

Proportional Electro-Hydraulic Control Valves

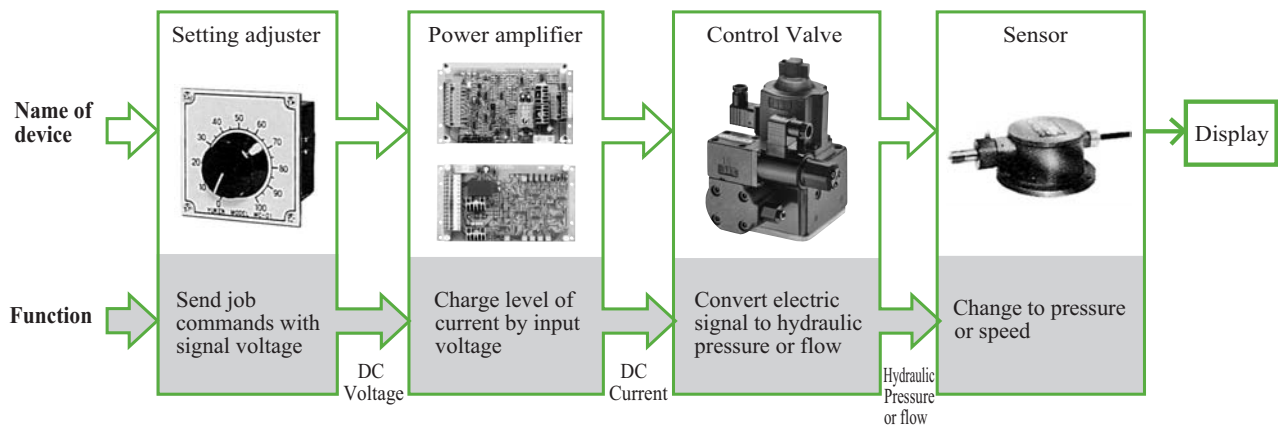
E Series to connect Electronics and Oil Hydraulics

- These valves are capable of varying pressure and flow rate in oil hydraulic circuits continuously by means of electrical setting. Unlike conventional multistage pressure or flow control system in which two or more control valves are used in combination, the valves do not require many control valves, thus they make oil hydraulic circuits much simpler in configuration.
- These valves are available for injection moulding machine, press machine...etc. In comparison with servo valves, the proportional electro-hydraulic control valves have advantages such as: smaller in overall installation, tolerant against fluid contamination and easier maintenance, because the valves structurally are designed and developed, based on conventional valves.

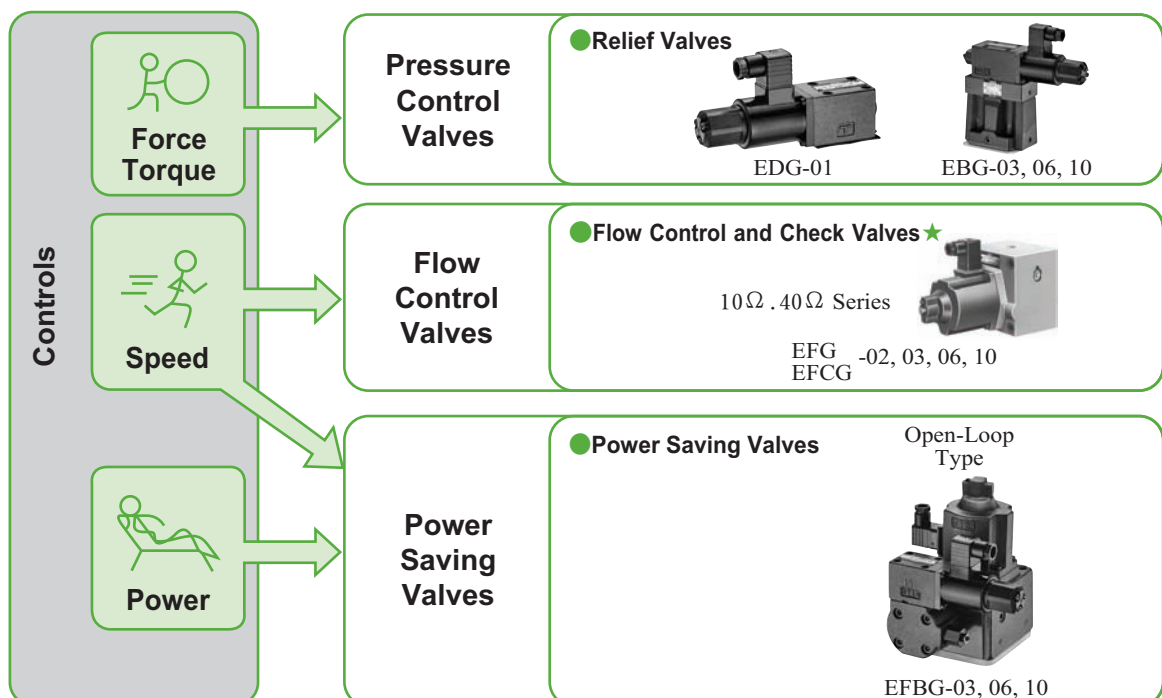
● Devices for proportional Control

Diagram below shows the devices needed for using Proportional Control system.

Adapt E series to plan using Proportional Control system, when selecting the control valves, also need to select the specification of the devices below.



● Applicable Controls and Valves



*The valves with mark above are not included in this catalogue, however, please contact our sales engineer for your requirement.

Proportional Electro-Hydraulic Control Valves

Instructions

Hydraulic Fluids

Fluid Types

Any type of hydraulic fluid, listed in the table below can be used.

Petroleum Based Oils	Use fluids equivalent to ISO VG32 or VG46
Synthetic Fluids	Use phosphate ester or polyol ester fluids When this type of fluids is used, please suffix the number "05" to the design number when ordering. When phosphate ester is used, prefix "F-" to the model number because a special seal (fluororubber) will be used. <div style="border: 1px solid black; padding: 2px; display: inline-block;">Phosphate ester fluid :</div> (Ex.) F-EDG-01-B-PNT 15 - 61T <div style="border: 1px solid black; padding: 2px; display: inline-block;">Polyol ester fluid :</div> (Ex.) EDG-01-B-PNT 15 - 61T
Water containing Fluids	Use water-glycol fluid

Mounting Positioning Orientation

Be sure that the air vent faced up. The air vent position can be changed as desired.

Air Bleeding

To provide stable control, conduct air bleeding through and fill the solenoid cover with oil.

For air bleeding purposes, gradually loosen the air vent at the end of the solenoid. The air vent can be repositioned as needed so that air is easily expelled from the valve. To change the air vent position, rotate the solenoid adaptor until the air vent is positioned as desired. (see the figure right)

Tank and Drain Piping

The tank-line back pressure and drain back pressure directly affect the minimum adjustment pressure or flow adjustment valve main spool operating force.

Therefore, do not connect the tank or drain pipes to other lines, but connect them directly to the reservoir maintaining the back pressure as low as possible. Be sure that the tank and drain pipe ends are immersed in fluid.

Hysteresis and Repeatability Value Indications

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

Recommended Fluid Viscosity and Temperature

Use hydraulic fluids which satisfy both the recommended viscosity and oil temperatures given in the table below.

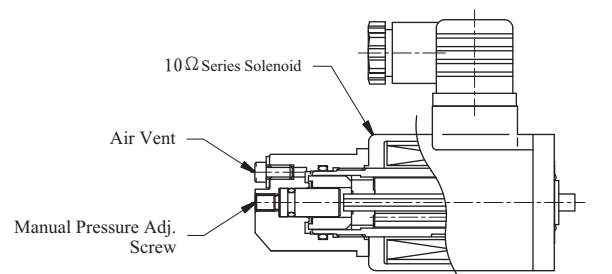
Name	Viscosity	Temperature
Pilot Relief Valves Relief Valves Relieving and Reducing Valves	15~400mm ² /s {cSt}	-15~+70°C
Flow Control Valves Flow Control and Check Valves Relief and Flow Control Valves	20~200mm ² /s {cSt}	

Control of Contamination

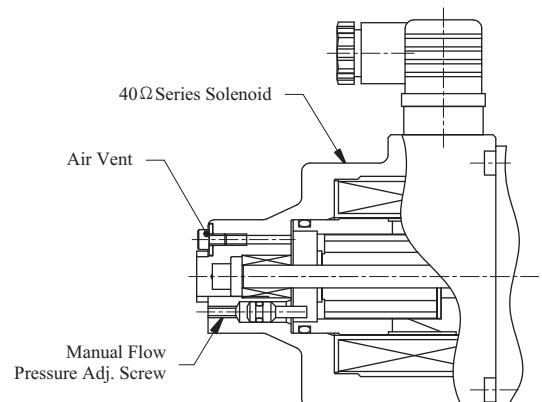
Due caution must be paid to maintaining control over contamination of hydraulic fluids which may otherwise lead to breakdown and shorten the life of the valve. Please maintain the degree of contamination within NAS1638-11, Use 20 μ m or finer line filter.

Manual Adjusting Screw

When initial adjustments are to be made or when no current is supplied to the valve due to electrical failure or other problem, turn the manual adjusting screw to temporarily set the valve pressure and flow rate. Under normal conditions, however, this screw must be kept in its original position (see the figure below)



10 Ω Series Solenoid



40 Ω Series Solenoid

E

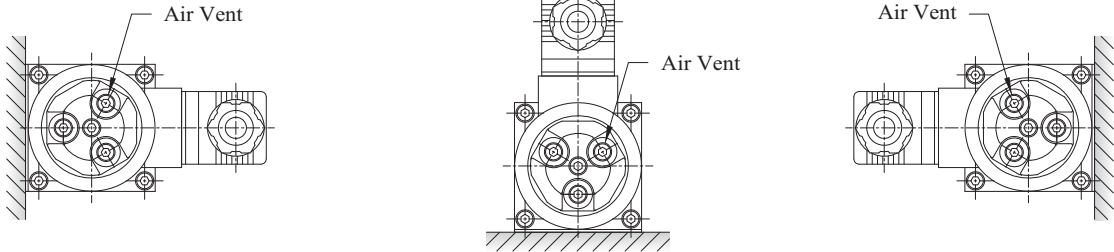
Proportional Electro-Hydraulic Control Valves

Attention to install proportional valve

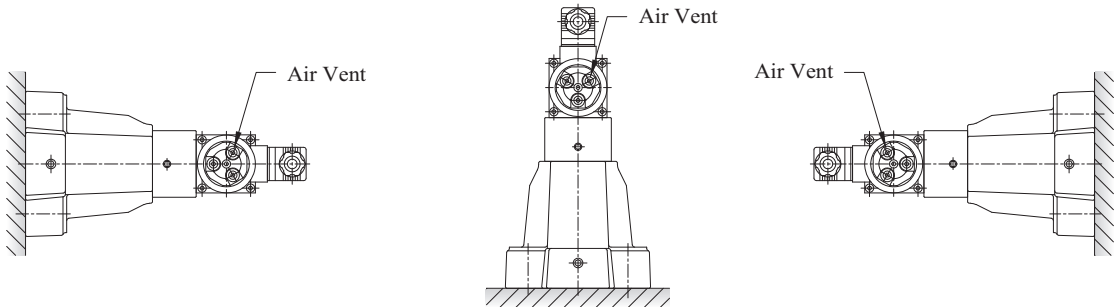
The coil E318 should be installed horizontally. The air vent should be up to let the air release smoothly to make the proportional valve operate normally. It is OK not to release the air.

Good Example

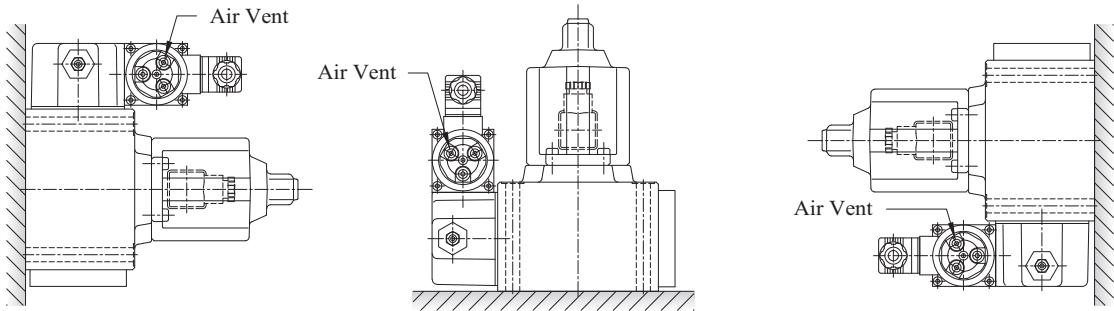
EDG
EDFG



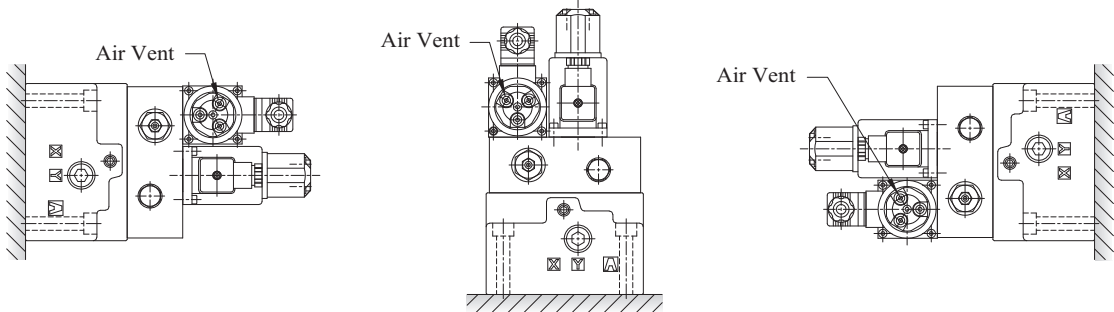
EBG
EDFHG



EFBG
10Ω~40Ω



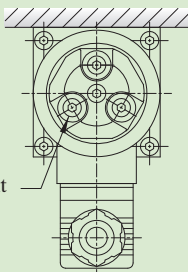
EFBG
10Ω~10Ω
ELFBG



Bad Example

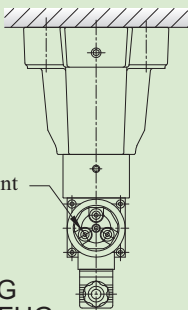
Air Vent

EDG
EDFG

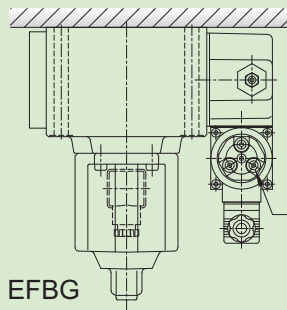


Air Vent

EBG
EDFHG

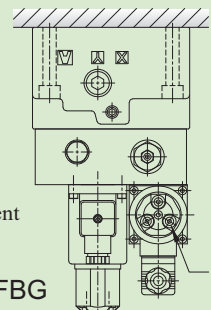


EFBG



Air Vent

EFBG



Air Vent

PROPORTIONAL ELECTRO-HYDRAULIC CONTROLS

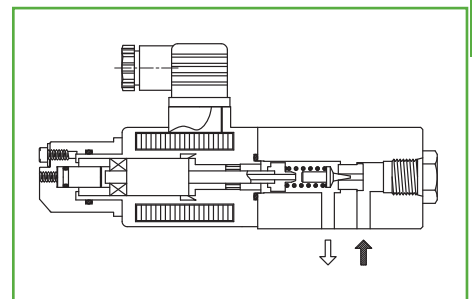


Proportional Electro-Hydraulic Pilot Relief Valves Max. Pressure 25 MPa

This valve consists of a small DC solenoid and a direct - acting relief valve. It serves as a pilot valve for a low flow rate hydraulic system or a proportional electro-hydraulic control valve and controls the pressure in proportion to the input current. Note that this valve is used in conjunction with the applicable power amplifier.

Specifications

Description	Model No.	EDG-01※ - ※ - ※ -P ※ T ※ -61T
Max. Operating Press	MPa (kgf/cm ²)	24.5 (250)
Max. Flow	L/min	2
Min. Flow	L/min	0.3
Pres. Adj. Range	MPa (kgf/cm ²)	Refer to Designation
Rated Current	mA	B:800 C:900 H:950
Coil Resistance (20°C)	Ω	10
Hysteresis		Less than 3%
Repeatability		1%
Power Amplifier		AMN-D-20T (See Page 144)
Mass	kg	2



E

Model Number Designation

ED	G	- 01	V	- C	- 1	- PN	T13	- 61T
Series Number	Type of Mounting Valve	Size	Applicable Control ★1	Pressure Adj. Range MPa (kgf/cm ²)	Safety Valve	P-line Orifice	T-Line Orifice	Design Standard
ED: Proportional Electro-Hydraulic Pilot Relief Valve	G: Sub-Plate Mounting	01	None: General Use V: Vent Control of Relief Valve	A:★3 B:0.5~6.9 (5.1~70) C:1.0~15.7 (10.2~163) H:1.2~24.5 (12~250)	None:Without Safety Valve 1: With Safety Valve	PN: Without Orifice (Standard)	T15★2 T13 T11	61T

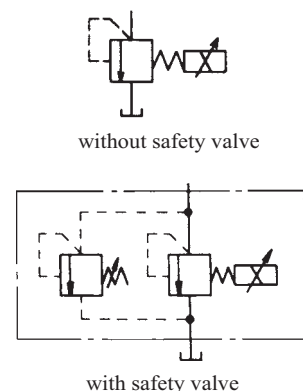
- ★1. When the valve is used for vent control purpose, orifice adjustment is required due to piping capacity limitations. Therefore, please contact our sales engineers in advance.
- ★2. Standard of T-Line Orifice
Press. Adj. Range B:T15, C:T13, H:T11.
The orifice used as the pilot valve may differ from the standard orifice.
- ★3. There is one model for low adj. pressure, 0.2~4.0 MPa (kgf/cm²), EDG-01V-A-※-P※T※-61T234, the max. flow is limited.

Sub-plate

Sub-plate Model No.	Piping Size Rc	Mass kg
DSGM-01-30	1/8	0.8
DSGM-01X-30	1/4	
DSGM-01Y-30	3/8	

- Sub-plates are available. When ordering, please specify sub-plate model no. from the table above. When sub-plate are not used, the mounting surface should have a good mechanic finish.
- Sub-plate is the same as DSG-01 series Solenoid Operated Directional Valve.
- Please refer to page 84 for dimension details.

JIS Hydraulic Graphic Symbol



Proportional Electro-Hydraulic Pilot Relief Valves Max. Pressure 25 MPa

Instructions

Tank-Line Back Pressure

Check that the tank line pressure does not exceed 0.2MPa (2.0kgf/cm²)

Vent Control

When this valve is used as a relief valve or for other valve vent control purposes, use 6 mm ID, 300mm long or shorter pipes for piping connections. If pressure instability is encountered, provided a 1-1.5mm diameter orifice for the relief or other valve vent port.

Circuit Pressure Control

When circuit pressure is directly controlled by this valve, make sure that the trapped oil volume is exceeding 40cm³.

Low Flow Rates

The preset pressure may become unstable. To avoid such pressure instability, the flow rate should not be lower than 0.3 L/min.

Safety Valve Pressure Setting

The safety valve pressure setting at the maximum flow rate is preset to a level that is 2MPa(20.4kgf/cm²) higher than the pressure adjustment range upper limit. 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 right)

Air vent

The air vent should be screwed to the up position and set pressure at 1.5 MPa (15kgf/cm²) while testing. You should release air fully to reach stable pressure.

