

Fully guided poppets are used on Colorflow valves rather than the less durable ball-check type construction. Poppets open and close more smoothly — last longer — and eliminate the distortion of seats and springs.

The exclusive "Colorflow" feature on metering, flow control, and needle valves gives highly visible check-points for setting valve openings. This feature also provides a reference point that allows the valve to be accurately and quickly reset to a previous setting.

Steel, brass or stainless steel bodies are available, all of which include stainless steel needles as standard.

Colorflow valves are available with a variety of porting options.

WARNING: Colorflow valves are not repairable

⚠ WARNING – USER RESPONSIBILITY

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- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

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SAFETY GUIDE

For safety information, see Safety Guide SG HY14-1000 at www.parker.com/safety or call 1-800-CParker.

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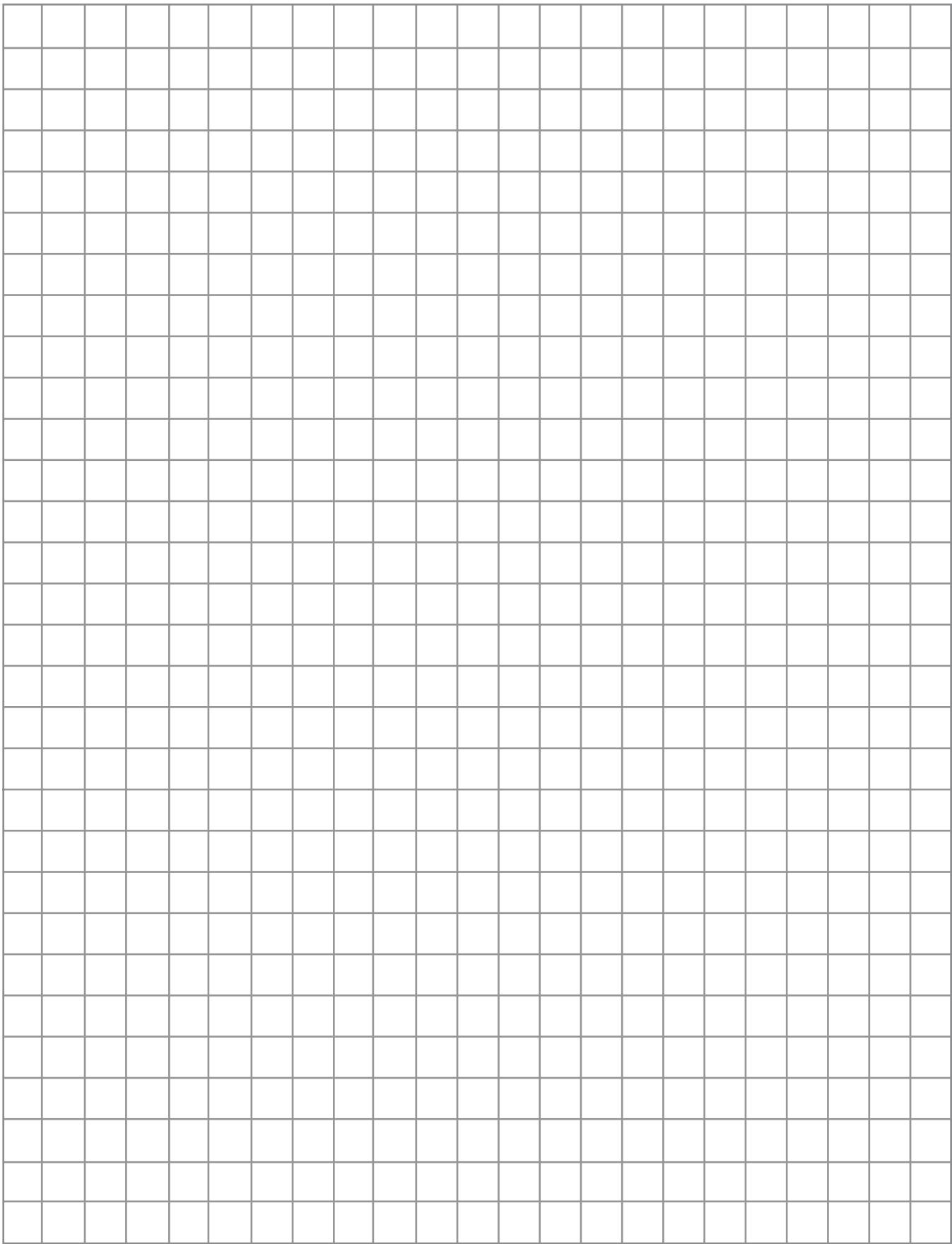
Ball Valves**High Pressure Ball Valves**

Series BVHP	2-Way, 414 Bar (6000 PSI).....	1/4"-1", in-line	40 - 55
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**Flow Control Valves
Check Valves
Gauge Control Valves**

Colorflow® Valves



ENGINEERING YOUR SUCCESS.

General Description

Series F flow control valves provide precise control of flow and shut-off in one direction, and automatically permit full flow in the opposite direction.

Operation

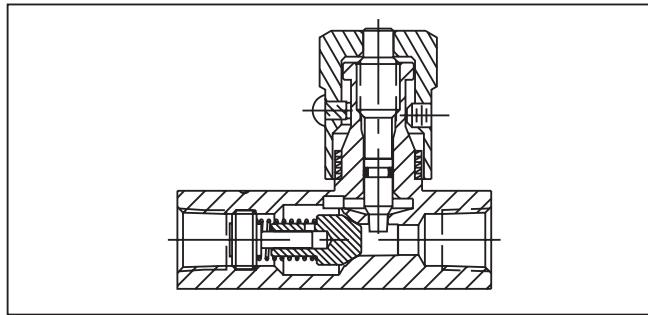
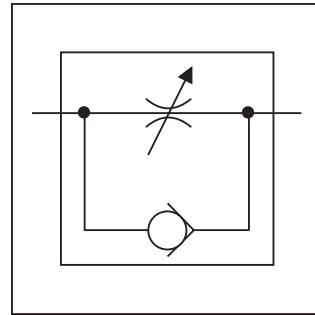
A two-step needle allows fine adjustment at low flow by using the first three turns of the adjusting knob. The next three turns open the valve to full flow, and also provide standard throttling adjustments.

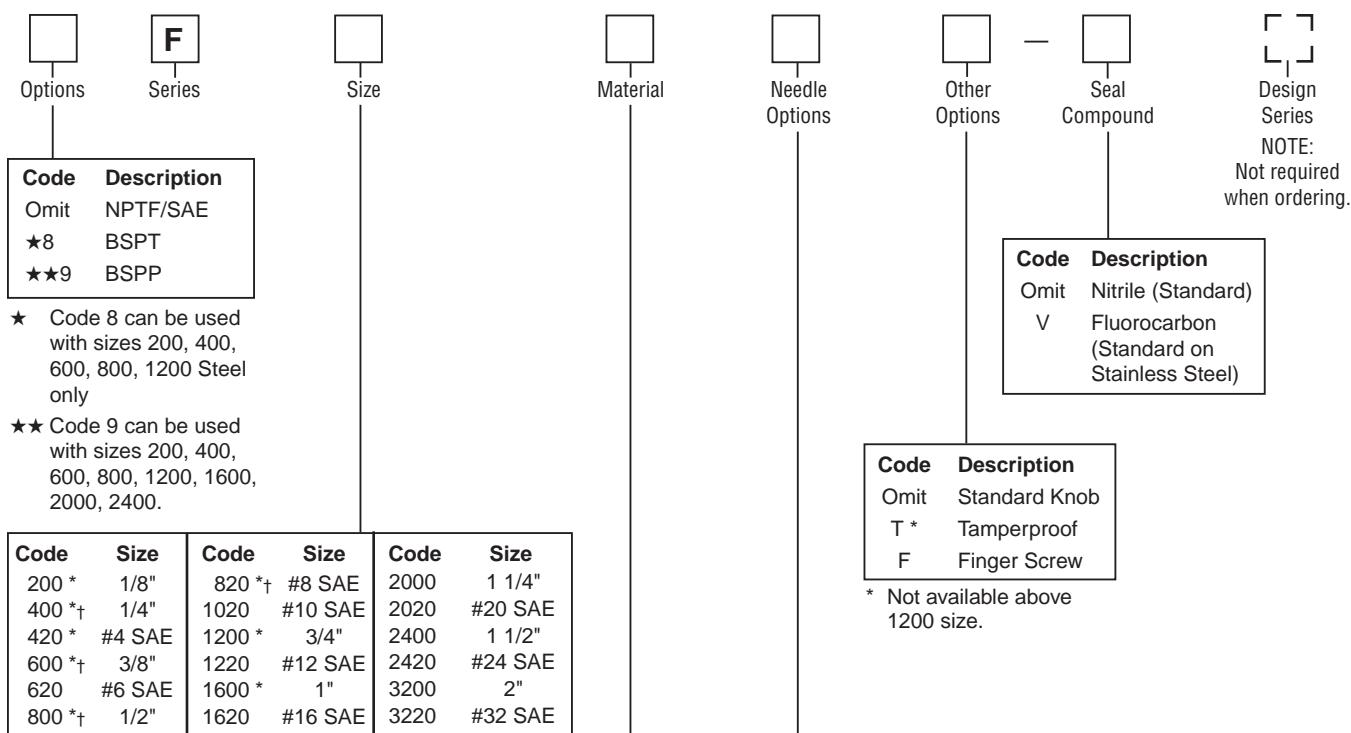
Features

- The exclusive "Colorflow" color-band reference scale on the valve stem is a great convenience and time-saver in setting the valve originally and in returning it to any previous setting.
- A simple set screw locks the valve on any desired setting.
- A tamperproof option (T) feature is also available to prevent accidental or intentional adjustment of flow setting.

