

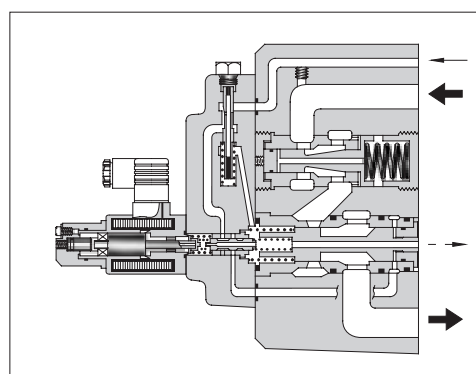
10Ω Series Proportional Electro-Hydraulic Flow Control (and Check) Valves

Since the preselected flow rate continuously varies in proportion to the current input to the valve, the system flow rate can be remote-controlled as desired by regulating the current output from the amplifier. Further, since the pressure and temperature compensation functions are provided, the preselected flow rate is not be affected by pressure (load) or temperature (fluid viscosity). This valve is ideal for use where actuator startup, stop, and speed changes are to be implemented without producing a shock. Note that this valve is used in conjunction with the applicable power amplifier.



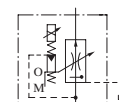
Specifications

Model No.		EFG EFCG -03- 60 EFCG -03-125	EFG EFCG -06-250
Description			
Max. Operating Pressure MPa (PSI)		20.6 (3000)	24.5 (3550)
Metred Flow Adj. Range L/min (U.S.GPM)		60: 1-60 (.26-15.9) 125: 1-125 (.26-33)	2.5-250 (.66-66)
Min. Differential Pressure ^{★1} MPa (PSI)		1.0 (145)	1.0 (145)
Free Flow (EFCG Models Only) L/min (U.S.GPM)		130 (34.3)	280 (74.0)
Min. Pilot Pressure ^{★2} MPa (PSI)		1.0 (145)	1.5 (220)
Pilot Flow L/min (U.S.GPM)	at Normal	0.5 (.13)	1 (.26)
	at Transition	2.6 (.69)	4 (1.06)
Rated Current		780 mA	820 mA
Coil Resistance		10 Ω	10 Ω
Hysteresis		3% or less	3% or less
Repeatability		1% or less	1% or less
Approx. Mass	kg (lbs.)	10 (22.1)	25 (55.1)



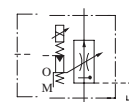
Graphic Symbols

Internal Pilot

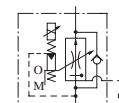


EFG- *

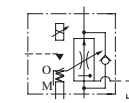
External Pilot



EFG- *



EFCG- *



EFCG- *

★1. Min pressure difference required between inlet and outlet ports to maintain function as pressure compensator.

★2. The minimum required value for the external pilot type.

Model Number Designation

F-	EFC	G	-03	-125	-E	-51	*
Special Seals	Series Number	Type of Mounting	Valve Size	Max. Metred Flow L/min (U.S.GPM)	Pilot Connection	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluid (Omit if not required)	EF: Proportional Electro-Hydraulic Flow Control Valve EFC: Proportional Electro-Hydraulic Flow Control and Check Valve	G: Sub-plate Mounting	03	60: 60 (15.9) 125: 125 (33)	None: Internal Pilot E: External Pilot	51	Refer to ★
			06	250: 250 (66)		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.	
EF*G-03	M10 × 80 Lg.	3/8-16 UNC × 3-1/4 Lg.	4
EF*G-06	M16 × 130 Lg.	5/8-11 UNC × 5 Lg.	4

Applicable Power Amplifiers

For stable performance, it is recommended that Yuken's applicable power amplifiers be used (for details see page 767, 771, 780).

- Model Numbers: AME-D-10-* -20
- AME-D2-1010-11
- SK1022-* -*-11
- SK1015-11 (For DC power supply)
- AMN-D-10 (For DC power supply)

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	
EFG EFCG -03	EFGM-03Y-30	Rc 3/4	EFGM-03Y-3080	3/4 BSP.F	EFGM-03Y-3090	3/4 NPT	5.7 (12.6)
	EFGM-03Z-30	Rc 1	EFGM-03Z-3080	1 BSP.F	EFGM-03Z-3090	1 NPT	5.6 (12.3)
EFG EFCG -06	EFGM-06X-30	Rc 1	EFGM-06X-3080	1 BSP.F	EFGM-06X-3090	1 NPT	12.5 (27.6)
	EFGM-06Y-30	Rc 1-1/4	EFGM-06Y-3080	1-1/4 BSP.F	EFGM-06Y-3090	1-1/4 NPT	16 (35.3)

Sub-plates are available. Specify the sub-plate model number from the tabel above. When sub-plates are not used, the mounting surface should have a good machined finish.

