

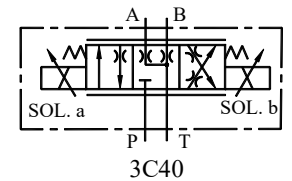
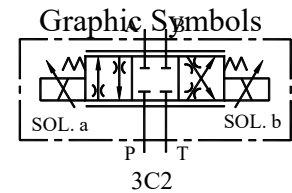
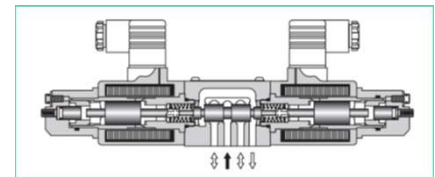
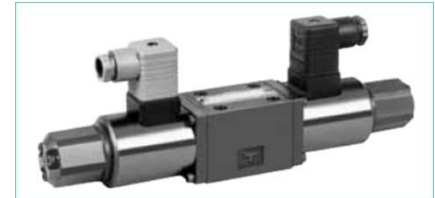
Shockless Type Proportional Electro-Hydraulic Directional and Flow Control Valves

These valves are well accepted by industrial users as shifting time adjustable type shockless valves. By employing the basic design concept of the “G series solenoid operated directional valves”, we have been successful developing the shifting time adjustable shockless valves with high performance which makes the speed setting possible at any high speed operation.

In combination with the newly developed digital amplifiers, the further enhancement of maneuverability and repeatability of the valves can be realized.

Specifications

Model No.		EDFG-01
Description		
Max. Operating Pressure	Kgf/cm ²	250
Max. Flow	L/min	30
Max. Tank Line Back Pressure	Kgf/cm ²	140
Rated Current	mA	1100
Coil Resistance	Ω	10.8
Hysteresis		5% or Less
Repeatability		1% or Less
Step Response (Typical Rating) 0 ↔ 100%		100ms or less
Frequency Response	Phase	20Hz(-90 Degrees)
	Gain	25 Hz (-3dB)
Approx. Mass	Kg.	2.4



Model Number Designation

F-	EDF	G	-01	-30	-3C2	-XY	-50
Special Seals**	Series Number	Type of Mounting	Valve Size	Rated Flow L/min	Spool Type	Direction of Flow	Design Number
F: Special Seals for Phosphate Ester Type Fluid (Omit if not required)	EDF: Shockless Type Proportional Directional and Flow Control Valve	G: Sub-Plate Mounting	01	30	3C2 3C40 	XY: Metre – In Metre - Out	50

** Before ordering the Special seals, consult YUKEN representative

Attachment

Mounting Bolts

Model Number	Socket Head Cap Screw	Qty.
EDFG-01	M5 x 45 Lg.	4

Sub-Plate

Model Number	Sub-Plate Model Number	Thread Size	Approx. Mass kg
EDFG-01	DSGM-01-3180	1/8 BSP.F	0.8
	DSGM-01X-3180	1/4 BSP.F	

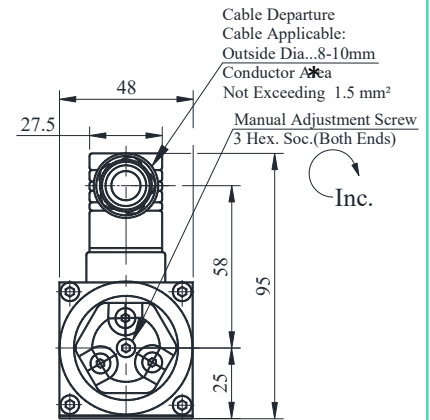
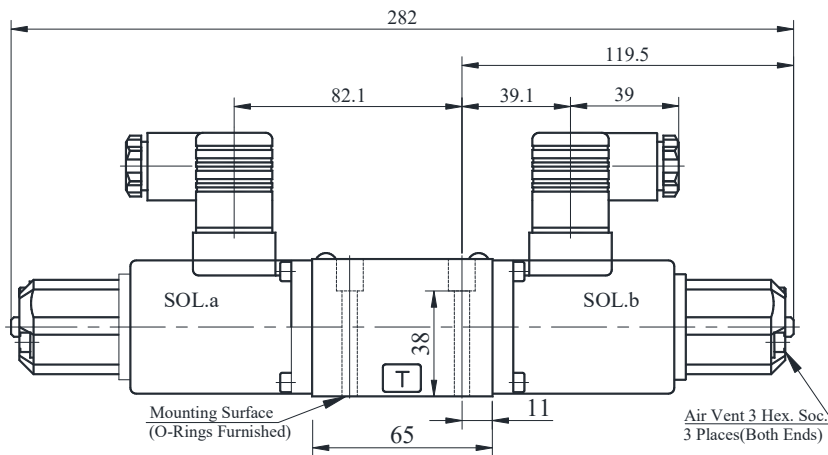
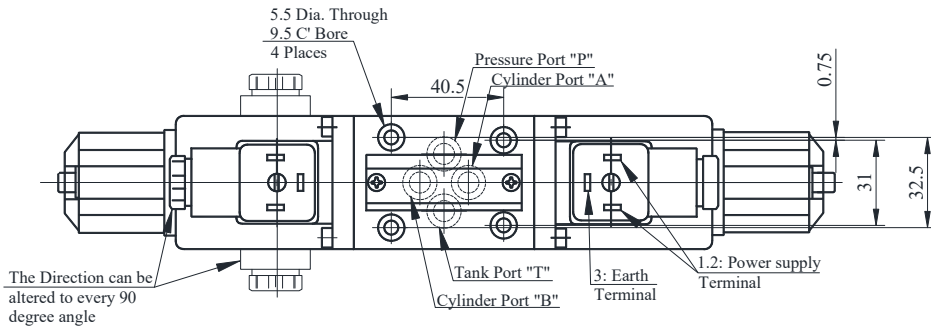
- Sub plates are available. Specify the sub plate model number from the table. When sub plates are not used, the mounting surface should have a good machined finish.
- Sub plates are same as those for 1/8 solenoid operated directional valves conforming to ISO 4401-AB-03-4-A mounting

