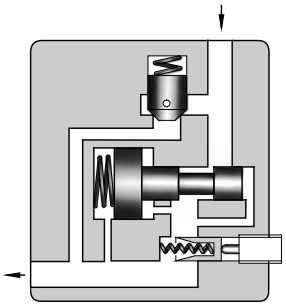
Flow Control (and Check) Valves
FG / FCG -01/02/03/06/10
Sub-plate Mounting

Specifications / Model Number Designation / Others



Specifications

Model Numbers	Max. Metred Flow Capacity L/min (U.S.GPM)	Min. Metred Flow Capacity L/min (U.S.GPM)	Max. Operating Pressure MPa (PSI)	Approx. Mass kg (lbs.)
FG/FCG-01-4/8-∗-11∗	8 (2.1)	0.02 (.005) {0.04 (.011)}★	14 (2030)	1.3 (2.9)
FG/FCG-02-30-∗-30∗	30 (7.9)	0.05 (.013)	21 (3050)	3.8 (8.4)
FG/FCG-03-125-∗-30∗	125 (33)	0.2 (.053)		7.9 (17.4)
FG/FCG-06-250-∗-30∗	250 (66)	2 (.53)		23 (50.7)
FG/FCG-10-500-∗-30∗	500 (132)	4 (1.06)		52 (115)

★ The figures in the brace are for pressures above 7 MPa (1020 PSI).

Model Number Designation

F-	FC	G	-01	-8	-N	-11	∗
Special Seals	Series Number	Type of Mounting	Valve Size	Max. Metred Flow Capacity L/min (U.S.GPM)	Pres. Compensator Stroke Adjustment	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	**F:** Flow Control Valves **FC:** Flow Control and Check Valves	**G:** Sub-plate Mounting	**01**	**4 :** 4 (1.06) **8 :** 8 (2.1)	**N:** Applicable only for Pres. Compensator Stroke Adjustment (Option - Omit if not required)	**11**	Refer to ★
			02	**30 :** 30 (7.9)		**30**	
			03	**125 :** 125 (33)		**30**	
			06	**250 :** 250 (66)		**30**	
			10	**500 :** 500 (132)		**30**	

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

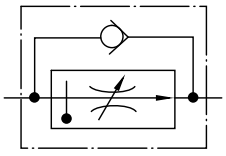
Attachment

● **Mounting Bolts**

Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" & European Design Std.	N. American Design Std.	
FG/FCG-01	M5 × 55 Lg.	No.10-24 UNC × 2-1/4 Lg.	4
FG/FCG-02	M8 × 50 Lg.	5/16-18 UNC × 2 Lg.	4
FG/FCG-03	M10 × 75 Lg.	3/8-16 UNC × 3 Lg.	4
FG/FCG-06	M16 × 130 Lg.	5/8-11 UNC × 5 Lg.	4
FG/FCG-10	M20 × 160 Lg.	3/4-10 UNC × 6-1/2 Lg.	4

Graphic Symbols

FG



FCG

Option

● **Pres. compensator stroke adjustment**

Can reduce jumping at the start of the actuator.

Sub-plate

Valve Model Numbers	Japanese Standard "JIS"		European Design Std.		N. American Design Std.		Approx. Mass kg (lbs.)
	Sub-plate Model No.	Thread Size	Sub-plate Model No.	Thread Size	Sub-plate Model No.	Thread Size	
FG FCG-01	FGM-01X-10	Rc 1/4	FGM-01X-1080	1/4 BSP.F	FGM-01X-1090	1/4 NPT	0.8 (1.8)
FG FCG-02	FGM-02-20	Rc 1/4	FGM-02-2080	1/4 BSP.F	FGM-02-2090	1/4 NPT	2.3 (5.1)
	FGM-02X-20	Rc 3/8	FGM-02X-2080	3/8 BSP.F	FGM-02X-2090	3/8 NPT	2.3 (5.1)
	FGM-02Y-20	Rc 1/2	FGM-02Y-2080	1/2 BSP.F	FGM-02Y-2090	1/2 NPT	3.1 (6.8)
FG FCG-03	FGM-03-20	Rc 3/8	FGM-03-2080	3/8 BSP.F	FGM-03-2090	3/8 NPT	3.9 (8.6)
	FGM-03X-20	Rc 1/2	FGM-03X-2080	1/2 BSP.F	FGM-03X-2090	1/2 NPT	3.9 (8.6)
	FGM-03Y-20	Rc 3/4	FGM-03Y-2080	3/4 BSP.F	FGM-03Y-2090	3/4 NPT	5.7 (12.6)
	FGM-03Z-20	Rc 1	FGM-03Z-2080	1 BSP.F	FGM-03Z-2090	1 NPT	5.7 (12.6)
FG FCG-06	FGM-06X-20	Rc 1	FGM-06X-2080	1 BSP.F	FGM-06X-2090	1 NPT	12.5 (27.6)
	FGM-06Y-20	Rc 1-1/4	FGM-06Y-2080	1-1/4 BSP.F	FGM-06Y-2090	1-1/4 NPT	16 (35.3)
	FGM-06Z-20	Rc 1-1/2	FGM-06Z-2080	1-1/2 BSP.F	FGM-06Z-2090	1-1/2 NPT	16 (35.3)
FG FCG-10	FGM-10Y-20★	1-1/2, 2	FGM-10Y-20★	1-1/2, 2	FGM-10Y-2090★	1-1/2, 2	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.