Applicable Power Amplifier

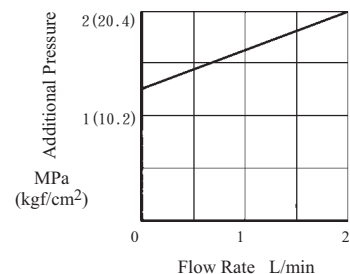
For stable performance, it is recommended that Yuken's applicable power amplifiers be used.

Model Number: AMN-D-20T
(Please refer to Page 144)

Attachment

Mounting Bolts

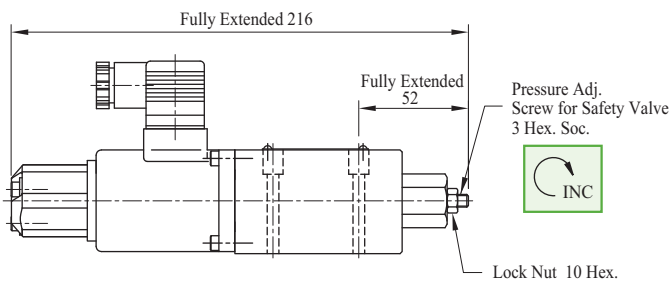
Soc. Hd. Cap. Screw : M5 x 45Lg.4pcs
Tightening Torque: 8~10 N·m
(0.8 ~ 1.0 kgf·m)



E

EDG-01V- ※-1-P ※T ※-61T

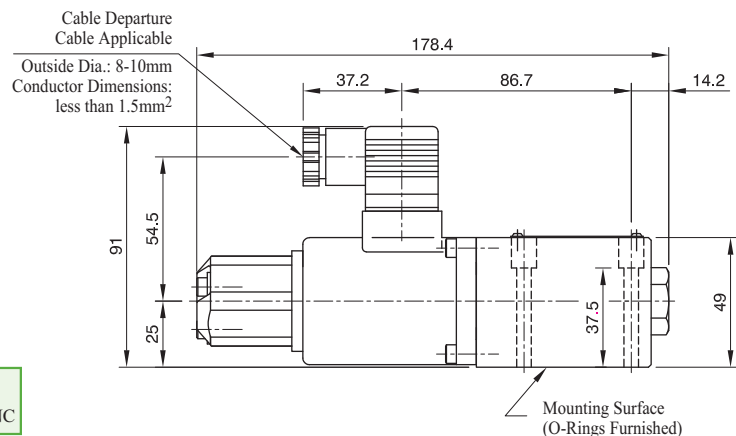
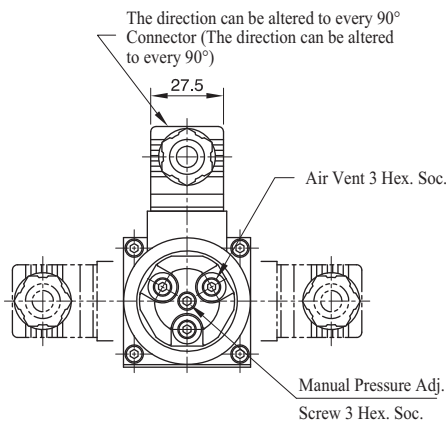
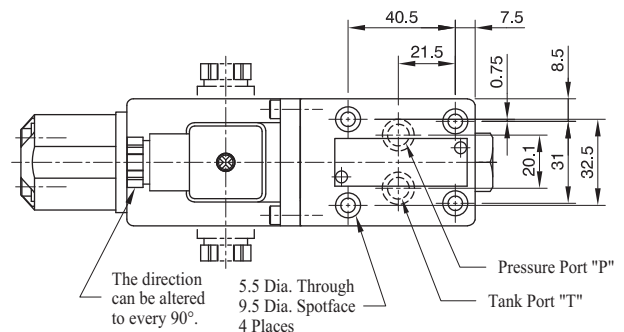
With Safety Valve



For other dimensions, please refer to the without-safety valve type.

EDG-01V- ※-P ※T ※-61T

Without Safety Valve



Proportional Relief Valves

Max. Pressure 25 MPa

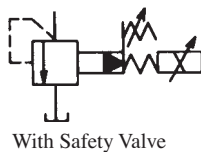


This valve is combined with a proportional electro-hydraulic pilot relief valve and a specially developed low-noise relief valve. Owing to special vent restrictor, this valve can make pressure control more precise and stable.

Specifications

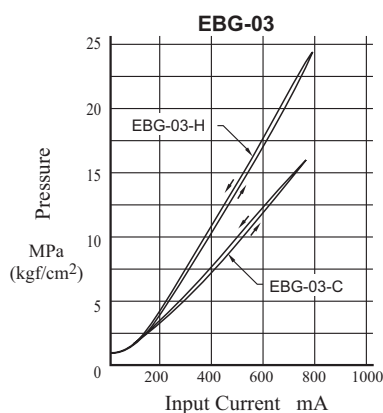
Model No.		EBG-03-※-※-61T	EBG-06-※-※-61T	EBG-10-※-※-51
Description				
Max. flow	L/min	100	200	400 ★3
Min. Flow	L/min	3	3	3
Pressure Adjustment Range	MPa (kgf/cm ²)	Refer to Model Number Designation		
Rated Current	mA	C:770	C:750	C:730
		H:820	H:800	H:780
Coil Resistance (20°C)	Ω	10		
Hysteresis		Less than 3%★1		
Repeatability		Less than 1%★2		
Frequency Response (at 90°C)		12Hz	13 Hz	11Hz
Applicable power Amp		AMN-D-20T (See page 144)		
Mass	kg	5.6	6.3	10

Graphic Symbol

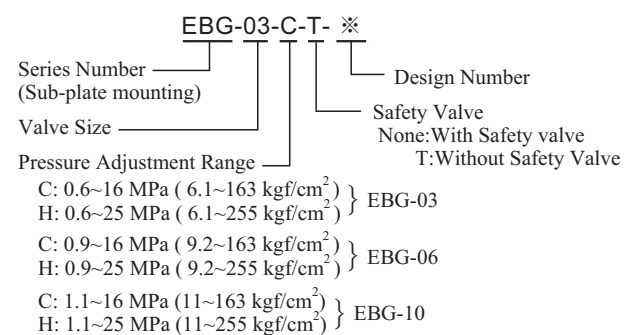


- ★1. This figures in the table above are those obtained when used in conjunction with YUKEN's power amplifier.
- ★2. The repeatability of the valve is obtained by having it tested independently on the conditions similar to its original testing.
- ★3. Product is made by Yuken Kogyo. If you have any inquiry, please contact our sales engineers.
- ★4. There is one model for low adj. pressure, 0.2 MPa (2~40 kgf/cm²), EBG-※-A-※-6107T, the max. flow is limited.

Input Current vs Pressure (Ex)



Model Number Designation



Sub-plate

Valve Model No.	Sub-plate Model No.	Piping Size Rc	Mass kg
EBG-03	BGM-03-20	3/8	2.4
	BGM-03X-20	1/2	3.1
EBG-06	BGM-06-20	3/4	4.7
	BGM-06X-20	1	5.7
EBG-10	BGM-10-20	1-1/4	8.4
	BGM-10X-20	1-1/2	10.3

Mounting Bolts (Attachment)

Model No.	Soc. Hd. Cap Screw (4 Pcs)	Tightening Torque N•m (kgf•m)
EBG-03	M12 x 40 Lg.	104 ~ 127 (10.6~13.0)
EBG-06	M16 x 50 Lg.	253 ~ 310 (25.8~31.6)
EBG-10	M20 x 60 Lg.	493 ~ 603 (50.3~61.5)

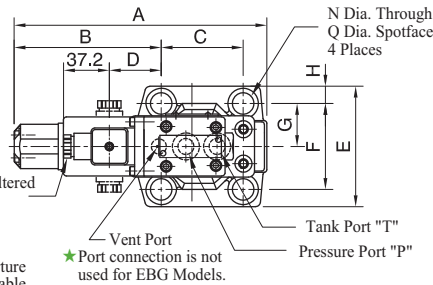
*Sub-plates are available. When ordering, please specify sub-plate model no. from the table above.

*Please refer to page 47 for dimensions.

Proportional Relief Valves

Max. Pressure 25 MPa

Without Safety Valve : **EBG-03-※-T-60T**



Mounting Surface:
EBG-03:ISO 6264-06-09-1-97
EBG-06:ISO 6264-08-13-1-97

With Safety Valve : **EBG-03-※**

Connector
The direction can be altered
To every 90°

Air Vent 3 Hex. Soc.

Manual Pressure Adj.
Screw 3 Hex. Soc.



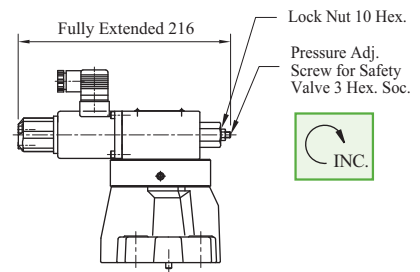
Mounting Surface
(O-Rings Furnished)

The direction can be altered
To every 90°

Cable Departure
Cable Applicable

Outside Dia.: 8-10mm
Conductor Dimensions:
less than 1.5mm²

Locating Pin 6 Dia.

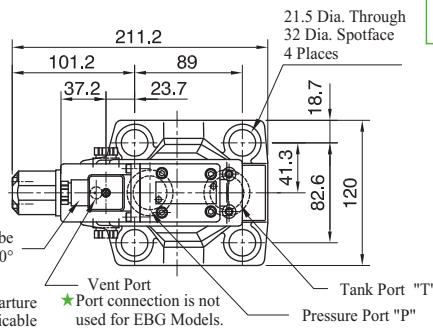


For other dimensions,
please see the figures shown left.

Model No.	A	B	C	D	E	F	G	H	J	K	L	N	Q
EBG-03	197.7	117.8	53.8	40.2	76	53.8	26.9	11.1	21.5	106	26.1	13.5	21
EBG-06	205.7	119.7	66.7	42.1	98	70	35	14	27	122	36	17.5	26

Note: For dimensions of mounting surface, please refer to BGM-03,06 type sub-plate (page 47).

Without Safety Valve : **EBG-10-※-T-51**



Mounting Surface: ISO 6264-10-17-1-97

With Safety Valve : **EBG-10-※**

Connector
The direction can be altered
To every 90°

Air Vent 3 Hex. Soc.

Manual Pressure Adj. Screw
3 Hex. Soc.



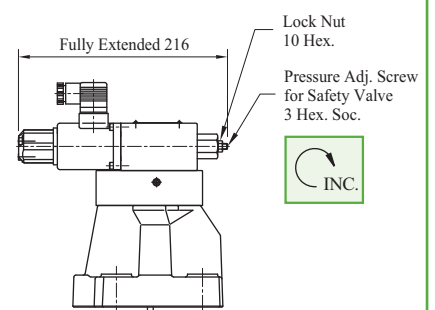
Mounting Surface
(O-Rings Furnished)

The direction can be altered
To every 90°

Cable Departure
Cable Applicable

Outside Dia.: 8-10mm
Conductor Dimensions:
less than 1.5mm²

Locating Pin 6 Dia.



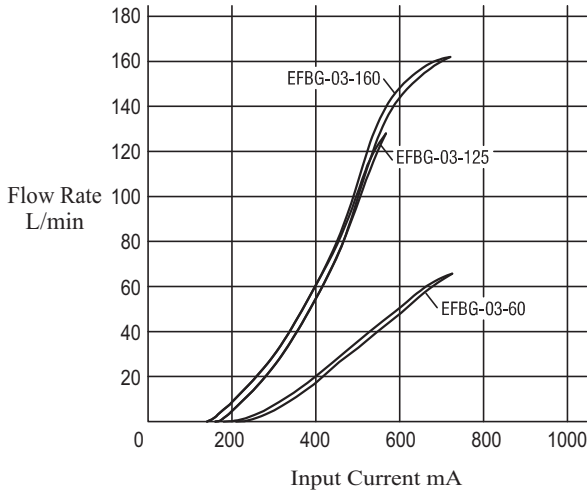
For other dimensions,
please see the figures shown left.

Note: For dimensions of mounting surface, please refer to BGM-10 type sub-plate (page 47).

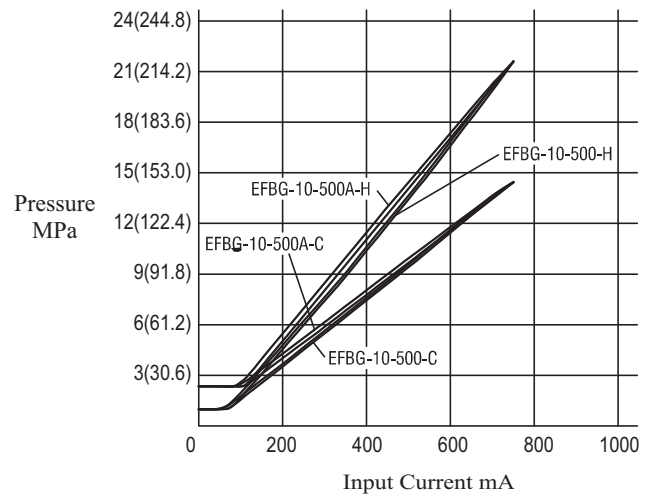
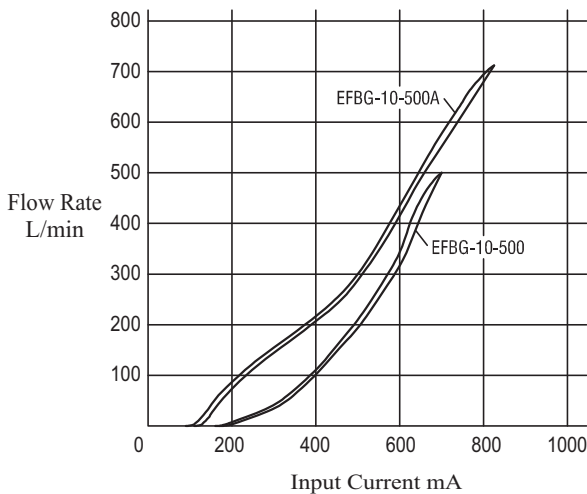
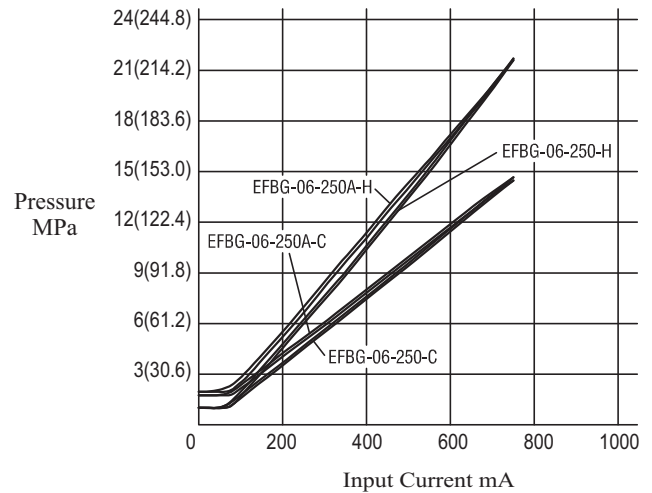
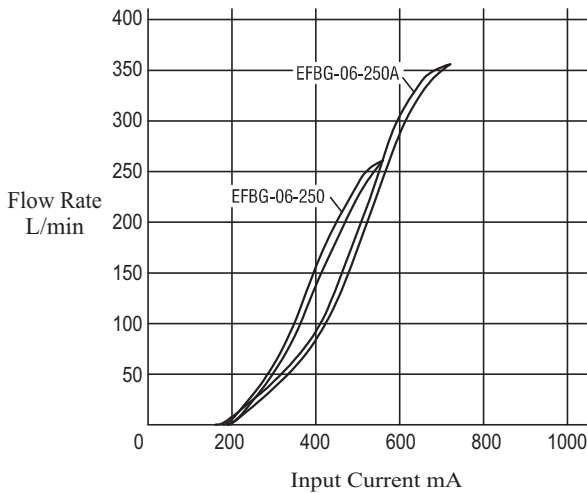
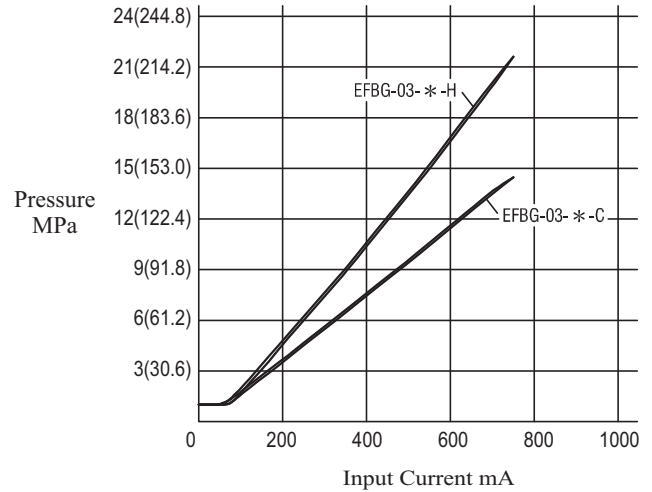
Power Saving Valves (10Ω~40Ω)

Max. Pressure 25 MPa

Input Current vs. Flow



Input Current vs. Pressure



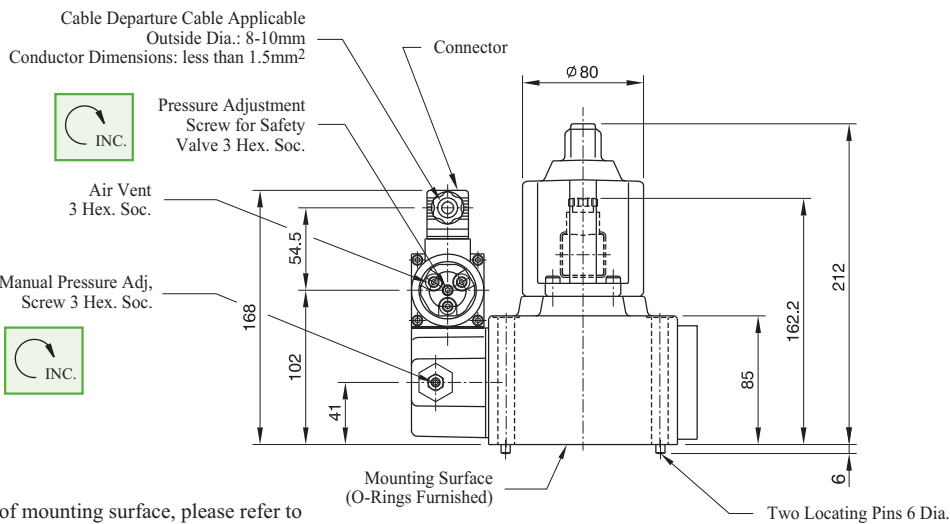
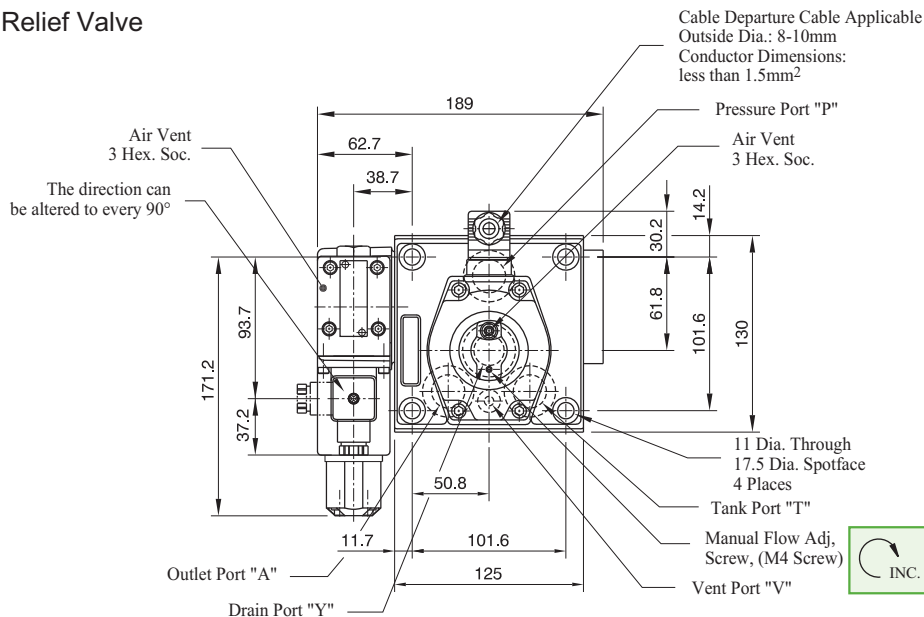
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Power Saving Valves (10Ω~40Ω)

Max. Pressure 25 MPa

With Proportional Pilot Relief Valve

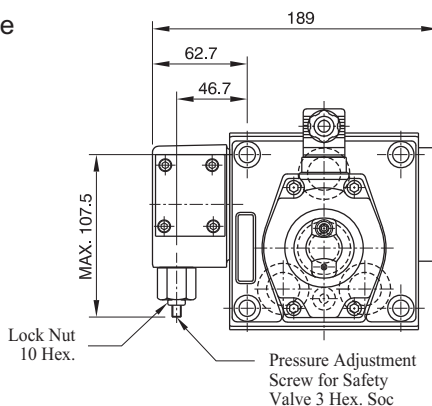
EFBG-03-125- $\frac{C}{H}$ -※



Note: For dimensions of mounting surface, please refer to EFBGM-03 type sub-plate (see page 124).