Applicable Power Amplifiers

For stable Performance, it is recommended that YUKEN's applicable power amplifiers be used.
 Model Numbers:AMN-G-10, AMN-W-10

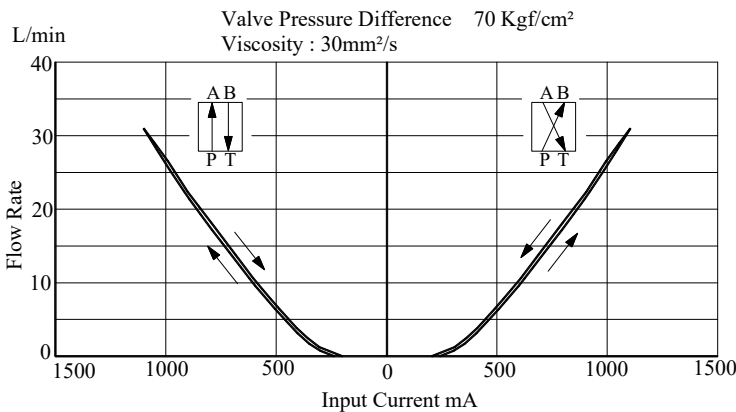
EDFG-01-30-3C※ -XY-50

DIMENSIONS IN MILLIMETRES

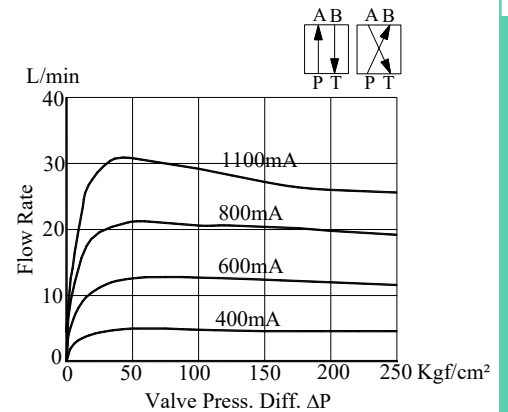


* Under normal conditions, however, this screw must be in its original position

Input Current vs. Flow



Valve Pressure Difference vs. Flow



Spare Parts List

● **List of Seals**

Note: When Ordering the seals, please specify the seal kit numbers from the table below.

Item	Name of Parts	Part Numbers	Qty.	Remarks
1	O-Ring	SO-NB-P9	4	Included in Seal Kit Kit No: KS-EDFG-01-50
2	O-Ring	SO-NB-P22	2	
3	O-Ring	SO-NB-P7	2	
4	Fastener Seal	SG-FCF-4	6	
5	O-Ring	SO-NB-P18	2	

● **Solenoid Assy.**

Valve Model Numbers	Solenoid Assy.	Qty.
EDFG-01-30-※-XY-50	E318-Y05M2-28-61	2

Note: The connector assembly GDM-211-B-11 is not included in the solenoid assembly.

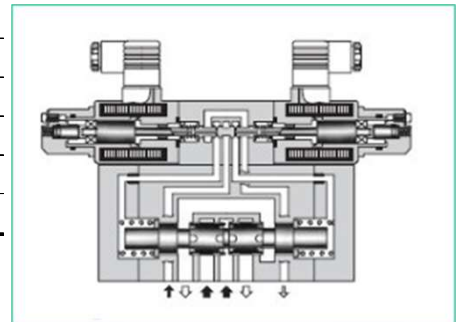
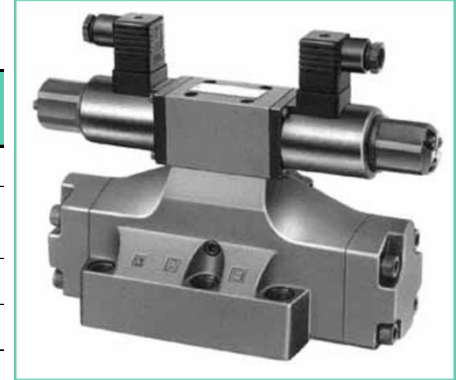
Proportional Electro-Hydraulic Directional and Flow Control Valves

These valves are double-deck directional and flow control valves employing as their pilot the electro-hydraulic proportional pressure reducing valves with two proportional solenoids. The flow rate can be controlled by changing an input current to the solenoids and the direction of the flow can be controlled by providing the current to either solenoid of the two.

