

Proportional Electro-Hydraulic Relief Valves

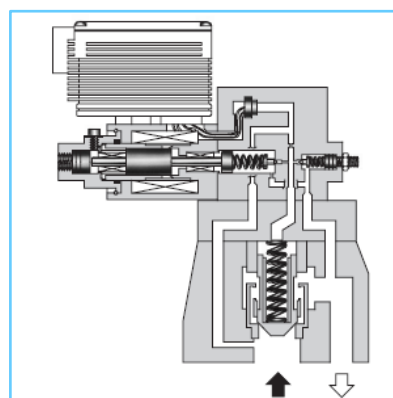
These valves, consist of a small size but high performance EH series electro-hydraulic proportional pilot relief valve and a low noise type relief valve. The valves control the system pressure proportionally through a controlled input voltage.

Specifications

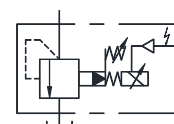
Model Number Description	EHBG-03	EHBG-06	EHBG-10
Max. Operating Pres. Kg/cm ²	250		
Max. Flow L/min.	100	200	400
Min. Flow L/min.	3		
Pres. Adj. Range	Refer to Model No. Designation		
Coil Resistance Ω	10		
Hysteresis	2% or Less(1%) ^{*1}		
Repeatability	1% or Less ^{*2}		
Frequency Response	Refer to frequency Response on page 655		
Supply Electric Power	24V DC (21 to 28V DC included Ripple)		
Power Input (Max.) W	28		
Input Signal Voltage	C: 160 Kg/cm ² / 5V DC H: 250 Kg/cm ² / 5V DC		
Input Impedance kΩ	10		
Alarm Signal Output (Open Collector)	Voltage: Max. 30V DC Current: Max. 40 mA		
Pressure Signal Output	C: 5 V DC / 160 Kg/cm ² H: 5V DC / 250 Kg/cm ²		
Ambient Temperature	0 – 50°C (With Circulated Air)		

*1 The value in () is for the closed-loop type.

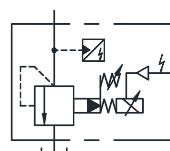
*2 The repeatability of the valve is obtained by having it tested independently on the conditions similar to its original testing.



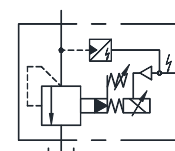
Graphic Symbols



Open-Loop Type



Open-Loop Type
With Sensor



Closed-Loop Type

Model Number Designation

F-	EHB	-G	-03	-C	-S	-50
Special Seals	Series Number	Type of Mounting	Valve Size	Pressure Adj. Range Kg/cm ²	Control Type	Design Number
F: Special Seals for Phosphate Ester Type Fluid (Omit if not required)	EHB: Proportional Electro-Hydraulic Relief Valve	G: Sub-Plate Mounting	03	C: ★ ~ 160 H: ★ ~ 250	None: Open Loop	50
			06		S: Open-Loop with Sensor	
			10		L: Closed-Loop	

Note: For the lower limits of the adjustable pressure shown with an mark (★), See the minimum adjustable pressure characteristics on page 652.

Mounting Bolts

Model Number	Socket head cap Screw	Qty	Bolt Kit Model Number
EHBG-03	M12 x 40Lg.	4	BKEHBG-03-50
EHBG-06	M16 x 50Lg.		BKEHBG-06-50
EHBG-10	M20 x 60Lg.		BKEHBG-10-50

Sub-Plate

Sl. No.	Model Number	Sub-Plate Model Numbers	Thread size	Mass Kg.
1	EHBG-03	BGM-03-3080	3/8 BSP.F	2.4
		BGM-03X-3080	1/2 BSP.F	3.1
2	EHBG-06	BGM-06-3080	3/4 BSP.F	4.7
		BGM-06X-3080	1 BSP.F	5.7
3	EHBG-10	BGM-10-3080	1 1/4 BSP.F	8.4
		BGM-10X-3080	1 1/2 BSP.F	10.3

- Sub-plates are available. Specify sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.
- For Sub-plates details please refer page no. 272.

