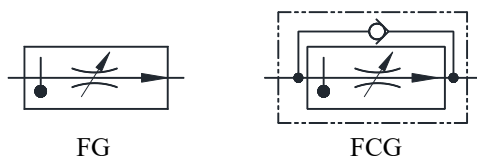


Flow Control Valves

Flow Control and Check Valves

These Valves are pressure and temperature compensating type valves and maintain a constant flow rate independent of change in system pressure (load) and temperature (Viscosity of the fluid). They Control flow rate of the hydraulic circuit and eventually control speed of the actuator precisely. Valves with an integral check valve allow a controlled flow and reverse free flow.

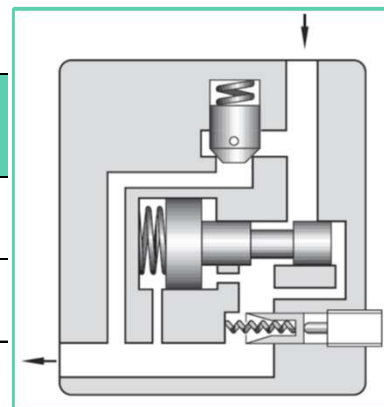
Graphic Symbol



Specifications

Model Numbers	Max. Metered Flow Capacity L/min.	Min. Metered Flow Capacity L/min.	Max. Oper. Pressure Kg/cm ²	Mass Kg.
FG FCG-01-1-1107※	1	0.02	140	1.3
FG FCG-01- $\frac{4}{8}$ -※-11※	4 8	0.02 (0.04)*	140	1.3
FG FCG-02-30-※-22801※	30	0.05	210	3.8
FG FCG-03-125-※-22801※	125	0.2		7.9

* The Figure in the bracket is for pressures above 70 Kg/cm²



Model Number Designation

F-	FC	G	-01	-8	-N	-11	H01
Special Seals **	Series Number	Type of Mounting	Valve Size	Max. Metered Flow Capacity L/min.	Pres. Compensator Stroke Adjustment	Design Number	Special Number
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	1:1	N: Applicable only for pres. Compensator stroke adjustment (Option) (Omit if not required)	1107	-
				4:4 8:8		1207	H01
			02	30:30		11	-
						12	H01
			03	125:125		22801	-
						22801	H01
						22801	-
						22801	H01

** Before ordering the Special Seals, consult YUKEN INDIA LTD.

Attachment

Mounting Bolts

Valve Model Number	Socket Head Cap Screw	Qty	Bolt Kit Model Number
F※G-01	M5 x 55 Lg.	4	BKFG-01-10
F※G-02	M8 x 60 Lg.	4	BKFG-02-22
F※G-03	M10 x 80 Lg.	4	BKFG-03-22

Option

Pres. Compensator Stroke Adjustment

Can reduce jumping at the start of the actuator.

Sub-plates

Valve Model Number	Sub-plate Model No.	Thread Size	Mass Kg.
FG FCG -01	FGM-01X-1080	1/4 BSP.F	0.8
FG FCG -02	FGM-02-2080	1/4 BSP.F	2.3
	FGM-02X-2080	3/8 BSP.F	2.3
	FGM-02Y-2080	1/2 BSP.F	3.1
FG FCG -03	FGM-03-2080	3/8 BSP.F	3.9
	FGM-03X-2080	1/2 BSP.F	3.9
	FGM-03Y-2080	3/4 BSP.F	5.7

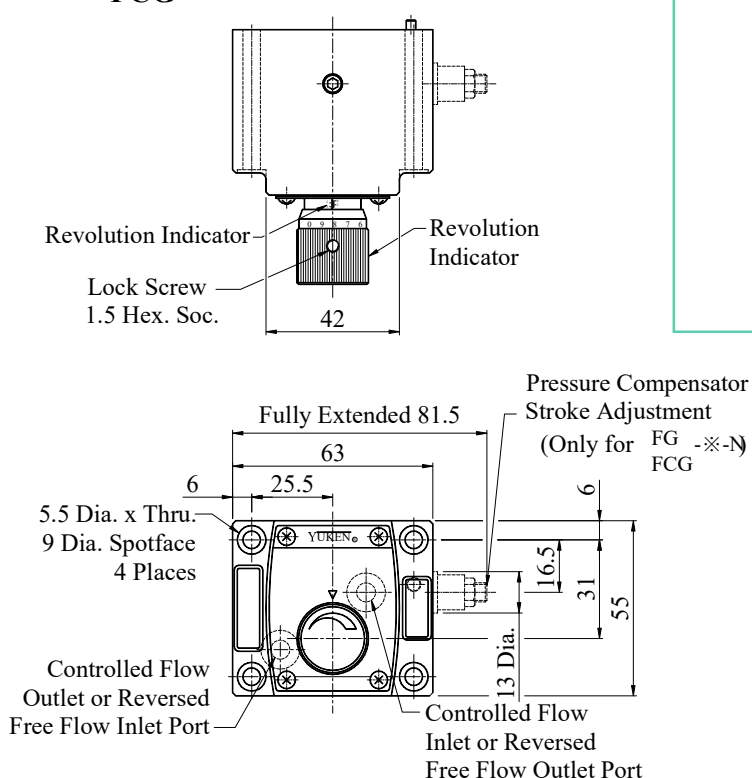
- Sub plates are available. Specify Sub-Plates model from the table above. When Sub-Plates are not used the mounting surface should have good machined finish.