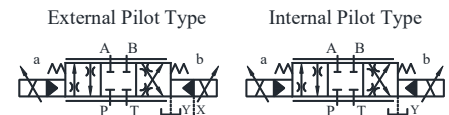
By combining the valves with the power amplifiers specially designed for the valves, the speed control, acceleration, deceleration and directional control can be done with a single valve, which eventually makes the hydraulic circuits simple and contributes to reduction in the cost of the hydraulic systems.

Specification

Model Numbers		EDFHG-03	EDFHG-04	EDFHG-06
Description				
Max. Operating Pressure		Kgf/cm ² 250		
Rated Flow		100	140	280
[Valve ΔP : 150 Kgf/cm ²]				
Pilot Pressure *1		Kgf/cm ² 15 ~ 160 *1		
Pilot Flow	at Normal	L/min. 1		
	at Transition	3	4	6
Max. Tank Line Pres.		160	210	
Max. Drain Line Pres.		Kgf/cm ² 30 *2		
Rated Current		800 mA	980 mA	900 mA
Coil resistance		10 Ω		
Hysteresis		5% or less *3		
Repeatability		1% or less *3		
Approx. Mass		11	12	15
		Kg.		



Graphic Symbols



- *1. Take care to keep the difference between the pilot pressure and drain port back pressure consistently greater than 15 Kgf/cm².
- *2. To obtain stable performance, keep the drain port back pressure low and minimize its fluctuations.
- *3. The hysteresis and repeatability values indicated in the specifications for each control valve are determined under the following conditions.

- Hysteresis value : obtained when YUKEN's applicable power amplifier is used.
- Repeatability Value : obtained when YUKEN's applicable power amplifier is used under the same conditions..

Model Number Designation

F-	EDFH	G	-03	-100	-3C2	-XY	-E	-10
Special Seals**	Series Number	Type of Mounting	Valve Size	Rated Flow L/min.	Spool	Direction of Flow	Pilot Connection	Design Number
F: Special Seals for Phosphate Ester Type Fluid (Omit if not required)	EDFH: Proportional Electro-Hydraulic Directional and Flow Control Valves	G: Sub-Plate Mounting	03	100 : 100	3C2 	XY: Metre-out Metre-in	None: Internal Pilot	31
			04	140 : 140				
			06	280 : 280				
					3C40 	E: External Pilot		

** Before ordering the Special seals, consult YUKEN representative

Sub-Plate

Sl. No.	Model Number	Sub-Plate Model Numbers	Thread size	Mass Kg.
1	EDFHG-03	DHGM-03Y-1080	3/4 BSP.F	4.7
2	EDFHG-04	DHGM-04-2080	1/2 BSP.F	4.4
		DHGM-04X-2080	3/4 BSP.F	4.1
3	EDFHG-06	DHGM-06-5080	3/4 BSP.F	7.4
		DHGM-06X-5080	1 BSP .F	

- Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.
- The sub-plates are same as those used for solenoid controlled pilot operated directional valves conforming to ISO 4401-AC-05-4-A, ISO 4401-AD-07-4-A, ISO 4401-AE-08-4-A

Mounting Bolts

Model Number	Socket head cap Screw	Qty	Bolt Kit Model Number
EDFHG-03	M6 x 35 Lg.	4	BKEDFHG-03-31
EDFHG-04	M6 x 45 Lg.	2	BKEDFHG-04-31
	M10 x 50 Lg.	4	
EDFHG-06	M12 x 60 Lg.	6	BKEDFHG-06-31

Applicable Power Amplifiers

For stable performance, it is recommended that YUKEN's applicable power amplifiers be used.

Model Number: SK1091-D24-10

Instructions

Manual Adjustment

In the event of an electric fault or emergency, a manual shift can be made by screwing in the manual adjustment screw. Take care, however, that this manual shift has no flows adjusting function.