Instructions

Safety Valve

At shipment, the pressure of safety valve is set to the upper limits of the adjustable pressure ranges plus the extra as shown below

Sl. No.	Model Number	Extra Pressure to be added at shipment Kgf/cm ²
1	EHBG-03	15 (at 50 L/min.)
2	EHBG-06	15 (at 100 L/min.)
3	EHBG-10	25 (at 200 L/min.)

If the operating pressure upper limit is low or a different flow rate upper limit is used, make adjustment after calculating the safety valve pressure setting from the following equation;

Pressure Setting = (Operating pressure upper limit) + (Additional pressure indicated below)

To lower the pressure setting, turn the safety valve pressure adjustment screw anti clock wise. After adjustment, be sure to tighten the lock nut

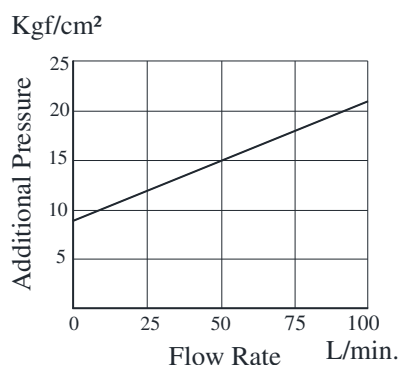
Piping to the Reservoir

The tank port should be connected directly to the reservoir. Be sure the end of pipe is dipped in to the oil in the reservoir.

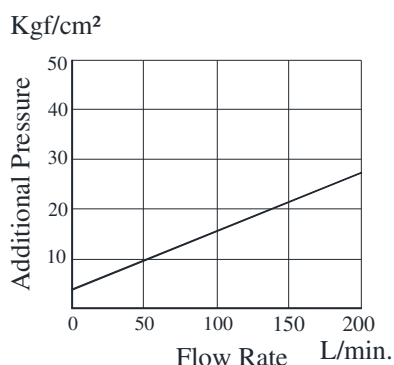
Low Flow Rate

A flow rate of 3 L/min. or higher should be used to avoid preselected pressure instability.