Instructions

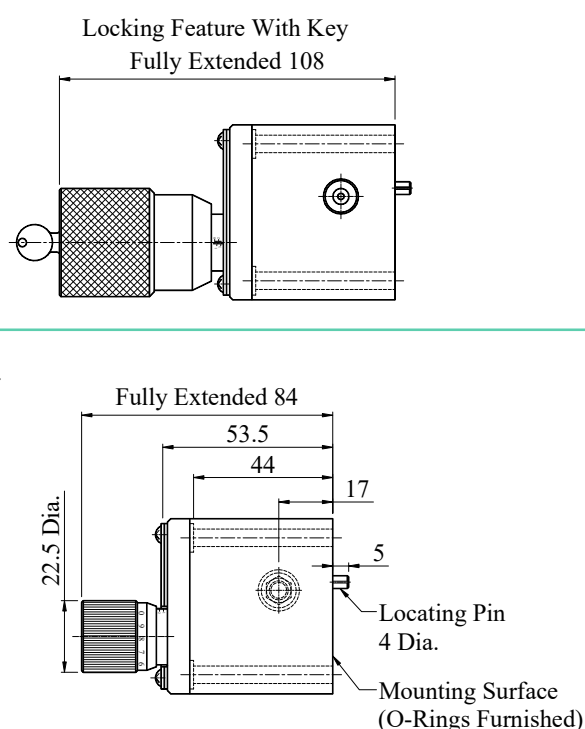
- Min. required pressure difference**
Min. differential pressure between inlet and outlet port is required to obtain the optimum pressure compensation. It varies according to the flow rate to be set. For details, please refer to the performance curve.
- Free flow**
Check Valve pressure drops vary with flow rates. If models with check valves are used, see free flow pressure drop characteristics.
- Flow Adjustment**
[F※G-01]
Loosen locking screw and turn 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 characteristic of “Metered Flow vs. Dial Position”)
After flow adjustment, tighten locking Screw.
[F※G-02/03] --- Anticlockwise for increase and clockwise for decrease.
- Line Filter**
To carry out flow adjustments by as small degree as 2 L/min. or less, be sure to use a line filter, 10μ or less, near the valve inlet.

