

**HOYEA**

## Screw-in Cartridges

**HOYEA**

**Specialist In Electrohydraulics**



### NINGBO HOYEA MACHINERY MANUFACTURE CO.,LTD.

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The 1st edition in October 2019  
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**NINGBO HOYEA MACHINERY MANUFACTURE CO.,LTD.**

# Product Introduction

Ningbo Hoyea manufactures various kinds of screw-in cartridge proportional pressure valve, screw-in cartridge inverse-proportional valve. These kind of proportional valve's pressure output changed with DC current input.

Screw-in cartridge pressure control valve is for pressure adjustment on hydraulic cylinder and hydraulic motor. It can adjust motor torque and the pressure or other strength loading on the motor.

Screw-in cartridge directional control valve controls the cylinder's telescoping, or the hydraulic motor's reversing.

Characteristics:

- Interchangeable coil voltage
- Water/ weather – resistant coil
- Optional manual override
- Industry–common cavity compact size
- Optional coil voltage and terminations
- Continuous–duty rated coil
- Excellent linearity and hysteresis characteristic

Ningbo Hoyea manufactures diverse types of screw-in cartridge valves, included hydraulic directional valves, pressure control valves, flow control valves etc.

Characteristics:

- 35 Mpa operating pressure
- Hardened precision cage, poppet, spool and body for long life and low leakage
- Unitized molded coil design
- Optional waterproof & dust–proof of coils rated up to IP65 and IP69
- Optional manual override
- Industry–common cavity compact size
- Cartridges are voltage interchangeable
- Optional coil voltage and terminations
- Low pressure pick–up characteristic
- Continuous loading duty coil

# Product Catalogue

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HY-SP08-20 Poppet-Type, 2-way, Normally Closed

Introduction



Description:  
A solenoid-operated, 2-way, normally closed, proportional, poppet-type, screw-in hydraulic cartridge valve for blocking or load-holding applications.

Opearton:  
When de-energized, the HY-SP08-20 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①. When energized, the cartridge's poppet lifts to open the ② to ① flow path. Flow is proportional to current applied to the coil. Flow varies with manual override.

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-SP08-20
Installation position	When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Storage temperature (°C)	-20°C to +55°C
Ambient temperature (°C)	-20°C to +50°C

Hydraulic specification

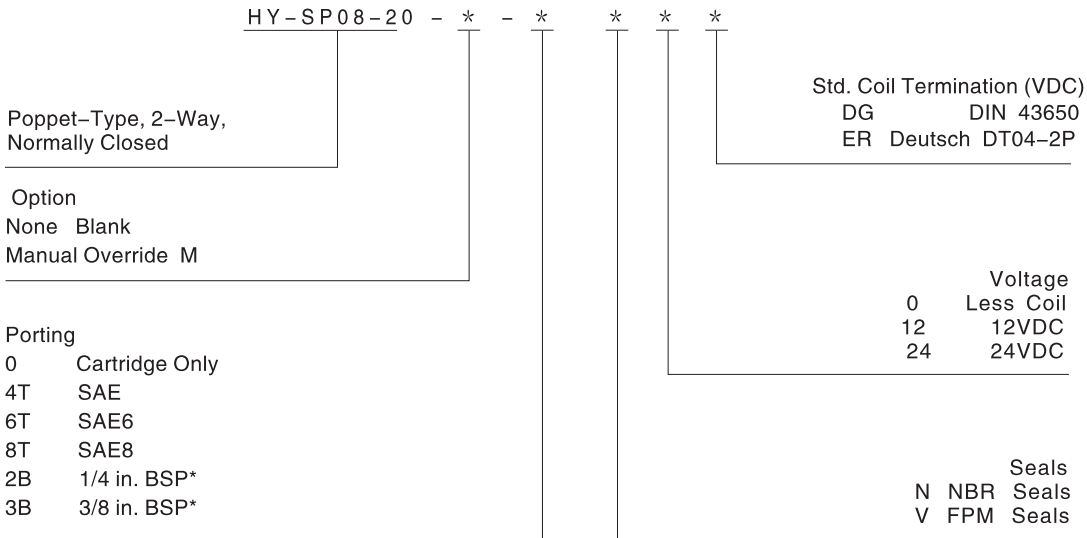
Operating Pressure	250bar(3625psi)
Minimum Operating Dither/ Pulse Frequency	70HZ
Minimum Operating Dither/ Pulse Frequency	Up to 22 lpm (5.8 gpm) at 34.5 bar (500 psi)
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4 to 420 cSt (50 to 2000 sus)
Temperature	-40°C~+140°C,with NBR seals
Cavity	08-2
Internal Leakage	5 drops/minute max. at 250 bar (3625 psi)
Hysteresis	less than 5% up to 85% of I-max; less than 10% above 85% of I-max

Electrical specification

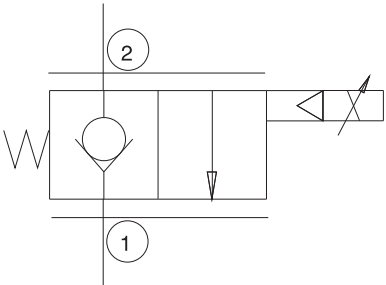
Max. Control current	12VDC coils:1.0±0.1A; 24VDC coils:0.5±0.05A
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HY-SP08-20 Poppet-Type, 2-way, Normally Closed

Model instruction

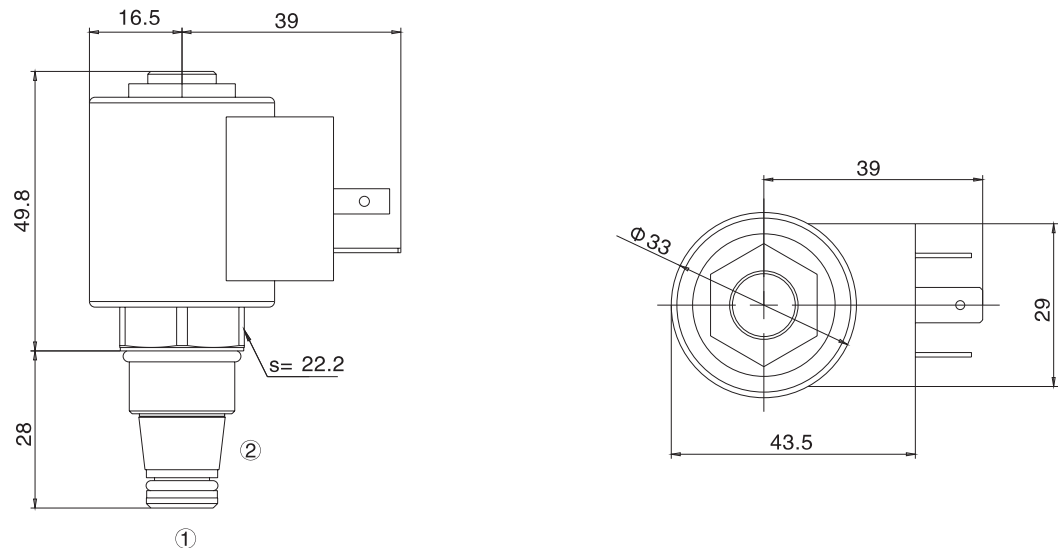


Code symbol

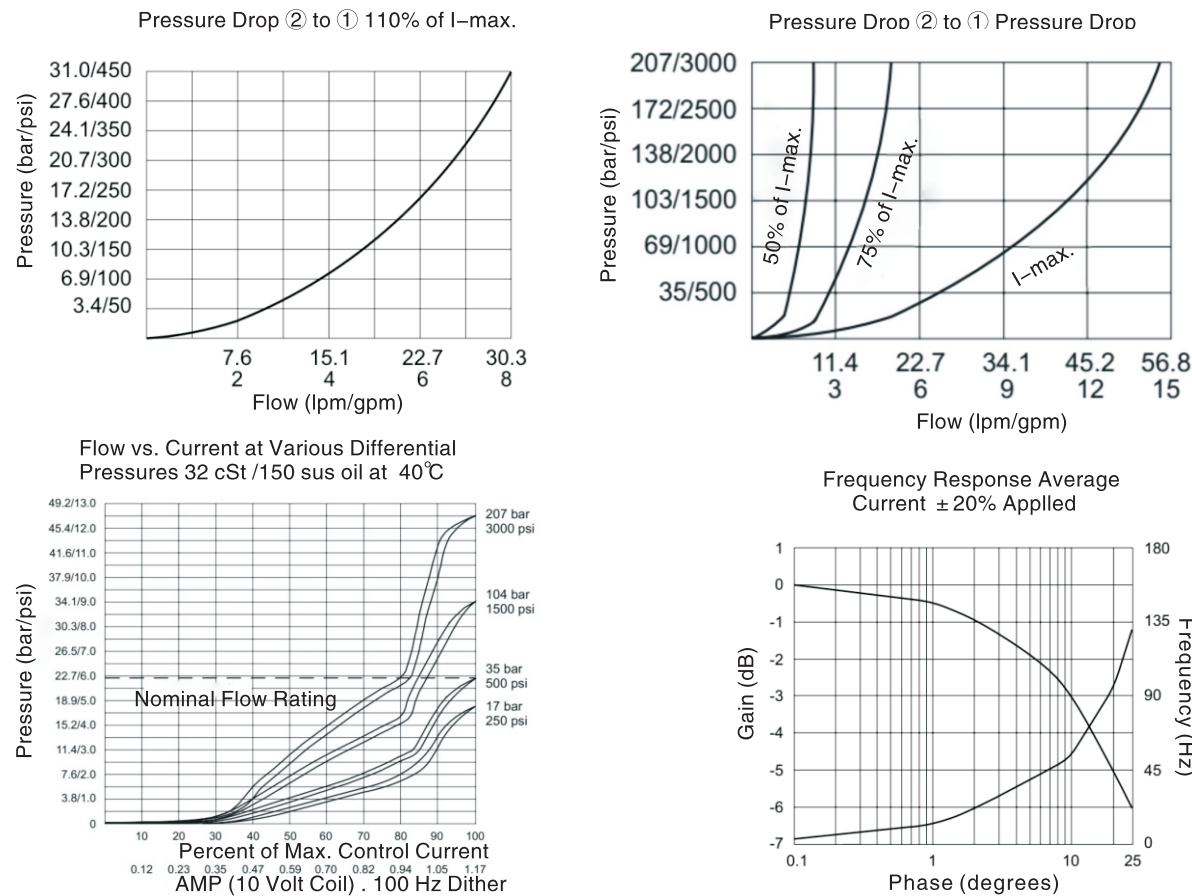


HY-SP08-20 Poppet-Type, 2-way, Normally Closed

External dimensions



Specification performance:



HY-SP08-21 Poppet-Type, 2-way, Normally Open

Introduction



Description:  
A solenoid-operated, 2-way, normally open, poppet-type, proportional, screw-in hydraulic cartridge valve for low-leakage load-holding applications, and for starting or stopping a load or a pump system.

Opeartion:  
When de-energized, the HY-SP08-21 allows flow from ② to ①. When the valve is partially energized, the valve begins to throttle the flow from ② to ①. When fully energized, the poppet closes on the seat, blocking flow from ② to ①. Flow from ① to ② will occur when hydraulic pressure exceeds the solenoid force.

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-SP08-21
Installation position	Unlimited
Storage temperature (°C)	-20°C to +55°C
Ambient temperature (°C)	-20°C to +50°C

Hydraulic specification

Operating Pressure	207bar(3000psi)
Flow	0 to 22.7 lpm (0 to 6 gpm)
Minimum Operating Dither/ Pulse Frequency	70 Hz
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4~420cst ( 50~2000sus )
Temperature	-40°C~+140°C, with NBR seals
Cavity	08-2
Internal Leakage	5 drops/minute max. at 207 bar (3000 psi)

Electrical specification

Max. Control current	12VDC coils:1.0±0.1A; 24VDC coils:0.5±0.05A
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HY-SP08-21 Poppet-Type, 2-way, Normally Open

Model instruction

HY-SP08-21 - \* - \* - \* - \*

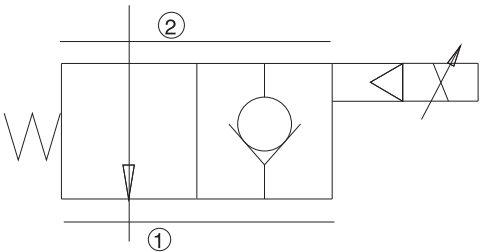
Poppet-Type, 2-Way,  
Normally Open

Std. Coil Termination (VDC)  
DG DIN 43650  
ER Deutsch DT04-2P

Porting		Voltage
0	Cartridge Only	Less Coil
4T	SAE	12VDC
6T	SAE6	
8T	SAE8	
2B	1/4 in. BSP*	
3B	3/8 in. BSP*	