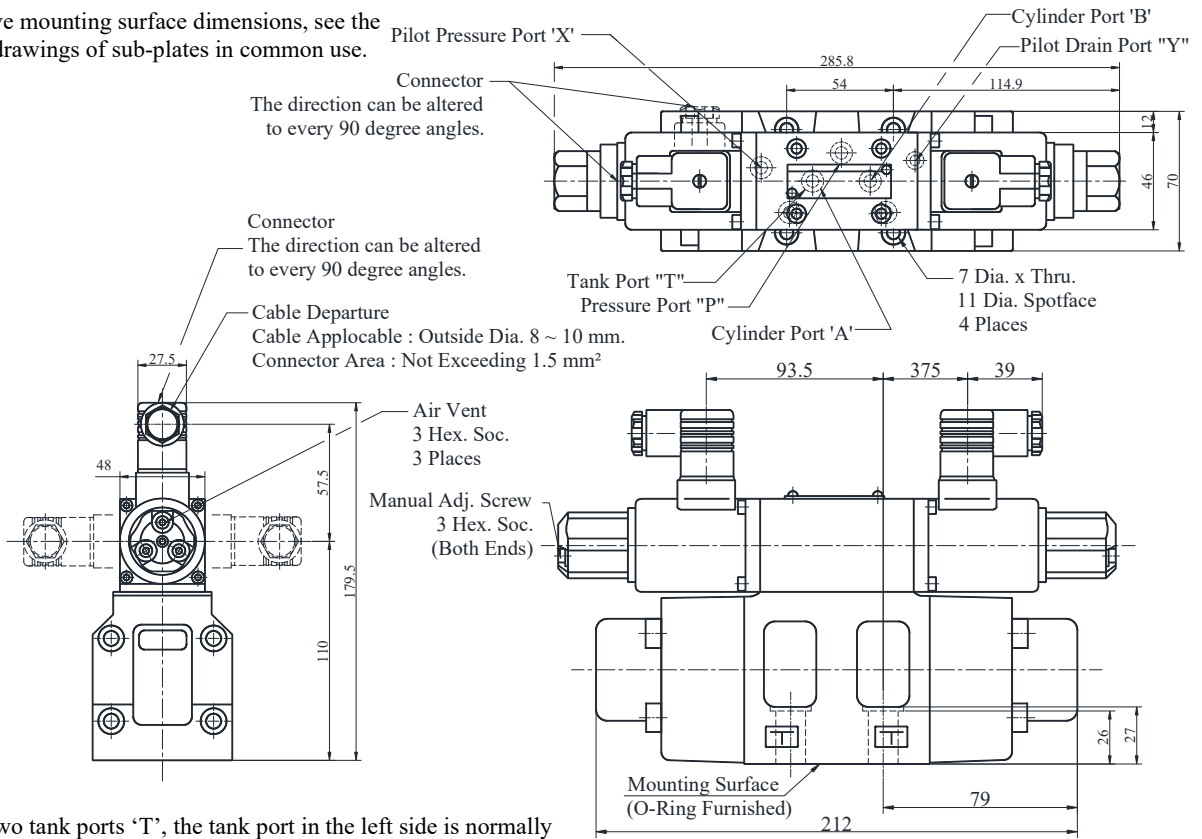
For this operation, set the pilot pressure (or P-PORT pressure on an internal pilot model) below 70 Kgf/cm².

After operation, be sure to return the manual adjustment screw completely to the original position.