★FGM-10Y is special type sub-plate to be used with pipe flange. When ordering FGM-10Y, specify pipe flange kit in addition to FGM-10Y referring to F3 pipe flange kits Catalogue (No. Pub. EC-3001).

Instructions

Min. required pressure difference

The minimum differential pressure between inlet and outlet port is required to obtain the optimum pressure compensation. It varies according to the flow rate to be set. For details, please refer to the performance curves.

Free flow

Check valve pressure drops vary with flow rates. If models with check valves are used, see free flow pressure drop characteristics.

Flow adjustment

[F∗G-01]

Loosen the locking screw and turn the flow adjustment dial clockwise for increase, and anti-clockwise for decrease. The dial makes about 4 revolutions from zero to full flow and the valve opening is indicated on the revolution indicator. (Refer to characteristics of "Metred Flow vs. Dial Position").

After flow adjustments, tighten the locking screw.

[F∗G-02, 03, 06, 10]

Loosen the locking screw and turn the flow adjustment handle clockwise for increase, and anti-clockwise for decrease. Open condition is indicated in digital-scale in built-in revolution indicator (Refer to the characteristics of "Metred Flow vs. Dial Position").

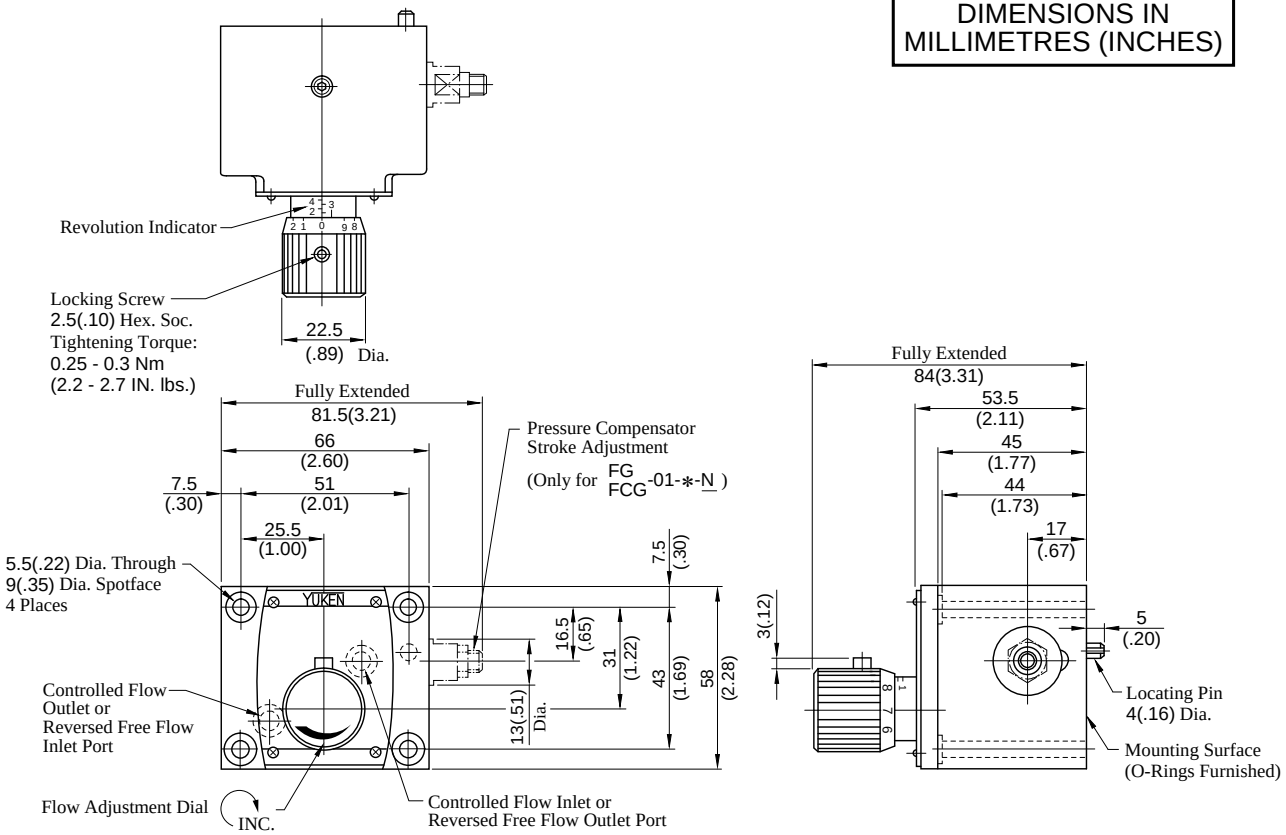
After flow adjustments, tighten the locking screw.

Line filter

To carry out flow adjustments by as small degree as 2 L/min (.53 U.S.GPM) or less, be sure to use a line filter of 10 μm or finer and install it near the valve inlet.

