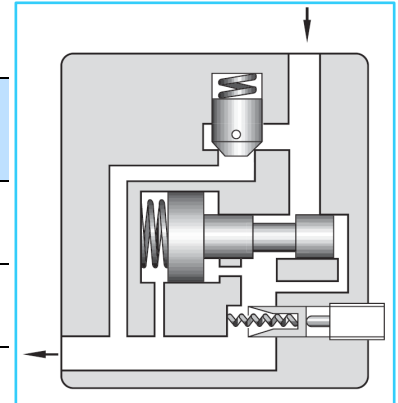
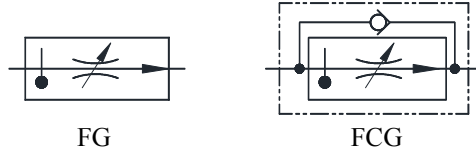


Flow Control Valves

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 -01-4-※-11※ 8	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

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.

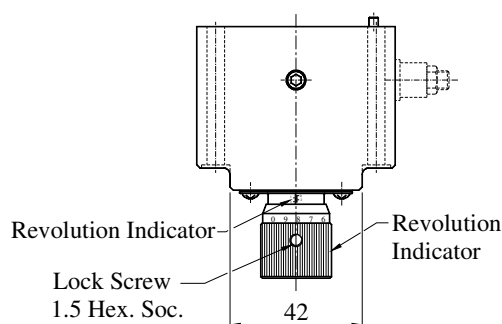
[F※G-02/03] --- Anticlockwise for increase and clockwise for decrease.

Line Filter

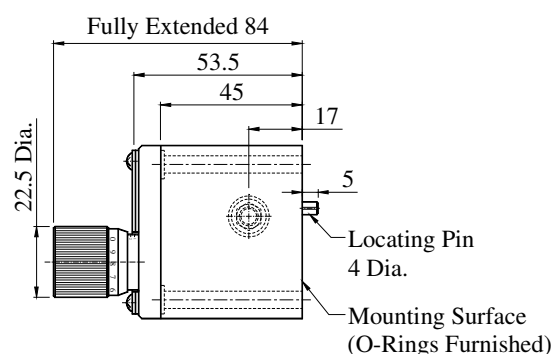
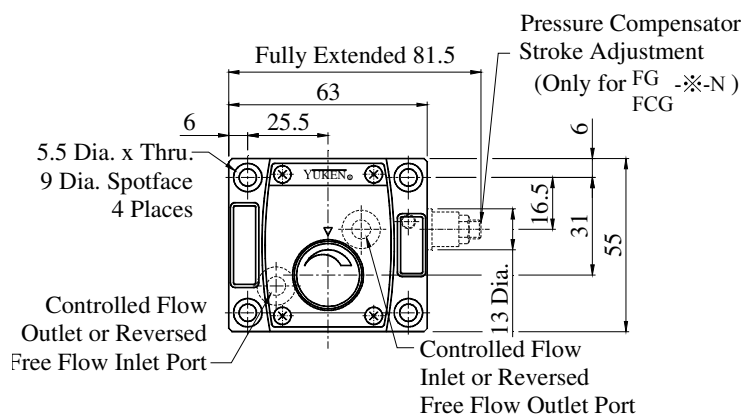
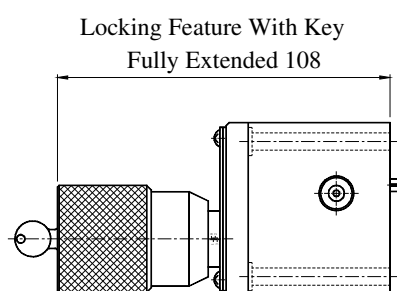
To carry out flow adjustments by as small degree as 2 L/min. or less, be sure to use a line filter, 10μ or less, near the valve inlet.