EDFHG-03-100-3C※-XY-※-31

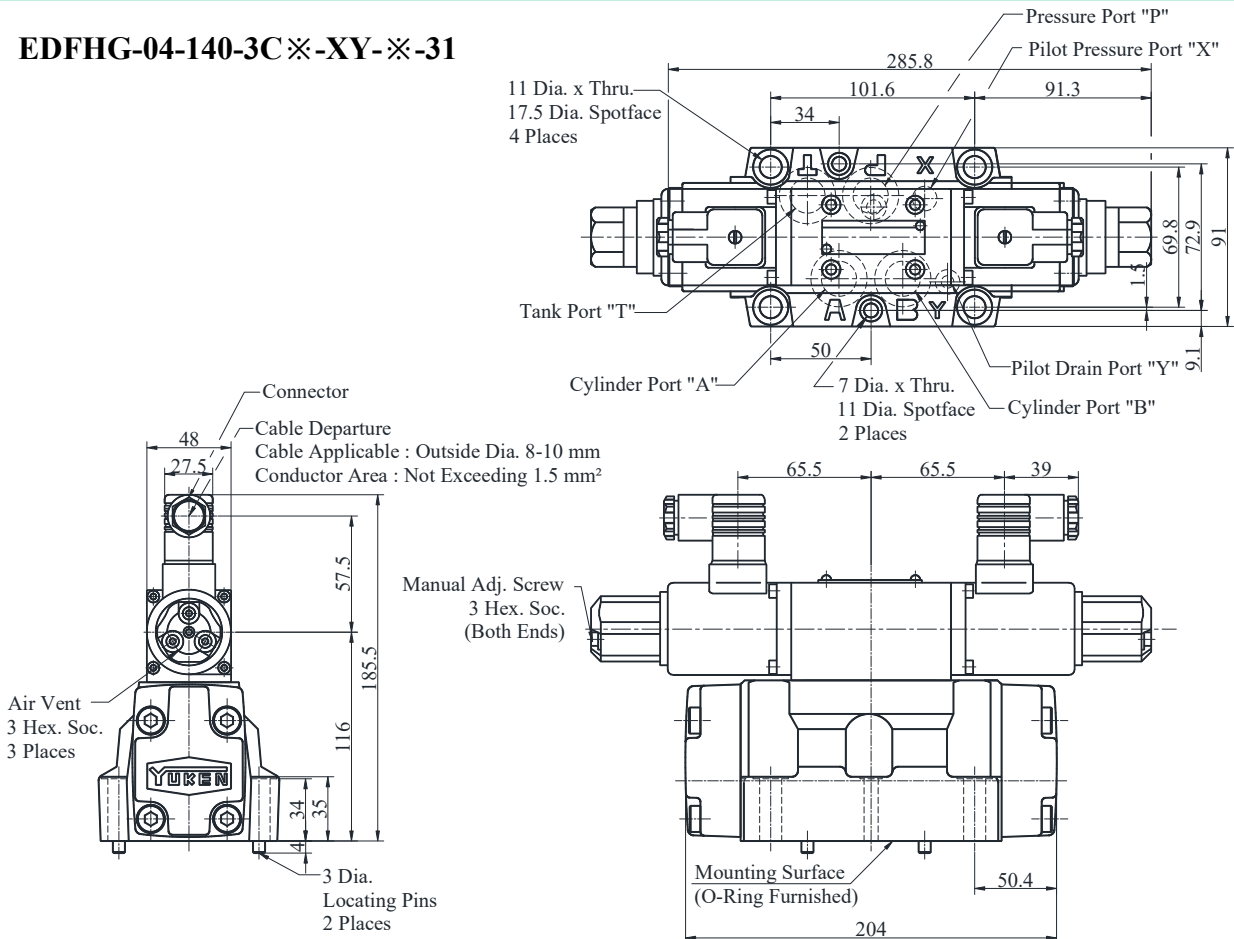
DIMENSIONS IN MILLIMETRES

Note: for valve mounting surface dimensions, see the dimensional drawings of sub-plates in common use.



★ Of the two tank ports 'T', the tank port in the left side is normally used in our standard sub-plate, through, either side of the tank port 'T' can be used without problem.

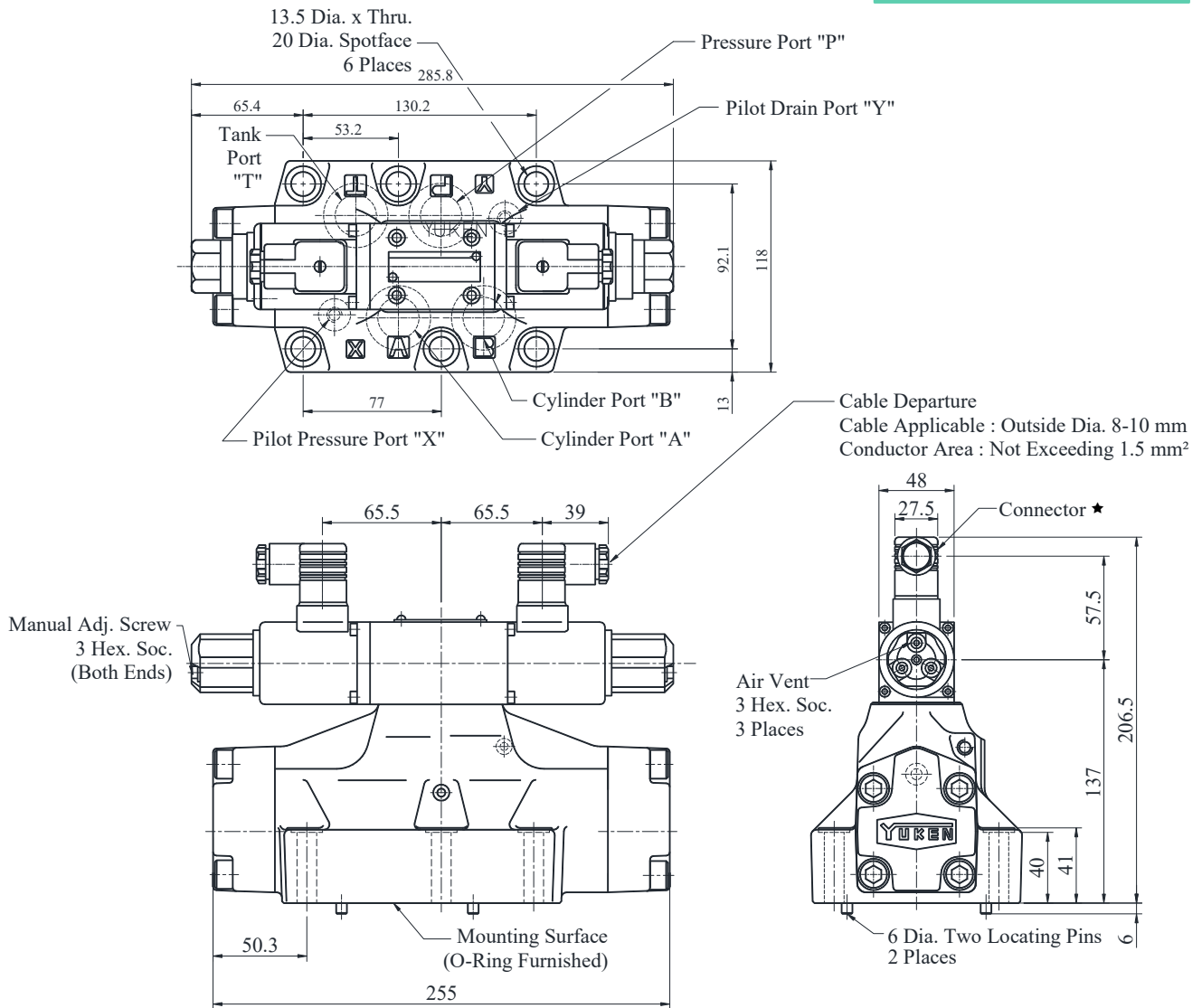
EDFHG-04-140-3C※-XY-※-31



E Series
Proportional Electro-Hydraulic High Response Type
Directional and Flow Control Valve