DIMENSIONS IN MILLIMETRES

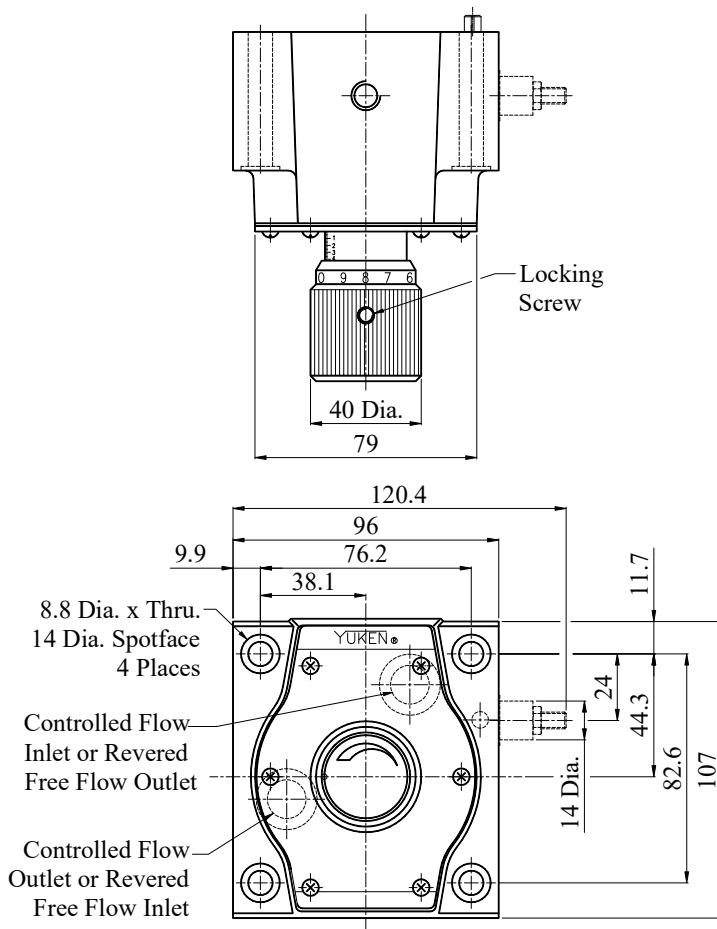
FG FCG -01-※-※-11※※



F※G-01-※-※-12※※H01



● F※G-02-30-※-22801

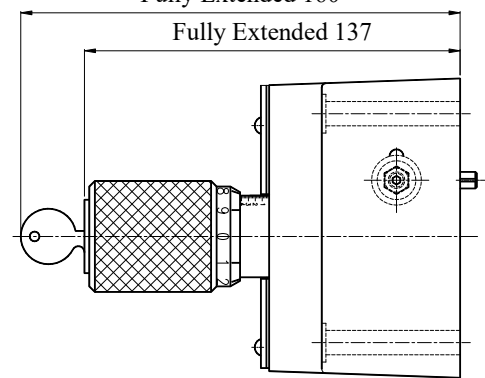


● F※G-02-30-※-22801H01

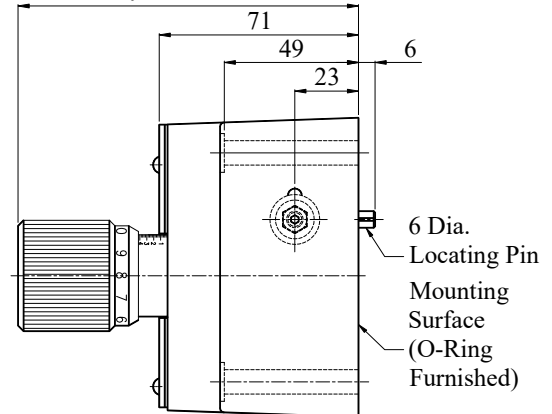
Locking Feature With Key

Fully Extended 160

Fully Extended 137

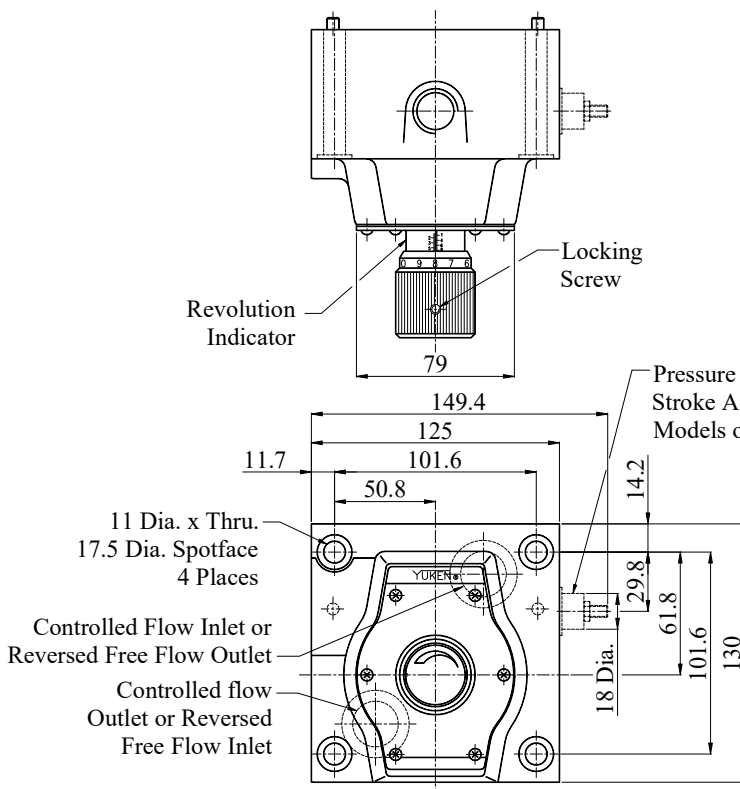


Fully Extended 123



DIMENSIONS IN MILLIMETRES

● F※G-03-125-※-22801

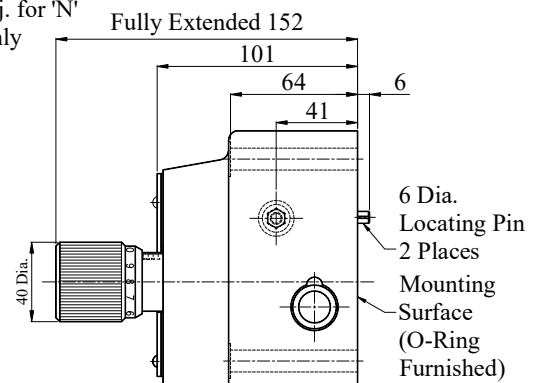
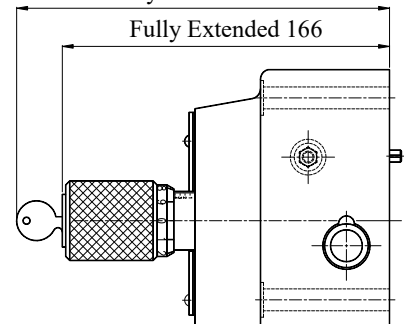