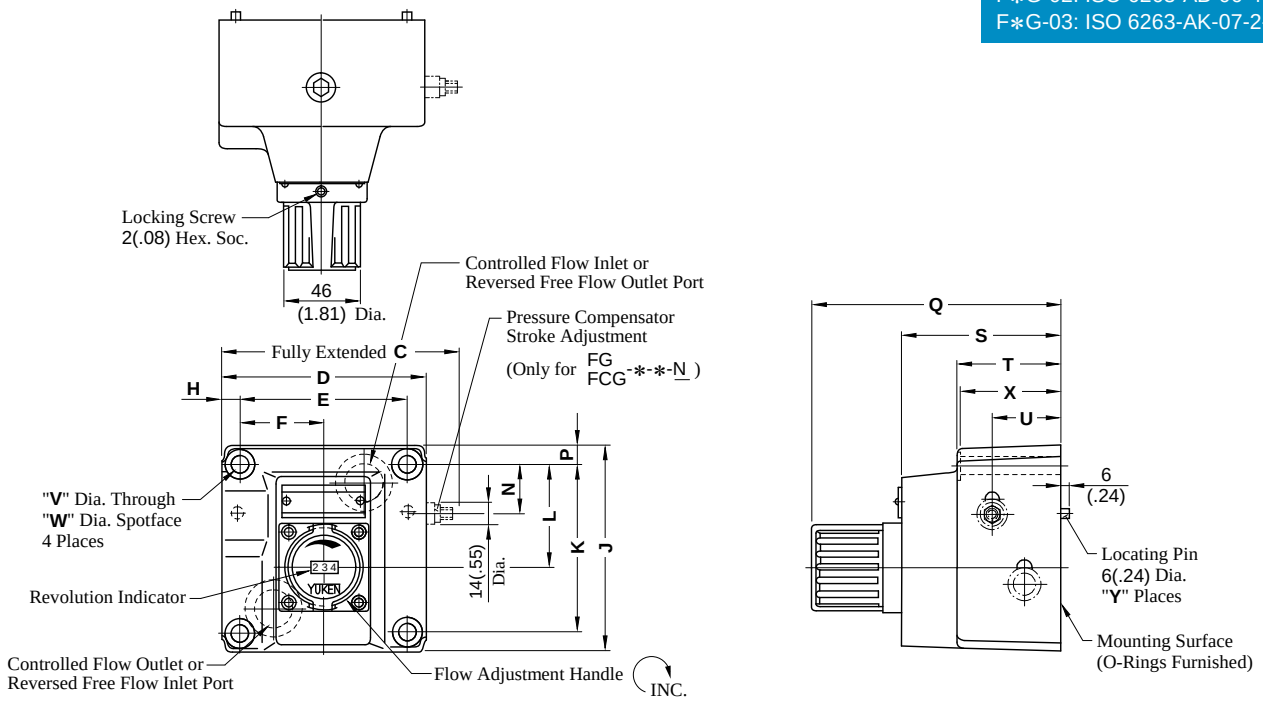
FG/FCG-01-∗-∗-11/1190

DIMENSIONS IN MILLIMETRES (INCHES)



FG/FCG-02-30-∗-30/3090, FG/FCG-03-125-∗-30/3090

Mounting surface:
F∗G-02: ISO 6263-AB-06-4-B
F∗G-03: ISO 6263-AK-07-2-A



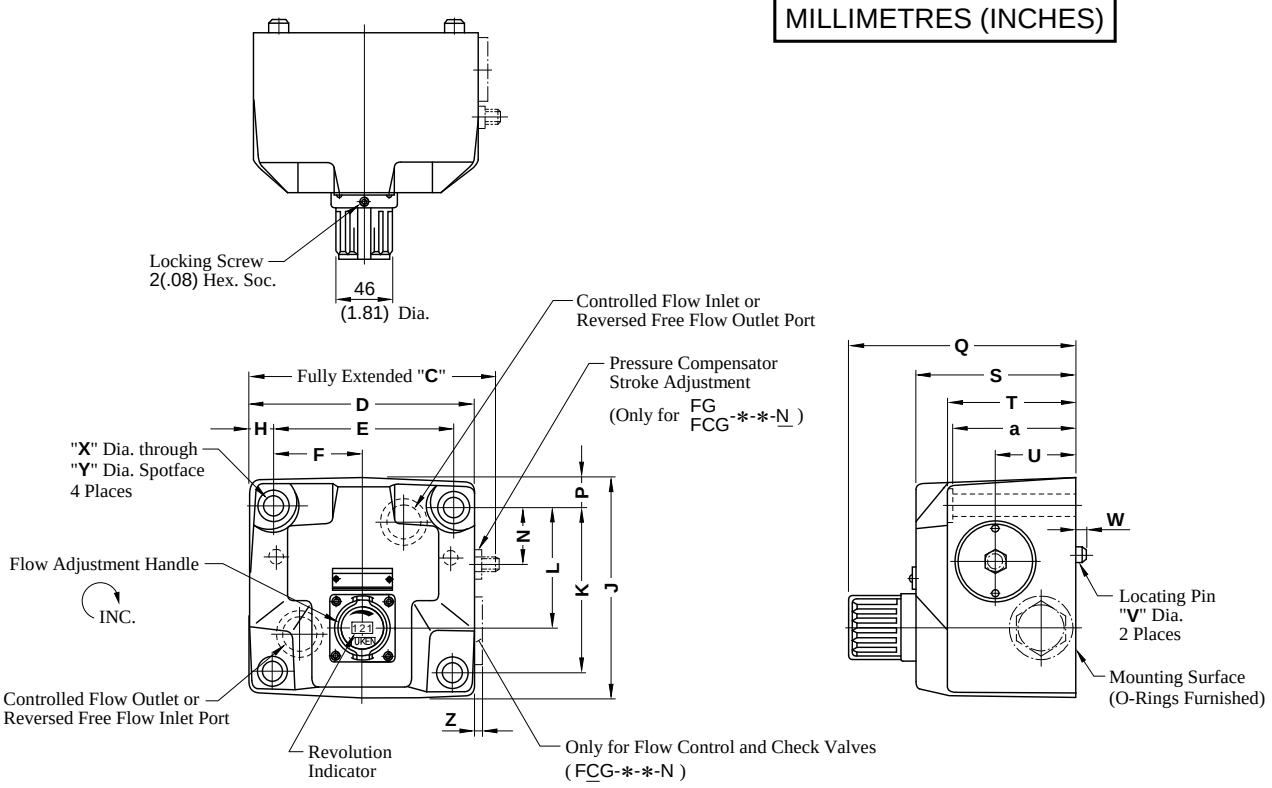
Model No.	Dimensions mm (Inches)																	Y
	C	D	E	F	H	J	K	L	N	P	Q	S	T	U	V	W	X	
FG/FCG-02	116 (4.57)	96 (3.78)	76.2 (3.00)	38.1 (1.50)	9.9 (.39)	104.5 (4.11)	82.6 (3.25)	44.3 (1.74)	24 (.94)	9.9 (.39)	123 (4.84)	69 (2.72)	40 (1.57)	23 (.91)	8.8 (.35)	14 (.55)	39 (1.54)	1
FG/FCG-03	145 (5.71)	125 (4.92)	101.6 (4.00)	50.8 (2.00)	11.7 (.46)	125 (4.92)	101.6 (4.00)	61.8 (2.43)	29.8 (1.17)	11.7 (.46)	152 (5.98)	98 (3.86)	64 (2.52)	41 (1.61)	11 (.43)	17.5 (.69)	63 (2.48)	2