Instructions

Drain Back Pressure

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

Pilot Type Selection

This valve is constructed so as to operate at a pre-determined pilot pressure. For the 03, a pilot pressure of 1 MPa (145 PSI) or higher is required. For the 06, the reqiued pilot pressure is 1.5 MPa (220 PSI) or higher. To obtain such a required pilot pressure, select the pilot type according to the circuit examples on the right.

①/②

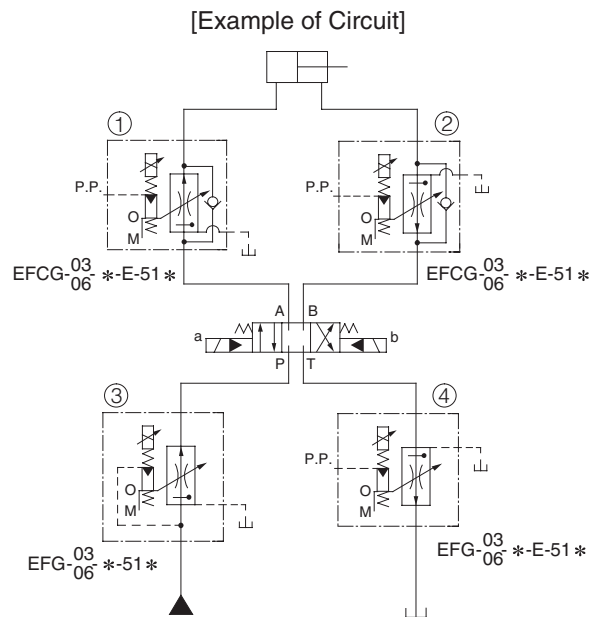
Use the external pilot type (pilot connection code: E) whether a metre-in or metre-out circuit is employed.

③

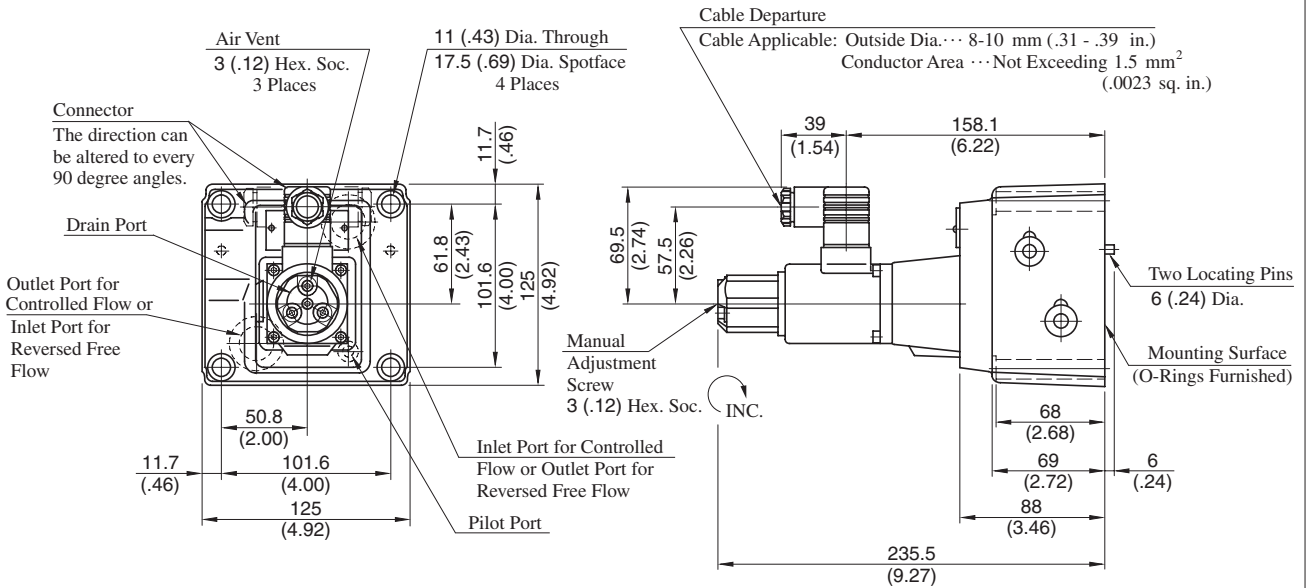
Use the internal pilot type (pilot connection code: None)