Specifications

Maximum Operating Pressure	Brass: 140 Bar (2000 PSI); except for F1600 brass which is 35 Bar (500 PSI) Steel & Stainless Steel: 345 Bar (5000 PSI) for 200 thru 1020; Steel: 207 Bar (3000 PSI) for all other sizes	Poppets	Soft seal poppet in brass 200 - 820 sizes Solid metal 416 stainless steel poppet on all other sizes and styles
Material	Body Knob Spring Needle Poppet Retainer Stainless Steel Bodies	Nominal Cracking Pressure	0.4 Bar (5 PSI) standard
	See ordering code Steel - Zinc plated 316 Stainless Steel 416 Stainless Steel 416 Stainless Steel 416 Stainless Steel 303 Stainless Steel	Temperature Range of Seal Compound	-40°C to +121°C (-40°F to +250°F) Nitrile (standard) -26°C to +205°C (-15°F to +400°F) Fluorocarbon



Ordering Information**Flow Control Valves****Series F**

* Sizes available in Brass.

† Sizes available in Stainless Steel.

Code	Description
B	Brass
S	Steel
SS*	Stainless Steel

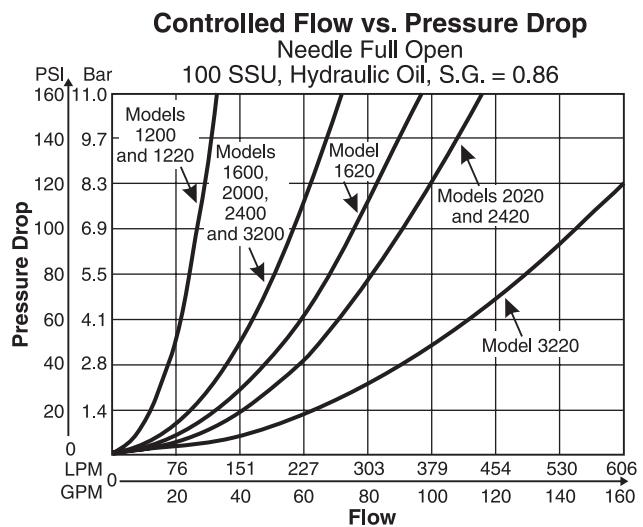
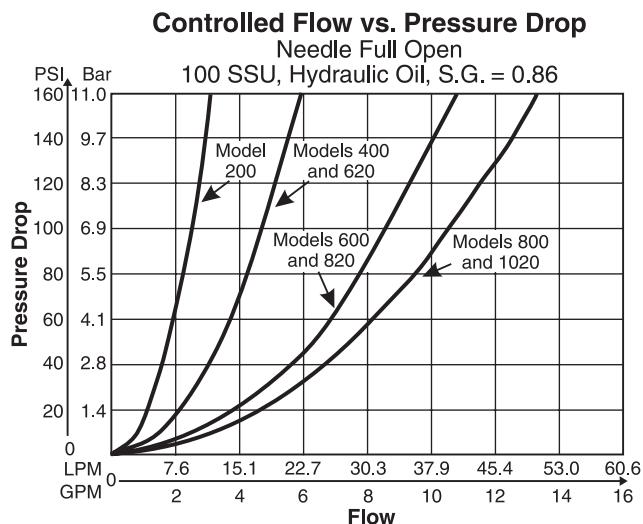
Code	Description
Omit	Standard
4	Fine Metering (200, 400, 420, 600, 620, 820 sizes)

Series F Brass and Stainless Steel Valves can be used for both air and oil service.

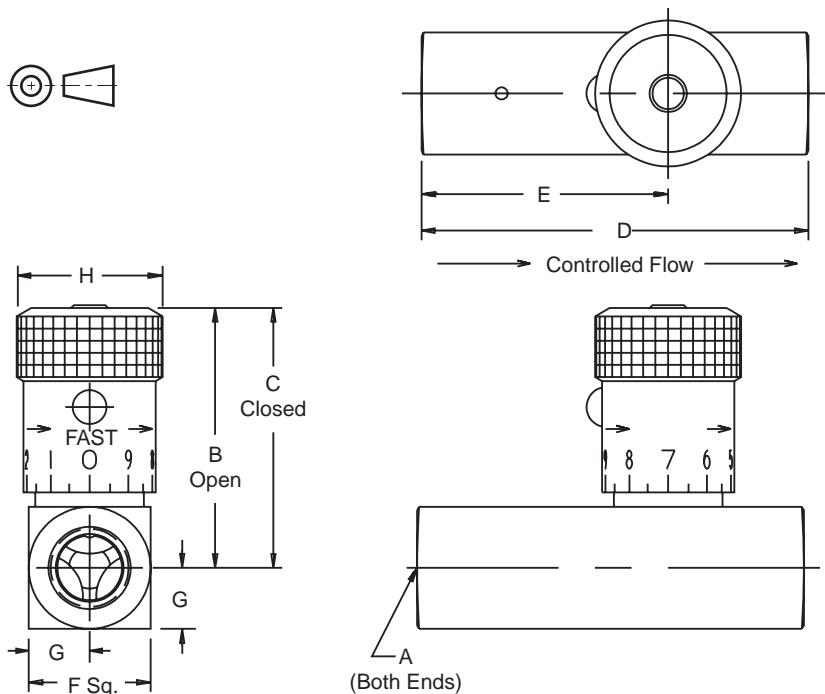
* Available in 400, 600 800, and 820 sizes only.

Model Number	Free Flow Rate, Max. LPM (GPM)	Free Flow Orifice Area in.²	Free Flow C_v	Effective Orifice Area, Control Flow in.²	Effective Control Flow C_v
F200	11 (3)	0.023	0.53	0.0102	0.230
F420	11 (3)	0.023	0.53	0.0102	0.230
F400	19 (5)	0.068	1.56	0.0194	0.433
F620	19 (5)	0.068	1.56	0.0194	0.433
F600	30 (8)	0.099	2.27	0.0344	0.787
F820	30 (8)	0.099	2.27	0.0344	0.787
F800	57 (15)	0.224	5.11	0.0427	0.976
F1020	57 (15)	0.224	5.11	0.0427	0.976
F1200	95 (25)	0.348	7.95	0.1080	2.470
F1220	95 (25)	0.348	7.95	0.1080	2.470
F1600	151 (40)	0.453	10.35	0.2300	5.250
F1620	151 (40)	0.453	10.35	0.3070	7.000
F2000	265 (70)	0.855	19.52	0.2300	5.250
F2020	265 (70)	0.855	19.52	0.3710	8.470
F2400	379 (100)	0.955	21.82	0.2300	5.250
F2420	379 (100)	0.955	21.82	0.3710	8.470
F3200	568 (150)	1.046	23.90	0.2300	5.250
F3220	568 (150)	1.046	23.90	0.6010	13.410

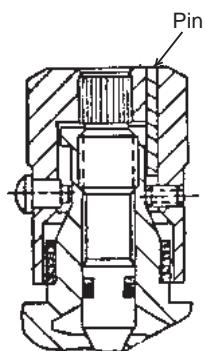
Model Number	Effective Orifice Area Control Flow in.²	Effective Control Flow C_v
F400-4	0.0044	0.0758
F600-4	0.0097	0.153
F620-4	0.0044	0.0758
F820-4	0.0097	0.153



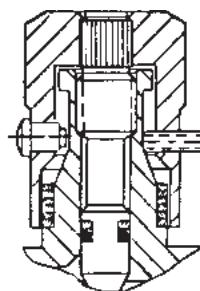
Inch equivalents for millimeter dimensions are shown in (**)



Knob Options



Tamperproof Option (Code "T") permanently locks knob at desired flow setting by installing a pin in predrilled hole.



Finger screw Option (Code "F") provides this thumb-screw in place of set screw.

