

Алматы (7273)495-231
 Ангарск (3955)60-70-56
 Архангельск (8182)63-90-72
 Астрахань (8512)99-46-04
 Барнаул (3852)73-04-60
 Белгород (4722)40-23-64
 Благовещенск (4162)22-76-07
 Брянск (4832)59-03-52
 Владивосток (423)249-28-31
 Владикавказ (8672)28-90-48
 Владимир (4922)49-43-18
 Волгоград (844)278-03-48
 Вологда (8172)26-41-59
 Воронеж (473)204-51-73
 Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
 Ижевск (3412)26-03-58
 Иркутск (395)279-98-46
 Казань (843)206-01-48
 Калининград (4012)72-03-81
 Калуга (4842)92-23-67
 Кемерово (3842)65-04-62
 Киров (8332)68-02-04
 Коломна (4966)23-41-49
 Кострома (4942)77-07-48
 Краснодар (861)203-40-90
 Красноярск (391)204-63-61
 Курган (3522)50-90-47
 Курск (4712)77-13-04
 Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
 Москва (495)268-04-70
 Мурманск (8152)59-64-93
 Набережные Челны (8552)20-53-41
 Нижний Новгород (831)429-08-12
 Новокузнецк (3843)20-46-81
 Новосибирск (383)227-86-73
 Ноябрьск (3496)41-32-12
 Омск (3812)21-46-40
 Орел (4862)44-53-42
 Оренбург (3532)37-68-04
 Пенза (8412)22-31-16
 Пермь (342)205-81-47
 Петрозаводск (8142)55-98-37
 Псков (8112)59-10-37

Ростов-на-Дону (863)308-18-15
 Рязань (4912)46-61-64
 Самара (846)206-03-16
 Санкт-Петербург (812)309-46-40
 Саранск (8342)22-96-24
 Саратов (845)249-38-78
 Севастополь (8692)22-31-93
 Симферополь (3652)67-13-56
 Смоленск (4812)29-41-54
 Сочи (862)225-72-31
 Ставрополь (8652)20-65-13
 Сургут (3462)77-98-35
 Сыктывкар (8212)25-95-17
 Тамбов (4752)50-40-97
 Тверь (4822)63-31-35

Тольятти (8482)63-91-07
 Томск (3822)98-41-53
 Тула (4872)33-79-87
 Тюмень (3452)66-21-18
 Улан-Удэ (3012)59-97-51
 Ульяновск (8422)24-23-59
 Уфа (347)229-48-12
 Хабаровск (4212)92-98-04
 Чебоксары (8352)28-53-07
 Челябинск (351)202-03-61
 Череповец (8202)49-02-64
 Чита (3022)38-34-83
 Якутск (4112)23-90-97
 Ярославль (4852)69-52-93

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High Flow Series Proportional Electro-Hydraulic Flow Control and Relief Valves

This flow control and relief valve is an energy-saving valve that supplies the minimum pressure and flow necessary for actuator drive.

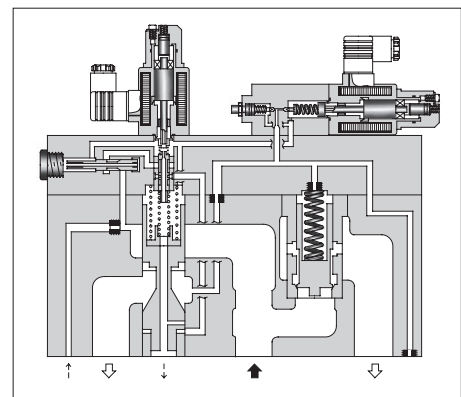
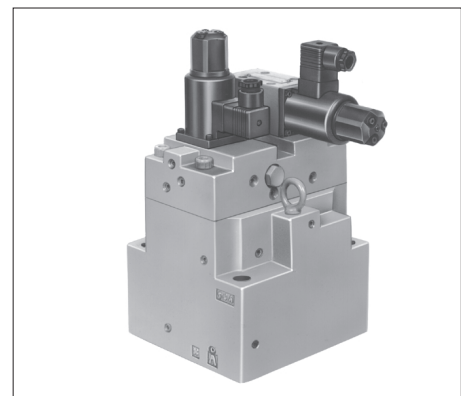
For the High Flow Series, double maximum flow rate [03 size: 125→250 L/min, 06 size: 250→500 L/min, 10 size: 500→1000 L/min] enables a smaller valve size than conventional products; compact-sized devices can be provided.

Specifications

Model No.		EFBG-03	EFBG-06	EFBG-10	
Descriptions		-250- * - * -51	-500- * - * -51	-1000- * - * -51	
Max. Operating Pressure	MPa	24.5	24.5	24.5	
Max. Flow	L/min	250	500	1000	
Metered Flow Adjustment Range	L/min	2.5-250	5-500	10-1000	
Min. Pilot Pressure	MPa	1.5	1.5	1.5	
Pilot Flow	L/min				
	at Normal	1	1	4.5	
	at Transition	4	6	10.0	
Flow Controls	Rated Current	mA	830	780	830
	Coil Resistance	Ω	10	10	10
	Differential Pressure	MPa	0.8	0.9	1.2
	Hysteresis		3% or less	3% or less	3% or less
	Repeatability		1% or less	1% or less	1% or less
Pressure Controls	Pres. Adj. Range	MPa	C: 1.6-15.7 H: 1.8-24.5	C: 1.5-15.7 H: 1.5-24.5	C: 1.1-15.7 H: 1.1-24.5
	Rated Current	mA	C: 850 H: 870	C: 800 H: 900	C: 900 H: 950
	Coil Resistance	Ω	10	10	10
	Hysteresis		3% or less	3% or less	3% or less
	Repeatability		1% or less	1% or less	1% or less
Approx. Mass	kg	Refer to pages H-147 to H-149			

★1. The specifications for pressure controls are applied to models with proportional pilot relief valve. (Ex. EFBG-03-250-C- * -51)

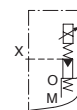
★2. The maximum pressure adjustment range of the valves without proportional pilot relief valves is 24.5 MPa.