D

Mounting surface:
F∗G-06: ISO 6263-AP-08-2-A

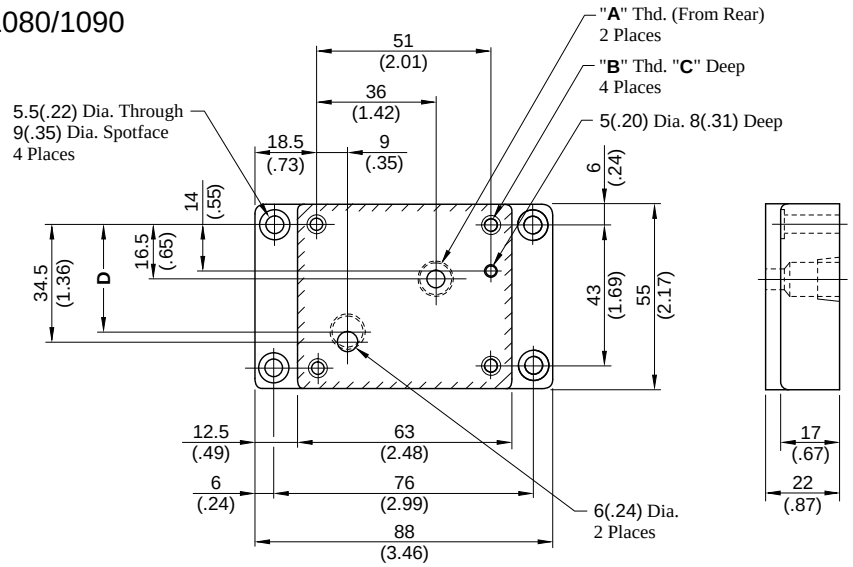
FG/FCG-06-250-∗-30/3090
FG/FCG-10-500-∗-30/3090

DIMENSIONS IN MILLIMETRES (INCHES)



Model No.	Dimensions mm (Inches)																			
	C	D	E	F	H	J	K	L	N	P	Q	S	T	U	V	W	X	Y	Z	a
FG FCG-06	198 (7.80)	180 (7.09)	146.1 (5.75)	73 (2.87)	17 (.67)	174 (6.85)	133.4 (5.25)	99 (3.90)	44 (1.73)	20.3 (.80)	184 (7.24)	130 (5.12)	105 (4.13)	65 (2.56)	16 (.63)	7 (.28)	17.5 (.69)	26 (1.02)	9 (.35)	103 (4.06)
FG FCG-10	267 (10.51)	244 (9.61)	196.9 (7.75)	98.5 (3.88)	23.5 (.93)	228 (8.98)	177.8 (7.00)	144.5 (5.69)	61 (2.40)	25 (.98)	214 (8.43)	160 (6.30)	137 (5.39)	85 (3.35)	18 (.71)	10 (.39)	21.5 (.85)	32 (1.26)	7.5 (.30)	135 (5.31)