Without Proportional Pilot Relief Valve

EFBG-03-125-※



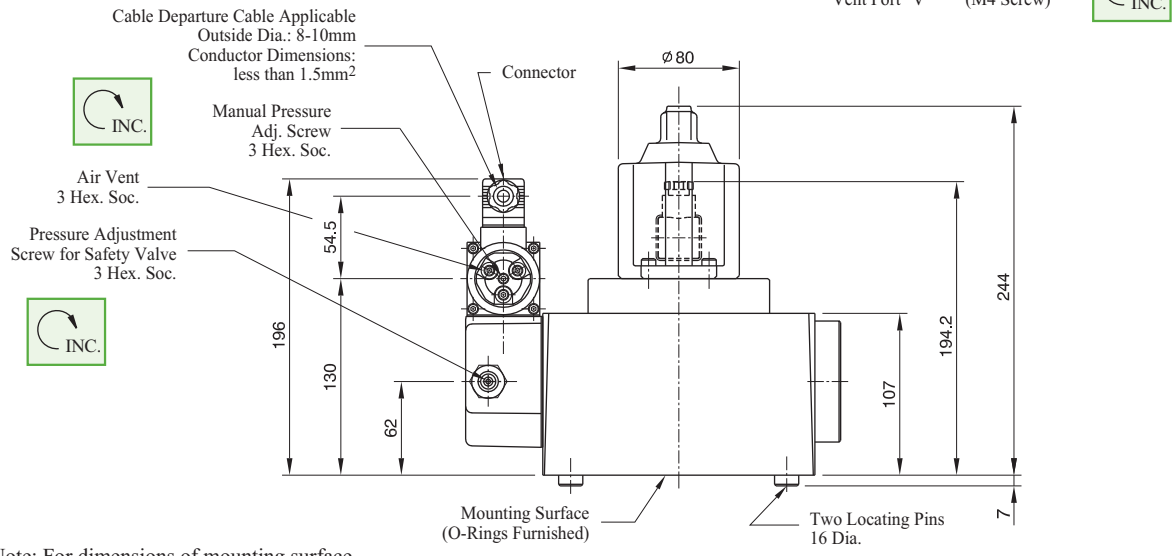
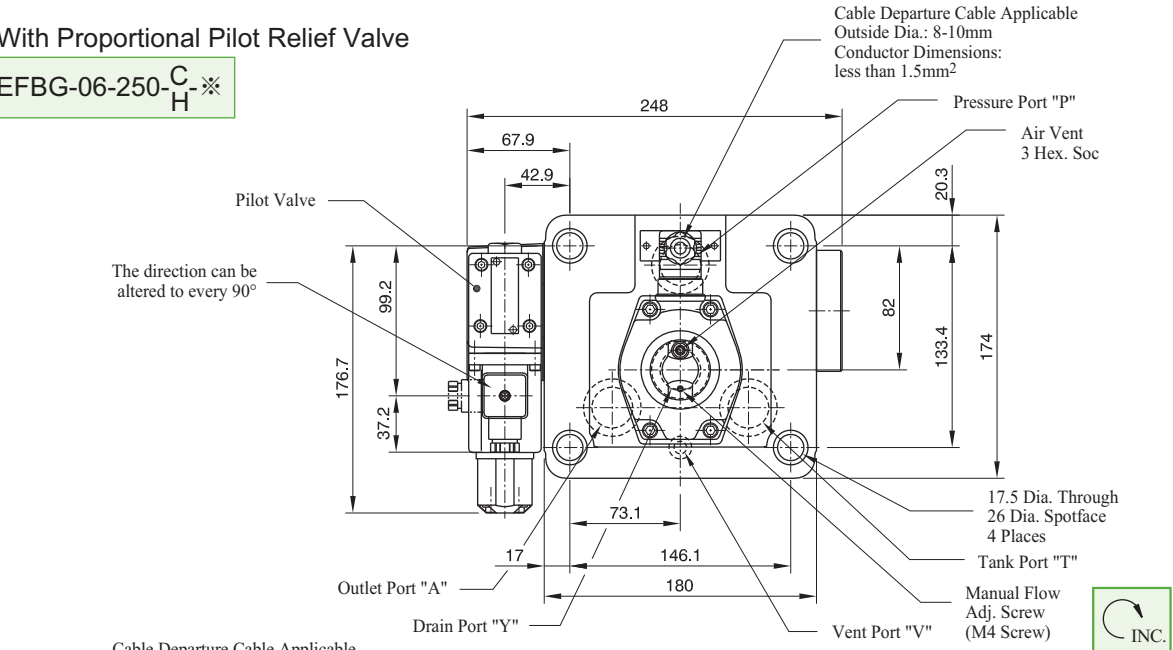
For other dimensions,
please refer to the drawing above.

E

Power Saving Valves (10Ω~40Ω) Max. Pressure 25 MPa

With Proportional Pilot Relief Valve

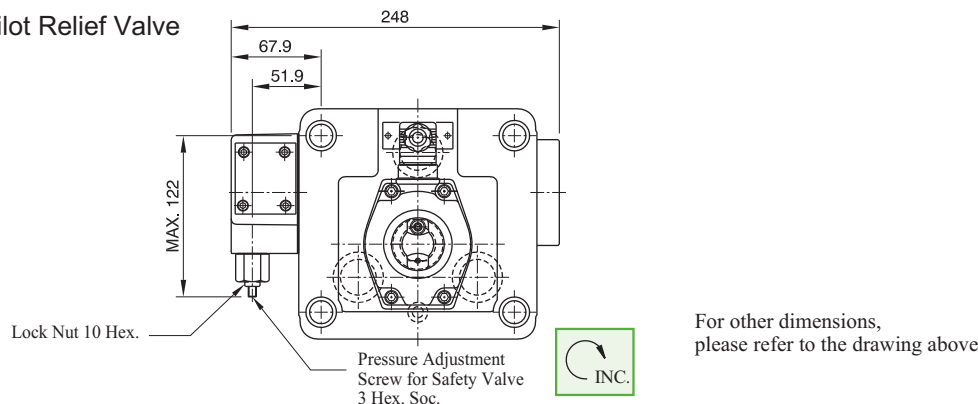
EFBG-06-250-C_H-※



Note: For dimensions of mounting surface, please refer to EFBGM-06 type sub-plate (see page 124).

Without Proportional Pilot Relief Valve

EFBG-06-250-※



For other dimensions, please refer to the drawing above

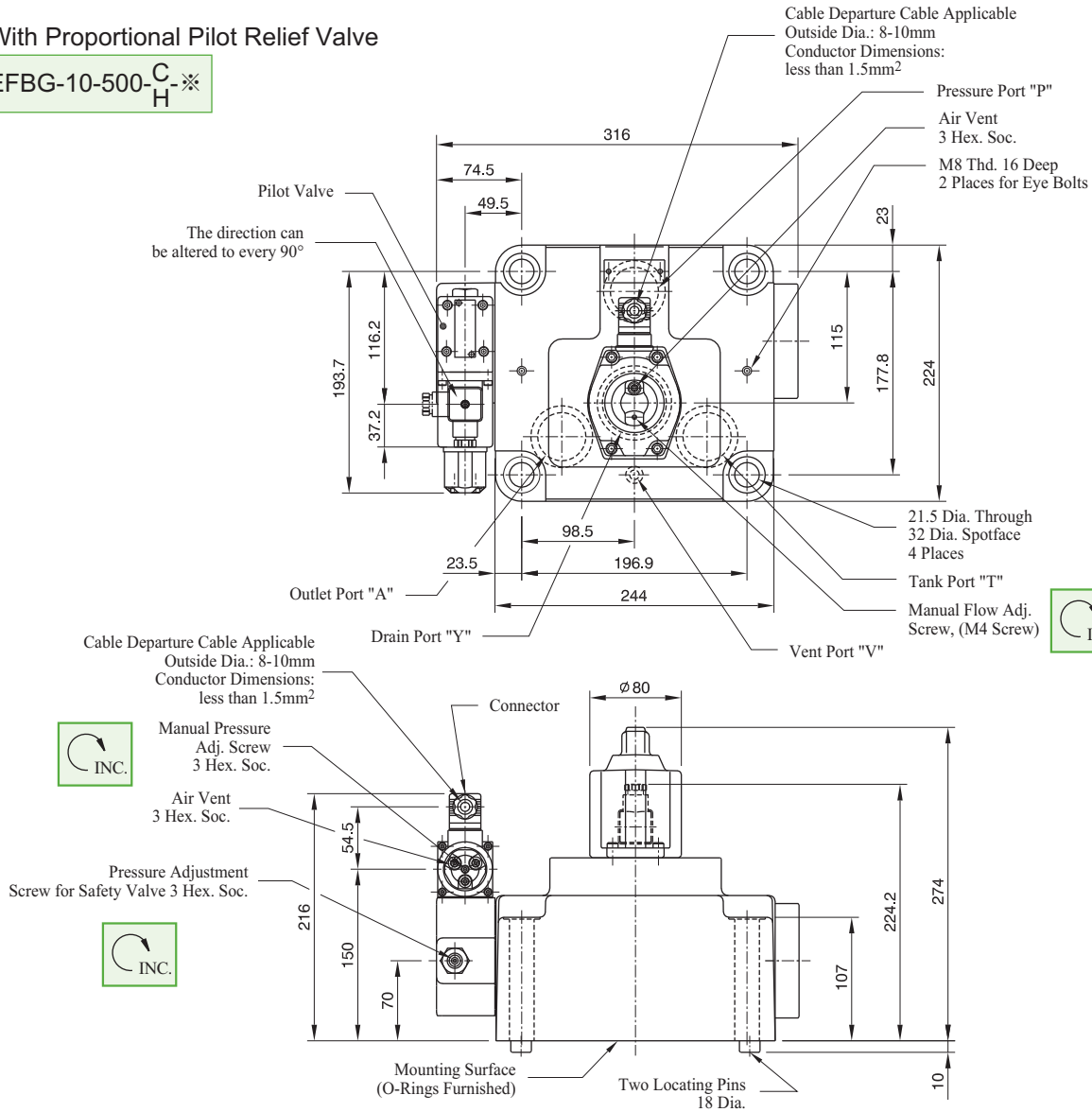
E

Power Saving Valves (10Ω~40Ω)

Max. Pressure 25 MPa

With Proportional Pilot Relief Valve

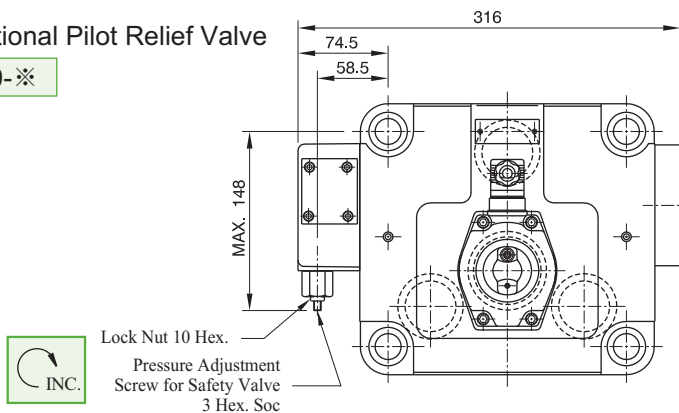
EFBG-10-500-^C/_H-※



Note: For dimensions of mounting surface, please refer to EFBGM-10 type sub-plate (see page 124).

Without Proportional Pilot Relief Valve

EFBG-10-500-※



For other dimensions, please refer to the drawing above

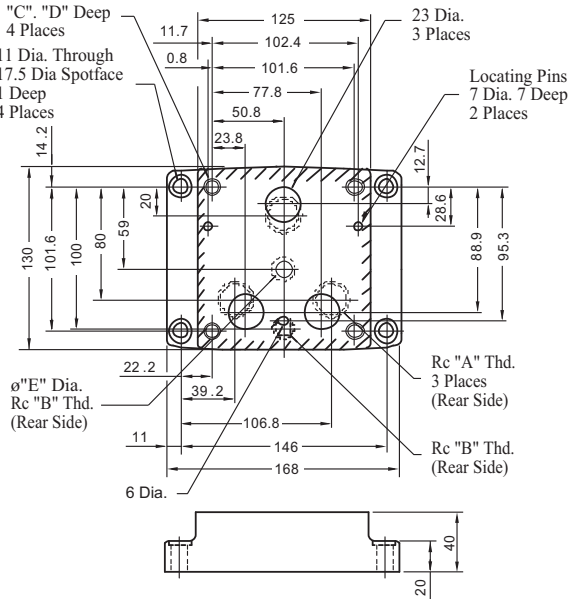
E

Power Saving Valves

Max. Pressure 25 MPa

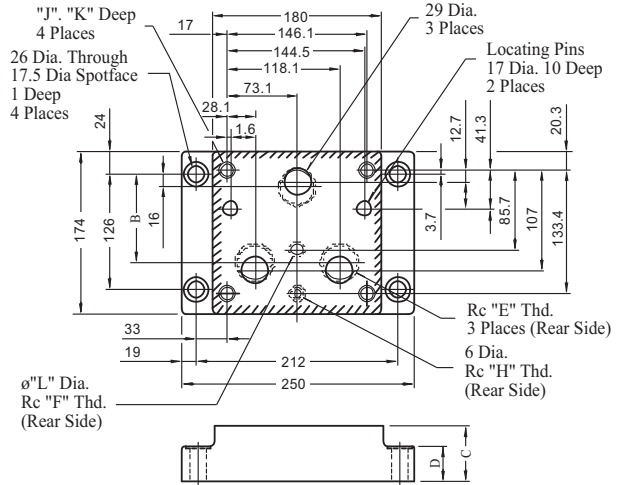
Sub-Plate

EFBGM-03Y / 03Z-10 / 1080 / 1090



Model No.	Piping Size		"C"	Dimension mm	
	"A"	"B"		D	E
EFBGM-03Y-10	Rc 3/4		M10	18	11
EFBGM-03Z-10	Rc 1	Rc 1/4			
EFBGM-03Y-1080	3/4 BSP.F		M10	18	11.7
EFBGM-03Z-1080	1 BSP.F	1/4 BSP.F			
EFBGM-03Y-1090	3/4 NPT		3/8-16 UNC	21	11
EFBGM-03Z-1090	1 NPT	1/4 NPT			

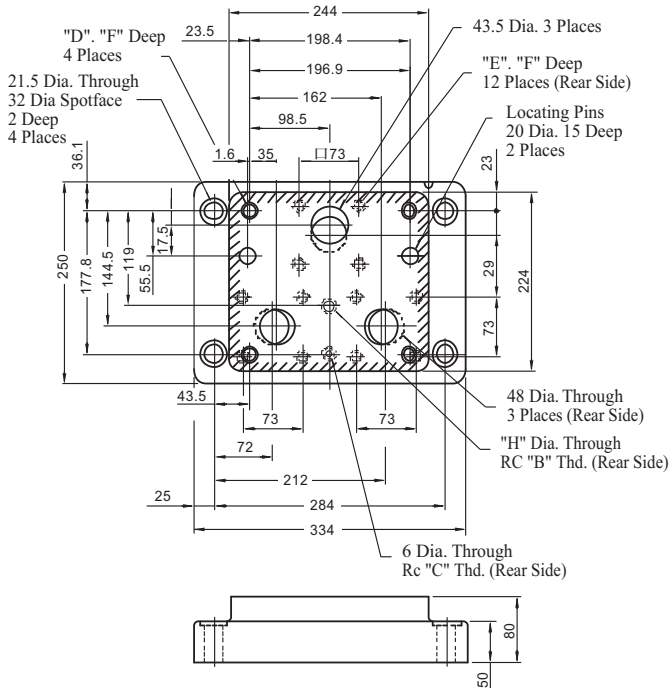
EFBGM-06X / 06Y-10 / 1080 / 1090



Model No.	Dimension mm		
	B	C	D
EFBGM-06X	103.3	45	35
EFBGM-06Y	95	60	40

Model No.	Piping Size				Dimension mm	
	"E"	"F"	"H"	"J"	K	L
EFBGM-06X-10	Rc 1					
EFBGM-06Y-10	Rc 1-1/4	Rc 3/8	Rc 1/4	M16	30	14
EFBGM-06X-1080	1 BSP.P	3/8 BSP.F	1/4 BSP.F	M16	30	15.2
EFBGM-06Y-1080	1-1/4 BSP.F					
EFBGM-06X-1090	1 NPT	3/8 NPT	1/4 NPT	5/8-11 UNC	35	14
EFBGM-06Y-1090	1-1/4 NPT					

EFBGM-10Y-10 / 1080 / 1090



Model No.	Piping Size		"D"	"E"
	"B"	"C"		
EFBGM-10Y-10	Rc 3/8	Rc 1/4	M20	M16
EFBGM-10Y-1080	3/8 BSP.F	1/4 BSP.F		
EFBGM-10Y-1090	3/8 NPT	1/4 NPT	3/4-10 UNC	5/8-11 UNC

Model No.	Dimension mm	
	F	H
EFBGM-10Y-10	32	14
EFBGM-10Y-1080		15.2
EFBGM-10Y-1090	34	14

Power Saving Valves (10Ω~10Ω) Max. Pressure 25 MPa



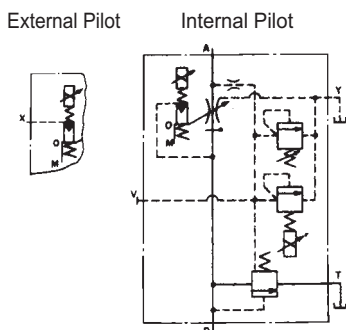
This relief and flow control valve is an energy-saving valve that supplies the minimum pressure and flow necessary for actuator drive. Since this valve controls the pump pressure by following the load pressure while keeping the differential pressure minimized, it serves as a low power-consumption, energy-saving, meter-in, controlled flow adjustment valve. Further, since a temperature compensation function is incorporated, this valve provides consistent flow control without regard to the fluid temperature.