EDFHG-06-280-3C※-XY-※-31

DIMENSIONS IN MILLIMETRES



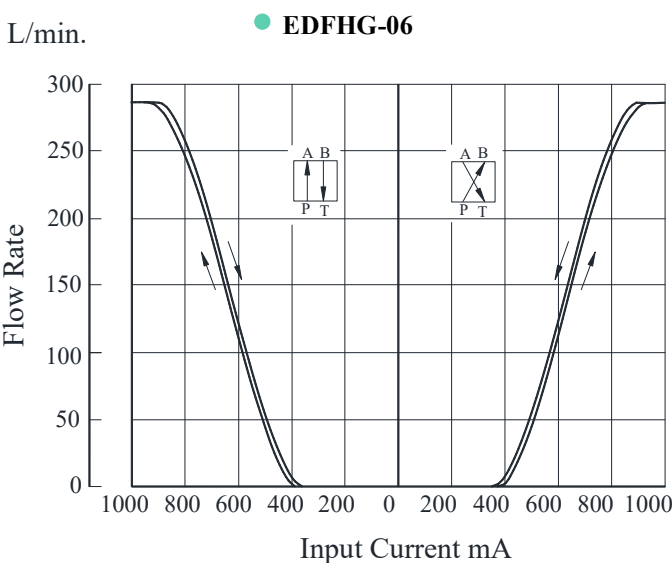
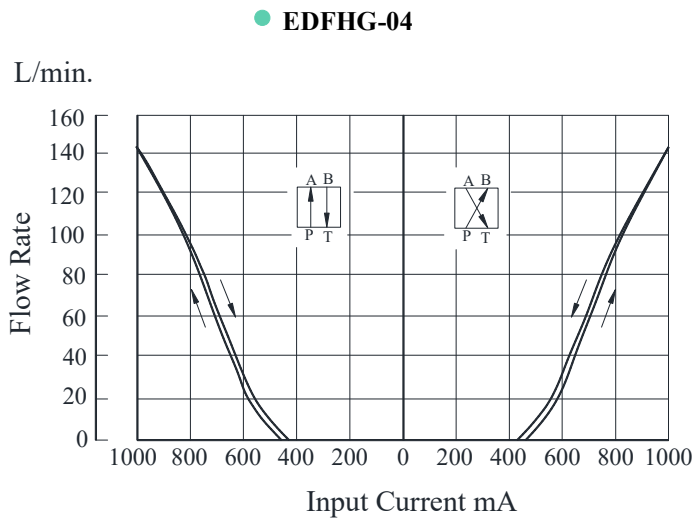
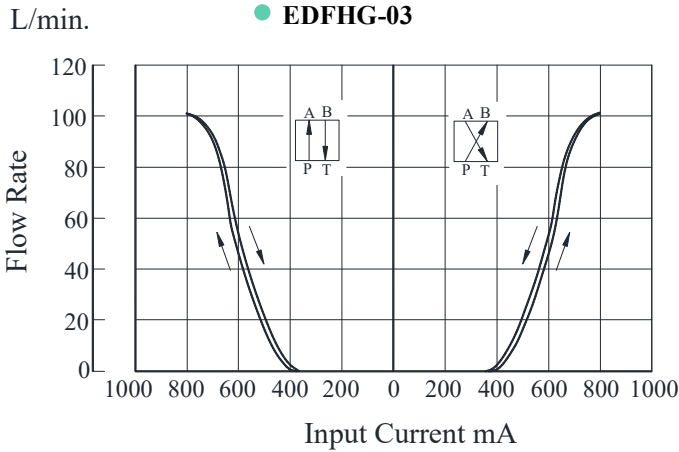
★ Position of cable departure can be changed. For details, refer to the mounting detail of the EDFHG-03 valve

Note: For valve mounting surface dimensions, see the dimensional drawings of sub-plates in common use.