DIMENSIONS IN
MILLIMETRES

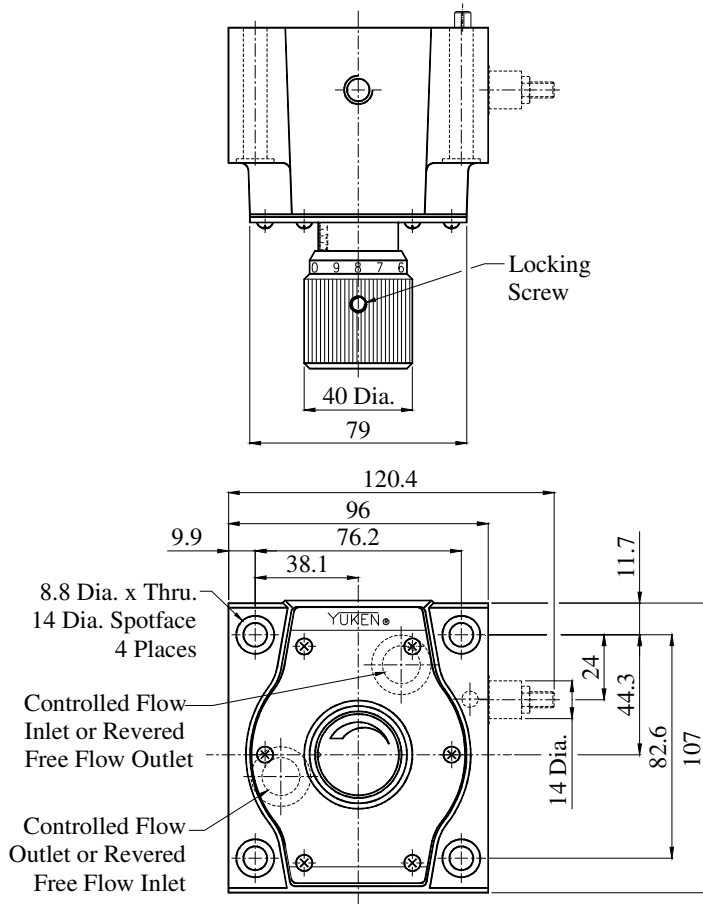
FG FCG-01-※-※-11※※



F※G-01-※-※-12※※H01



● **F※G-02-30-※-22801**

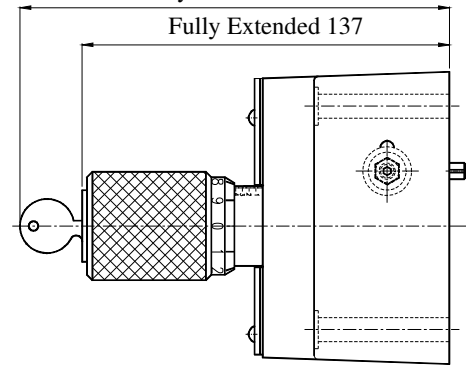


● **F※G-02-30-※-22801H01**

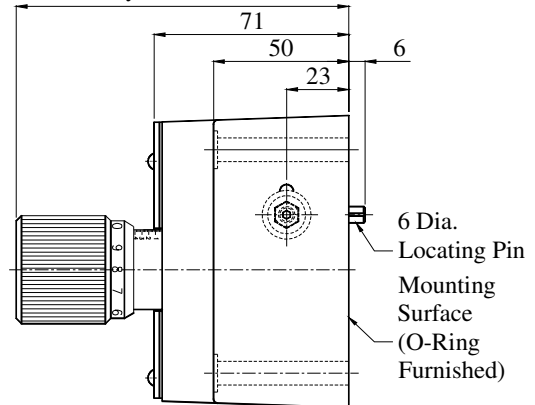
Locking Feature With Key

Fully Extended 160

Fully Extended 137

