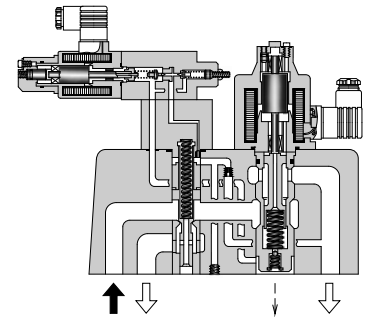
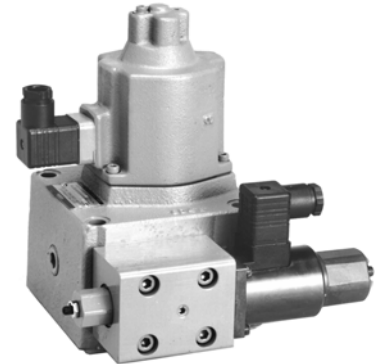


### Specifications / Model Number Designation

#### Specifications

Model No.		EFBG-03 -125-* -17*	EFBG-06 -250-* -17*	EFBG-10 -500-* -17*
Description				
Max. Operating Pressure MPa (PSI)		24.5 (3550)	24.5 (3550)	24.5 (3550)
Max. Flow L/min (U.S.GPM)		125 (33)	250 (66)	500 (132)
Metred Flow Adjustment Range L/min (U.S.GPM)		1-125 (.26-33)	2.5-250 (.66-66)	5-500 (1.32-132)
Flow Controls	Rated Current	600 mA	580 mA	700 mA
	Coil Resistance	43.5 Ω	43.5 Ω	43.5 Ω
	Differential Pressure MPa (PSI)	0.6 (85)	0.7 (100)	0.9 (130)
Flow Controls	Hysteresis	Less than 7%	Less than 7%	Less than 7%
	Repeatability	Less than 1%	Less than 1%	Less than 1%
Pressure Controls <sup>★1</sup>	Pres. Adj. Range MPa (PSI) <sup>★2</sup>	<b>C</b> : 1.4-13.7 (205-2000) <b>H</b> : 1.4-20.6 (205-3000)	<b>C</b> : 1.5-13.7 (220-2000) <b>H</b> : 1.5-20.6 (220-3000)	<b>C</b> : 1.6-13.7 (230-2000) <b>H</b> : 1.6-20.6 (230-3000)
	Rated Current	<b>C</b> : 750 mA <b>H</b> : 750 mA	<b>C</b> : 690 mA <b>H</b> : 730 mA	<b>C</b> : 690 mA <b>H</b> : 690 mA
	Coil Resistance	10 Ω	10 Ω	10 Ω
	Hysteresis	Less than 3%	Less than 3%	Less than 3%
	Repeatability	Less than 1%	Less than 1%	Less than 1%
	Approx. Mass kg (lbs.)	Refer to page 24 to 26		



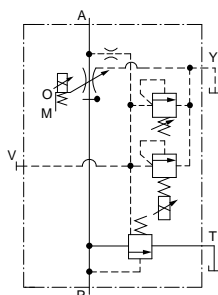
- ★1. The specifications for pressure controls are applied to models with proportional pilot relief valve. (Ex. EFBG-03-125-C-\* -17)
- ★2. The maximum pressure adjustment range of the models without proportional pilot relief valves is 24.5 MPa (3550 PSI).

#### Model Number Designation

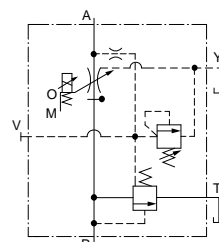
EFB	G	-03	-125	-C	-17	*
Series Number	Type of Mounting	Valve Size	Max. Metred Flow L/min (U.S.GPM)	Proportional Pilot Relief Valve Pressure Adjustment Range	Design Number	Design Standards
<b>EFB</b> : Proportional Electro-Hydraulic Flow Control and Relief Valve	<b>G</b> : Sub-plate Mounting	<b>03</b>	<b>125</b> : 125 (33)	<b>C, H</b> : See Specifications  <b>None</b> : Without Proportional Pilot Relief Valve	<b>17</b>	Refer to ★
		<b>06</b>	<b>250</b> : 250 (66)		<b>17</b>	
		<b>10</b>	<b>500</b> : 500 (132)		<b>17</b>	

- ★ Design Standards: None ..... Japanese Standard "JIS" and European Design Standard 90 ..... N. American Design Standard

#### Graphic Symbols



With Proportional Pilot Relief Valve



Without Proportional Pilot Relief Valve

■ Attachment

● Mounting Bolts

Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.	
EFBG-03	M10 × 100 Lg.	3/8-16 UNC × 4 Lg.	4
EFBG-06	M16 × 130 Lg.	5/8-11 UNC × 5 Lg.	4
EFBG-10	M20 × 130 Lg.	3/4-10 UNC × 5 Lg.	4

■ Applicable Power Amplifiers

For stable performance, it is recommended that Yuken's applicable power amplifiers be used (for details see the Catalogue No. Pub. EC-1305).

Model Numbers	Power Amplifier Model Numbers	
	For Flow Control	For Pres. Control
EFBG-03-125-17/1790 EFBG-06-250-17/1790 EFBG-10-500-17/1790	AME-D-S-*-32 AME-DF-S-*-22 AME-T-S-*-22	—
EFBG-03-06-10- <sup>C</sup> <sub>H</sub> -17/1790	AME-D2-H1-*-12	

■ Sub-plate

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N. American Design Standard		Approx. Mass kg (lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
EFBG-03	EFBGM-03Y-10	Rc 3/4	EFBGM-03Y-1080	3/4 BSP.F	EFBGM-03Y-1090	3/4 NPT	6 (13.2)
	EFBGM-03Z-10	Rc 1	EFBGM-03Z-1080	1 BSP.F	EFBGM-03Z-1090	1 NPT	
EFBG-06	EFBGM-06X-10	Rc 1	EFBGM-06X-1080	1 BSP.F	EFBGM-06X-1090	1 NPT	12.5 (27.6)
	EFBGM-06Y-10	Rc 1-1/4	EFBGM-06Y-1080	1-1/4 BSP.F	EFBGM-06Y-1090	1-1/4 NPT	16 (35.3)
EFBG-10	EFBGM-10Y-10 <sup>*</sup>	1-1/2, 2 Flange Mounting	EFBGM-10Y-1080 <sup>*</sup>	1-1/2, 2 Flange Mounting	EFBGM-10Y-1090 <sup>*</sup>	1-1/2, 2 Flange Mounting	37 (81.6)

● 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.

★ When ordering the EFBGM-10Y, see Type F3 Pipe Flange Kits on the Catalogue No. Pub. EC-3001 and order an appropriate pipe flange kit also.

■ Instructions

● Drain Back Pressure

Check that the drain back pressure does not exceed 0.2 MPa (29 PSI).

● When Relief Valve Passing Flow Rate is Low in Pressure Control State

To avoid preselected pressure instability, use a passing flow rate of 10 L/min (2.6 U.S.GPM) or higher for nominal sizes 03 and 06 or 15 L/min (4.0 U.S.GPM) or higher for nominal size 10.

Further, check that the tank-line back pressure does not exceed 0.5 MPa (70 PSI).

● 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 (290 PSI). Please adjust the pressure of the valve so preset to meet the pressure to be used actually.

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

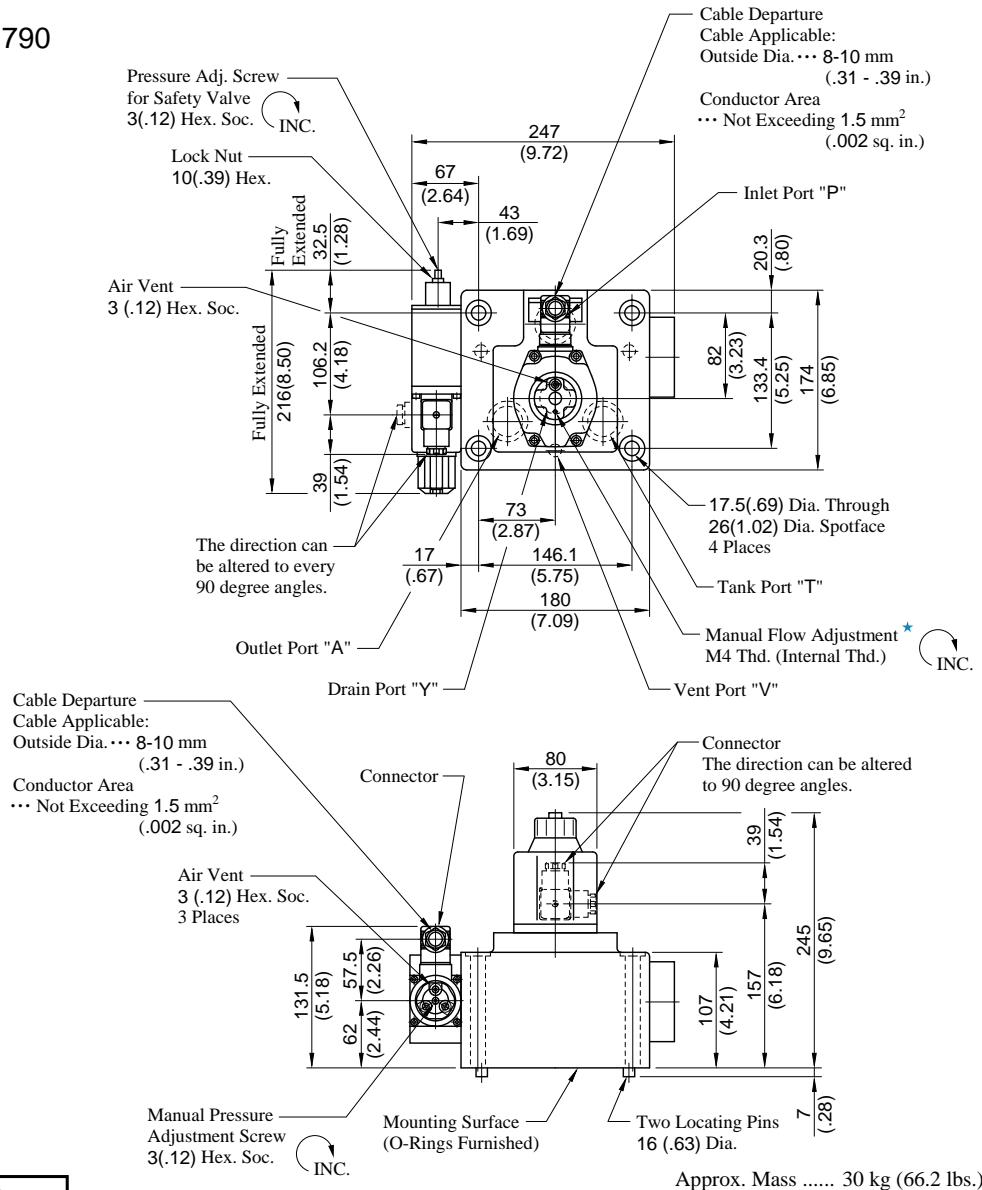




### Installation Drawing

#### Models with Proportional Pilot Relief Valve

EFBG-06-250-<sup>C</sup>/<sub>H</sub>-17/1790



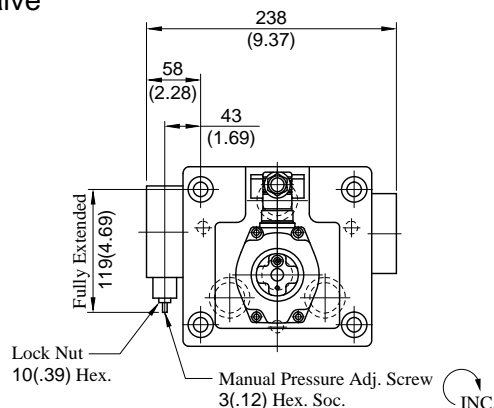
**DIMENSIONS IN  
MILLIMETRES (INCHES)**

★ Manual flow adjustment can be done by screwing for example an M4×20L screw in the M4 thread or pushing in a rod etc. there.

Approx. Mass ..... 30 kg (66.2 lbs.)

#### Models without Proportional Pilot Relief Valve

EFBG-06-250-17/1790



Approx. Mass ..... 28 kg (61.7 lbs.)

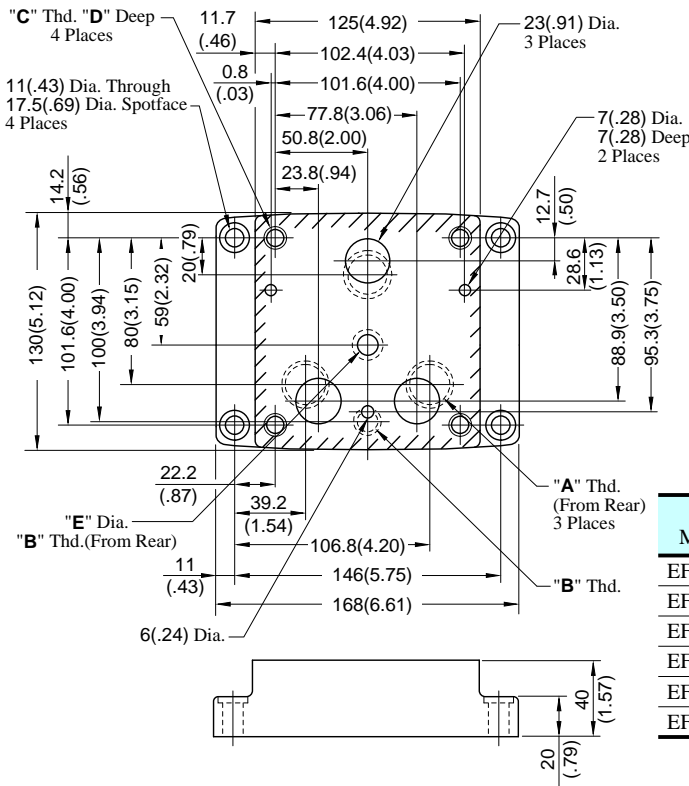
• For other dimensions, please refer to the models with Proportional Pilot Relief Valve.