● F※G-03-125-※-22801H01

Locking Feature With Key

Fully Extended 189

Fully Extended 166



Technical drawing showing the front view of a rectangular plate with the following dimensions and features:

- Overall Width: 88
- Overall Height: 55
- Top Flange Width: 51
- Top Flange Height: 6
- Bottom Flange Width: 76
- Bottom Flange Height: 6
- Central Panel Width: 63
- Central Panel Height: 43
- Left Side Panel Width: 12.5
- Left Side Panel Height: 30
- Right Side Panel Width: 12.5
- Right Side Panel Height: 30
- Top Left Corner Radius: 18.5
- Top Right Corner Radius: 18.5
- Bottom Left Corner Radius: 18.5
- Bottom Right Corner Radius: 18.5
- Top Left Hole: 5.5 Dia. x Thru. (4 Places)
- Top Right Hole: 5.5 Dia. x Thru. (4 Places)
- Bottom Left Hole: 5.5 Dia. x Thru. (4 Places)
- Bottom Right Hole: 5.5 Dia. x Thru. (4 Places)
- Top Center Hole: 1/4 BSP.F Thd. (2 Place (From Rear))
- Bottom Center Hole: 1/4 BSP.F Thd. (2 Place (From Rear))
- Left Side Hole: 6 Dia. (2 Places)
- Right Side Hole: 6 Dia. (2 Places)
- Top Left Hole: 5 Dia. x 8 Deep
- Top Right Hole: 5 Dia. x 8 Deep
- Bottom Left Hole: 5 Dia. x 8 Deep
- Bottom Right Hole: 5 Dia. x 8 Deep
- Top Left Hole: M5 Thd. x 14 Deep (4 Place)
- Top Right Hole: M5 Thd. x 14 Deep (4 Place)
- Bottom Left Hole: M5 Thd. x 14 Deep (4 Place)
- Bottom Right Hole: M5 Thd. x 14 Deep (4 Place)

DIMENSIONS IN
MILLIMETRES

Technical drawing of a mechanical part with the following dimensions and features:

- Overall width: 140
- Overall height: 106
- Top flange width: 79.4
- Top flange thickness: 14
- Top flange hole diameter: 8.8 Dia. x Thru.
- Top flange hole depth: 14 Dia. Spotface 4 Places
- Top flange hole spacing: 76.2 (center-to-center), 54 (edge-to-center), 31.9 (edge-to-center)
- Top flange hole diameter: "A" Dia. x 2 Places
- Top flange hole depth: M8 Thd. x 14 Deep 4 Places
- Top flange hole depth: 7 Dia. x 10 Deep
- Top flange hole diameter: "K" Thd. 2 Places (From Rear)
- Top flange hole diameter: 78 (center-to-center), 76.2 (edge-to-center), 54 (edge-to-center)
- Top flange hole diameter: 9.5 (edge-to-center)
- Top flange hole diameter: 22 (edge-to-center)
- Top flange hole diameter: 96 (center-to-center), 120 (edge-to-center), 140 (edge-to-center)
- Top flange hole diameter: 52.4 (center-to-center), 23.8 (edge-to-center), 11.1 (edge-to-center)
- Top flange hole diameter: C (center-to-center), 11.1 (edge-to-center)
- Top flange hole diameter: 7 (center-to-center), 2 (edge-to-center)
- Top flange hole diameter: 54 (center-to-center), 11.1 (edge-to-center), 25 (edge-to-center)

Sub-plate Model Number	"K" Thd.	Weight Approx. Kg.
FGM-02-2080	1/4	2.3
FGM-02X-2080	3/8	2.3
FGM-02Y-2080	1/2	3.1