Specifications

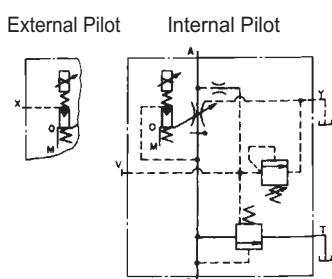
Description	Model Numbers	EFBG-03-125-※-※-61T248	
Max. Operating Pressure	MPa (kgf/cm ²)	25 (255)	
Max. Flow	L/min	125	
Metred Flow Adjustment Range	L/min	1~125	
Min. Pilot Pressure	MPa (kgf/cm ²)	1.5 (15.3)	
Pilot Flow L/min	at Normal	1	
	at Transition	3	
Flow Controls	Rated Current	mA	800
	Coil Resistance	(20°C)Ω	10
	Differential Pressure	MPa (kgf/cm ²)	0.6(6.1)
	Hysteresis		Less than 3%
	Repeatability		1%
Pressure Controls	Pres. Adj. Range MPa(kgf/cm ²)		C : 1.2 - 16 (12~163)
			H : 1.4 - 25 (14~255)
	Rated Current	mA	C : 890 H : 970
	Coil Resistance	(20°C)Ω	10
	Hysteresis		Less than 2%
Repeatability		1%	

Graphic Symbol

With Proportional Pilot Relief Valve



Without Proportional Pilot Relief Valve



- ★ 1. The specifications for pressure controls are applied to models with proportional pilot relief valve. (Ex. EFBG-03-125-C-※-61T)
- ★ 2. The maximum pressure adjustment range of the models without proportional pilot relief valves is 25 MPa (250 kgf/cm²) (Ex. EFBG-03-125-※-61T)
- 3. Drain back pressure: Check that the drain back pressure does not exceed 0.2 Mpa (2.0 kgf/cm²)
- 4. When relief valve passing flow rate is low in pressure control state: to avoid preselected pressure instability, use a passing flow rate of 15 L/min or higher. Further, check that the tank-line back pressure does not exceed 0.5 Mpa. (5.1 kgf/cm²)
- 5. Safety Valve Pressure Setting: The pressure of the safety valve is preset at the value equal to the upper limit of the pressure adjustment range plus 2 Mpa (20.4 kgf/cm²). Please adjust the pressure of the valve so preset to meet the pressure to be used actually.

Applicable Power Amplifiers (Options)

Valve Model No.	Power Amplifiers Model No	
	For Pres. Control	For Flow Control
EFBG-03-125-(E)	-	★ AMN-D-20T
EFBG-03-125-C-(E)	★ AMN-D-20T	

- 1. For stable performance, it is recommended that Yuken's applicable power amplifiers be used.
- 2. ★ Please refer to page 144

Sub-plate

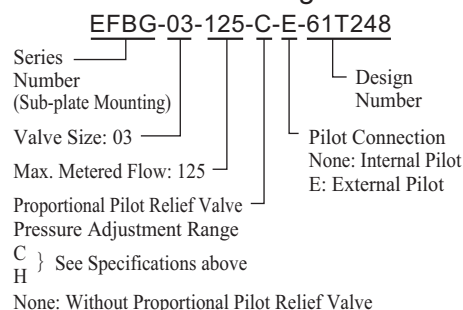
Valve Model No.	Sub-plate Model No.	Piping Size	Mass kg
EFBG-03	EFBGM-03Y-20	Rc 3/4	6
	EFBGM-03Z-20	Rc 1	

* Please refer to page 126 for dimension details.

Mounting Bolts (Attachment)

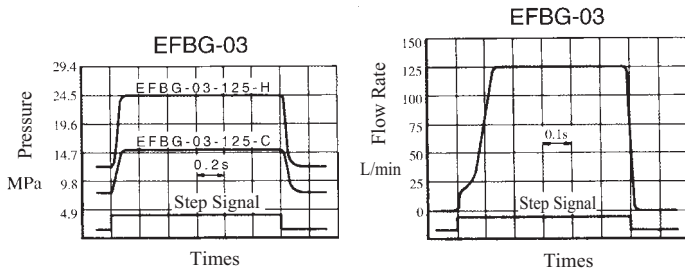
Model No.	Soc. Hd. Cap Screw (4 Pcs)	Tightening Torque N•m (kgf•m)
EFBG-03	M10 x 65 Lg.	60~74 (6.1~7.5)

Model Number Designation



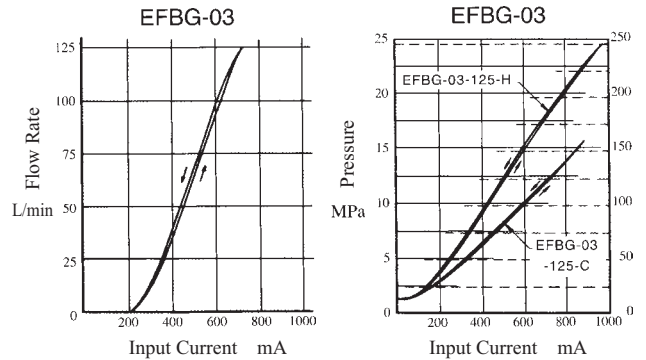
Power Saving Valves (10Ω~10Ω) Max. Pressure 25 MPa

Step Response of Flow & Pressure Controls



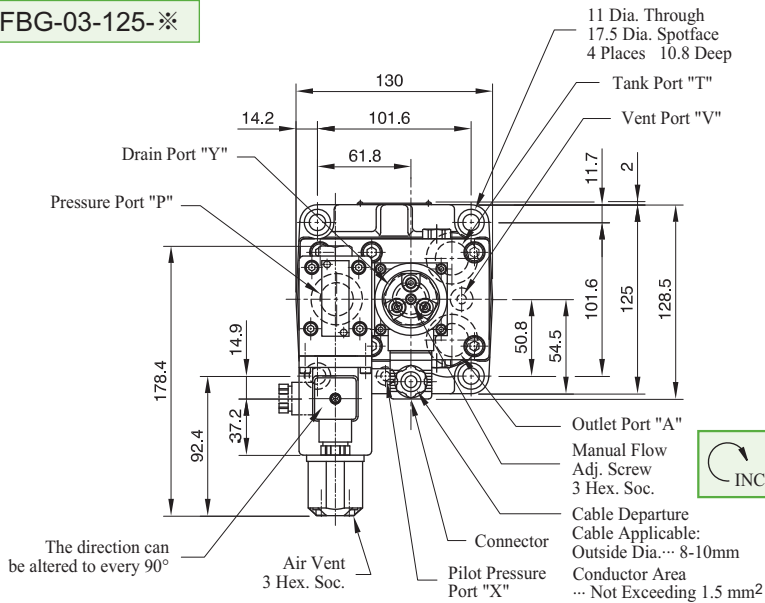
These Characteristics have been obtained by measuring on each valve. Therefore, they may vary according to a hydraulic circuit to be used.

Flow & Pressure VS Input Current

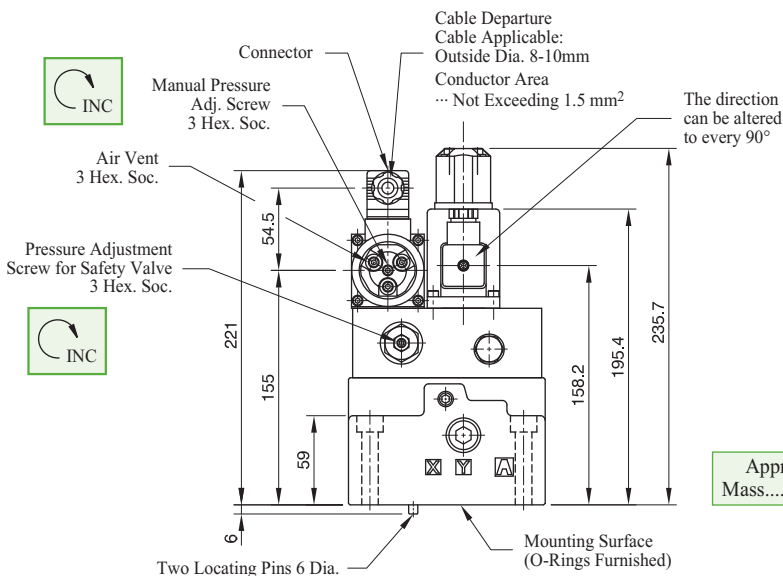
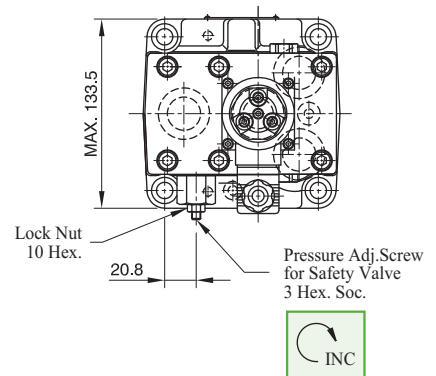


E

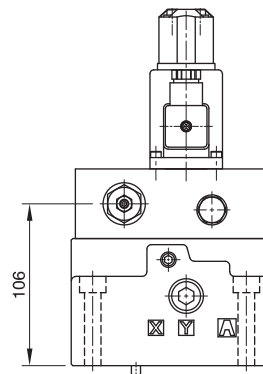
EFBG-03-125-※



EFBG-03-125-(E)



Approx. Mass... 15 kg

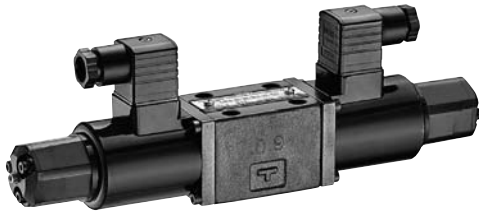


• For other dimensions, please refer to the models with Proportional Pilot Relief Valve.

Approx. Mass... 14 kg

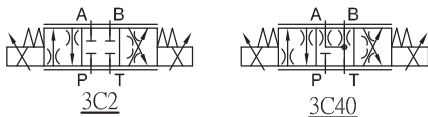
Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 25 MPa



- These valves are installed with 2 proportional directional and flow control valves controlled by proportional solenoids.
- The flow rate can be controlled by the input current, direction can be controlled by the input current of either solenoid.
- This valve can control direction and flow at the same time by the special designed amplifier to achieve the purpose of the simple circuit and cost down.

Graphic Symbol



Applicable Power Amplifiers

For stable performance, it is recommended that Yuken's applicable power amplifiers be used AMN-W-10T. (For details see P146.)

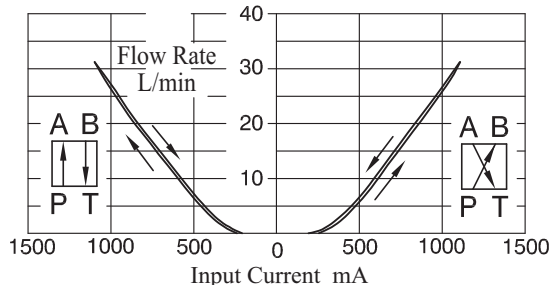
Note

- To make the solenoid of the pilot valve full of fluid, recommend to install a check valve on the drain pipe of T port with a cracking pressure at 0.04 MPa; the end of the drain piping must be dipped in the fluid.
- T port back pressure will influence the movement of the spool directly, the drain piping should not be connected with other piping, must be connected to the reservoir.
- If the electric system broken down, you can adjust the manual screw to change the direction of the flow; Noted: the manual screw must be shifted to the original position after adjusting.

Input current vs Flow

Viscosity: 30mm²/s

Valve pressure difference: 7.0 MPa



Sub-plate

Sub-plate Model No.	Piping Size (Rc)
DSGM-01-30	1/8
DSGM-01X-30	1/4
DSGM-01Y-30	3/8

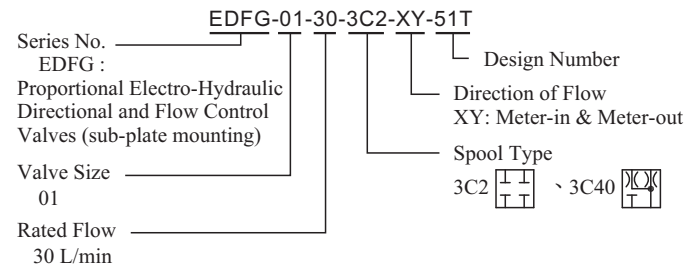
- Sub-plate are available. Specify the sub-plate model number from the table above, when sub-plates are not used, the mounting surface must be process under 6~S (Ra1.6)
- Please refer to page 84 for dimension details.

Specifications

Description	Model No.	EDFG-01
Max Operating Pressure	MPa (kgf/cm ²)	25 (255)
Rated Flow	L/min	30
Rated Current	mA	1100
Max. Tank Line Back Pressure	MPa	14
Coil Resistance	Ω	10
Hysteresis		Less than 5%
Repeatability		Less than 1%
Step Response		Less than 100ms
Approx. Mass	kg	2.4

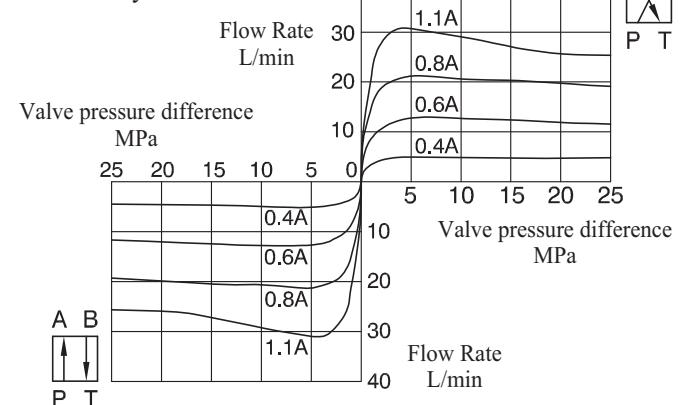
★ Rated flow: P → A(B) · A(B) → T, the value is under the pressure difference at 7.0 MPa.

Model Number Designation



Valve pressure difference vs Flow

Viscosity: 30mm²/s



Mounting Bolts (Attachment)

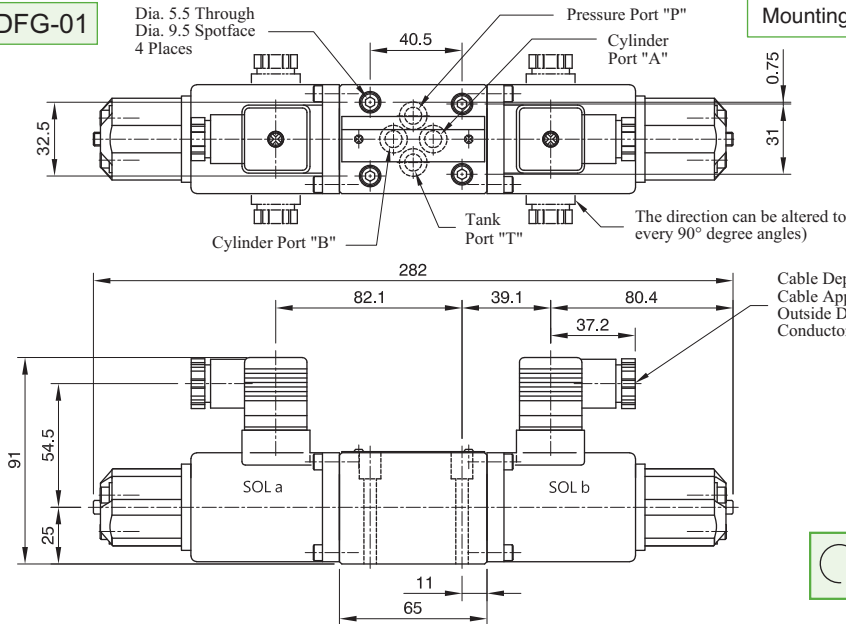
Model No.	Soc. Hd. Cap Screw	Q'ty	Tightening Torque N·m (kgf·m)
EDFG-01	M5 x 45 Lg.	4	5~7 (0.5~0.7)

E

Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 25 MPa

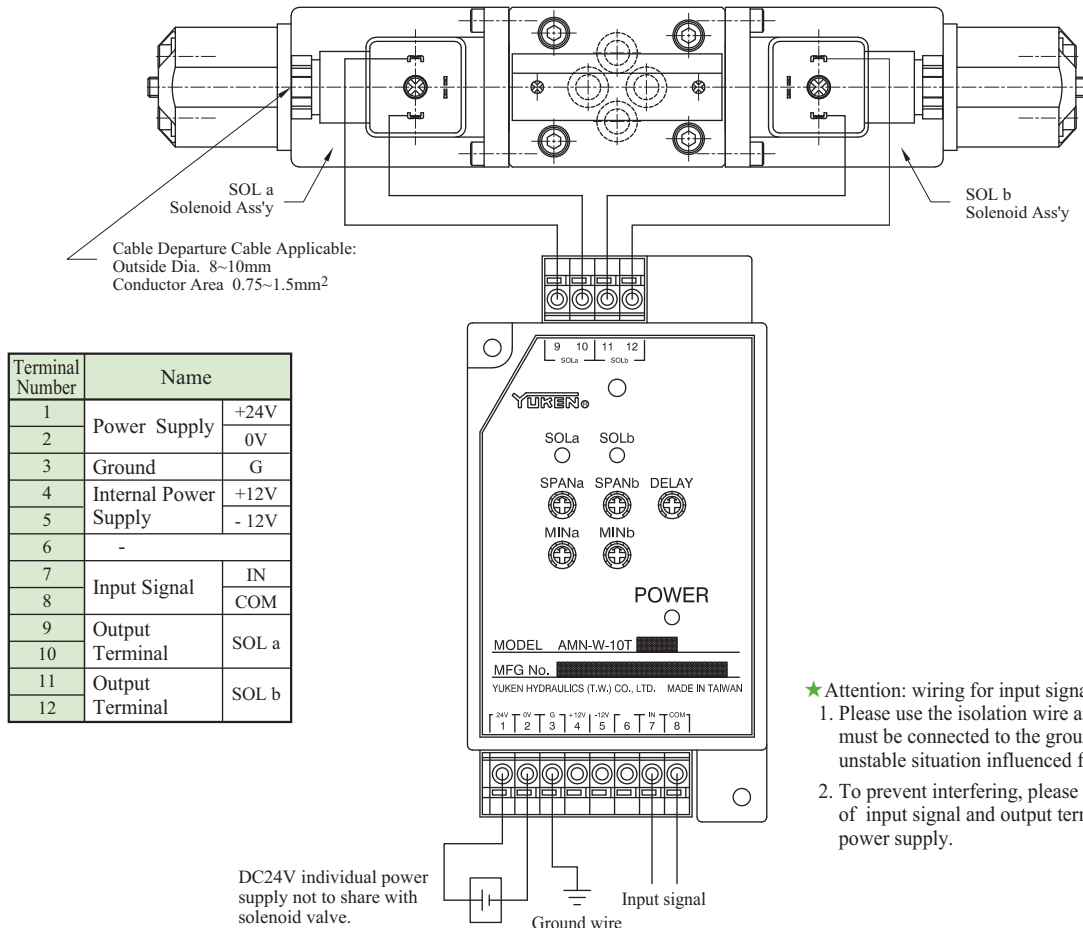
EDFG-01



Mounting Surface: Comfort to ISO 4401-03-02-0-94

For valve mounting surface dimensions, see the dimension drawings of sub-plates of DSGM-01, P88 (in common use).