#### ■ Sub-plate

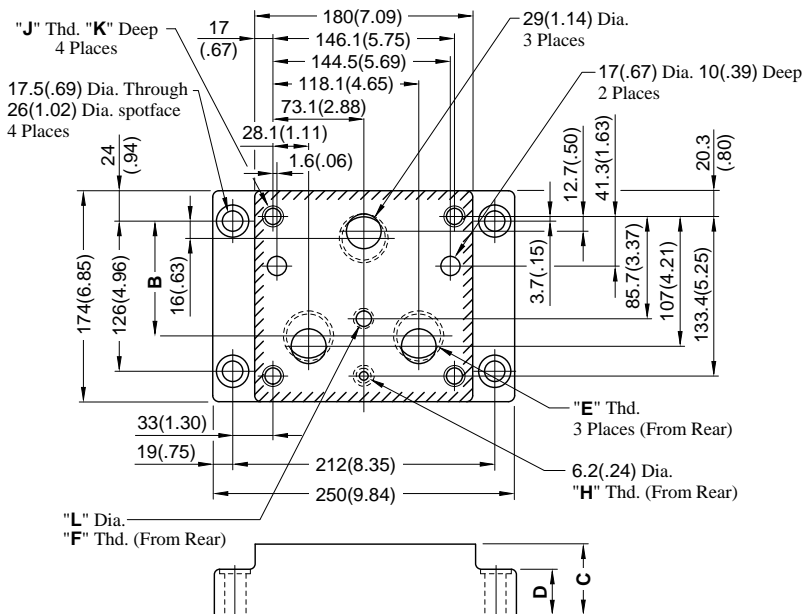
#### EFBGM-03Y/03Z-10/1080/1090



Sub-plate Model Numbers	Thread Size			mm (in.)	
	"A" Thd.	"B" Thd.	"C" Thd.	D	E
EFBGM-03Y-10	Rc 3/4	Rc 1/4	M10	18 (.71)	11 (.43)
EFBGM-03Z-10	Rc 1				11.7 (.46)
EFBGM-03Y-1080	3/4 BSP.F	1/4 BSP.F			11 (.43)
EFBGM-03Z-1080	1 BSP.F				11.7 (.46)
EFBGM-03Y-1090	3/4 NPT	1/4 NPT	3/8-16 UNC	21 (.83)	11 (.43)
EFBGM-03Z-1090	1 NPT				11 (.43)

DIMENSIONS IN  
MILLIMETRES (INCHES)

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

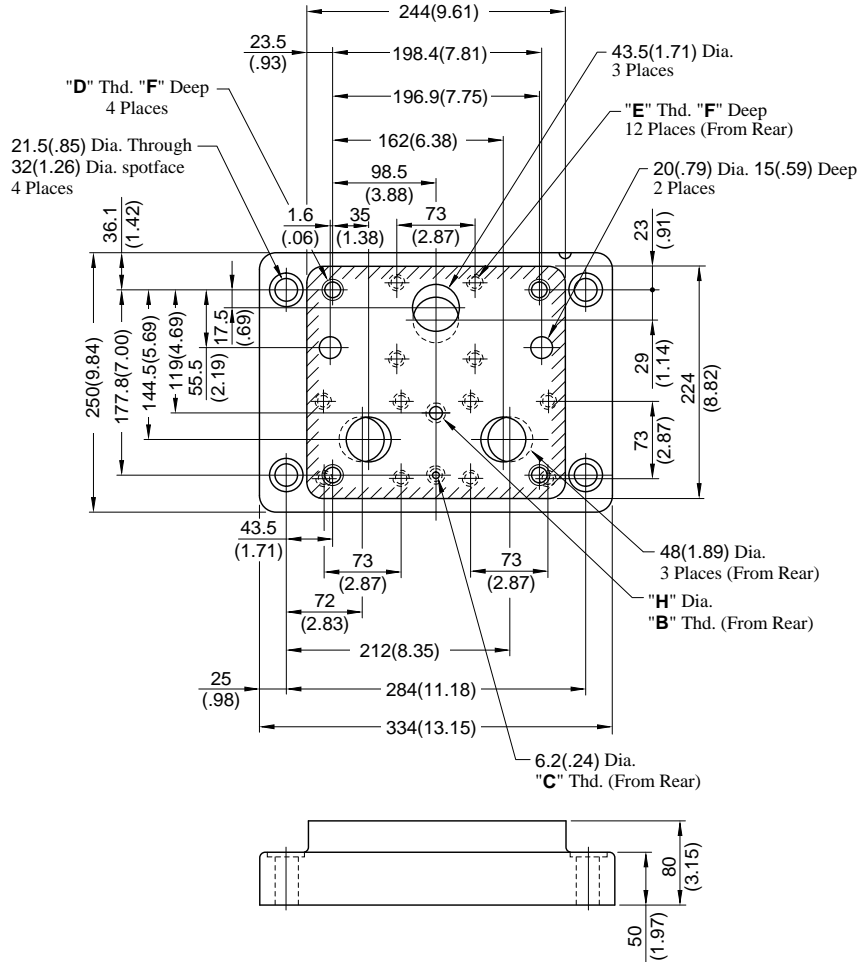


Sub-plate Model No.	Dimensions mm (in.)		
	B	C	D
EFBGM-06X	103.3 (4.07)	45 (1.77)	35 (1.38)
EFBGM-06Y	95 (3.74)	60 (2.36)	40 (1.54)

Sub-plate Model No.	Thread Size				mm (in.)	
	"E" Thd.	"F" Thd.	"H" Thd.	"J" Thd.	K	L
EFBGM-06X-10	Rc 1	Rc 3/8	Rc 1/4	M 16	30 (1.18)	14 (.55)
EFBGM-06Y-10	Rc 1-1/4				30 (1.18)	15.2 (.60)
EFBGM-06X-1080	1 BSP.F	3/8 BSP.F	1/4 BSP.F	M 16	30 (1.18)	15.2 (.60)
EFBGM-06Y-1080	1-1/4 BSP.F				30 (1.18)	15.2 (.60)
EFBGM-06X-1090	1 NPT	3/8 NPT	1/4 NPT	5/8-11 UNC	35 (1.38)	14 (.55)
EFBGM-06Y-1090	1-1/4 NPT				35 (1.38)	14 (.55)

EFBGM-10Y-10/1080/1090

**DIMENSIONS IN  
MILLIMETRES (INCHES)**



Sub-plate Model No.	Thread Size			
	"B" Thd.	"C" Thd.	"D" Thd.	"E" Thd.
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

Sub-plate Model No.	mm (in.)	
	F	H
EFBGM-10Y-10	32 (1.26)	14 (.55)
EFBGM-10Y-1080	32 (1.26)	15.2 (.60)
EFBGM-10Y-1090	34 (1.34)	14 (.55)

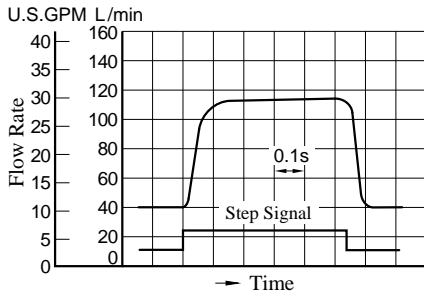
### Typical Performance Characteristics

#### Step Response

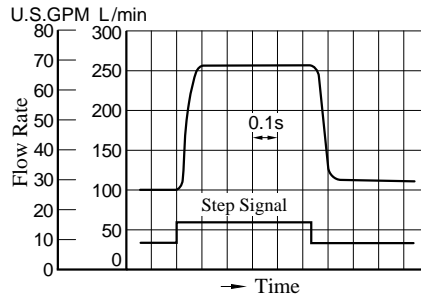
These characteristics have been obtained by measuring on each valve. Therefore, they may vary according to a hydraulic circuit to be used.

#### Flow Controls

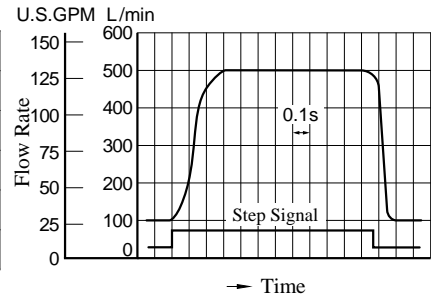
##### EFBG-03



##### EFBG-06

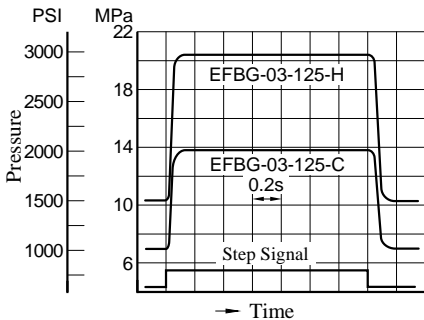


##### EFBG-10

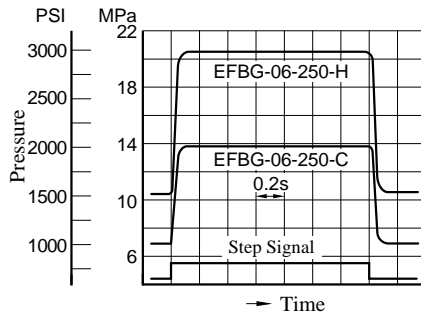


#### Pressure Controls

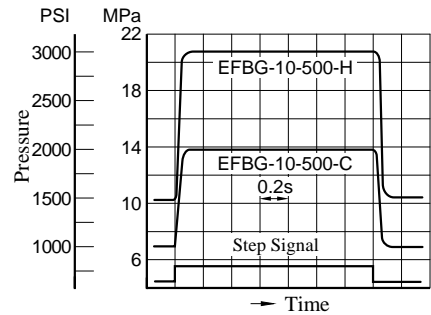
##### EFBG-03



##### EFBG-06

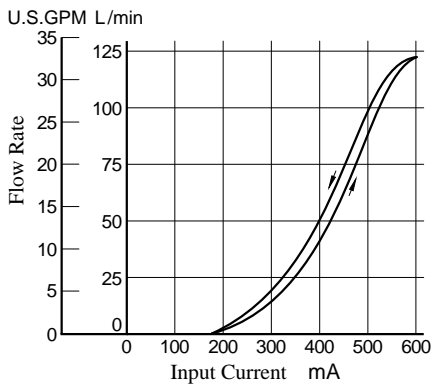


##### EFBG-10

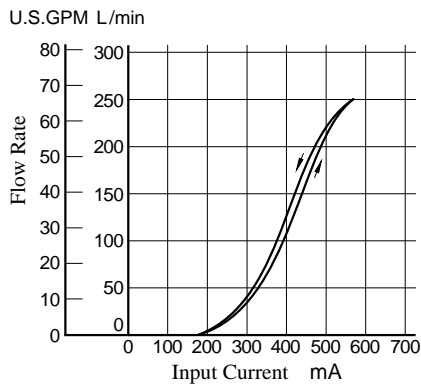


#### Input Current vs. Flow

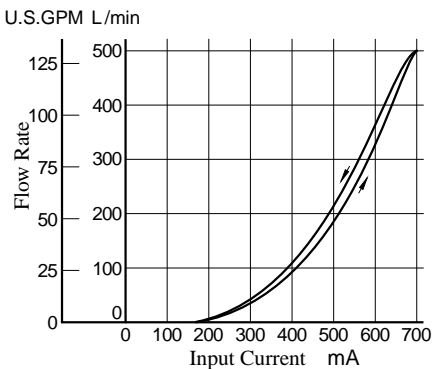
##### EFBG-03



##### EFBG-06

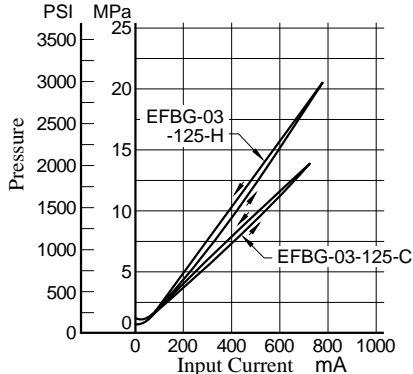


##### EFBG-10

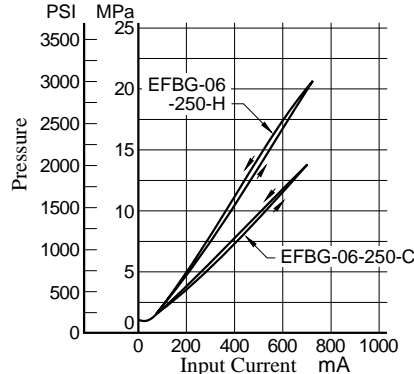


#### Input Current vs. Pressure

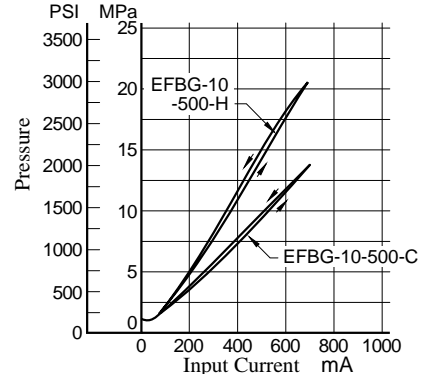
##### EFBG-03



##### EFBG-06



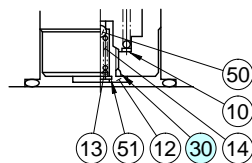
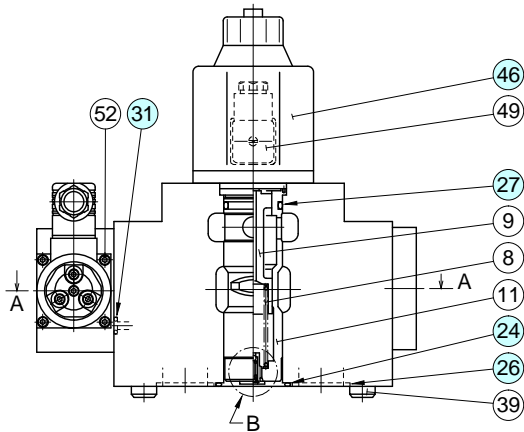
##### EFBG-10



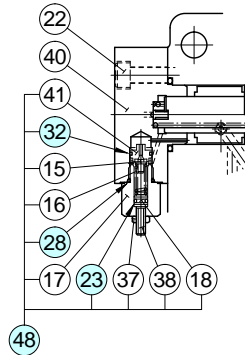
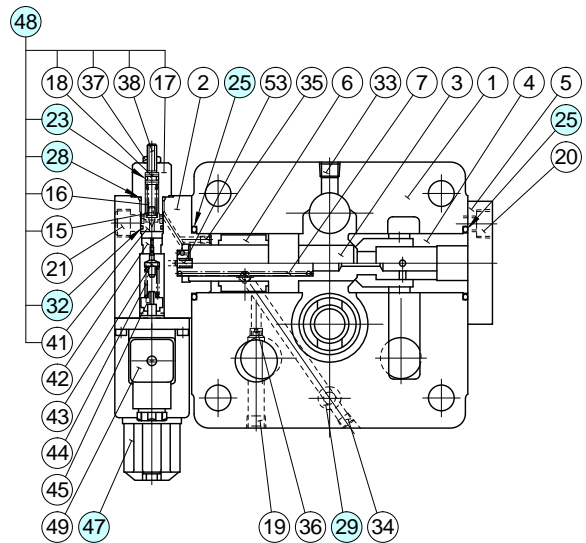


### Spare Parts List

EFBG-03-125-\*-17/1790  
EFBG-06-250-\*-17/1790



Detail of "B"



Without Proportional  
Pilot Relief Valve

Section A-A

#### List of Seals

Item	Name of Parts	Part Numbers		Qty.
		EFBG-03	EFBG-06	
23	O-Ring	SO-NA-P6	SO-NA-P6	1
24	O-Ring	SO-NB-G30	SO-NB-P44	1
25	O-Ring	SO-NB-P32	SO-NB-P42	2
26	O-Ring	SO-NB-P28	SO-NB-P32	3
27	O-Ring	—	SO-NB-P34	1
28	O-Ring	SO-NB-P14	SO-NB-P14	1
29	O-Ring	SO-NB-P11	SO-NB-P11	1
30	O-Ring	—	SO-NA-P10	1
31	O-Ring	SO-NB-P9	SO-NB-P9	1
32	O-Ring	SO-NB-A013	SO-NB-A013	1

#### CAUTION

When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

#### List of Seal Kits

Model Numbers	Seal Kit Numbers
EFBG-03-125-17*	KS-EFBG-03-17
EFBG-03-125-C/H-17*	KS-EFBG-03-C-17
EFBG-06-250-17*	KS-EFBG-06-17
EFBG-06-250-C/H-17*	KS-EFBG-06-C-17

#### Solenoid Ass'y and Safety valves

Valve Model Numbers	④⑦ Solenoid Ass'y Model No.	④⑥ Solenoid Ass'y Model No.	④⑧ Safety Valve Model No.
EFBG-03-125-C/H-17/1790	E318-Y06M2-05-61	E321-45-20	SB1094-2002
EFBG-06-250-C/H-17/1790			
EFBG-03-125-17/1790 EFBG-06-250-17/1790	—		

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

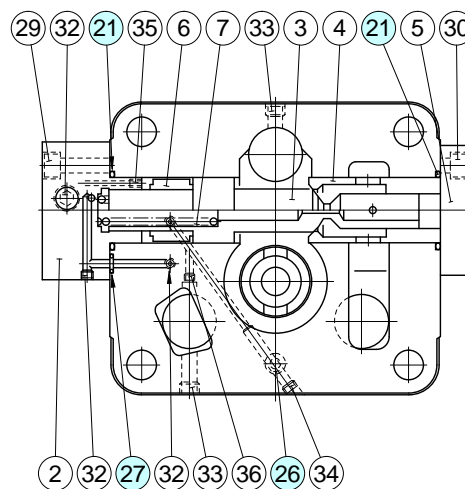
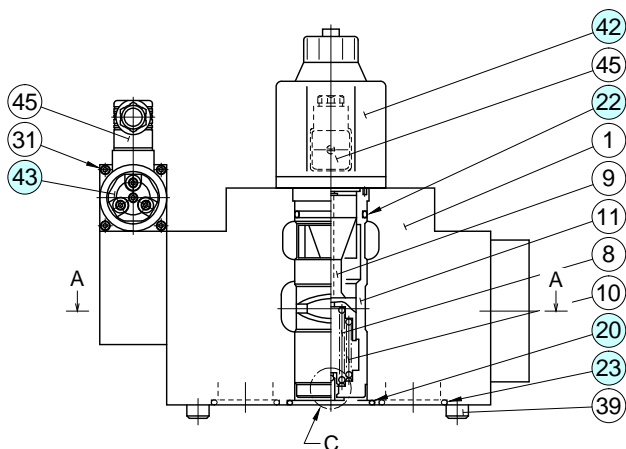
When ordering seals, please specify the seal kit number from the table above.