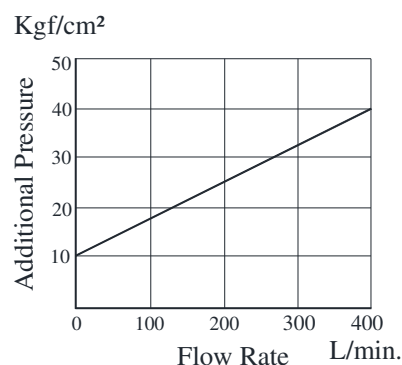
EHBG-03



EHBG-06



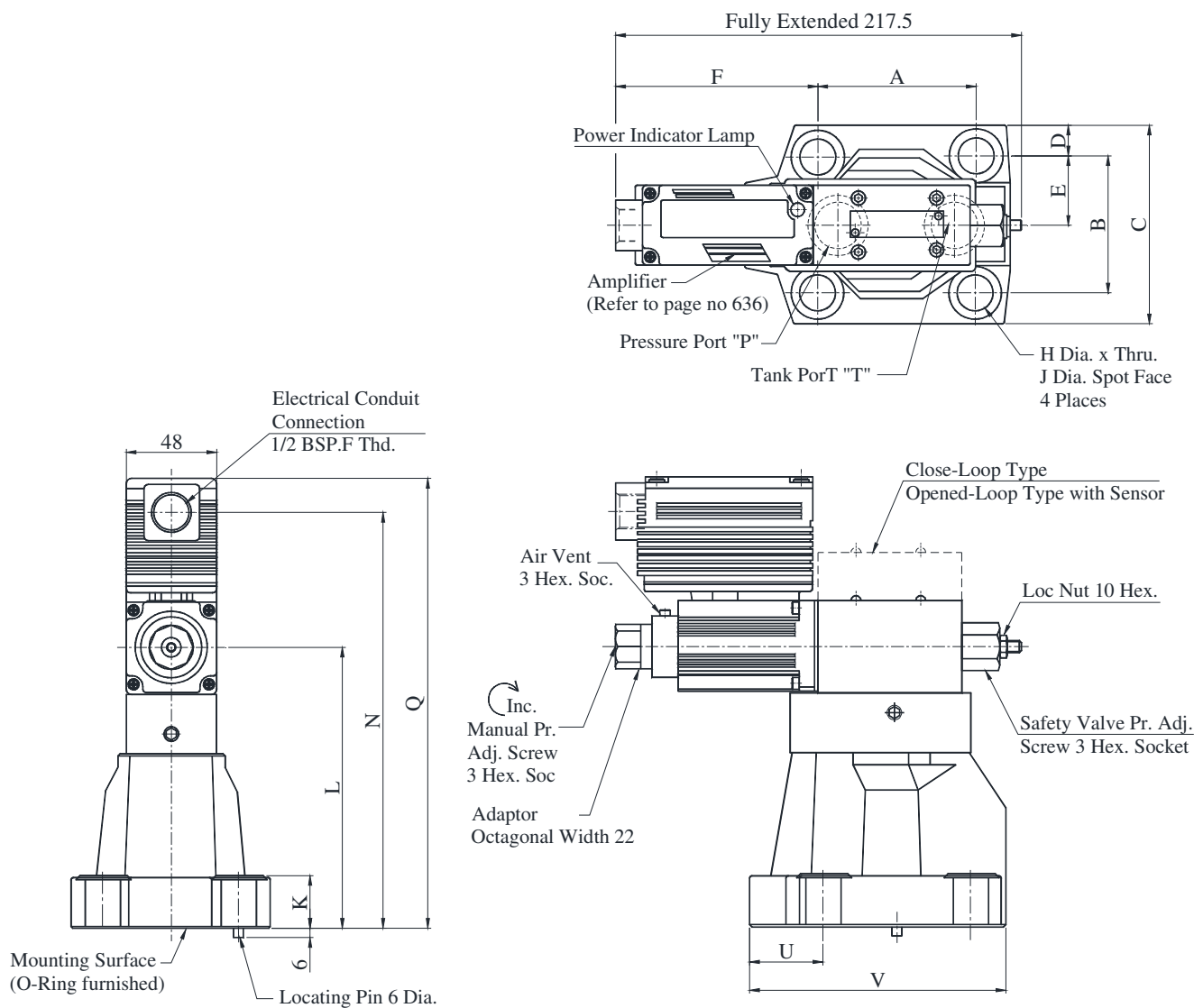
EHBG-10



- **EHBG-03/06/10-※-50** : (Open-Loop Type)
- **EHBG-03/06/10-※-S-50** : (Open-Loop Type with Sensor)
- **EHBG-03/06/10-※-L-50** : (Closed-Loop Type)

**DIMENSIONS IN
MILLIMETRES**

Sl. No.	Model Number	Mass Kg.	
		Open-Loop Type	Closed-Loop Type with Sensor Closed Loop Type
1	EHBG-03	5.6	6.3
2	EHBG-06	6.8	7.5
3	EHBG-10	10.5	11.2



Model Number	A	B	C	D	E	F	H	J	K
EHBG-03	53.8	53.8	76	11.1	26.9	119.1	13.5	21	21.5
EHBG-06	66.7	70	98	14	35	121	17.5	26	26
EHBG-10	88.9	82.6	120	18.7	41.3	102.5	21.5	32	33.5

Model Number	L	N	Q	U	V	Mounting Surface
EHBG-03	130	202	220	26.1	106	ISO-6264-AR-06-2-A
EHBG-06	130	202	220	36	122	ISO-6264-AS-06-2-A
EHBG-10	166	238	256	45	155	ISO-6264-AT-06-2-A

