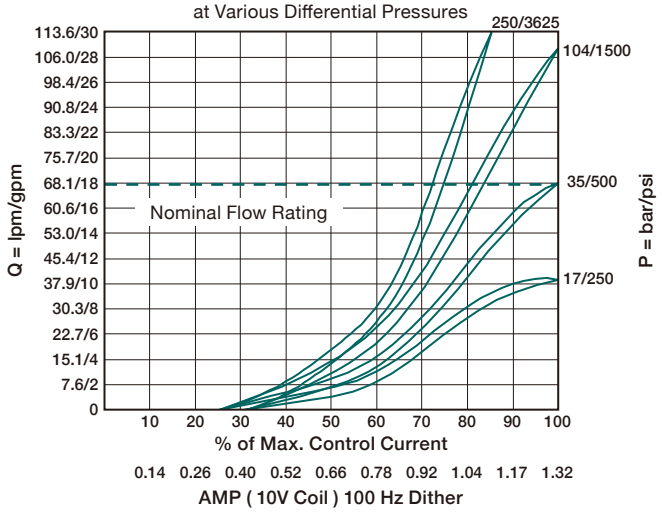
Pressure Drop
Port 2 → Port 1
at Various Current Levels



Frequency Response
Average Current ±20% Applied

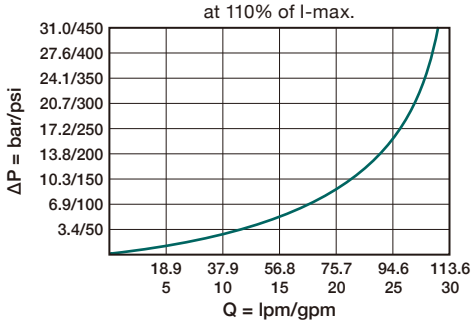


Flow vs. Current
at Various Differential Pressures

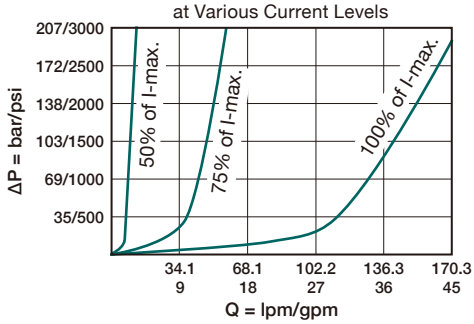


▸ HSP12-20

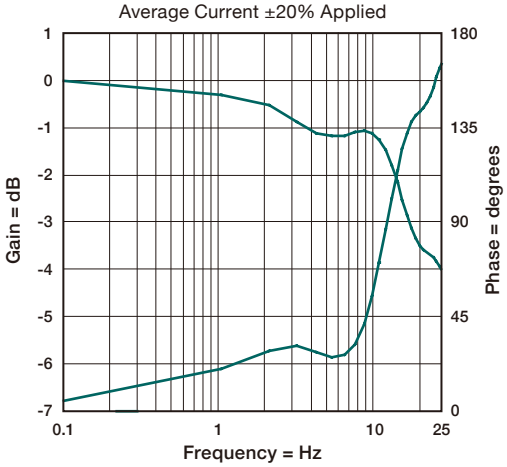
Pressure Drop vs. Flow
Port 2 → Port 1
at 110% of I-max.



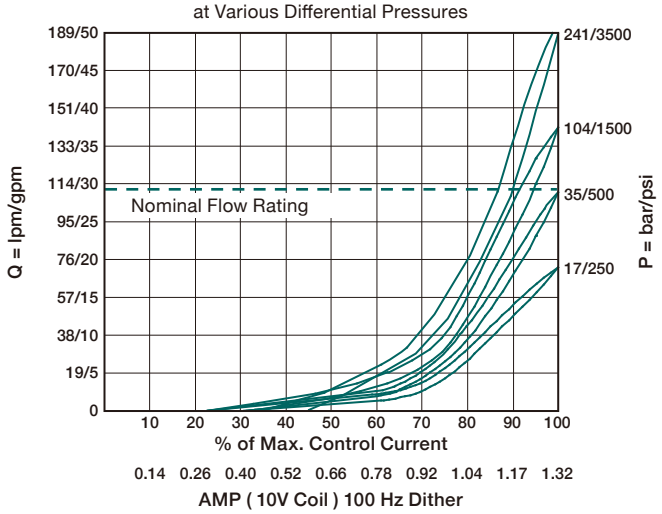
Pressure Drop
Port 2 → Port 1
at Various Current Levels



Frequency Response
Average Current ±20% Applied



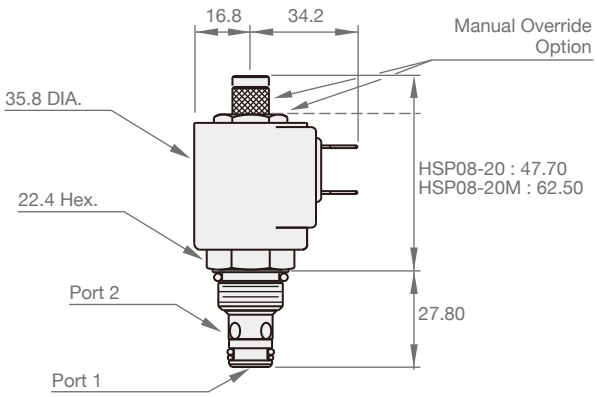
Flow vs. Current
at Various Differential Pressures



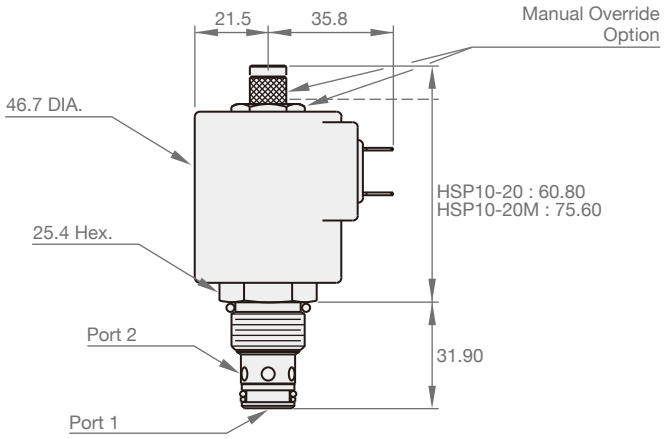
* 32cSt / 150 ssu oil at 40°C

DIMENSION (UNIT : mm)

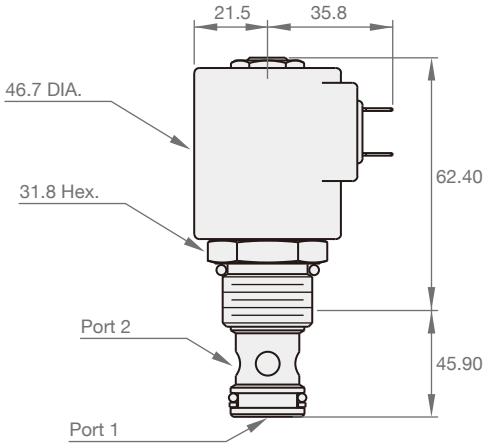
▸ HSP08-20



▸ HSP10-20

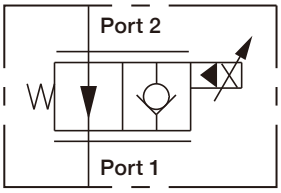


▸ HSP12-20



HSP-21

SYMBOLS



ORDER CODES

HSP 08 - 21 M S - D1 - DR - N

1	Valve Size	08, 10, 12	
2	Model Name	HSP-21	
3	Control Manner	none	without manual override
		M*	manual override
4	Screen	none	without screen
		S	with screen
5	Voltage (coil)	D1	12 VDC
		D2	24 VDC
6	Connector (coil)	DG	DIN connector type
		DL	wiring type
		DR	Deutsch DT04-2P
7	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane

* Manual override is only for HSP08-21, HSP10-21.

MODEL SPEC.

Model	Cavity	Capacity (l/min) (at 34.5bar)	Operating Pressure (bar)	Min. Operating Dither / Pulse Frequency (Hz)	Internal Leakage	Installation Torque (Nm)	Weight (kg)
HSP08-21	SAE-08-2	18.9	207	70	5 drops per minute at 207 bar	25.8 ~ 28.5	0.32
HSP10-21	SAE-10-2	60.6	250			44.9 ~ 50.3	0.54
HSP12-21	SAE-12-2	76	250			44.9 ~ 50.3	0.615

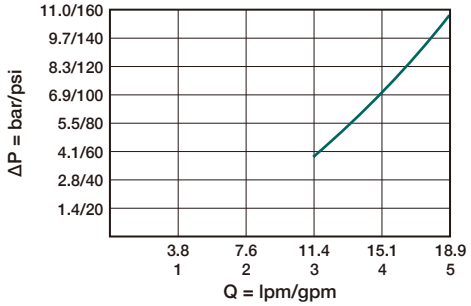
* Operating Voltage : see performance curves
* Operating temperature : -35 ~ 100°C (-31 ~ 212°F)

PERFORMANCE CURVES

▸ **HSP08-21**

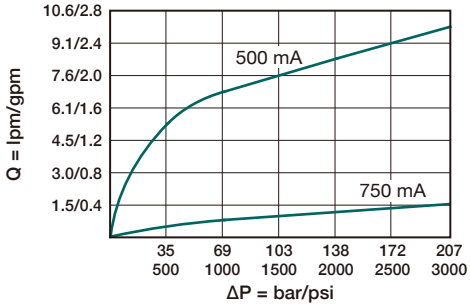
Pressure Drop vs. Flow

Port 2 → Port 1

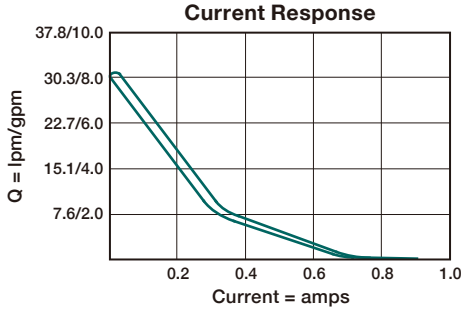


Typical Pressure Response

with 12 VDC Coil



Current Response



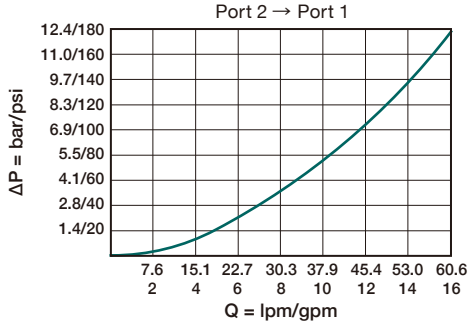
* 32cSt / 150 ssu oil at 40°C

PERFORMANCE CURVES

▸ HSP10-21

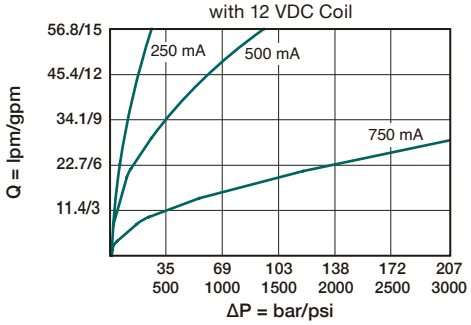
Pressure Drop vs. Flow

Port 2 → Port 1



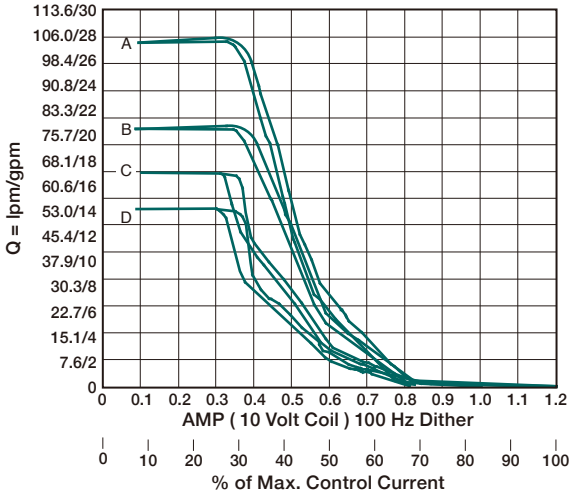
Typical Pressure Response

with 12 VDC Coil



Flow vs. Current with 12 VDC D-Coil

consult factory for E-Coil

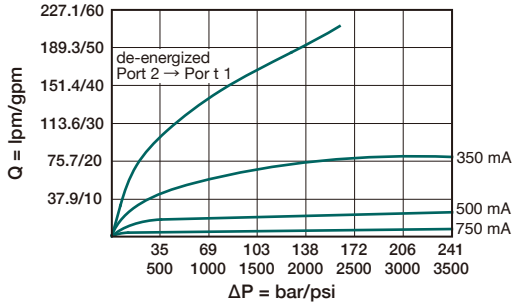


A: 207 bar/3000 psi
B: 104 bar/1500 psi
C: 35 bar/500 psi
D: 11 bar/160 psi

▸ HSP12-21

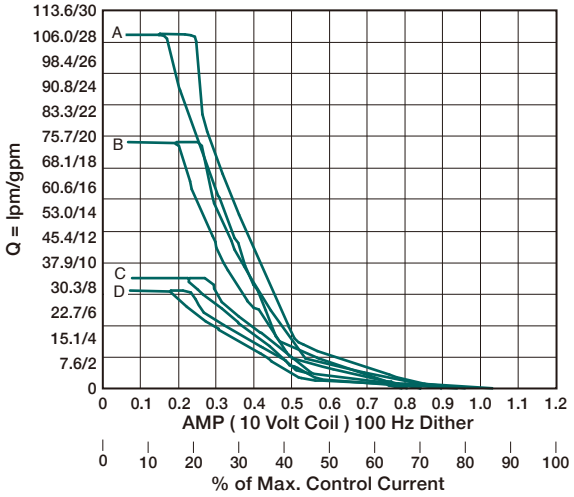
Typical Pressure Response

with 12 VDC Coil



Flow vs. Current with 12 VDC D-Coil

consult factory for E-Coil



Pressure Drop

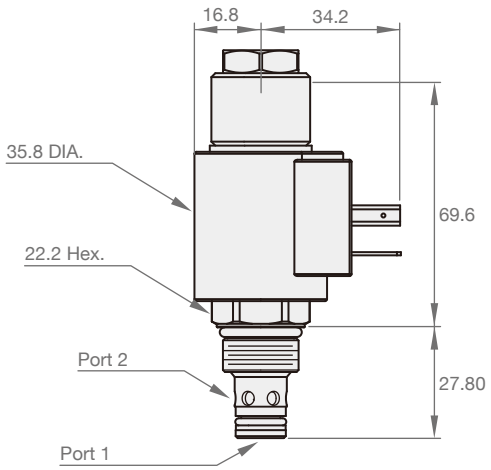
A: 100 mA : 160 bar / 2320 psi
1200 mA: 228 bar / 3300 psi
B: 100 mA : 79.3 bar / 1150 psi
1200 mA : 104 bar / 1500 psi
C: 100 mA : 16.6 bar / 240 psi
1200 mA : 35 bar / 500 psi
D: 100 mA : 10.3 bar / 150 psi
1200 mA : 13.8 bar / 200 psi