Model Number	Weight kg (lbs)	A	B	C	D	E	F	G	H
F200	0.1 (0.3)	1/8-27 NPTF	39.1 (1.54)	35.3 (1.39)	50.8 (2.00)	32.5 (1.28)	16.0 (0.63)	7.9 (0.31)	19.1 (0.75)
F400	0.2 (0.5)	1/4-18 NPTF	45.5 (1.79)	40.4 (1.59)	66.8 (2.63)	42.2 (1.66)	20.6 (0.81)	10.4 (0.41)	20.6 (0.81)
F420	0.2 (0.5)	7/16-20 UNF #4 SAE	41.4 (1.63)	37.6 (1.48)	68.3 (2.69)	42.9 (1.69)	20.6 (0.81)	10.4 (0.41)	19.1 (0.75)
F600	0.3 (0.7)	3/8-18 NPTF	55.4 (2.18)	49.5 (1.95)	69.9 (2.75)	44.5 (1.75)	25.4 (1.00)	12.7 (0.50)	25.4 (1.00)
F620	0.3 (0.7)	9/16-18 UNF #6 SAE	47.7 (1.88)	42.7 (1.68)	79.2 (3.12)	48.8 (1.92)	25.4 (1.00)	12.7 (0.50)	20.6 (0.81)
F800	0.7 (1.5)	1/2-14 NPTF	68.6 (2.70)	61.5 (2.42)	87.4 (3.44)	56.6 (2.23)	31.8 (1.25)	16.0 (0.63)	30.2 (1.19)
F820	0.5 (1.1)	3/4-16 UNF #8 SAE	56.9 (2.24)	51.1 (2.01)	88.9 (3.50)	53.8 (2.12)	28.4 (1.12)	14.2 (0.56)	25.4 (1.00)
F1020	0.8 (1.8)	7/8-14 UNF #10 SAE	68.6 (2.70)	61.5 (2.42)	101.6 (4.00)	65.0 (2.56)	31.8 (1.25)	15.7 (0.62)	30.2 (1.19)
F1200	1.2 (2.6)	3/4-14 NPTF	85.9 (3.38)	71.4 (2.81)	98.6 (3.88)	65.5 (2.58)	38.1 (1.50)	19.1 (0.75)	35.1 (1.38)
F1220	1.2 (2.6)	1 1/6-12 UN #12 SAE	85.9 (3.38)	71.4 (2.81)	117.3 (4.62)	76.5 (3.01)	38.1 (1.50)	19.1 (0.75)	35.1 (1.38)
F1600	2.3 (5.1)	1-11 1/2 NPTF	123.7 (4.87)	106.9 (4.21)	127.0 (5.00)	81.8 (3.22)	44.5 (1.75)	22.4 (0.88)	47.8 (1.88) *
F1620	2.3 (5.1)	1 5/16-12 UN #16 SAE	130.8 (5.15)	114.0 (4.49)	142.7 (5.62)	88.9 (3.50)	57.2 (2.25)	28.4 (1.12)	47.8 (1.88) *
F2000	3.7 (8.2)	1 1/4-11 1/2 NPTF	130.0 (5.12)	113.3 (4.46)	143.0 (5.63)	98.6 (3.88)	57.2 (2.25)	28.7 (1.13)	47.8 (1.88) *
F2020	3.7 (8.2)	1 5/8-12 UN #20 SAE	140.2 (5.52)	123.4 (4.86)	165.1 (6.50)	108.0 (4.25)	69.9 (2.75)	35.1 (1.38)	47.8 (1.88) *
F2400	4.6 (10.2)	1 1/2-11 1/2 NPTF	136.4 (5.37)	119.6 (4.71)	143.0 (5.63)	113.5 (4.47)	69.9 (2.75)	35.1 (1.38)	47.8 (1.88) *
F2420	4.6 (10.2)	1 7/8-12 UN-2B #24 SAE	143.5 (5.65)	126.7 (4.99)	184.2 (7.25)	127.0 (5.00)	76.2 (3.00)	38.1 (1.50)	47.8 (1.88) *
F3200	7.9 (17.4)	2-11 1/2 NPTF	146.1 (5.75)	129.3 (5.09)	165.1 (6.50)	134.9 (5.31)	88.9 (3.50)	44.5 (1.75)	47.8 (1.88) *
F3220	7.9 (17.4)	2 1/2-12 UN #32 SAE	163.6 (6.44)	139.4 (5.49)	228.6 (9.00)	155.7 (6.13)	101.6 (4.00)	50.8 (2.00)	47.8 (1.88) *

* = Hex

General Description

Series 6F flow control valves provide precise control of flow and shut-off in one direction, and automatically permit full flow in the opposite direction.

Operation

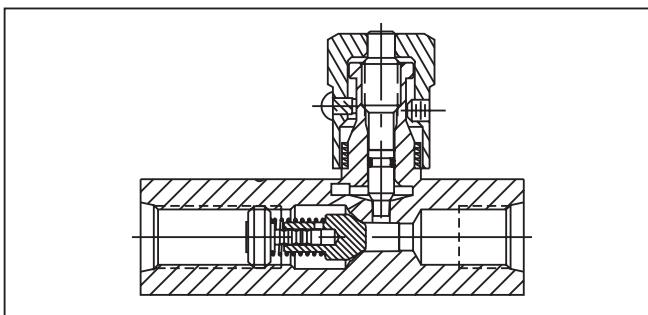
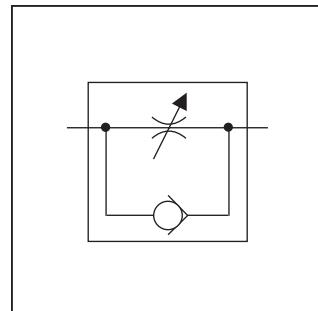
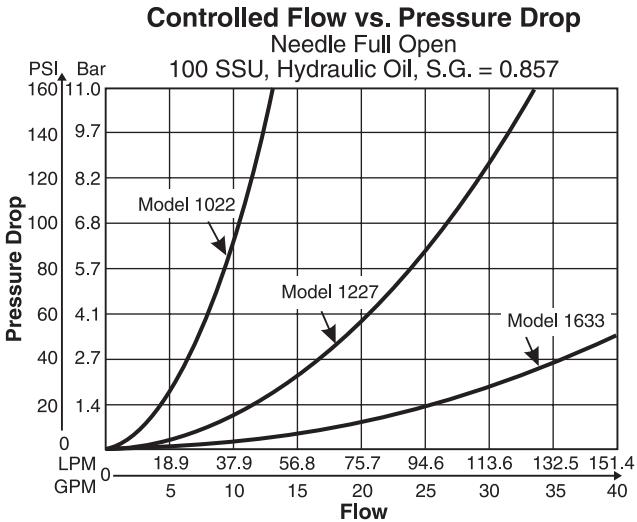
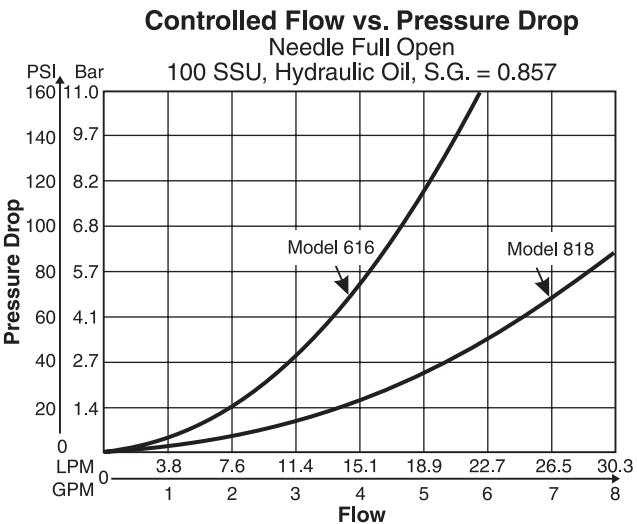
A two-step needle allows fine adjustment at low flow by using the first three turns of the adjusting knob. The next three turns open the valve to full flow, and also provide standard throttling adjustments.

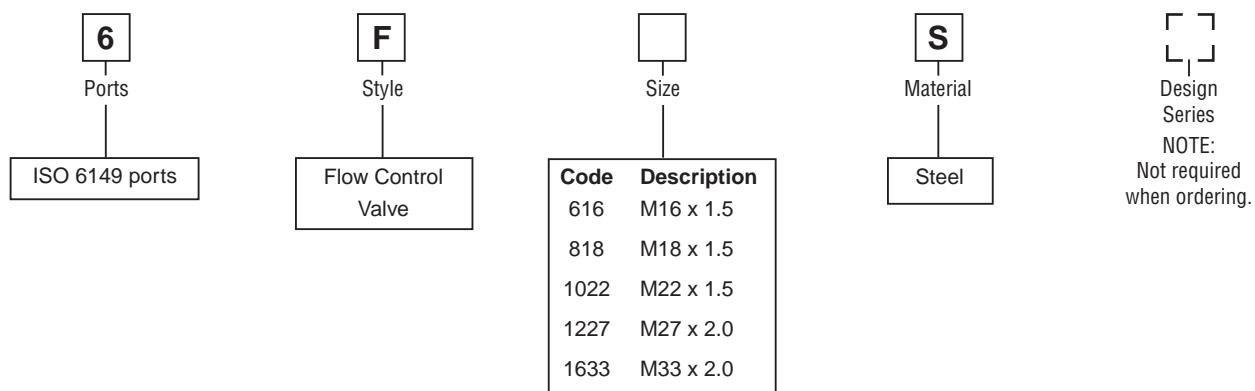
Features

- Meets ISO 6149 standards.
- Hard metric dimensions.
- Reliable leak-free performance — straight thread port with o-ring sealing.
- Global interchangeability.