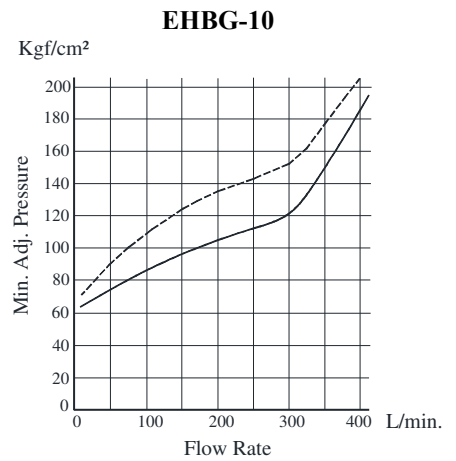
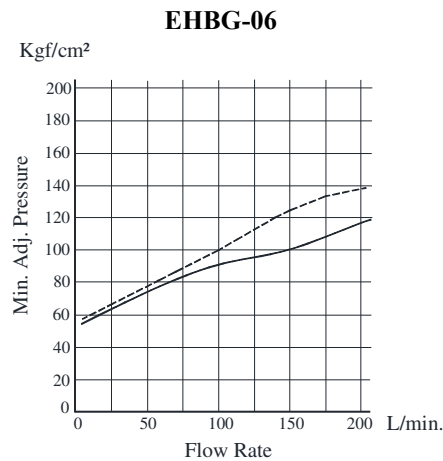
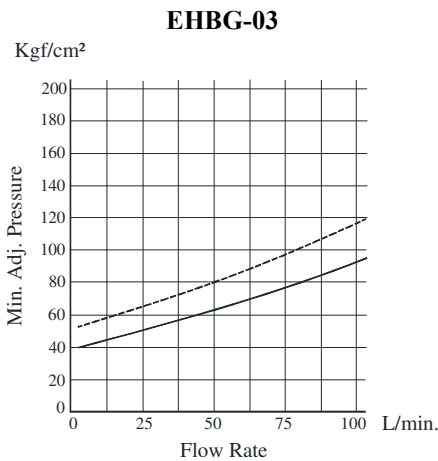
EH Series

Proportional Electro-Hydraulic Relief Valves

Minimum Adjustment Pressure

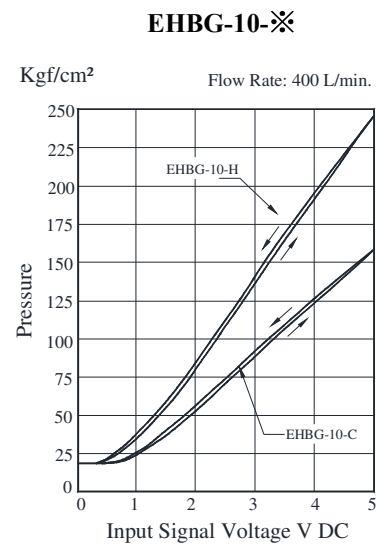
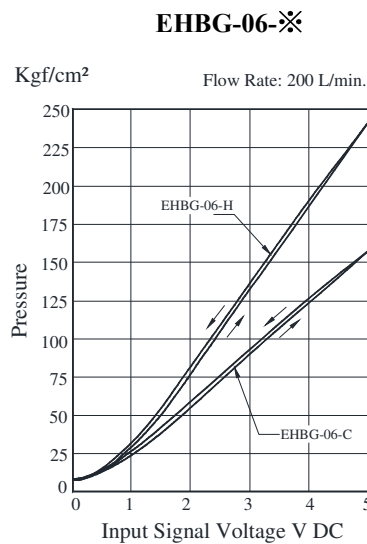
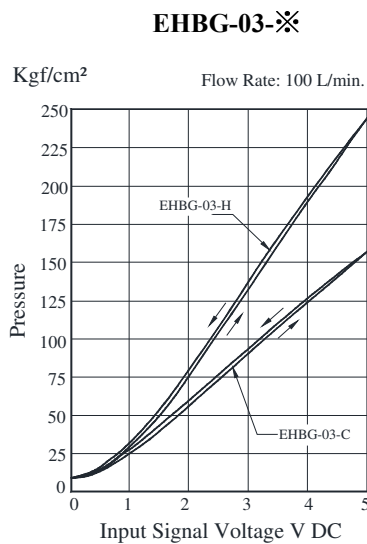
—— Open Loop Type
 ----- Closed Loop Type