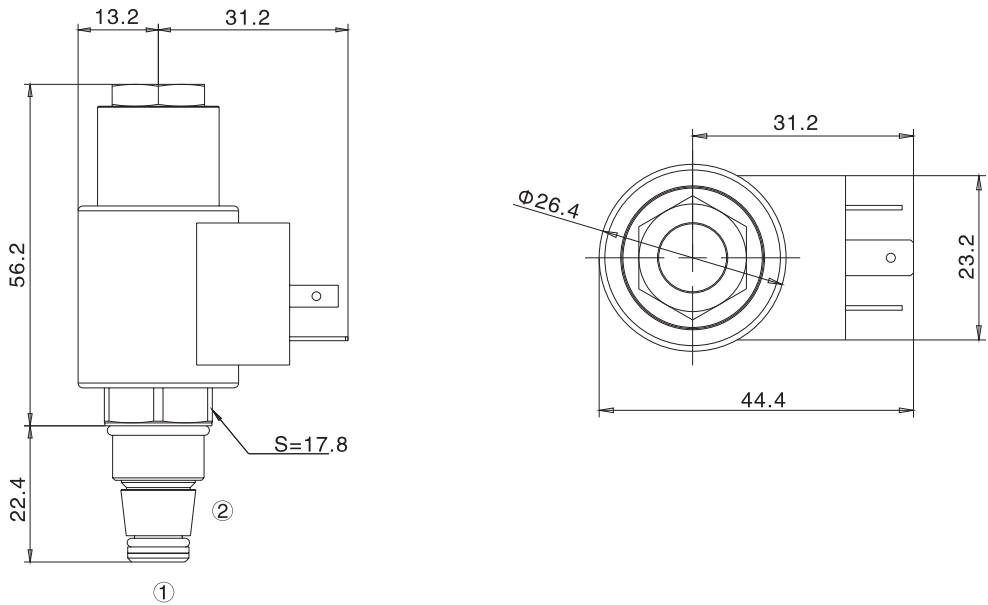
	Seals
N	NBR Seals
V	FPM Seals

Code symbol

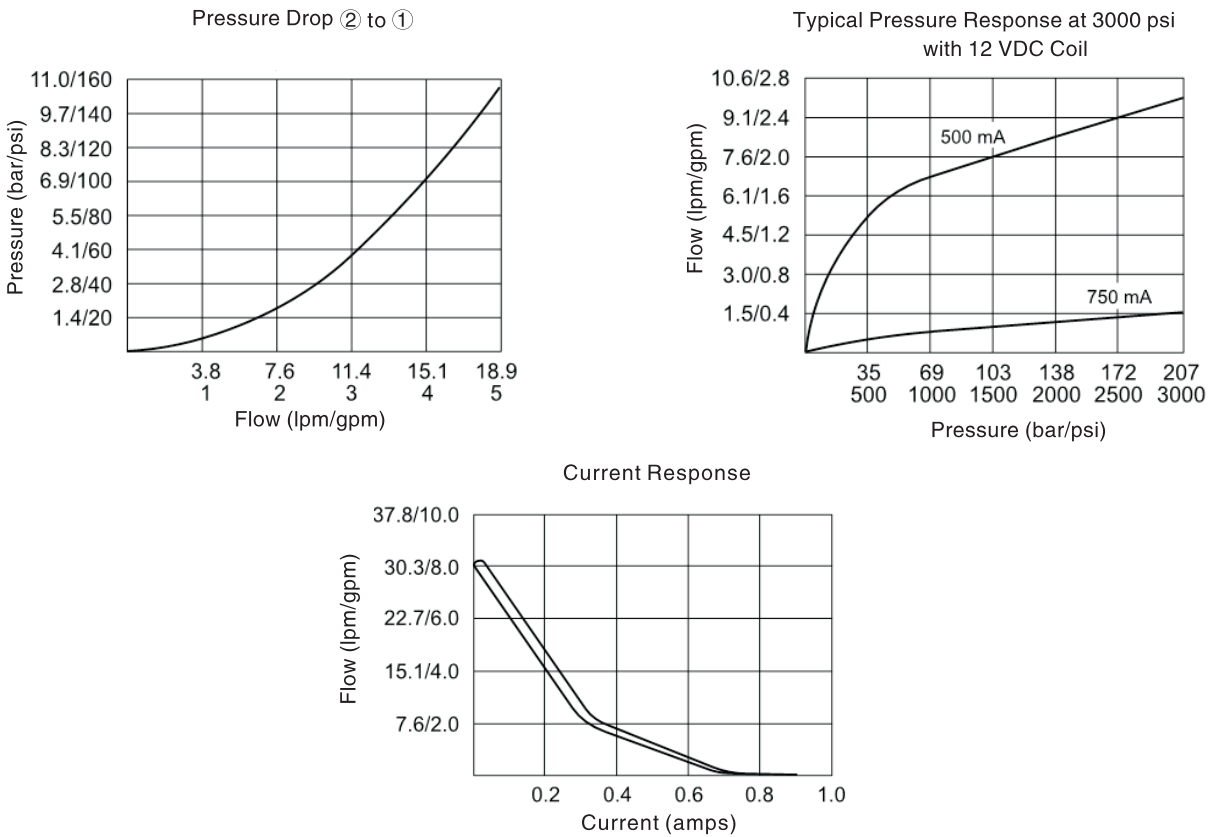


HY-SP08-21 Poppet-Type, 2-way, Normally Open

External dimensions



Specification performance:



HY-SP10-20 Poppet-Type, 2-way, Normally Closed

Introduction



Description:  
A solenoid-operated, 2-way, normally closed, poppet-type, proportional, screw-in hydraulic cartridge valve for blocking or load-holding applications.

Opearton:  
When de-energized, the HY-SP10-20 acts as a check valve, allowing flow from ① to ② , while blocking flow from ② to ① 。 When energized, the cartridge's poppet lifts to open the ② to ① flow path. Flow is proportional to current applied to the coil. Flow varies with manual override.

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-SP10-20
Installation position	Unlimited
Storage temperature (°C)	-20°C to +55°C
Ambient temperature (°C)	-20°C to +50°C

Hydraulic specification

Operating Pressure	250bar(3625psi)
Minimum Operating Dither/ Pulse Frequency	70HZ
Flow	Up to 68 lpm (18 gpm) at 34.5 bar (500 psi)
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4~420cst ( 50~2000sus )
Temperature	-40°C~+120°C , with NBR seals
Cavity	10-2
Internal Leakage	5 drops/minute max. at 250 bar (3625 psi)
Hysteresis	less than 5% up to 75% of I-max; less than 10% above 75% of I-max

Electrical specification

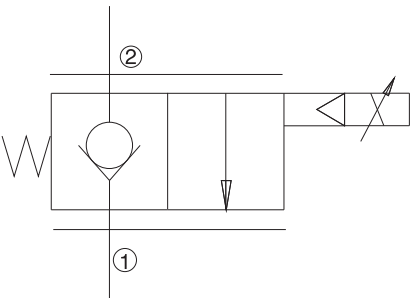
Max. Control current	12VDC coils:1.0±0.1A; 24VDC coils:0.5±0.05A
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HY-SP10-20 Poppet-Type, 2-way, Normally Closed

Model instruction

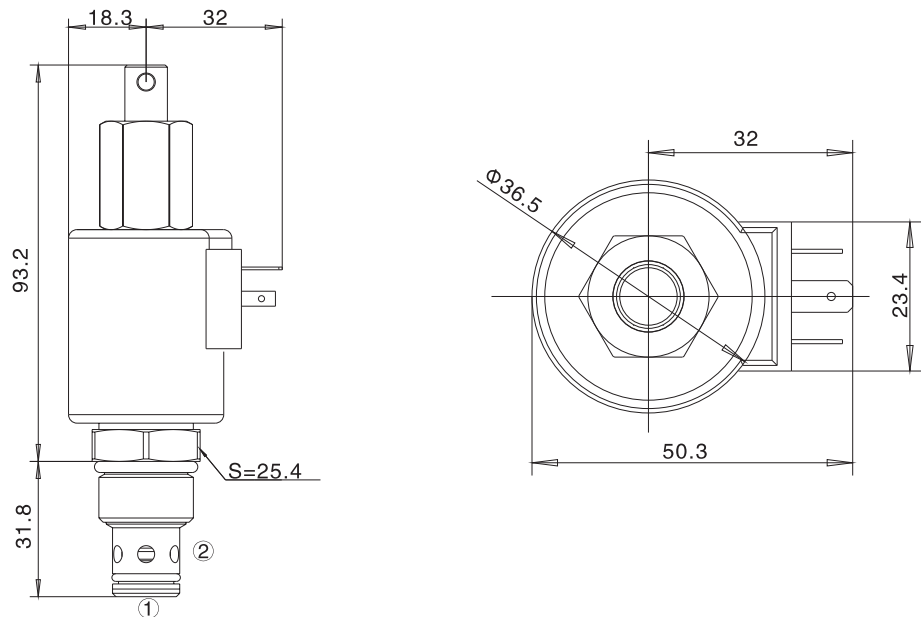
HY-SP10-20 - * - * - * *		Std. Coil Termination (VDC)	
Poppet-Type, 2-Way, Normally Closed		DG	DIN 43650
		ER	Deutsch DT04-2P
Porting		Voltage	
0	Cartridge Only	0	Less Coil
6T	SAE6	12	12VDC
8T	SAE8	24	24VDC
2B	1/4 in. BSP*	Seals	
3B	3/8 in. BSP*	N	NBR Seals
4B	1/2in.bBSP*	V	FPM Seals

Code symbol

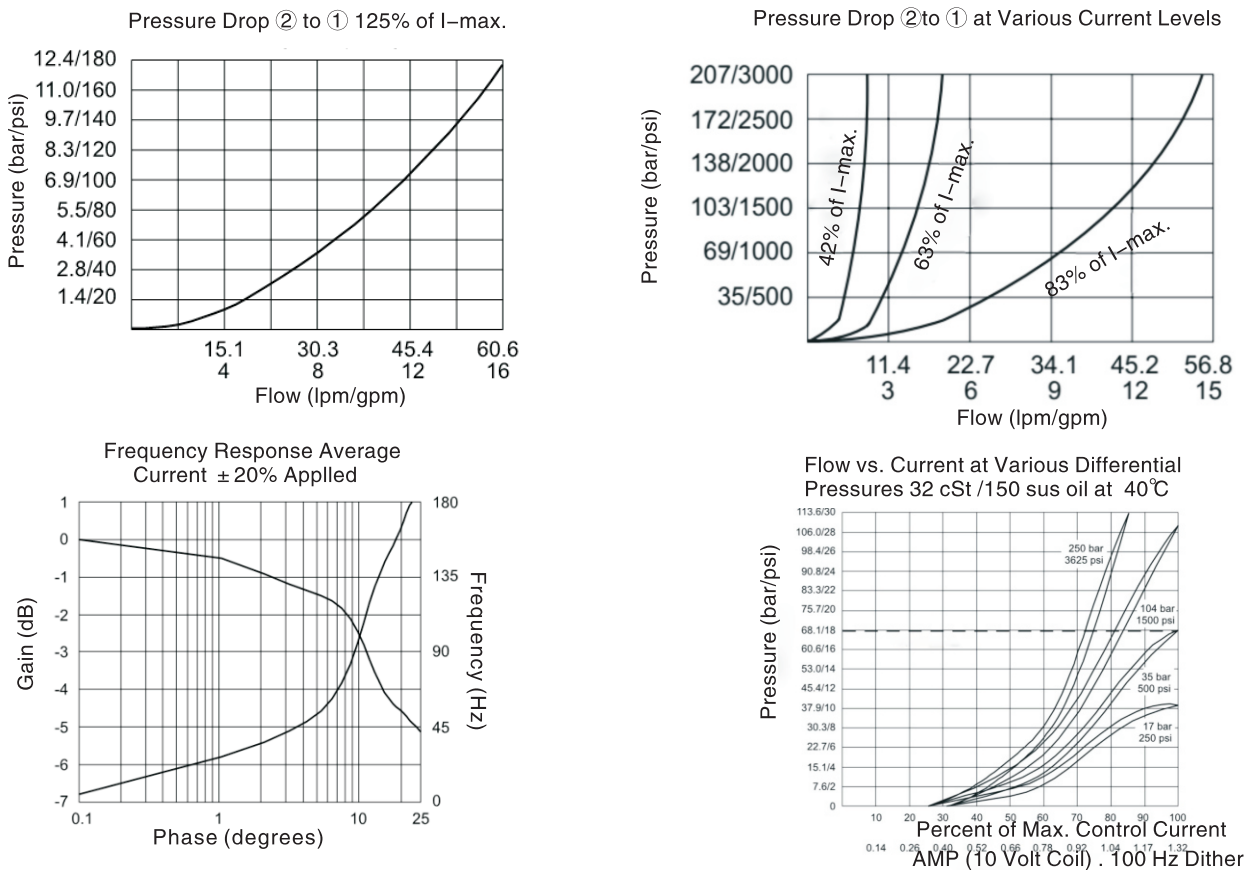


HY-SP10-20 Poppet-Type, 2-way, Normally Closed

External dimensions



Specification performance:



HY-TS08-27 Proportional Relief Valve

Introduction



Description:  
A screw-in, cartridge-style, pilot-operated, hydraulic pressure relief valve, which 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.

Operation:  
The TS08-27 blocks flow from ① to ② until sufficient pressure is present at ① to open the valve by overcoming the preset induced spring force. With no current applied, the valve will relieve at ± 50 psi of the spring maximum. Applying current to the coil reduces the induced spring force thereby reducing the valve setting. The regulated pressure is inversely proportional to the input electrical current.  
Note: This valve is ideal for hydraulic fan drive applications. Please contact the manufactory for more information about electronic controller for fan drive applications.

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-TS08-27
Installation position	When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Storage temperature (°C)	-20°C to +55°C
Ambient temperature (°C)	-20°C to +50°C

Hydraulic specification

Max. Operating Pressure	241bar(3500psi)
Rated Flow	19 lpm/5gpm; DP=7.8bar(113.3psi) ± 10%, cartridge only, ① to ② coil energized
Flow Path	Free Flow: ① to ② coil energized; Relieving: ① to ② coil de-energized
Max. Pilot Flow	0.76lpm(0.2gpm)
Hysteresis	Less than 3%
Pressure Rise	A:40psi/gpm;B:50psi/gpm;C:28psi/gpm
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4~420cst(50~2000sus)
Temperature	-40°C~+120°C (-40~250°F) , with NBR seals
Cavity	08-2

Electrical specification

Max. Control current	12VDC coils:1.2A; 24VDC coils:0.6A
Relief Pressure Range (from zero to max. Control current)	Minimum pressure is factory-adjusted. RangeA:207~4.1bar(3000~60psi); RangeB:138~4.1bar(2000~60psi)

HY-TS08-27 Proportional Relief Valve

Model instruction

HY-TS08-27

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Proportional Relief Valve

Maximum Operating Pressure  
A 207bar(3000psi)  
B 138bar(2000psi)

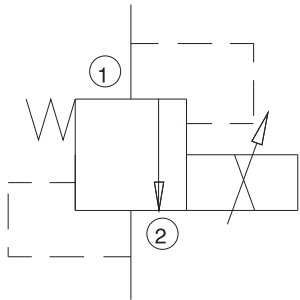
Porting  
0 Cartridge Only  
6T SAE6  
8T SAE8  
3B 3/8 in. BSP\*  
4B 1/2in.bBSP\*