④

Use the external pilot type (pilot connection code: E)

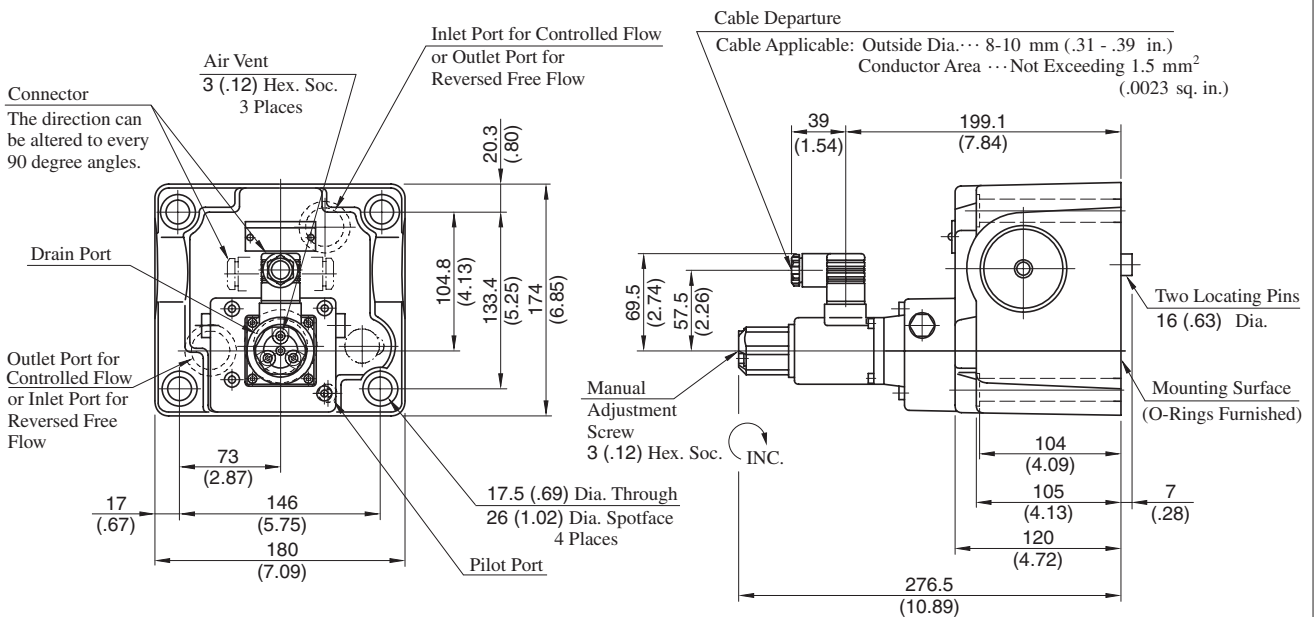


EFG -03- 60
EFCG -125- *-51/5190



DIMENSIONS IN MILLIMETRES (INCHES)