* 32cSt / 150 ssu oil at 40°C

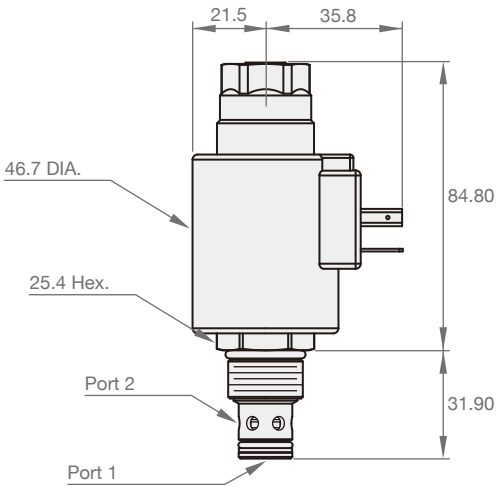
DIMENSION

(UNIT : mm)

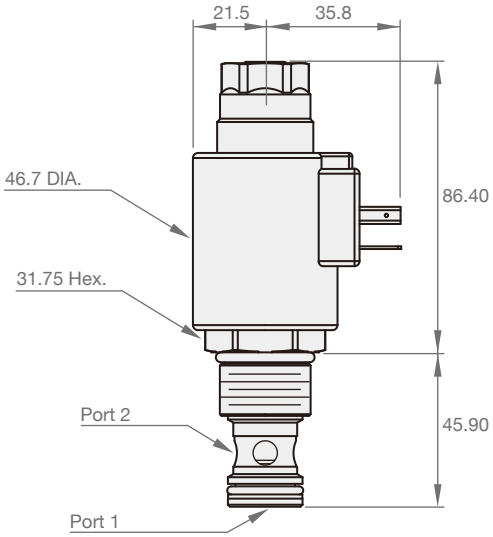
▸ HSP08-21



▸ HSP10-21

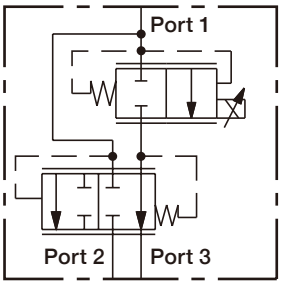


▸ HSP12-21



SPV-30

SYMBOLS



ORDER CODES

SPV 70 - 30 A - D1 - DG - N

1	Valve Size	70, 72, 76	
2	Model Name	SPV-30	
3	Flow Range	A	SPV70-30A : 30 l/min (8 gpm) SPV72-30A : 57 l/min (15 gpm) SPV76-30A : 151 l/min (40 gpm)
4	Voltage (coil)	D1	12 VDC
		D2	24 VDC
5	Connector (coil)	DG	DIN connector type
6	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane

MODEL SPEC.

Model	Cavity	Capacity (l/min)	Operating Pressure (bar)			Internal Leakage	Installation Torque (Nm)	Weight (kg)
			Port 1	Port 2	Port 3			
SPV70-30A	SAE-10-3	30	240	207	207	197 cc/min fully closed at 207 bar	36.7	0.53
SPV72-30A	SAE-12-3	57	240	207	207	0.38 lpm fully closed at 207 bar	47.4	0.70
SPV76-30A	SAE-16-3	151	240	207	207	0.38 lpm at zero current	67.8	0.88

Model	Regulated Flow Rate	Max. Input Flow	Max. Flow Rate	Nominal Input Flow
SPV70-30A	bypass blocked : 26 lpm (7 gpm) bypass open : 30 lpm (8 gpm)	bypass open : 50 lpm (13 gpm)	-	-
SPV72-30A	in 3-port mode : 57 lpm (15 gpm)	in 3-port mode : 114 lpm (30 gpm)	in 2-port mode : 53 lpm (14 gpm)	-
SPV76-30A	3-ported: 94.6 lpm (25.0 gpm) 2-ported: 85.2 lpm (22.5 gpm)	bypass open, 3-ported : 151.4 lpm (40.0 gpm)	-	bypass open, 3-ported: 121 lpm (32.0 gpm)

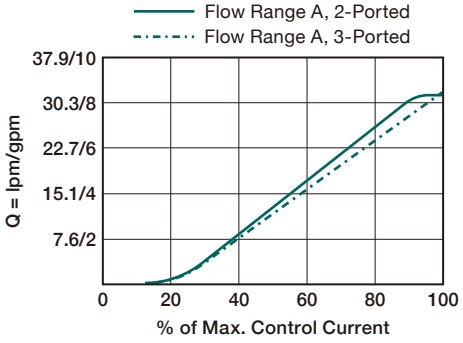
Model	D1		D2		Operating Temperature
	Threshold Current	Max. Control Current	Threshold Current	Max. Control Current	
SPV70-30A	250 ± 100 mA	1250 ± 150 mA	125 ± 50 mA	600 ± 75 mA	-35 ~ 100°C (-31 ~ 212°F)
SPV72-30A	350 ± 100 mA	1600 ± 200 mA	175 ± 50 mA	800 ± 100 mA	
SPV76-30A	300 ± 100 mA	1600 ± 100 mA	150 ± 50 mA	800 ± 50 mA	

PERFORMANCE CURVES

▸ SPV70-30

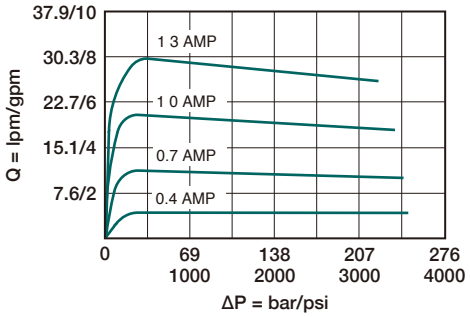
Flow vs. Current

207 bar / 3000 psi, 12V Coil, 110 Hz PWM



Regulated Flow vs. Pressure Drop

2-Ported,
240 bar / 3500 psi Inlet,
12V Coil, 110 Hz PWM

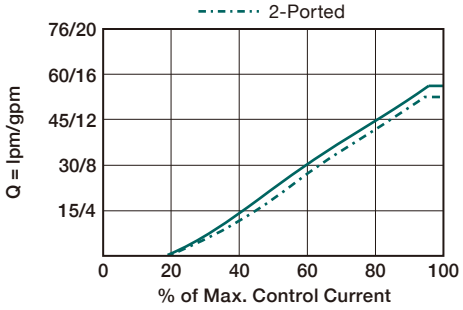


* 32cSt / 150 ssu oil at 40°C

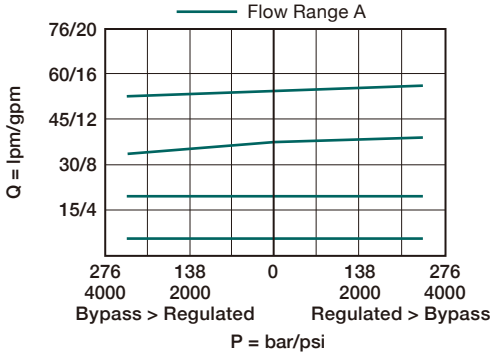
PERFORMANCE CURVES

▸ SPV72-30

Flow vs. Current
207 bar / 3000 psi, 12V Coil, 110 Hz PWM

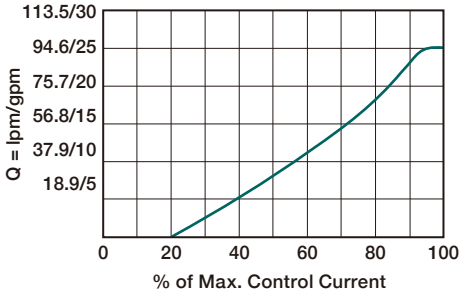


Regulated Flow vs. Pressure Drop
12V Coil, 110 Hz PWM
Input Flow : 76 lpm/20 gpm

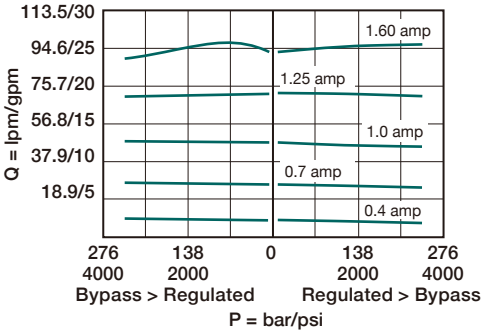


▸ SPV76-30

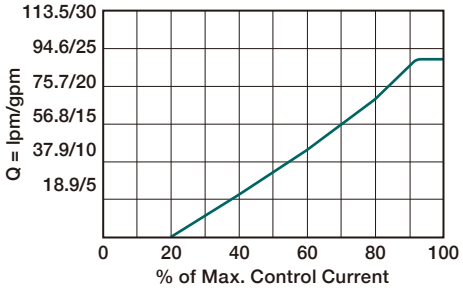
3-way Valve
Regulated Flow vs. Current
240 bar / 3500 psi Inlet,
207 bar / 3000 psi at Port 3, No Load at Port 2
12V Coil, 110 Hz PWM



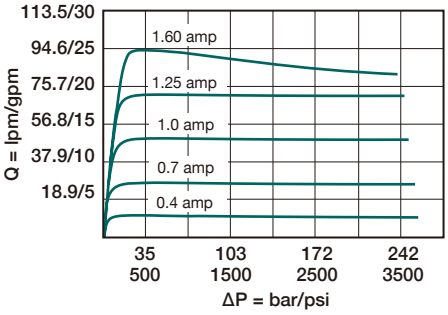
3-way Valve
Regulated Flow vs. Load
240 bar / 3500 psi,
121 lpm / 32 gpm Inlet
12V Coil, 110 Hz PWM



2-way Valve
Regulated Flow vs. Current
240 bar / 3500 psi Inlet,
207 bar / 3000 psi at Port 3
12V Coil, 110 Hz PWM



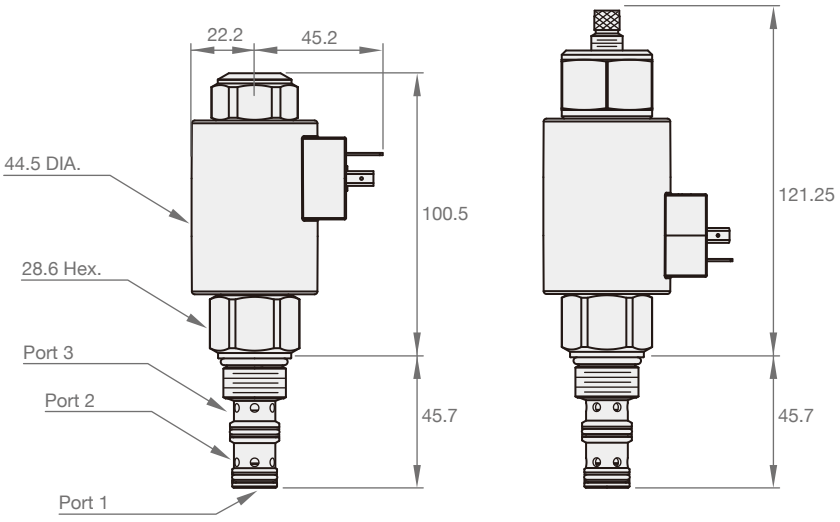
2-way Valve
Regulated Flow vs. Pressure Drop
240 bar / 3500 psi,
12V Coil, 110 Hz PWM