Input Current vs. Flow

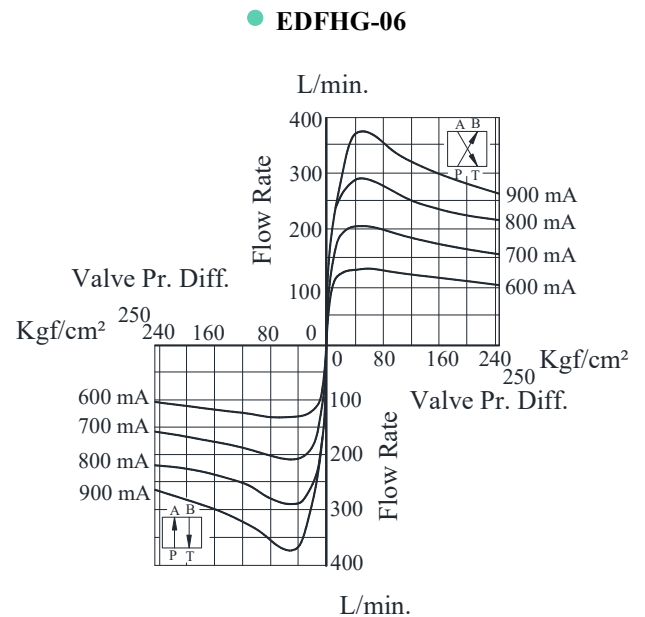
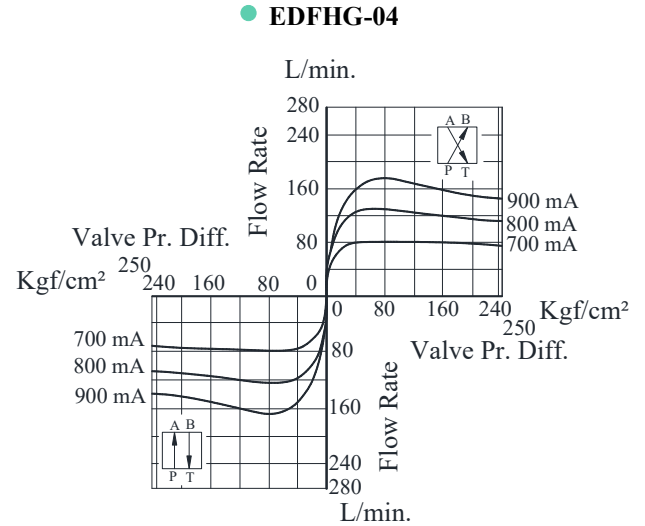
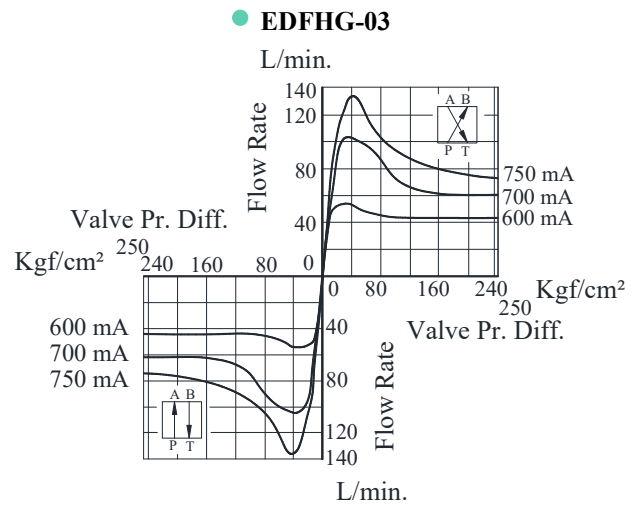
Viscosity : 30 cSt

Valve Pres. Diff. : P→A (B), B (A) → T 10 Kg/cm²



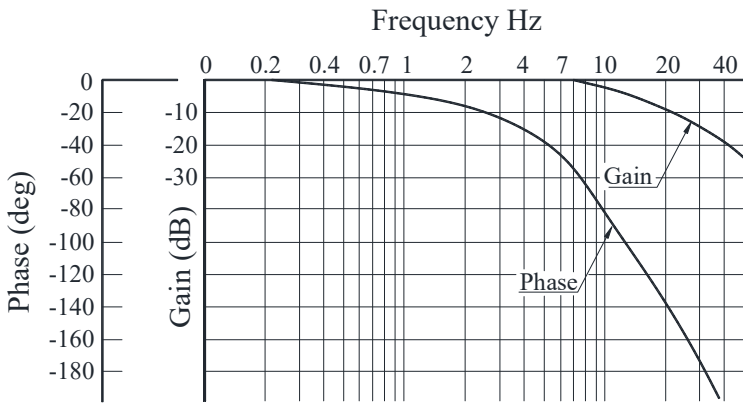
Valve Pressure Difference Vs. Flow

Viscosity : 30 cSt



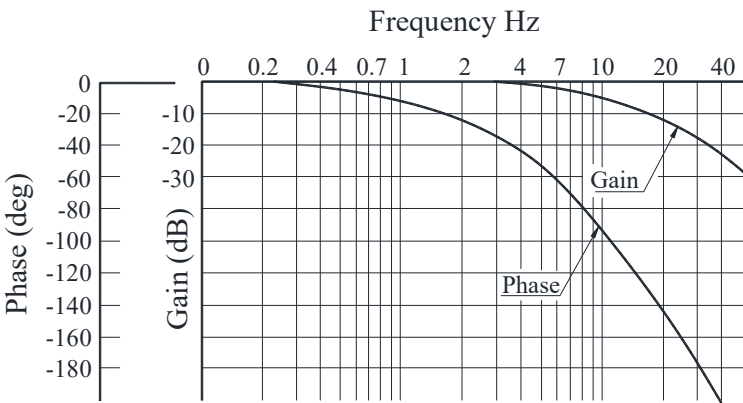
Frequency Response

● EDFHG-03



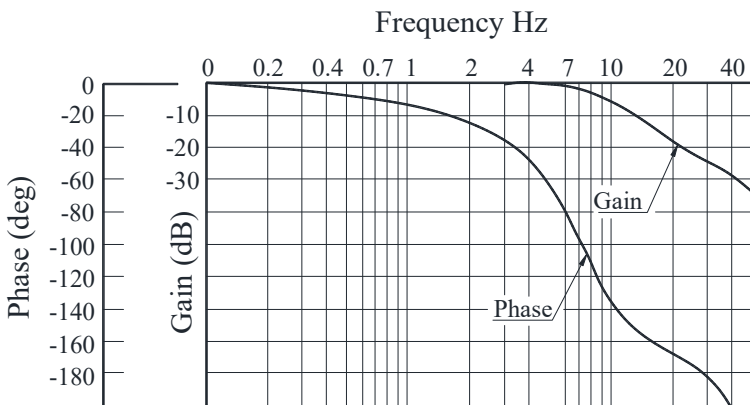
Model Number : EDFHG-03-100-3C2-E-31
 Viscosity : 30 cSt
 Pilot Pressure : 160 Kg/cm²
 Travel of Spool : ±10% of Max. Stroke