Std. Coil Termination (VDC)  
DG DIN 43650  
ER Deutsch DT04-2P

Voltage  
0 Less Coil  
12 12VDC  
24 24VDC

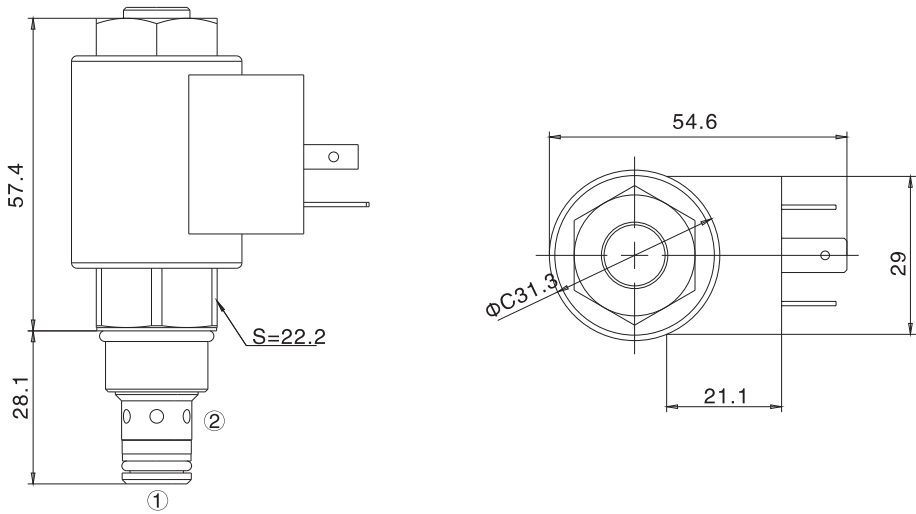
Seals  
N NBR Seals  
V FPM Seals

Code symbol

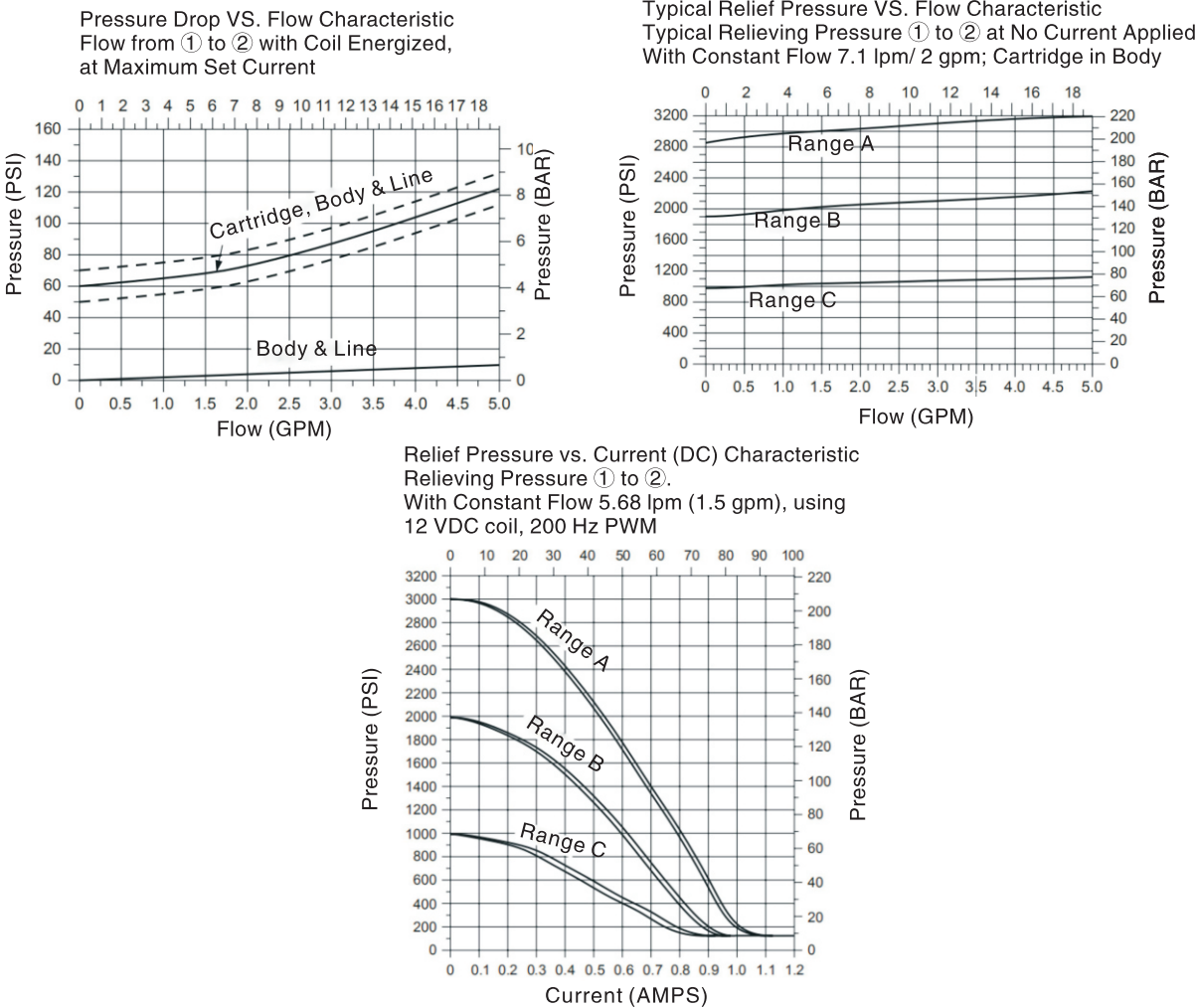


HY-TS08-27 Proportional Relief Valve

External dimensions



Specification performance:





HY-TS10-26 Proportional Relief Valve

Introduction



Description:  
A screw-in, cartridge-style, pilot-operated, spool-type hydraulic relief valve, which can be infinitely adjusted across a prescribed range using a variable electric input. The regulated pressure is proportional to the input electrical current. This valve is intended for use as a pressure limiting device in demanding applications.

Opearton:  
The TS10-26 blocks flow from ① to ② until sufficient pressure is present at ① to open the pilot section by offsetting the electrically induced solenoid force. With no current applied to the solenoid, the valve will relieve at approximately 6.9 bar (100 psi). The optional manual override allows the valve to be set when the electric supply is lost. The manual setting is added to the electric setting. To prevent the system from being over pressurized, the manual override should always be disengaged prior to applying power to the coil.

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-TS10-26
Installation position	When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Storage temperature (℃)	-20℃ to +55℃
Ambient temperature (℃)	-20℃ to +50℃

Hydraulic specification

Max.Operating Pressure	241bar(3500psi)
Rated Flow	94.6lpm ( 25gpm),DP=13.1bar(190psi ) cartridge only, ① to ②, coil energized
Flow Path	Free Flow: ① to ② coil de-energized; Relieving: ① to ② coil energized
Max. Pilot Flow	0.76lpm(0.2gpm)
Hysteresis	Less than3%
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4~420cst(50~2000sus)
Temperature	-40℃~+120℃ ( -40~250°F ) , with NBR seals
Cavity	10-2

Electrical specification

Max. Control current	12VDC coils:110A; 24VDC coils:0.55A
Relief Pressure Range (from zero to max. Control current)	A:6.9-207bar(100-3000psi); B:6.9-159bar(100-2300psi); C:6.9-117bar ( 100-1700psi

HY-TS10-26 Proportional Relief Valve

Model instruction

HY-TS10-26 - \* - \* - \* - \* \* \*

Proportional Relief Valve

Maximum Relief Pressure  
A 207bar(3000psi )  
B 159bar(2300psi)  
C 117bar(1700psi)

Option  
None Blank  
Manual Override M

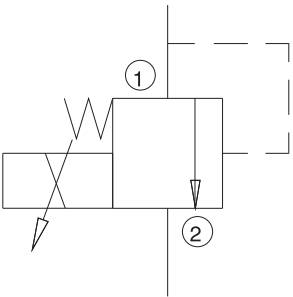
Porting  
0 Cartridge Only  
6T SAE6  
8T SAE8  
3B 3/8 in. BSP\*  
4B 1/2in.bBSP\*

Std. Coil Termination (VDC)  
DG DIN 43650  
ER Deutsch DT04-2P

Voltage  
Less Coil  
0 12VDC  
12 12VDC  
24 24VDC

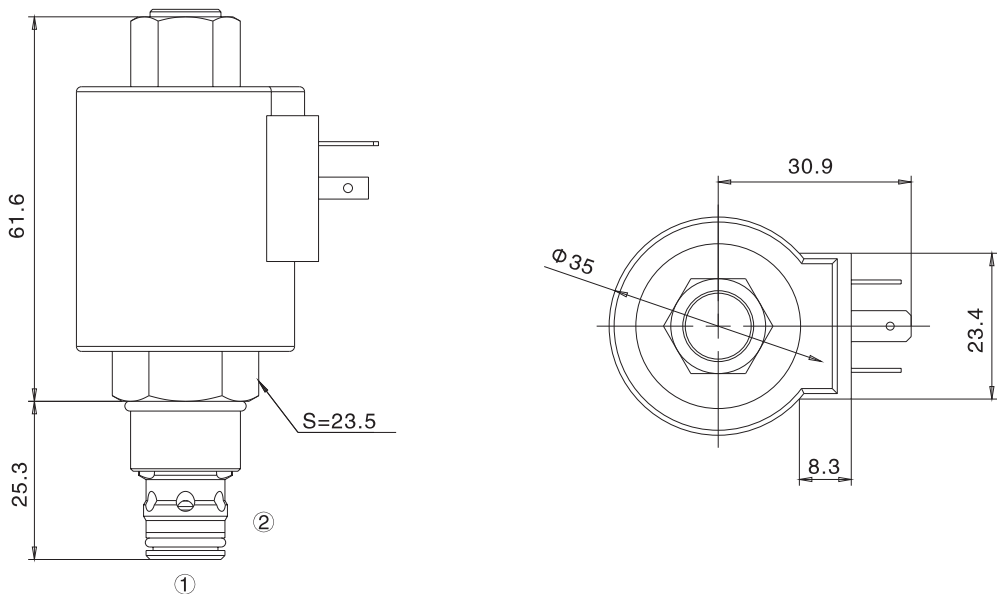
Seals  
N NBR Seals  
V FPM Seals

Code symbol

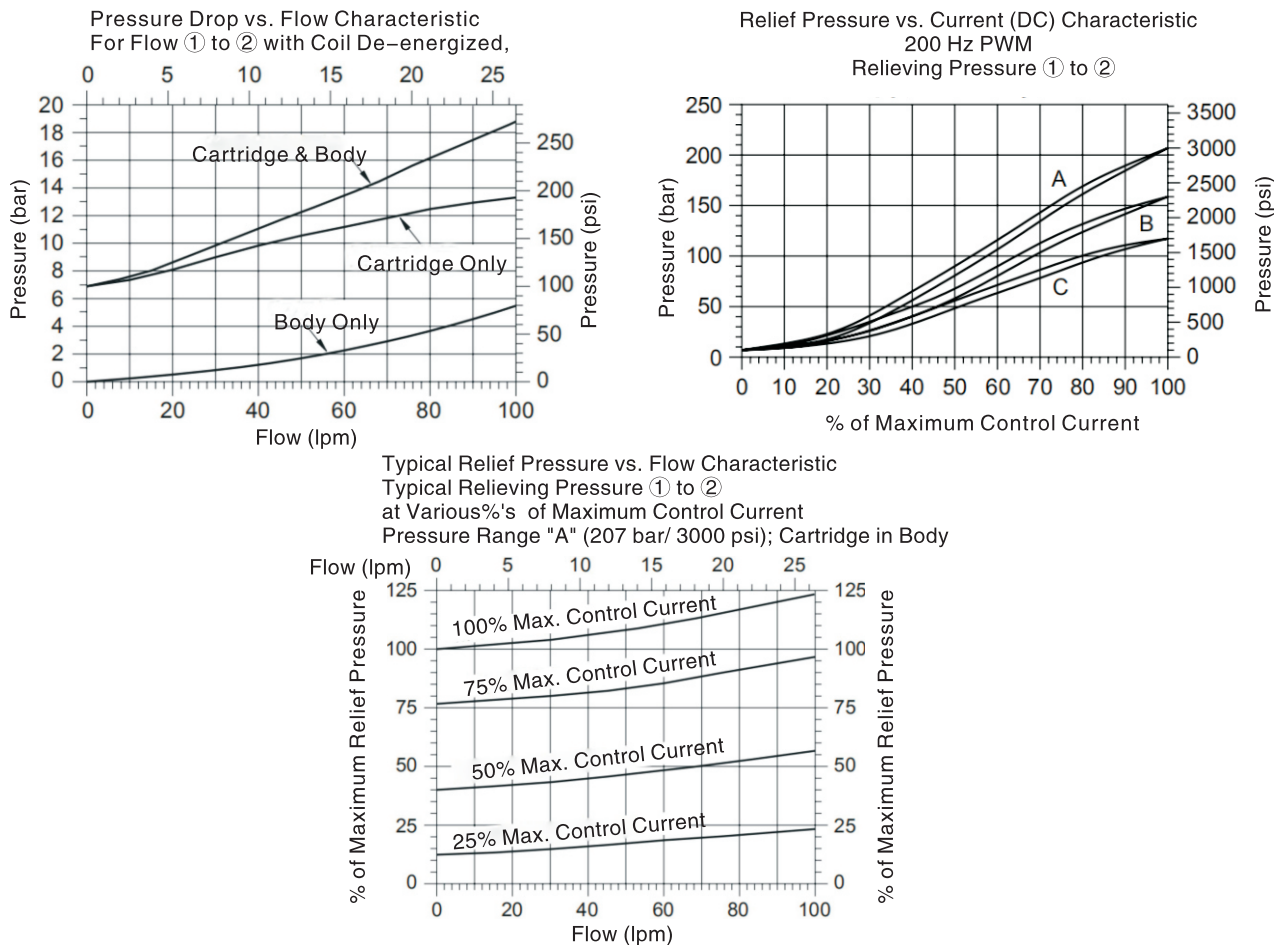


HY-TS10-26 Proportional Relief Valve

External dimensions



Specification performance:



HY-TS10-27 Proportional Pilot-operated Relief Valve

Introduction



**Description:**  
A screw-in, cartridge-style, pilot-operated, hydraulic pressure relief valve, which can be infinitely adjusted across a prescribed range using a variable electric input. Pressure output is inversely proportional to DC current input. This valve is intended for use as a pressure limiting device in demanding applications.

**Opearton:**  
The TS10-27 blocks flow from ① to ② until sufficient pressure is present at ? to open the valve by overcoming the preset induced spring force. With no current applied, the valve will relieve at ① 50psi of the spring maximum. Applying current to the coil reduces the induced spring force thereby reducing the valve setting. The regulated pressure is inversely proportional to the input electrical current.

**Note:** This valve is ideal for hydraulic fan drive applications. Please contact the manufactory for more information about electronic controller for fan drive applications.