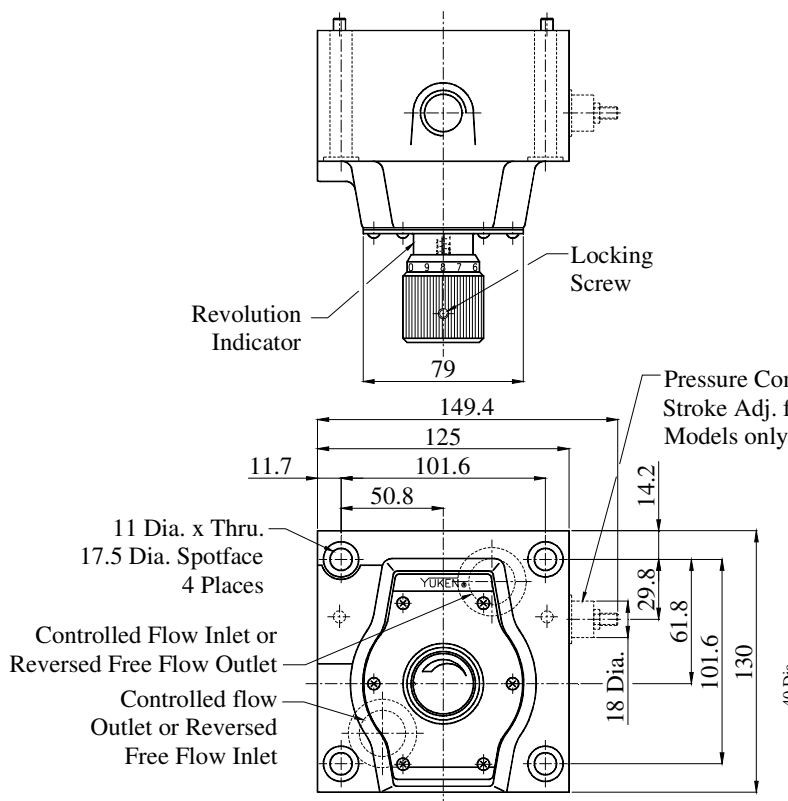


Fully Extended 123



**DIMENSIONS IN
MILLIMETRES**

● **F※G-03-125-※-22801**

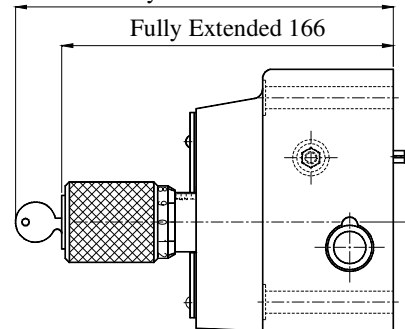


● **F※G-03-125-※-22801H01**

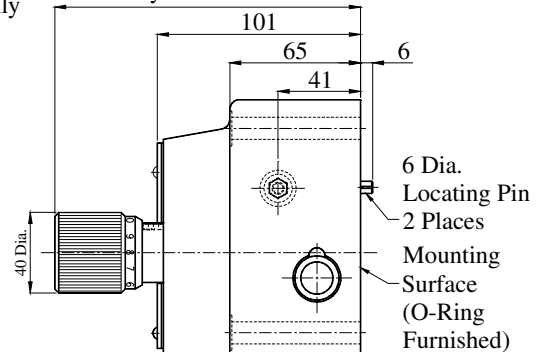
Locking Feature With Key

Fully Extended 189

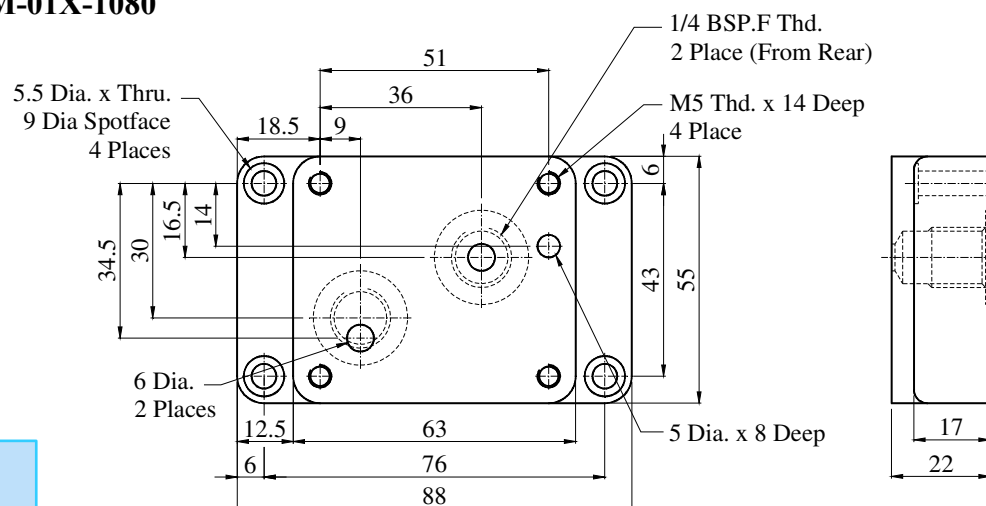