Viscosity : 30 cSt

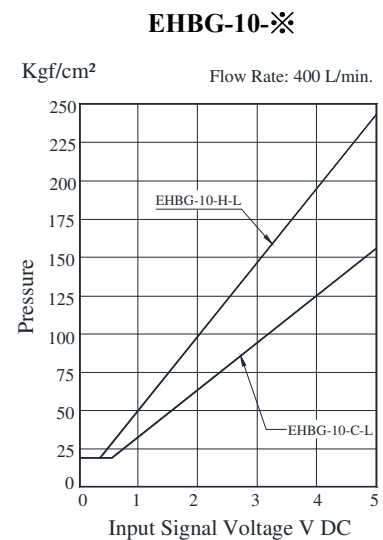
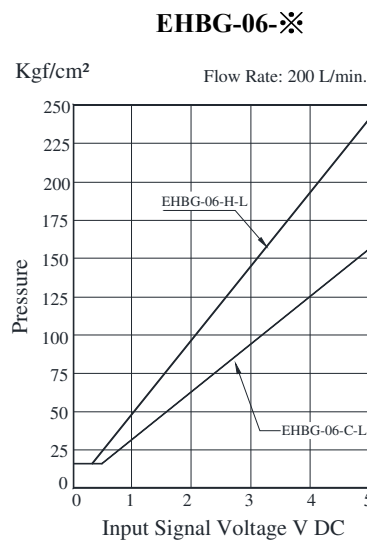
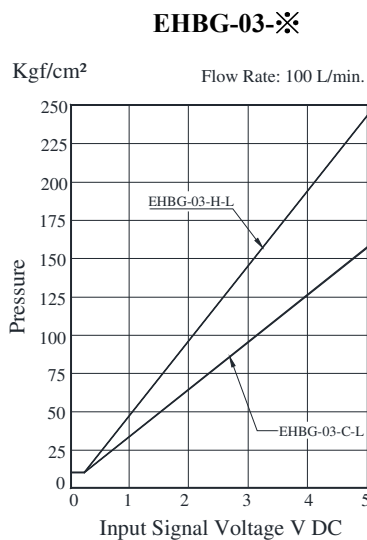