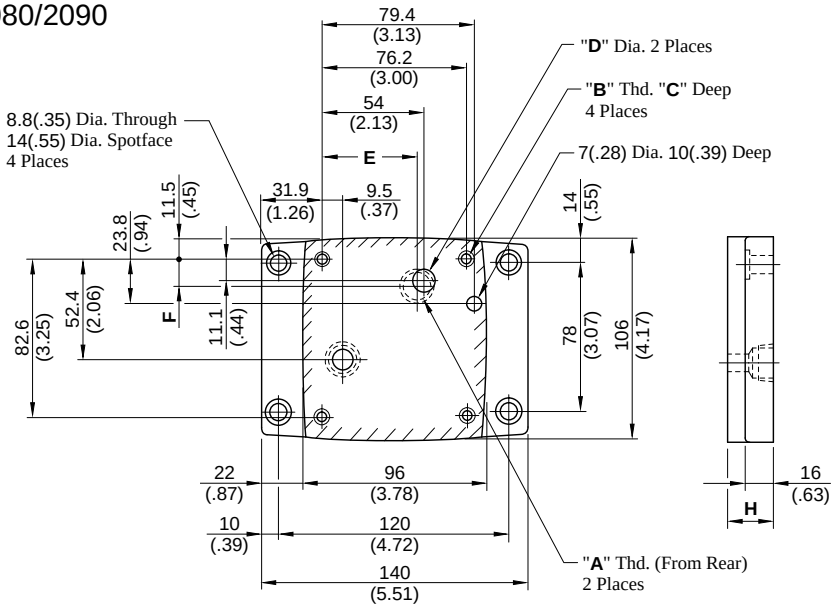
FGM-01X-10/1080/1090



Sub-plate Model Numbers	"A" Thd.	"B" Thd.	C	D
FGM-01X-10	Rc 1/4	M5	14 (.55)	34.5 (1.36)
FGM-01X-1080	1/4 BSP.F	M5	14 (.55)	30.0 (1.18)
FGM-01X-1090	1/4 NPT	No.10-24 UNC	15 (.59)	34.5 (1.36)

DIMENSIONS IN MILLIMETRES (INCHES)

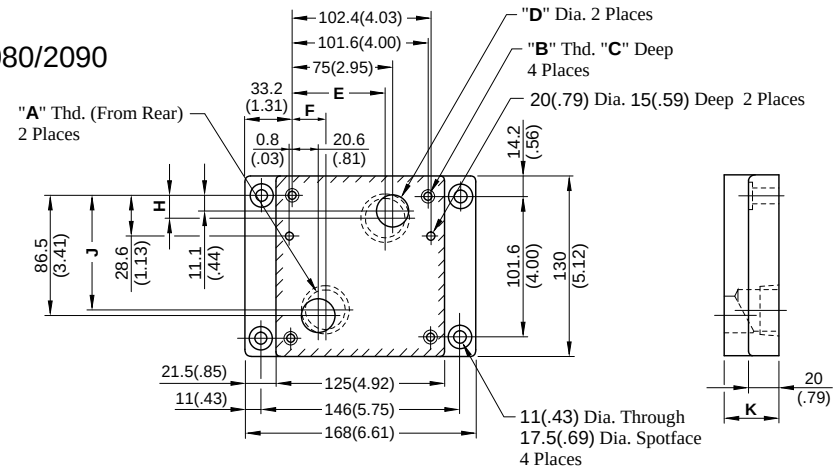
FGM-02X-20/2080/2090 (02 / 02Y)



Sub-plate Model Numbers	"A" Thd.	"B" Thd.	C	D	E	F	H
FGM-02-20	Rc 1/4	M8	14 (.55)	11.0 (.43)	54 (2.13)	11.1 (.44)	25 (.98)
FGM-02-2080	1/4 BSP.F			11.7 (.46)			
FGM-02-2090	1/4 NPT	5/16-18 UNC	18 (.71)	11.0 (.43)			
FGM-02X-20	Rc 3/8	M8	14 (.55)	14.0 (.55)			
FGM-02X-2080	3/8 BSP.F			15.2 (.60)			
FGM-02X-2090	3/8 NPT	5/16-18 UNC	18 (.71)	14.0 (.55)			
FGM-02Y-20	Rc 1/2	M8	14 (.55)	14.0 (.55)	51 (2.01)	14 (.55)	35 (1.38)
FGM-02Y-2080	1/2 BSP.F			15.0 (.59)			
FGM-02Y-2090	1/2 NPT	5/16-18 UNC	18 (.71)	14.0 (.55)			