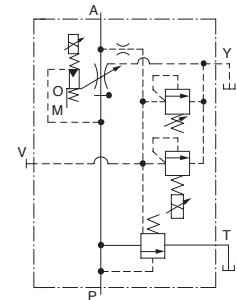
Graphic Symbols

With Proportional Pilot Relief Valve

External Pilot

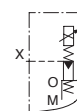


Internal Pilot

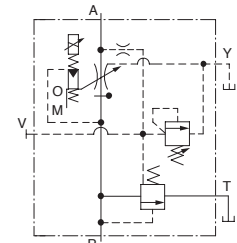


Without Proportional Pilot Relief Valve

External Pilot



Internal Pilot



Model Number Designation

EFB	G	-03	-250	-C	-E	-51
Series Number	Type of Mounting	Valve Size	Max. Metered Flow L/min	Proportional Pilot Relief Valve Pressure Adj. Range	Pilot Connection	Design Number
EFB: Proportional Electro-Hydraulic Flow Control and Relief Valve	G: Sub-Plate Mounting	03	250	C, H: See Specifications	None: Internal Pilot	51
		06	500			51
		10	1000	None: Without Proportional Pilot Relief Valve	E: External Pilot	51

Accessories

Mounting Bolts

Valve Model Numbers	Socket Head Cap Screw	Qty.
EFBG-03	M12 × 120 L	4
EFBG-06	M16 × 120 L	4
EFBG-10	M20 × 150 L	4

Applicable Power Amplifiers

For stable performance, it is recommended that Yuken's applicable power amplifiers be used (for details see pages H-173, H-177 and H-183).

Valve Model Numbers	Power Amplifier Model Numbers	
	For Flow Control	For Pres. Control
EFBG-03- 250(-E)-51 EFBG-06- 500(-E)-51 EFBG-10-1000(-E)-51	AME-D-10- * -20 AMN-D-10 (For DC Power Supply)	—
03 125 EFBG-06- 500 - _C (-E)-51 10 1000 _H	AME-D2-1010-11	

Instructions

Drain Back Pressure

Check that the drain back pressure dose not exceed 0.2 MPa.

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 dose not exceed 0.5 MPa.

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. 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 (10Ω-10Ω Series)

• EFBG-03

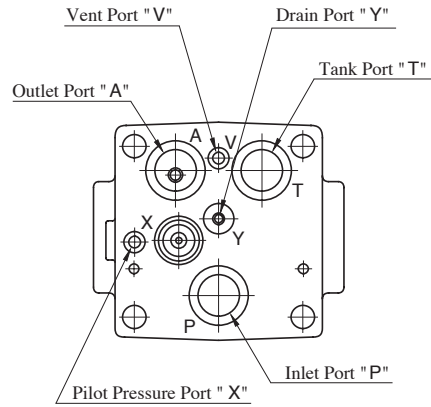
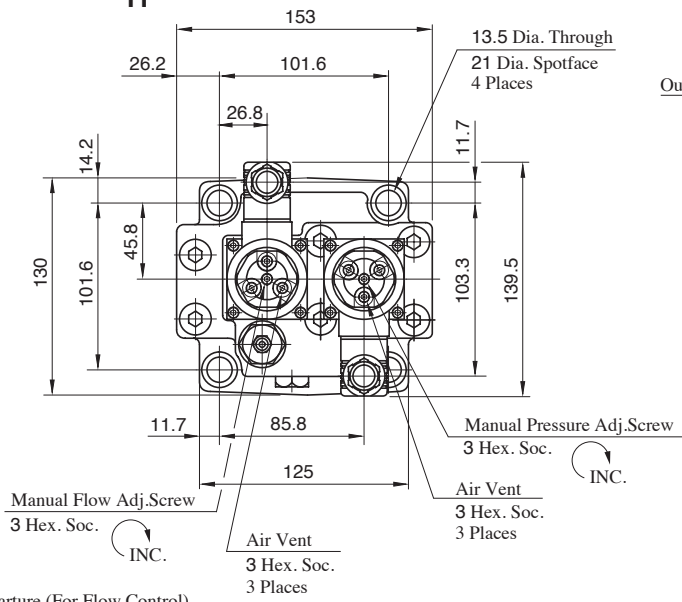
There is no interchangeability in installation.

• EFBG-06/10

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.

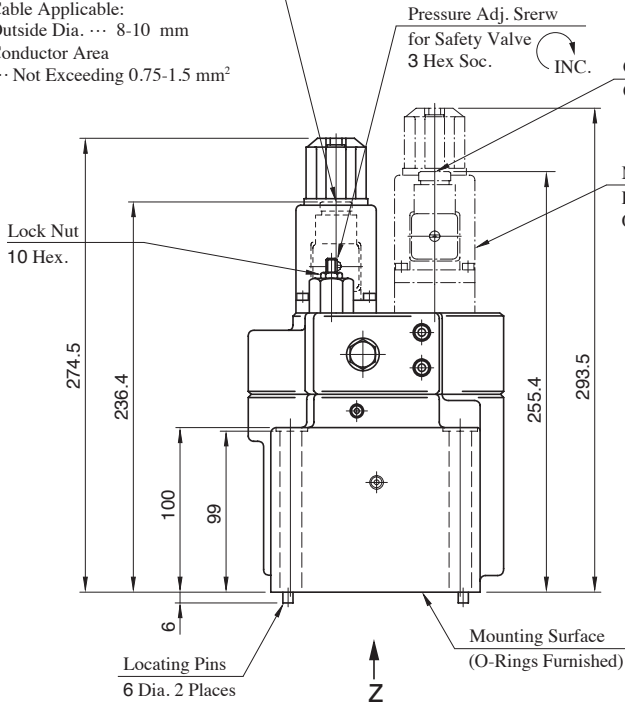


EFBG-03-250 - C_H(-E)-51, EFBG-03-250 (-E)-51



View Arrow Z

Cable Departure (For Flow Control)
Cable Applicable:
Outside Dia. ... 8-10 mm
Conductor Area ... Not Exceeding 0.75-1.5 mm²