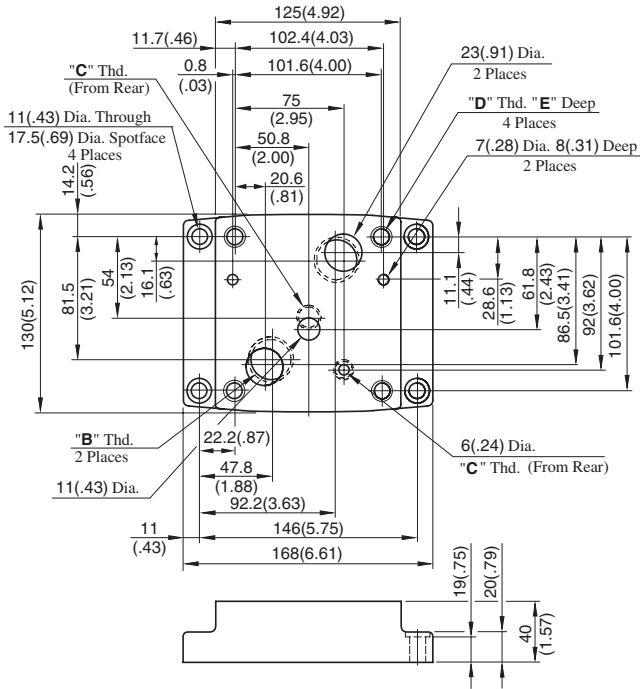
EFG -06-250- *-51/5190
EFCG



H
E Series
10Ω Series Flow Control (and Check) Valves

Sub-plate

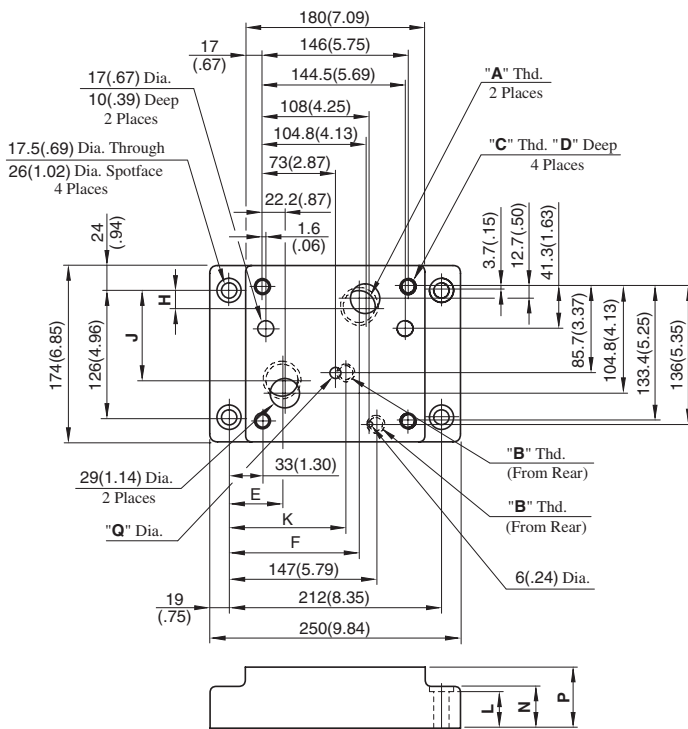
EFGM-03Y, 03Z-30/3080/3090



Sub-plate Model Numbers	Thread Size			E mm(in.)
	"B" Thd.	"C" Thd.	"D" Thd.	
EFGM-03Y-30	Rc 3/4	Rc 1/4	M10	18 (.71)
EFGM-03Z-30	Rc 1			
EFGM-03Y-3080	3/4 BSP.F			
EFGM-03Z-3080	1 BSP.F			
EFGM-03Y-3090	3/4 NPT	1/4 NPT	3/8-16 UNC	21 (.83)
EFGM-03Z-3090	1 NPT			

DIMENSIONS IN MILLIMETRES (INCHES)

EFGM-06X, 06Y-30/3080/3090

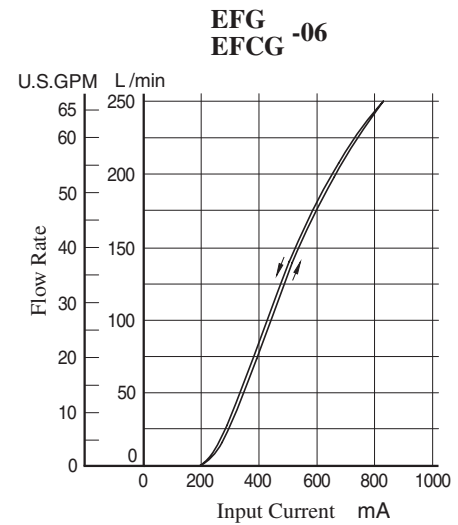
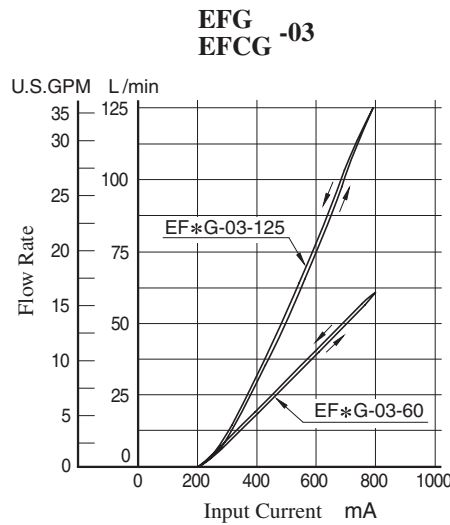