Input Signal Voltage Vs. Pressure

● **Open Loop Type**



● **Close Loop Type**



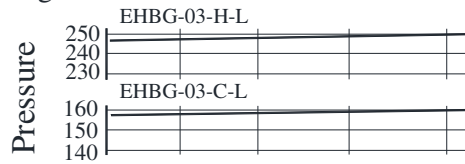
Flow Rate Vs. Pressure

Viscosity : 30 cSt

EHBG-03

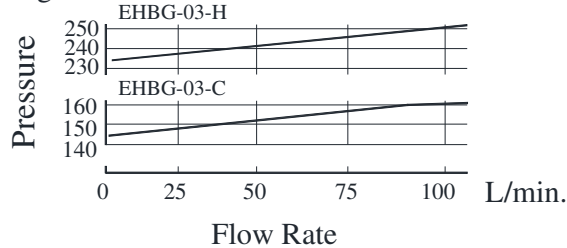
● Closed Loop Type

Kgf/cm²



● Open Loop Type

Kgf/cm²



EHBG-06

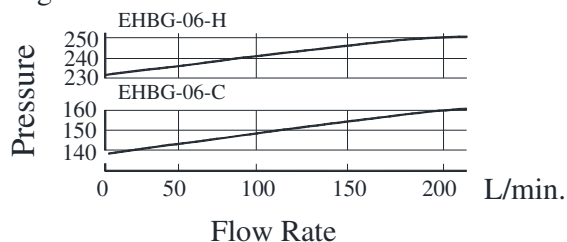
● Closed Loop Type

Kgf/cm²



● Open Loop Type

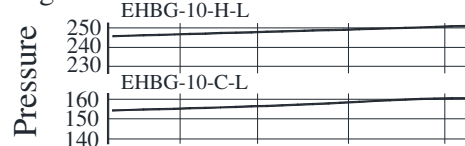
Kgf/cm²



EHBG-10

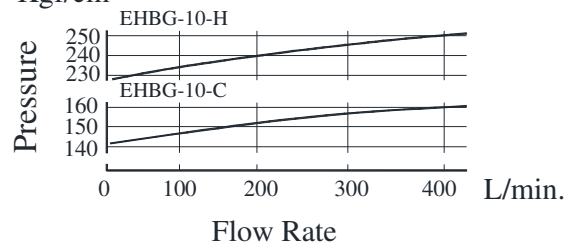
● Closed Loop Type

Kgf/cm²



● Open Loop Type

Kgf/cm²

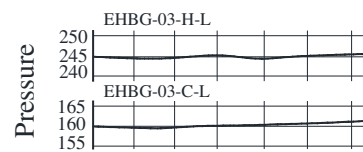


Flow Rate Vs. Pressure

EHBG-03 Flow Rate : 100 L/min.

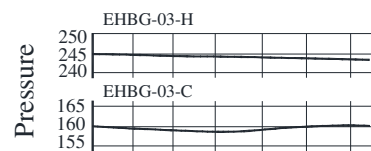
● Closed Loop Type

Kgf/cm²



● Open Loop Type

Kgf/cm²

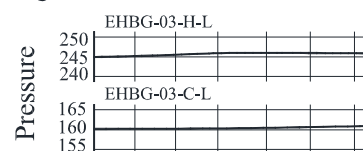


Temperature 30 35 40 45 50 55 60 °C
Viscosity 68 44 30 21 cSt

EHBG-06

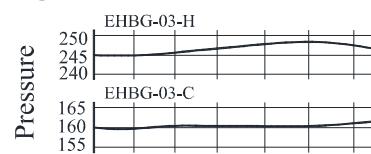
● Closed Loop Type

Kgf/cm²



● Open Loop Type

Kgf/cm²

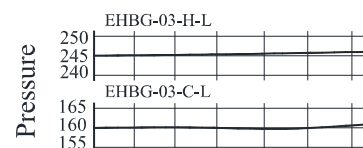


Temperature 30 35 40 45 50 55 60 °C
Viscosity 68 44 30 21 cSt

EHBG-10 Flow Rate : 400 L/min.

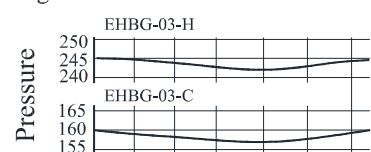
● Closed Loop Type

Kgf/cm²



● Open Loop Type

Kgf/cm²



Temperature 30 35 40 45 50 55 60 °C
Viscosity 68 44 30 21 cSt

Step Response (Example)

The step responses below are those obtained when the valve it-self is tested independently.

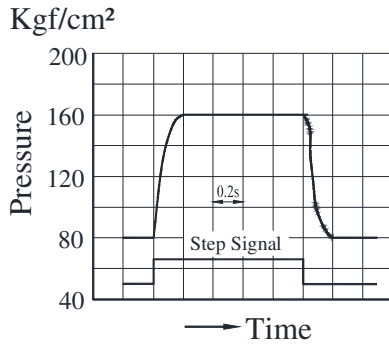
The step responses may differ from when the valve is used in combinations with other control valves.

Trapped Oil Volume : 1 L
Viscosity : 30 cSt

Open Loop Type

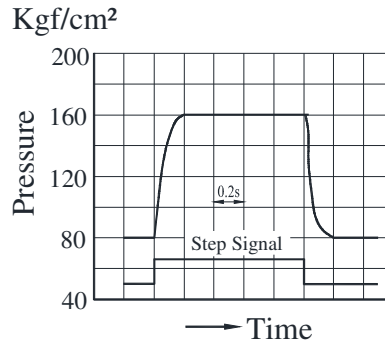
Flow Rate : 100 L/min.

EHBG-03-C



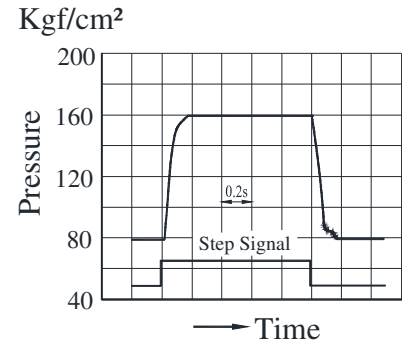
Flow Rate : 200 L/min.