Fully Extended 166



Fully Extended 152



● **Sub-Plates FGM-01X-1080**

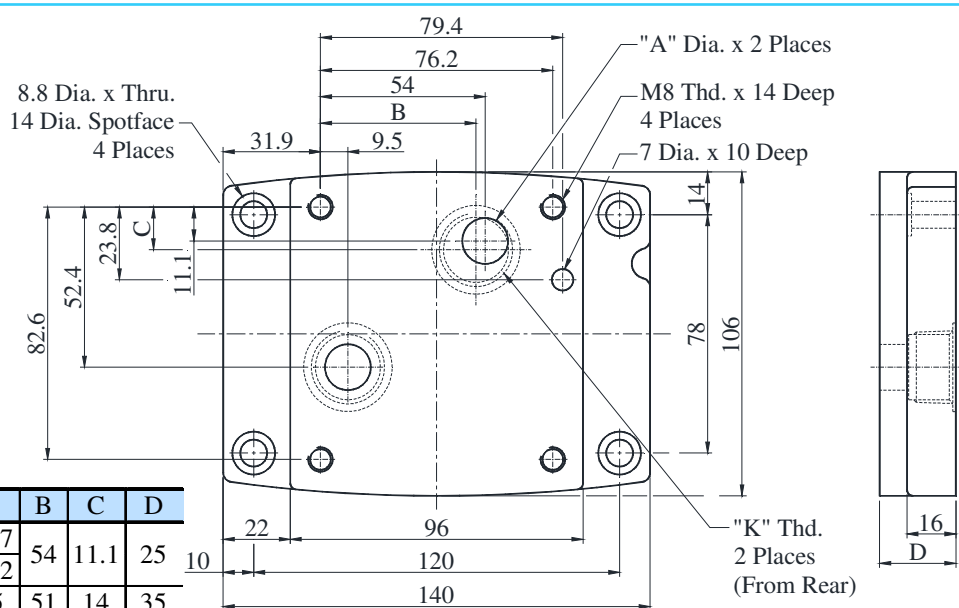


**DIMENSIONS IN
MILLIMETRES**

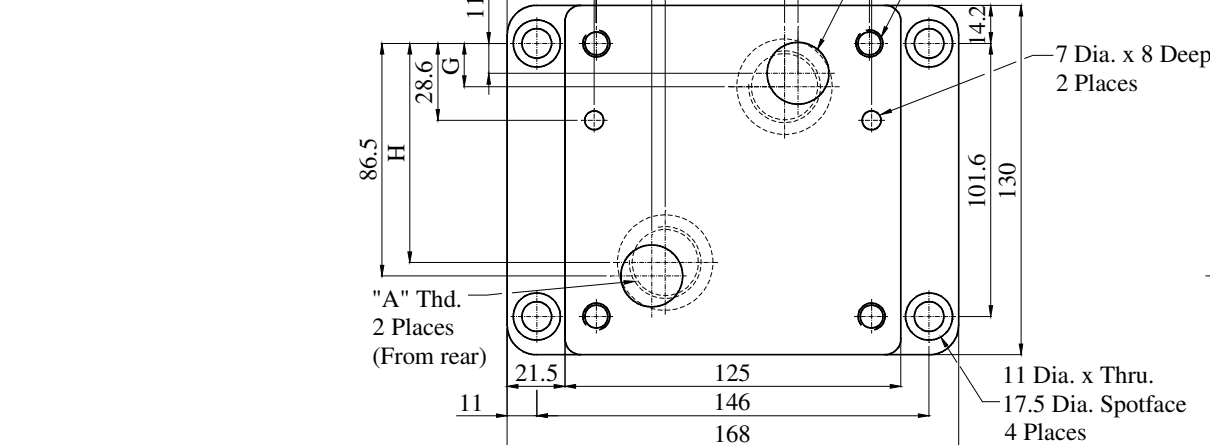
02
● **FGM-02X-2080**
02Y

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	54	11.1	25
FGM-02Y-2080	15	51	14	35