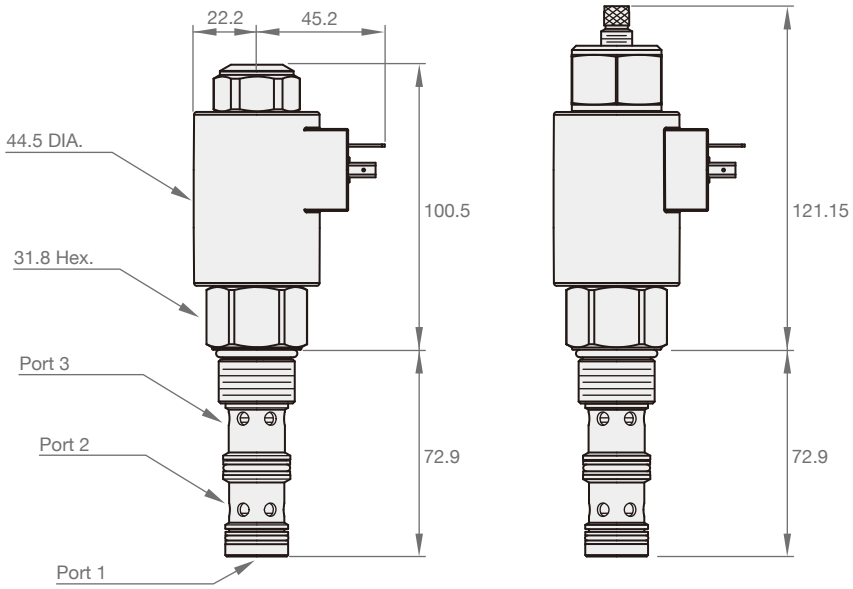
* 32cSt / 150 ssu oil at 40°C

DIMENSION (UNIT : mm)

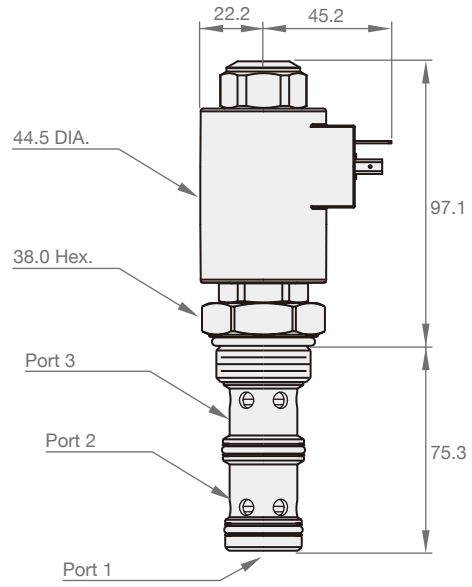
▸ SPV70-30



▸ SPV72-30

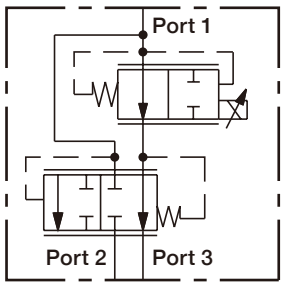


▸ SPV76-30



SPV-31

SYMBOLS



ORDER CODES

SPV 70 - 31 A - D1 - DG - N

1	Valve Size	70, 72	
2	Model Name	SPV-31	
3	Flow Range	A	SPV70-31A : 30 l/min (8 gpm) SPV72-31A : 53 l/min (14 gpm)
4	Voltage (coil)	D1	12 VDC
		D2	24 VDC
5	Connector (coil)	DG	DIN connector type
6	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane

MODEL SPEC.

Model	Cavity	Capacity (l/min)	Operating Pressure (bar)			Internal Leakage	Installation Torque (Nm)	Weight (kg)
			Port 1	Port 2	Port 3			
SPV70-31A	SAE-10-3	30	240	207	207	197 cc/min fully closed at 207 bar	36.7	0.53
SPV72-31A	SAE-12-3	53	240	207	207	0.38 lpm fully closed at 207 bar	47.4	0.70

Model	Regulated Flow Rate	Max. Input Flow	Max. Flow Rate
SPV70-31A	bypass blocked : 26 lpm (7 gpm) bypass open : 30 lpm (8 gpm)	bypass open : 50 lpm (13 gpm)	-
SPV72-31A	in 3-port mode : 57 lpm (15 gpm)	in 3-port mode : 114 lpm (30 gpm)	in 2-port mode : 42 lpm (11 gpm)

Model	D1		D2		Operating Temperature
	Threshold Current	Max. Control Current	Threshold Current	Max. Control Current	
SPV70-31A	150 ± 70 mA	1400 ± 200 mA	75 ± 35 mA	700 ± 100 mA	-35 ~ 100°C (-31 ~ 212°F)
SPV72-31A	150 ± 100 mA	1350 ± 150 mA	75 ± 50 mA	675 ± 75 mA	

PERFORMANCE CURVES

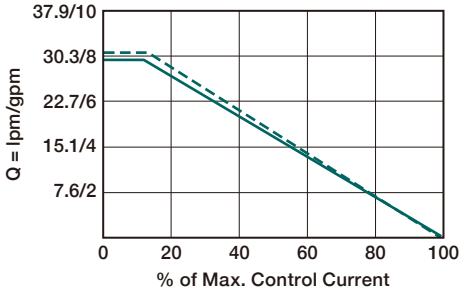
▸ SPV70-31

Flow vs. Current

207 bar / 3000 psi, 12V Coil, 110 Hz PWM

Flow Range A, 2-Ported

Flow Range A, 3-Ported

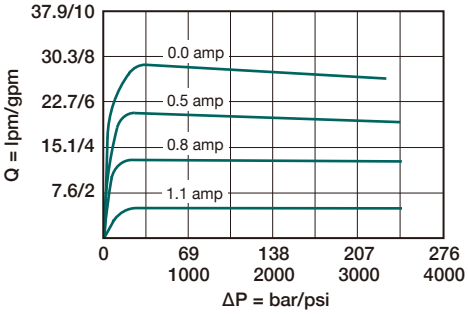


Regulated Flow vs. Pressure Drop

2-Ported,

240 bar / 3500 psi,

12V Coil, 110 Hz PWM



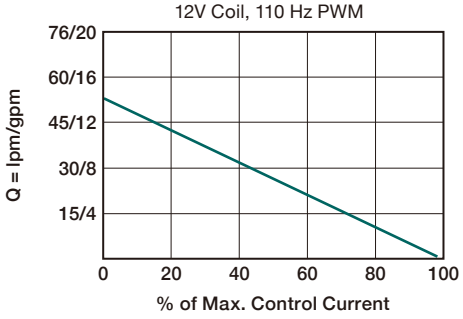
▸ SPV72-31

Flow vs. Current

207 bar / 3000 psi,

Input Flow : 76 lpm/20 gpm

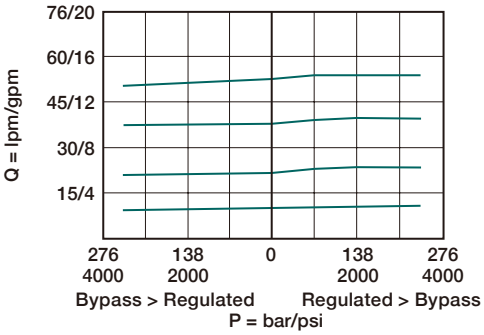
12V Coil, 110 Hz PWM



Regulated Flow vs. Pressure

Input Flow : 76 lpm/20 gpm

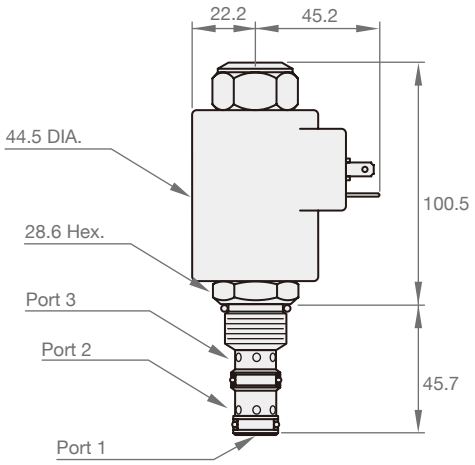
12V Coil, 110 Hz PWM



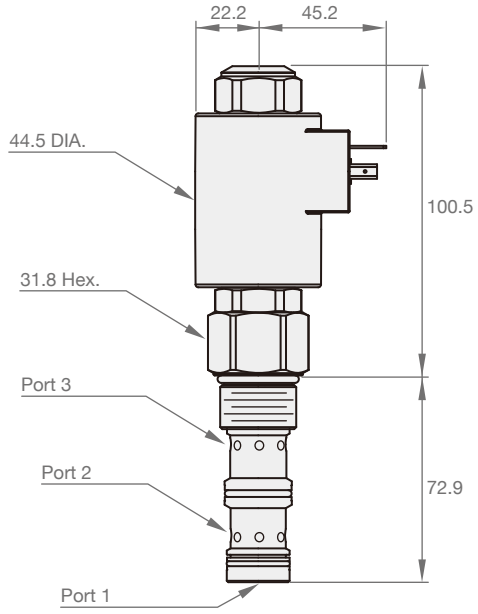
* 32cSt / 150 ssu oil at 40°C

DIMENSION (UNIT : mm)

▸ **SPV70-31**

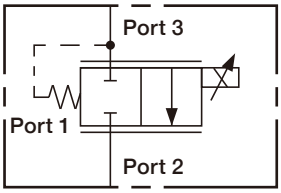


▸ **SPV72-31**



SPV-33

SYMBOLS



ORDER CODES

SPV 72 - 33 A - D1 - DG - N

1	Valve Size	72	
2	Model Name	SPV-33	
3	Flow Range	A	SPV72-33A : 76 l/min (20 gpm)
4	Voltage (coil)	D1	12 VDC
		D2	24 VDC
5	Connector (coil)	DG	DIN connector type
6	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane

MODEL SPEC.

Model	Cavity	Capacity (l/min)	Operating Pressure (bar)	Max. Flow Rate	Internal Leakage	Installation Torque (Nm)	Weight (kg)
SPV72-33A	SAE-12-3	76	240	76 lpm / 20 gpm	492 cc/min fully closed at 207 bar	47.4	0.77

Model	D1		D2		Operating Temperature
	Threshold Current	Max. Control Current	Threshold Current	Max. Control Current	
SPV72-33A	300 ± 70 mA	1500 ± 100 mA	150 ± 35 mA	750 ± 100 mA	-35 ~ 100°C (-31 ~ 212°F)

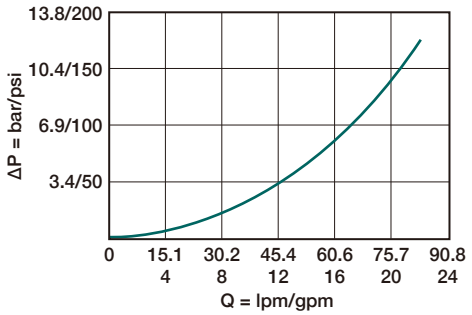
PERFORMANCE CURVES

▸ SPV72-33

Pressure Drop vs. Flow

Port 3 → Port 2, Coil Energized

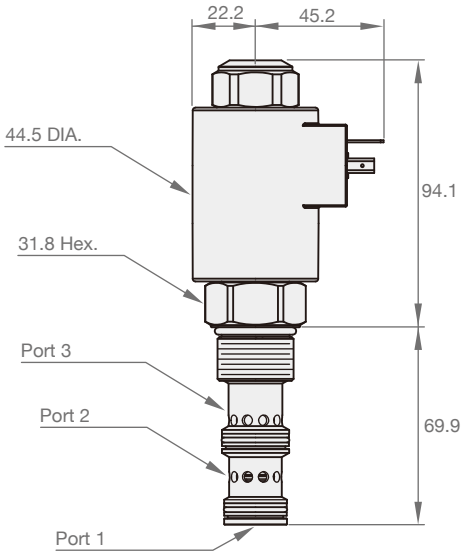
Through Cartridge & Ported Body Port 1 is not used.



* 32cSt / 150 ssu oil at 40°C

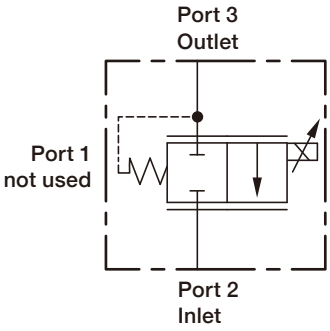
DIMENSION

(UNIT : mm)



PV

SYMBOLS



ORDER CODES

PV - 103 3 - X B N - D 24

1	Model Name	PV	
2	Cavity	103, 123	
3	Type	3	normally closed
4	Control Manner	L	screw adjustment
		X	unadjustable
5	Capacity (l/min)	B	PV-1033 : 30, PV-1233 : 57
		A	PV-1233 : 80
6	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane
7	Connector (coil)	D	ISO/DIN43650
8	Voltage (coil)	12	12 VDC
		24	24 VDC

MODEL SPEC.