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-TS10-27
Installation position	When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Storage temperature (°C)	-20°C to +55°C
Ambient temperature (°C)	-20°C to +50°C

Hydraulic specification

Max. Operating Pressure	241bar(3500psi)
Minimum Operating Dither/ Pulse Frequency	75.7lpm ( 20gpm), DP=14.8bar(215psi ) cartridge only, ① to ②, coil energized
Flow Path	Free Flow: ① to ② coil energized; Relieving: ① to ② coil de-energized
Max. Pilot Flow	0.76lpm(0.2gpm)
Hysteresis	Less than 3%
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4~420cst(50~2000sus)
Temperature	-40°C~+120°C ( -40~250°F ) , with NBR seals
Cavity	10-2

Electrical specification

Max. Control current	12VDC coils:1.10A; 24VDC coils:0.55A
Relief Pressure Range (from zero to max. Control current)	A:207-10.3bar(3000-150psi); B:138-10.3bar(2000-150psi); C:69-10.3bar ( 1000-150psi)

HY-TS10-27 Proportional Pilot-operated Relief Valve

Model instruction

HY-TS10-27 - \* - \* - \* - \*

Proportional Pilot-Operated Relief Valve

Maximum Operating Pressure  
A 207bar(3000psi)  
B 138bar(2000psi)  
C 69bar(1000psi)

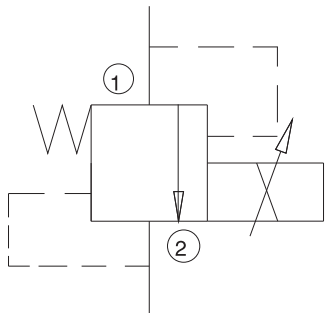
Std. Coil Termination (VDC)  
DG DIN 43650  
ER Deutsch DT04-2P

Voltage  
0 Less Coil  
12 12VDC  
24 24VDC

Porting  
0 Cartridge Only  
6T SAE6  
8T SAE8  
3B 3/8 in. BSP\*  
4B 1/2in.bBSP\*

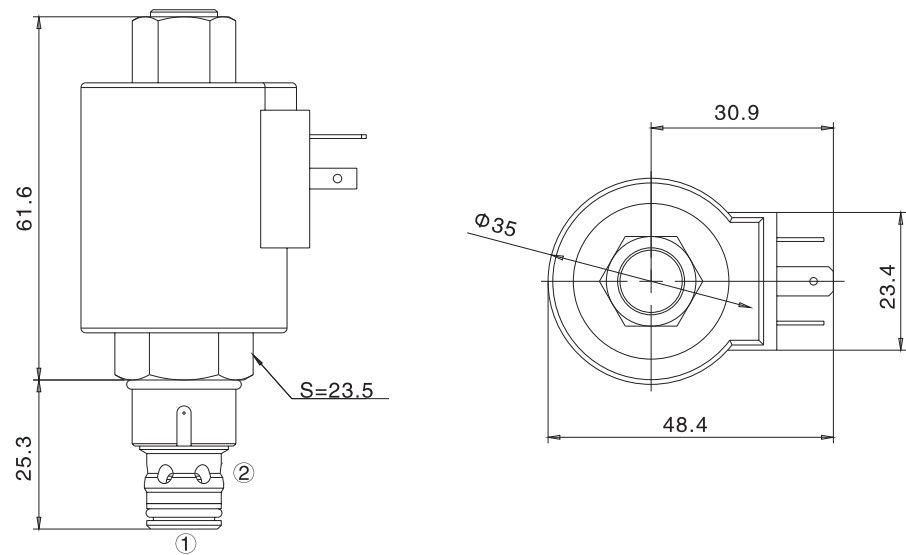
Seals  
N NBR Seals  
V FPM Seals

Code symbol

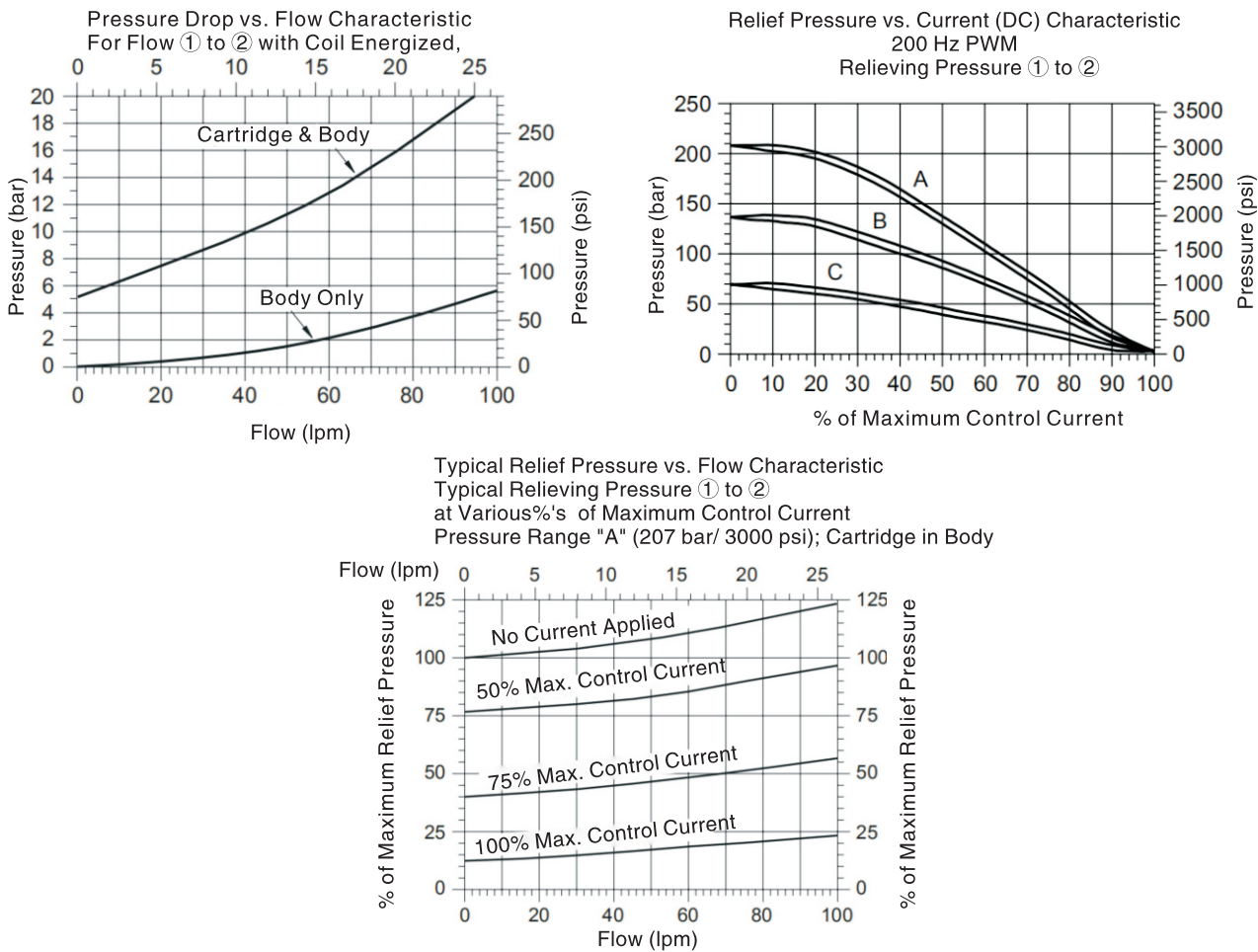


HY-TS10-27 Proportional Pilot-operated Relief Valve

External dimensions



Specification performance



HY-TS10-36 Proportional Pilot-operated Pressure Reducing/ Relief Valve

Introduction



Description:  
A screw-in, cartridge-style, pilot-operated, spool-type hydraulic reducing/relieving valve, which 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.

Opeartion:  
With current applied to the valve coil, the TS10-36 blocks flow from ① to ② until sufficient pressure is present at ① to open the pilot section by offsetting the electrically induced solenoid force. Increasing electric current will increase the control (reduced) pressure at ①. With no current applied to the solenoid, the valve will relieve pressure at ② at approximately 6.9 bar (100 psi), regarding of pressure at ①. The TS10-36 has an optional manual override feature. This allows the valve to be set when the electric supply is lost. The manual setting is added to the electric setting, so when using the manual override feature to establish a minimum setting, care is required to prevent the system from becoming over-pressurized.

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-TS10-36
Installation position	When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Storage temperature (℃)	-20℃ to +55℃
Ambient temperature (℃)	-20℃ to +50℃

Hydraulic specification

Max.Operating Pressure	241bar(3500psi)
Minimum Operating Dither/ Pulse Frequency	When ① to ③ coil de-energized, reduced pressure is 22.8 bar (330 psi): 56.8 lpm (15 gpm)
Flow Path	Free Flow: ① to ② coil de-energized; Relieving: ① to ② coil energized
Max. Pilot Flow	0.76lpm(0.2gpm)
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4~420cst(50~2000sus)
Temperature	-40℃~+120℃ ( -40~250°F) , with NBR seals
Cavity	10-3

Electrical specification

Max. Control current	12VDC coils:1.10A; 24VDC coils:0.55A
Relief Pressure Range (from zero to max. Control current)	A:6.9-207bar(100-3000psi); B:6.9-159bar(100-2300psi); C:6.9-117bar(100-1700psi)

HY-TS10-36 Proportional Pilot-operated Pressure Reducing/ Relief Valve

Model instruction

HY-TS10-36

Proportional Pilot-Operated Pressure Reducing/ Relief Valve

Maximum Relief Pressure  
A 207bar(3000psi )  
B 159bar(2300psi)  
C 117bar(1700psi)

Option  
None Blank  
Manual Override M

Porting  
0 Cartridge Only  
6T SAE6  
8T SAE8  
3B 3/8 in. BSP\*  
4B 1/2in.bBSP\*

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Std. Coil Termination (VDC)  
DG DIN 43650  
ER Deutsch DT04-2P

0

12

24

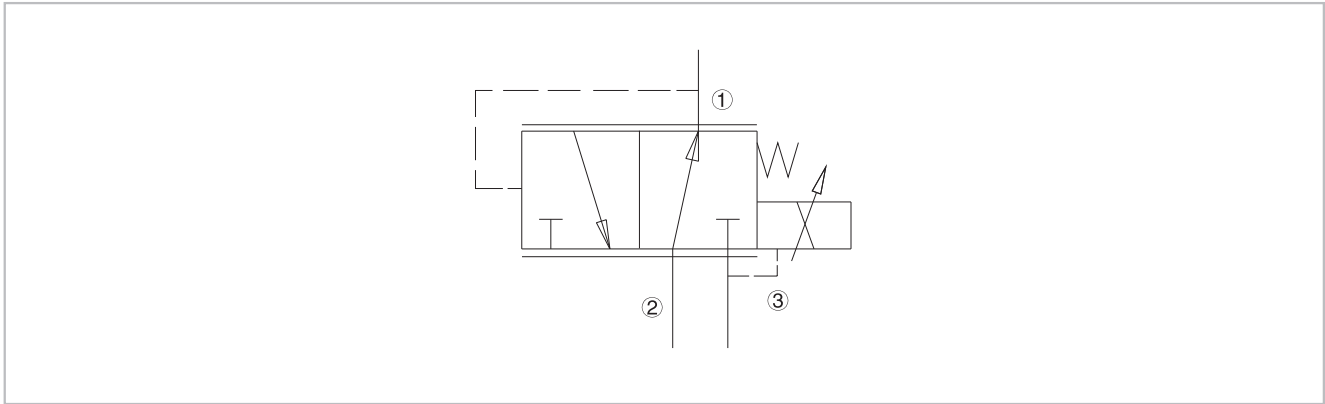
Voltage  
Less Coil  
12VDC(1.10amps max.)  
24VDC(0.55amps max.)