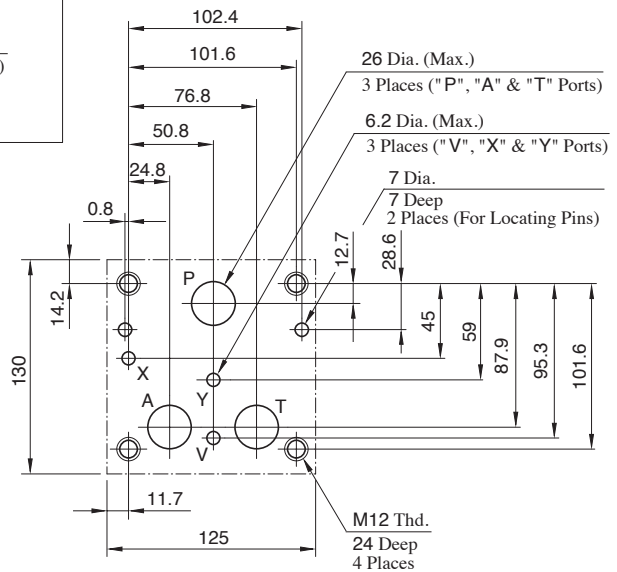
Cable Departure (For Pressure Control)
Cable Applicable:
Outside Dia. ... 8-10 mm
Conductor Area ... Not Exceeding 0.75-1.5 mm²

Models with Proportional Pilot Relief Valve (EFBG-03-250-C/H) Only.

Approx. Mass 19 kg

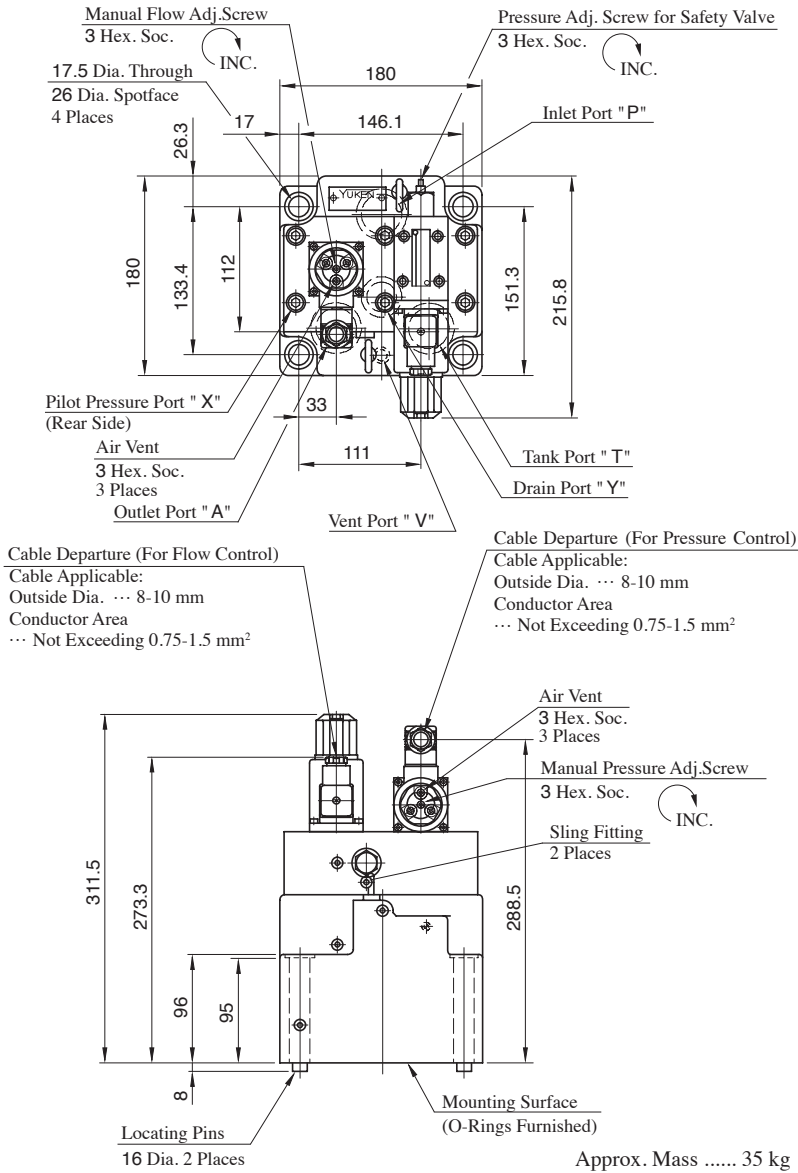
Dimensions of Valve Mounting Surface

Prepare a mounting surface as shown to the right.
Also finish it finely. (1.6/√)



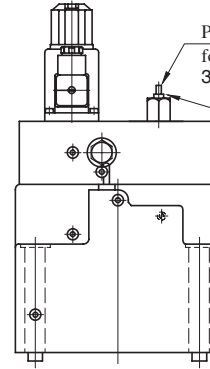
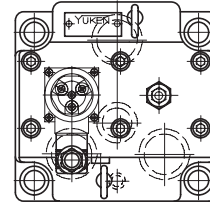
Models with Proportional Pilot Relief Valve

EFBG-06-500 -^C_H(-E)-51



Models without Proportional Pilot Relief Valve

EFBG-06-500(-E)-51

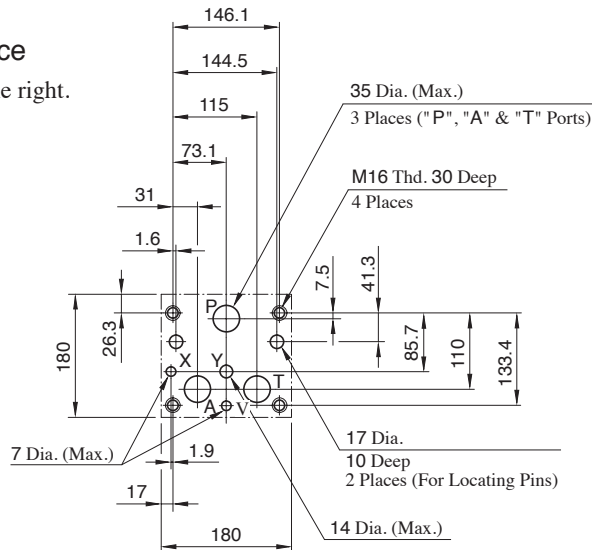


● For other dimensions, please refer to the models with Proportional Pilot Relief Valve.