Sub-plate Model Numbers	Thread Size		
	"A" Thd.	"B" Thd.	"C" Thd.
EFGM-06X-30	Rc 1	Rc 3/8	M16
EFGM-06Y-30	Rc 1-1/4		
EFGM-06X-3080	1 BSP.F		
EFGM-06Y-3080	1-1/4 BSP.F		
EFGM-06X-3090	1 NPT	3/8 NPT	5/8-11 UNC
EFGM-06Y-3090	1-1/4 NPT		

Sub-plate Model Numbers	Dimensions mm (Inches)									
	D	E	F	H	J	K	L	N	P	Q
EFGM-06X-30	30 (1.18)	55.2 (2.17)	137.8 (5.43)	14.3 (.56)	101.1 (3.98)	106 (4.17)	34 (1.34)	35 (1.38)	45 (1.77)	11 (.43)
EFGM-06Y-30		52 (2.05)	132 (5.20)	19.3 (.76)	91.3 (3.59)		39 (1.54)	40 (1.57)	60 (2.36)	
EFGM-06X-3080		55.2 (2.17)	137.8 (5.43)	14.3 (.56)	101.1 (3.98)	116 (4.57)	34 (1.34)	35 (1.38)	45 (1.77)	15.2 (.60)
EFGM-06Y-3080		52 (2.05)	132 (5.20)	19.3 (.76)	91.3 (3.59)		39 (1.54)	40 (1.57)	60 (2.36)	
EFGM-06X-3090	35 (1.38)	55.2 (2.17)	137.8 (5.43)	14.3 (.56)	101.1 (3.98)	106 (4.17)	34 (1.34)	35 (1.38)	45 (1.77)	11 (.43)
EFGM-06Y-3090		52 (2.05)	132 (5.20)	19.3 (.76)	91.3 (3.59)		39 (1.54)	40 (1.57)	60 (2.36)	

Input Current vs. Flow

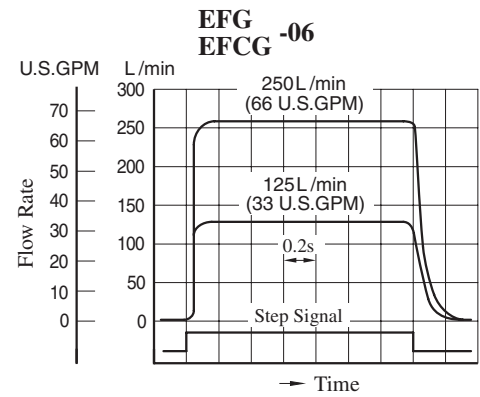
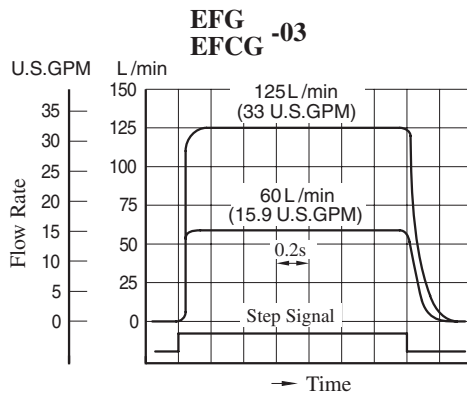
Viscosity: 30 mm²/s
(141 SSU)