In addition to the above o-rings, o-rings for solenoid ass'y ④⑥ and ④⑦ are included in the seal kit.

For the details of seals for solenoid ass'y ④⑥, see page12 and for solenoid ass'y ④⑦ see Catalogue No. Pub. EC-1302.

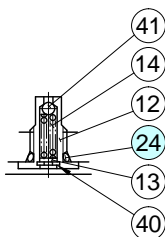
### Spare Parts List

EFBG-10-500-\*-17/1790

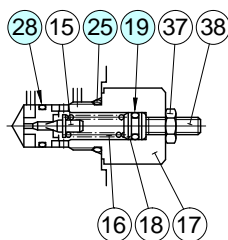


Section A-A

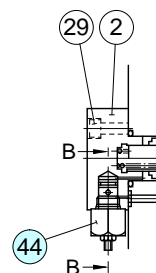
● Detail of Safety Valve  
(Item 44)



Detail of "C"



Section B-B



Without Proportional  
Pilot Relief Valve

● List of Seals and Solenoid Ass'y

Item	Name of Parts	Part Numbers	Qty.
19	O-Ring	SO-NA-P6	1
20	O-Ring	SO-NB-G60	1
21	O-Ring	SO-NB-G55	2
22	O-Ring	SO-NB-P50	1
23	O-Ring	SO-NB-P48	3
24	O-Ring	SO-NA-P10	1
25	O-Ring	SO-NB-P14	1
26	O-Ring	SO-NB-P11	1
27	O-Ring	PO-NB-P11	1
28	O-Ring	SO-NB-A013	1
42	Solenoid Ass'y	E321-45-20	1

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

When ordering seals, please specify the seal kit number from the table right.

In addition to the above o-rings, o-rings for Pilot Valve and solenoid ass'y are included in the seal kit.

● Pilot Valves and Safety Valves

Valve Model Numbers	④③ Proportional Pilot Relief Valve Model Numbers	④④ Safety Valve Model Numbers
EFBG-10-500-17/1790	—	SB1094-2002
EFBG-10-500-C-17/1790	EDG-01V-C-1-P18T17-5103	—
EFBG-10-500-H-17/1790	EDG-01V-H-1-PNT13-5103	—

Note: Refer to Catalogue No.Pub.EC-1302 of the Proportional Pilot Relief Valve for details of the pilot valve.

**CAUTION**

When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

● List of Seal Kits

Model Numbers	Seal Kit Numbers
EFBG-10-500-17*	KS-EFBG-10-17
EFBG-10-500-C/H-17*	KS-EFBG-10-C-17



#### Interchangeability between Current and New Design

#### ■ Interchangeability between Current and New Design

Model changes have been made from 15 to 17-design in the EFBG-03/06 because of changes in the pilot valve building-method and in EFBG-10 because of model changes in the pilot valve.

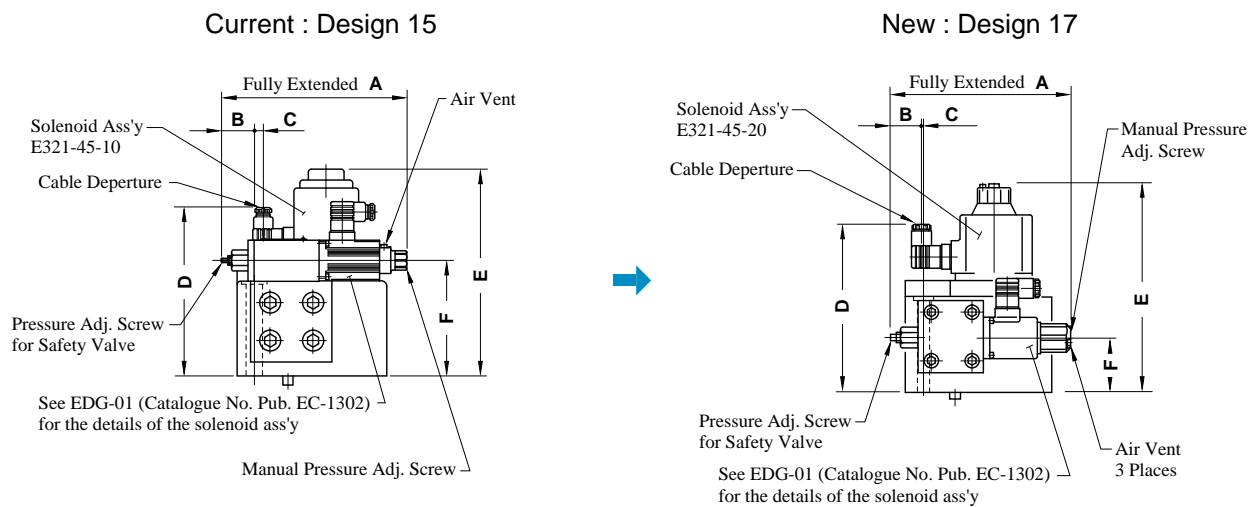
#### ● Specification and Characteristics

No changes in specifications and characteristics between current and new design.

#### ● Interchangeability in Installation

#### ● EFBG-03/06

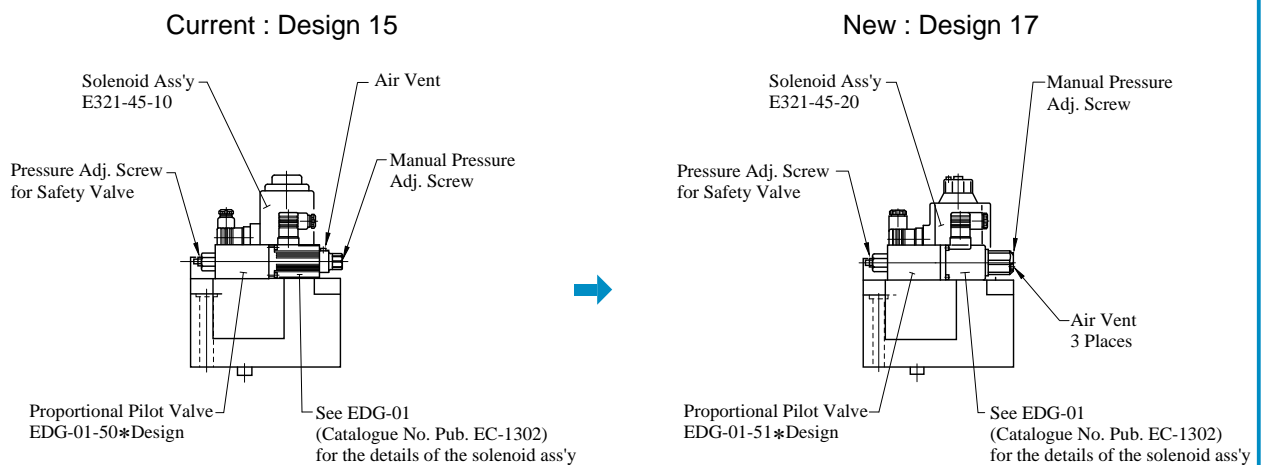
There is an interchangeability in installation. However, the method of building in the pilot valve has been changed, bringing about changes in the appearance shapes and dimensions as shown below.



Model Numbers	A	B	C	D	E	F
(Current) EFBG-03-125-* -17/1790	216 (8.50)	38 (1.50)	23.5 (.93)	164 (6.46)	212 (8.35)	41 (1.61)
(New) EFBG-03-125-* -15/1590	217 (8.54)	47 (1.85)	25.7 (1.01)	164.3 (6.47)	213 (8.39)	101.5 (4.00)
(Current) EFBG-06-250-* -17/1790	216 (8.50)	32.5 (1.28)	3 (.12)	196 (7.72)	245 (9.65)	62 (2.44)
(New) EFBG-06-250-* -15/1590	217 (8.54)	39.5 (1.56)	5.5 (.22)	196.3 (7.73)	245 (9.65)	130 (5.12)

#### ● EFBG-10

The mounting surface are interchangeable. Only the appearance shapes are different as follows;

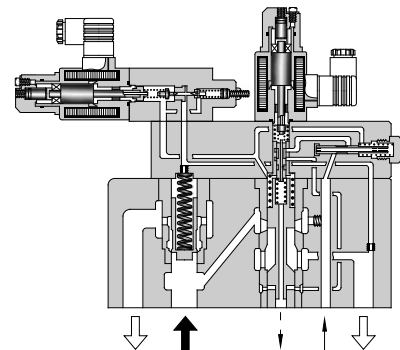


DIMENSIONS IN  
MILLIMETRES (INCHES)

### Specifications

#### Specifications

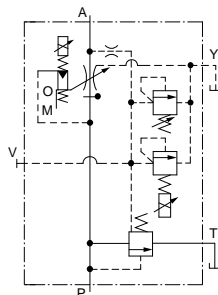
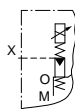
Model Numbers		EFBG-03 -125-*-*-61*	EFBG-06 -250-*-*-61*	EFBG-10 -500-*-*-51*
Description				
Max. Operating Pressure MPa (PSI)		24.5 (3550)	24.5 (3550)	24.5 (3550)
Max. Flow L/min (U.S.GPM)		125 (33)	250 (66)	500 (132)
Metred Flow Adjustment Range L/min (U.S.GPM)		1-125 (.26-33)	2.5-250 (.66-66)	5-500 (1.32-132)
Min. Pilot Pressure MPa (PSI)		1.5 (220)	1.5 (220)	1.5 (220)
Pilot Flow L/min (U.S.GPM)		at Normal	1 (.26)	1 (.26)
		at Transition	3 (.79)	4 (1.06)
Flow Controls	Rated Current	800 mA	750 mA	900 mA
	Coil Resistance	10 Ω	10 Ω	10 Ω
	Differential Pressure MPa (PSI)	0.7 (100)	0.7 (100)	0.9 (130)
	Hysteresis	Less than 3%	Less than 3%	Less than 3%
	Repeatability	Less than 1%	Less than 1%	Less than 1%
	Pressure Controls <sup>★1</sup>	Pres. Adj. Range MPa (PSI) <sup>★2</sup>	<b>C:</b> 1.4-15.7 (200-2275) <b>H:</b> 1.4-24.5 (200-3550)	<b>C:</b> 1.4-15.7 (200-2275) <b>H:</b> 1.4-24.5 (200-3550)
Rated Current		<b>C:</b> 890 mA <b>H:</b> 930 mA	<b>C:</b> 820 mA <b>H:</b> 880 mA	<b>C:</b> 800 mA <b>H:</b> 900 mA
Coil Resistance		10 Ω	10 Ω	10 Ω
Hysteresis		Less than 3%	Less than 3%	Less than 3%
Repeatability		Less than 1%	Less than 1%	Less than 1%
Approx. Mass kg (lbs.)		Refer to page 35 to 37		



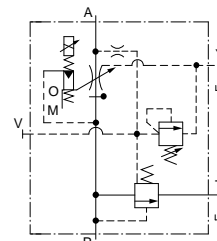
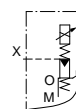
- ★1. The specifications for pressure controls are applied to models with proportional pilot relief valve. (Ex. EFBG-03-125-C-\*-61)
- ★2. The maximum pressure adjustment range of the models without proportional pilot relief valves is 24.5 MPa (3550 PSI).

#### Graphic Symbols

With Proportional Pilot Relief Valve  
External Pilot      Internal Pilot



Without Proportional Pilot Relief Valve  
External Pilot      Internal Pilot



■ **Model Number Designation**

EFB	G	-03	-125	-C	-E	-61	*
Series Number	Type of Mounting	Valve Size	Max. Metred Flow L/min (U.S.GPM)	Proportional Pilot Relief Valve Pressure Adj. Range	Pilot Connection	Design Number	Design Standards
<b>EFB:</b> Proportional Electro-Hydraulic Flow Control and Relief Valve	<b>G:</b> Sub-plate Mounting	<b>03</b>	<b>125</b> : 125 (33)	<b>C, H:</b> See Specifications <b>None:</b> Without Proportional Pilot Relief Valve	<b>None:</b> Internal Pilot <b>E:</b> External Pilot	<b>61</b>	Refer to ★
		<b>06</b>	<b>250</b> : 250 (66)			<b>61</b>	
		<b>10</b>	<b>500</b> : 500 (132)			<b>51</b>	

★ Design Standards: None ..... Japanese Standard "JIS" and European Design Standard  
 90 ..... N. American Design Standard

■ **Attachment**

● **Mounting Bolts**

Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.	
EFBG-03	M10 × 65 Lg.	3/8-16 UNC × 2-1/2 Lg.	4
EFBG-06	M16 × 100 Lg.	5/8-11 UNC × 4 Lg.	4
EFBG-10	M20 × 130 Lg.	3/4-10 UNC × 5 Lg.	4

■ **Applicable Power Amplifiers**

For stable performance, it is recommended that Yuken's applicable power amplifiers be used (for details see Catalogue No. Pub. EC-1305).

Model Numbers	Power Amplifier Model Numbers	
	For Flow Control	For Pres. Control
EFBG-03-125-(E)-61/6190 EFBG-06-250-(E)-61/6190 EFBG-10-500-(E)-51/5190	AME-D-10-*-20 AMN-D-10 (For DC Power Supply)	—
EFBG-03-125-C/H-(E)-61/6190 EFBG-06-250-C/H-(E)-61/6190 EFBG-10-500-C/H-(E)-51/5190	AME-D2-1010-*-10	

■ **Sub-plate**

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N. American Design Standard		Approx. Mass kg (lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
EFBG-03	EFBGM-03Y-20	Rc 3/4	EFBGM-03Y-2080	3/4 BSP.F	EFBGM-03Y-2090	3/4 NPT	6 (13.2)
	EFBGM-03Z-20	Rc 1	EFBGM-03Z-2080	1 BSP.F	EFBGM-03Z-2090	1 NPT	
EFBG-06	EFBGM-06X-20	Rc 1	EFBGM-06X-2080	1 BSP.F	EFBGM-06X-2090	1 NPT	12.5 (27.6)
	EFBGM-06Y-20	Rc 1-1/4	EFBGM-06Y-2080	1-1/4 BSP.F	EFBGM-06Y-2090	1-1/4 NPT	16 (35.3)
EFBG-10	EFBGM-10Y-20★	1-1/2, 2 Flange Mounting	EFBGM-10Y-2080★	1-1/2, 2 Flange Mounting	EFBGM-10Y-2090★	1-1/2, 2 Flange Mounting	37 (81.6)

● 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.

★ When ordering the EFBGM-10Y, see Type F3 Pipe Flange Kits on the Catalogue No. Pub. EC-3001 and order an appropriate pipe flange kit also.

■ **Instructions**

● **Drain Back Pressure**

Check that the drain back pressure dose not exceed 0.2 MPa (29 PSI).

● **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 (4.0 U.S.GPM) or higher.

Further, check that the tank-line back pressure dose not exceed 0.5 MPa (70 PSI).