Approx. Mass 33 kg

Dimensions of Valve Mounting Surface

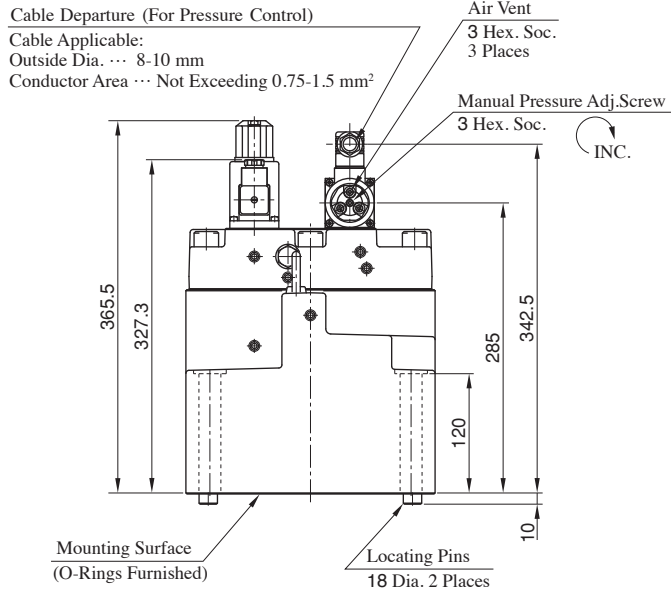
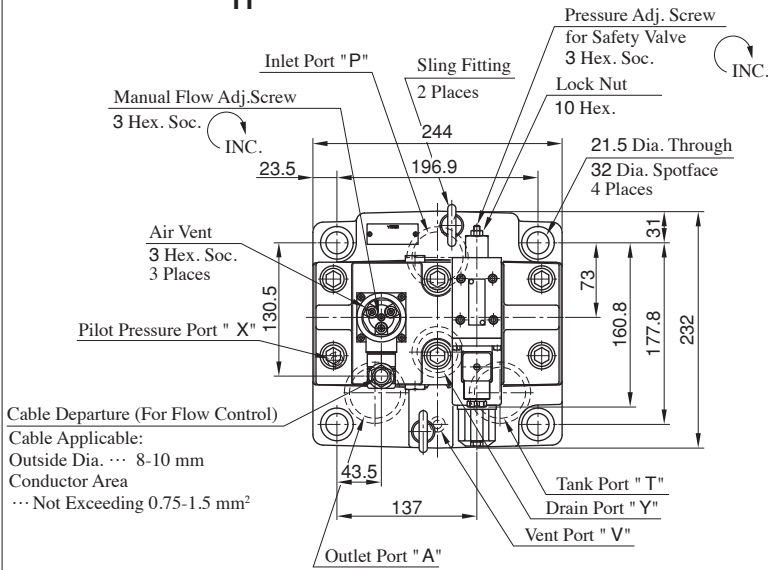
Prepare a mounting surface as shown to the right.
Also finish it finely. ($\sqrt{1.6}$)





Models with Proportional Pilot Relief Valve

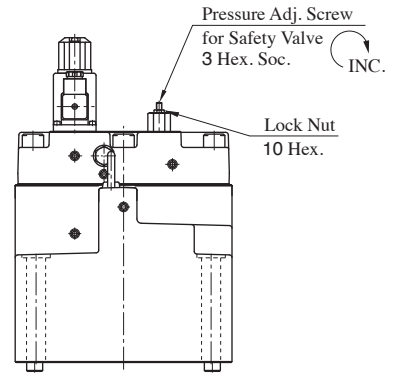
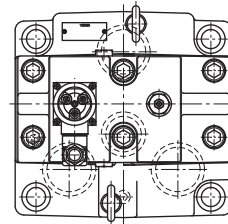
EFBG-10-1000-C_H(-E)-51



Approx. Mass 76 kg

Models without Proportional Pilot Relief Valve

EFBG-10-1000(-E)-51

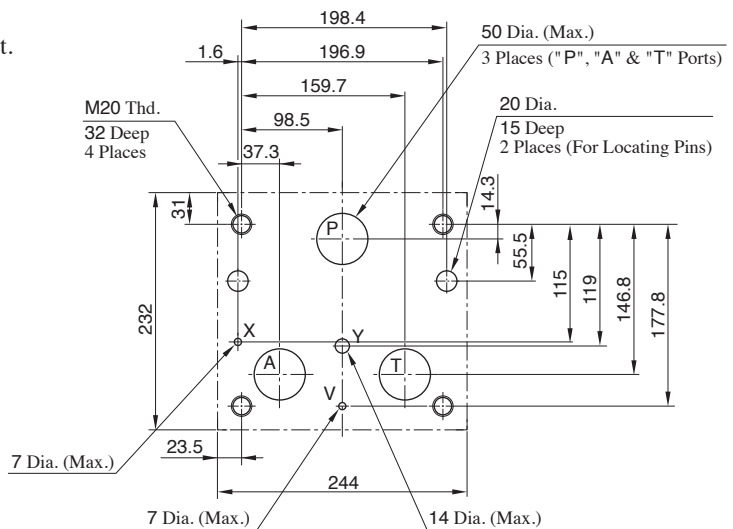


● For other dimensions, please refer to the models with Proportional Pilot Relief Valve.

Approx. Mass 74 kg

Dimensions of Valve Mounting Surface

Prepare a mounting surface as shown to the right.
Also finish it finely. ($\sqrt{1.6}$)

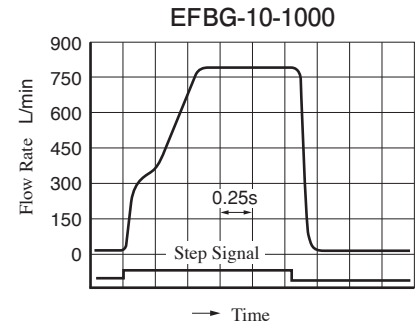
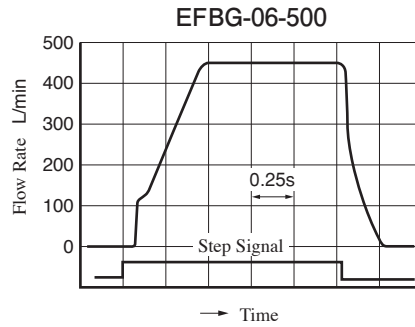
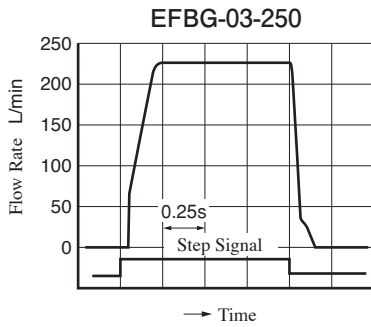