EHBG-06-C

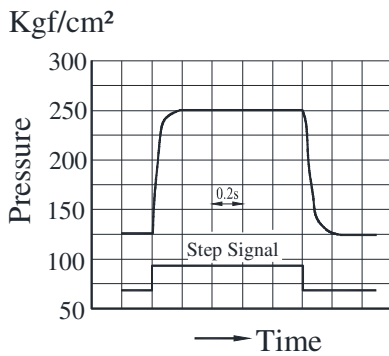


Flow Rate : 400 L/min.

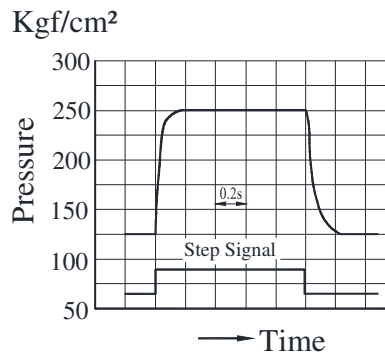
EHBG-10-C



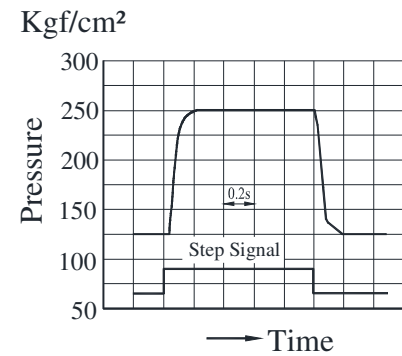
EHBG-03-H



EHBG-06-H



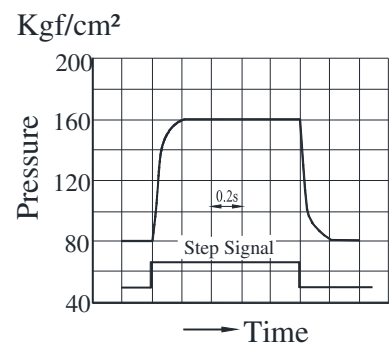
EHBG-10-H



Closed pen Loop Type

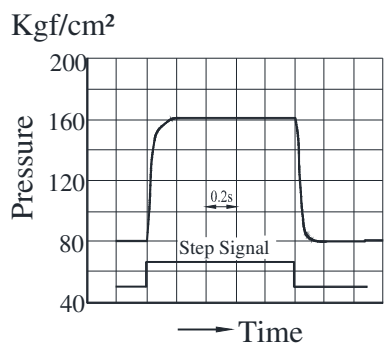
Flow Rate : 100 L/min.

EHBG-03-C-L



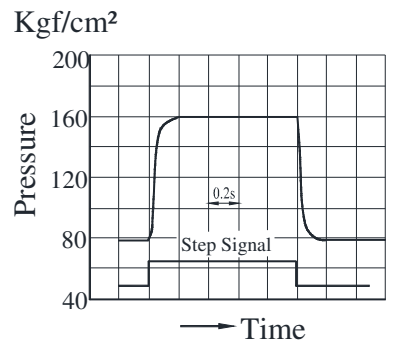
Flow Rate : 200 L/min.

EHBG-06-C-L

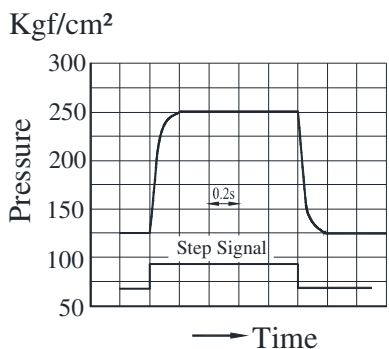


Flow Rate : 400 L/min.