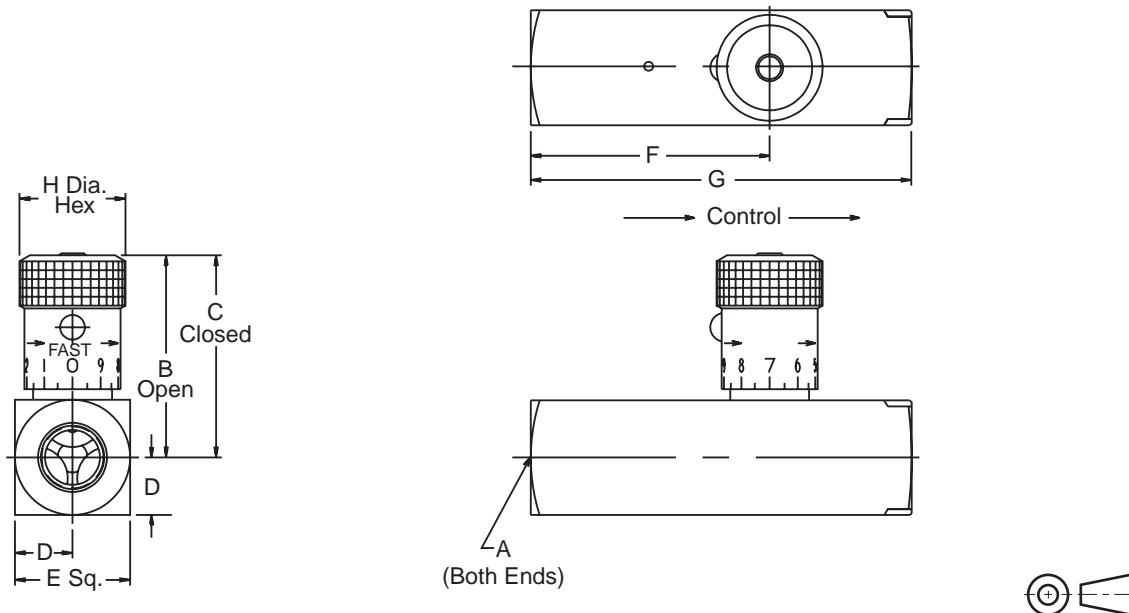
Specifications

Maximum Operating Pressure	M16 x 1.5	345 Bar (5000 PSI)
	M18 x 1.5	345 Bar (5000 PSI)
	M22 x 1.5	345 Bar (5000 PSI)
	M27 x 2.0	207 Bar (3000 PSI)
	M33 x 2.0	207 Bar (3000 PSI)
Maximum Flow	M16 x 1.5	19 LPM (5 GPM)
	M18 x 1.5	30 LPM (8 GPM)
	M22 x 1.5	57 LPM (15 GPM)
	M27 x 2.0	95 LPM (25 GPM)
	M33 x 2.0	151 LPM (40 GPM)
Material	Body	ASTM 12L14 Carbon Steel
	Knob	ASTM 12L14 Carbon Steel
	Needle	ASTM 416 Stainless Steel
	Poppet	ASTM 416 Stainless Steel
	Retainer	ASTM 416 Stainless Steel
	Spring	ASTM 316 Stainless Steel
Temperature Range of Seal Compound	-40°C to +121°C (-40°F to +250°F) Nitrile (Standard)	
	-26°C to +205°C (-15°F to +400°F) Fluorocarbon	

**Performance Curves**

Ordering Information**Dimensions**

Inch equivalents for millimeter dimensions are shown in (**)



Model Number	Weight kg (lbs.)	A	B	C	D	E	F	G	H
6F616	0.3 (0.7)	M16 x 1.5	47.8 (1.88)	42.7 (1.68)	12.7 (0.50)	25.4 (1.00)	48.7 (1.92)	79.2 (3.12)	20.6 (\emptyset 0.81)
6F818	0.5 (1.1)	M18 x 1.5	56.9 (2.24)	51.1 (2.01)	14.2 (0.56)	28.4 (1.12)	53.8 (2.12)	88.9 (3.50)	25.4 (\emptyset 1.00)
6F1022	0.8 (1.8)	M22 x 1.5	68.6 (2.70)	61.5 (2.42)	15.7 (0.62)	31.8 (1.25)	65.0 (2.56)	101.6 (4.00)	30.2 (\emptyset 1.19)
6F1227	1.2 (2.6)	M27 x 2.0	85.9 (3.38)	71.4 (2.81)	19.1 (0.75)	38.1 (1.50)	76.5 (3.01)	117.3 (4.62)	35.1 (\emptyset 1.38)
6F1633	2.3 (5.1)	M33 x 2.0	124.7 (4.91)	108.0 (4.25)	22.4 (0.88)	44.5 (1.75)	81.8 (3.22)	127.0 (5.00)	47.8 (*1.88)

* = Hex

General Description

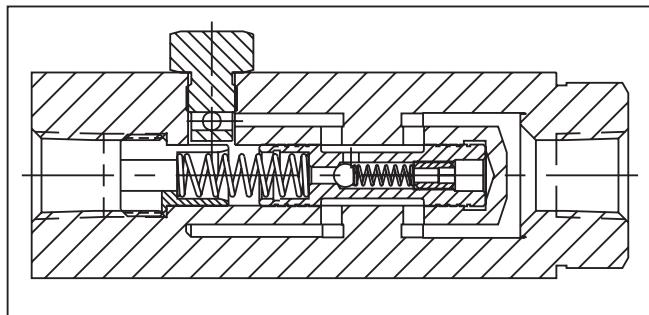
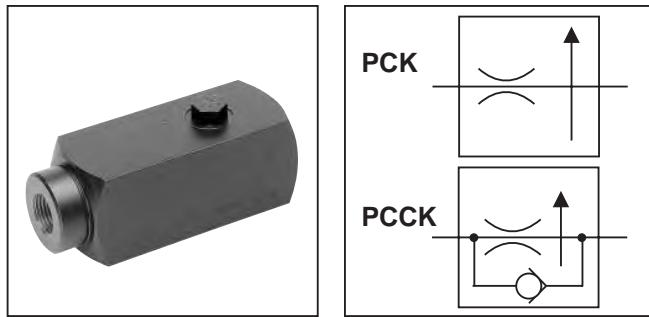
Series PCK pressure compensated flow control valves are designed to regulate flow at a selected rate, within 5%, regardless of fluctuations in inlet and outlet pressure.

Operation

Series PCK valves are factory-set for a specified flow. The flow can be changed with a different "PCK" Orifice Plug Kit (sold separately).

Features

- Available with reverse flow check.
- Flow precision within $\pm 5\%$ of full flow.

**Specifications**

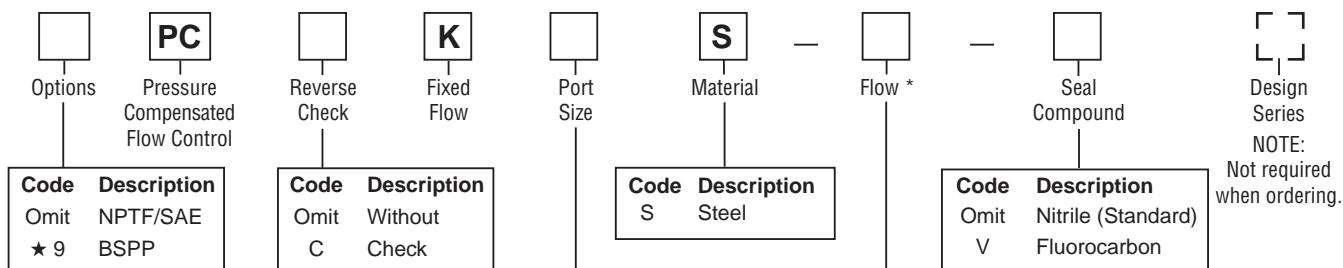
	PC*K400S PC*K620S	PC*K600S PC*K820S	PC*K800S PC*K1020S	PC*K1200S PC*K1220S
Maximum Operating Pressure	207 Bar (3000 PSI)			
Minimum Pressure to Compensate	6.9 Bar (100 PSI)	6.9 Bar (100 PSI)	6.9 Bar (100 PSI)	10.4 Bar (150 PSI)
Temperature Range of Seal Compound	-40°C to +121°C (-40°F to +250°F) Nitrile (standard) -26°C to +205°C (-15°F to +400°F) Fluorocarbon			
Mounting	In-line			
Maximum Flow	11 LPM (3 GPM)	23 LPM (6 GPM)	57 LPM (15 GPM)	95 LPM (25 GPM)
Minimum Flow	1 LPM (0.3 GPM)	2 LPM (0.6 GPM)	6 LPM (1.5 GPM)	10 LPM (2.5 GPM)
Reverse Flow, Maximum thru Check	19 LPM (5 GPM)	30 LPM (8 GPM)	76 LPM (20 GPM)	132 LPM (35 GPM)
Pressure Drop, ΔP at Maximum Reverse Flow Flow thru Check	3 Bar (40 PSI)	3 Bar (40 PSI)	PC*K800S: 8 Bar (116 PSI) PC*K1020S: 3 Bar (40 PSI)	PC*K1200S: 8 Bar (116 PSI) PC*K1220S: 3 Bar (40 PSI)
Port Size (in.)	PC*K400S: 1/4 NPTF PC*K620S: 9/16-18 UNF (SAE 6)	PC*K600S: 3/8 NPTF PC*K820S: 3/4-16 UNF (SAE 8)	PC*K800S: 1/2 NPTF PC*K1020S: 7/8-14 UNF (SAE 10)	PC*K1200S: 3/4 NPTF PC*K1220S: 1-1/16-12 UN (SAE 12)

* For optional reverse-flow check, insert "C" in model number at asterisk (*).

Ordering Information

Flow Control Valves

Series PC*K



- ★ Code 9 can be used with sizes 400, 600, 800 and 1200

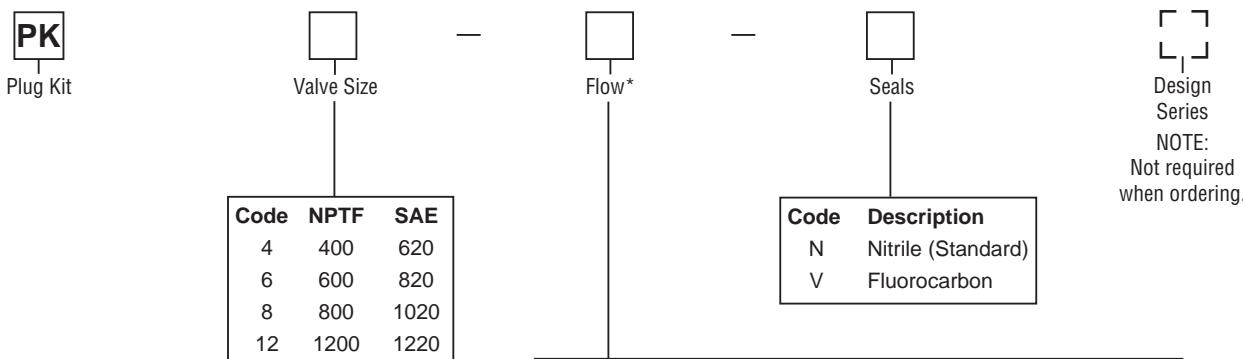
Code	Size
400	1/4"
600	3/8"
620	#6 SAE
800	1/2"
820	#8 SAE
1020	#10 SAE
1200	3/4"
1220	#12 SAE