Step Response

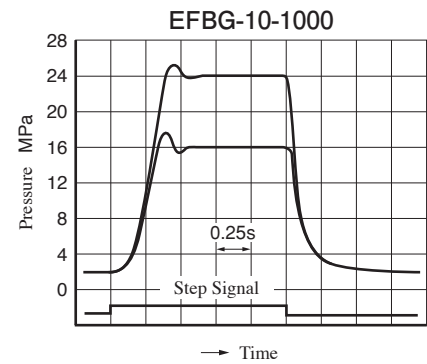
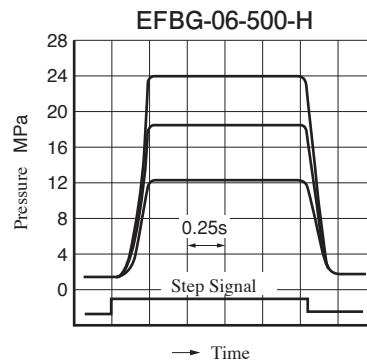
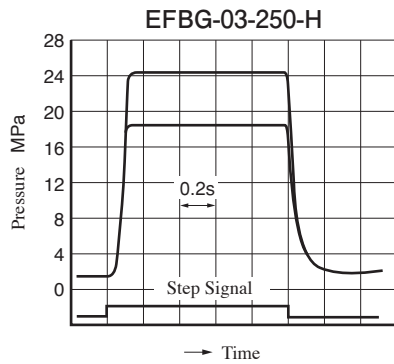
These characteristics have been obtained by measuring on each valve.
Therefore, they may vary according to a hydraulic circuit to be used.

Viscosity: 30mm²/s

Flow Controls

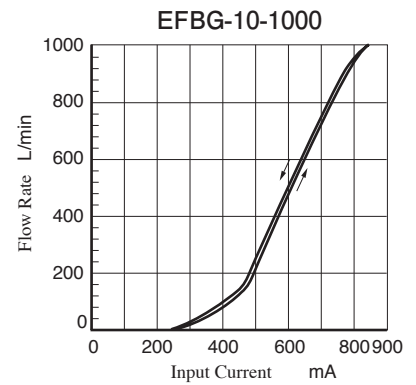
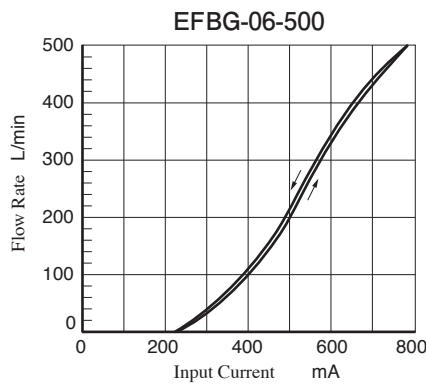
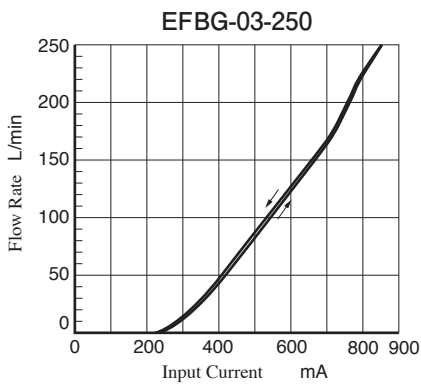


Pressure Controls



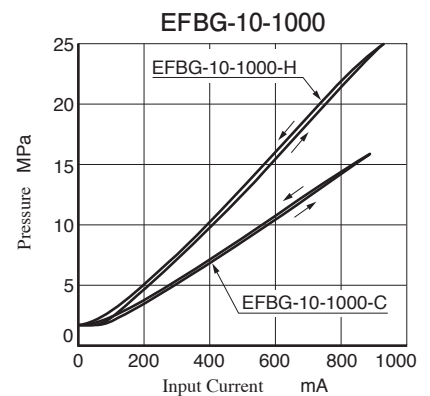
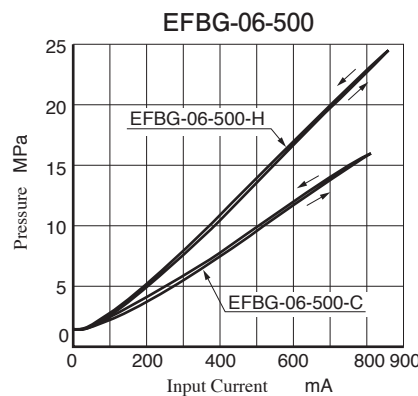
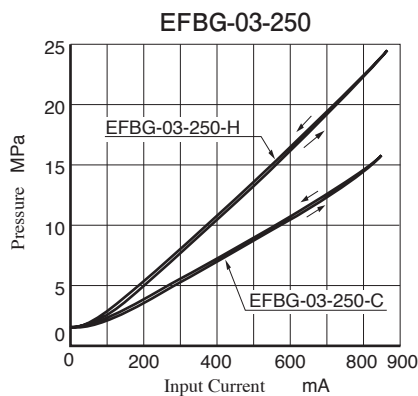
Input Current vs. Flow