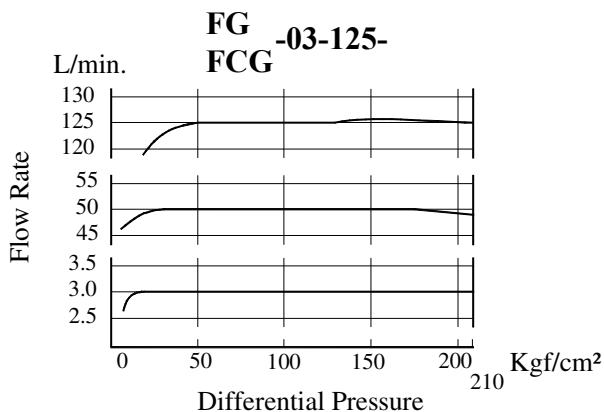
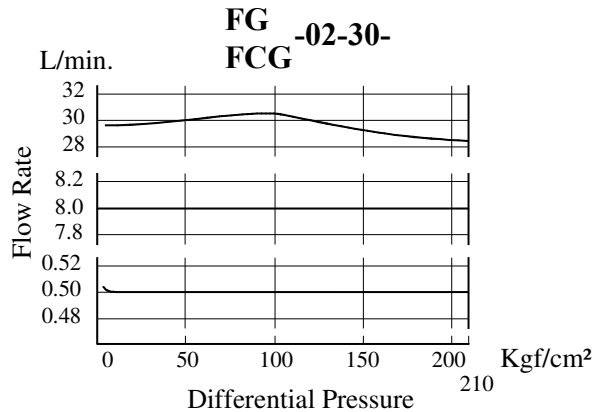
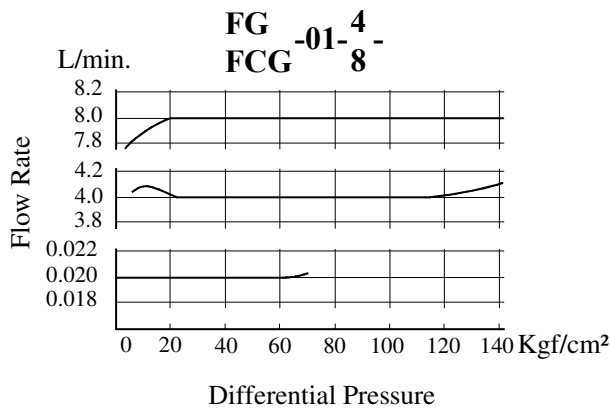
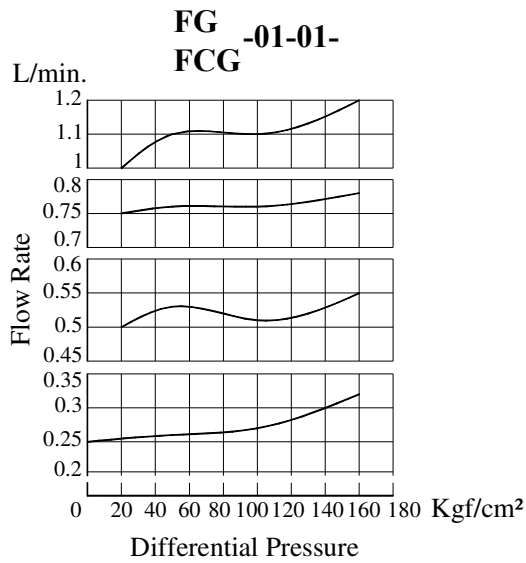
03
● **FGM-03X-2080**
03Y