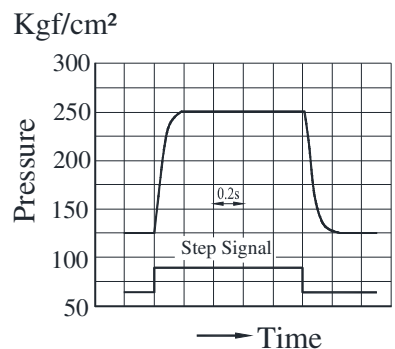
EHBG-10-C-L



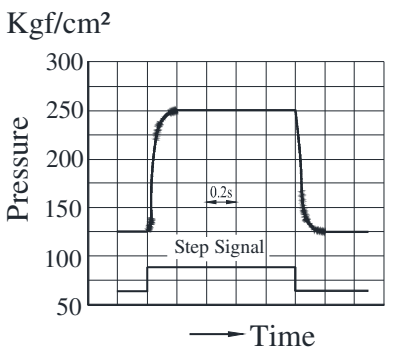
EHBG-03-H-L



EHBG-06-H-L



EHBG-10-H-L



EH Series

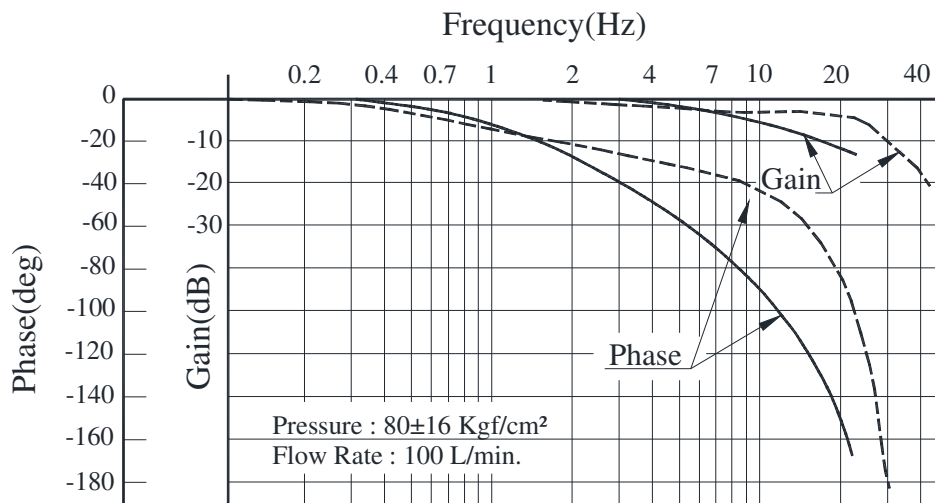
Proportional Electro-Hydraulic Relief Valves

Frequency Response

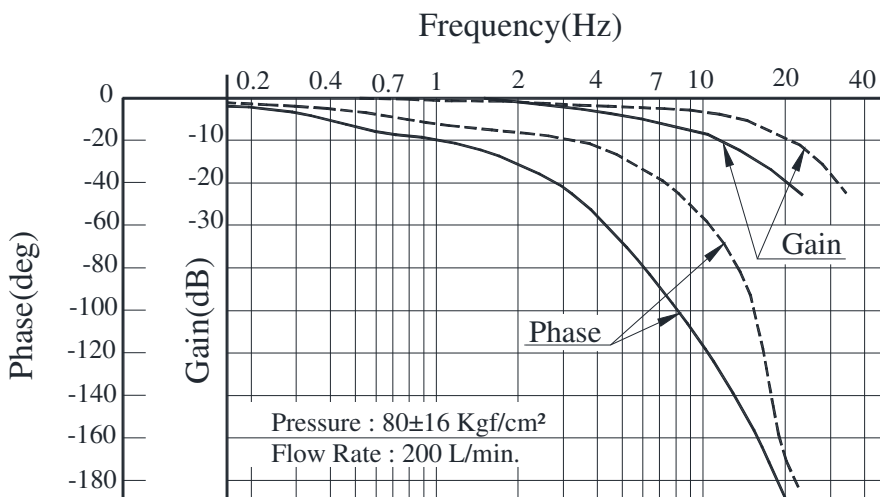
— Open Loop Type
 - - - Closed Loop Type

Trapped Oil Volume : 1 L
 Viscosity : 30 cSt

● **EHBG-03**



● **EHBG-06**



● **EHBG-10**