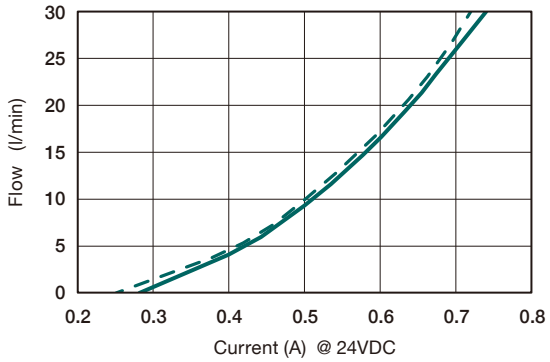
Model	Cavity	Capacity (l/min)	Max. Pressure (bar)	Leakage (cc/min)	Installation Torque (Nm)
PV-1033	T103	30	300	less than 150	35/38
PV-1233	T123	57, 80	300	less than 300	45/50

Model	Hysteresis	Max. Current (mA)		Weight (kg)	
		12 VDC	24 VDC	Body	Coil
PV-1033	5%	1800	900	0.28	0.4
PV-1233	5%	1800	900	0.5	0.4

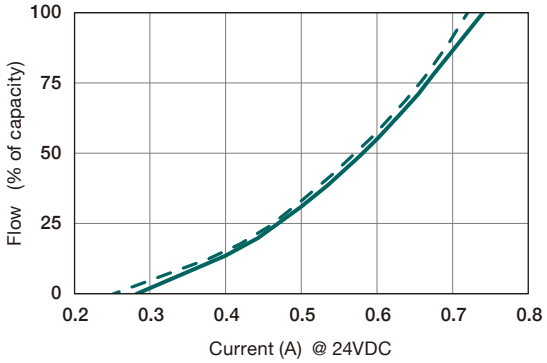
PERFORMANCE CURVES

▸ Flow vs. Current

PV-1033

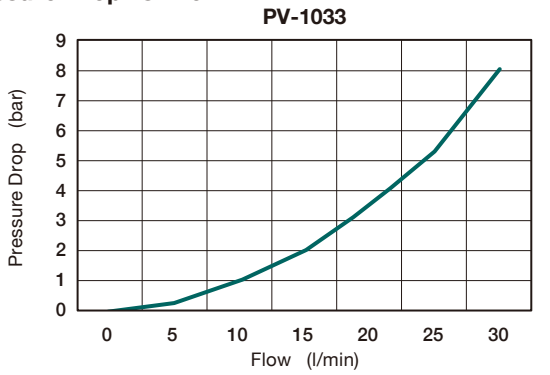


PV-1233

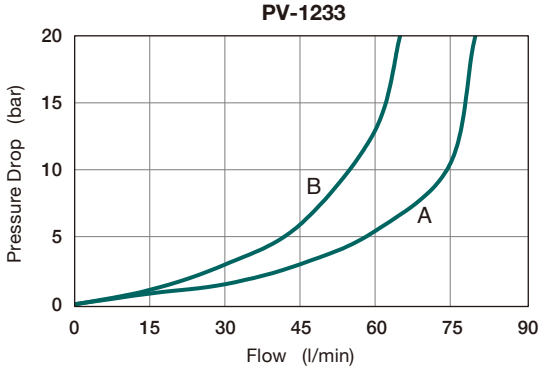


▸ Pressure Drop vs. Flow

PV-1033



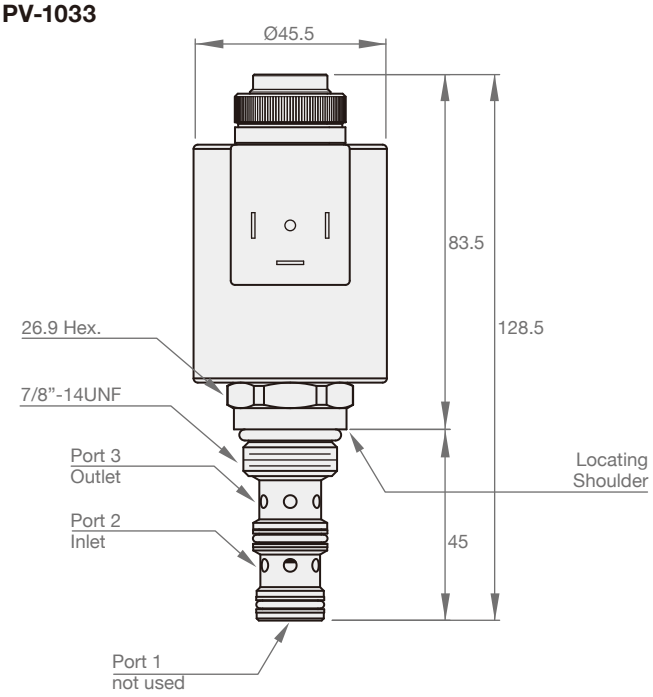
PV-1233



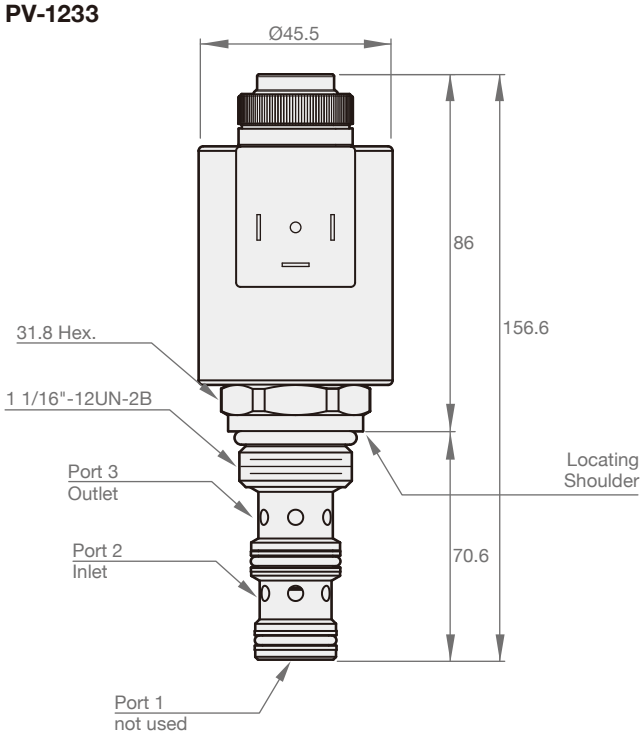
DIMENSION

(UNIT : mm)

▸ PV-1033

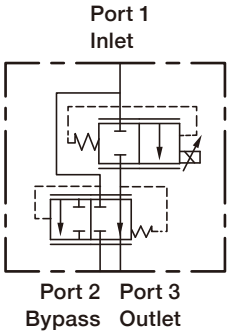


▸ PV-1233



EVP-M33

SYMBOLS



ORDER CODES

EVP - M33 - X C N - D 24

1	Model Name	EVP	
2	Cavity	M33	C332-3
3	Control Manner	X	unadjustable
4	Capacity	C	50 l/min
5	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane
6	Connector (coil)	D	ISO/DIN43650
7	Voltage (coil)	12	12 VDC
		24	24 VDC

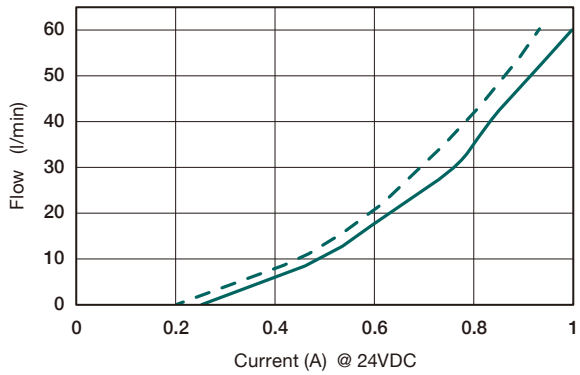
MODEL SPEC.

Model	Cavity	Capacity (l/min)	Max. Pressure (bar)	Leakage (cc/min)	Installation Torque (Nm)
EVP-M33	C332-3	50	270	less than 150	30/35

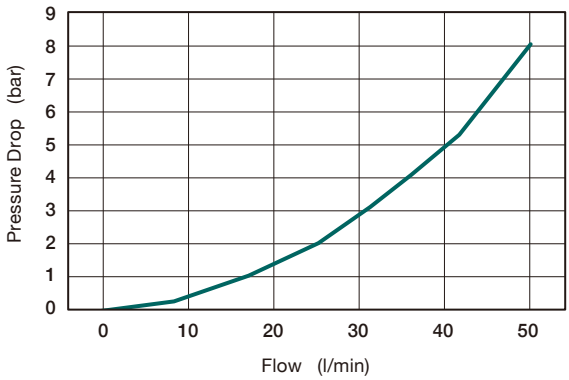
Model	Hysteresis	Max. Current (mA)		Weight (kg)	
		12 VDC	24 VDC	Body	Coil
EVP-M33	5%	1900	950	0.5	0.4

PERFORMANCE CURVES

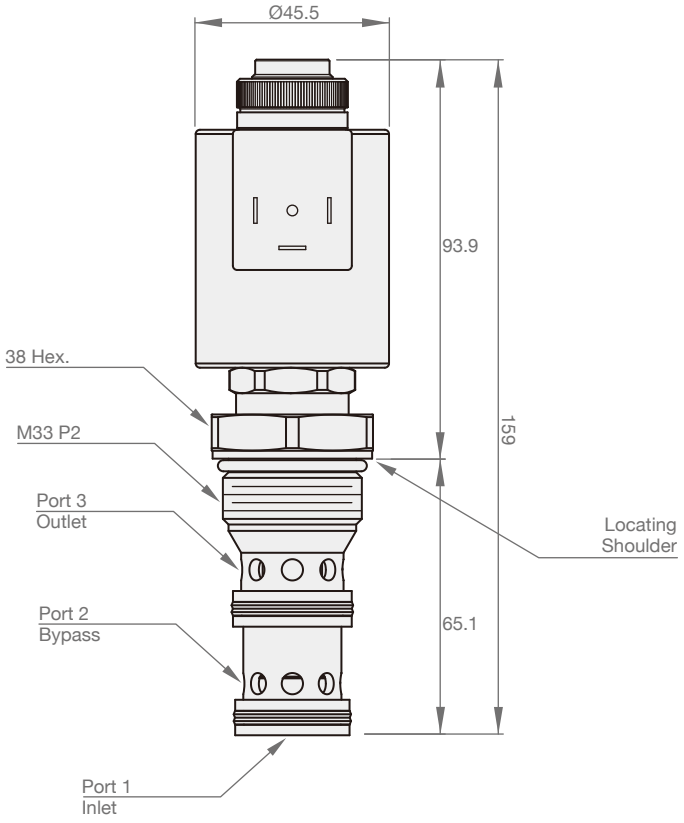
▸ Flow vs. Current



▸ Pressure Drop vs. Flow

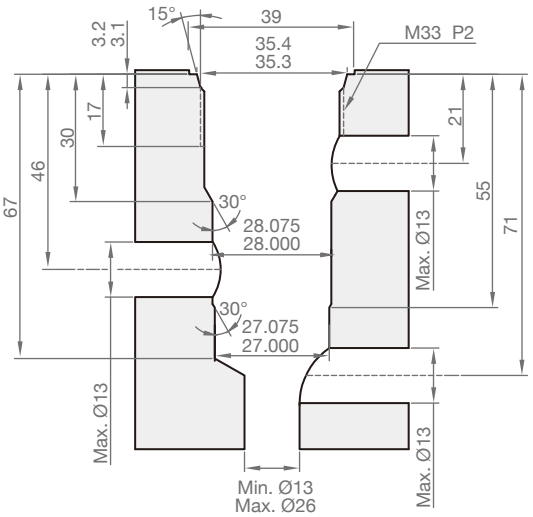


DIMENSION (UNIT : mm)



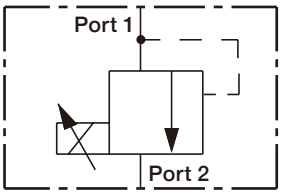
CAVITY TOOLING (UNIT : mm)

▸ C332-3



STS-20

SYMBOLS



ORDER CODES

STS 38 - 20 A - D1 - DG - N

1	Valve Size	38, 58	
2	Model Name	STS-20	
3	Max. Relief Pressure	A	STS38-20A : 207 bar (3000 psi)
		B	STS38-20B : 138 bar (2000 psi)
		C	STS38-20C : 69 bar (1000 psi)
		40	STS58-2040 : 276 bar (4000 psi)
		50	STS58-2050 : 345 bar (5000 psi)
4	Voltage (coil)	D1	12 VDC
		D2	24 VDC
5	Connector (coil)	DG	DIN connector type
6	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane

MODEL SPEC.