Step Response

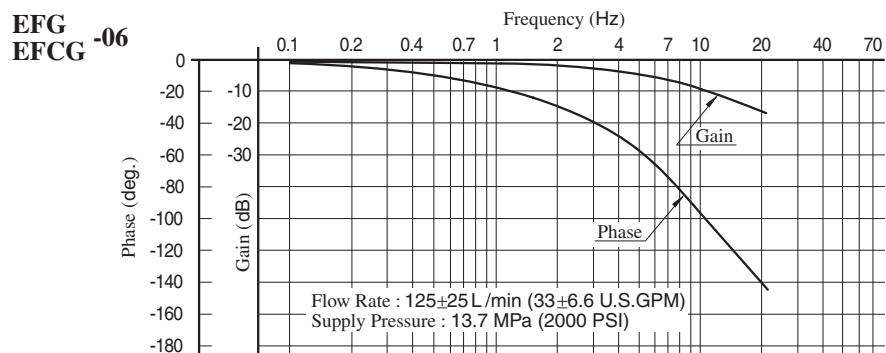
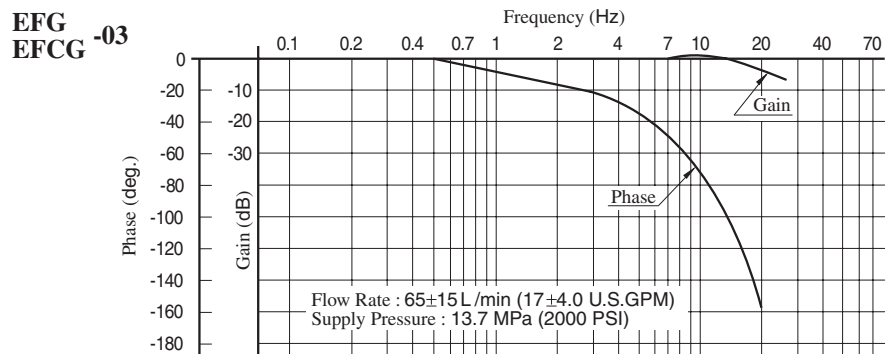
These characteristics have been obtained by measuring on each valve. Therefore, they may vary according to a hydraulic circuit to be used.

Viscosity: 30 mm²/s
(141 SSU)

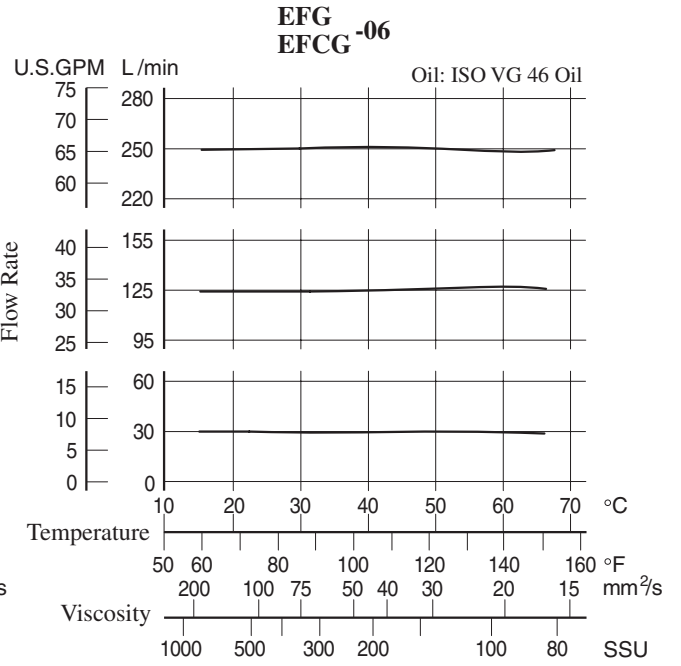
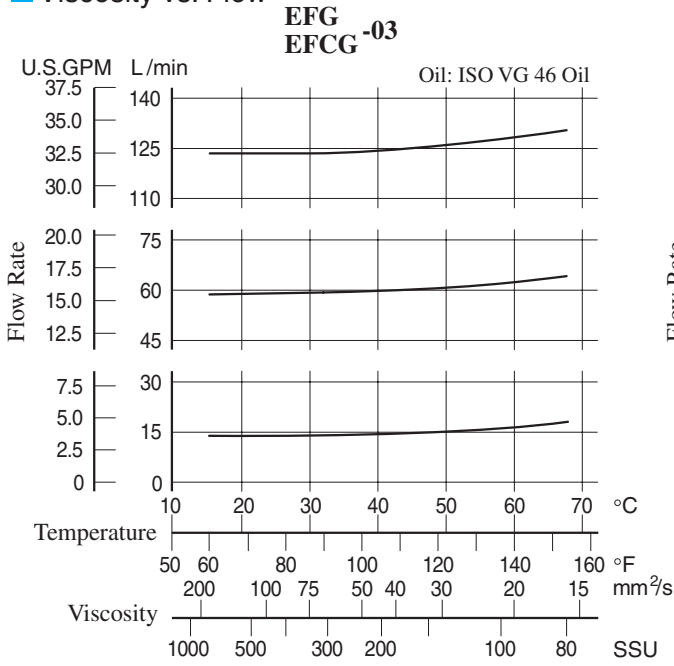