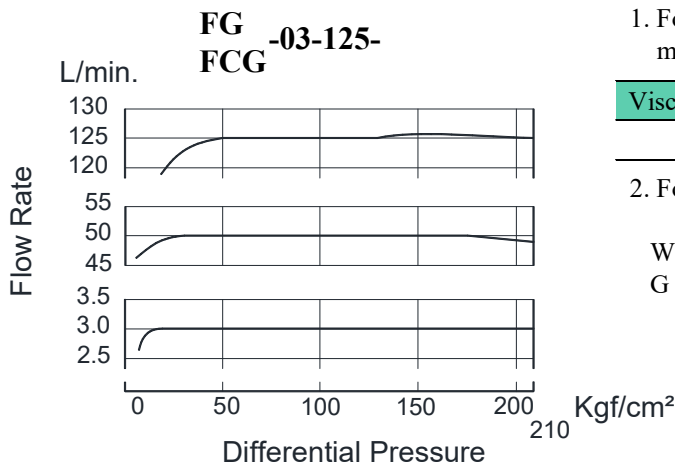
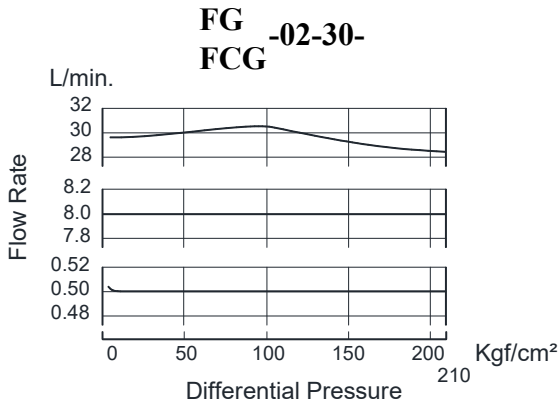
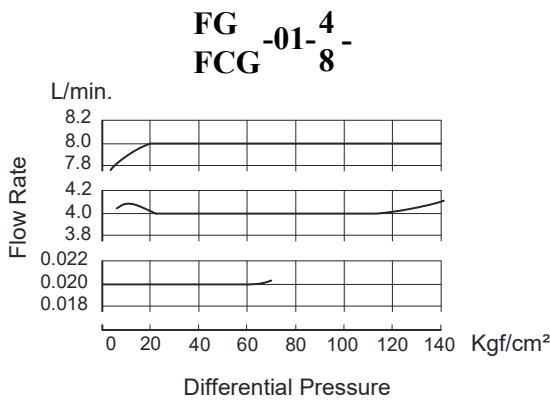
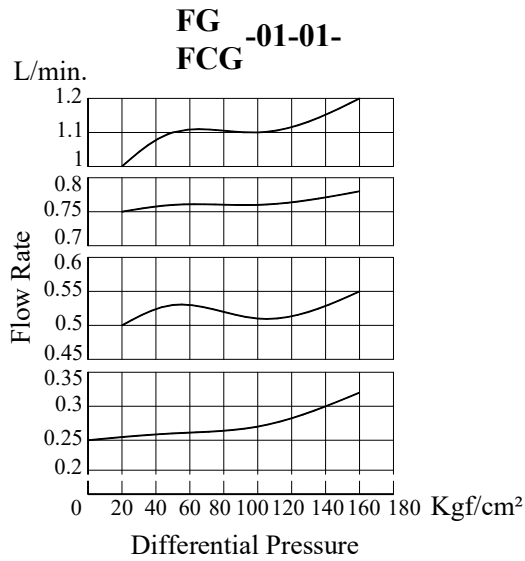
Sub-plate Model Number	A	B	C	D
FGM-02-2080	11.7	54	11.1	25
FGM-02X-2080	15.2			
FGM-02Y-2080	15	51	14	35

Technical drawing of a rectangular plate with the following dimensions and features:

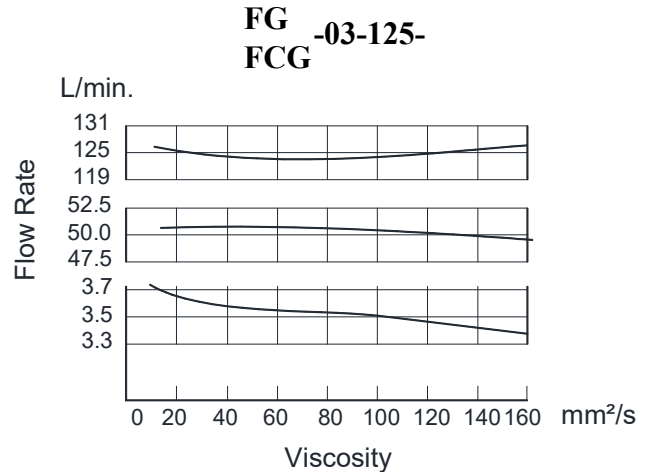
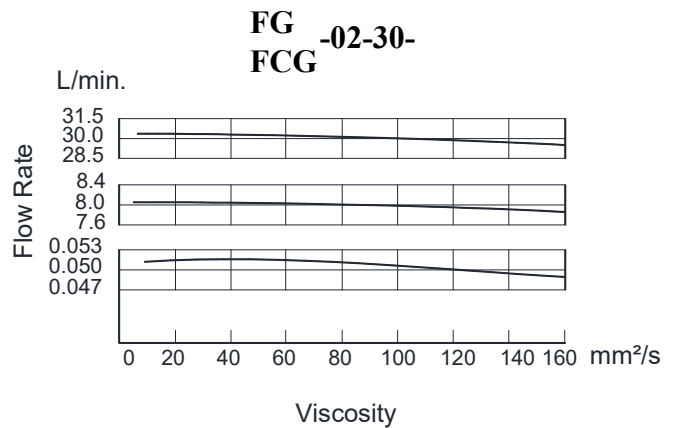
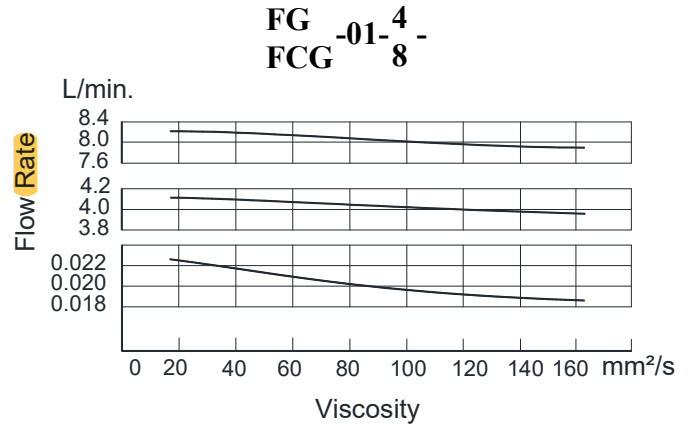
- Overall Dimensions:**
 - Width: 168
 - Height: 130
- Internal Dimensions and Spacing:**
 - Top edge spacing: 102.4 (total), 101.6 (between features)
 - Bottom edge spacing: 125 (between features), 146 (between features), 168 (total)
 - Left edge spacing: 11 (from rear), 21.5 (from rear)
 - Right edge spacing: 14.2 (from rear)
 - Top feature spacing: 75 (between features), 33.2 (between features), 0.8 (between features), 20.6 (between features)
 - Bottom feature spacing: 11.1 (between features), 28.6 (between features), 11.1 (between features)
- Features and Callouts:**
 - "A" Thd. 2 Places (From rear)
 - "B" Thd. x "C" Deep 4 Places
 - "D" Dia. 2 Places
 - 7 Dia. x 8 Deep 2 Places
 - 11 Dia. x Thru.
 - 17.5 Dia. Spotface 4 Places

Sub-Plate Model Number	“A” Thd.	“B” Thd.	C	D	E	F	G	H	J
FGM-03-2080	3/8 BSP.F	M10	18	15.0	75	20.6	11.1	86.5	25
FGM-03X-2080	1/2 BSP.F	M10	18	19.0					
FGM-03Y-2080	3/4 BSP.F	M10	18	23.0	70	25.6	16.1	81.5	40

Metered Flow Vs. Differential Pressure



Metered Flow Vs. Viscosity



- For any other Viscosity, multiply by the factors in the table below.

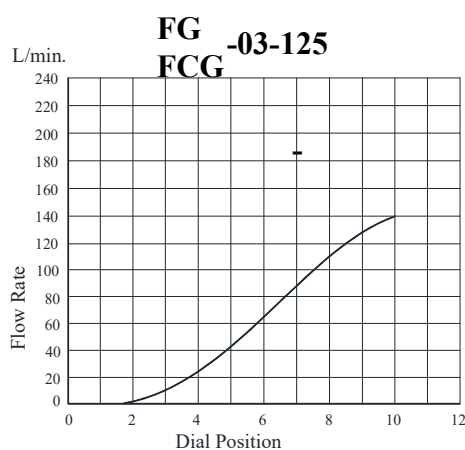
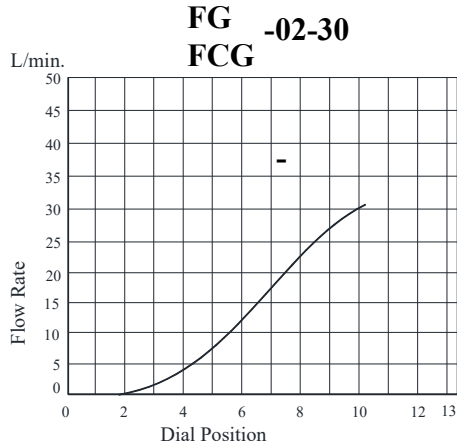
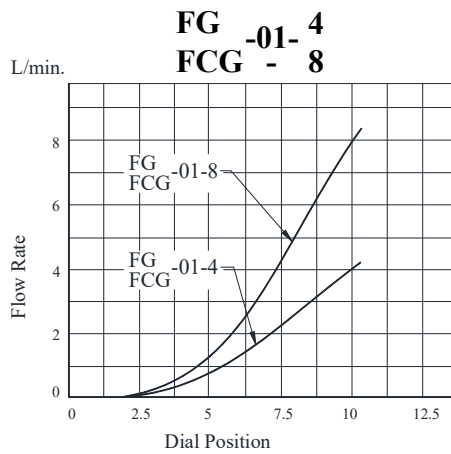
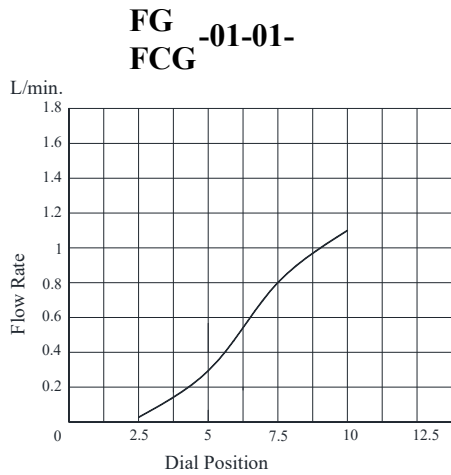
Viscosity	cSt	20	40	60	80	100
Factor		0.87	1.03	1.14	1.23	1.30