N

V

Seals  
NBR Seals  
FPM Seals

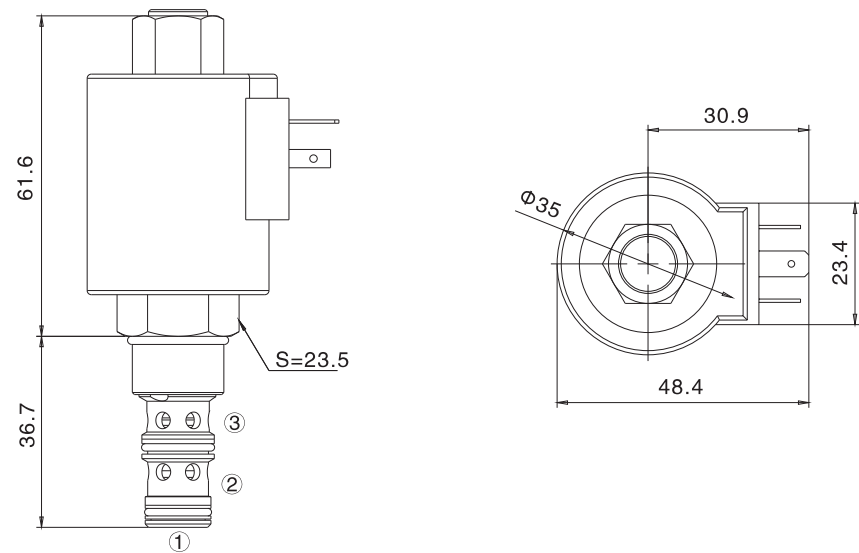
Code symbol



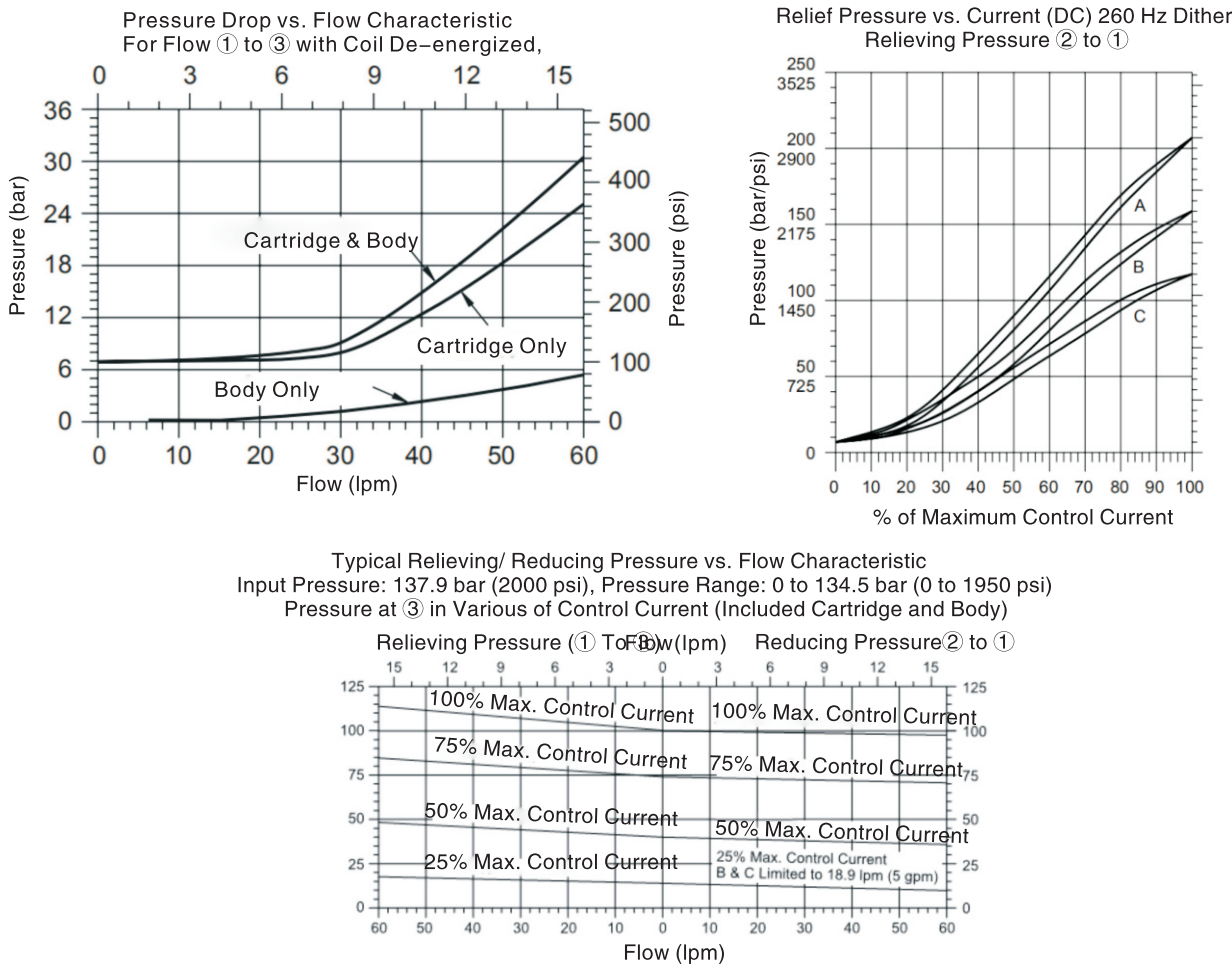


HY-TS10-36 Proportional Pilot-operated Pressure Reducing/ Relief Valve

External dimensions



Specification performance



HY-TS38-20 Proportional Relief Valve

Introduction



Description:  
A screw-in, cartridge-style, direct acting, single stage, poppet-type hydraulic relief valve, which can be infinitely adjusted across a prescribed range using a variable electric Pressure output is proportional to DC current input. This valve is intended for use as a pressure limiting device in demanding applications.

Opearton:  
The TS38-20 blocks flow from ① to ② until sufficient pressure is present at ② to offset the electrically induced solenoid force. With no current applied to the solenoid, the valve will free flow from ① to ②.  
Note: Back pressure on ② becomes additive to the pressure setting at a 1:1 ratio.

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-TS38-20
Installation position	When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Storage temperature (°C)	-20°C to +55°C
Ambient temperature (°C)	-20°C to +50°C

Hydraulic specification

Max.Operating Pressure	241bar(3500psi)
Rated Flow	A: 11.4 lpm (3 gpm) at 20 bar (290 psi) pressure drop; B: 11.4 lpm (3 gpm) at 10 bar (150 psi) pressure drop; C: 11.4 lpm (3 gpm) at 5.5 bar (80 psi) pressure drop
Flow Path	Free Flow: ① to ② coil de-energized; Relieving: ① to ② coil energized
Hysteresis (with Dither of 250 Hz)	3.3% (without Dither: 7% maximum)
Dither Frequency	150 Hz or higher
Step Reponse	T on <50 ms; T off <7 ms
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4~420cst(50~2000sus)
Temperature	-40°C~+120°C ( -40~250°F ) , with NBR seals
Cavity	08-2
Max. Pilot Flow	0.76lpm(0.2gpm)

Electrical specification

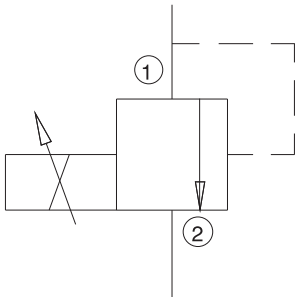
Max. Control current	12VDC coils:1.10A; 24VDC coils:0.55A
Relief Pressure Range (from zero to max. Control current)	A:0-207bar(0-3000psi); B:0-138bar(0-2000psi); C:0-69bar(0-1000psi)
Control Signal	DC or PWM (Significant improvements in valve performance occur with superimposed dither, with either control method.)

HY-TS38-20 Proportional Relief Valve

Model instruction

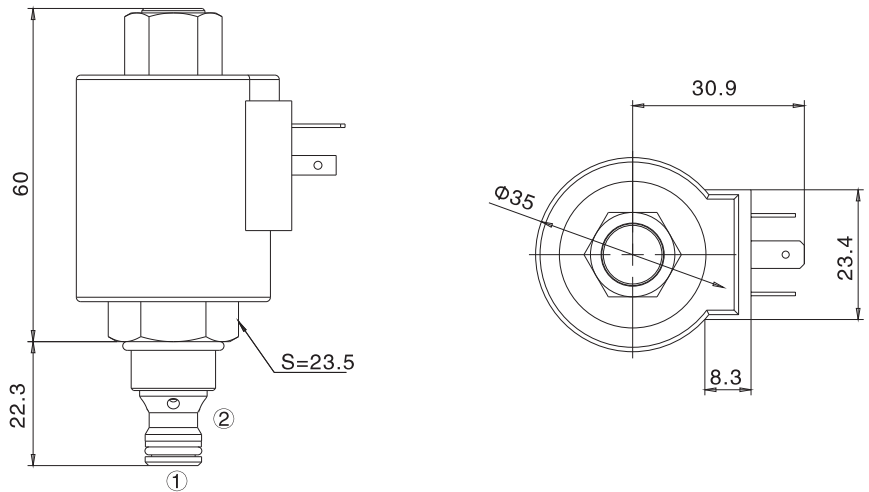
HY-TS38-20 - * - * - * - * - *		Std. Coil Termination (VDC) DG DIN 43650 ER Deutsch DT04-2P	
Proportional Relief Valve			
Maximum Relief Pressure A 207bar(3000psi) B 138bar(2000psi) C 69bar(1000psi)		Voltage Less Coil 12 12VDC(1.10 amps max.) 24 24VDC(0.55 amps max.)	
Option Vent screw Blank Manual Override M			
Porting 0 Cartridge Only 6T SAE6 8T SAE8 3B 3/8 in. BSP* 4B 1/2in.bBSP*		Seals N NBR Seals V FPM Seals	

Code symbol

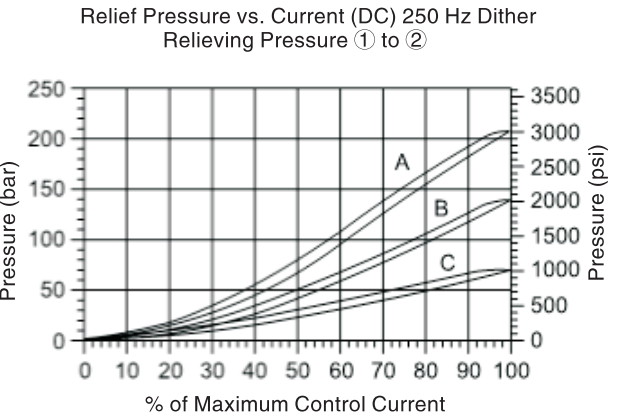
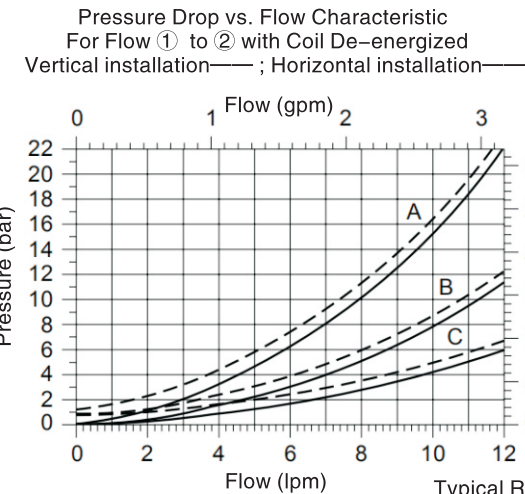


HY-TS38-20 Proportional Relief Valve

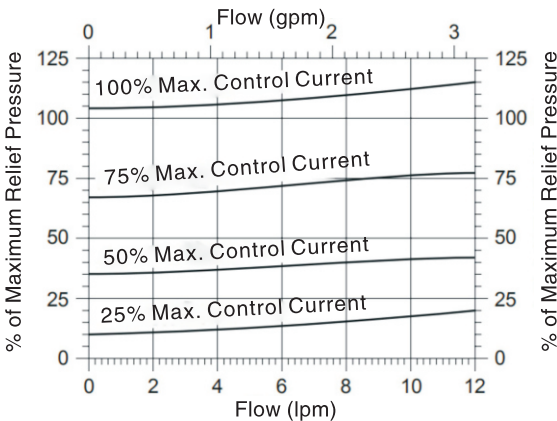
External dimensions



Specification performance



Typical Relief Pressure vs. Flow Characteristic  
Typical Relieving Pressure ① to ②  
at Various % 's of Maximum Control Current  
Pressure Range A: (207 bar/ 3000 psi); B: (138 bar/ 2000 psi);  
C: (69 bar/ 1000 psi); Cartridge in Body



HY-TS98-31 Proportional Pressure Reducing/ Relief Valve

Introduction



Description:  
A screw-in, cartridge-style, pilot-operated, spool-type hydraulic pressure reducing/relieving valve, which 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.

Opearton:  
Without applied current, the HY-TS98-31 allows dua-flow from ③ to ④ while blocking ②. When the coil is energized, ③ is connected to ②, and pressure at ③ is controlled proportional to the amount of current applied to the coil. If pressure at ③ Exceeds the setting induced by the coil, pressure is relieved to ④. Back pressure on port ④ becomes additive to the pressure setting at a 1:1 ratio.

Note: Consult factory for special OEM variations of this product.

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-TS98-31
Installation position	When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Storage temperature (°C)	-20°C to +55°C
Ambient temperature (°C)	-20°C to +50°C

Hydraulic specification

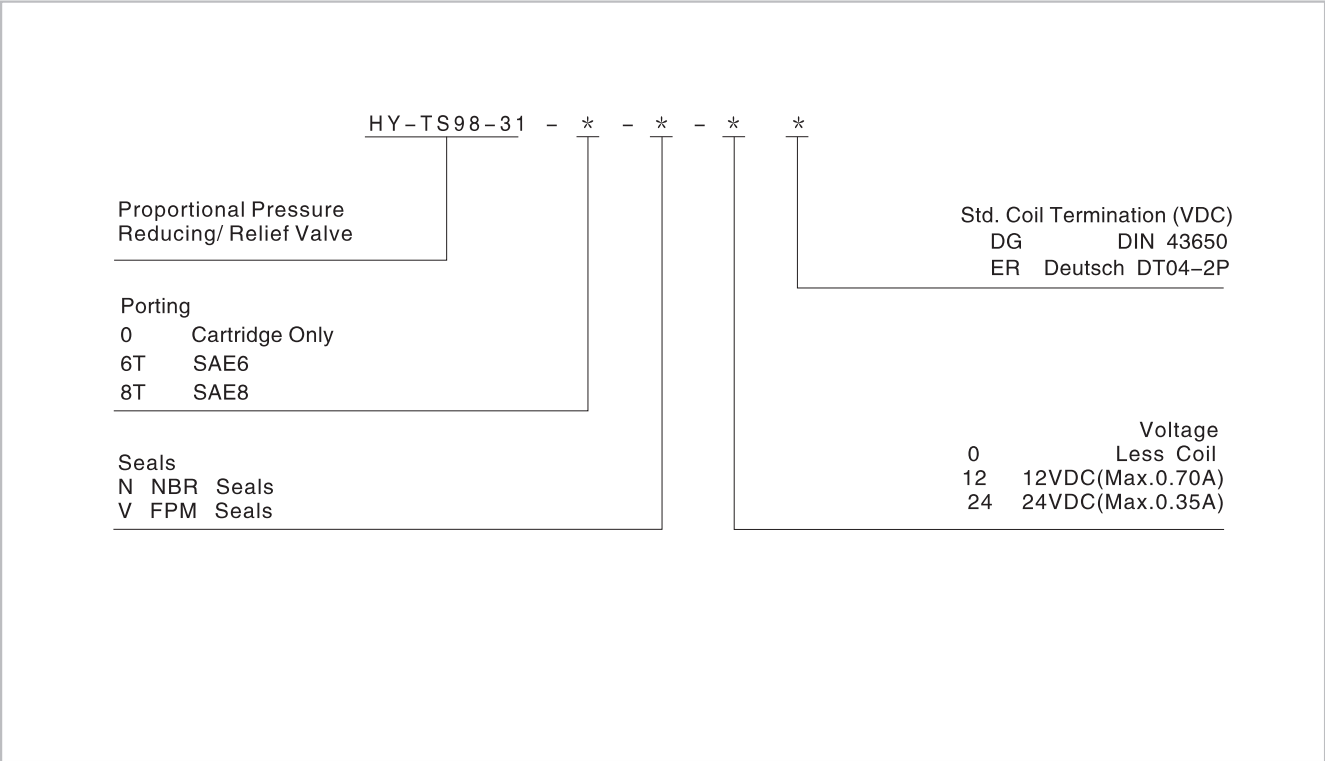
Max. Inlet Pressure at port 2	207bar(3000psi)
Rated Flow	When coil de-energized, ③ to ④ to reduced pressure is 45 psi: 11.4 lpm (3 gpm)
Flow Path	Free Flow: dua-flow from ③ to ④ coil de-energized; Reducing: ② to ③ coil energized Relieving: ③ to ④ coil energized, ① is not plumbed externally
Threshold Voltage	12VDC coils: 0.150A 24VDC coils: 0.075A
Max. Pilot Flow	0.4lpm(0.12gpm)
Hysteresis	3%PWM
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4~420cst(50~2000sus)
Temperature	-30°C~+175°C ( -20~350°F ) , with FPM seals
CavityCavity	98-3