● **Safety Valve Pressure Setting**

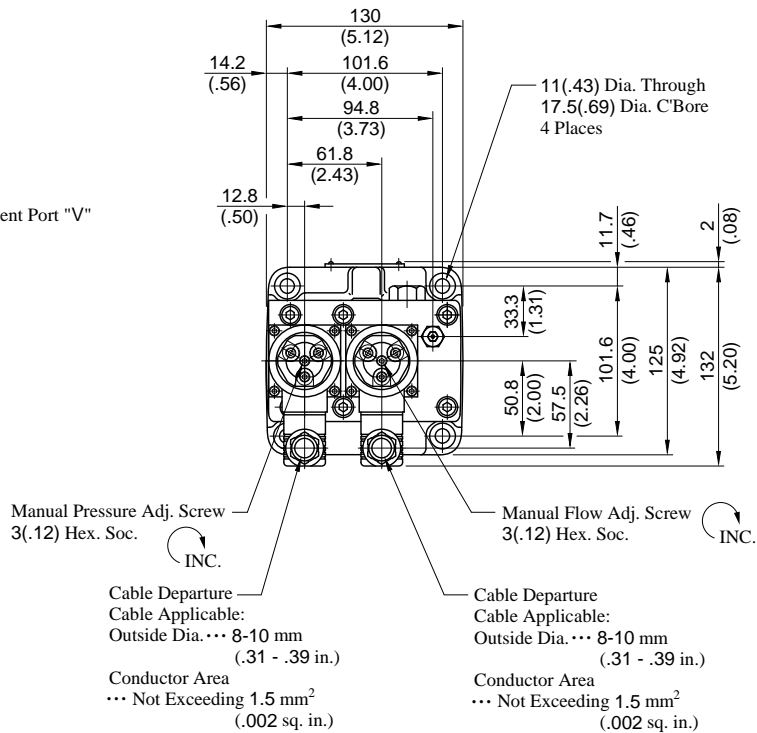
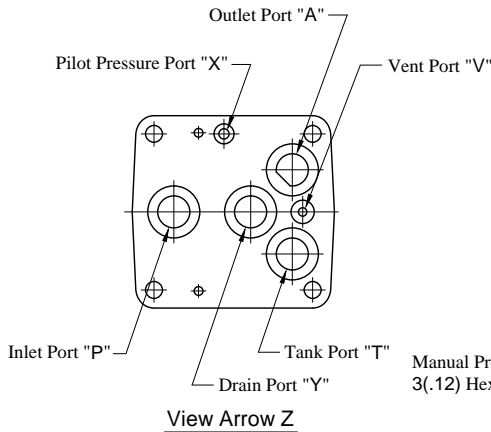
The pressure of the safety valve is preset at the value equal to the upper limit of the pressure adjustment range plus 2 MPa (290 PSI). Please adjust the pressure of the valve so preset to meet the pressure to be used actually.

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

### Installation Drawing

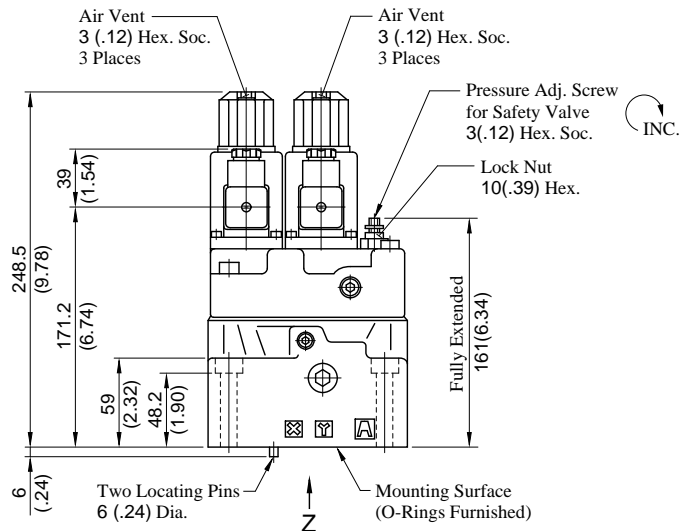
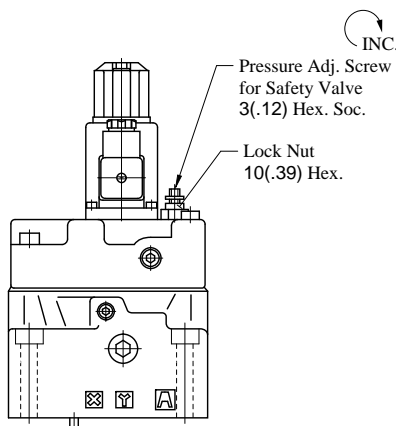
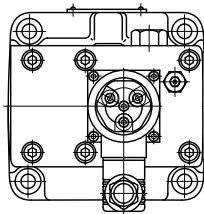
#### Models with Proportional Pilot Relief Valve

EFBG-03-125-<sup>C</sup><sub>H</sub>-(E)-61/6190



#### Models without Proportional Pilot Relief Valve

EFBG-03-125-(E)-61/6190



Approx. Mass ..... 14 kg (30.9 lbs.)

**DIMENSIONS IN  
MILLIMETRES (INCHES)**

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

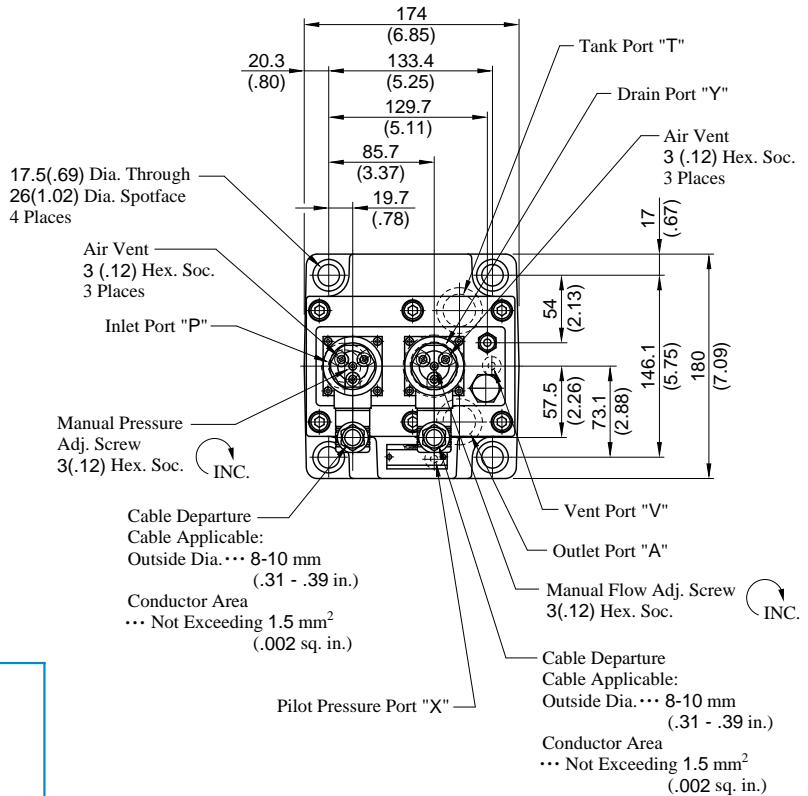
Approx. Mass ..... 13.3 kg (29.3 lbs.)



### Installation Drawing

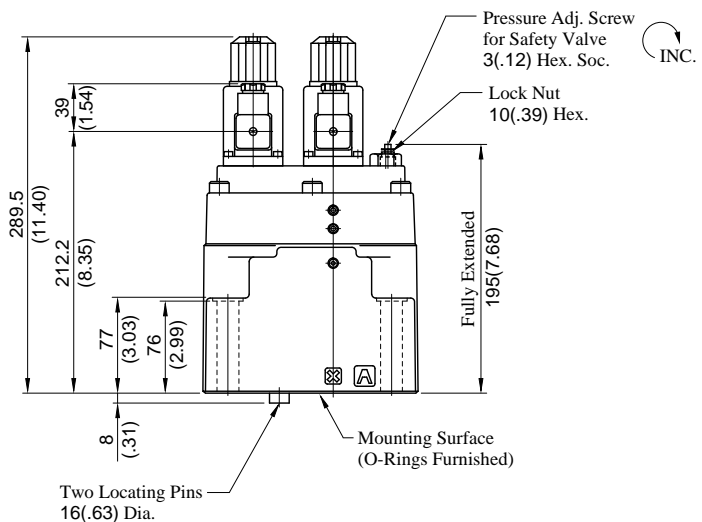
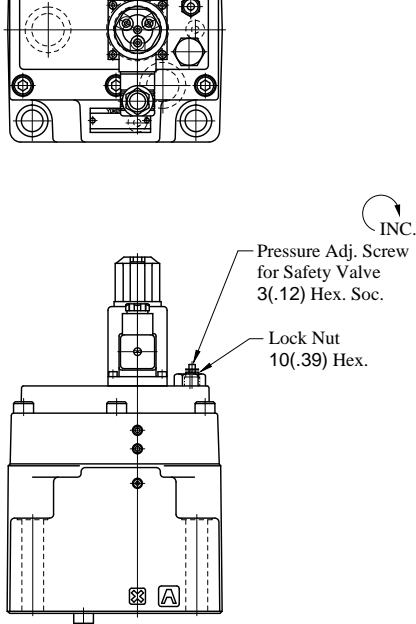
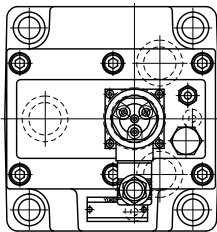
Models with Proportional Pilot Relief Valve

EFBG-06-250-<sup>C</sup><sub>H</sub>-(E)-61/6190



Models without Proportional Pilot Relief Valve

EFBG-06-250-(E)-61/6190



Approx. Mass ..... 22 kg (48.5 lbs.)

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

Approx. Mass ..... 21.3 kg (47.0 lbs.)

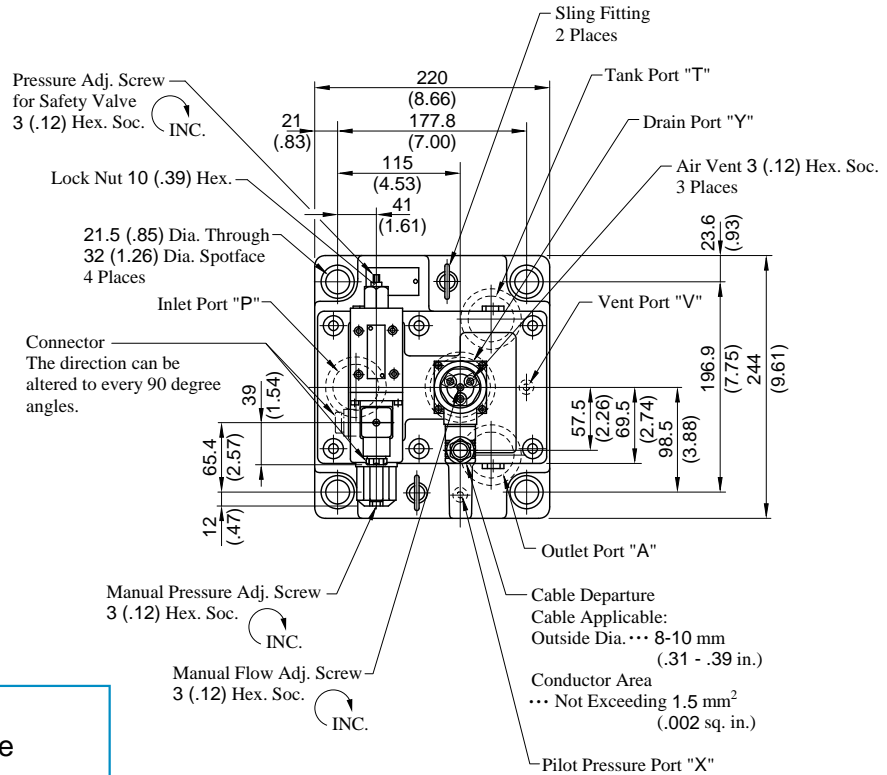
**DIMENSIONS IN  
MILLIMETRES (INCHES)**



### Installation Drawing

Models with Proportional Pilot Relief Valve

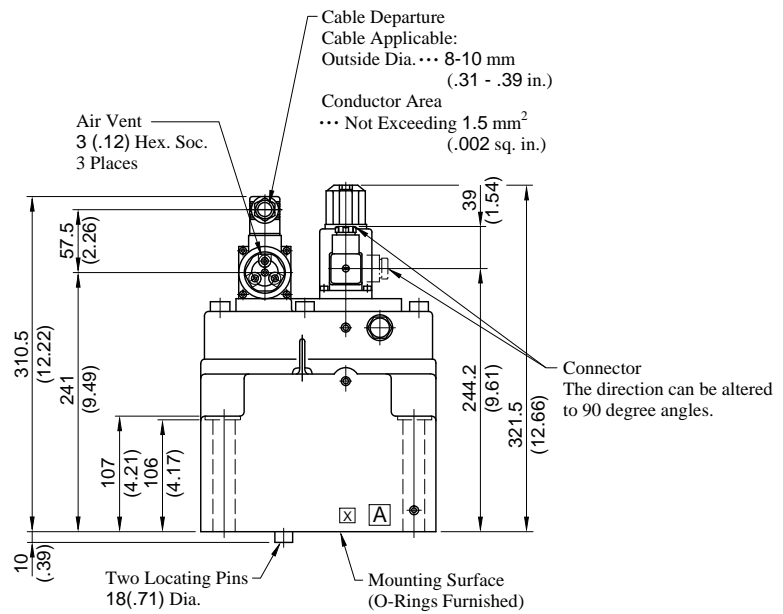
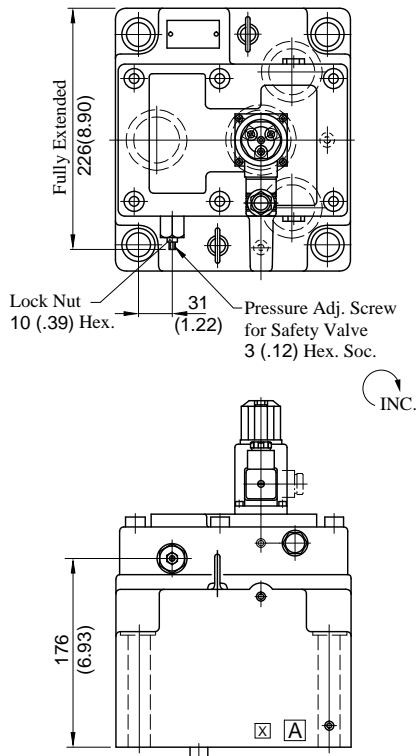
EFBG-10-500-<sup>C</sup><sub>H</sub>-(E)-51/5190



**DIMENSIONS IN  
MILLIMETRES (INCHES)**

Models without  
Proportional Pilot Relief Valve

EFBG-10-500-(E)-51/5190



Approx. Mass ..... 64 kg (141 lbs.)

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

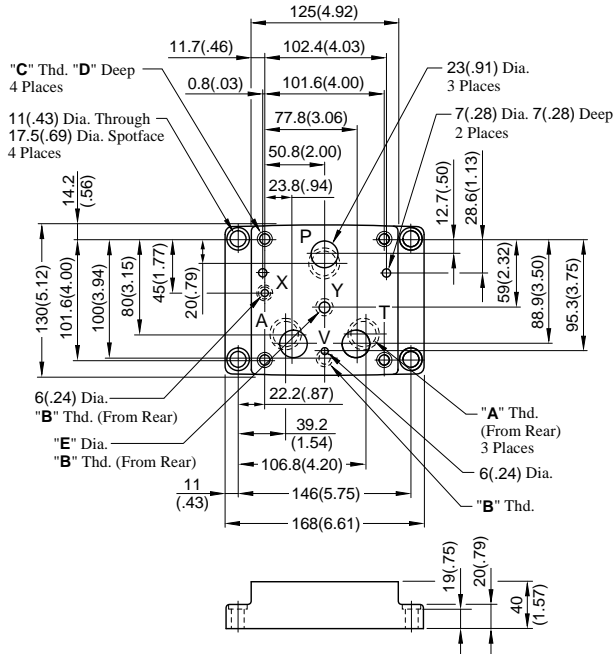
Approx. Mass ..... 62 kg (137 lbs.)