Frequency Response

Viscosity: 30 mm²/s
(141 SSU)

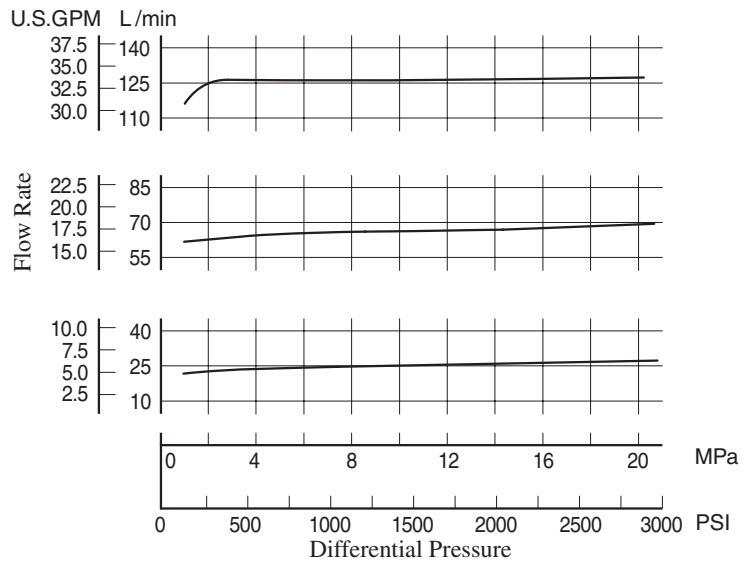


■ Viscosity vs. Flow

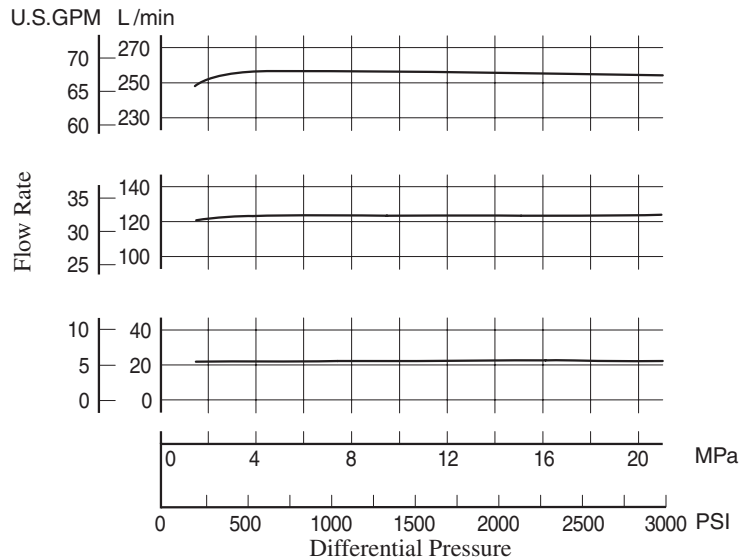


■ Differential Pressure vs. Metred Flow

**EFG
EFCG -03**

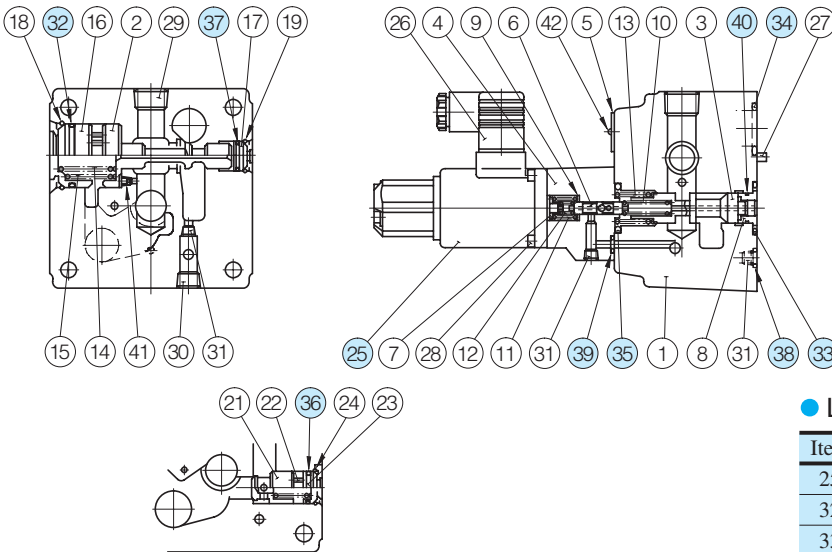


**EFG
EFCG -06**



List of Seals and Solenoid Ass'y

EFG
EFCG -03-*-*-51/5190



With Check Valve (EFCG-03)

Note: The connector assembly GDM-211-B-11 (Item 26) is not included in the solenoid assembly.

Note: When ordering seals, please specify the seal kit number from the table right. In addition to the right o-rings, seals for solenoid ass'y is included in the seal kit. For the detail of the solenoid ass'y seals, see [page 674](#).

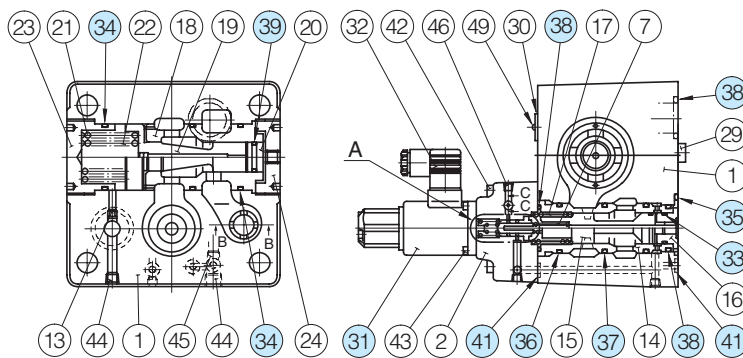
● List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
EFG-03-*-*-51*	KS-EFG-03-51
EFCG-03-*-*-51*	KS-EFCG-03-51

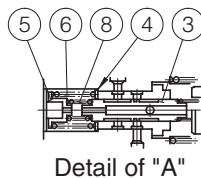
● List of Seals and Solenoid Ass'y

Item	Name of Parts	Part Numbers	Qty.
25	Solenoid Ass'y	E318-Y06M1-28-61	1
32	O-Ring	SO-NB-G35	1
33	O-Ring	SO-NB-P28	1
34	O-Ring	SO-NB-P28	2