Electrical specification

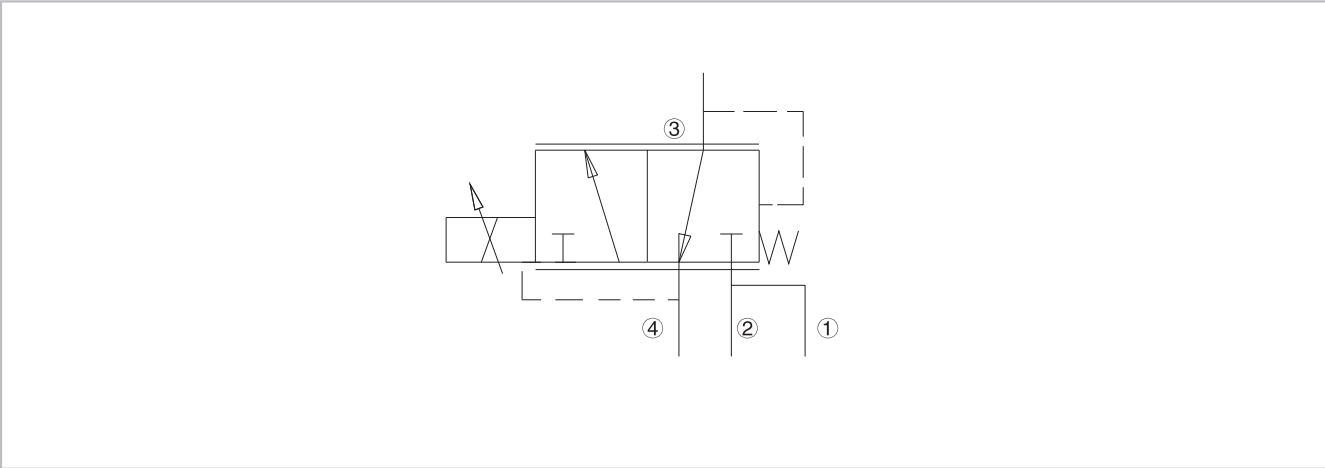
Max. Control current	12VDC coils: 0.7A 24VDC coils: 0.35A
Reducing/Relieving Pressure Range (from zero to max. control current)	0-138bar(0-2000psi)

HY-TS98-31 Proportional Pressure Reducing/ Relief Valve

Model instruction

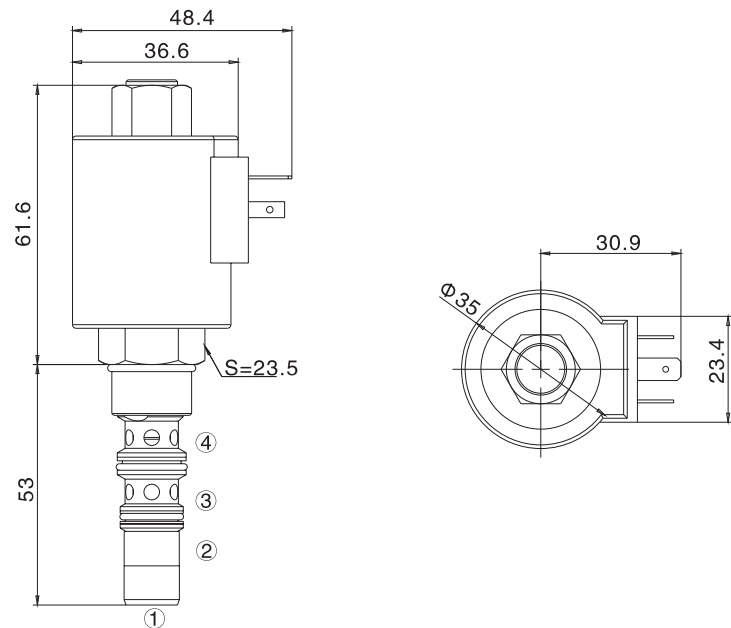


Code symbol

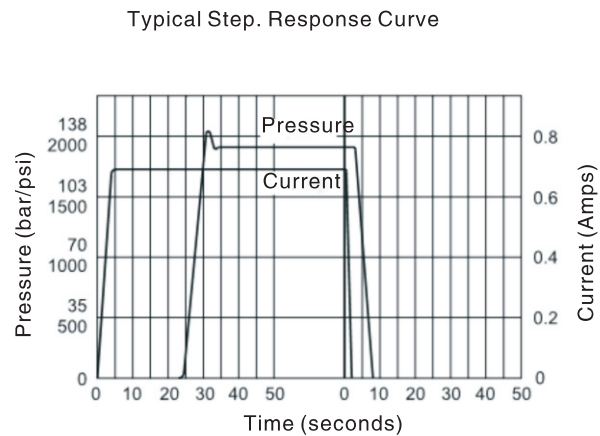
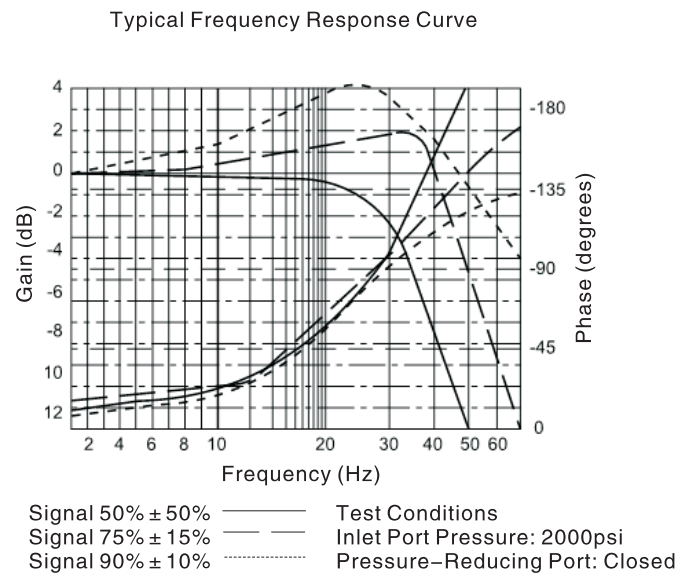


HY-TS98-31 Proportional Pressure Reducing/ Relief Valve

External dimensions

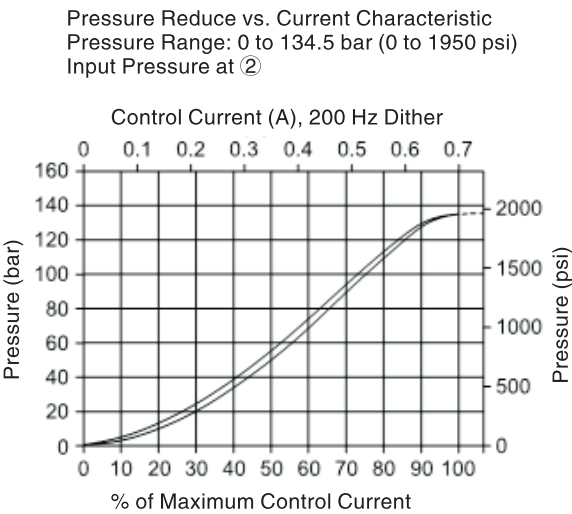
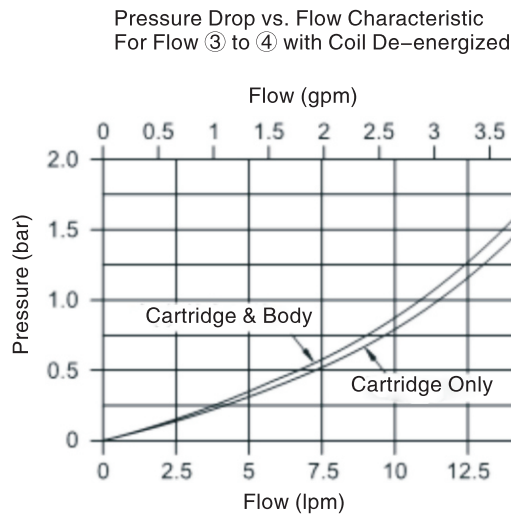
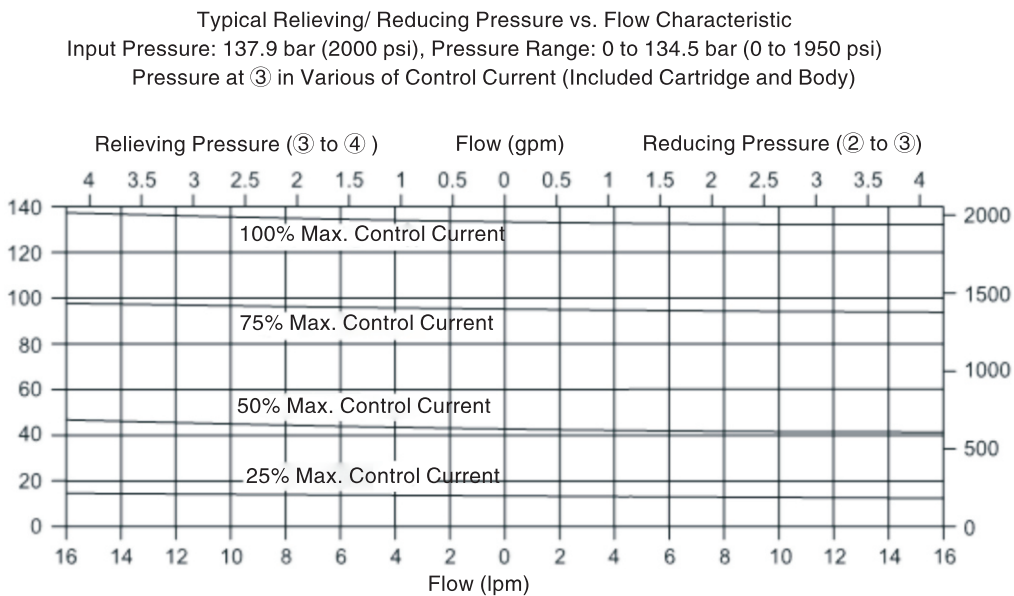


Specification performance:



HY-TS98-31 Proportional Pressure Reducing/ Relief Valve

Specification performance:





HY-EHPR08-33 Proportional Pressure Reducing/ Relief Valve

Introduction



Description:  
A screw-in, cartridge-style, direct-acting, spool-type hydraulic pressure reducing/relieving valve, which can be infinitely adjusted across prescribed range using a variable electric input. Pressure output is to DC current input. This valve is intended for use as a pressure limiting device in demanding applications.

Opeartion:  
The HY-EHPR08-33 free flow from ① to ③ when no current is applied to the coil. When the coil is energized, ② is connected to ①. Increasing current to the coil will increase the control (reduced) pressure proportional. If pressure at ① exceeds the setting induced by the coil, pressure from ① relieved to ③.

Note: Back pressure on ③ becomes additive to the pressure setting at a 1:1 ratio.

Technical specification (For application beyond these parameters, please contact with us)

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-EHPR08-33
Installation position	Unlimited
Storage temperature (℃)	-20℃ to +55℃
Ambient temperature (℃)	-20℃ to +50℃

Hydraulic specification

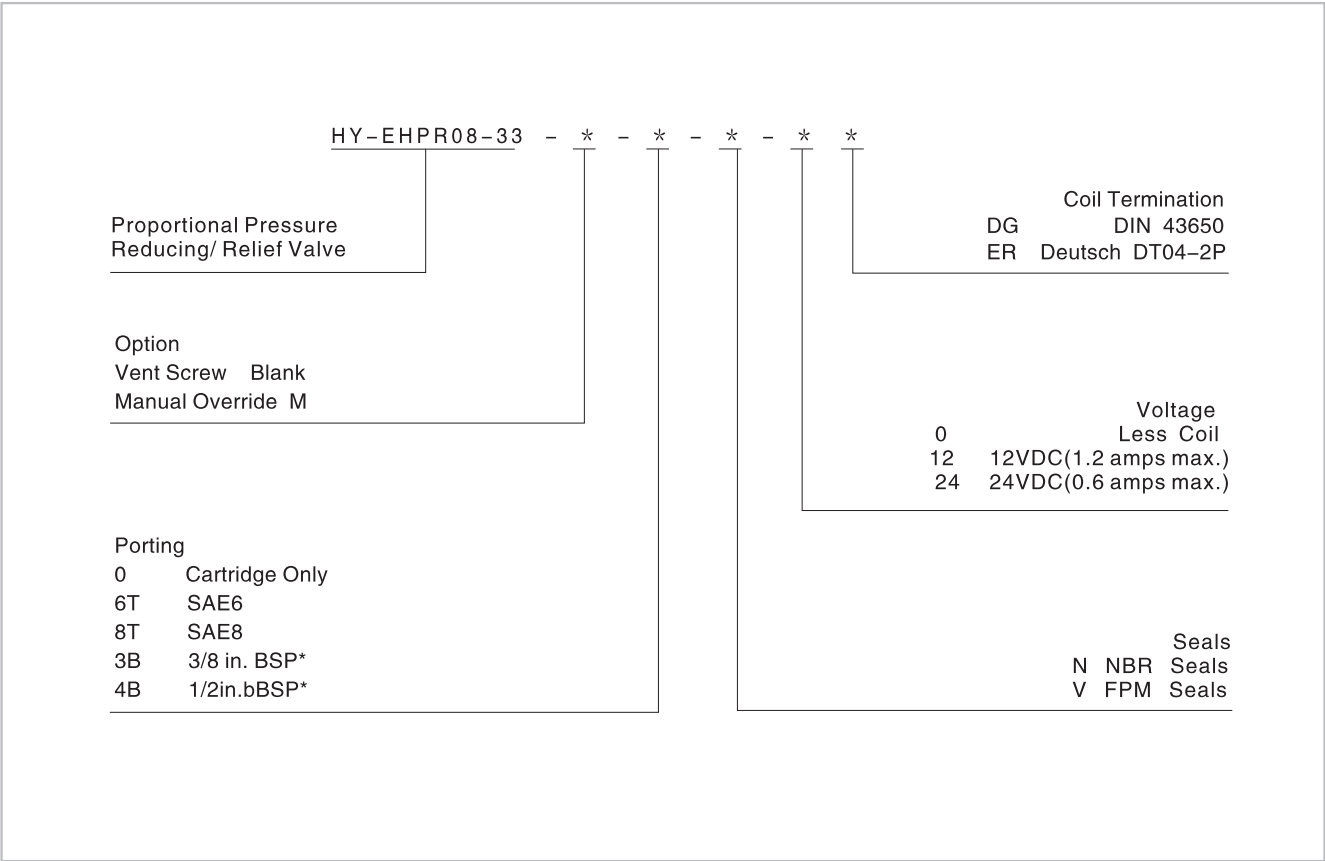
Max. Inlet Pressure	207bar(3000psi)
Rated Flow	4.0lpm(1.05gpm), DP=6bar(87psi), cartridge only, ① to ③, coil de-energized;
Flow Path	Free Flow: ① to ③ coil de-energized; Reducing: ② to ① coil energized; Relieving: ① to ③ coil energized. ① is not plumbed externally
Hydraulic fluid	Mineral Oil, Phosphate-ester
Fluids	7.4~420cst
Temperature	-40℃~+120℃, with NBR seals
Cavity	08-3