▸ STS38-20

Model	Cavity	Capacity (l/min)			Pressure Rating (bar)	Proof Pressure (bar)	Burst Pressure (bar)	Weight (kg)
		A	B	C				
STS38-20	SAE-08-2	11.4 @ 20 bar	11.4 @ 10 bar	11.4 @ 5.5 bar	248.2	268.9	751.5	0.45

Model	Dither Frequency	Hysteresis with Dither 250 Hz	Operating Relief Pressure Range from Zero to Max. Control Current (bar)			Internal Leakage	Installation Torque (Nm)
			A	B	C		
STS38-20	200 Hz or higher	3.3% (7% max. without dither)	0 ~ 207	0 ~ 138	0 ~ 69	1 ml/min max. at 207 bar	33.9 ~ 36.6

Model	D1			D2			Operating Temperature
	Typical Resistance at 20°C (Ω)	Valve Inductance (Mh)	Max. Control Current (A)	Typical Resistance at 20°C (Ω)	Valve Inductance (Mh)	Max. Control Current (A)	
STS38-20	7.2 ± 3%	141	1.10	28.8 ± 5%	626	0.55	-35 ~ 100°C (-31 ~ 212°F)

▸ STS58-20

Model	Cavity	Capacity (l/min)		Max. Operating Pressure (bar)	Max. Tank Port Pressure (bar)	Weight (kg)
		40	50			
STS58-20	SAE-08-2	7.57	7.57	345	69	0.45

Model	Dither Frequency	Hysteresis with Dither 200 Hz	Relief Pressure Range (bar)		Internal Leakage	Installation Torque (Nm)
			40	50		
STS58-20	200 Hz or higher	3.5% (7% max. without dither)	0 ~ 276	0 ~ 345	4.5 ml/min max. at 207 bar	33.9 ~ 36.6

Model	D1	D2	Operating Temperature
	Max. Control Current (A)	Max. Control Current (A)	
STS58-20	1.10	0.55	-35 ~ 100°C (-31 ~ 212°F)

PERFORMANCE CURVES

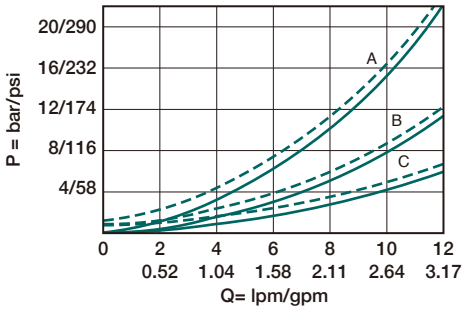
▸ STS38-20

Pressure Drop vs. Flow

Port 1 → Port 2, Coil De-energized

— — — Vertical Mount

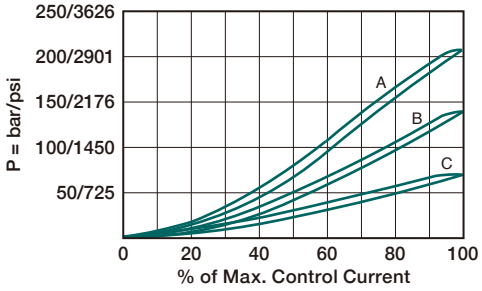
——— Horizontal Mount



Relief Pressure vs. Current

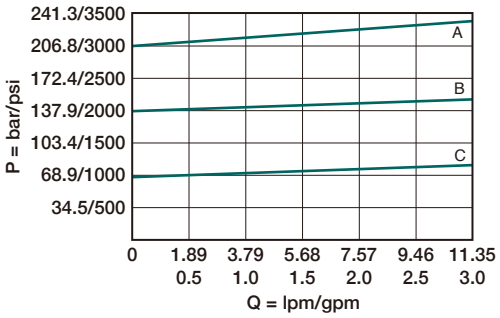
250 Hz Dither

Relieving Pressure Port 1 → Port 2

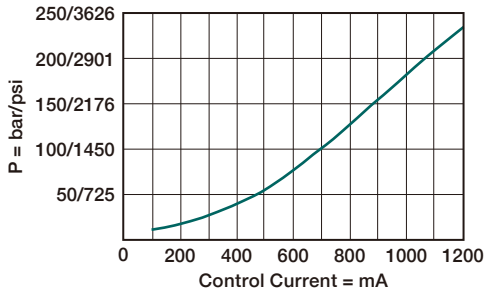


Typical Relief Pressure vs. Flow

Typical Relieving Pressure Port 1 → Port 2



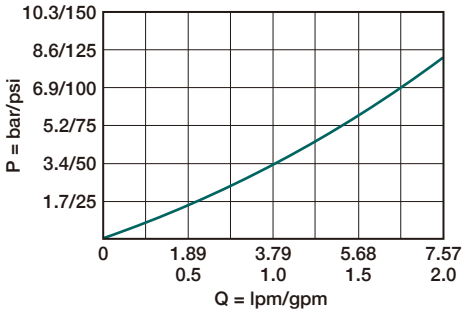
Relief Pressure vs. Current



▸ STS58-20

Pressure Drop vs. Flow

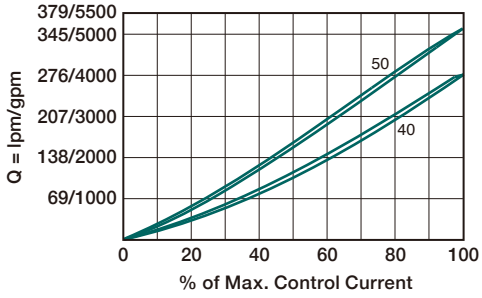
Port 1 → Port 2, Coil De-energized



Relief Pressure vs. Current

250 Hz Dither

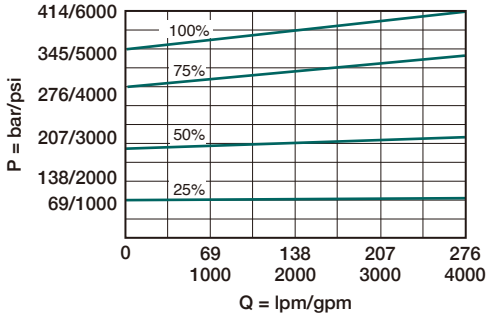
Relieving Pressure Port 1 → Port 2



Typical Relief Pressure vs. Flow

Relieving Pressure Port 1 → Port 2

at various % of Max. Control Current

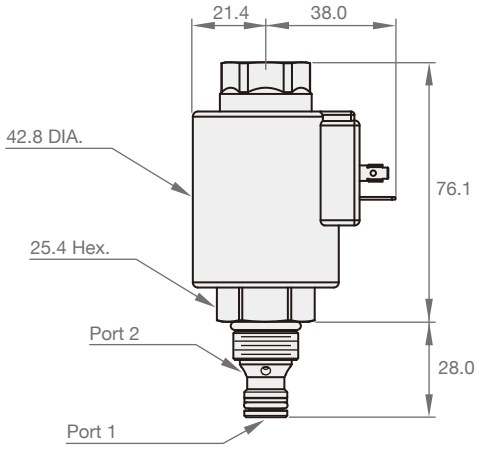


* 32cSt / 150 ssu oil at 40°C

DIMENSION

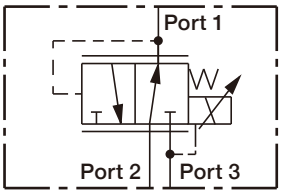
(UNIT : mm)

▸ **STS38-20, STS58-20**



STS-36

SYMBOLS



ORDER CODES

STS 10 - 36 A - D1 - DG - N

1	Valve Size	10	
2	Model Name	STS-36	
3	Max. Relief Pressure	A	STS10-36A : 207 bar (3000 psi)
		B	STS10-36B : 159 bar (2300 psi)
4	Voltage (coil)	D1	12 VDC
		D2	24 VDC
5	Connector (coil)	DG	DIN connector type
6	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane

MODEL SPEC.

▸ STS10-36

Model	Cavity	Max. Operating Pressure (bar)	Rated Flow	Max. Pilot Flow	Weight (kg)
STS10-36	SAE-10-3	241	57 lpm (15 gpm) cartridge only, Port 1 → Port 3, coil de-energized	0.21 lpm (0.08 gpm)	0.54

Model	Relief Pressure Range from Zero to Max. Control Current		Installation Torque (Nm)	Operating Temperature
	A	B		
STS10-36	6.9 ~ 207 bar (100 ~ 3000 psi)	6.9 ~ 159 bar (100 ~ 2300 psi)	32.5 ~ 35.3	-35 ~ 100°C (-31 ~ 212°F)

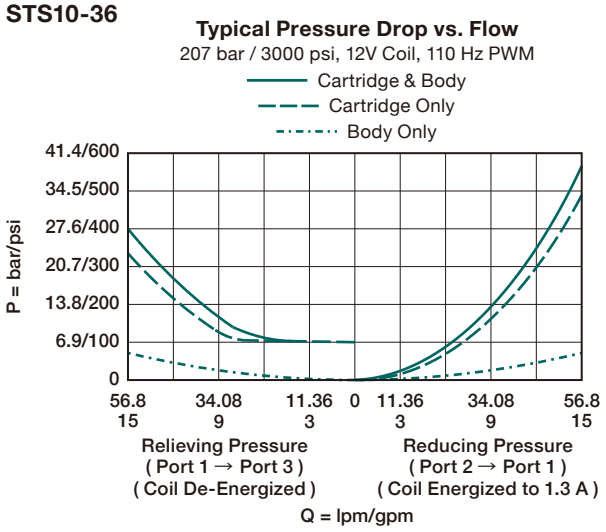
Model	D1			D2		
	Typical Resistance at 20°C (Ω)	Typical Apparent Inductance (mH)	Typical Max. Current at 0 gpm (A)	Typical Resistance at 20°C (Ω)	Typical Apparent Inductance (mH)	Typical Max. Current at 0 gpm (A)
STS10-36	7.25 ±5%	141	1.10	7.30 ±5%	626	0.55

PERFORMANCE CURVES

▸ STS10-36

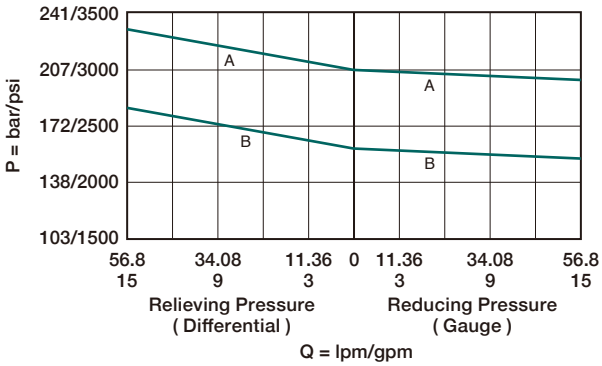
Typical Pressure Drop vs. Flow

207 bar / 3000 psi, 12V Coil, 110 Hz PWM



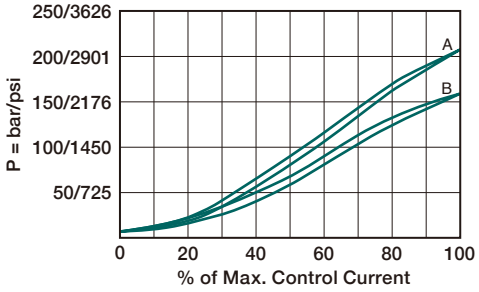
Typical Relieving/Reducing Pressure vs. Flow

at Max. Current



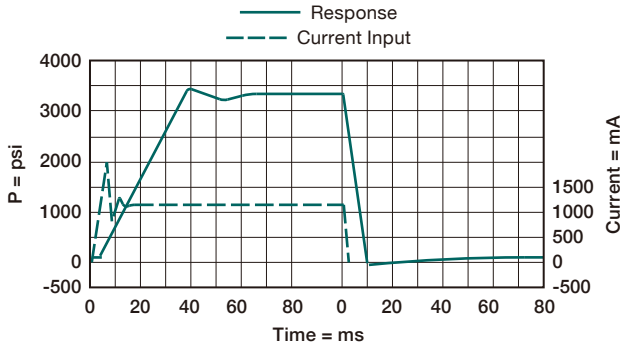
Relief Pressure vs. Current (DC) 200 Hz Dither

Reducing Pressure Port 2 → Port 1

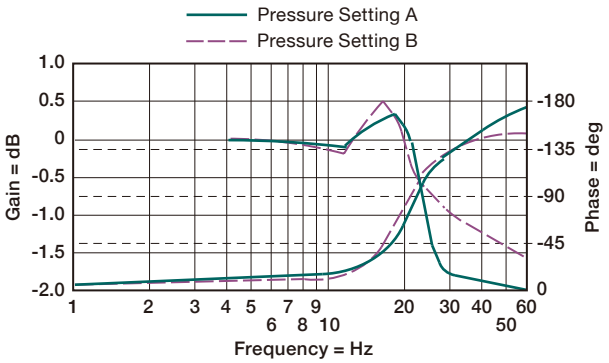


Typical Step Response

207 bar / 3000 psi, 12V Coil, 110 Hz PWM



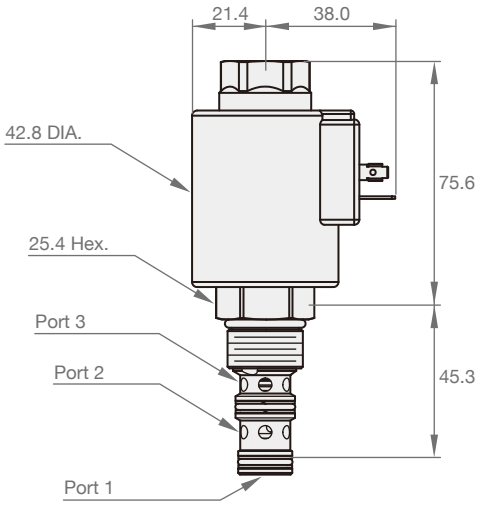
Typical Frequency Response



* 32cSt / 150 ssu oil at 40°C

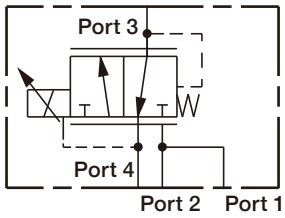
DIMENSION (UNIT : mm)

▸ **STS10-36**



STS98-T34

SYMBOLS



ORDER CODES

STS 98 - T34 S - D1 - DR - N - Z

1	Valve Size	98	
2	Model Name	STS-T34	
3	Inlet Port Screen	none	
		S	Inlet Port Screen 233 Micron
4	Voltage (coil)	D1	12 VDC
		D2	24 VDC
5	Connector (coil)	DR	Deutsch DT04-2P
6	Material of Seal	N	buna-N
7	Diode	none	
		Z	zener diode

MODEL SPEC.