Available Flow Settings GPM (LPM)			
PCK 400/620 GPM (LPM)	PCK 600/820 GPM (LPM)	PCK 800/1020 GPM (LPM)	PCK 1200/1220 GPM (LPM)
0.25 (0.9)	0.50 (1.9)	2.00 (7.57)	4.00 (15.14)
0.50 (1.9)	1.00 (3.8)	3.00 (11.36)	6.00 (22.71)
0.75 (2.8)	1.50 (5.7)	4.00 (15.14)	8.00 (30.28)
1.00 (3.8)	2.00 (7.6)	5.00 (18.93)	10.00 (37.85)
1.25 (4.7)	2.50 (9.5)	6.00 (22.71)	12.00 (45.42)
1.50 (5.7)	3.00 (11.4)	7.00 (26.50)	14.00 (52.99)
1.75 (6.6)	3.50 (13.2)	8.00 (30.28)	16.00 (60.56)
2.00 (7.6)	4.00 (15.1)	9.00 (34.07)	18.00 (68.13)
2.25 (8.5)	4.50 (17.0)	10.00 (37.85)	20.00 (75.70)
2.50 (9.5)	5.00 (18.9)	11.00 (41.64)	22.00 (83.27)
2.75 (10.4)	5.50 (20.8)	12.00 (45.42)	24.00 (90.84)
3.00 (11.4)	6.00 (22.7)	13.00 (49.21)	
		14.00 (52.99)	
		15.00 (56.78)	

Note: Settings are based on using 100 SSU at +49°C (+120°F).

* To order this valve you must indicate appropriate GPM value from table. Example: 9PCCCK600S-3.50-V

"PK" Orifice Plug Kits

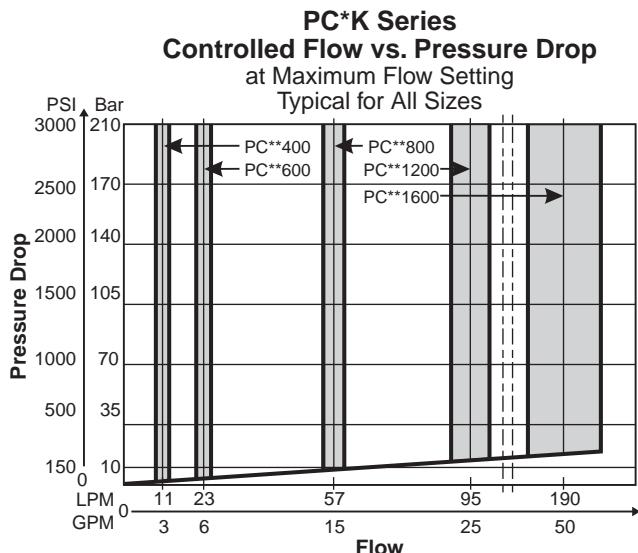


Model Number	Weight kg (lbs.)
PK4-*N	0.5 (0.1)
PK6-*N	0.5 (0.1)
PK8-*N	0.5 (0.1)
PK12-*N	0.5 (0.1)

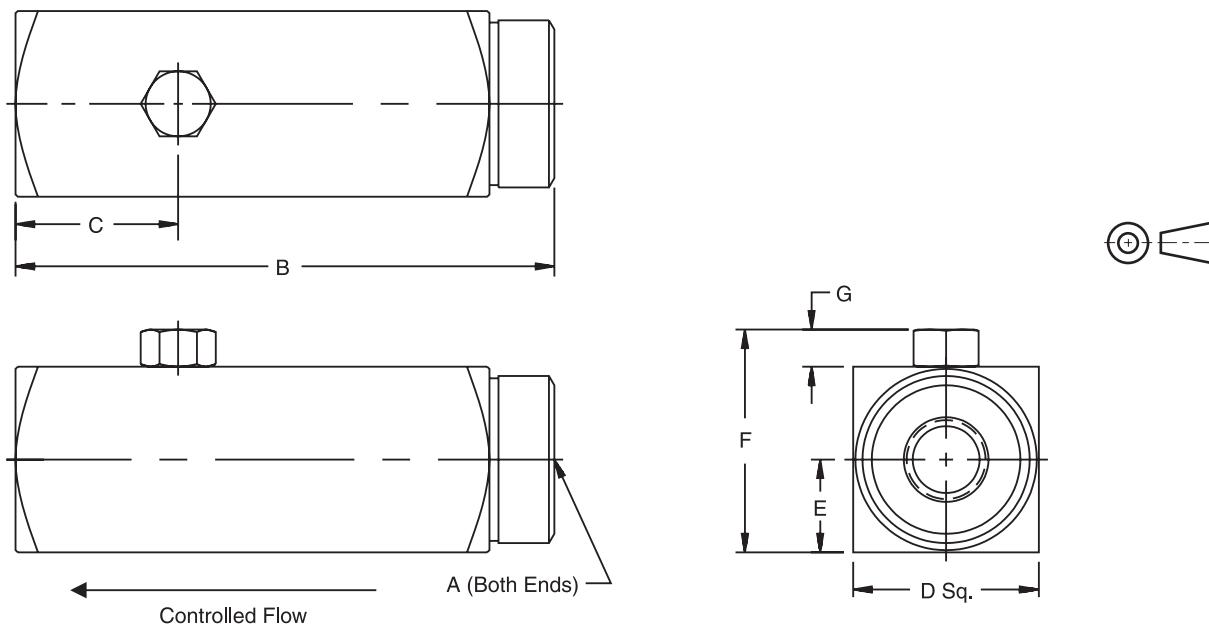
Available Flow Settings GPM (LPM)			
PCK 400/620 GPM (LPM)	PCK 600/820 GPM (LPM)	PCK 800/1020 GPM (LPM)	PCK 1200/1220 GPM (LPM)
0.25 (0.9)	0.50 (1.9)	2.00 (7.57)	4.00 (15.14)
0.50 (1.9)	1.00 (3.8)	3.00 (11.36)	6.00 (22.71)
0.75 (2.8)	1.50 (5.7)	4.00 (15.14)	8.00 (30.28)
1.00 (3.8)	2.00 (7.6)	5.00 (18.93)	10.00 (37.85)
1.25 (4.7)	2.50 (9.5)	6.00 (22.71)	12.00 (45.42)
1.50 (5.7)	3.00 (11.4)	7.00 (26.50)	14.00 (52.99)
1.75 (6.6)	3.50 (13.2)	8.00 (30.28)	16.00 (60.56)
2.00 (7.6)	4.00 (15.1)	9.00 (34.07)	18.00 (68.13)
2.25 (8.5)	4.50 (17.0)	10.00 (37.85)	20.00 (75.70)
2.50 (9.5)	5.00 (18.9)	11.00 (41.64)	22.00 (83.27)
2.75 (10.4)	5.50 (20.8)	12.00 (45.42)	24.00 (90.84)
3.00 (11.4)	6.00 (22.7)	13.00 (49.21)	
		14.00 (52.99)	
		15.00 (56.78)	

Note: Settings are based on using 100 SSU at +49°C (+120°F).

* To order this plug kit you must indicate appropriate GPM value from table. Example: PK6-3.50-N

Performance Curves**Dimensions**

Inch equivalents for millimeter dimensions are shown in (**)



Model Number	Weight kg (lbs.)	A	B	C	D	E	F	G
PC*K400/620	0.03 (0.7)	1/4-18 NPTF/9/16-18 UNF	92.2 (3.63)	27.7 (1.09)	31.8 (1.25)	17.5 (0.69)	38.1 (1.50)	6.4 (0.25)
PC*K600	1.00 (2.1)	3/8-18 NPTF	105.7 (4.16)	30.2 (1.19)	38.1 (1.50)	19.1 (0.75)	44.5 (1.75)	6.4 (0.25)
PC*K 820	1.00 (2.1)	3/4-16 UNF	112.5 (4.43)	37.3 (1.47)	38.1 (1.50)	19.1 (0.75)	44.5 (1.75)	6.4 (0.25)
PC*K800/1020	1.50 (3.3)	1/2-14 NPTF/7/8-14 UNF	125.5 (4.94)	36.6 (1.44)	44.5 (1.75)	22.4 (0.88)	50.8 (2.00)	6.4 (0.25)
PC*K1200/1220	1.50 (3.3)	3/4-14 NPTF/1 1/16-12 UNF	149.4 (5.88)	27.7 (1.09)	57.2 (2.25)	28.7 (1.13)	63.5 (2.50)	6.4 (0.25)

General Description

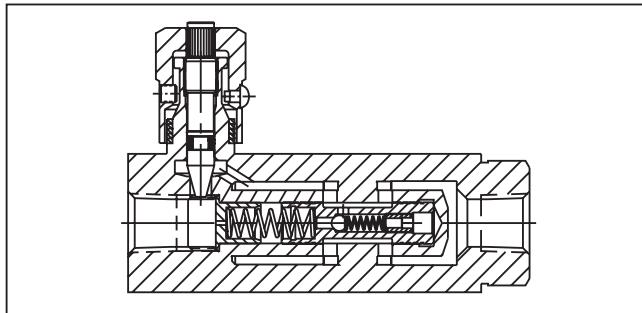
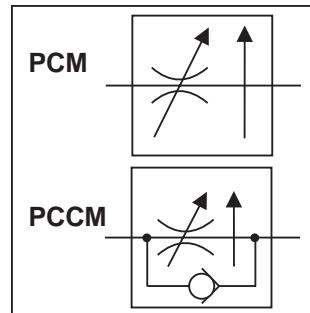
Series PCM pressure compensated flow control valves are designed to regulate flow at a selected rate, within 5%, regardless of fluctuations in inlet and outlet pressure.