Electrical specification

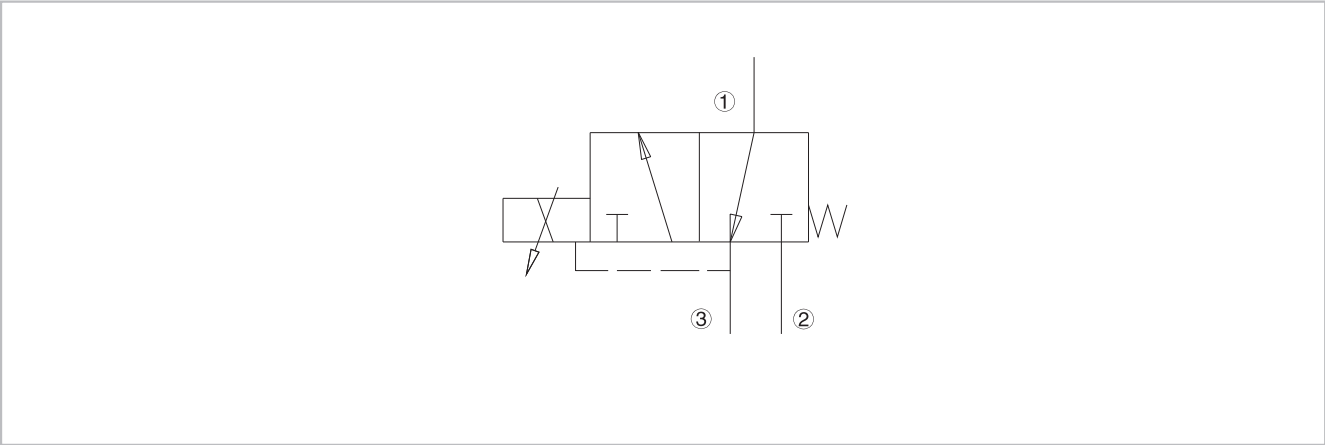
Max. Control current	12VDC coils: 1.2A 24VDC coils: 0.6A For other voltages, please consult factory
Reducing/Relieving Pressure Range (from zero to max. control current)	0-26bar(0 to 375psi)
Hysteresis	less than3%
Dither Frequency Required	200HZ
Step Response	T on <30 ms; T off <12 ms

HY-EHPR08-33 Proportional Pressure Reducing/ Relief Valve

Model instruction

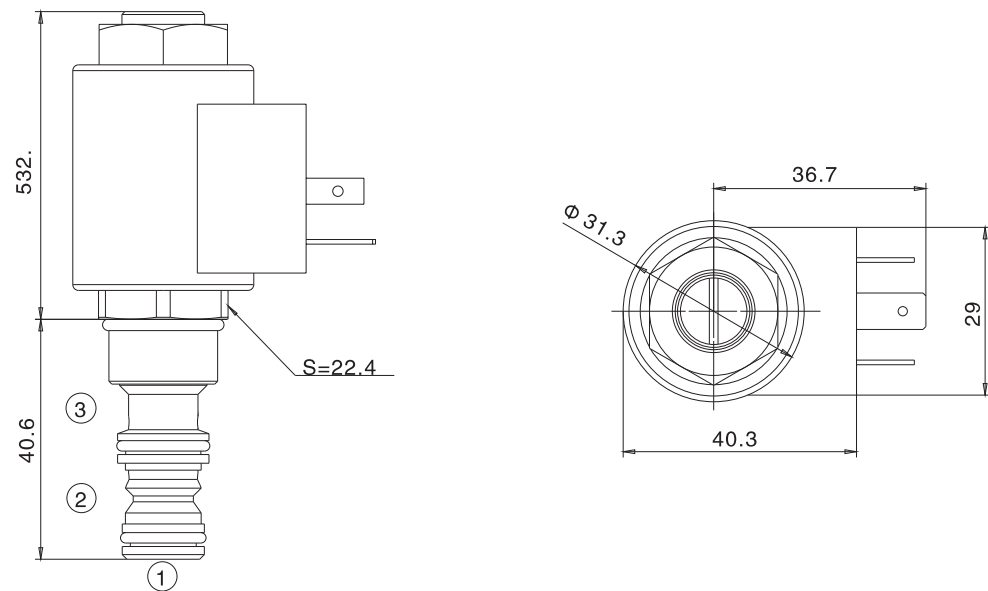


Code symbol



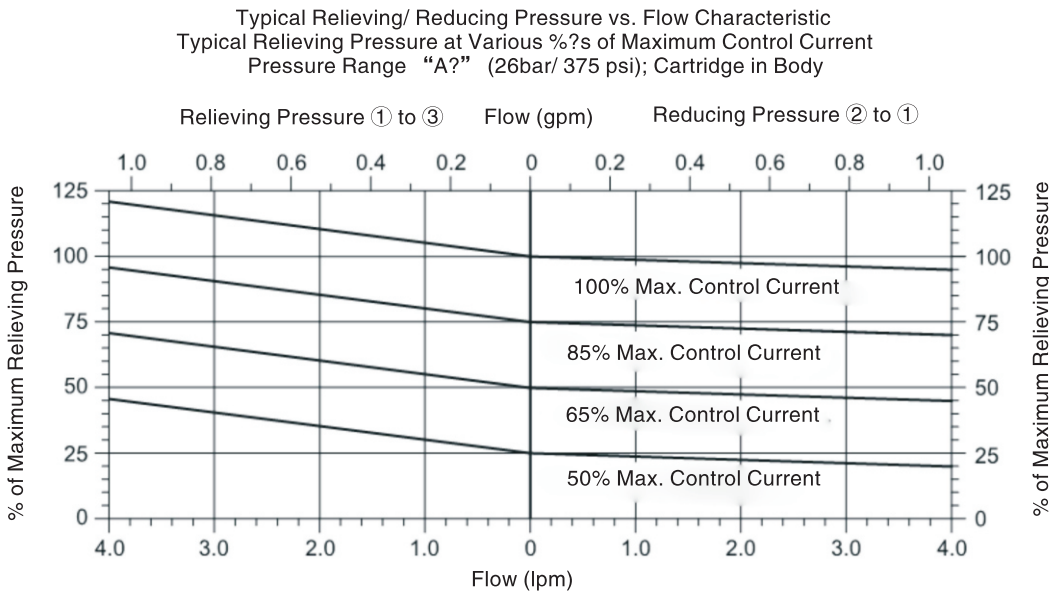
HY-EHPR08-33 Proportional Pressure Reducing/ Relief Valve

External dimensions

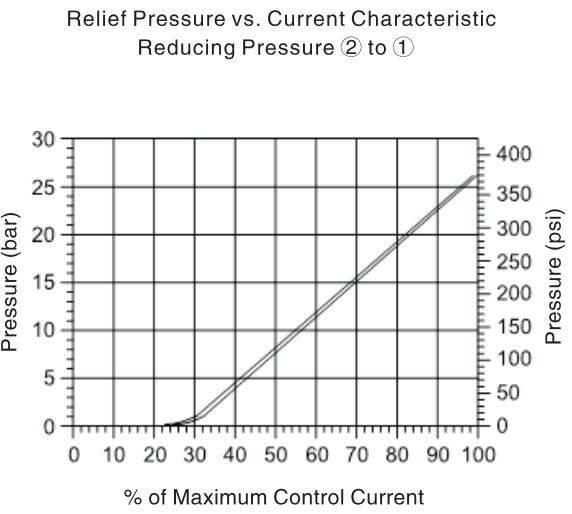
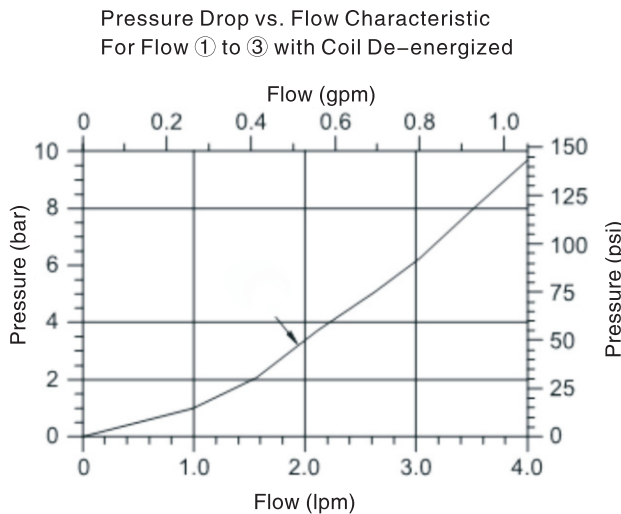


HY-EHPR08-33 Proportional Pressure Reducing/ Relief Valve

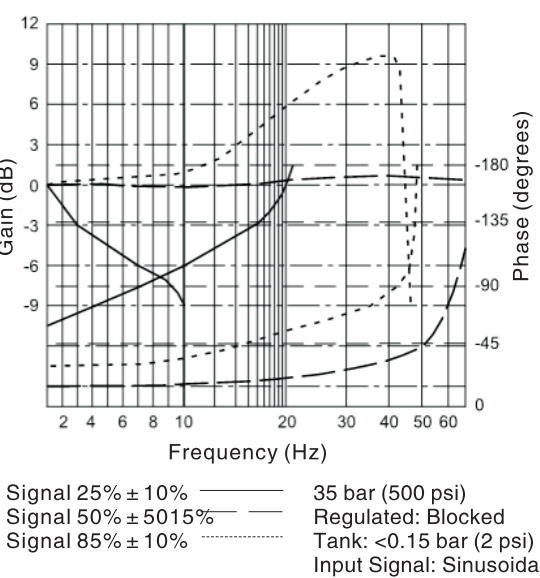
Specification performance:



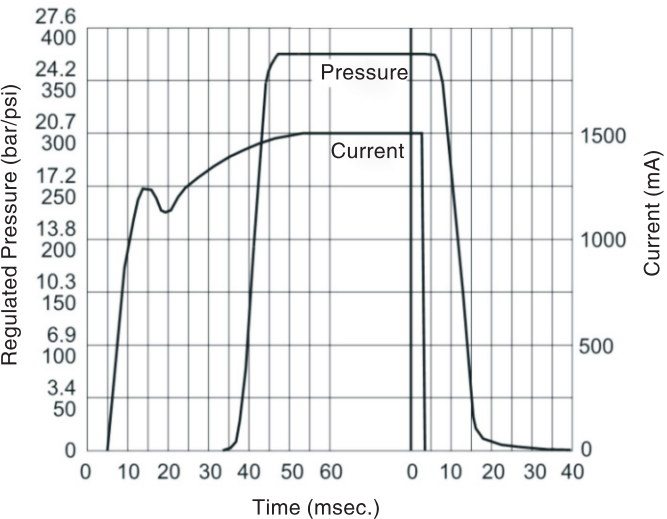
Specification performance:



Typical Frequency Response Curve  
Input Current and Regulated Pressure



Typical Step. Response Curve



HY-DBVSA-1LG Inverse-proportional Pressure Reducing Valve

Introduction



Description:  
Series HY-DBVSA-1LG. Inverse-proportional pressure-relief valves consist of a spool-type main stage and a leak-free, poppet-type pilot stage with a falling pressure/current characteristic. Thanks to the damping of the solenoid armature, these pressure-relief cartridges exhibit excellent stability over the whole pressure and flow range. In control mode, the relief pressure is inversely proportional to the change in the required value (amplifier output current).

Technical specification (For application beyond these parameters, please contact with us)

Model	HY-DBVSA-1LG
Installation position	Unrestricted
Storage temperature (°C)	-25°C to +55°C
Ambient temperature (°C)	-25°C to +50°C
Weight	0.4kg

Hydraulic specification

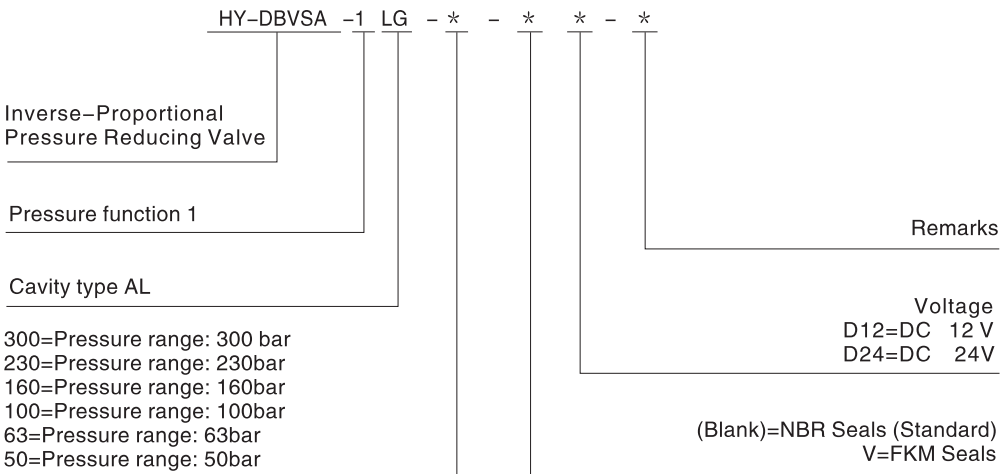
Max. Operating Pressure	Port code2	300bar
	Port code1	250bar
Max. Flow Rate	65L/min	
Nominal Pressure Ranges	50bar,63bar,100bar,160bar,230bar,300bar	
Leakage Flow Rate 2 to 1	0.1L/min(pressure range 63 bar)	
	0.15L/min(pressure range 100bar)	
	0.25L/min(pressure range 160bar)	
	0.36L/min(pressure range 230bar)	
	0.45L/min(pressure range 300bar)	
Hydraulic fluid	Mineral Oil, Phosphate-ester	
Viscosity	20~380mm <sup>2</sup> /s	
Hydraulic Fluid Temperature	-20°C~+70°C	
Cleanliness	The maximum allowable cleanliness of the oil should be according to 9 <sup>th</sup> degree of Standard NAS1638. It is suggested that the minimum filter rating should be β <sub>10</sub> ≥75.	