● EDFHG-04



Model Number : EDFHG-04-140-3C2-E-31
 Viscosity : 30 cSt
 Pilot Pressure : 160 Kg/cm²
 Travel of Spool : ±10% of Max. Stroke

● EDFHG-06



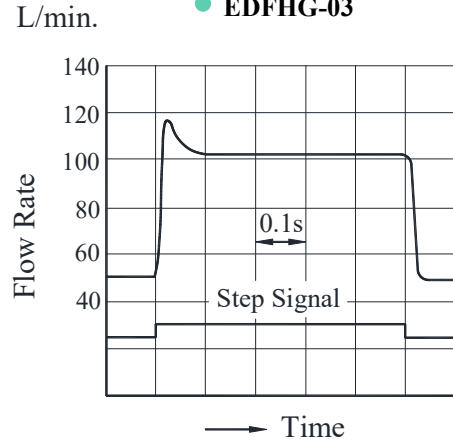
Model Number : EDFHG-06-280-3C2-E-31
 Viscosity : 30 cSt
 Pilot Pressure : 160 Kg/cm²
 Travel of Spool : ±10% of Max. Stroke

Step Response

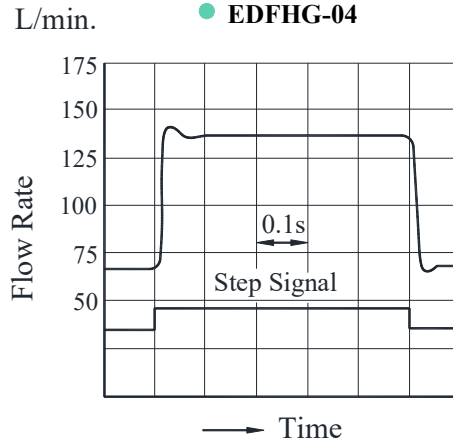
These characteristics have been obtained by measuring on each valve. therefore, they may vary according to a hydraulic circuit to be used.

Viscosity : 30 cSt
 Supply Pressure : 160 Kg/cm²

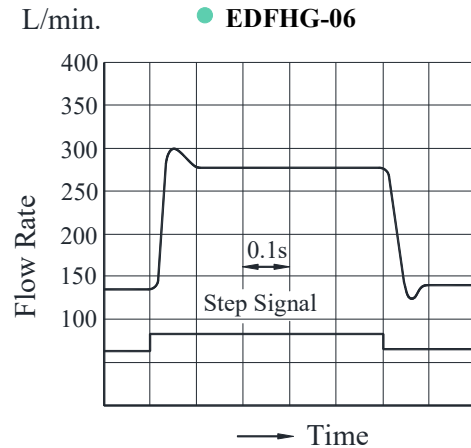
● EDFHG-03



● EDFHG-04



● EDFHG-06



E Series

**Proportional Electro-Hydraulic High Response Type
 Directional and Flow Control Valve**

■ Spare Parts List

● EDFHG-※-※-3C※-XY-※-31

● List of Seals

Sl. No.	Name of Parts	Part No.	Qty.		
			EDFHG-03	EDFHG-04	EDFHG-06
1	O-Ring	SO-NB-P28	2	--	--
2	O-Ring	SO-NB-A014	5	--	--
3	O-Ring	SO-NB-P9	12	8	4
4	O-Ring	SO-NB-P4	2	2	2
5	O-Ring	SO-NB-P34	--	2	--
6	O-Ring	SO-NB-P22	--	4	--
7	O-Ring	SO-NB-P40	--	--	2
8	O-Ring	SO-NB-P30	--	--	4
9	O-Ring	SO-NB-P14	--	--	2
10	O-Ring	SO-NB-P10	--	--	2

● List of Seal Kits

Model Numbers	Seal Kit Numbers
EDFHG-03	KS-EDFHG-03-31
EDFHG-04	KS-EDFHG-04-31
EDFHG-06	KS-EDFHG-06-31

Notes :

1. When ordering the seals, please specify the seal kit number from the table above. In addition to the above O-Rings, seals for solenoid ass'y are included in the seal kit.
2. For the details of seals for solenoid ass'y see page no. 513.

● Solenoid Ass'y

Model Numbers	Solenoid Ass'y Model Number	Qty.
EDFHG-03	E318-Y06M1-28-61	2
EDFHG-04		
EDFHG-06		

Note: The connector assembly GDM-211-B-11 is not included in the solenoid assembly.