Viscosity: 30mm²/s



Input Current vs. Pressure

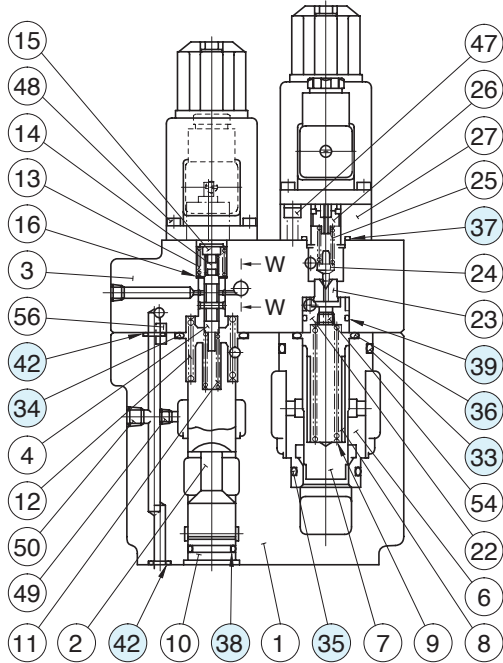
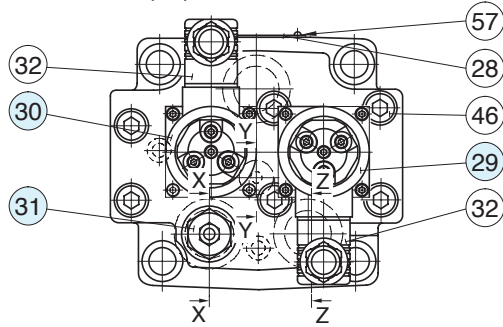
Viscosity: 30mm²/s



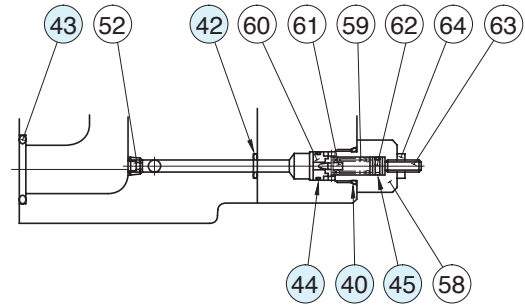


List of Seals, Solenoid Ass'y and Safety Valve

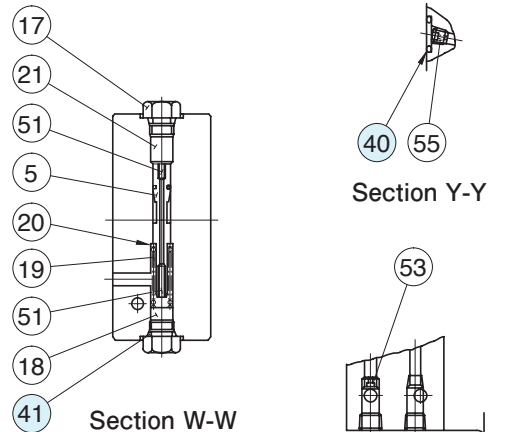
EFBG-03-250- *-*-51/5190



Detail of Safety Valve
(Item 31)



Section X-X



Section Z-Z

List of Seals

Item	Name of Parts	Part Numbers	Qty.
33	O-Ring	OR NBR-90 P42-N	1
34	O-Ring	OR NBR-90 P32-N	1
35	O-Ring	OR NBR-90 P30-N	1
36	O-Ring	OR NBR-90 P28-N	1
37	O-Ring	OR NBR-90 P22-N	1*
38	O-Ring	OR NBR-90 P21-N	1
39	O-Ring	OR NBR-90 P20-N	1*
40	O-Ring	OR NBR-90 P14-N	2
41	O-Ring	OR NBR-90 P11-N	2
42	O-Ring	OR NBR-90 P9-N	6
43	O-Ring	OR NBR-90 G30-N	3
44	O-Ring	AS568-013(NBR-90)	1
45	O-Ring	OR NBR-70-1 P6-N	1

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

Solenoid Ass'y and Safety Valve

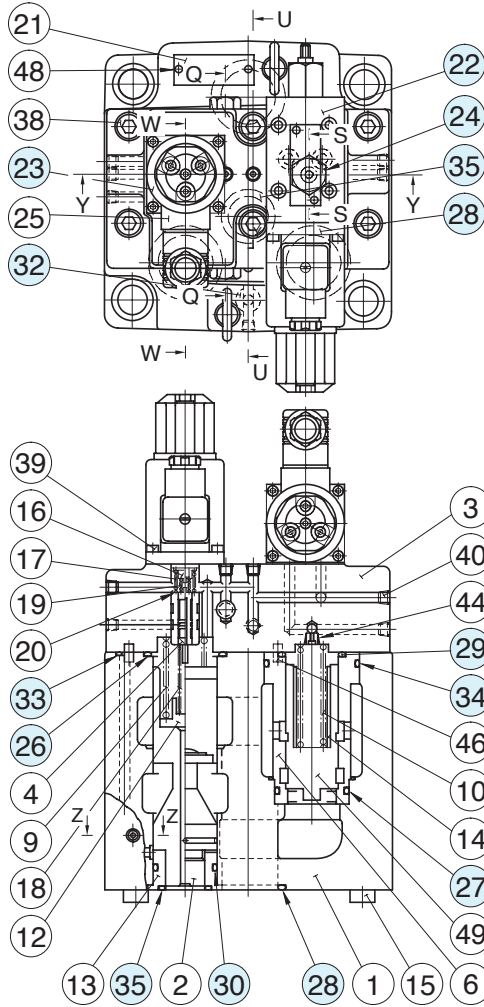
Valve Model Numbers	②⑨ Solenoid Ass'y Model No.	③⑩ Solenoid Ass'y Model No.	③① Safety Valve Model No.
EFBG-03-250-C/H(-E)-51	E318-Y06M1-04-61	E318-Y06M1-28-61	SB1094-2002
EFBG-03-250(-E)-51	—		

Note 1) For details on the solenoid ass'y, refer to proportional pilot relief valve (page H-97).

Note 2) The connector assembly GDM-211-B-11 (Item 32) is not included in the solenoid assembly.