Electrical specification

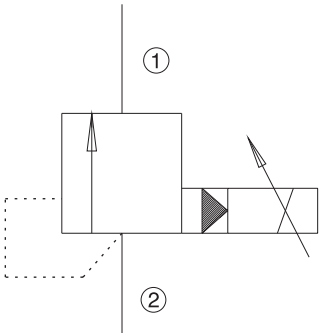
Supply Voltage	12VDC,24VDC	
Control Current	0-1400mA(12V)	
	0-760mA(24V)	
Power Consumption at Max. Control Current	19W	
Coil Resistance R	20°C	12V-5.8Ω/24V-21Ω
	Max. Warm value	12V-8.6Ω/24V-30Ω
Recommended PWM Frequency (Dither)	200HZ	
Hysteresis with PWM	2-4%	
Relative Duty Cycle	100%	
Electrical Connection	Square plug to ISO 4400/ DIN 43 650 (standard)	
Protection Class (DIN 40 050)	Ip65	

HY-DBVSA-1LG Inverse-proportional Pressure Reducing Valve

Model instruction

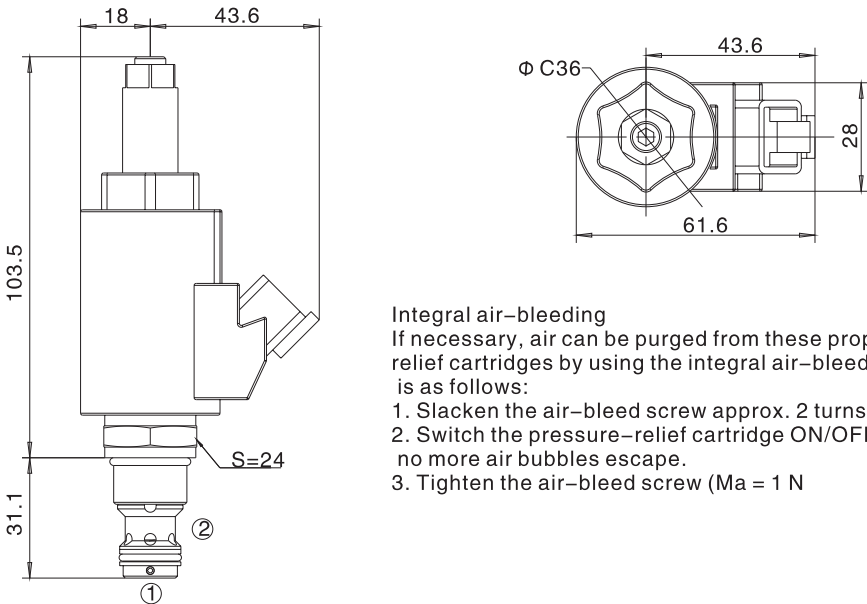


Code symbol



# HY-DBVSA-1LG Inverse-proportional Pressure Reducing Valve

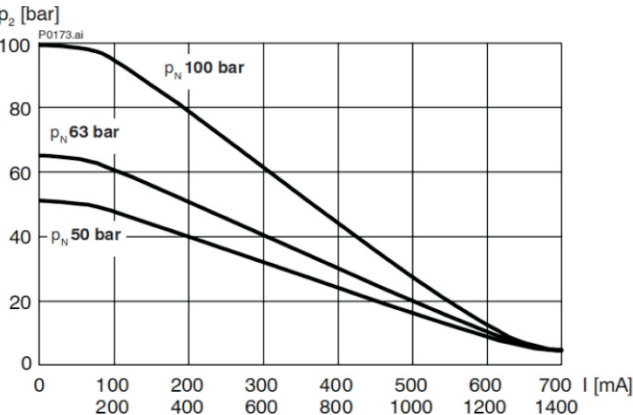
## External dimensions



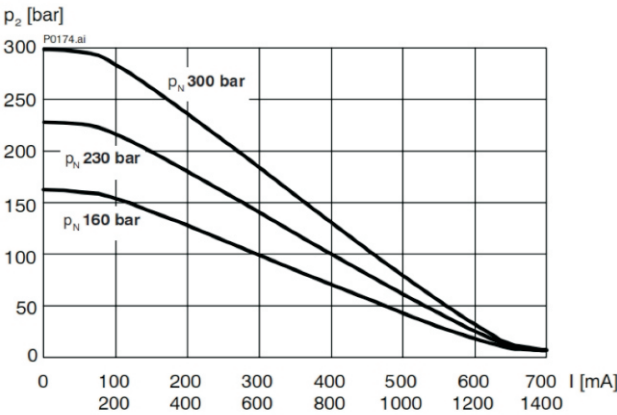
Integral air-bleeding  
If necessary, air can be purged from these proportional pressure-relief cartridges by using the integral air-bleed screw. The procedure is as follows:  
1. Slacken the air-bleed screw approx. 2 turns.  
2. Switch the pressure-relief cartridge ON/OFF several times until no more air bubbles escape.  
3. Tighten the air-bleed screw (Ma = 1 N

## Specification performance:

Specification performance (measured with HLP46 oil temperature is 40°C ± 5°C)  
Pressure Adjustment Characteristic (Q=5 l/min)

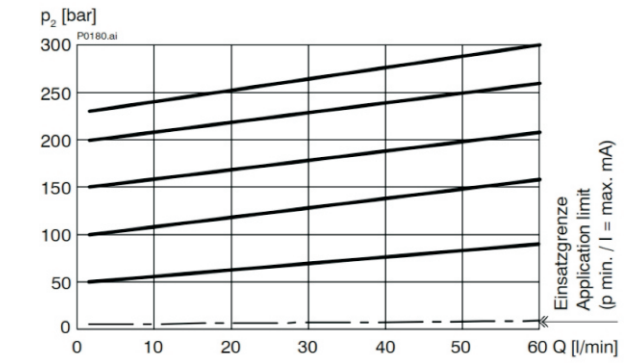
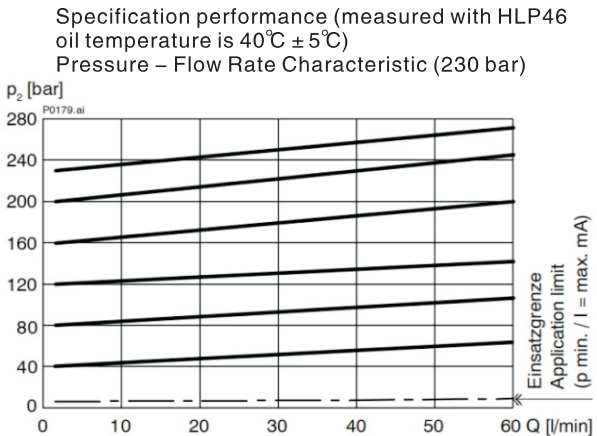
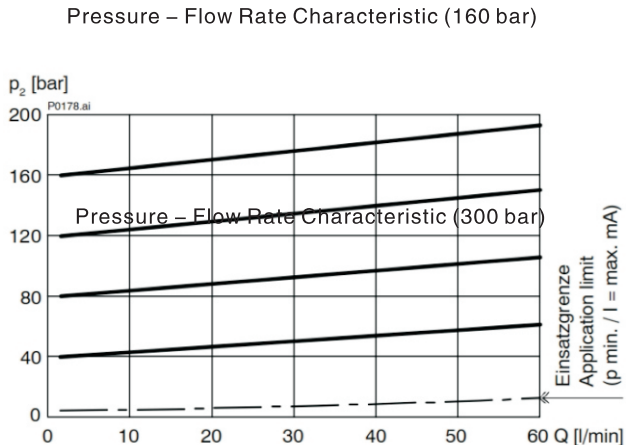
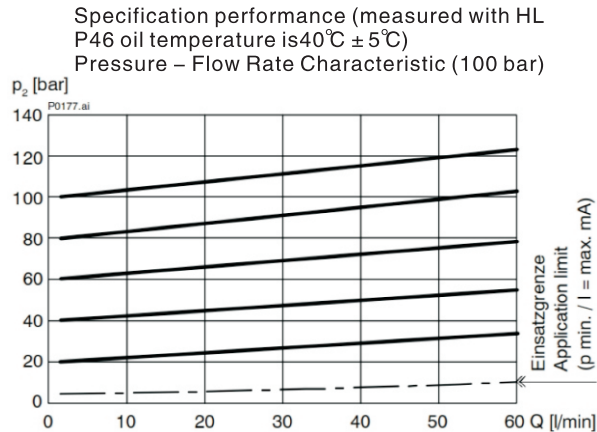
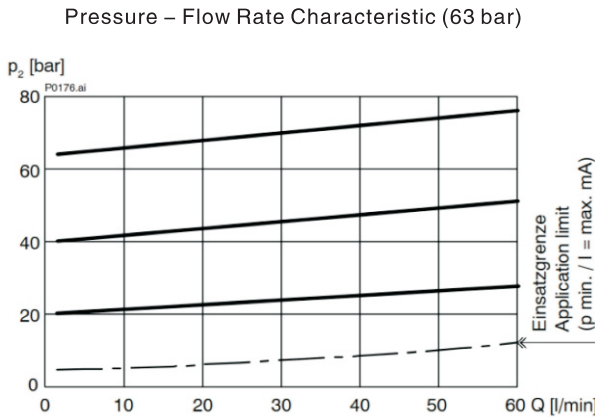
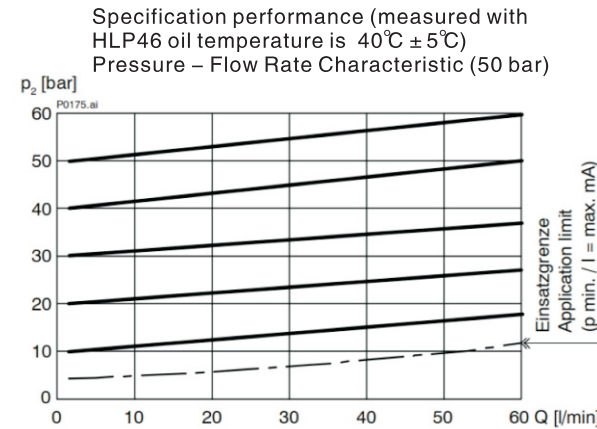


Pressure Adjustment Characteristic (Q=5 l/min)



# HY-DBVSA-1LG Inverse-proportional Pressure Reducing Valve

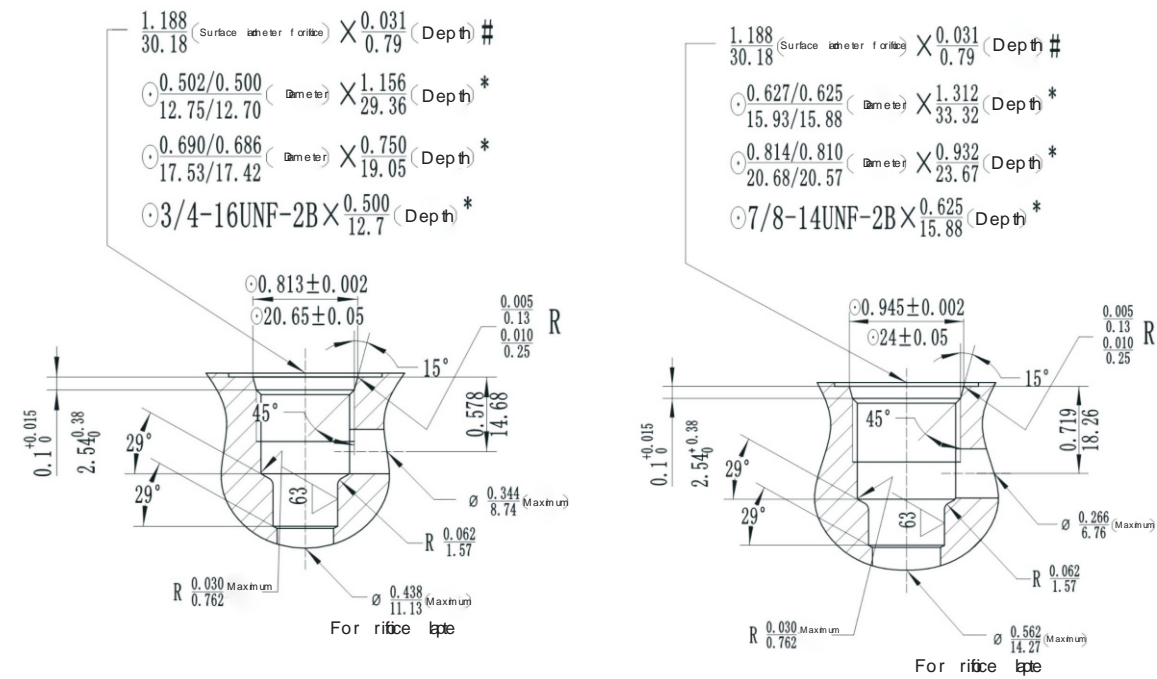
## Specification performance:





## Inverse-proportional Pressure Reducing Valve

## Dimensions

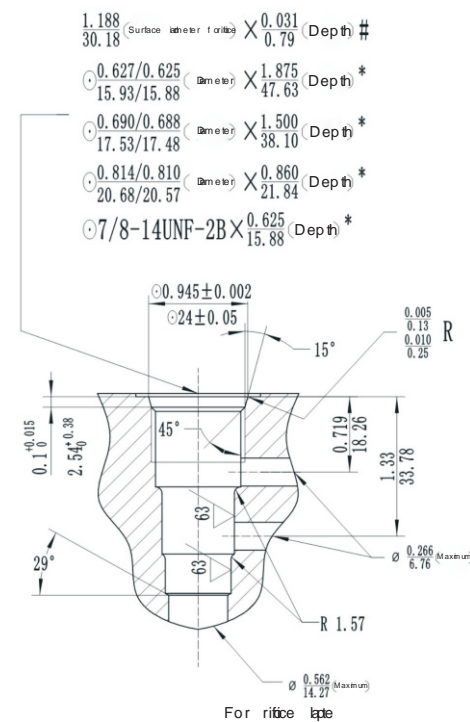


Inch	Millimetre mm
1/16	1.6
1/8	3.2
3/16	4.8
1/4	6.4
5/16	8.0
3/8	9.6
7/16	11.2
1/2	12.8
9/16	14.4
5/8	16.0
11/16	17.6
3/4	19.2
7/8	21.6
1	25.4

08-2

Inch
Millimetre mm (.)

10-2



Inch  
 \_\_\_\_\_  
 Millimetre mm (.)

10-3