Operation

Series PCM valves can be adjusted for required flows after being installed.

Features

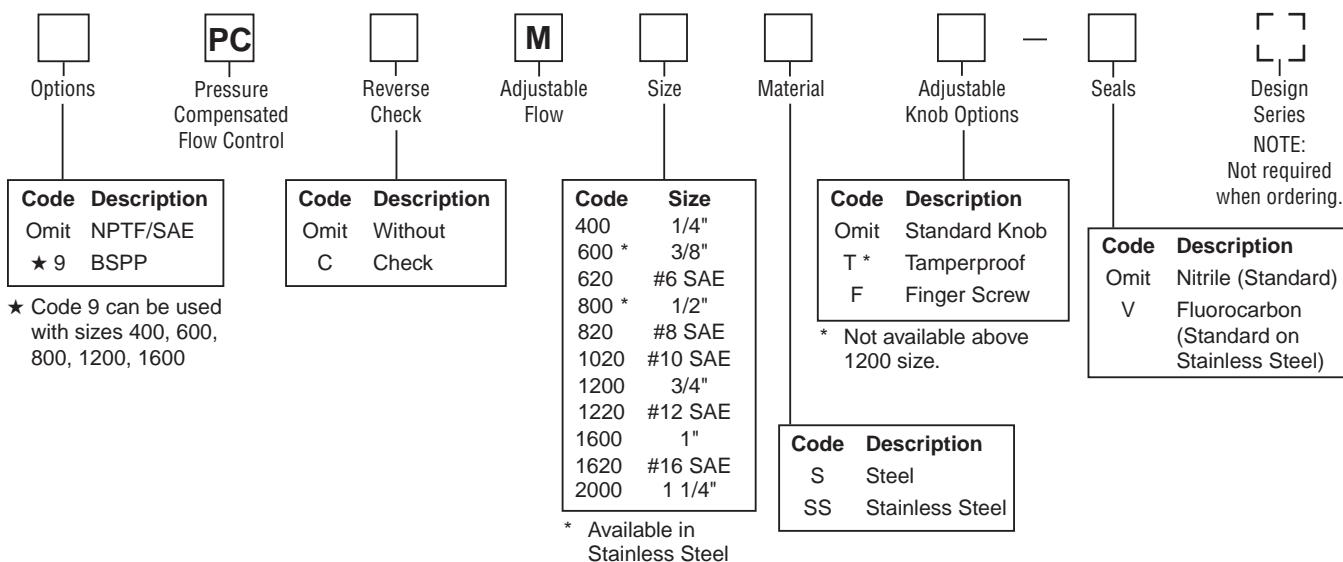
- Available with reverse flow check.
- The exclusive "Colorflow" color-band reference scale on the valve stem is a great convenience and time-saver in setting the valve originally and in returning it to any previous setting.
- A simple set screw locks the valve on any desired setting.
- A tamperproof option (T) feature is also available to prevent accidental or intentional adjustment of flow setting.

**Specifications**

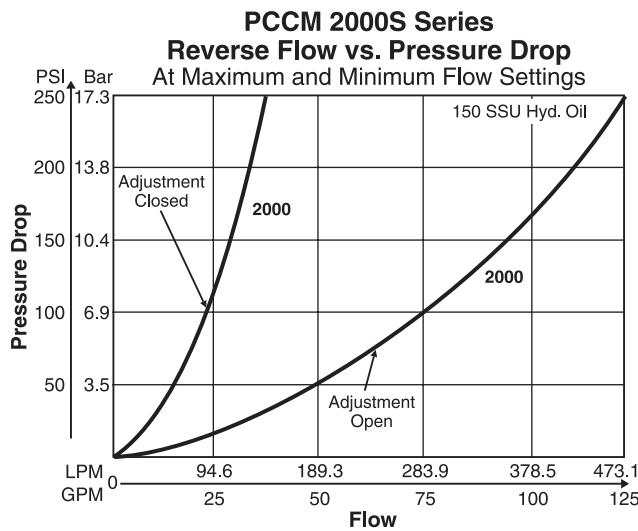
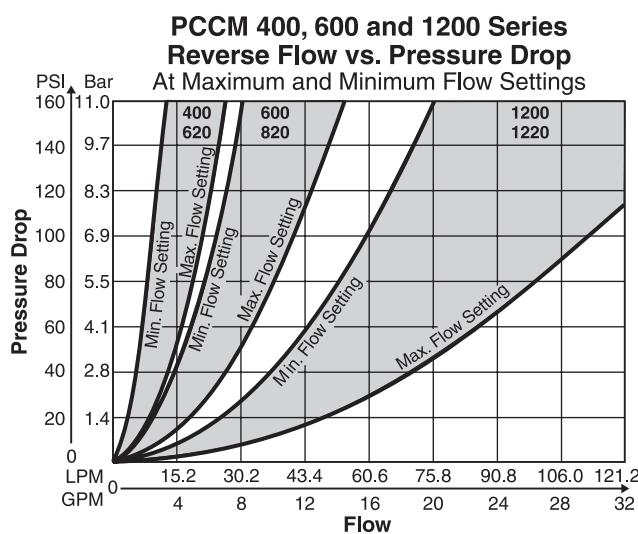
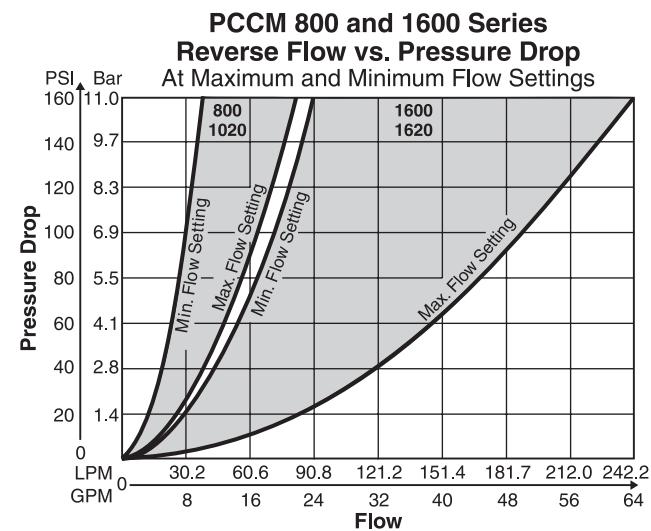
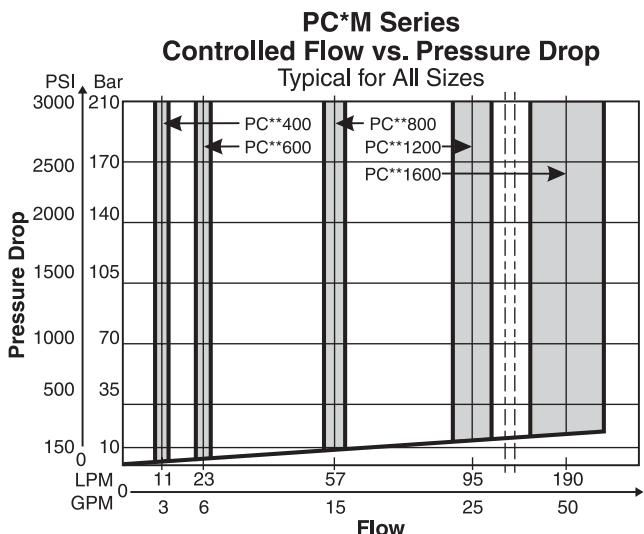
	PC*M400S PC*M620S	PC*M600S PC*M820S	PC*M800S PC*M1020S	PC*M1200S PC*M1220S	PC*M1600S PC*M1620S	PC*M2000S
Maximum Operating Pressure	207 Bar (3000 PSI)					
Minimum Pressure to Compensate	6.9 Bar (100 PSI)	6.9 Bar (100 PSI)	6.9 Bar (100 PSI)	10.4 Bar (150 PSI)	10.4 Bar (150 PSI)	10.4 Bar (150 PSI)
Temperature Range of Seal Compound	-40°C to +121°C (-40°F to +250°F) Nitrile (standard) -26°C to +205°C (-15°F to +400°F) Fluorocarbon					
Mounting	Inline					
Maximum Flow	11 LPM (3 GPM)	23 LPM (6 GPM)	57 LPM (15 GPM)	95 LPM (25 GPM)	189 LPM (50 GPM)	303 LPM (80 GPM)
Minimum Flow	1 LPM (0.3 GPM)	2 LPM (0.6 GPM)	6 LPM (1.5 GPM)	10 LPM (2.5 GPM)	19 LPM (5.0 GPM)	30 LPM (8 GPM)
Reverse Flow, Maximum thru Check	19 LPM (5 GPM)	30 LPM (8 GPM)	76 LPM (20 GPM)	132 LPM (35 GPM)	227 LPM (60 GPM)	378 LPM (100 GPM)
Pressure Drop, ΔP at Maximum Reverse Flow thru Check	3 Bar (40 PSI)	3 Bar (40 PSI)	PC*M800S: 8 Bar (116 PSI) PC*M1020S: 3 Bar (40 PSI)	PC*M1200S: 8 Bar (116 PSI) PC*M1220S: 3 Bar (40 PSI)	10 Bar (140 PSI)	11 Bar (155 PSI)
Port Size (in.)	PC*M400S: 1/4 NPTF PC*M620S: 9/16-18 UNF (SAE 6)	PC*M600S: 3/8 NPTF PC*M820S: 3/4-16 UNF (SAE 8)	PC*M800S: 1/2 NPTF PC*M1020S: 7/8-14 UNF (SAE 10)	PC*M1200S: 3/4 NPTF PC*M1220S: 1-1/16-12 UNF (SAE 12)	PC*M1600S: 1 NPTF PC*M1620: 1-5/16-12 UNF (SAE 16)	PC*M2000S: 1 1/4" NPTF

For optional reverse-flow check, insert "C" in model number at asterisk ().