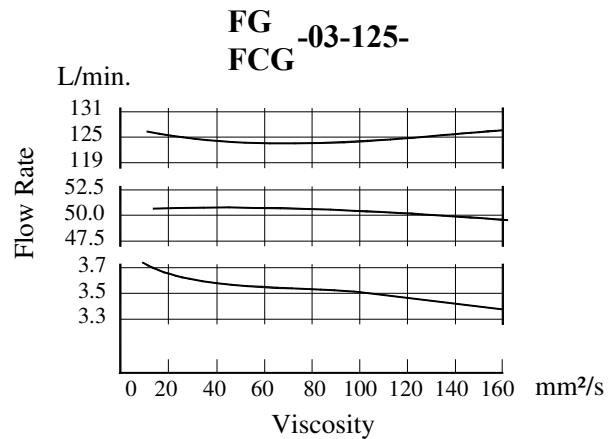
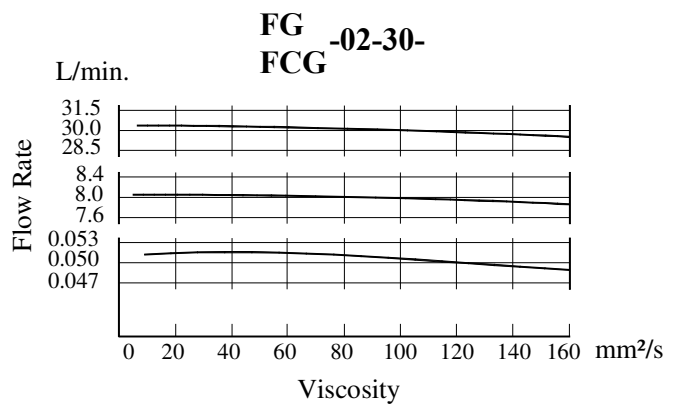
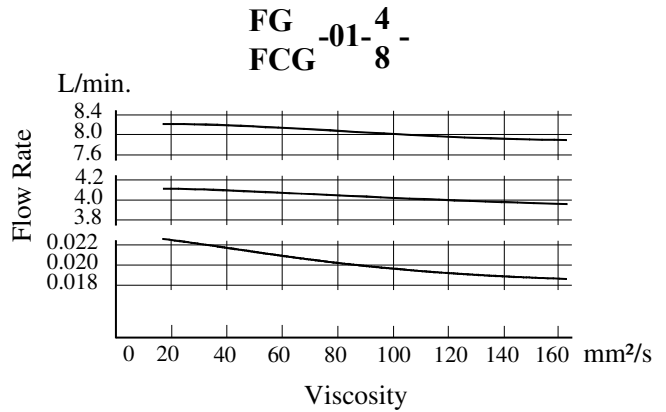
Sub-Plate Model Number	"A" Thd.	"B" Thd.	C	D	E	F	G	H	J
FGM-03-2080	3/8 BSP.F	M10	18	15.0	75	20.6	11.1	86.5	25
FGM-03X-2080	1/2 BSP.F	M10	18	19.0	75	20.6	11.1	86.5	25
FGM-03Y-2080	3/4 BSP.F	M10	18	23.0	70	25.6	16.1	81.5	40

Flow Control Valve • Flow Control Check Valves

Metered Flow Vs. Differential Pressure



Metered Flow Vs. Viscosity



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

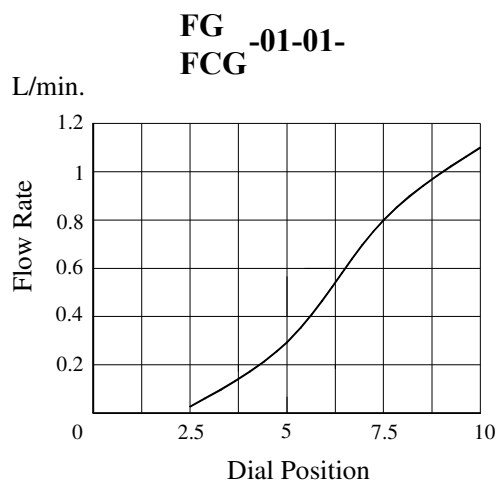
Viscosity	cSt	20	40	60	80	100
Factor		0.87	1.03	1.14	1.23	1.30

- For any other specific gravity, use the formula :