▸ STS98-T34

Model	Cavity	Max. Inlet Pressure and Regulated Pressure (bar)	Relief Pressure Range from Zero to Max. Control Current (bar)	Weight (kg)
STS98-T34	T003	30	0 ~ 20.7	0.24

Model	Rated Flow	Max. Pilot Flow	Hysteresis	Operating Temperature
STS98-T34	Port 3 to 4 with coil de-energized : 30 lpm (8 gpm)	0.55 lpm (0.15 gpm) with 20.7 bar (300 psi) inlet	5% PWM for 20 bar (290 psi) control pressure	-35 ~ 100°C (-31 ~ 212°F)

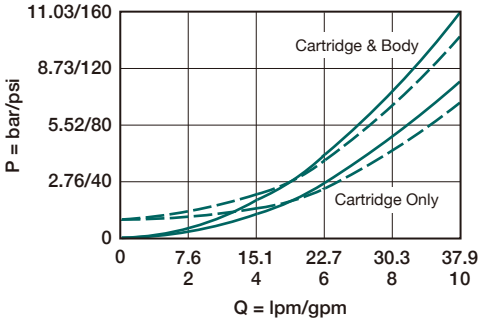
Model	D1		D2	
	Max. Control Current To achieve 20 bar (290 psi) regulated pressure (A)	Deadband (A)	Max. Control Current To achieve 20 bar (290 psi) regulated pressure (A)	Deadband (A)
STS98-T34	0.85	0.150	0.43	0.075

PERFORMANCE CURVES

▸ STS98-T34

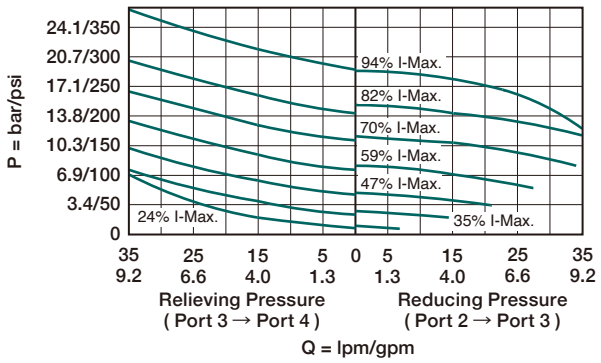
Pressure Drop vs. Flow

Port 2 → Port 3, Coil Energized
Port 3 → Port 4, Coil De-energized



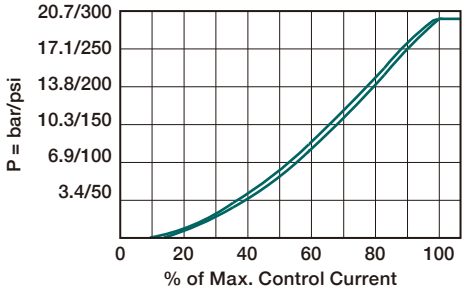
Reducing/Relieving Pressure vs. Flow

Regulated Pressure Range : 0~20 bar (0~290 psi)
with 20.7 bar (300 psi) Input
Pressure at Port 2 for Various Control Currents
(P Shown for Cartridge & Body)



Reduced Pressure vs.
Current (DC) 200 Hz Dither

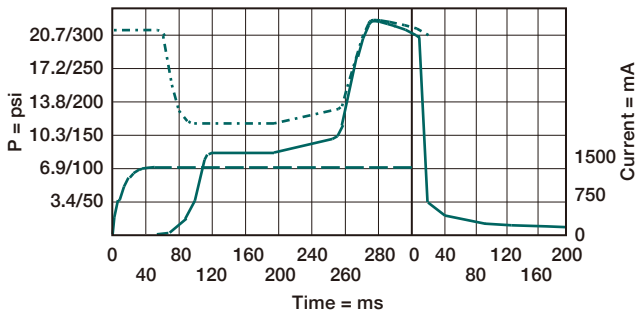
Inlet Pressure at Port 2 : 0~20.7 bar (0~300 psi)



Typical Clutch Step Response

(Performance Will Vary with Specific Clutch)
Inlet Pressure at Port 2 : 20.7 bar (300 psi)
12V Step Input

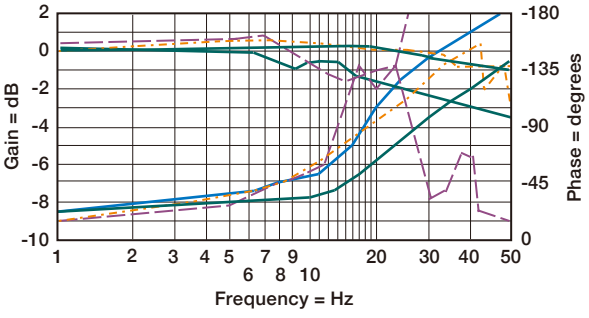
Inlet Pressure
Response
Current Input



Typical Frequency Response

No Flow. Inlet Pressure at Port 2 : 20.7 bar (300 psi)

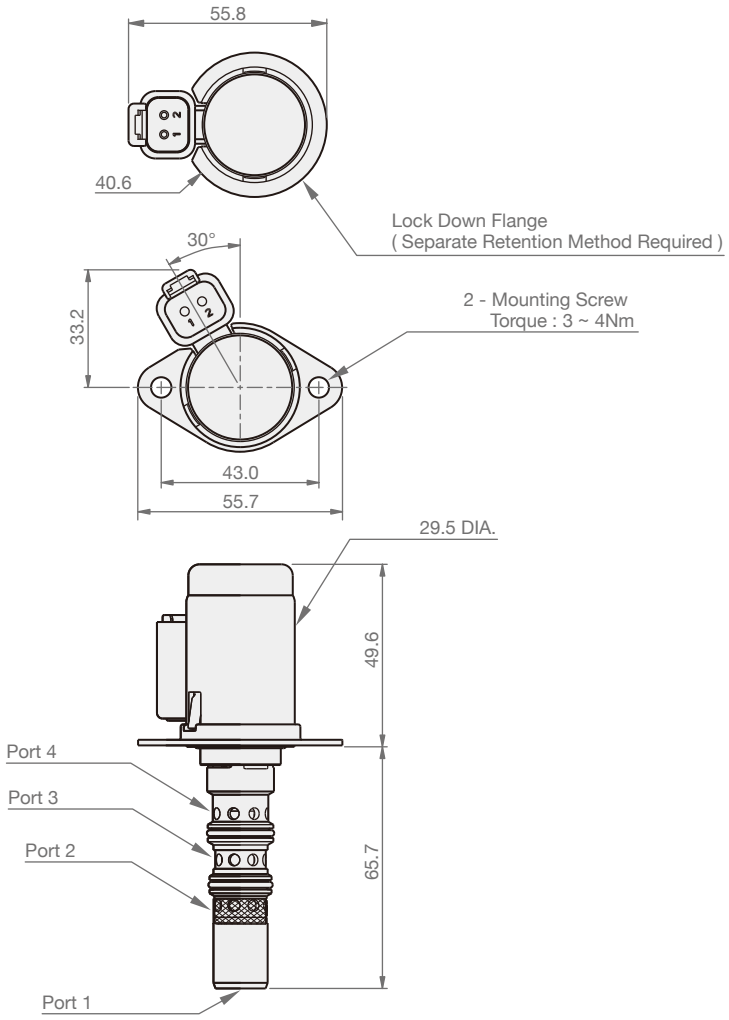
Signal 50% ± 50%
Signal 90% ± 10%
Signal 75% ± 25%
Signal 75% ± 15%



* 32cSt / 150 ssu oil at 40°C

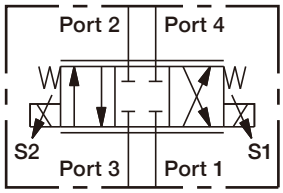
DIMENSION (UNIT : mm)

▸ **STS98-T34**



HSP-47C

SYMBOLS



ORDER CODES

HSP 10 - 47C - D1 - DG - N

1	Valve Size	08, 10	
2	Model Name	HSP-47C	
3	Voltage (coil)	D1	12 VDC
		D2	24 VDC
4	Connector (coil)	DG	DIN connector type
5	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane

MODEL SPEC.

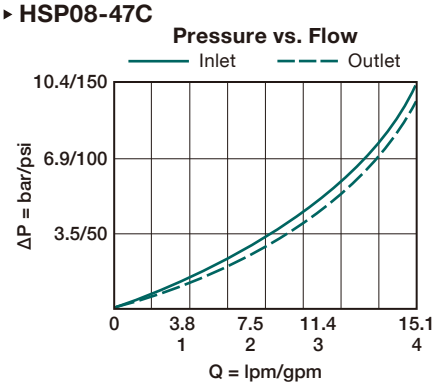
Model	Cavity	Operating Pressure (bar)	Flow (l/min)	Hysteresis	Coil Duty Rating	Internal Leakage	Installation Torque (Nm)	Weight (kg)
HSP08-47C	SAE-08-4	240	11.4 *1	less than 7%	continuous up to 115% of nominal voltage	164 cc/min. max. per side at 207 bar	24.4 ~ 27.1	0.74
HSP10-47C	SAE-10-4	248	22.7			164 cc/min. max. per side at 248 bar	32.5 ~ 35.3	1.45

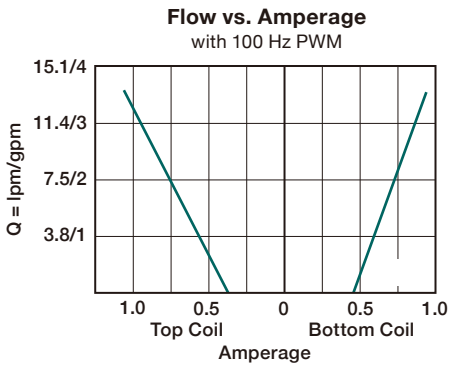
*1 Flow rate is based on 50% duty cycle and coil temperature of 20°C (140°F). Consult factory if higher duty cycle and coil temperatures are anticipated.

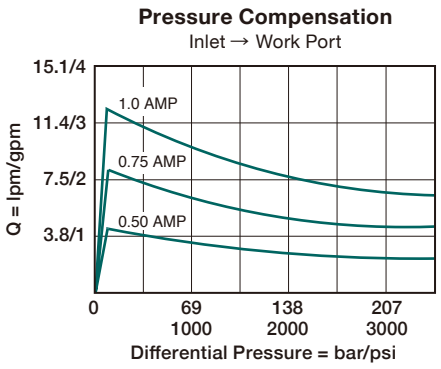
* Operating temperature : -35 ~ 100°C (-31 ~ 212°F)

PERFORMANCE CURVES

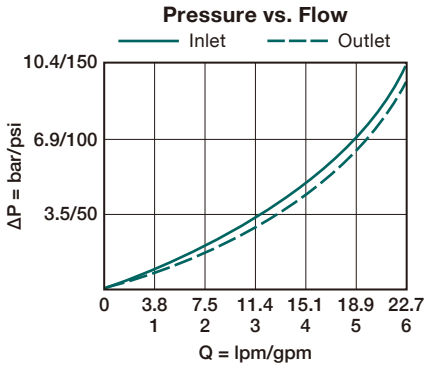
▸ HSP08-47C

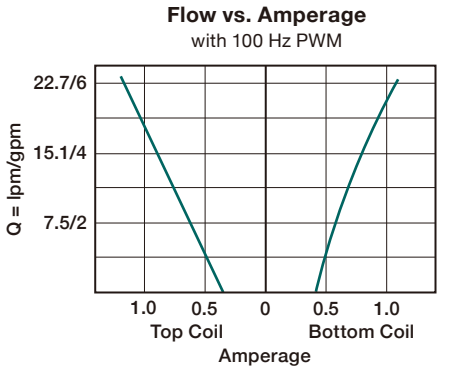


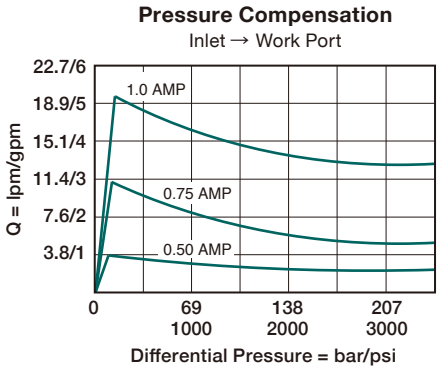




▸ HSP10-47C





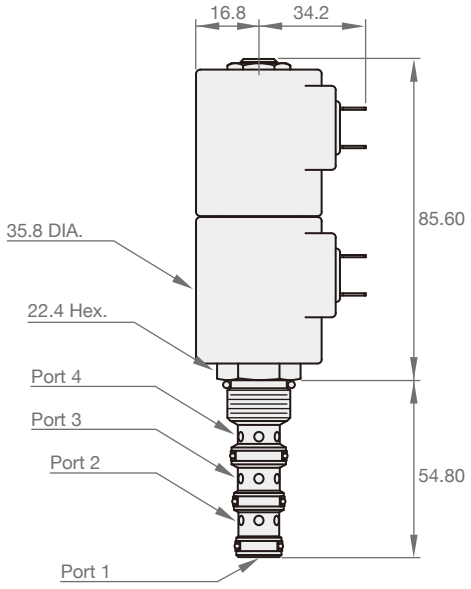


* 32cSt / 150 ssu oil at 40°C

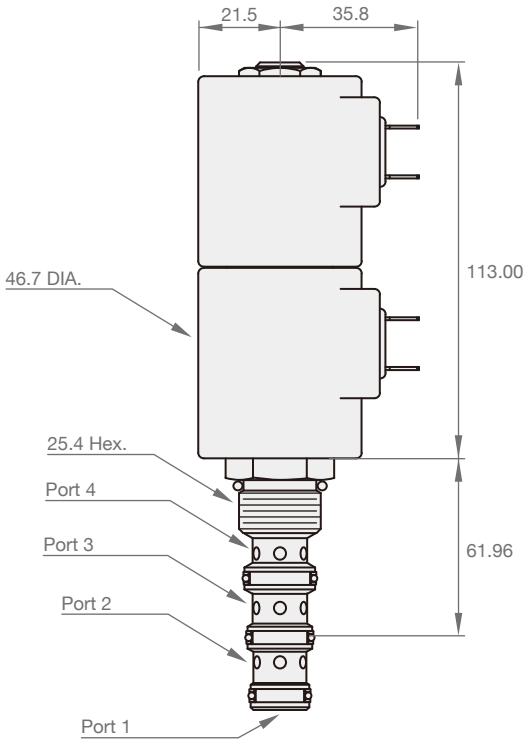
DIMENSION

(UNIT : mm)