D

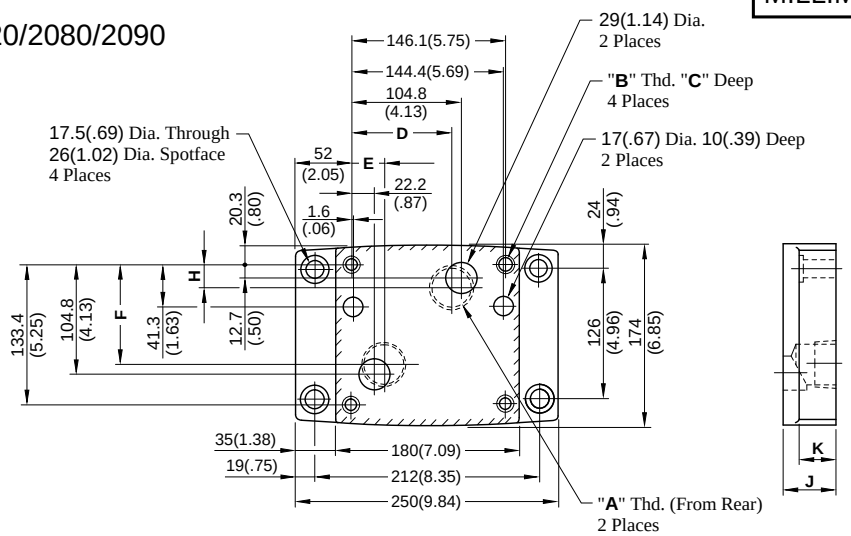
03
FGM-03X-20/2080/2090
03Y
03Z



Sub-plate Model Numbers	"A" Thd.	"B" Thd.	C	D	E	F	H	J	K
FGM-03-20	Rc 3/8	M10	18 (.71)	14.0 (.55)	75 (2.95)	20.6 (.81)	11.1 (.44)	86.5 (3.41)	25 (.98)
FGM-03-2080	3/8 BSP.F			15.0 (.59)					
FGM-03-2090	3/8 NPT	3/8-16 UNC	21 (.83)	14.0 (.55)					
FGM-03X-20	Rc 1/2	M10	18 (.71)	17.5 (.69)					
FGM-03X-2080	1/2 BSP.F			19.0 (.75)					
FGM-03X-2090	1/2 NPT	3/8-16 UNC	21 (.83)	17.5 (.69)					
FGM-03Y-20	Rc 3/4	M10	18 (.71)	23.0 (.91)	70 (2.76)	25.6 (1.01)	16.1 (.63)	81.5 (3.21)	40 (1.57)
FGM-03Y-2080	3/4 BSP.F								
FGM-03Y-2090	3/4 NPT	3/8-16 UNC	21 (.83)						
FGM-03Z-20	Rc 1	M10	18 (.71)						
FGM-03Z-2080	1 BSP.F								
FGM-03Z-2090	1 NPT	3/8-16 UNC	21 (.83)						

DIMENSIONS IN MILLIMETRES (INCHES)

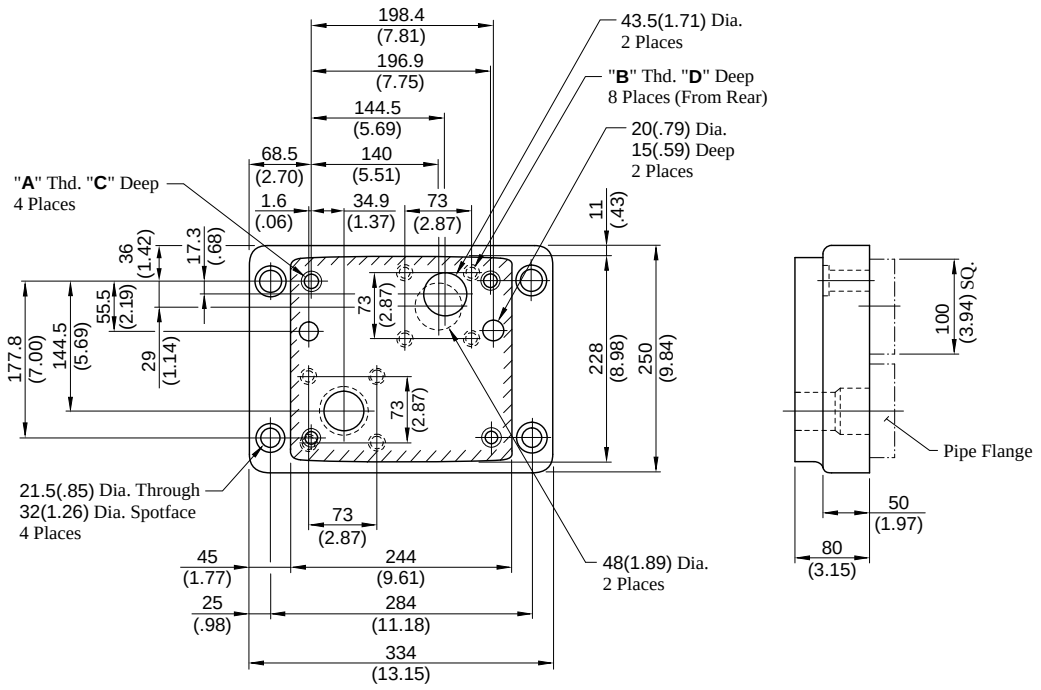
06X
FGM-06Y-20/2080/2090
06Z



Sub-plate Model Numbers	"A" Thd.	"B" Thd.	C	D	E	F	H	J	K
FGM-06X-20	Rc 1	M16	30 (1.18)	104.8 (4.13)	22.2 (.87)	104.8 (4.13)	18 (.71)	45 (1.77)	35 (1.38)
FGM-06X-2080	1 BSP.F								
FGM-06X-2090	1 NPT	5/8-11 UNC	35 (1.38)						
FGM-06Y-20	Rc 1-1/4	M16	30 (1.18)	99 (3.90)	34 (1.34)	99 (3.90)	23 (.91)	60 (2.36)	40 (1.57)
FGM-06Y-2080	1-1/4 BSP.F								
FGM-06Y-2090	1-1/4 NPT	5/8-11 UNC	35 (1.38)						
FGM-06Z-20	Rc 1-1/2	M16	30 (1.18)						
FGM-06Z-2080	1-1/2 BSP.F								
FGM-06Z-2090	1-1/2 NPT	5/8-11 UNC	35 (1.38)						

FGM-10Y-20/2090

DIMENSIONS IN MILLIMETRES (INCHES)

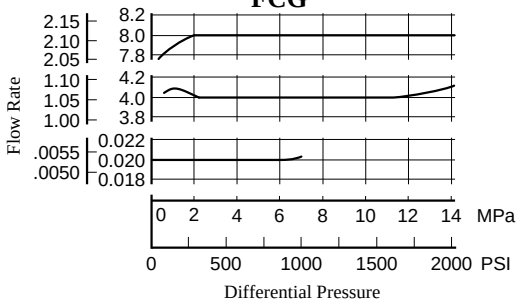


Sub-plate Model Numbers	"A" Thd.	"B" Thd.	C	D
FGM-10Y-20	M20	M16	32 (1.26)	32 (1.26)
FGM-10Y-2090	3/4-10 UNC	5/8-11 UNC	32 (1.26)	34 (1.34)