EDFG-01 Wiring Diagram



- ★ Attention: wiring for input signal and output terminal:
1. Please use the isolation wire and the ground wire must be connected to the ground, so it can reduce the unstable situation influenced from the mixed signals.
 2. To prevent interfering, please do not put the wiring of input signal and output terminal through the main power supply.

Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 25 MPa



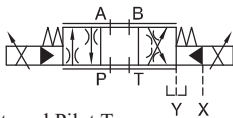
- This valve is assembled with 2 proportional solenoids; Directional flow control valve is pilot controlled by electro-hydraulic reducing valve.
- The flow rate can be controlled by the input current, direction can be controlled by the input current of either solenoid.
- This valve can control direction and flow at the same time by the special designed amplifier to achieve the purpose of the simple circuit and cost down.

Specification

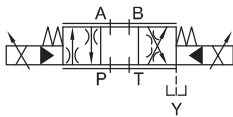
Description	Model No.	EDFHG-03	EDFHG-04	EDFHG-06
Max Operating Pressure	MPa (kgf/cm ²)	25 (255)		
Rated Flow	★1 L/min	100	140	280
Pilot Pressure	★2 MPa	1.5 ~16		
Pilot Flow	At Normal	1	1	2
	L/min	At Transition	3	4
Max. Tank Line Back Pressure	MPa	16	21	
★3 Max. Drain Line Back Pressure	MPa	3.0		
Rated Current	mA	800	980	900
Coil Resistance	Ω	10		
Hysteresis		Less than 5%		
Repeatability		Less than 1%		
Approx. Mass	kg	11	12	15

Graphic Symbols

External Pilot Type
External Drain Type



Internal Pilot Type
External Drain Type



Applicable Power Amplifiers

For stable performance, it is recommended that Yuken's applicable power amplifiers be used AMN-W-10T. (For details see P146.)

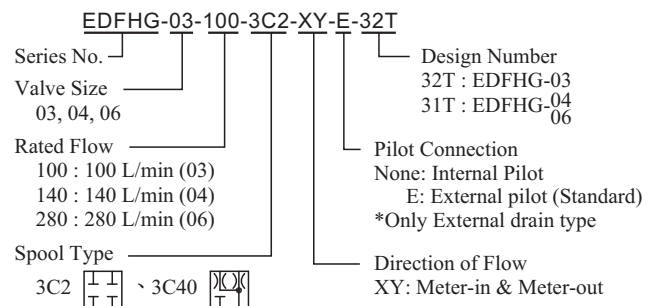
Note

- To ensure stable control, bleed the air from solenoid completely and fill the iron core with oil. For this purpose, it is recommended to provide the drain line with a check valve having a cracking pressure about 0.04 MPa.
- In the event of an electric fault 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, only for direction function.

Mounting Bolts (Attachment)

Model No.	Socket Hd. Cap Screw	Q'TY	Tightening Torque N·m (kgf·m)
EDFHG-03	M6 x 35Lg.	4	12~15 (1.2~1.5)
EDFHG-04	M6 x 45Lg.	2	12~15 (1.2~1.5)
	M10 x 50Lg.	4	58~72 (5.8~7.3)
EDFHG-06	M12 x 60Lg.	6	100~123 (10.2~12.5)

Model Number Designation



Sub-plates

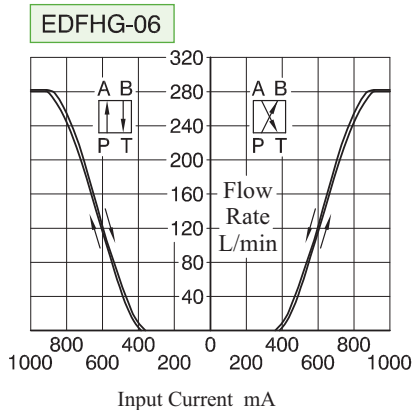
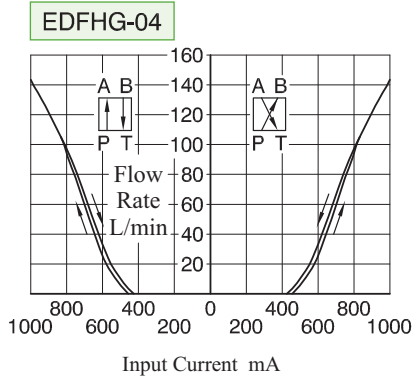
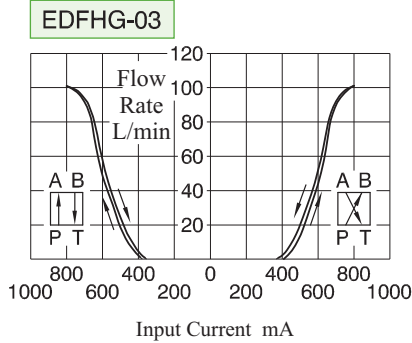
Model No.	Sub-plate Model No.	Thread Size (Rc)
EDFHG-03	DHGM-03Y-10	3/4
EDFHG-04	DHGM-04-20	1/2
	DHGM-04X-20	3/4
EDFHG-06	DHGM-06-50	3/4
	DHGM-06X-50	1

- Sub-plate are available. Specify the sub-plate model number from the table above, when sub-plates are not used, the mounting surface must be process under 6-S (Ra1.6).
- For dimensions of sub-plates, see page 91 (DHGM-04), page 92 (DHGM-06).

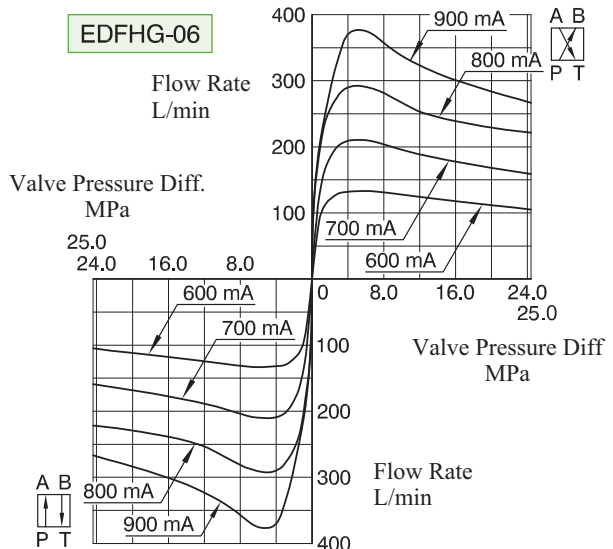
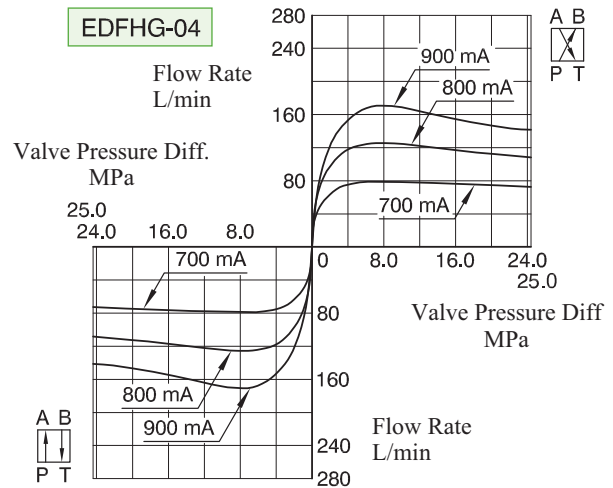
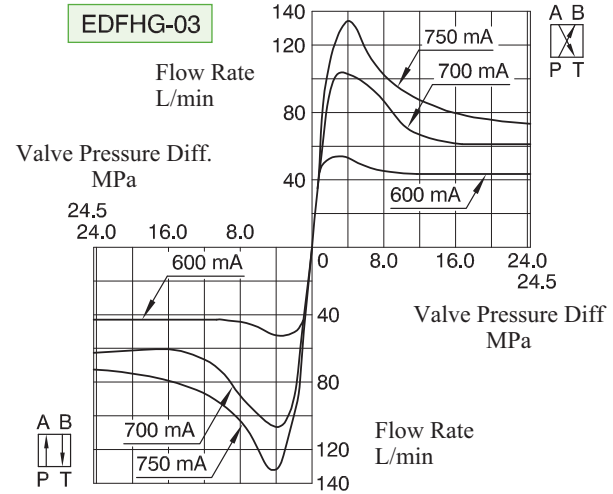
Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 25 MPa

Input Current vs. Flow Viscosity: 30mm²/s
Valve Pressure Difference : P → A (B) , B (A) → T 1 MPa



Valve Pressure Difference vs. Flow Viscosity: 30mm²/s



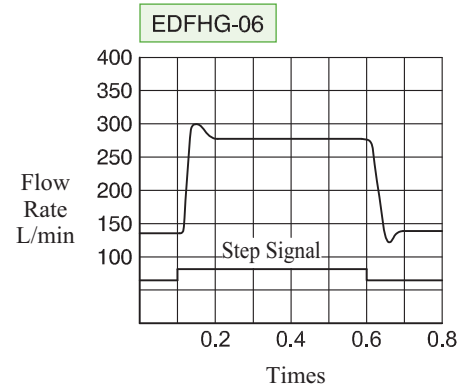
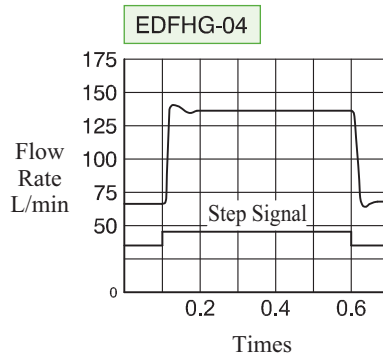
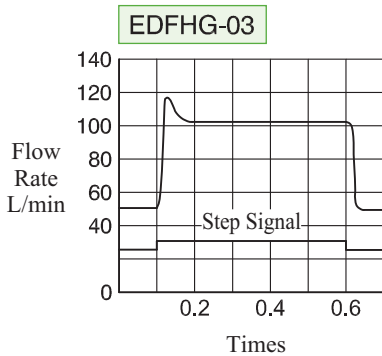
E

Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 25 MPa

Step Response Viscosity: 30mm²/s

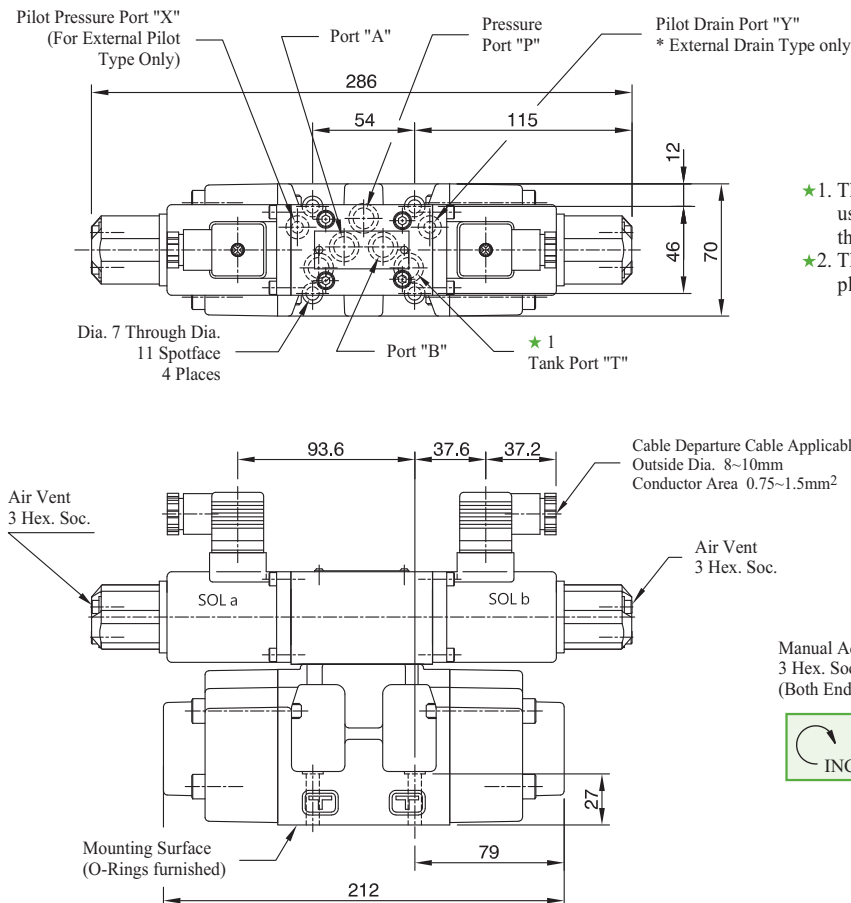
These characteristics have been obtained by measuring on each valve. Therefore, they may vary according to hydraulic circuit to be used.



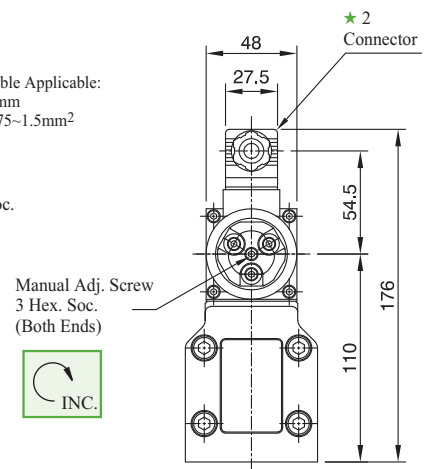
E

EDFHG-03-※-

Mounting Surface: Comfort to ISO 4401-05-05-0-94



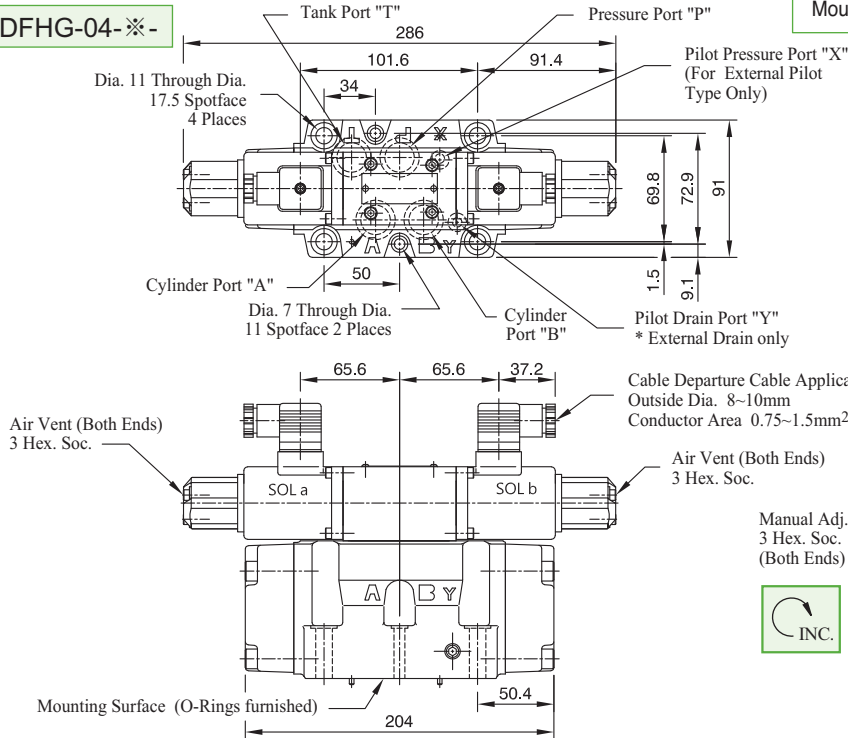
- ★ 1. There are 2 Tank Ports available. While using the standard sub-plate, please select the tank port at the left side.
- ★ 2. The direction can be altered to every 90°, please refer to EDG-01 for more in details.



Proportional Electro-Hydraulic Directional and Flow Control Valves

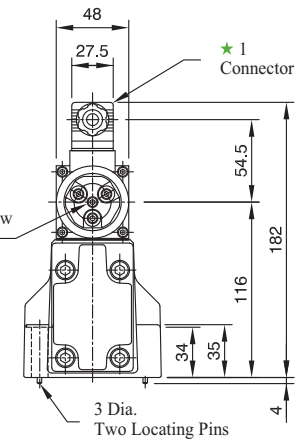
Max. Pressure 25 MPa

EDFHG-04-※-



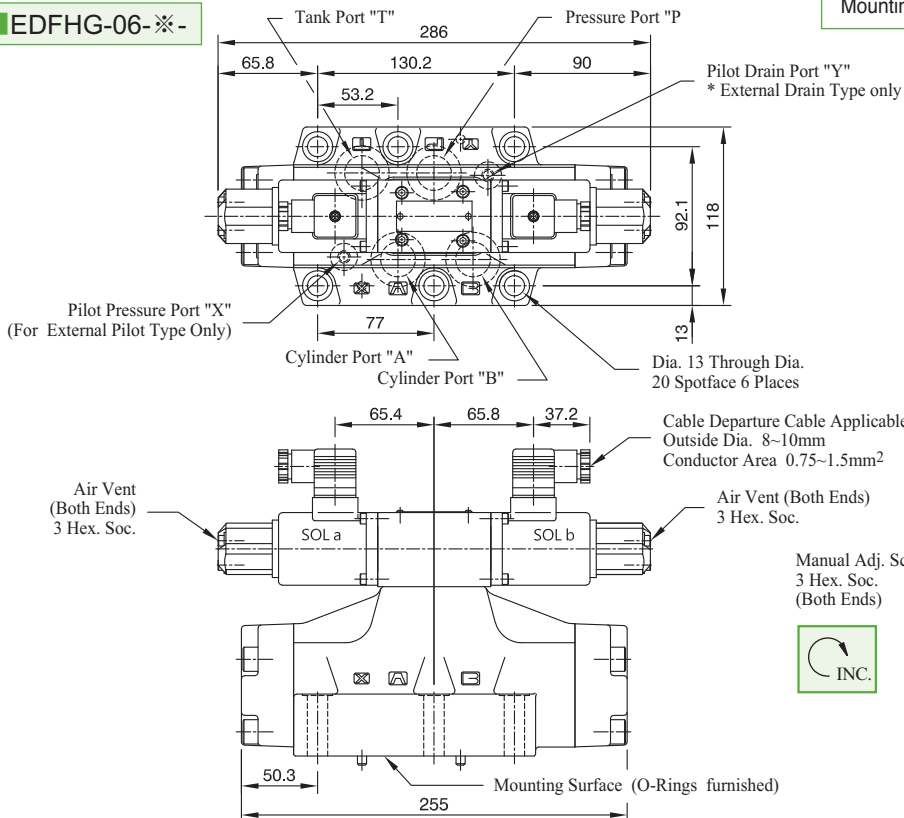
Mounting Surface: Comfort to ISO 4401-07-06-0-94

★1. The direction can be altered to every 90°, please refer to EDG-01 for more in details.