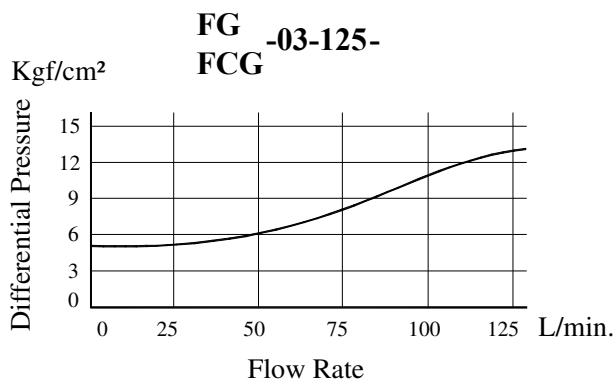
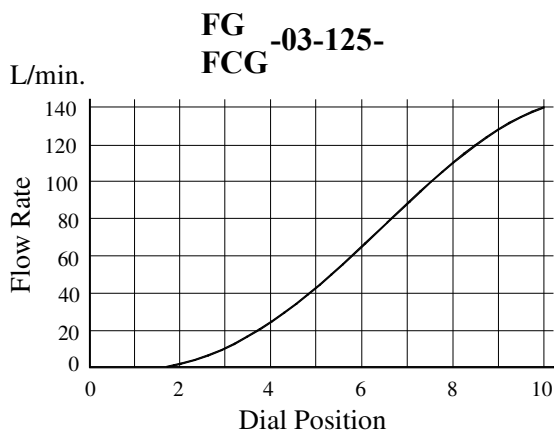
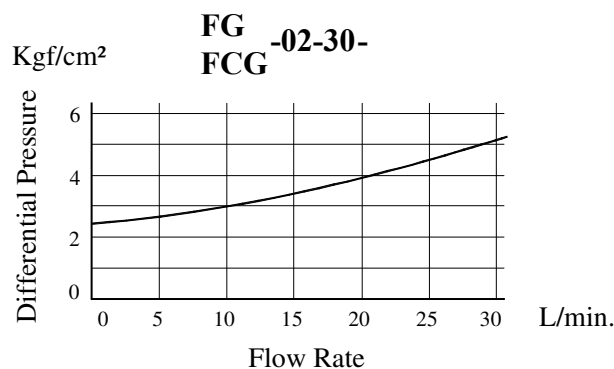
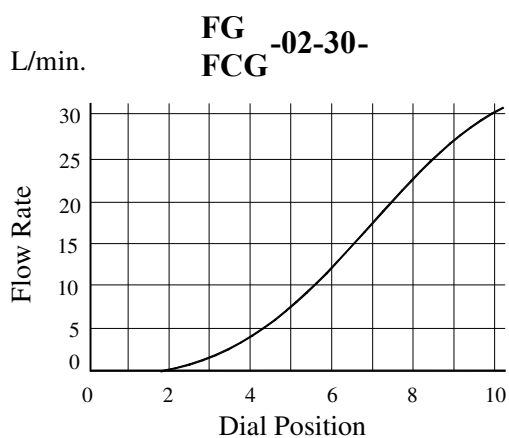
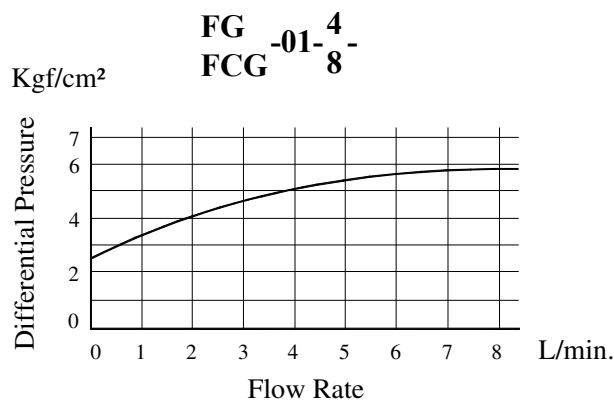
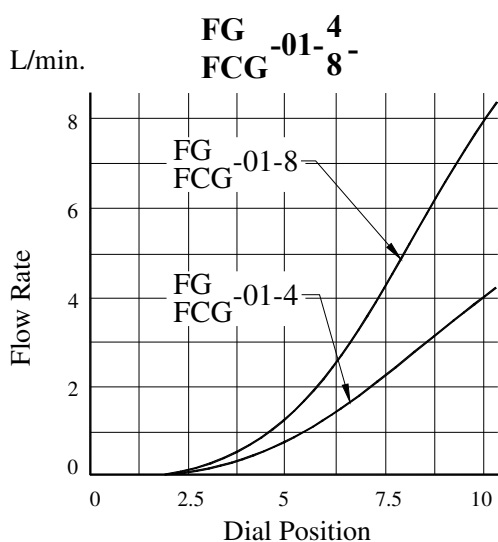
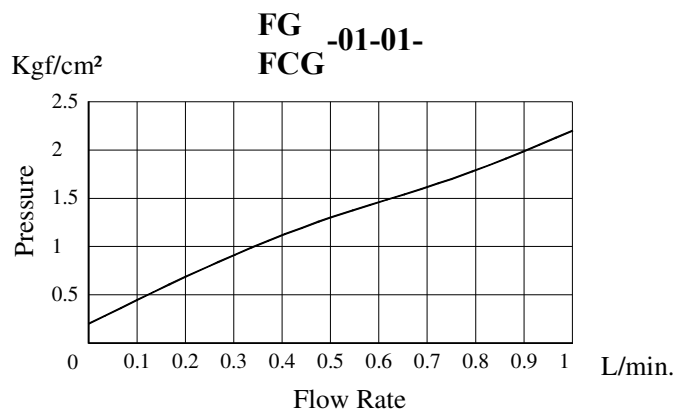
$$\Delta P' = \Delta P$$