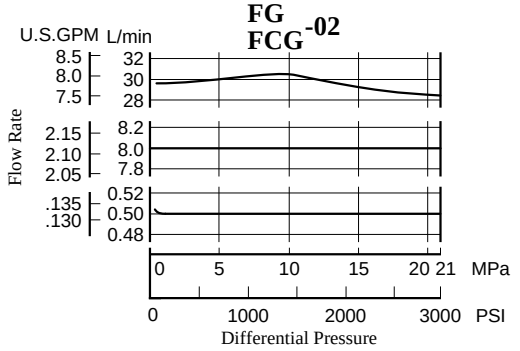
D

Metred Flow vs. Differential Pressure

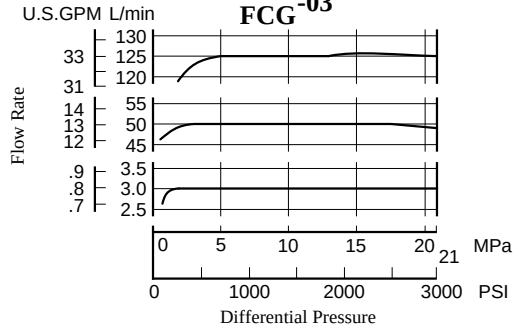
FG FCG-01



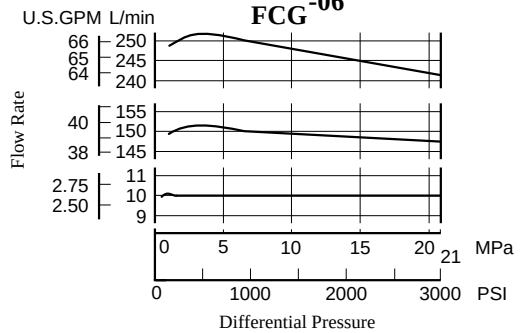
FG FCG-02



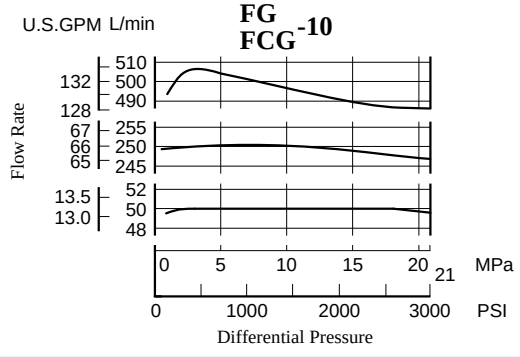
FG FCG-03



FG FCG-06

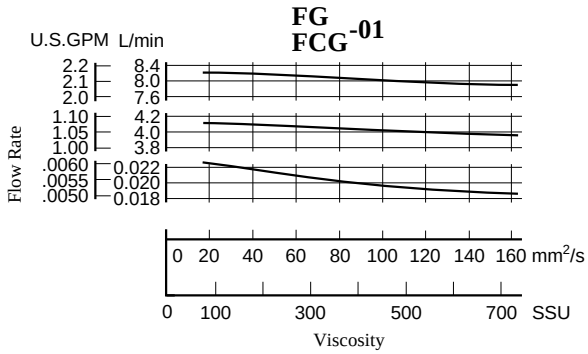


FG FCG-10

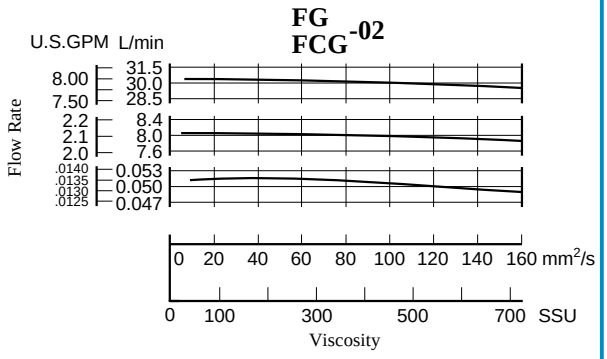


Metred Flow vs. Viscosity

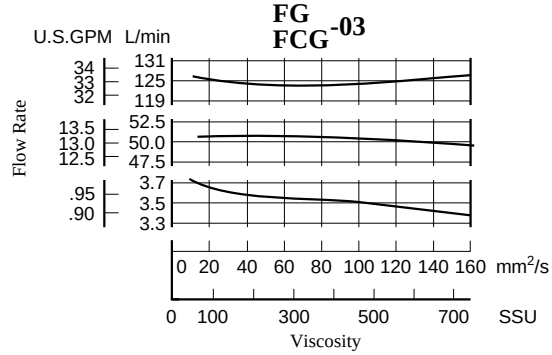
FG FCG-01



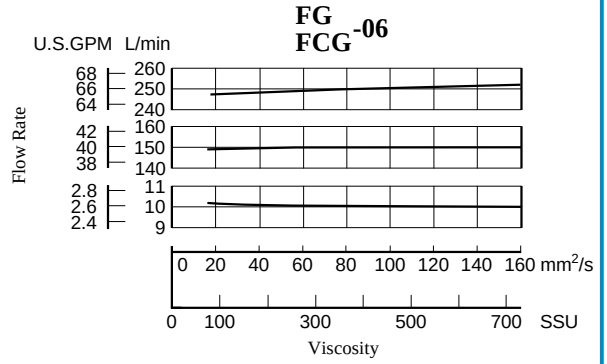
FG FCG-02



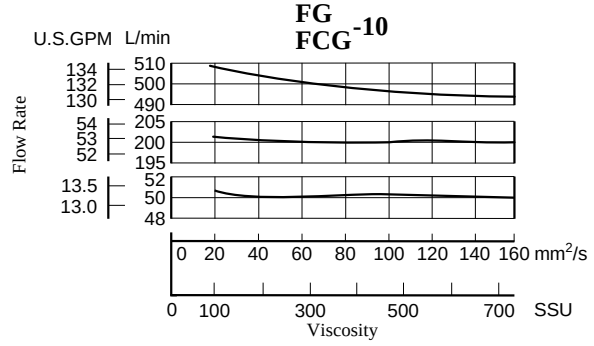
FG FCG-03

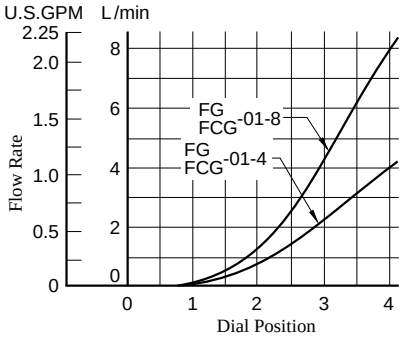


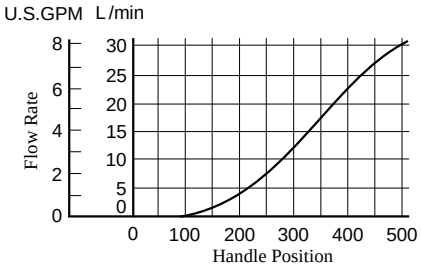
FG FCG-06

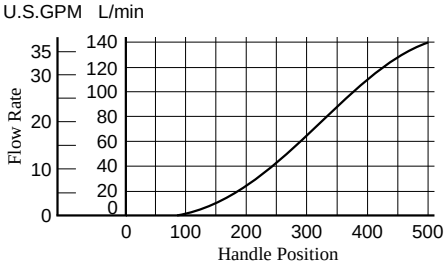


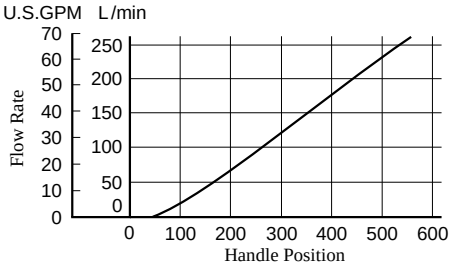
FG FCG-10