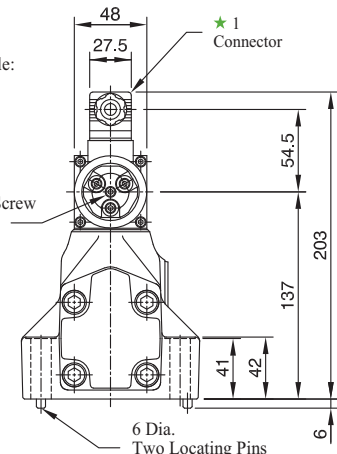
Note) The mounting surface dimensions of the valve, please refer to the dimension drawing of sub-plates of DHGM-04 (P. 91)

EDFHG-06-※-



Mounting Surface: Comfort to ISO 4401-08-07-0-94

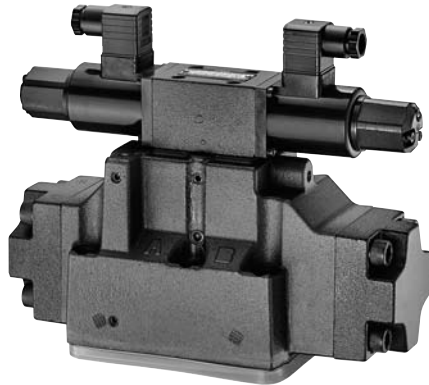
★1. The direction can be altered to every 90°, please refer to EDG-01 for more in details.



Note) The mounting surface dimensions of the valve, please refer to the dimension drawing of sub-plates of DHGM-06 (P. 92)

Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 25 MPa



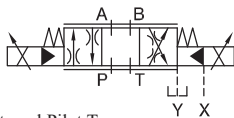
- There are two proportional flow control valves with proportional solenoids installed on this valve and working as a pilot control valve.
- The flow rate can be controlled by changing the input current of the proportional solenoids. The direction of the flow can be controlled by the input current of either the proportional solenoid.
- The specially designed amplifier can control both direction and flow, eventually it can simplify the hydraulic circuit and contribute the cost down.
- This valve is a large flow and low pressure loss type, so the body and spool have been enlarged.

Specification

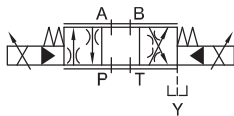
Description		Model No.	EDFHG-04-※-31 T001	EDFHG-06-※-31 T001
Max Operating Pressure		MPa (kgf/cm ²)	25 (255)	
Rated Flow	★1	L/min	200	400
Pilot Pressure		MPa	1.5 ~ 16	
Pilot Flow	At Normal		1	2
	At Transition		6	7
L/min				
Max. Tank Line Back Pressure		★3 MPa	21	
Max. Drain Line Back Pressure		MPa	3.0	
Rated Current		mA	800	750
Coil Resistance		Ω	10	
Hysteresis			Less than 5%	
Repeatability			Less than 1%	
Approx. Mass		kg	13	19.2

Graphic Symbols

External Pilot Type
External Drain Type



Internal Pilot Type
External Drain Type



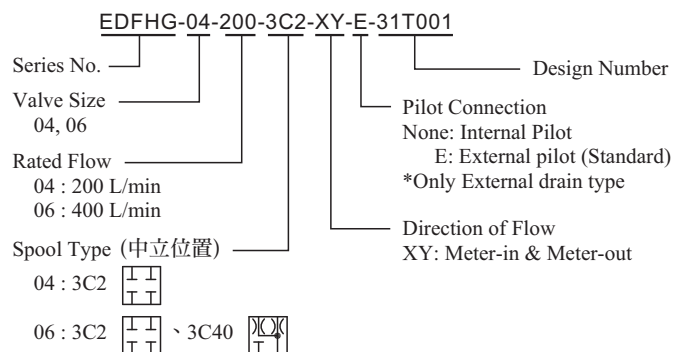
Applicable Power Amplifiers

For stable performance, it is recommended that Yuken's applicable power amplifiers be used AMN-W-10T. (For details see P146.)

Note

- To make the pilot solenoid full of fluid, recommend to install a check valve on the drain pipe with cracking pressure at 0.04 MPa. Please put the end of the drain pipe in the fluid.
- If the electric system broken down, you can adjust by the manual screw to change the direction of the flow. This is only to control the direction of the flow, not the setting of the flow. Please be careful while operation.
Besides, please adjust the external pressure to lower than 7 MPa (internal is P port pressure).
After operation, the manual screw must be back to normal.

Model Number Designation



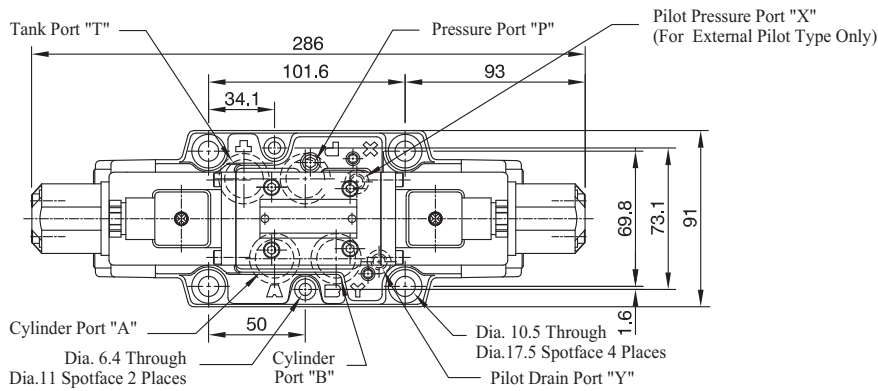
E

Proportional Electro-Hydraulic Directional and Flow Control Valves

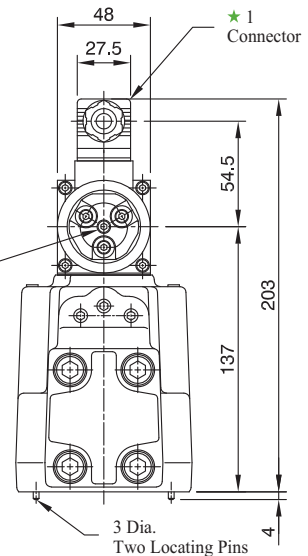
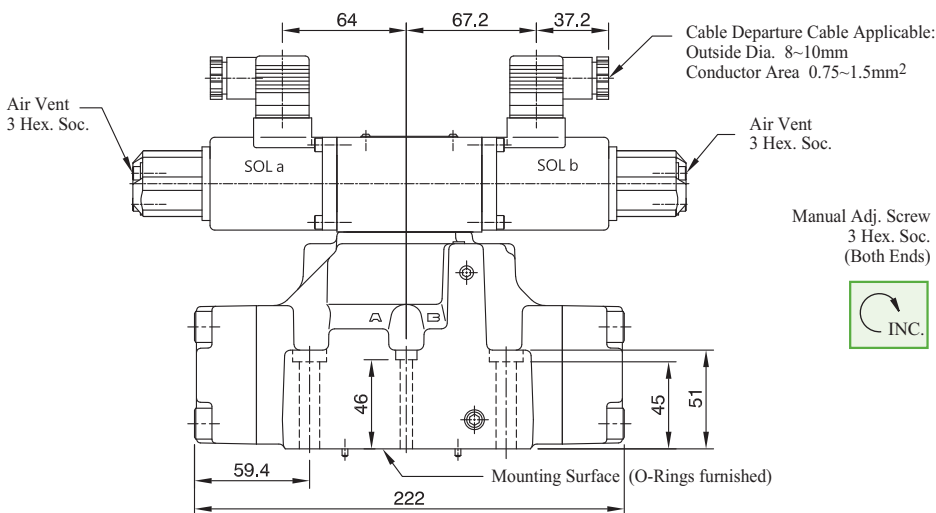
Max. Pressure 25 MPa

EDFHG-04-200-※-※-※-31T001

Mounting Surface: Conform to ISO 4401-07-06-0-94

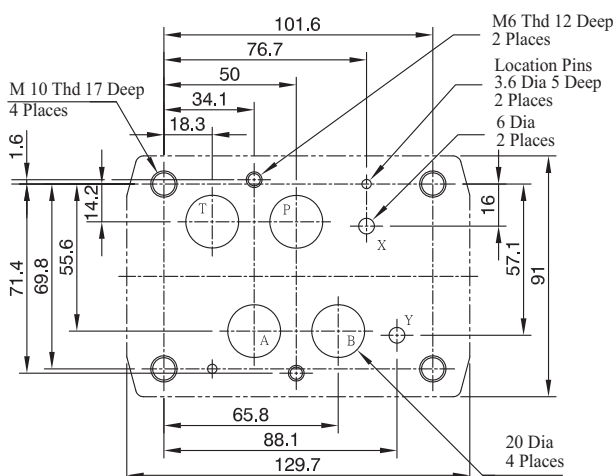


★1. The direction can be altered to every 90°, please refer to EDG-01 for more in details.



Mounting Surface Dimensions

Mounting surface process to $\sqrt{1.6}$



Mounting Surface

This valve can be installed on the mounting surface conforming to ISO 4401-07-06-0-94, in this case, note that pressure drop becomes higher, rated flow cannot be satisfied.

Attachment

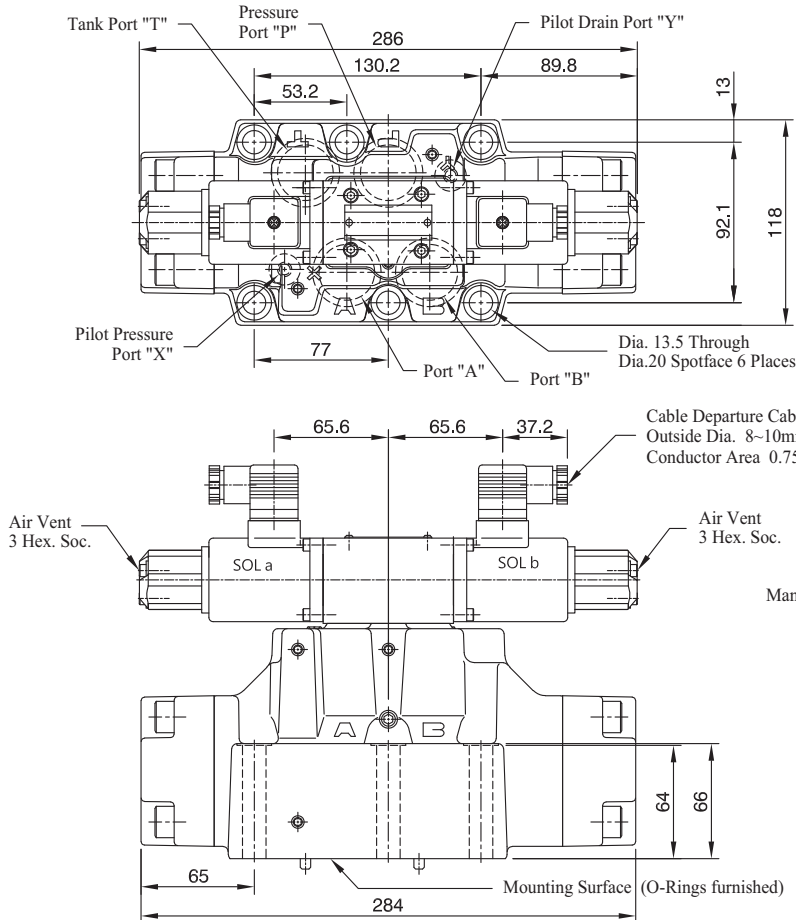
Item	Description	Q'TY	Tightening Torque N•m (kgf•m)
Mounting Bolts	M 6 x 55 Lg. Socket Head Cap Screw	2	12.9~15.9 (1.3 ~ 1.6)
	M 10 x 60 Lg. Socket Head Cap Screw	4	60.6~74.1 (6.2 ~ 7.6)

Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 25 MPa

EDFHG-06-400-※-※-※-31T001

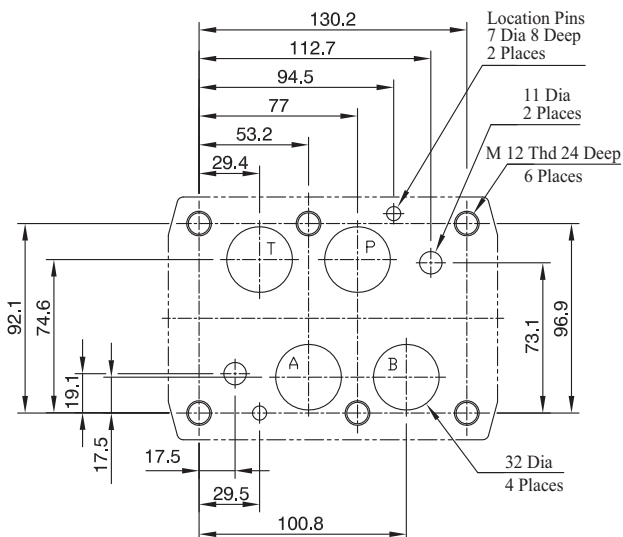
Mounting Surface: Conforms to ISO 4401-08-07-0-94



★ 1. The direction can be altered to every 90°, please refer to EDG-01 for more in details.

Mounting Surface Dimensions

Mounting surface process to $\sqrt{16}$



Mounting Surface

This valve can be installed on the mounting surface conforming to ISO 4401-08-07-0-94, in this case, note that pressure drop becomes higher, rated flow cannot be satisfied.

Attachment

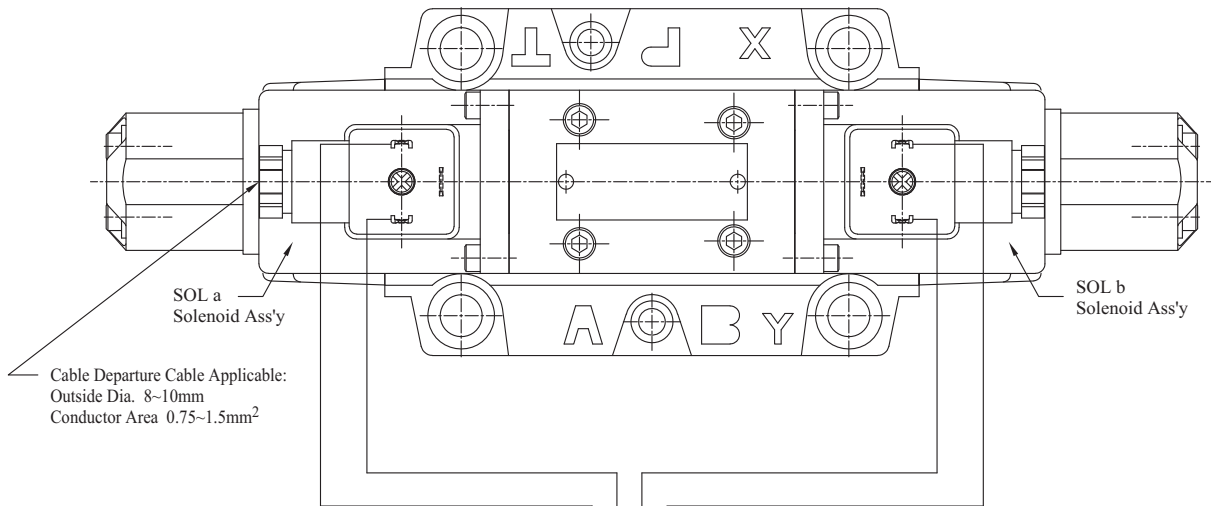
Item	Description	Q'TY	Tightening Torque N•m (kgf•m)
Mounting Bolts	M 12 x 85 Lg. Socket Hd. Cap Screw	6	104 ~ 127 (10.6 ~ 13.0)

E

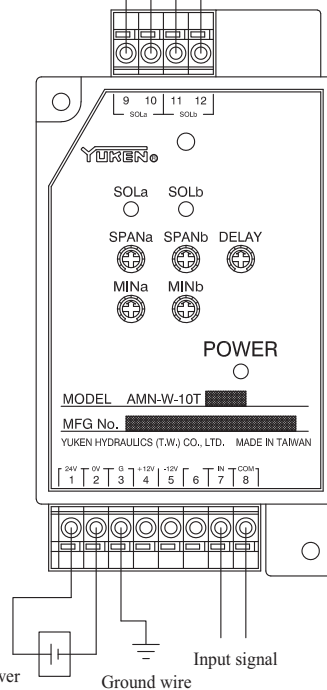
Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 25 MPa

EDFHG-03 / 04 / 06 Wiring Diagram



Terminal Number	Name	
1	Power Supply	+24V
2		0V
3	Ground	G
4	Internal Power Supply	+12V
5		-12V
6	-	
7	Input Signal	IN
8		COM
9	Output Terminal	SOL a
10	Output Terminal	SOL b
11	Output Terminal	SOL a
12	Output Terminal	SOL b

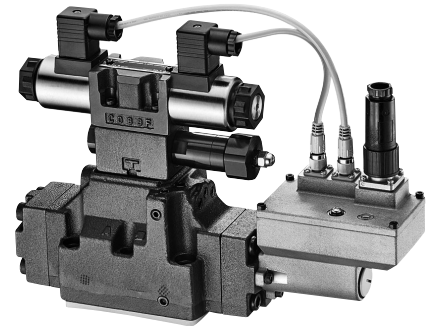


- ★ Attention: wiring for input signal and output terminal:
1. Please use the isolation wire and the ground wire must be connected to the ground, so it can reduce the unstable situation influenced from the mixed signals.
 2. To prevent interfering, please do not put the wiring of input signal and output terminal through the main power supply.

Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 35 MPa

- 1/2, 3/4 BOE Type Proportional Electro-Hydraulic Directional and Flow Control Valve, can be controlled by the main spool, together with the specially designed amplifier to achieve high-precision and high-response.
- The parameters of pilot valve, L.V.D.T. on the main spool, amplifier, body & the specially designed amplifier are adjusted before ex-work, so it will be simple and convenient.
- Power supply is DC 24V, the hydraulic system will be high precision after input the signal.
- 6-PE electrical plug is interchangeable and easy to assemble.



Model Number Designation

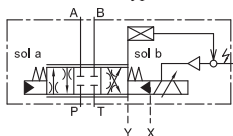
F -	ECDFHG	- 04	EH	- 200	- 3C2	- XY	- E	T	- C	- D	- 10
Fluid Type	Series Number	Valve Size	Amplifier Type	Rated Flow AT ΔP = 1MPa (4 Way Valve)	Spool Type	Direction of Flow	Pilot Type	Drain Type	Fail-Safe Function ★1	Input Signal/Spool Travel Monitoring	Design Number
F: Required only if a Phosphate Ester-Based fluid is used	ECDFHG: High Response Type Proportional Electro-Hydraulic Directional and Flow Control Valves	04 06	EH: OBE Type	150: 150 L/min 200: 200 L/min 350: 350 L/min 500: 500 L/min	3C2 3C40 3C21 3C22 3C2 3C40 3C21 3C22 3C2 3C40	XY: Meter-In, Meter-Out	None: Internal Pilot E: External Pilot	None: External Drain T: Internal Drain	C: Neutral	D : Voltage Signal ± 10 V [P→A→B→T Flow with Input Signal (+)] E : Current Signal 4~20 mA [P→A→B→T Flow with Current Signal 12~20 mA] F : Current Signal ± 10 mA [P→A→B→T Flow with Input Signal (+)]	10

★1 : Fail-Safe Function of the valve, please refer to P139

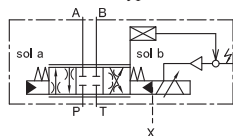
Graphic Symbol

ECDFHG-※-3C2/3C21/3C22 Type

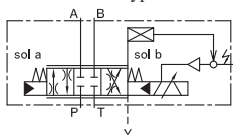
External Pilot Type
External Drain Type



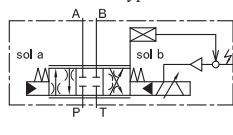
External Pilot Type
Internal Drain Type



Internal Pilot Type
External Drain Type

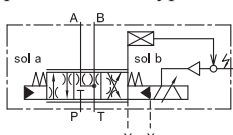


Internal Pilot Type
Internal Drain Type



ECDFHG-※-3C40 Type

The symbol below indicate the spool type of 3C40, the pilot and drain type is as same as the spool type of 3C2.