Ordering Information

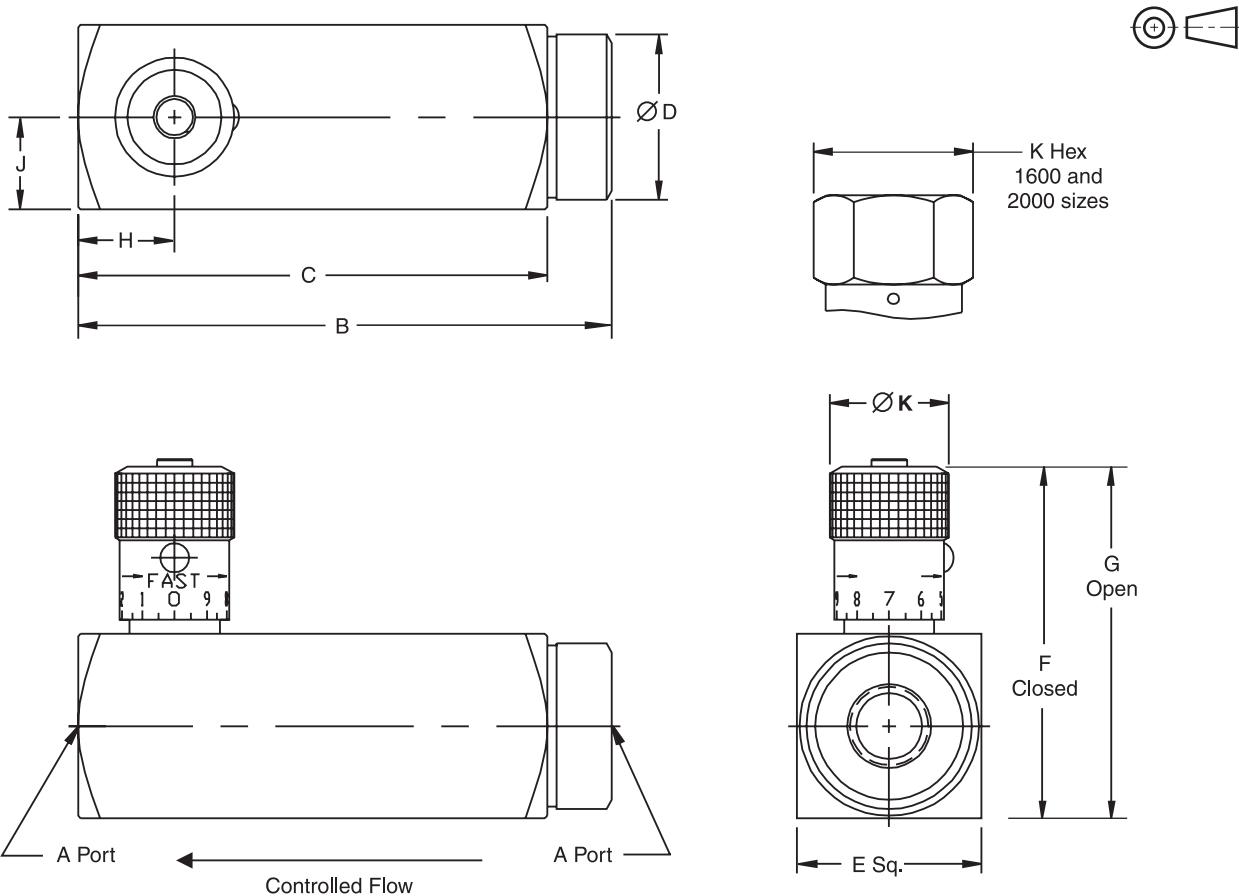


Performance Curves



Dimensions**Flow Control Valves
Series PC*M**

Inch equivalents for millimeter dimensions are shown in (**)



Model Number	Weights kg (lbs.)	A	B	C	D	E	F	G	H	J	K
PC*M400/620	0.8 (1.8)	1/4-18 NPTF 9/16-18 UNF	92.2 (3.63)	81.0 (3.19)	28.7 (1.13)	35.1 (1.38)	64.0 (2.52)	69.3 (2.73)	16.8 (0.66)	17.5 (0.69)	20.6 (0.81)
PC*M600/820	1.0* (2.2)*	3/8-18 NPTF 3/4-16 UNF	105.7 (4.16)	93.0 (3.66)	31.8 (1.25)	38.1 (1.50)	73.7 (2.90)	80.0 (3.15)	17.5 (0.69)	19.1 (0.75)	25.4 (1.00)
PC*M800/1020	1.7 (3.7)	1/2-14 NPTF 7/8-14 UNF	125.5 (4.94)	109.5 (4.31)	38.1 (1.50)	44.5 (1.75)	95.0 (3.74)	102.6 (4.04)	22.4 (0.88)	22.4 (0.88)	30.2 (1.19)
PC*M1200/1220	3.6 (8.0)	3/4-14 NPTF 1 1/16-12 UNF	149.4 (5.88)	130.3 (5.13)	50.8 (2.00)	57.2 (2.25)	115.8 (4.56)	128.5 (5.06)	27.7 (1.09)	28.7 (1.13)	35.1 (1.38)
PC*M1600/1620	6.6 (14.6)	1-11 1/2 NPTF 1 5/16-12 UNF	176.3 (6.94)	155.7 (6.13)	63.5 (2.50)	69.9 (2.75)	158.2 (6.23)	175.3 (6.90)	33.3 (1.31)	35.1 (1.38)	47.8 (1.88)
PC*M2000	11.8 (26.0)	1 1/4-11 1/2 NPTF	212.9 (8.38)	190.5 (7.50)	76.2 (3.00)	88.9 (3.50)	182.1 (7.17)	201.2 (7.92)	41.4 (1.63)	44.5 (1.75)	47.8 (1.88)

* Weights are for PC*M600; weights for PC*M820 are 1.4 kg (3.1 lbs.)

General Description

Series N needle valves are ideal as speed controls on hydraulic and pneumatic systems where a reverse flow check is not needed. They provide excellent control and a reliable shut-off in a very small envelope.

Operation

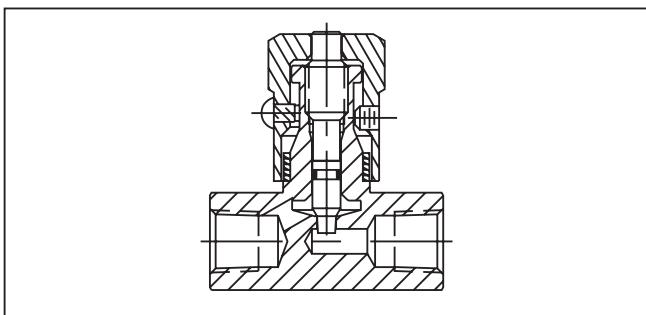
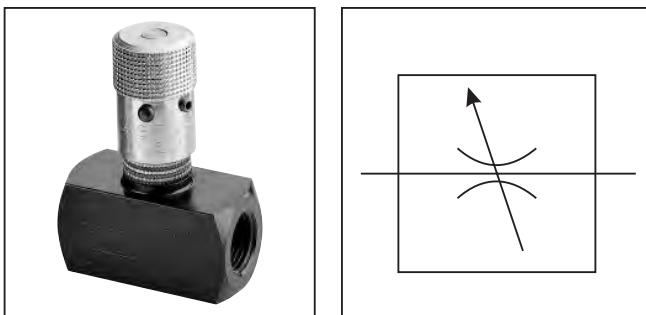
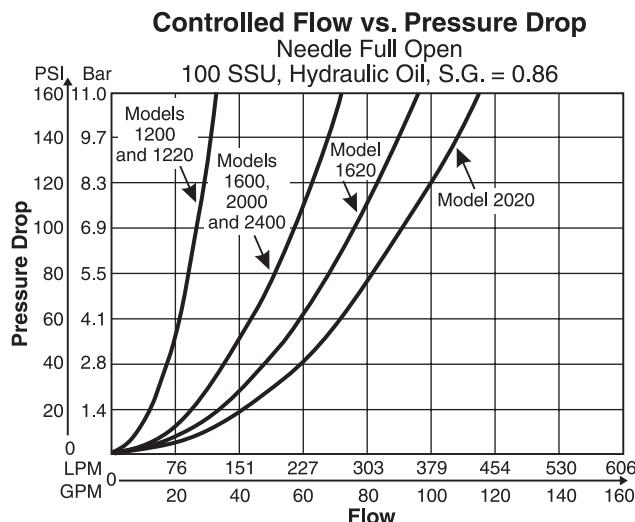
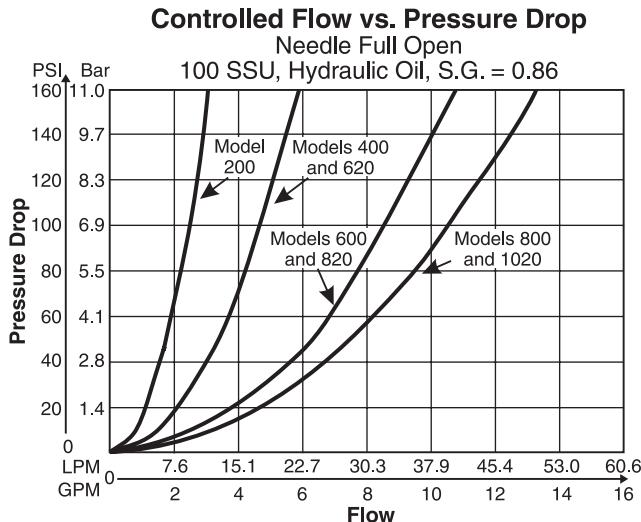
A two-step needle allows fine adjustment at low flow by using the first three turns of the adjusting knob. The next three turns open the valve to full flow, and also provide standard throttling adjustments.