▸ HSP08-47C

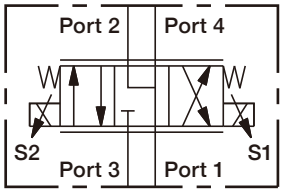


▸ HSP08-47C



HSP-47D

SYMBOLS



ORDER CODES

HSP 10 - 47D - D2 - DG - N

1	Valve Size	08, 10	
2	Model Name	HSP-47D	
3	Voltage (coil)	D1	12 VDC
		D2	24 VDC
4	Connector (coil)	DG	DIN connector type
5	Material of Seal	N	buna-N
		V	viton
		E	EPDM
		H	HNBR
		U	polyurethane

MODEL SPEC.

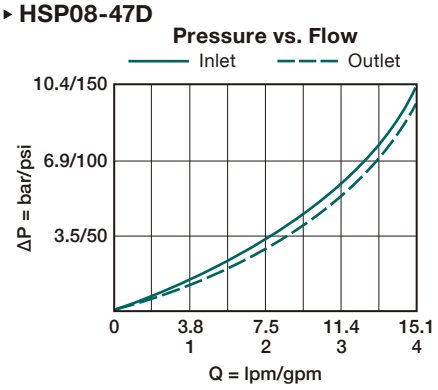
Model	Cavity	Operating Pressure (bar)	Flow (l/min)	Hysteresis	Coil Duty Rating	Internal Leakage	Installation Torque (Nm)	Weight (kg)
HSP08-47D	SAE-08-4	240	11.4 *1	less than 7%	continuous up to 115% of nominal voltage	328 cc/min. max. per side at 207 bar	24.4 ~ 27.1	0.74
HSP10-47D	SAE-10-4	207	22.7			246 cc/min. max. per side at 207 bar	32.5 ~ 35.3	1.45

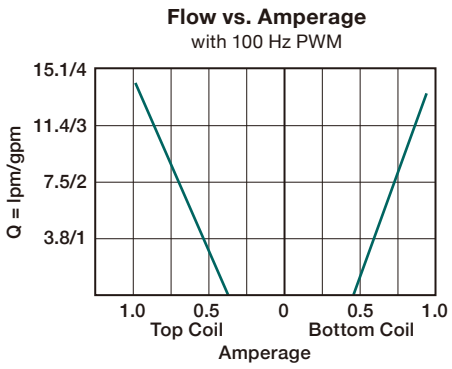
*1 Flow rate is based on 50% duty cycle and coil temperature of 20°C (140°F). Consult factory if higher duty cycle and coil temperatures are anticipated.

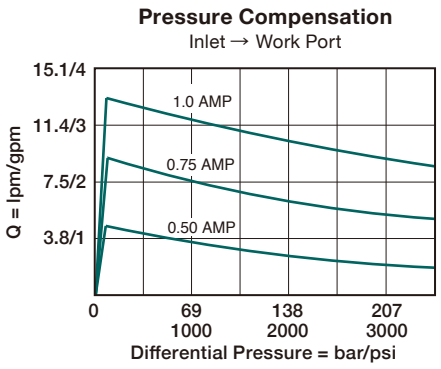
* Operating temperature : -35 ~ 100°C (-31 ~ 212°F)

PERFORMANCE CURVES

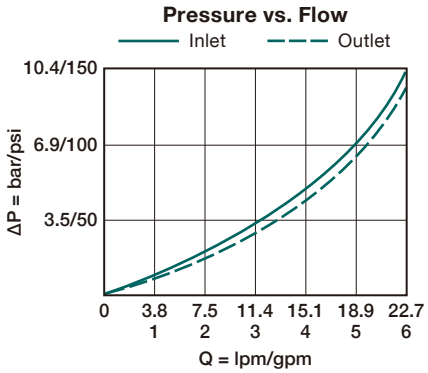
▸ HSP08-47D

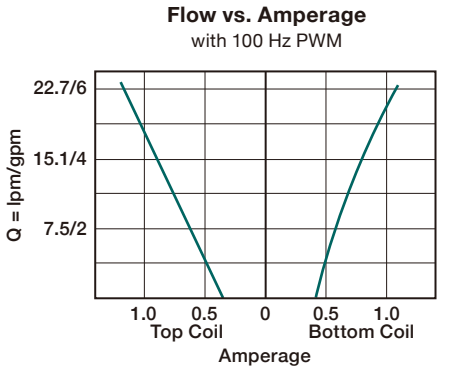


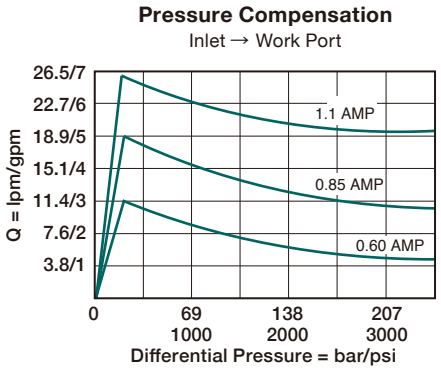




▸ HSP10-47D





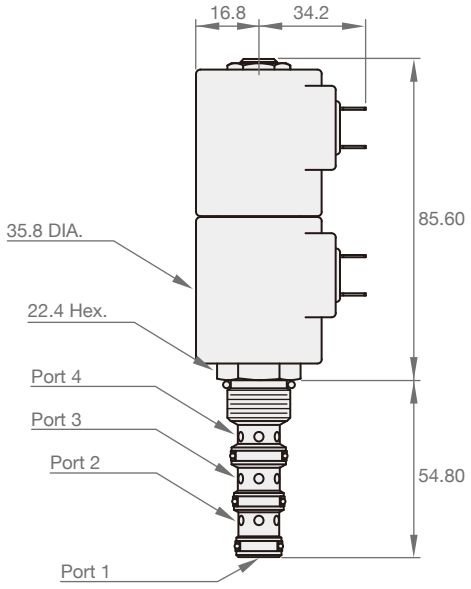


* 32cSt / 150 ssu oil at 40°C

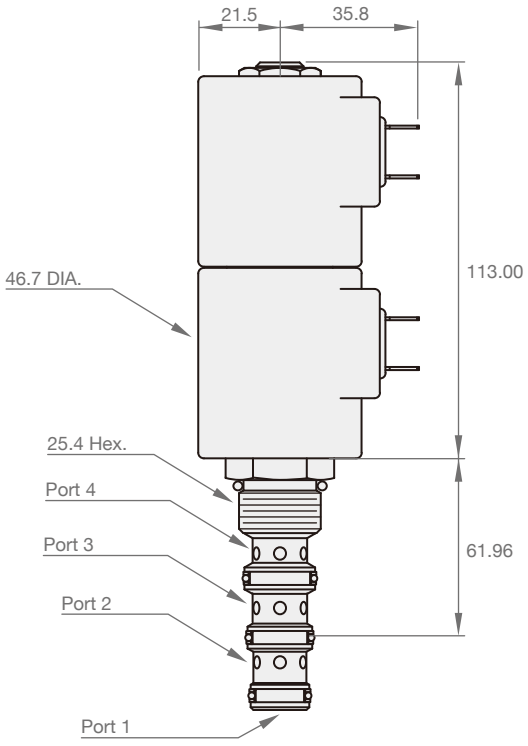
DIMENSION

(UNIT : mm)

▸ HSP08-47D



▸ HSP08-47D



SY-DPCA-C-1

FEATURES

1. Precise Control
   Digital microprocessor
2. Simple Setup
   Digital display and buttons
3. Full Function
   Adjustable input signal and output current
4. Safety
   Short, open circuit protection with error code

ORDER CODES

SY - DPCA - C - 1
(1) (2) (3) (4)

1 ▸	Model Name	SY	
2 ▸	Control Mode	DPCA	digital proportional controller
3 ▸	Type	C	case with DIN-35 rail clamps
4 ▸	Output	1	single coil

MODEL SPEC.

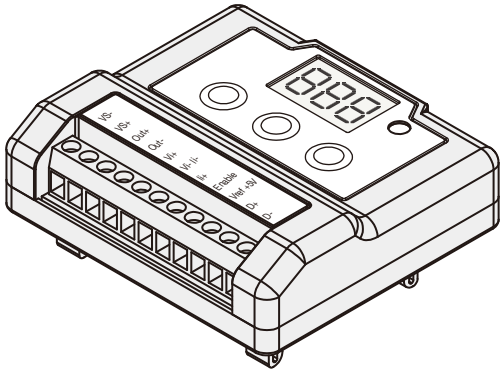
Model	SY-DPCA-C-1
Operating Voltage	9 ~ 32VDC
Voltage Tolerance	5%
Input Signal Options	0~5V, 0~10V, 4~20mA, RS485
Output Current	3A max.
Dither Frequency	70 ~ 350Hz
Ramp Up and Down	0.1 ~ 5.0s
Reference Voltage	5V (max. current 5mA)
Communication Interface	RS485
Communication Protocol	Modbus RTU
Operating Conditions	-20 ~ 60°C
Weight	0.1kg

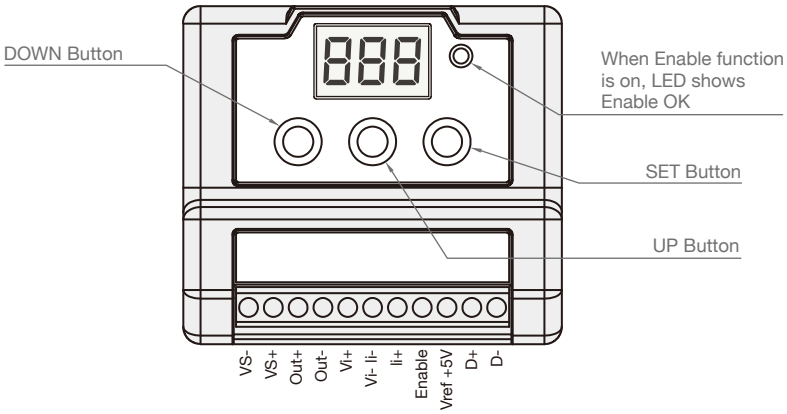
CONNECTIONS & DIMENSIONS

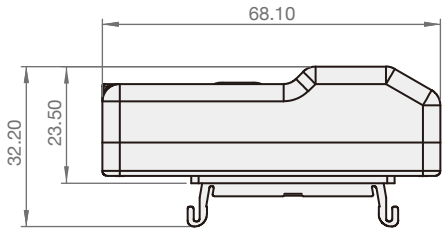
(UNIT : mm)

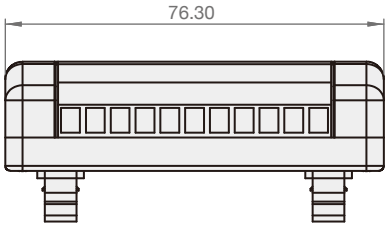
Wiring Instruction		
1	VS-	Power-
2	VS+	Power+
3	Out+	Coil+
4	Out-	Coil-
5	Vi+	Input voltage signal
6	Vi- Ii-	Signal ground
7	Ii+	Input current signal
8	Enable	Enable *
9	Vref +5V	+5V reference voltage
10	D+	RS485+ (optional)
11	D-	RS485- (optional)

* Default off. Ground this pin to enable controller when PEA function is on.







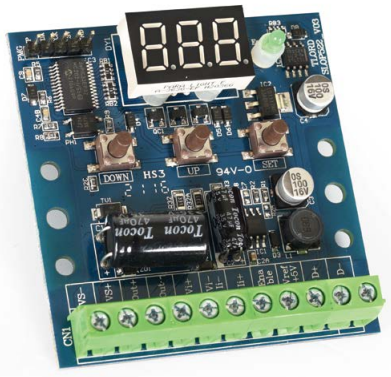


* A USB-RS485 converter (Purchase separately) is necessary to connect PC.

** Using a USB-RS485 converter, you can operate and configure parameters via the PC software provided by our company. Please mail us to get the PC software : info@steedmachinery.com.tw.