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

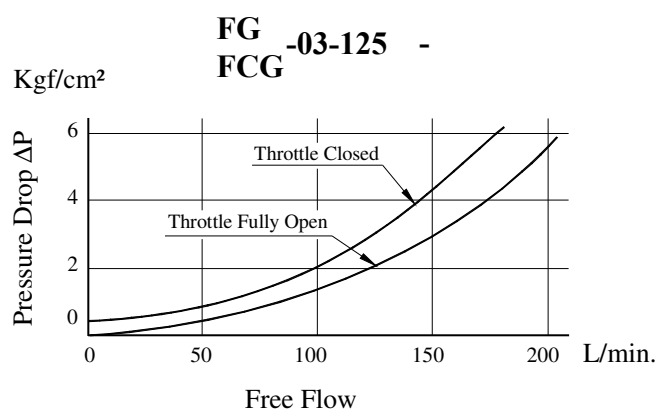
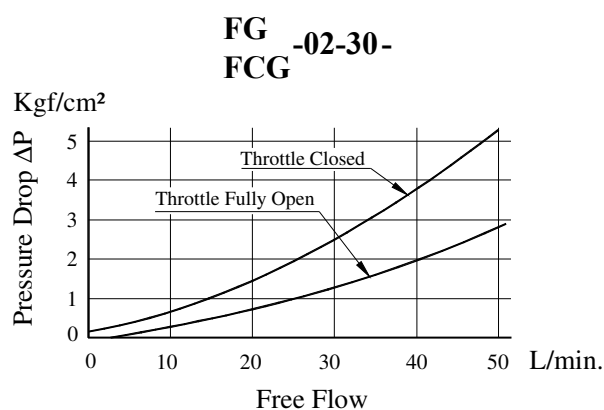
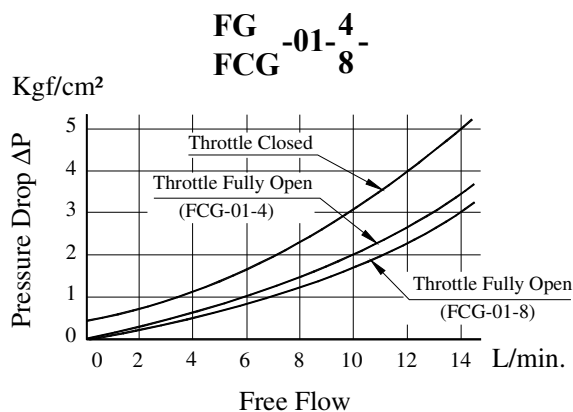
Metered Flow Vs. Dial Position



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	2	2	3	3
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