**Sub-plate**

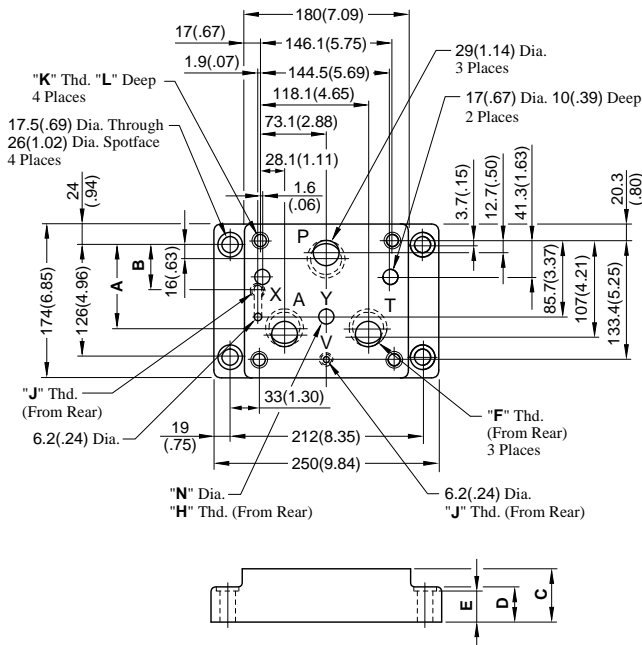
**EFBGM-03Y-20/2080/2090**  
**03Z**



Sub-plate Model Numbers	Thread Size			mm (in.)	
	"A" Thd.	"B" Thd.	"C" Thd.	D	E
EFBGM-03Y-20	Rc 3/4	Rc 1/4	M10	18 (.71)	11 (.43)
EFBGM-03Z-20	Rc 1				11.7 (.46)
EFBGM-03Y-2080	3/4 BSP.F	1/4 BSP.F		21 (.83)	11 (.43)
EFBGM-03Z-2080	1 BSP.F			11.7 (.46)	
EFBGM-03Y-2090	3/4 NPT	1/4 NPT	3/8-16 UNC	21 (.83)	11 (.43)
EFBGM-03Z-2090	1 NPT				

**DIMENSIONS IN**  
**MILLIMETRES (INCHES)**

**EFBGM-06X-20/2080/2090**  
**06Y**

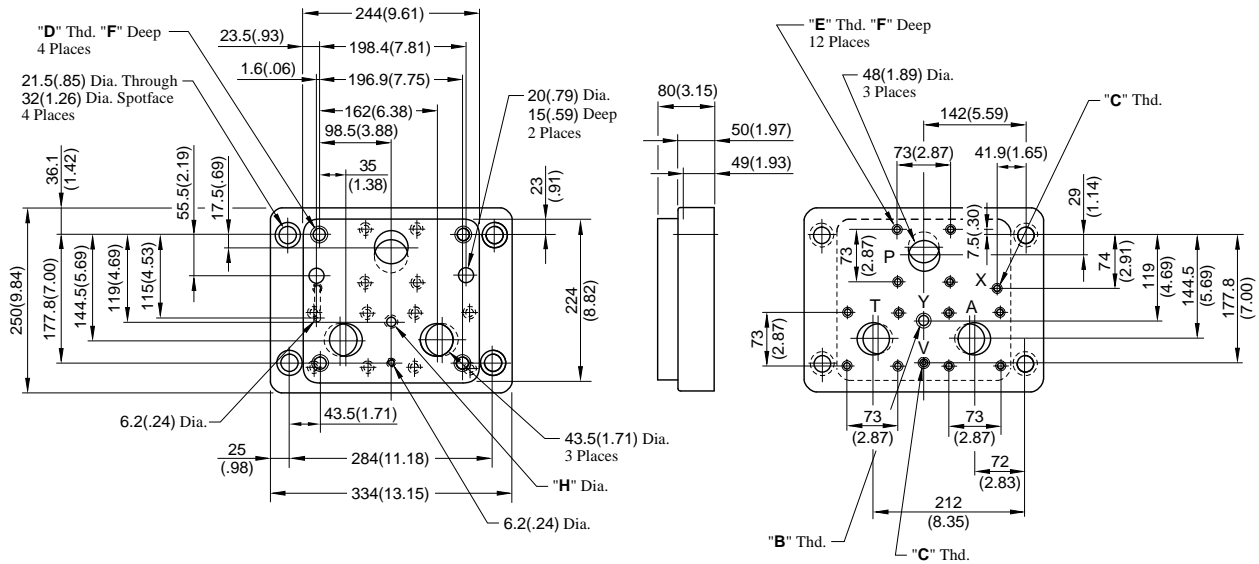


Sub-plate Model Numbers	Dimensions mm (in.)				
	A	B	C	D	E
EFBGM-06X	103.3 (4.07)	63.3 (2.49)	45 (1.77)	35 (1.38)	34 (1.34)
EFBGM-06Y	95 (3.74)	53.3 (2.10)	60 (2.36)	40 (1.57)	39 (1.54)

Sub-plate Model Numbers	Thread Size				mm (in.)	
	"F" Thd.	"H" Thd.	"J" Thd.	"K" Thd.	L	N
EFBGM-06X-20	Rc 1	Rc 3/8	Rc 1/4	M16	30 (1.18)	14 (.55)
EFBGM-06Y-20						
EFBGM-06X-2080	1 BSP.F	3/8 BSP.F	1/4 BSP.F	M16	30 (1.18)	15.2 (.60)
EFBGM-06Y-2080						
EFBGM-06X-2090	1 NPT	3/8 NPT	1/4 NPT	5/8-11 UNC	35 (1.38)	14 (.55)
EFBGM-06Y-2090						

EFBGM-10Y-20/2080/2090

DIMENSIONS IN  
MILLIMETRES (INCHES)



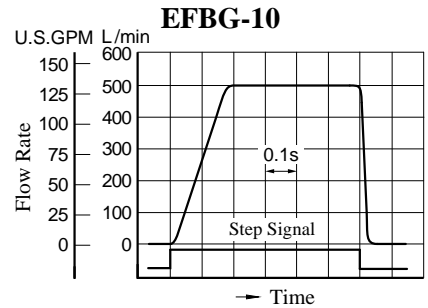
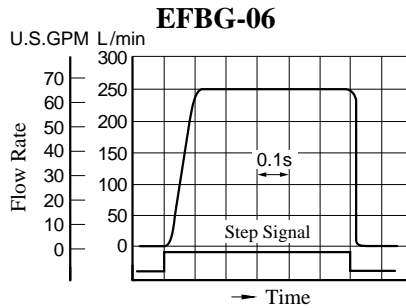
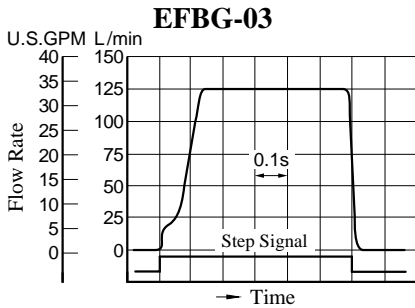
Sub-plate Model Numbers	Thread Size				mm (in.)	
	"B" Thd.	"C" Thd.	"D" Thd.	"E" Thd.	F	H
EFBGM-10Y-20	Rc 3/8	Rc 1/4	M20	M16	32(1.26)	14(.55)
EFBGM-10Y-2080	3/8 BSP.F	1/4 BSP.F				15.2(.60)
EFBGM-10Y-2090	3/8 NPT	1/4 NPT	3/4-10 UNC	5/8-11 UNC	34(1.34)	14(.55)

### Typical Performance Characteristics

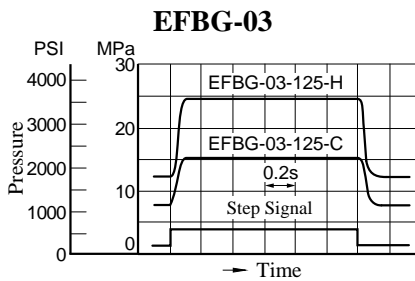
#### Step Response

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

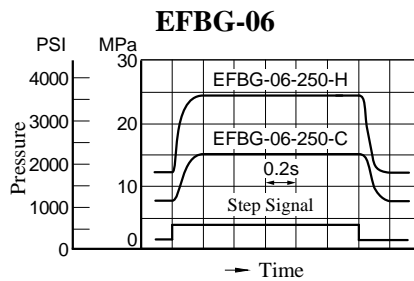
#### Flow Controls



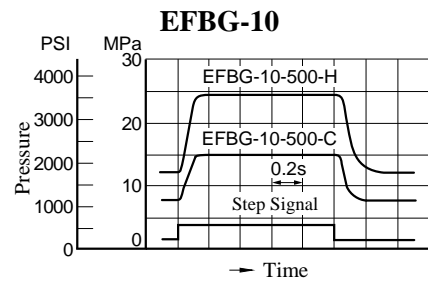
#### Pressure Controls



Flow Rate : 125 L/min (33 U.S.GPM)  
Trapped Oil Volume : < 1 L (.264 U.S.Gallons)

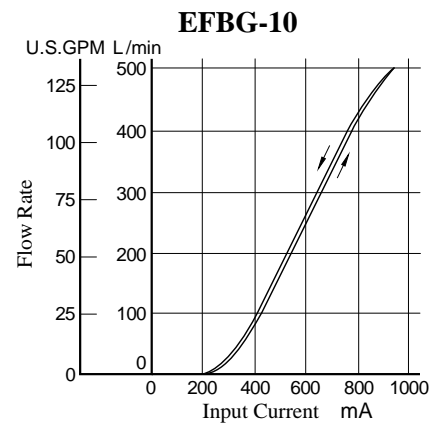
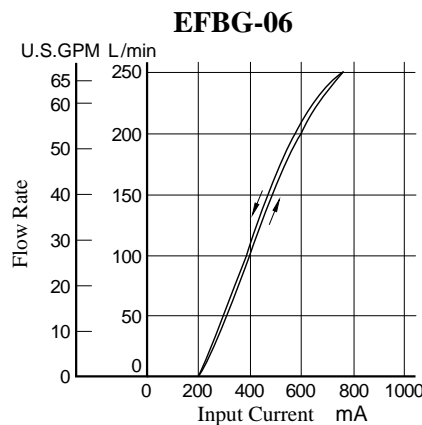
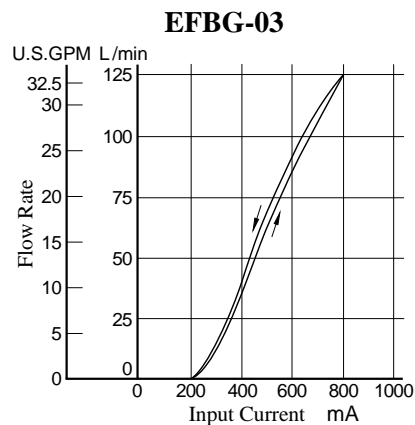


Flow Rate : 250 L/min (66 U.S.GPM)  
Trapped Oil Volume : < 1 L (.264 U.S.Gallons)

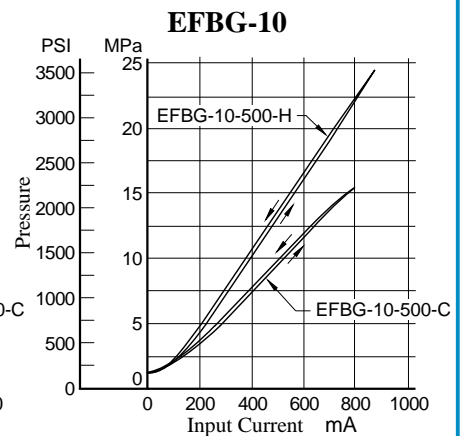
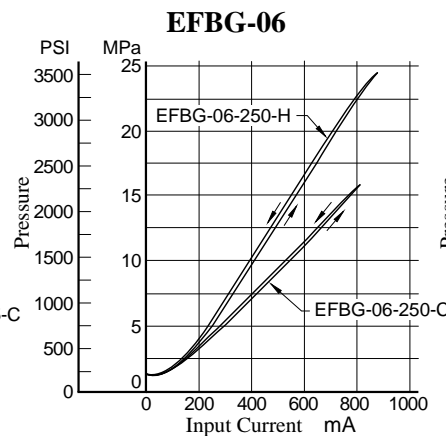
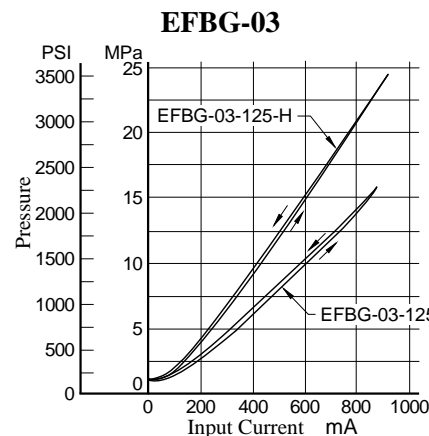


Flow Rate : 500 L/min (132 U.S.GPM)  
Trapped Oil Volume : < 1 L (.264 U.S.Gallons)

#### Input Current vs. Flow



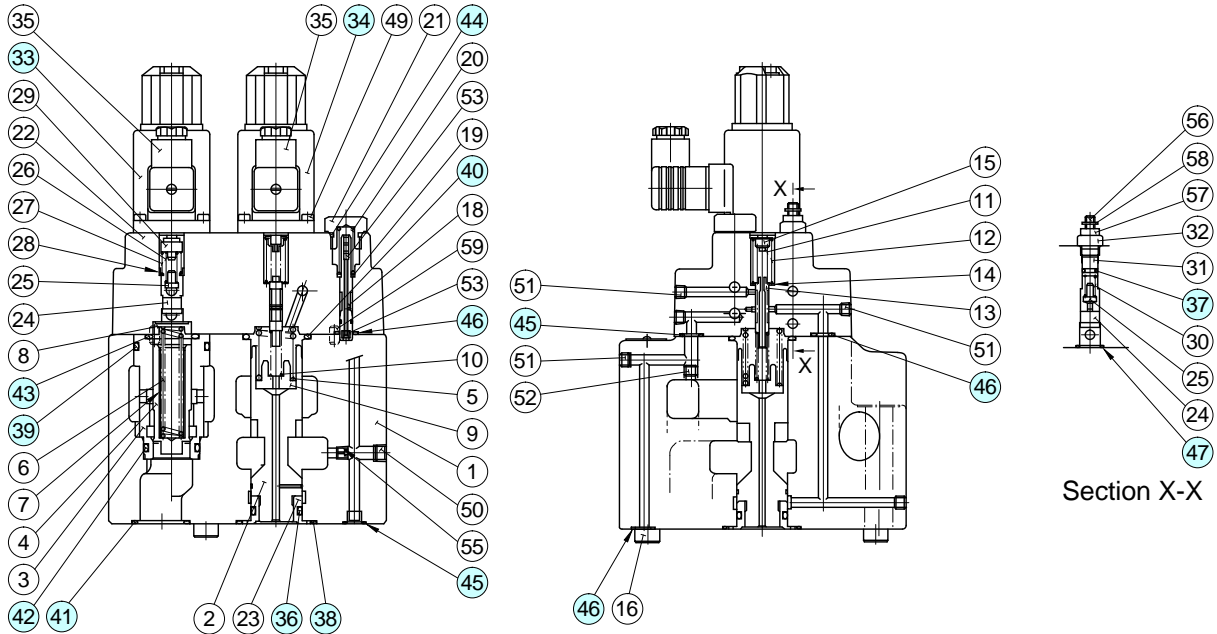
#### Input Current vs. Pressure



EFBG-03-125-\*-\*-61/6190  
EFBG-06-250-\*-\*-61/6190

#### CAUTION

When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.