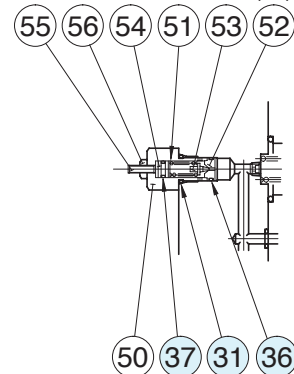
List of Seals, Pilot Valves, Solenoid Ass'y and Safety Valve

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

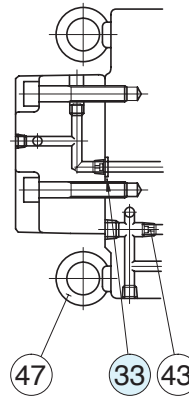


Detail of Safety Valve (Item 24)

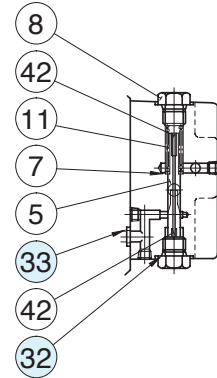
{ Models Without Pilot Relief Valve : EFBG-06-500(-E) }



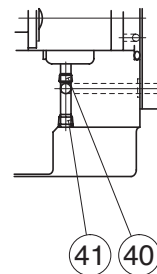
Section S-S



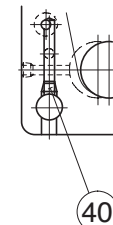
Section U-U



Section Q-Q



Section W-W



Section Z-Z

List of Seals

Item	Name of Parts	Part Numbers	Qty.
26	O-Ring	OR NBR-90 P46-N	1
27	O-Ring	OR NBR-90 P42-N	1
28	O-Ring	OR NBR-90 P40-N	3
29	O-Ring	OR NBR-90 P36-N	1
30	O-Ring	OR NBR-90 P34-N	1
31	O-Ring	OR NBR-90 P14-N	1*
32	O-Ring	OR NBR-90 P11-N	4
33	O-Ring	OR NBR-90 P9-N	4
34	O-Ring	OR NBR-90 G55-N	1
35	O-Ring	OR NBR-90 G30-N	2
36	O-Ring	AS568-013(NBR-90)	1*
37	O-Ring	OR NBR-70-1 P6-N	1*

*O-rings, item 31, 36 and 37, are used only without the proportional pilot relief valve [(EFBG-06-500(-E)).

Pilot Valve, Solenoid Ass'y and Safety Valve

Valve Model Numbers	② Pilot Valve Model Numbers	③ Solenoid Ass'y Model No.	④ Safety Valve Model No.
EFBG-06-500-C(-E)-51	EDG-01V-C-1-PNT11-5103	E318-Y06M1-28-61	—
EFBG-06-500-H(-E)-51	EDG-01V-H-1-PNT11-5103		—
EFBG-06-500(-E)-51	—		SB1094-2002

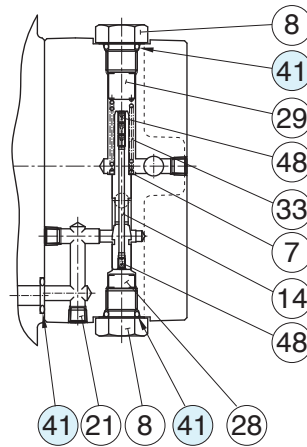
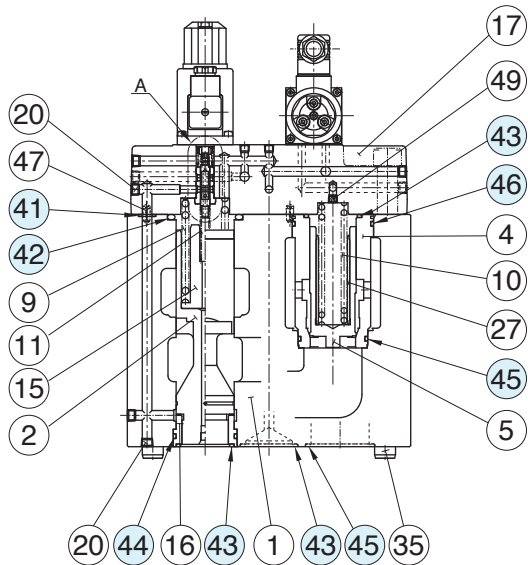
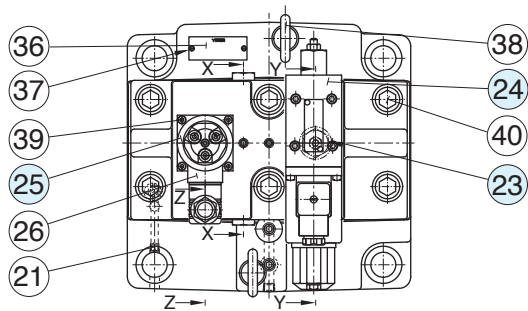
Note 1) For details on the pilot valves, refer to proportional pilot relief valve (page H-97).

Note 2) The connector assembly GDM-211-B-11 (Item 25) is not included in the solenoid assembly.

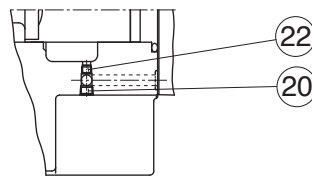


List of Seals, Pilot Valves, Solenoid Ass'y and Safety Valve

EFBG-10-1000-*-51

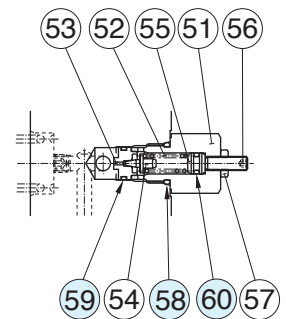


Section X-X

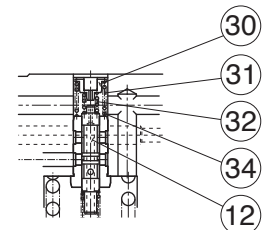


Section Z-Z

Detail of Safety Valve (Item 23)
 [Models Without Pilot Relief]
 Valve : EFBG-10-1000(-E)



Section Y-Y



Detail A

List of Seals

Item	Name of Parts	Part Numbers	Qty.
41	O-Ring	OR NBR-90 P11-N	8
42	O-Ring	OR NBR-90 P55-N	1
43	O-Ring	OR NBR-90 G45-N	3
44	O-Ring	OR NBR-90 G50-N	1
45	O-Ring	OR NBR-90 G55-N	4
46	O-Ring	OR NBR-90 G65-N	1
58	O-Ring	OR NBR-90 P14-N	1*
59	O-Ring	AS568-013(NBR-90)	1*
60	O-Ring	OR NBR-70-1 P6-N	1*

* O-rings, item 58, 59 and 60, are used only without the proportional pilot relief valve [EFBG-10-1000(-E)].