Mounting Bolts (Attachment)

Model No.	Socket Head Cap Screw	Qty	Tightening Torque N•m (kgf•m)
ECDFHG-04EH-	M10 x 60 Lg.	4	60.6 ~ 74.1 (6.2 ~ 7.6)
	M6 x 55 Lg.	2	12.9 ~ 15.9 (1.3 ~ 1.6)
ECDFHG-06EH-	M12 x 85 Lg.	6	104 ~ 127 (10.6 ~ 13.0)



PROPORTIONAL ELECTRO-HYDRAULIC CONTROLS

Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 35 MPa

Specification

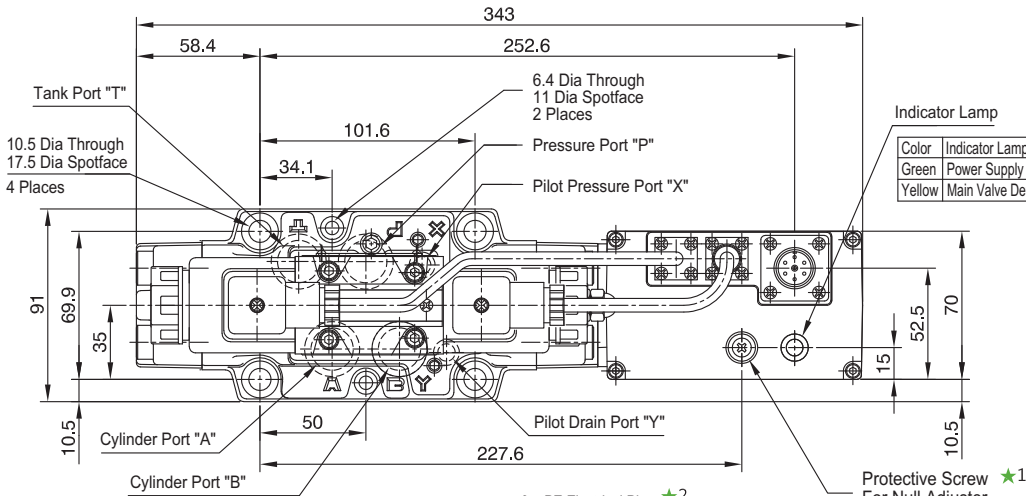
Description			Model Numbers				ECDFHG-04EH				ECDFHG-06EH			
			-150-		-200-		-350-		-500-					
SPOOL TYPE			3C2	3C40	3C21	3C22	3C2	3C40	3C2	3C40	3C21	3C22	3C2	3C40
Rated Current L/min	$\Delta P=0.5$ MPa (1 PORT)	L/min	150	P → A=150	P → A=120	200	350	P → A=350	P → A=230	500	P → B=230	P → B=350	A → T=350	A → T=230
				P → B=120	P → B=150			P → B=230	P → B=350					
				A → T=150	A → T=120			A → T=350	A → T=230					
				B → T=120	B → T=150			B → T=230	B → T=350					
Max. Operating Pressure		MPa (kgf/cm ²)	35 (357)				31.5 (321)							
Pilot Pressure (2)		MPa (kgf/cm ²)	2.5~35 (25~357)				2.5~31.5 (25~321)							
Pilot Flow (3)		L/min	5.5				7.5							
Reservoir Side Pressure (1)	External Drain Type	Tank Port T	31.5 (321)				25 (255)							
		Cylinder Port Y	≤ 1 (10.2)				≤ 1 (10.2)							
	Internal Drain Type	Tank Port T & Cylinder Port Y	≤ 1 (10.2)				≤ 1 (10.2)							
Internal Leakage (4)		Pilot Valves	≤ 1.2 (Including pilot valve and reducing valve)											
		Main Spool	≤ 1.0	≤ 1.4	≤ 1.0	≤ 1.4	≤ 2.8	≤ 1.5	≤ 2.0	≤ 1.5	≤ 2.0	≤ 2.0	≤ 4.0	
Step Response		0~100% (5)	38				45							
Hysteresis		%	≤ 0.5											
Repeatability		%	≤ 0.5											
Power Supply			DC 21.6~26.4 V (Fluctuating Range)											
Rated Current			2 A (Instant load 3A)											
Power Input			75 VA											
Input Signal			$\pm 10V / 4\sim 20$ mA / ± 10 mA											
Electric Connection			6+PE											
Protection			As IP64 Standards											
Approx. Mass.		kg	13				21							

1. Pressure at the return port should be less than the actual supply pressure.
2. Pilot pressure range ECDFHG-04EH:2.5~35 MPa, ECDFHG-06EH:2.5~31.5 MPa, and should be 60% more than the actual supply pressure.
3. The pilot flow is measured under the conditions of 3 MPa and the step response.
4. Internal leakage is measured on the supply pressure of 14 MPa, pilot pressure of 14 MPa, and fluid viscosity 32 mm²/s ; it may be different depending on the actual circuit and operating conditions.
5. Step response: this valve is measured based on the pilot pressure and it may be different depending on the actual circuit and operating conditions.

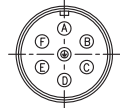
Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 35 MPa

ECDFHG-04EH-



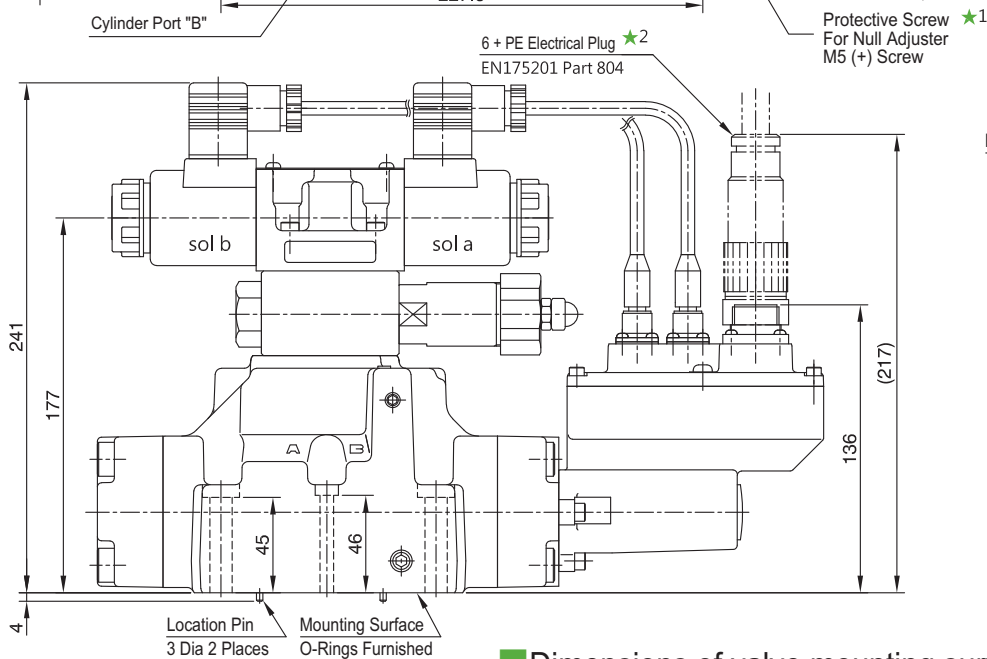
CONNECTOR



Color	Indicator Lamp
Green	Power Supply
Yellow	Main Valve Deviation Alarm

6 + PE Connector

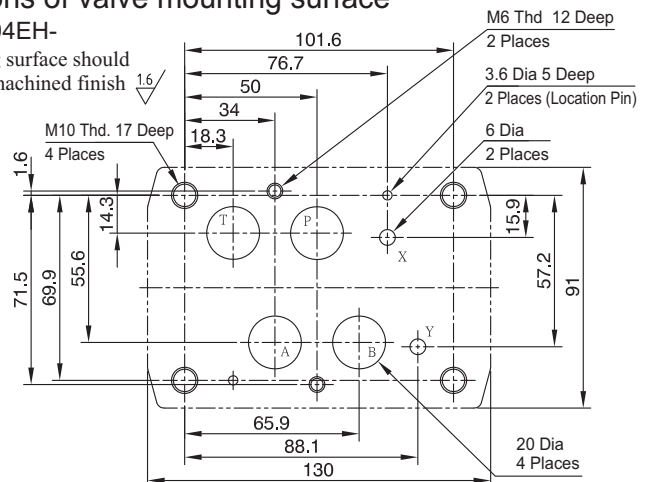
NO.	Description	
A	Power Supply	DC24V
B	Power Common	0V
C	Signal Common	COM
D	Input (+)	IN (+)
E	Input (-)	IN (-)
F	Spool Travel Monitoring	MONITOR
PE	Protective Earth	⊕



Dimensions of valve mounting surface

ECDFHG-04EH-

The mounting surface should have a good machined finish 1.6



★1. While adjusting the Null, remove the protective screw and turn the trimmer behind the screw, after adjusting, make sure to lock the protective screw.

★2. The 6+PE connector is an option and please purchase separately.
Yuken part number: TK290457-1

Mounting Surface

This valve can be installed on the mounting surface conforming to ISO 4401-07-07-0-05. Please be noted that pressure drop becomes higher and rated flow cannot be satisfied.

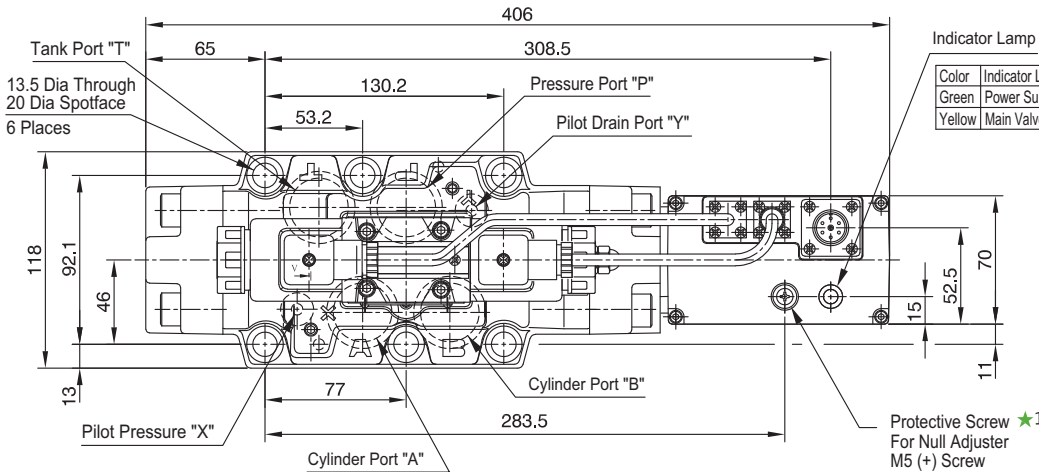
E

Proportional Electro-Hydraulic Directional and Flow Control Valves

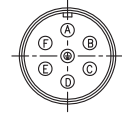
Max. Pressure 35 MPa

ECDFHG-06EH-

CONNECTOR

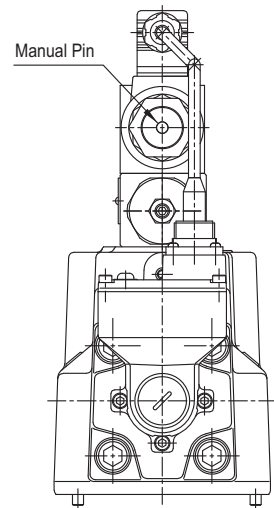
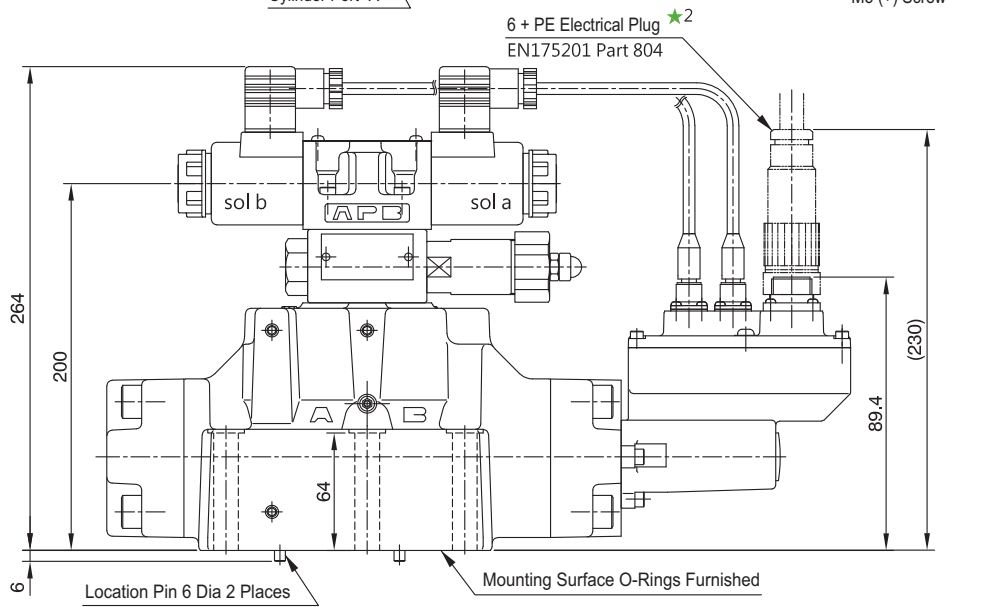


Color	Indicator Lamp
Green	Power Supply
Yellow	Main Valve Deviation Alarm



6 + PE Connector

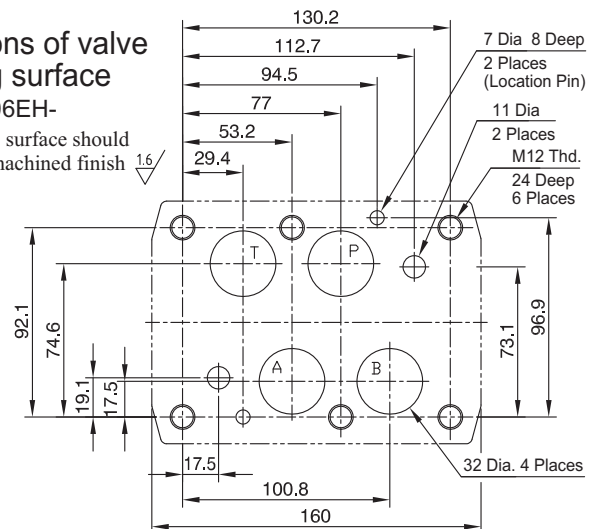
NO.	Description
A	Power Supply DC24V
B	Power Common 0V
C	Signal Common COM
D	Input (+) IN (+)
E	Input (-) IN (-)
F	Spool Travel Monitoring MONITOR
PE	Protective Earth



- ★1. While adjusting the Null, remove the protective screw and turn the trimmer behind the screw, after adjusting, make sure to lock the protective screw.
- ★2. The 6+PE connector is an option and please purchase separately.
Yuken part number: TK290457-1

Dimensions of valve mounting surface ECDFHG-06EH-

The mounting surface should have a good machined finish $1/6$



Mounting Surface

This valve can be installed on the mounting surface conforming to ISO 4401-08-08-0-05. Please be noted that pressure drop becomes higher and rated flow cannot be satisfied.

E

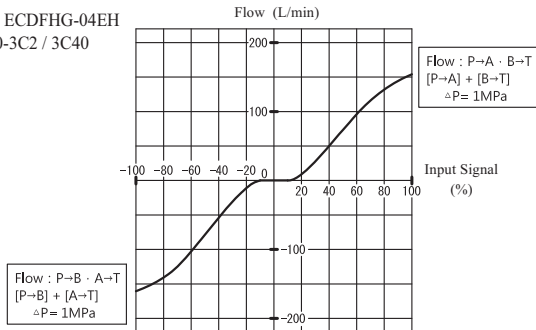
Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 35 MPa

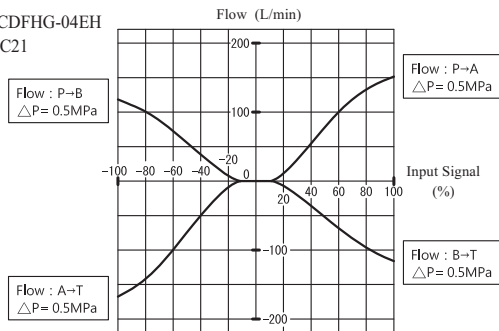
No-Load Flow Characteristics

Valve Pressure Difference : $\Delta P = 1 \text{ MPa}$ (4- Way Valve)
1 Port Pressure Difference = 0.5 MPa
Fluid Viscosity : 32 mm²/s

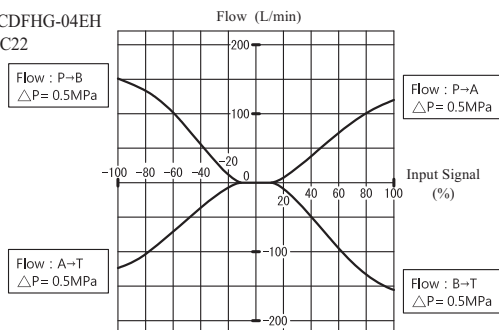
- (F-) ECFDFHG-04EH
-150-3C2 / 3C40



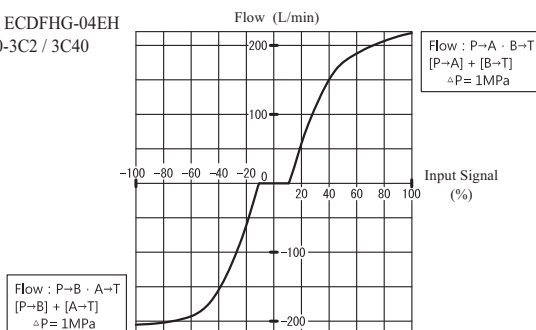
- (F-) ECFDFHG-04EH
-150-3C21



- (F-) ECFDFHG-04EH
-150-3C22



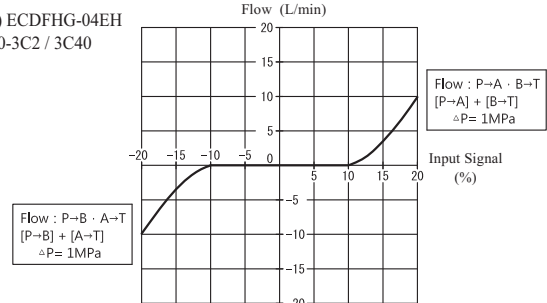
- (F-) ECFDFHG-04EH
-200-3C2 / 3C40



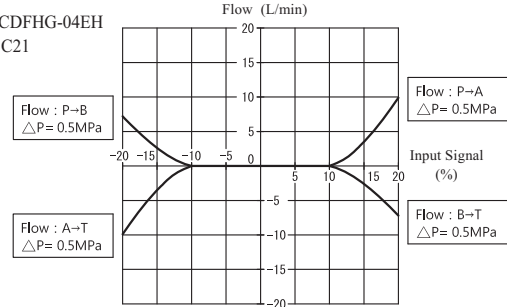
No-Load Flow Characteristics $\pm 20\%$ (Details of Zero Neighborhood)

Valve Pressure Difference : $\Delta P = 1 \text{ MPa}$ (4- Way Valve)
1 Port Pressure Difference = 0.5 MPa
Fluid Viscosity : 32 mm²/s