#### List of Seals

Item	Name of Parts	Part Numbers			
		EFBG-03	Qty.	EFBG-06	Qty.
36	O-Ring	SO-NA-A016	1	SO-NA-P26	1
37	O-Ring	SO-NA-P6	1	SO-NA-P6	1
38	O-Ring	SO-NB-P28	1	SO-NB-P44	1
39	O-Ring	SO-NB-P32	1	SO-NB-P42	1
40	O-Ring	SO-NB-P28	1	SO-NB-P36	1
41	O-Ring	SO-NB-P28	3	SO-NB-P32	3
42	O-Ring	SO-NB-G30	1	SO-NB-P30	1
43	O-Ring	SO-NB-P28	1	SO-NB-P28	1
44	O-Ring	SO-NB-P15	1	SO-NB-P15	1
45	O-Ring	SO-NB-P11	2	SO-NB-P11	2
46	O-Ring	SO-NB-P9	5	SO-NB-P11	4
47	O-Ring	SO-NB-A016	1	SO-NB-A016	1

Note: When ordering seals, please specify the seal kit number from the table right.  
In addition to the above o-rings, o-rings for solenoid ass'y are included in the seal kit.  
For the detail of the solenoid ass'y seals, see the Catalogue No. Pub. EC-1302.

#### List of Seal Kits

Model Numbers	Seal Kit Numbers
EFBG-03-125-61*	KS-EFBG-03-61
EFBG-03-125-C/H-61*	KS-EFBG-03-C-61
EFBG-06-250-61*	KS-EFBG-06-61
EFBG-06-250-C/H-61*	KS-EFBG-06-C-61

#### Solenoid Ass'y

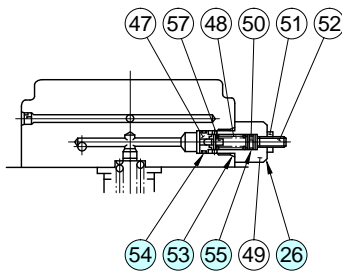
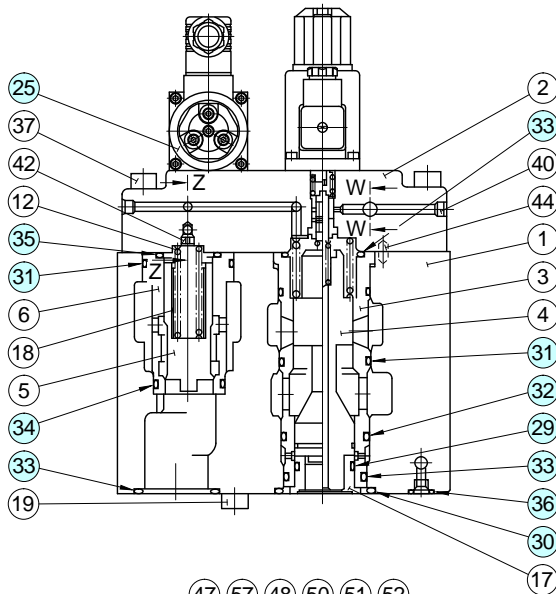
Valve Model Numbers	③③ Solenoid Ass'y Model Numbers	③④ Solenoid Ass'y Model Numbers
EFBG-03-125-C/H-(E)-61/6190	E318-Y06M1-04-61	E318-Y06M1-28-61
EFBG-06-250-C/H-(E)-61/6190		
EFBG-03-125-(E)-61/6190 EFBG-06-250-(E)-61/6190	—	

Note: The connector assembly GDM-211-B-11 (Item 35) is not included in the solenoid assembly.

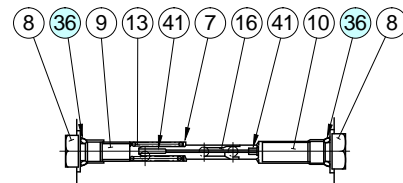
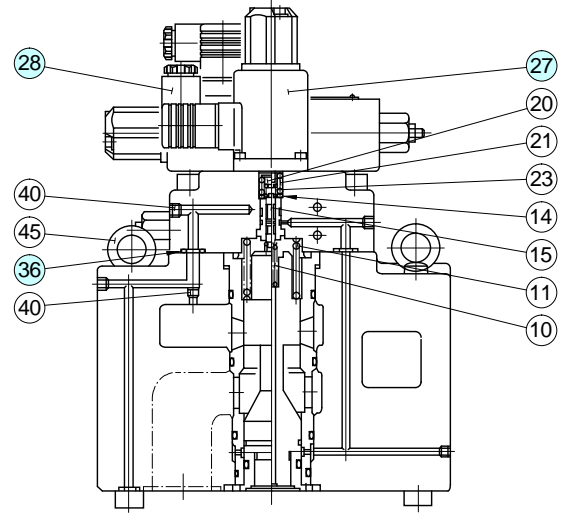


### Spare Parts List

EFBG-10-500-\*-51/5190



**Section W-W**  
(Only for Models without  
Pilot Relief Valve)



**Section Z-Z**

#### List of Seals

Item	Name of Parts	Part Numbers	Qty.	
			Models with Pilot Relief Valve	Models without Pilot Relief Valve
29	O-Ring	SO-NA-P34	1	1
30	O-Ring	SO-NB-G60	1	1
31	O-Ring	SO-NB-G55	3	3
32	O-Ring	SO-NB-P50	1	1
33	O-Ring	SO-NB-P48	5	5
34	O-Ring	SO-NB-P42	1	1
35	O-Ring	SO-NB-P36	1	1
36	O-Ring	SO-NB-P11	8	8
53	O-Ring	SO-NB-P14	—	1
54	O-Ring	SO-NB-A013	—	1
55	O-Ring	SO-NA-P6	—	1

Note: When ordering seals, please specify the seal kit number from the table right. In addition to the above o-rings, o-rings for pilot valve and solenoid ass'y are included in the seal kit. For the detail of the pilot valve and solenoid ass'y seals, see the Catalogue No. Pub. EC-1302.

#### CAUTION

When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

#### List of Seal Kits

Model Numbers	Seal Kit Numbers
EFBG-10-500-51*	KS-EFBG-10-51
EFBG-10-500-C/H-51*	KS-EFBG-10-C-51

#### Pilot Valve and Solenoid Ass'y

Valve Model Numbers	25 Pilot Valve Model Numbers	27 Solenoid Ass'y Model No.	26 Safety Valve Model No.
EFBG-10-500-C-(E)-51/5190	EDG-01V-C-1-PNT12-5103	E318-Y06M1-28-61	—
EFBG-10-500-H-(E)-51/5190	EDG-01V-H-1-PNT12-5103		—
EFBG-10-500-(E)-51/5190	—		SB1094-2002

Note: The connector assembly GDM-211-B-11 (Item 28) is not included in the solenoid assembly.

#### Interchangeability between Current and New Design

#### ■ Interchangeability between Current and New Design

Model changes have been made from 50, 51 to 61 design in the EFBG-03/06 because of changes in the pilot valve building-in method and model changes have been made from 50 to 51-design in the EFBG-10 because of improvement in Solenoid Ass'y.

#### ● Specification and Characteristics

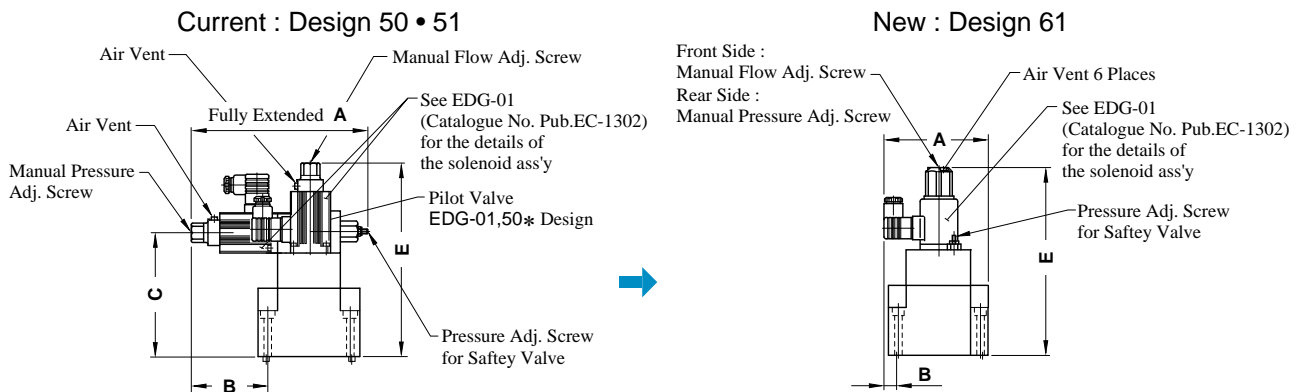
No changes in specifications and characteristics between current and new design

#### ● Interchangeability in Installation

#### ● EFBG-03/06

50\* • 51\* Design → 61\* Design

The mounting surface are interchangeable. However, the method of building in the pilot valve has been changed, bringing about changes in the appearance shapes and dimensions as shown below.



Model Numbers	A	B	C	D
(Current) EFBG-03-125-*-* 50/5090 51/5190	217 (8.54)	93.2 (3.67)	155 (6.10)	236.5 (9.31)
(New) EFBG-03-125-*-* 61/6190	132 (5.20)	18.7 (1.74)	—	248.5 (9.78)
(Current) EFBG-06-250-*-* 50/5090 51/5190	217 (8.54)	53.3 (2.10)	196 (7.72)	277.5 (10.93)
(New) EFBG-06-250-*-* 61/6190	159.5 (6.28)	—	—	289.5 (11.40)

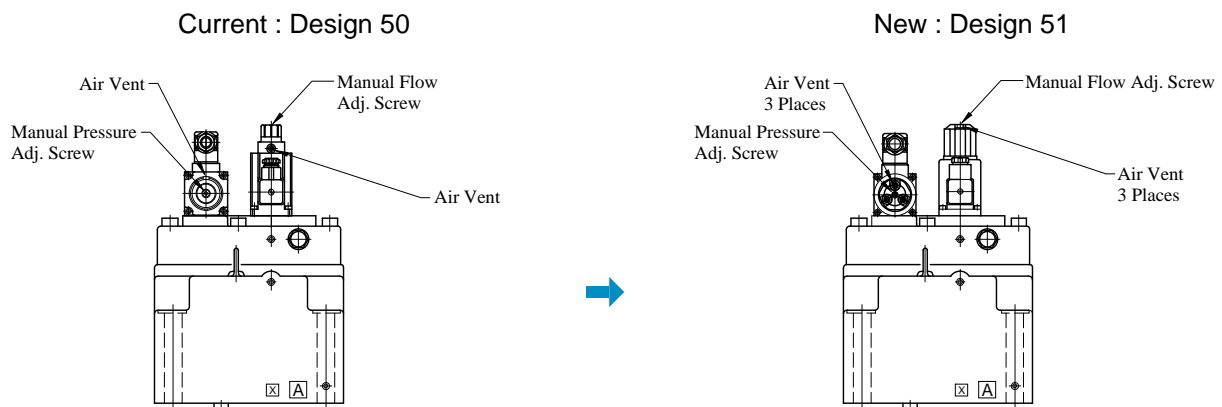
60\* Design → 61\* Design

The mounting surface are interchangeable. There are no changes in the appearance shapes and dimensions.

#### ● EFBG-10

Mounting compatibility is provided.

Note that because of improvements made on the solenoids, the overall shapes have been changed as shown below.

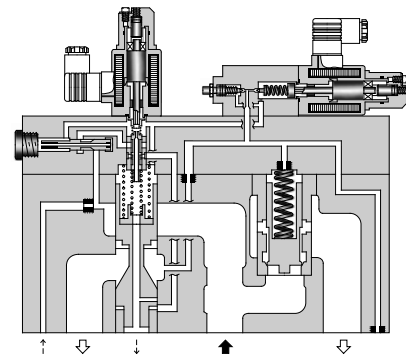
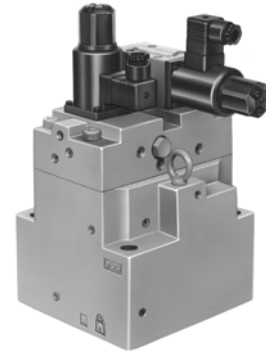


DIMENSIONS IN  
MILLIMETRES (INCHES)

### Specifications

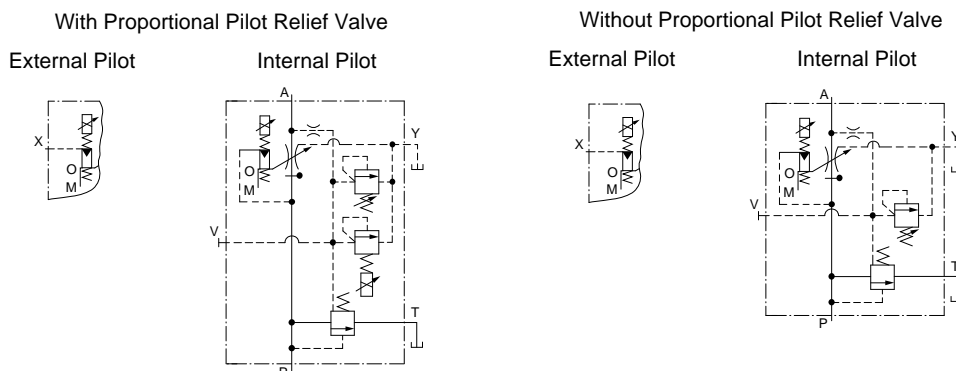
#### Specifications

Model No.		EFBG-03 -250-*-*-51*	EFBG-06 -500-*-*-51*
Description			
Max. Operating Pressure MPa (PSI)		24.5 (3550)	24.5 (3550)
Max. Flow	L/min (U.S.GPM)	250 (66)	500 (132)
Metred Flow Adjustment Range L/min (U.S.GPM)		2.5-250 (.66-66)	5-500 (1.32-132)
Min. Pilot Pressure MPa (PSI)		1.5 (220)	1.5 (220)
Pilot Flow L/min (U.S.GPM)		at Normal	1 (.26)
		at Transition	4 (1.06)
Flow Controls	Rated Currnt	850 mA	765 mA
	Coil Resistance	10 Ω	10 Ω
	Differential Pressure MPa (PSI)	0.8 (115)	0.9 (130)
	Hysteresis	Less than 3%	Less than 3%
	Repeatability	Less than 1%	Less than 1%
Pressure Controls <sup>★1</sup>	Pres. Adj. Range MPa (PSI) <sup>★2</sup>	<b>C</b> : 1.6-15.7 (230-2275) <b>H</b> : 1.8-24.5 (260-3550)	<b>C</b> : 1.5-15.7 (220-2275) <b>H</b> : 1.5-24.5 (220-3550)
		Rated Current	<b>C</b> : 850 mA <b>H</b> : 870 mA
	Coil Resistance	10 Ω	10 Ω
	Hysteresis	Less than 3%	Less than 3%
	Repeatability	Less than 1%	Less than 1%
	Approx. Mass	kg (lbs.)	Refer to page 46 to 47



- ★1. The specifications for pressure controls are applied to models with proportional pilot relief valve. (Ex. EFBG-03-250-C-\*-51)
- ★2. The maximum pressure adjustment range of the valves without proportional pilot relief valves is 24.5 MPa (3550 PSI).

#### Graphic Symbols



■ **Model Number Designation**

EFB	G	-03	-250	-C	-E	-51	*
Series Number	Type of Mounting	Valve Size	Max. Metred Flow L/min (U.S.GPM)	Proportional Pilot Relief Valve Pressure Adj. Range	Pilot Connection	Design Number	Design Standards
<b>EFB :</b> Proportional Electro-Hydraulic Flow Control and Relief Valve	<b>G :</b> Sub-plate Mounting	03	250 : 250 ( 66)	<b>C, H :</b> See Specifications  <b>None :</b> Without Proportional Pilot Relief Valve	<b>None :</b> Internal Pilot  <b>E :</b> External Pilot	51	Refer to ★
		06	500 : 500 ( 132)			51	

★ Design Standards: None ..... Japanese Standard "JIS" and European Design Standard  
90 ..... N. American Design Standard

■ **Attachment**

● **Mounting Bolts**

Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.	
EFBG-03	M12 × 120 Lg.	1/2-13 UNC × 4-3/4 Lg.	4
EFBG-06	M16 × 120 Lg.	5/8-11 UNC × 4-3/4 Lg.	4

■ **Applicable Power Amplifiers**

For stable performance, it is recommended that Yuken's applicable power amplifiers be used (for details see the Catalogue No. Pub. EC-1305).