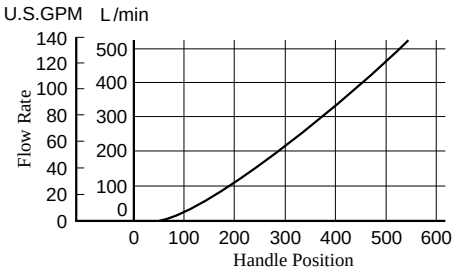


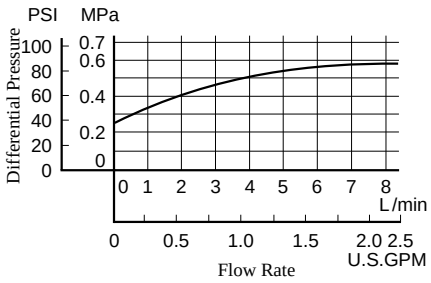

U.S.GPM L/min
Flow Rate
FG FCG-01-8
FG FCG-01-4
Dial Position

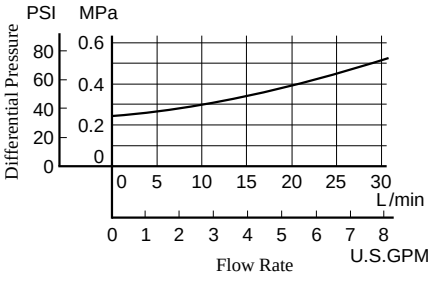

U.S.GPM L/min
Flow Rate
Handle Position

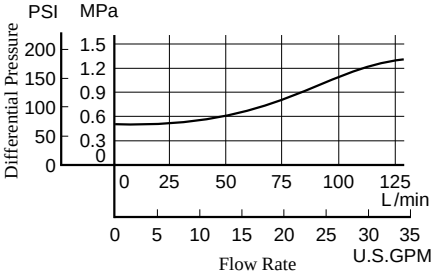

U.S.GPM L/min
Flow Rate
Handle Position

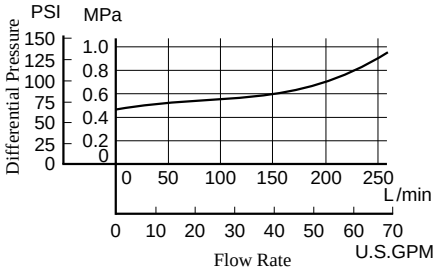

U.S.GPM L/min
Flow Rate
Handle Position

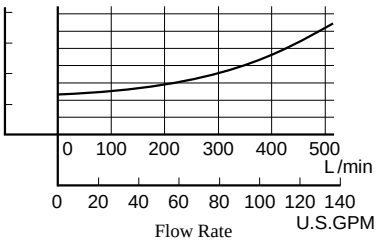

U.S.GPM L/min
Flow Rate
Handle Position


PSI MPa
Differential Pressure
L/min
U.S.GPM
Flow Rate


PSI MPa
Differential Pressure
L/min
U.S.GPM
Flow Rate


PSI MPa
Differential Pressure
L/min
U.S.GPM
Flow Rate


PSI MPa
Differential Pressure
L/min
U.S.GPM
Flow Rate


L/min
U.S.GPM
Flow Rate