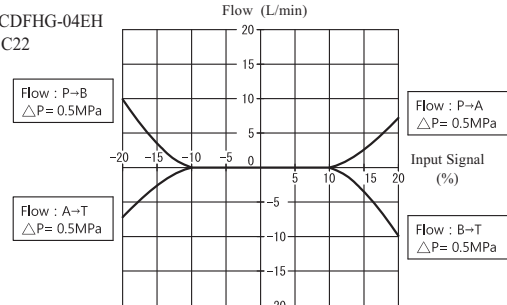
- (F-) ECFDFHG-04EH
-150-3C2 / 3C40



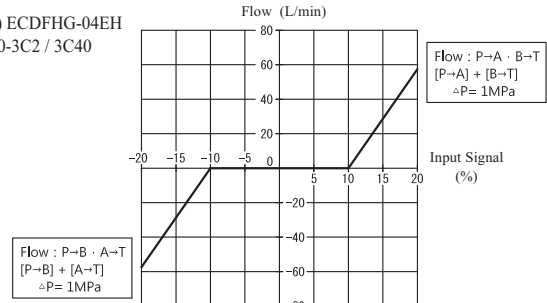
- (F-) ECFDFHG-04EH
-150-3C21



- (F-) ECFDFHG-04EH
-150-3C22



- (F-) ECFDFHG-04EH
-200-3C2 / 3C40



E

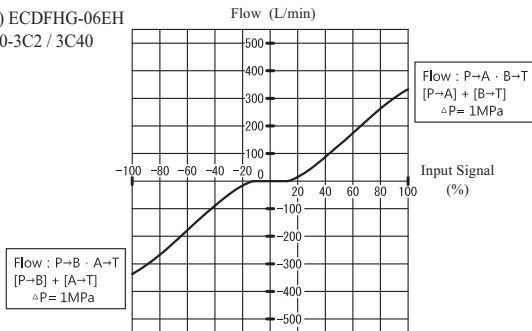
Proportional Electro-Hydraulic Directional and Flow Control Valves

Max. Pressure 35 MPa

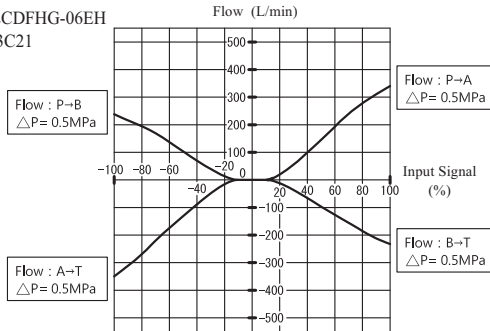
No-Load Flow Characteristics

Valve Pressure Difference : $\Delta P = 1 \text{ MPa}$ (4- Way Valve)
1 Port Pressure Difference = 0.5 MPa
Fluid Viscosity : 32 mm²/s

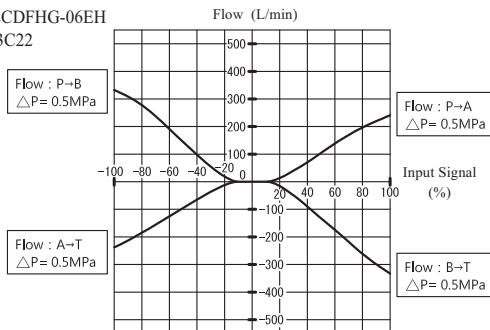
● (F-) ECDFHG-06EH
-350-3C2 / 3C40



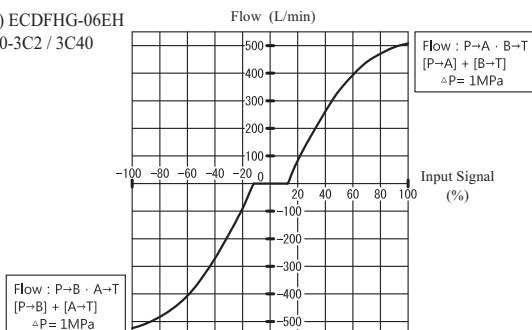
● (F-) ECDFHG-06EH
-350-3C21



● (F-) ECDFHG-06EH
-350-3C22



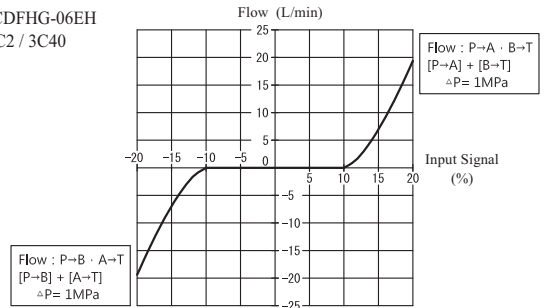
● (F-) ECDFHG-06EH
-500-3C2 / 3C40



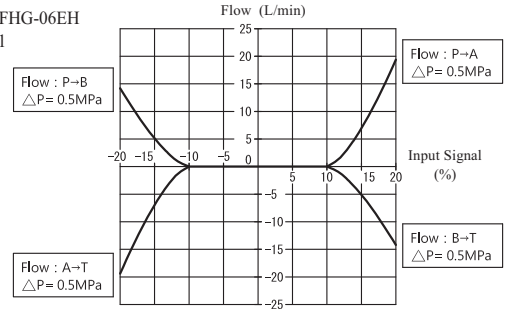
No-Load Flow Characteristics $\pm 20\%$ (Details of Zero Neighborhood)

Valve Pressure Difference : $\Delta P = 1 \text{ MPa}$ (4- Way Valve)
1 Port Pressure Difference = 0.5 MPa
Fluid Viscosity : 32 mm²/s

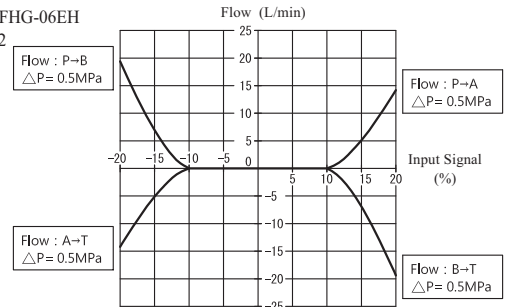
● (F-) ECDFHG-06EH
-350-3C2 / 3C40



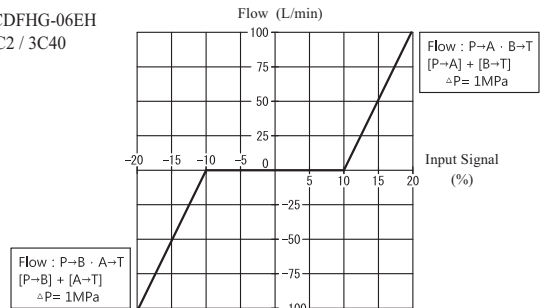
● (F-) ECDFHG-06EH
-350-3C21



● (F-) ECDFHG-06EH
-350-3C22



● (F-) ECDFHG-06EH
-500-3C2 / 3C40



E

Power Amplifiers



Compact power amplifiers are for 10Ω proportional solenoids. The power supply is 24V DC. It uses a new circuitry to be slow to heat..

Specifications

Description	Model No.	AMN-D-20T
Type of Function		DC Input Type
Max. Output Current		1A(10Ω Solenoid)
Power Input (Max.)		DC+10V
Input Impedance		10KΩ
Max. Gain		1A/5V
Dither		Variable
Temperature Drift (Max.)		0.2mA/°C
Power Supply		DC 24V (DC 20~30V)
Max. Input Power		25W
Ambient Temperature		0~50°C
External Setting Resistance		1KΩ
Approx. Mass		0.1 kg

Model Number Designation

Series Numbers	Type of Function	Design Number
AMN	D: DC Input Type	20T

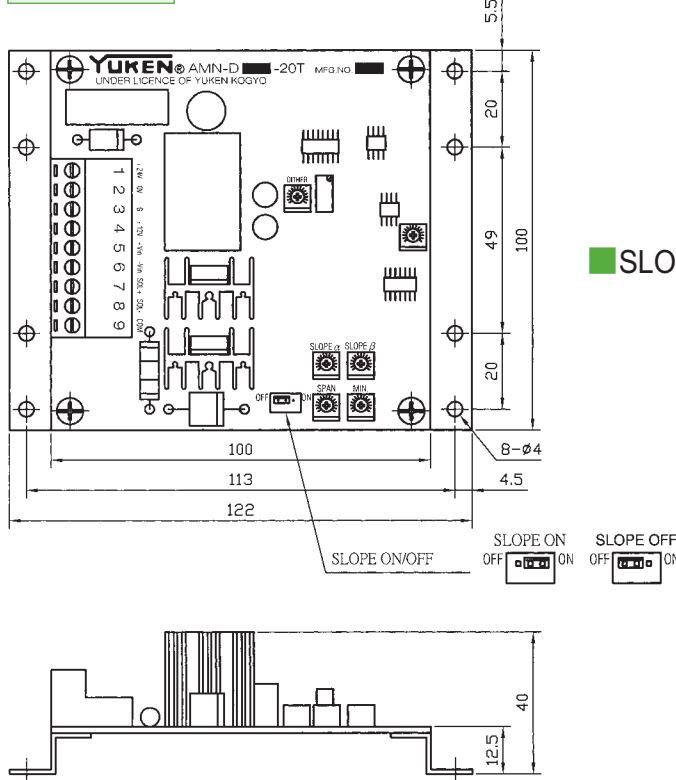
Applicable to Valve

Name of Valve	Model Numbers
Pilot Relief Valve	EDG-01
Relief Valves	EBG-03 EBG-06 ※ EBG-10
Reducing and Relieving Valves	※ ERBG-06 ※ ERBG-10
10Ω Series Flow Control Valves	※ EF(C)G-03-※-51D ※ EF(C)G-03-※-51D
10Ω Series High Flow Series Flow Control and Relief Valves	EFBG-03 EFBG-06 ELFB(C)G-03 ELFB(C)G-06 EFBG-10

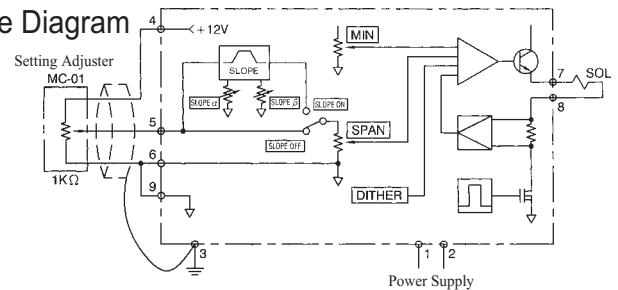
※ Yuken Kogyo Models

E

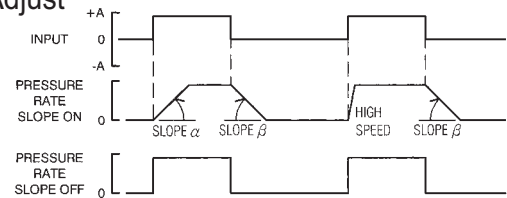
AMN-D-20T



Example Diagram



SLOPE Adjust



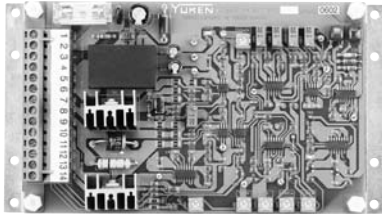
Details of Terminal Board

Terminal Number	Name	
1	Power Supply	+24V
2		0V
3	Ground	G
4	Internal Power Supply	+12V
5	Input Signal	+Vin
6		-Vin
7	Output to Valve	SOL+
8	Solenoid	SOL -
9	Common	COM

※ We do not adjust the MIN and SPAN of the amplifier exwork, please adjust it while operating the amplifier.

★ Please connect input signal with +Vin and -Vin, please do not connect +Vin and COM.

Power Amplifiers

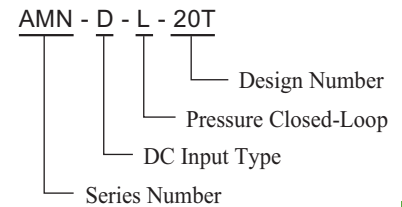


The pressure-response AMP is designed for high response & high precision ELFB(C)G and the power supply is DC24V, It uses a new circuit to be slow to heat, a perfect control.

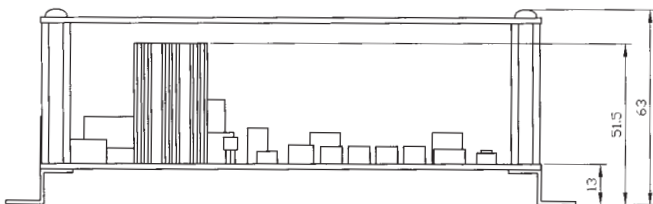
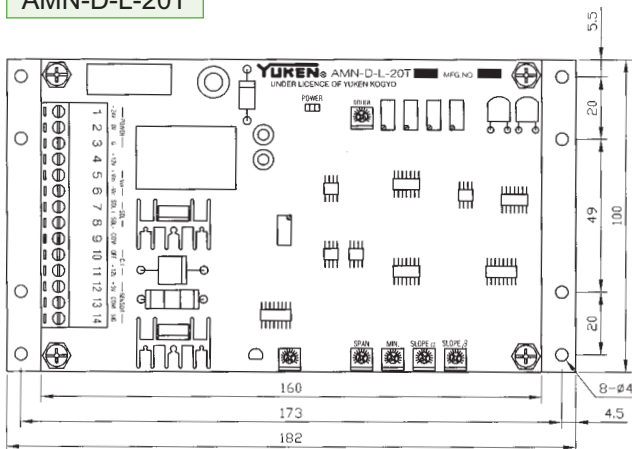
Specifications

Model No.	AMN-D-L-20T
Description	AMN-D-L-20T
Max. Output Current	1A(10Ω Solenoid)
Power Input (Max.)	DC10V
Input Impedance	DC0.5~4.5V
Max. Gain	10KΩ
Dither	1A/5V
Temperature Drift (Max.)	Variable
Power Supply	Max. 0.2mA/°C
Max. Input Power	DC 24V (DC 20~30V)
Ambient Temperature	0~50°C
External Setting Resistance	1KΩ
Approx. Mass	0.3 kg

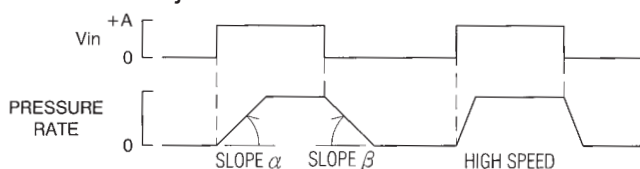
Model Number Designation



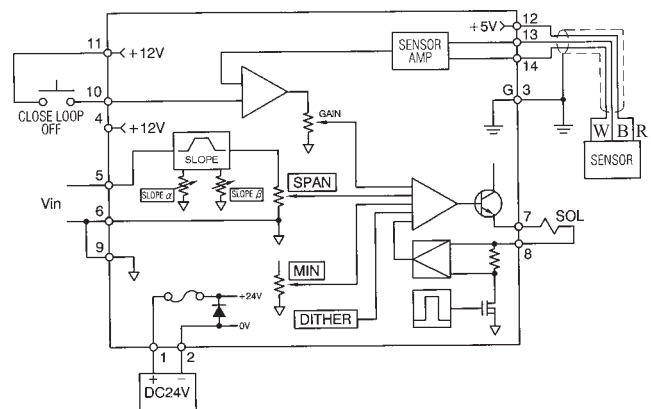
AMN-D-L-20T



SLOPE Adjust



Example Diagram



Details of Terminal Board

Terminal Number	Name	Terminal Number	Name		
1	Power Supply	+24V	7	Output to Valve	
2		0V	8	Solenoid	
3	Ground	G	9	Common	
4	Internal Power Supply	+12V	10	CLOSE LOOP	
5	Input Signal	+ Vin	11	ON/OFF	
6		- Vin	12	+ 12V	
			13	Pressure Sensor	
			14		COM
					SIG.

- ★ 1. Please connect input signal with +Vin and -Vin, please do not connect +Vin and COM
- ★ 2. We do not adjust the MIN and SPAN of the amplifier exwork, please adjust it while operating the amplifier..
- ★ 3. If pressure checking wires need to be extended, please use conductor area small than 1.5mm² isolation wires and make sure the total length can not be over 10m.

Power Amplifiers

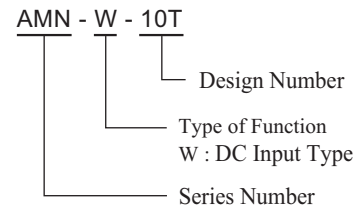


- The power amplifier is applicable to the DC input type of proportional electro-hydraulic directional and flow control valves.

Specifications

Model No.	AMN-W-10T
Description	DC Input Type
Type of Function	DC Input Type
Max. Output Current	1.3A(10Ω Solenoid)
Max. Power Input	-10V DC SOL a +10V DC SOL b
Input Impedance	10 kΩ
Max. Gain	1.3 A /-5V : SOL a 1.3 A /+5V : SOL b
Dither	Variable
Delay Adj. Range	0.1 ~ 3 s
Temperature Drift	0.2mA / °C
Power Supply	DC 24V (DC 20~30V)
Ambient Temperature	0~50°C
Max. Input Power	25 W
Ambient Humidity	Less than 90% RH
Approx. Mass	0.2 kg

Model Number Designation

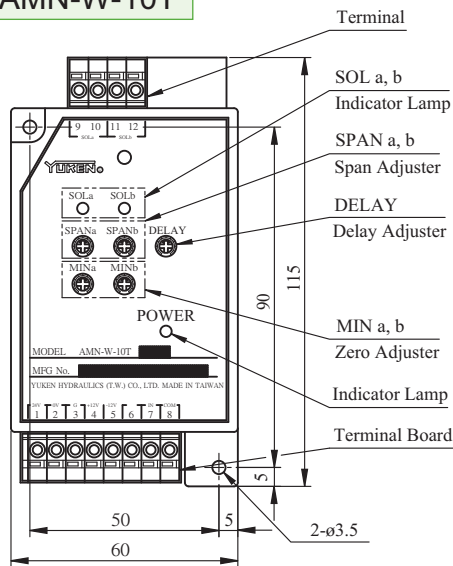


Applicable to Valve

Name of Valve	Model Numbers
Proportional Electro-Hydraulic Directional and Flow Control Valve	EDFG-01-※
	EDFHG-03-※
	EDFHG-04-※
	EDFHG-06-※

E

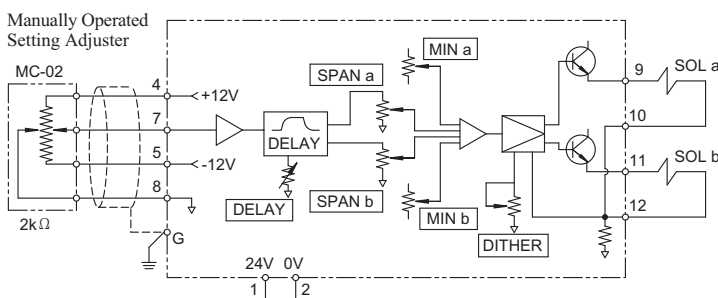
AMN-W-10T



Details of Terminal Board

Terminal Number	Name	Terminal Number	Name		
1	Power Supply	+24V	7	Input Signal	IN
2		0V	8		COM
3	Ground Internal Power Supply	G	9	Output to Valve Solenoid	SOL a
4	Input Signal	+12V	10		
5		-12V	11	Output to Valve Solenoid	SOL b
6	-		12		

Example Diagram



DELAY Adjustment