Model Numbers	Power Amplifier Model Numbers	
	For Flow Control	For Pres. Control
EFBG-03-250(-E)-51/5190 EFBG-06-500(-E)-51/5190	AME-D-10-*-20 AMN-D-10 (For DC power supply)	—
EFBG-03-250-C/H(-E)-51/5190 EFBG-06-500-C/H(-E)-51/5190	AME-D2-1010-*-10	

■ **Instructions**

● **Drain Back Pressure**

Check that the drain back pressure dose not exceed 0.2 MPa (29 PSI).

● **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 (4.0 U.S.GPM) or higher. Further, check that the tank-line back pressure dose not exceed 0.5 MPa (70 PSI).

● **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 (290 PSI). Please adjust the pressure of the valve so preset to meet the pressure to be used actually. To lower the pressure setting, turn the safety valve pressure adjustment screw anti-clockwise. After adjustment, be sure to tighten the lock nut.

● **Interchangeability in installation with conventional valves (10 Ω-10 Ω Series)**

● EFBG-03

There is no interchangeability in installation.

● EFBG-06

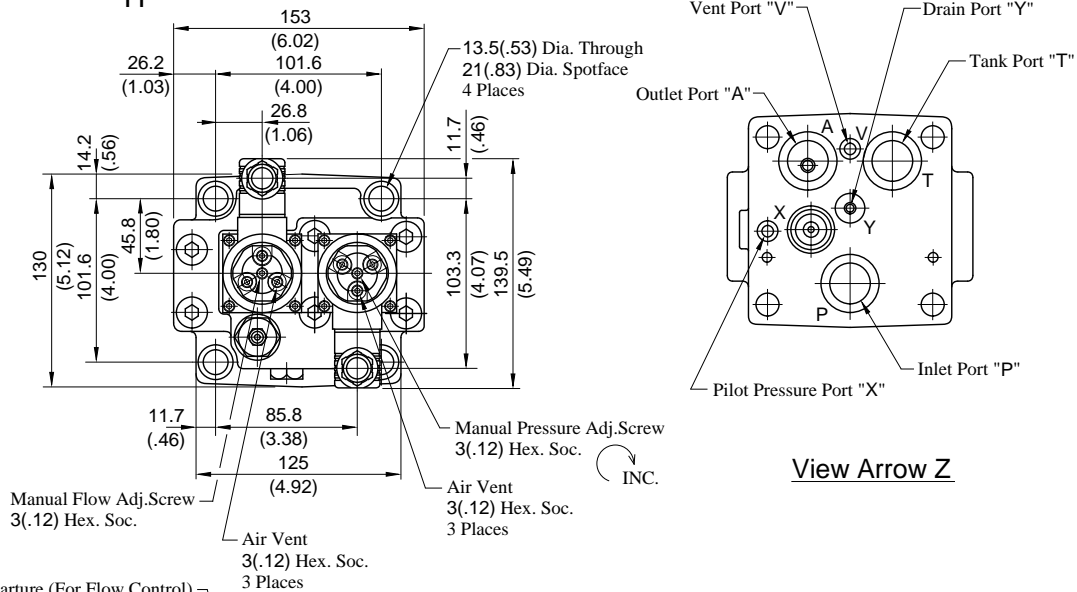
A product in the high-flow series can be mounted on the conventional mounting surface but no conventional product can be mounted on the mounting surface of the high-flow series.





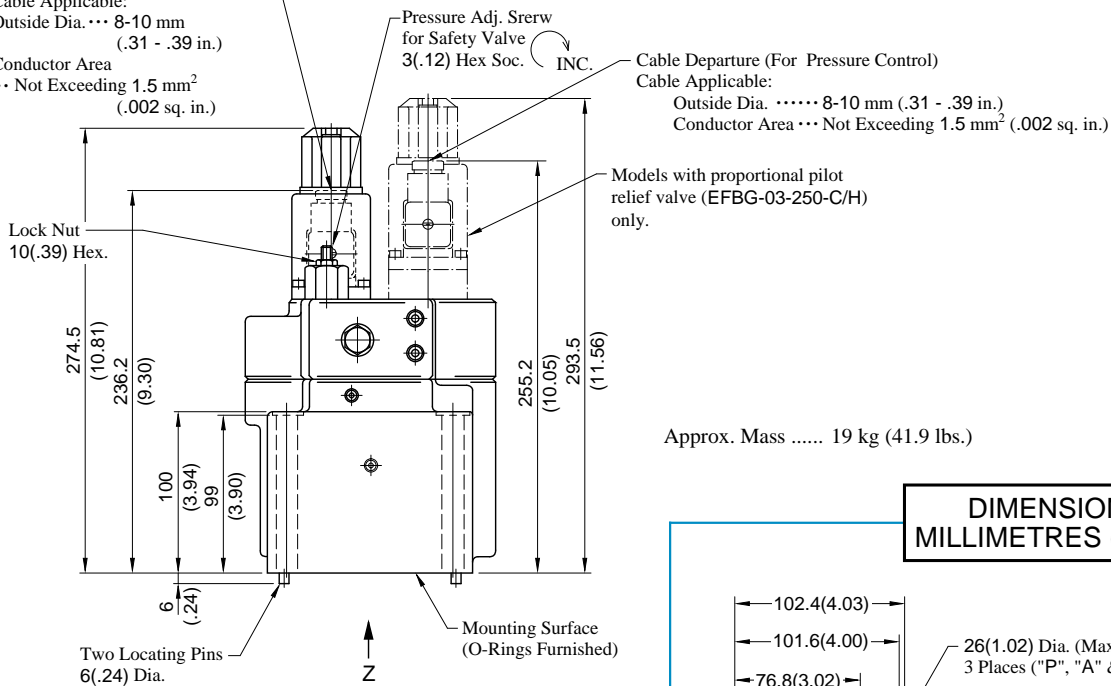
### Installation Drawing

EFBG-03-250-C<sub>H</sub>(-E)-51/5190, EFBG-03-250 (-E)-51/5190



View Arrow Z

Cable Departure (For Flow Control)  
Cable Applicable:  
Outside Dia. ... 8-10 mm  
(.31 - .39 in.)  
Conductor Area  
... Not Exceeding 1.5 mm<sup>2</sup>  
(.002 sq. in.)



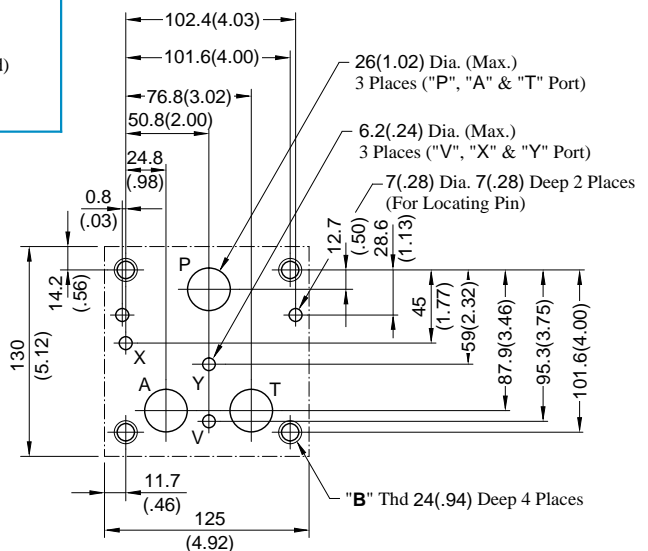
Approx. Mass ..... 19 kg (41.9 lbs.)

DIMENSIONS IN  
MILLIMETRES (INCHES)

#### Dimensions of valve mounting surface

Prepare a mounting surface as shown to the right.  
Also finish it finely.

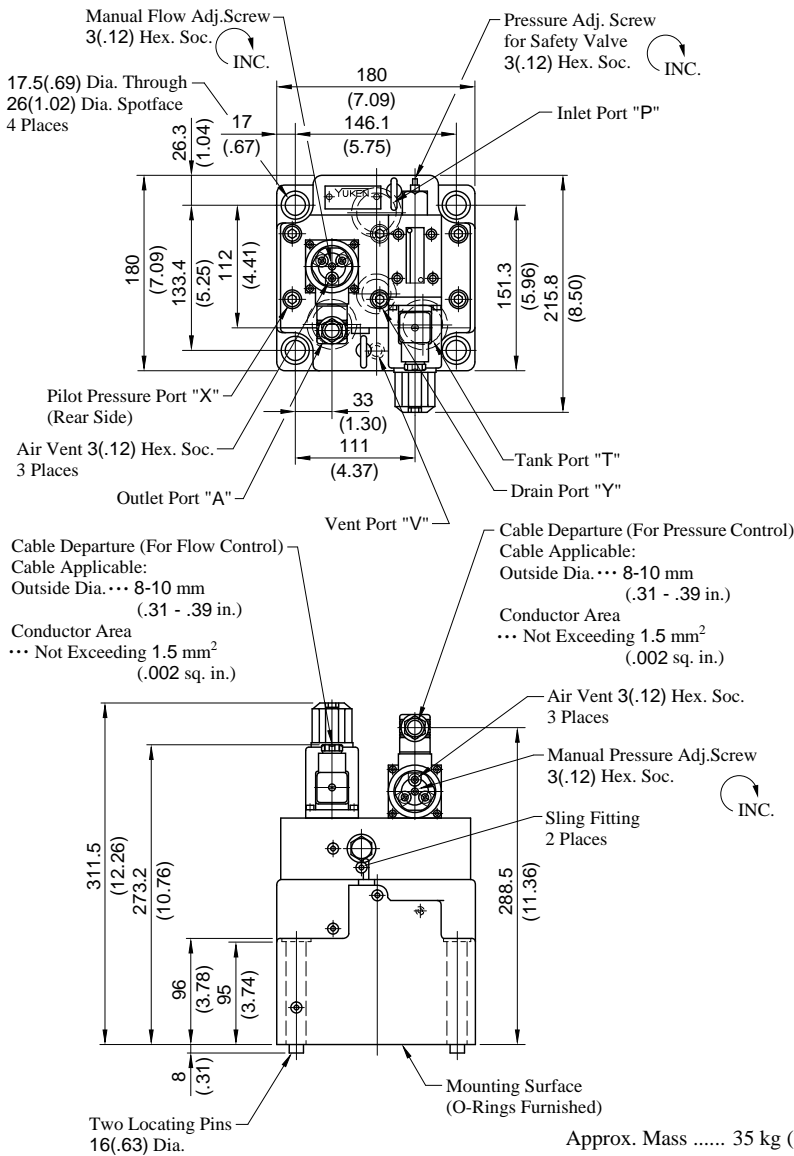
Model Numbers	"B" Thd.
EFBG-03-250-*-*51	M12
EFBG-03-250-*-*5190	1/2-13 UNC



### Installation Drawing

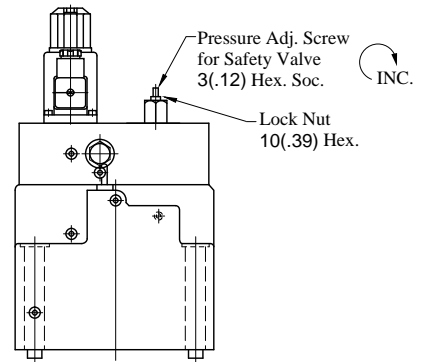
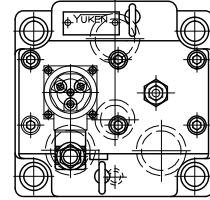
#### Models with Proportional Pilot Relief Valve

EFBG-06-500-<sup>C</sup><sub>H</sub>(-E)-51/5190



#### Models without Proportional Pilot Relief Valve

EFBG-06-500(-E)-51/5190



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

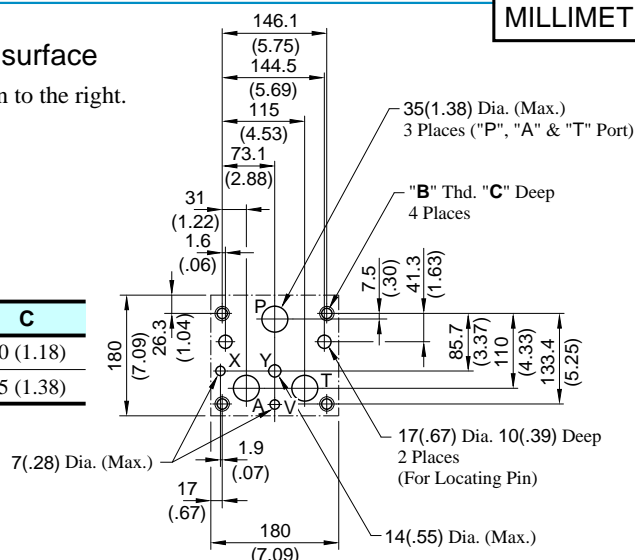
Approx. Mass ..... 33 kg (72.8 lbs.)

**DIMENSIONS IN  
MILLIMETRES (INCHES)**

#### Dimensions of valve mounting surface

Prepare a mounting surface as shown to the right.  
Also finish it finely.