35	O-Ring	SO-NB-P26	1
36	O-Ring	SO-NB-P16	1
37	O-Ring	SO-NB-P14	1
38	O-Ring	SO-NB-P9	1
39	O-Ring	SO-NB-P6	2
40	O-Ring	SO-NA-A016	1

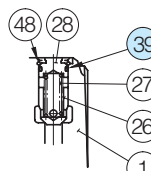
EFG
EFCG -06-250-*-*-51/5190



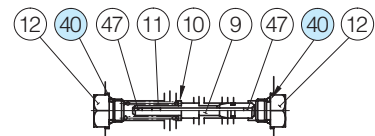
With Check Valve (EFCG-06)



Detail of "A"



Section B-B



Detail of Section C-C

● List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
EFG-06-250-*-*-51*	KS-EFG-06-51
EFCG-06-250-*-*-51*	KS-EFCG-06-51

● List of Seals and Solenoid Ass'y

Item	Name of Parts	Part Numbers	Qty.
31	Solenoid Ass'y	E318-Y06M1-28-61	1
33	O-Ring	SO-NA-P21	1
34	O-Ring	SO-NB-P50	3
35	O-Ring	SO-NB-P46	1
36	O-Ring	SO-NB-P36	1
37	O-Ring	SO-NB-P34	2
38	O-Ring	SO-NB-P32	4
39	O-Ring	SO-NA-P21	1*
40	O-Ring	SO-NB-P10	2
41	O-Ring	SO-NB-P9	3

★ Two O-rings are required for the EFCG.

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

Note: When ordering seals, please specify the seal kit number from the table right. In addition to the right o-rings, seals for solenoid ass'y is included in the seal kit. For the detail of the solenoid ass'y seals, see [page 674](#).