This product has been designed and tested to meet specific standards outlined in the European Electromagnetic Compatibility Directive (EMC)2014/30/EU.
Emission: EN 61000-6-4:2019
Immunity: EN 61000-6-2:2019: EN 61000-4-2:2009, EN 61000-4-3:2020, EN 61000-4-8:2010
Certificate No. NE1105240044

SY-DPCA-P-1



FEATURES

1. Precise Control
   Digital microprocessor
2. Simple Setup
   Digital display and buttons
3. Full Function
   Adjustable input signal and output current
4. Safety
   Short, open circuit protection with error code

ORDER CODES

SY - DPCA - P - 1

1	Model Name	SY	
2	Control Mode	DPCA	digital proportional controller
3	Type	P	PCB only
4	Output	1	single coil

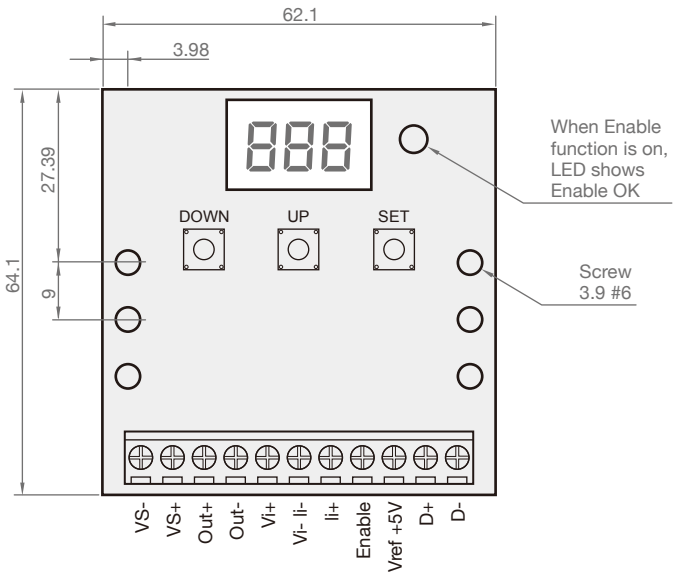
MODEL SPEC.

Model	SY-DPCA-P-1
Operating Voltage	9 ~ 32VDC
Voltage Tolerance	5%
Input Signal Options	0~5V, 0~10V, 4~20mA, RS485
Output Current	3A max.
Dither Frequency	70 ~ 350Hz
Ramp Up and Down	0.1 ~ 5.0s
Reference Voltage	5V (max. current 5mA)
Communication Interface	RS485
Communication Protocol	Modbus RTU
Operating Conditions	-20 ~ 60°C
Weight	0.06kg

CONNECTIONS & DIMENSIONS (UNIT : mm)

Wiring Instruction		
1	VS-	Power-
2	VS+	Power+
3	Out+	Coil+
4	Out-	Coil-
5	Vi+	Input voltage signal
6	Vi- Ii-	Signal ground
7	Ii+	Input current signal
8	Enable	Enable *
9	Vref +5V	+5V reference voltage
10	D+	RS485+ (optional)
11	D-	RS485- (optional)

* Default off. Ground this pin to enable controller when PEA function is on.



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Emission: EN 61000-6-4:2019
Immunity: EN 61000-6-2:2019: EN 61000-4-2:2009, EN 61000-4-3:2020, EN 61000-4-8:2010
Certificate No. NE1105240044

SY-DPCA-C-2

FEATURES

- Dual output with flexible switching
- Standard MODBUS RTU communication
- Advanced PID feedback control
- Independent PWM and dither frequency adjustment

ORDER CODES

SY - DPCA - C - 1

1 ▸	Model Name	SY	
2 ▸	Control Mode	DPCA	digital proportional controller
3 ▸	Type	C	case with DIN-35 rail clamps
		P	PCB only
4 ▸	Output	2	dual coil

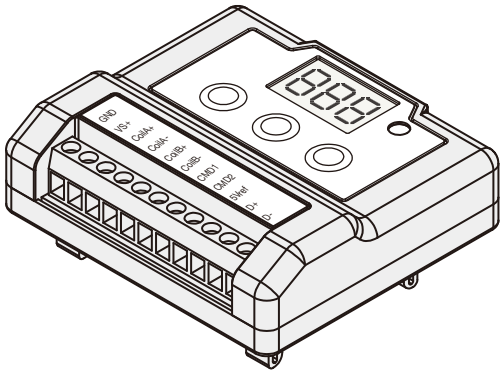
MODEL SPEC.

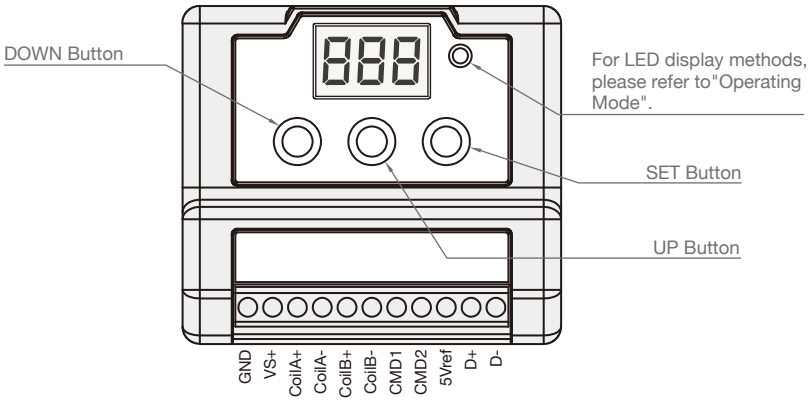
Model	SY-DPCA-C-2
Operating Voltage	9 ~ 32VDC
Voltage Tolerance	5%
Input Signal Options	0~5V, 0~10V, 4~20mA, RS485
Output Current	3A max. for each output
PWM Frequency	70~1000Hz
Dither Frequency	70~500Hz
Ramp Up and Down	0.1 ~ 5.0s
Reference Voltage	5V (max. current 5mA)
Operating Conditions	-20 ~ 60°C
Communication Interface	RS485
Communication Protocol	Modbus RTU
Weight	0.1kg

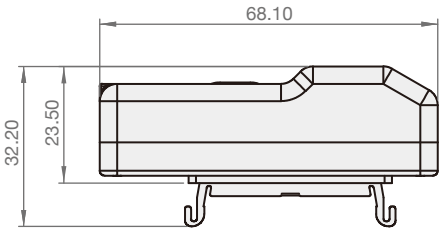
CONNECTIONS & DIMENSIONS

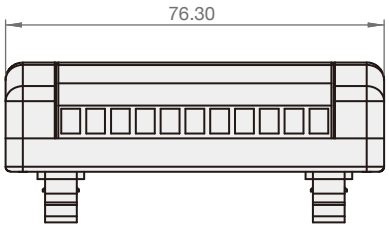
(UNIT : mm)

Wiring Instruction		
1	VS-	Power-
2	VS+	Power+
3	Out+	Coil+
4	Out-	Coil-
5	Vi+	Input voltage signal
6	Vi- Ii-	Signal ground
7	Ii+	Input current signal
8	Enable	Enable *
9	Vref +5V	+5V reference voltage
10	D+	RS485+ (optional)
11	D-	RS485- (optional)









OPERATING MODE

	MODE 1	MODE 2	MODE 3
LED Color	Orange	Green	Red
Description	Single Command vs. Single Output	Dual Indep. Command vs. Dual Indep. Output	Single Command vs. Dual Linked Output

* A USB-RS485 converter (Purchase separately) is necessary to connect PC.

** Using a USB-RS485 converter, you can operate and configure parameters via the PC software provided by our company. Please mail us to get the PC software : info@steedmachinery.com.tw.

CE

This product has been designed and tested to meet specific standards outlined in the European Electromagnetic Compatibility Directive (EMC)2014/30/EU.
Emission: EN 61000-6-4:2019
Immunity: EN 61000-6-2:2019: EN 61000-4-2:2009, EN 61000-4-3:2020, EN 61000-4-8:2010
Certificate No. NE1105240044

SY-DPCA-D-P9-1

FEATURES

· Direct assambly on the DIN43650 solenoid valve
· Control with digital microprocessor
· Simple setup via physical screen and button
· Short, open circuit protection with error code

ORDER CODES

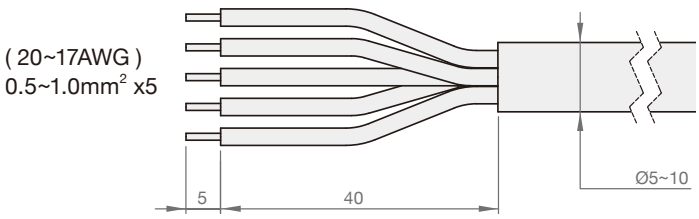
SY - DPCA - D - P9 - 1
1 2 3 4 5

1 ▸	Model Name	SY	
2 ▸	Control Mode	DPCA	digital proportional controller
3 ▸	Type	D	DIN43650A plug
4 ▸	Connection	P9	PG9 cable gland
5 ▸	Output	1	single coil

MODEL SPEC.

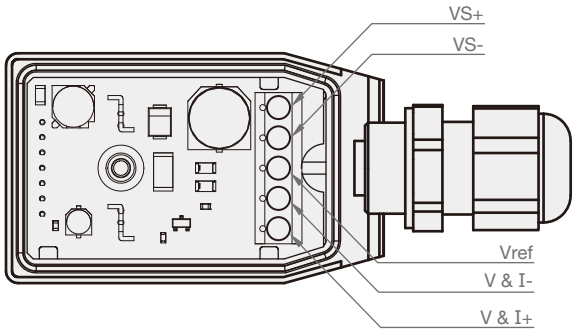
Model	SY-DPCA-D-P9-1
Operating Voltage	9 ~ 32VDC
Voltage Tolerance	5%
Input Signal Options	0~5V, 0~10V, 4~20mA
Output Current	3A max.
Dither Frequency	70 ~ 350Hz
Ramp Up and Down	0.1 ~ 5.0s
Reference Voltage	5V (max. current 5mA)
Operating Conditions	-20 ~ 60°C
Weight	0.2kg

WIRING PAREPARATION

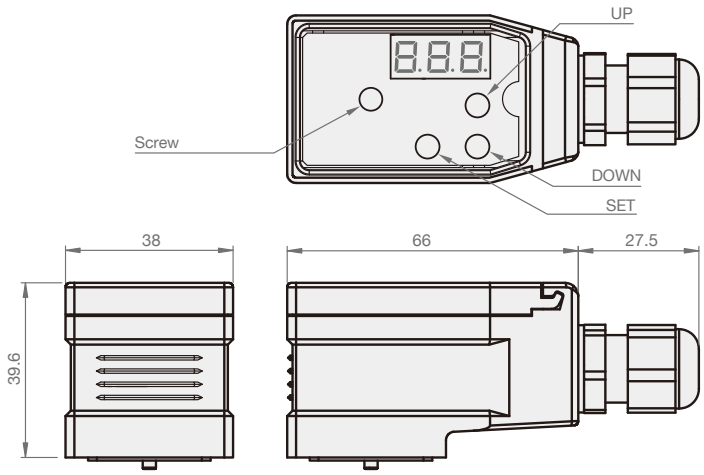


CONNECTIONS

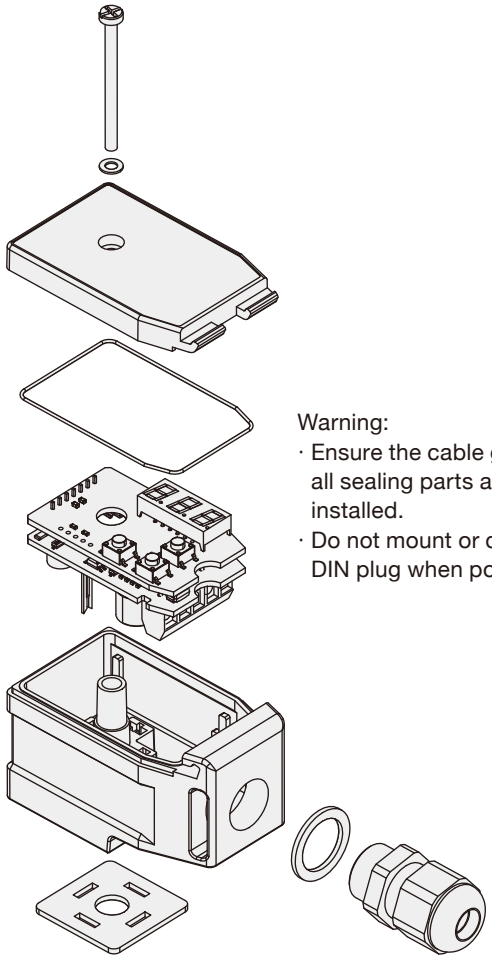
Wiring Instruction		
1	VS+	Power+
2	VS-	Power-
3	Vref	+5V reference voltage
4	V & I-	Command ground
5	V & I+	Command



DIMENSIONS (UNIT : mm)



ASSEMBLY



Warning:
- Ensure the cable gland and all sealing parts are properly installed.
- Do not mount or dismount the DIN plug when power is on.

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Immunity: EN 61000-6-2:2019: EN 61000-4-2:2009, EN 61000-4-3:2020, EN 61000-4-8:2010
Certificate No. NE1105240044

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* We reserve the right to make changes without notice
in the course of continued development.