Model Numbers	"B" Thd.	C
EFBG-06-500-*-51	M16	30 (1.18)
EFBG-06-500-*-5190	5/8-11 UNC	35 (1.38)

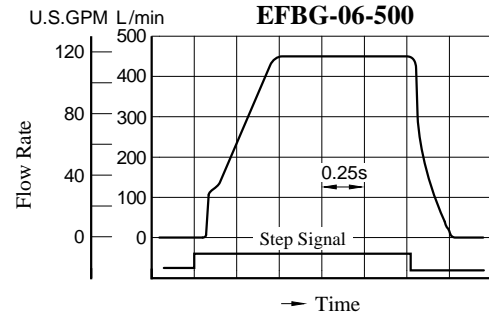
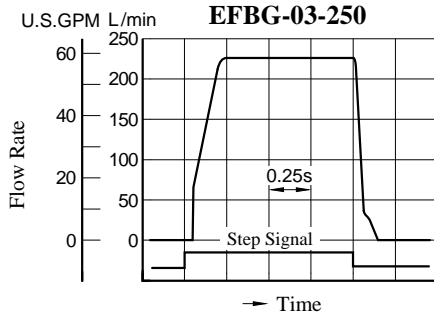


### Typical Performance Characteristics

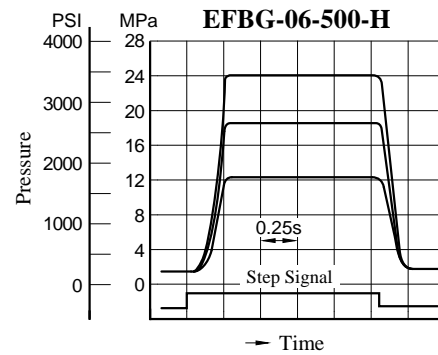
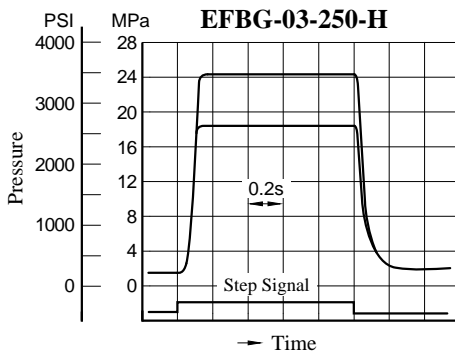
#### Step Response

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

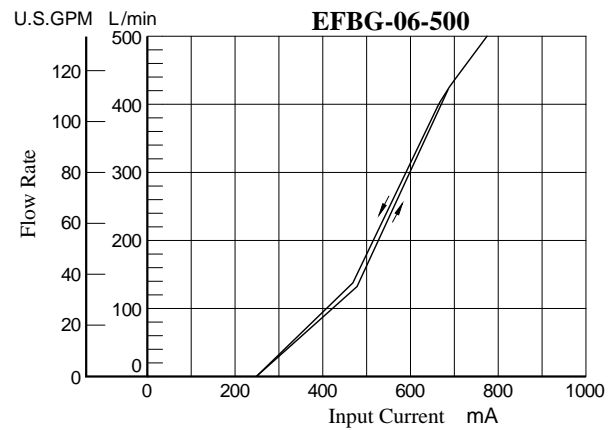
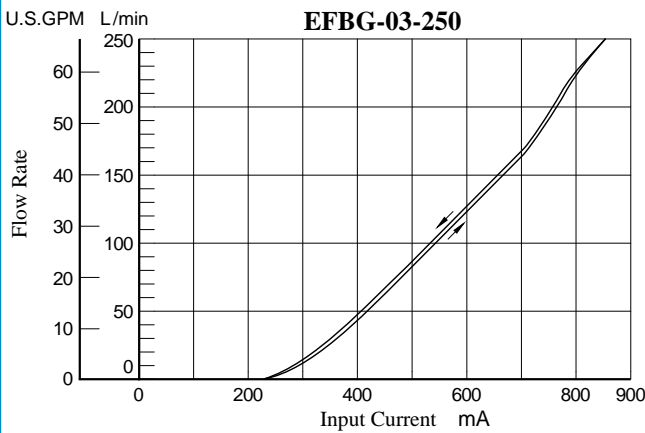
#### Flow Controls



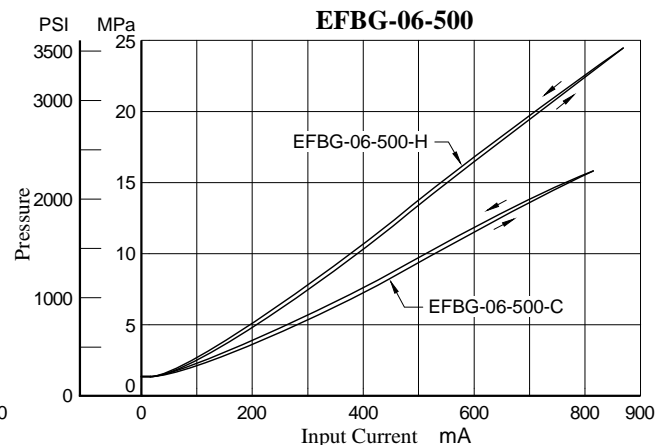
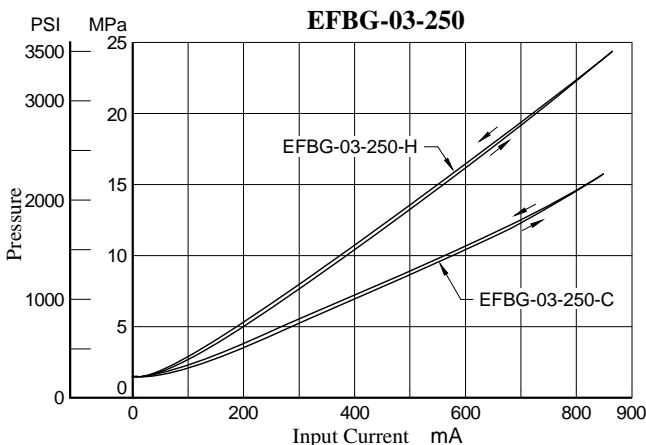
#### Pressure Controls



#### Input Current vs. Flow

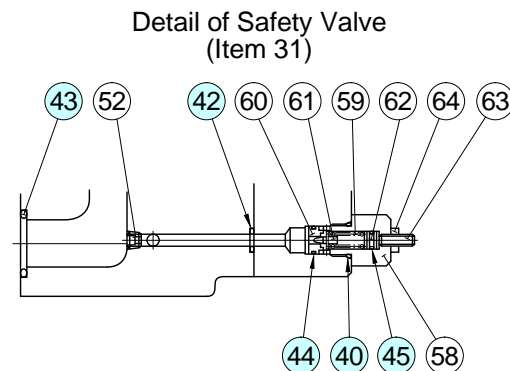
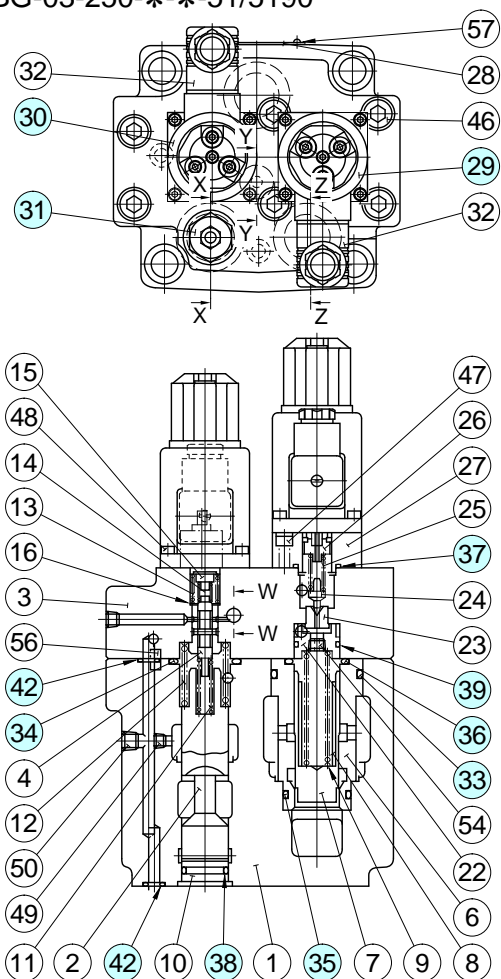


#### Input Current vs. Pressure

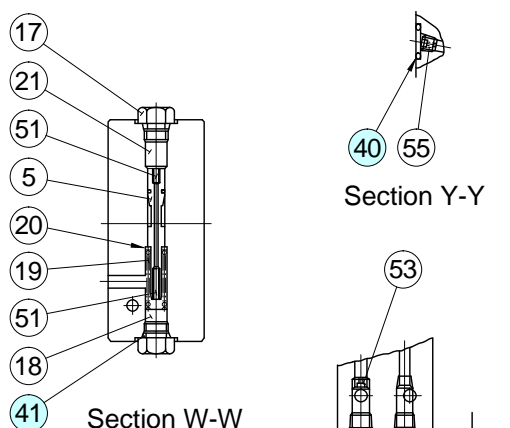


### Spare Parts List

EFBG-03-250-\*-51/5190



Section X-X



#### List of Seals

Item	Name of Parts	Part Numbers	Qty.
33	O-Ring	SO-NB-P42	1
34	O-Ring	SO-NB-P32	1
35	O-Ring	SO-NB-P30	1
36	O-Ring	SO-NB-P28	1
37	O-Ring	SO-NB-P22	1*
38	O-Ring	SO-NB-P21	1
39	O-Ring	SO-NB-P20	1*
40	O-Ring	SO-NB-P14	2
41	O-Ring	SO-NB-P11	2
42	O-Ring	SO-NB-P9	6
43	O-Ring	SO-NB-G30	3
44	O-Ring	SO-NB-A013	1
45	O-Ring	SO-NA-P6	1

\* O-rings, ref. Nos. 37 and 39, are used only with the proportional pilot relief valve (EFBG-03-250-C/H).

Note: When ordering seals, please specify the seal kit number from the table right.

In addition to the above o-rings, o-rings for solenoid ass'y are included in the seal kit.

For the detail of the solenoid ass'y seals, see the Catalogue No. Pub. EC-1302.

#### Solenoid Ass'y and Safety Valve

Valve Model Numbers	②⑨ Solenoid Ass'y Model No.	③⑩ Solenoid Ass'y Model No.	③① Safety Valve Model No.
EFBG-03-250-C/H(-E)-51/5190	E318-Y06M1-04-61	E318-Y06M1-28-61	SB1094-2002
EFBG-03-250(-E)-51/5190	—		

Note: The connector assembly GDM-211-B-11 (Item 32) is not included in the solenoid assembly.

#### CAUTION

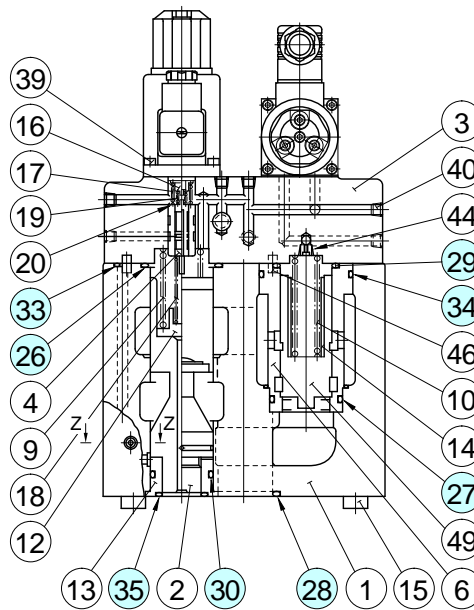
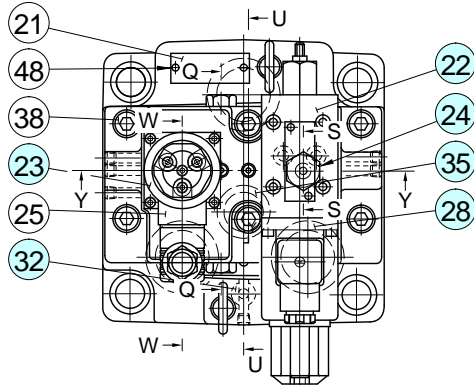
When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

#### List of Seal Kits

Model Numbers	Seal Kit Numbers
EFBG-03-250-51*	KS-EFBG-03-250-51
EFBG-03-250-C/H-51*	KS-EFBG-03-250-C-51

### Spare Parts List

EFBG-06-500-\*-51/5190



#### List of Seals

Item	Name of Parts	Part Numbers	Qty.
26	O-Ring	SO-NB-P46	1
27	O-Ring	SO-NB-P42	1
28	O-Ring	SO-NB-P40	3
29	O-Ring	SO-NB-P36	1
30	O-Ring	SO-NB-P34	1
31	O-Ring	SO-NB-P14	1*
32	O-Ring	SO-NB-P11	4
33	O-Ring	SO-NB-P9	4
34	O-Ring	SO-NB-G55	1
35	O-Ring	SO-NB-G30	2
36	O-Ring	SO-NB-AO13	1*
37	O-Ring	SO-NA-P6	1*

\* O-rings, ref. Nos. 31, 36 and 37, are used only with the proportional pilot relief valve [EFBG-06-500(-E)].

Note: When ordering seals, please specify the seal kit number from the table right. In addition to the above o-rings, o-rings for pilot valve and solenoid ass'y are included in the seal kit. For the detail of the pilot valve and solenoid ass'y seals, see the Catalogue No. Pub. EC-1302.

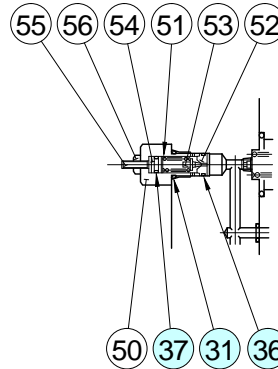
#### Pilot Valve and Solenoid Ass'y

Valve Model Numbers	②② Pilot Valve Model Numbers	②③ Solenoid Ass'y Model No.	②④ Safety Valve Model No.
EFBG-06-500-C(-E)-51/5190	EDG-01V-C-1-PNT11-5103	E318-Y06M1-28-61	—
EFBG-06-500-H(-E)-51/5190	EDG-01V-H-1-PNT11-5103		—
EFBG-06-500(-E)-51/5190	—		SB1094-2002

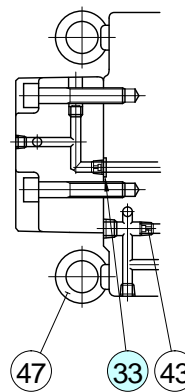
Note: The connector assembly GDM-211-B-11 (Item 25) is not included in the solenoid assembly.

Detail of Safety Valve (Item 24)

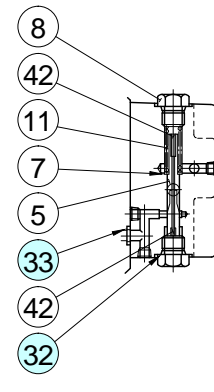
[Models Without Pilot Relief Valve : EFBG-06-500(-E)]



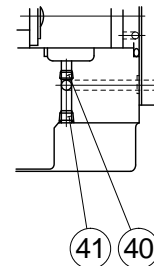
Section S-S



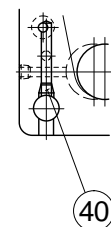
Section U-U



Section Q-Q



Section W-W



Section Z-Z

#### CAUTION

When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

#### List of Seal Kits

Model Numbers	Seal Kit Numbers
EFBG-06-500-51*	KS-EFBG-06-500-51
EFBG-06-500-C/H-51*	KS-EFBG-06-500-C-51

### Interchangeability between Current and New Design

#### ■ Interchangeability between Current and New Design

EFBG-03/06 series valves have changed model from 50 to 51 design in line with the model change of solenoid ass'y.

#### ● Specifications and Characteristics

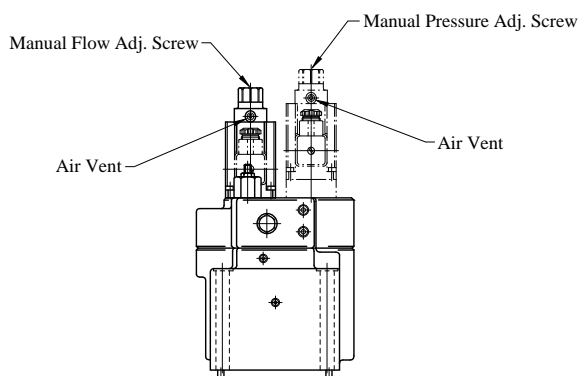
No changes in specifications and characteristics between current and new design.

#### ● Mounting Interchangeability

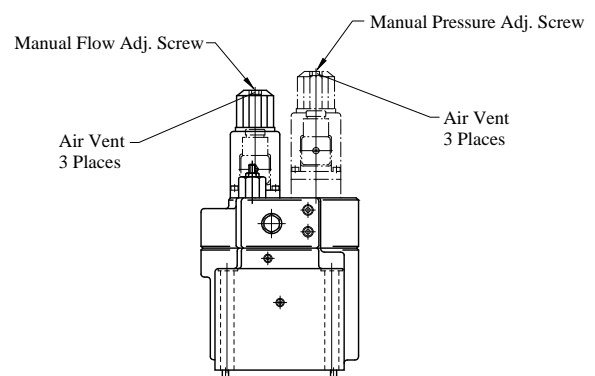
There is an interchangeability in the mounting dimensions between current and new design, however, note that because of improvements made on the solenoids, the overall shapes have been changed as shown below.

#### ● EFBG-03

Current : Design 50

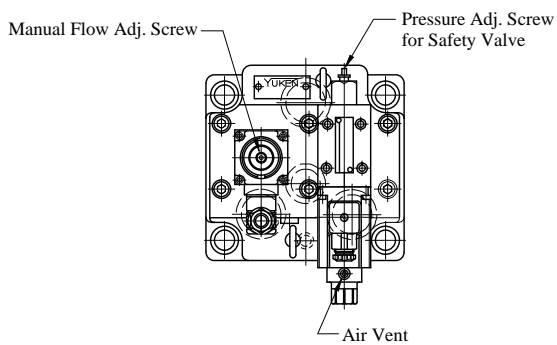


New : Design 51



#### ● EFBG-06

Current : Design 50



New : Design 51