Pilot Valve, Solenoid Ass'y and Safety Valve

Valve Model Numbers	②④ Pilot Valve Model Numbers	②⑤ Solenoid Ass'y Model No.	②③ Safety Valve Model No.
EFBG-10-1000-C(-E)-51	EDG-01V-C-1-PNT20-5197	E318-Y06M1-28-61	—
EFBG-10-1000-H(-E)-51	EDG-01V-H-1-PNT20-5197		—
EFBG-10-1000(-E)-51	—		SB1094-2002

Note 1) For details on the pilot valves, refer to proportional pilot relief valve (page H-97).

Note 2) The connector assembly GDM-211-B-11 (Item 25) is not included in the solenoid assembly.

Interchangeability between Current and New Design

EFBG-03/06/10 series valves have changed model from 50 to 51 design in line with the model change of solenoid ass'y.

Specifications and Characteristics

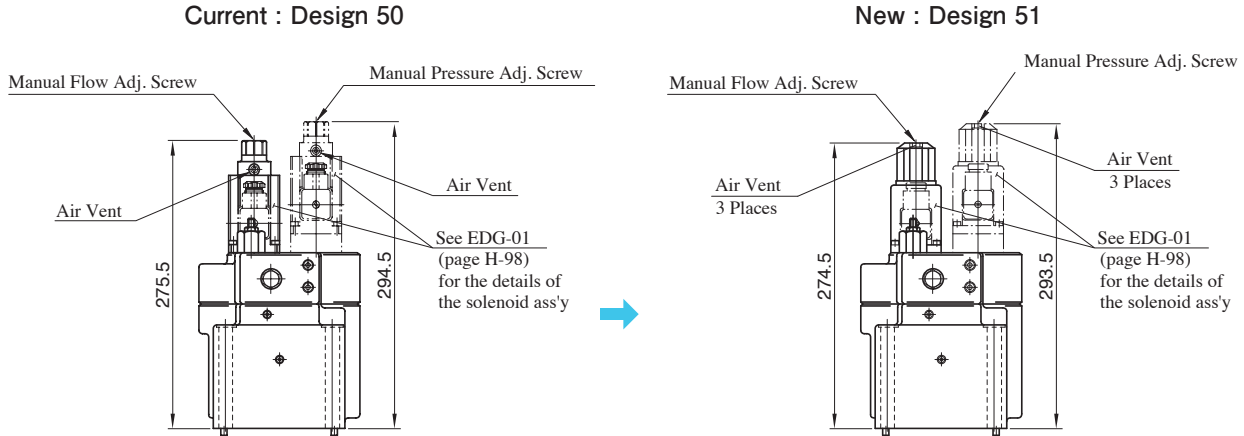
The input current and pressure–flow characteristics differ between the new and old models. Ask Yuken for details.

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

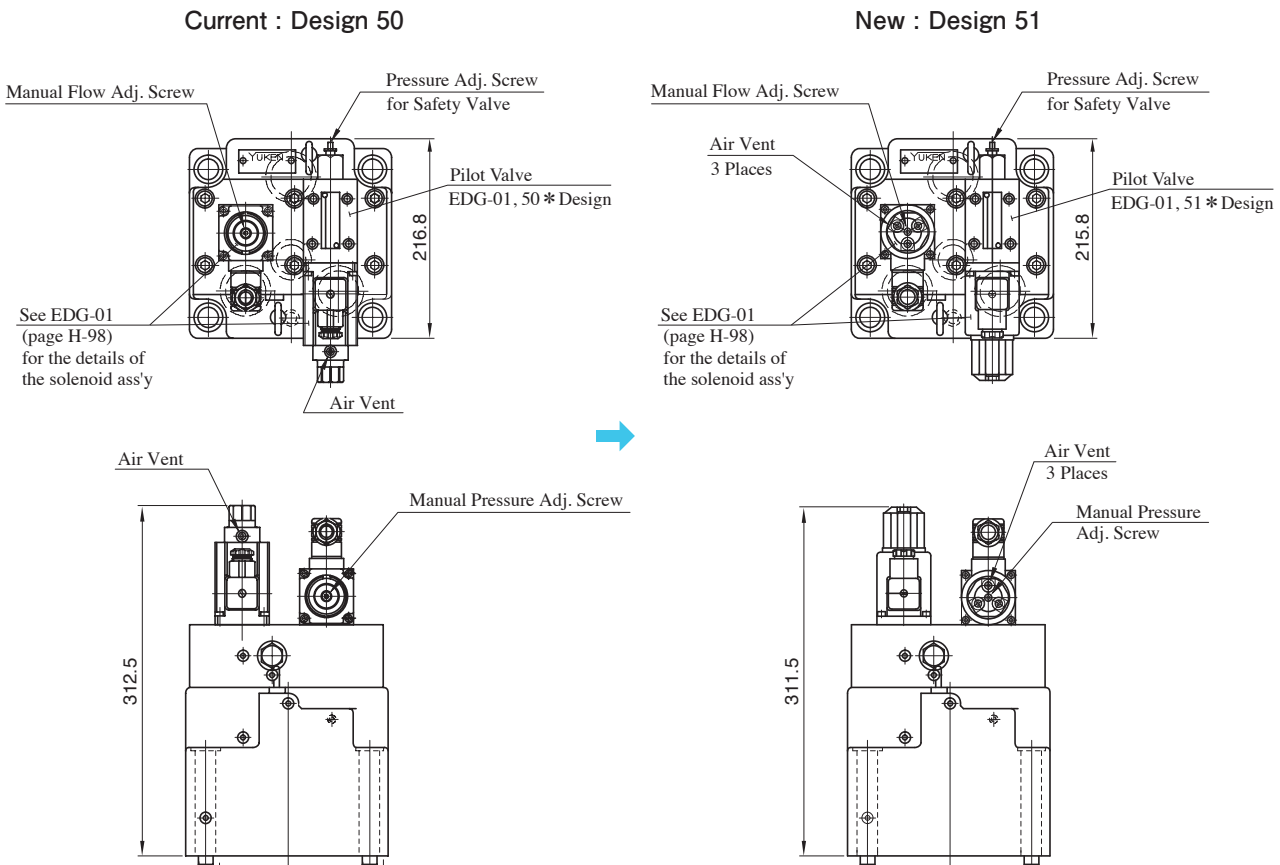
Mounting Interchangeability

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



• EFBG-06/10



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