- For any other specific gravity, use the formula :

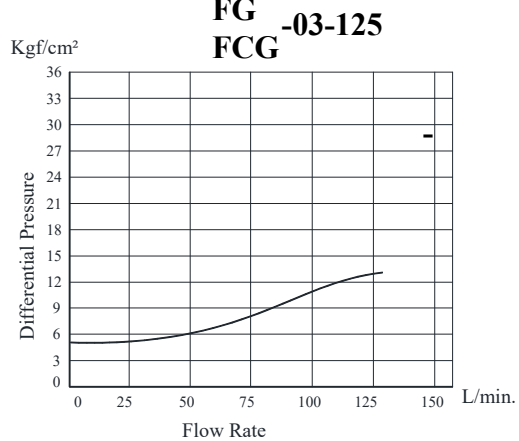
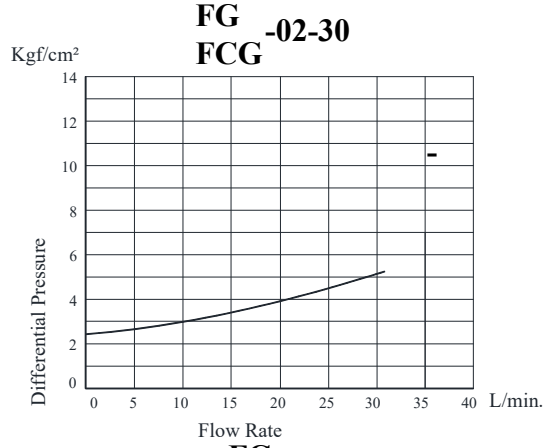
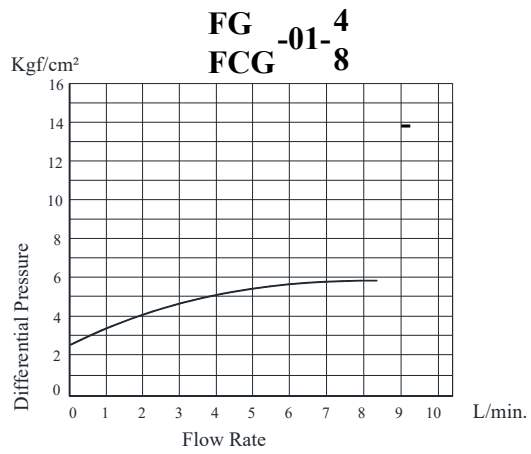
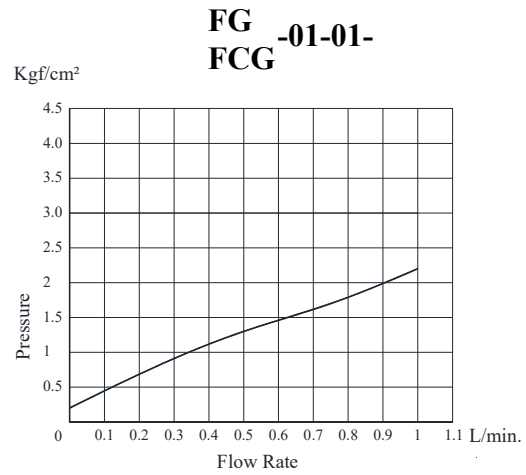
$$\Delta P' = \Delta P$$

Where P is each value in the chart above, and G is 0.850 specific gravity.

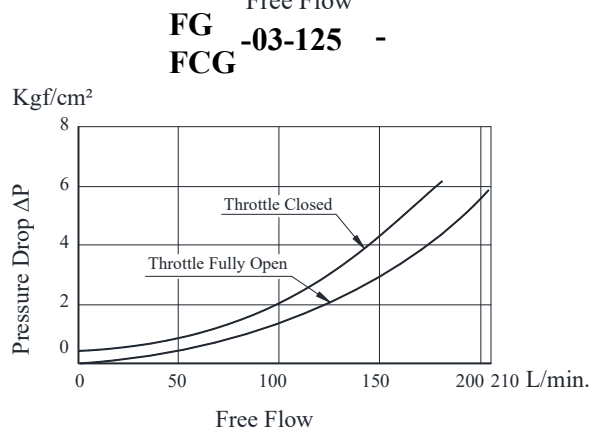
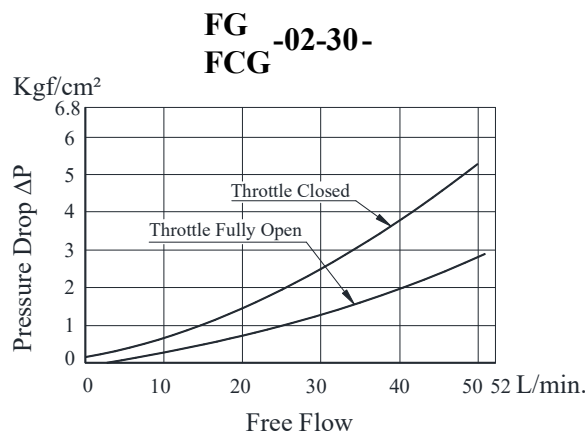
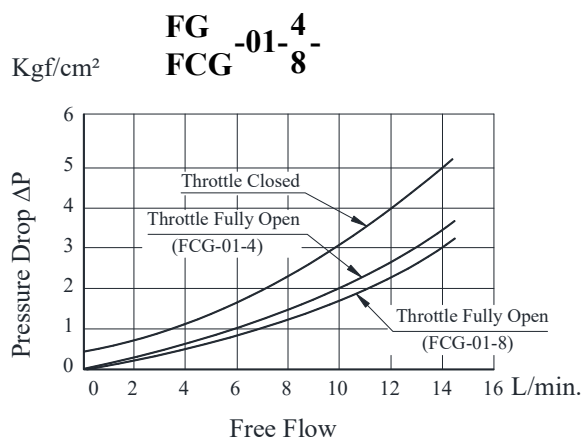
Metered Flow Vs. Dial Position



Minimum required Pressure Difference



Pressure Drop for Reversed Free Flow



Spare Parts List

List of Seals

Sl. No.	Name of parts	Part No.	Qty.			
			FG-01	FCG-01	FG-01-N	FCG-01-N
1	O - Ring	SO-NA-P4	1	1	2	2
2	O - Ring	SO-NB-P9	2	2	2	2
3	O - Ring	SO-NB-P10	1	1	1	1
4	O - Ring	SO-NB-P16	1	1	1	1
5	O - Ring	SO-NB-P14	1	1	1	1
6	O-Ring	SO-NB-P7	-	1	-	1

Sl. No.	Name of parts	Part No.	Qty.			
			FG-02	FCG-02	FG-02-N	FCG-02-N
1	O - Ring	SO-NA-P4	1	1	1	1
2	O - Ring	SO-NB-P5	-	-	1	1
3	O - Ring	SO-NB-P10A	-	1	-	1
4	O - Ring	SO-NB-P12	1	1	1	1
5	O - Ring	SO-NB-P18	3	3	4	4
6	O - Ring	SO-NB-G25	1	1	1	1
8	Back-Up Ring	SO-BB-P4	1	1	1	1

Sl. No.	Name of parts	Part No.	Qty.			
			FG-03	FCG-03	FG-03-N	FCG-03-N
1	O - Ring	SO-NA-P4	1	1	1	1
2	O - Ring	SO-NB-P5	-	-	1	1
3	O - Ring	SO-NB-P21	-	1	-	1
4	O - Ring	SO-NB-P18	2	2	2	2
5	O - Ring	SO-NB-P28	2	2	2	2
6	O - Ring	SO-NB-G35	1	1	1	1
7	Back-Up Ring	SO-BB-P4	1	1	1	1

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

List of Seals Kits

Valve Model Numbers	Seal Kit Numbers
FG-01	KS-FG-01-11
FCG-01	KS-FCG-01-11
FG-01-N	KS-FG-01-N-11
FCG-01-N	KS-FCG-01-N-11

Valve Model Numbers	Seal Kit Numbers
FG-02	KS-FG-02-11
FCG-02	KS-FCG-02-11
FG-02-N	KS-FG-02-N-11
FCG-02-N	KS-FCG-02-N-11

Valve Model Numbers	Seal Kit Numbers
FG-03	KS-FG-03-11
FCG-03	KS-FCG-03-11
FG-03-N	KS-FG-03-N-11
FCG-03-N	KS-FCG-03-N-11