Features

- The exclusive "Colorflow" color-band reference scale on the valve stem is a great convenience and time-saver in setting the valve originally and in returning it to any previous setting.
- A simple set screw locks the valve on any desired setting.
- A tamperproof option (T) feature is also available to prevent accidental or intentional adjustment of flow setting.

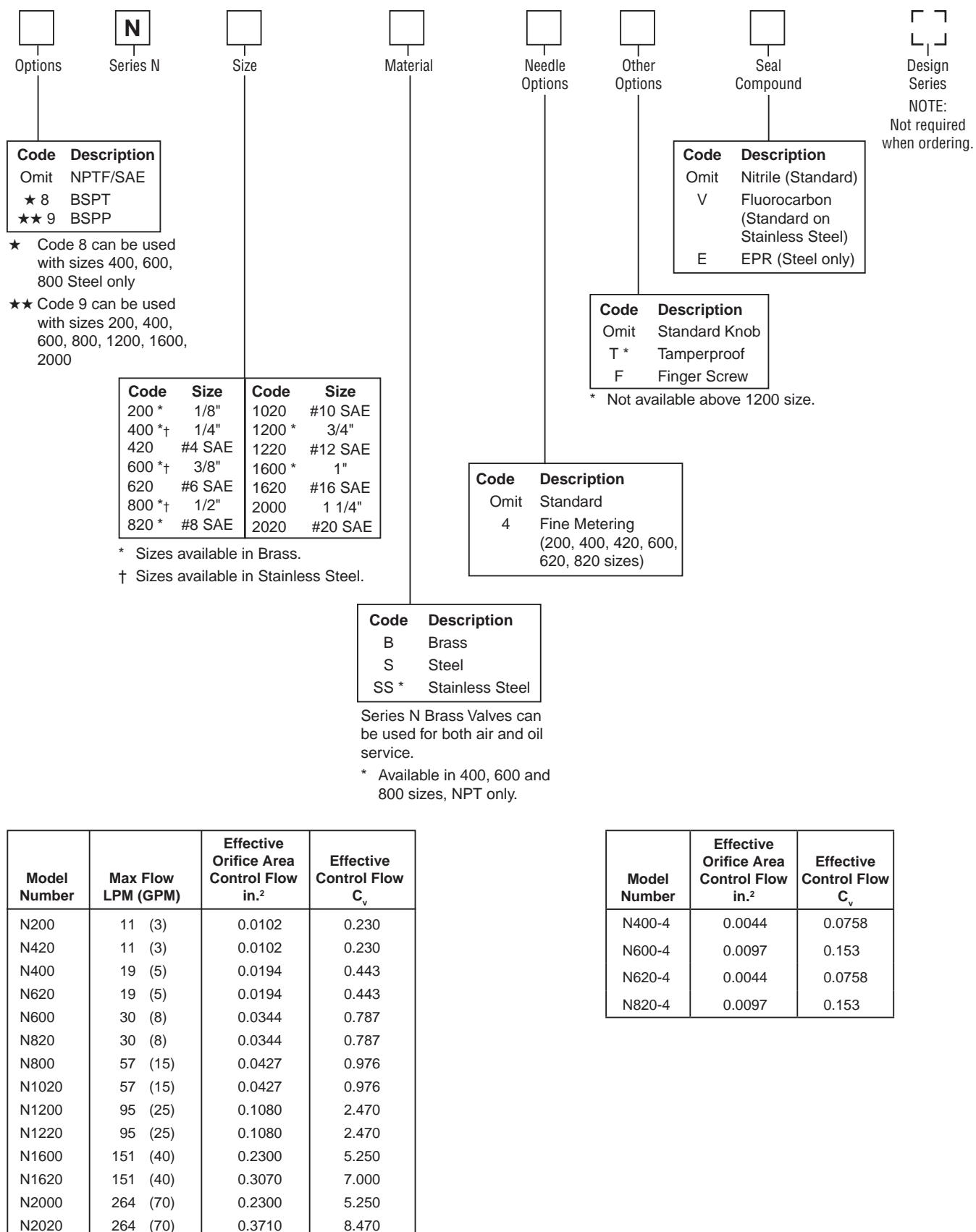
Specifications

Maximum Operating Pressure	Brass: 140 Bar (2000 PSI); except for N1600 brass which is 35 Bar (500 PSI)
Steel & Stainless Steel:	345 Bar (5000 PSI) for 200 thru 1220; 207 Bar (3000 PSI) for all other sizes
Material	Body See ordering code Knob Steel - Zinc plated Needle 416 Stainless Steel Stainless Steel Bodies 303 Stainless Steel
Temperature Range of Seal Compound	-40°C to +121°C (-40°F to +250°F) Nitrile (standard) -26°C to +205°C (-15°F to +400°F) Fluorocarbon

**Performance Curves**

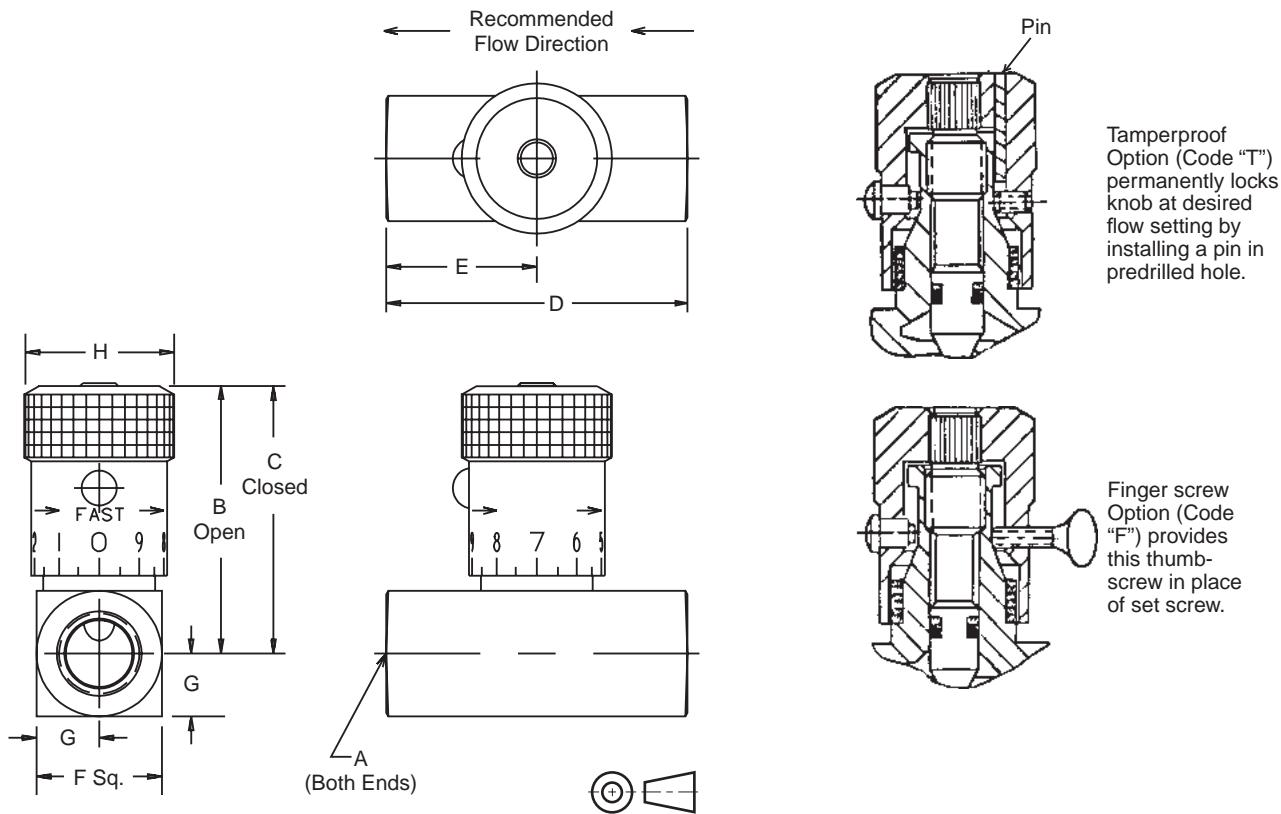
Ordering Information

Flow Control Valves Series N



Inch equivalents for millimeter dimensions are shown in (**)

Knob Options



Model Number	Weight kg (lbs.)	A	B	C	D	E	F	G	H
N200	0.1 (0.3)	1/8-27 NPTF	39.1 (1.54)	35.3 (1.39)	38.1 (1.50)	19.1 (0.75)	15.7 (0.62)	7.9 (0.31)	19.1 (0.75)
N400	0.2 (0.5)	1/4-18 NPTF	45.5 (1.79)	40.4 (1.59)	50.8 (2.00)	25.4 (1.00)	20.6 (0.81)	10.4 (0.41)	20.6 (0.81)
N420	0.1 (0.3)	7/16-20 UNF #4 SAE	41.4 (1.63)	37.6 (1.48)	50.8 (2.00)	25.4 (1.00)	20.6 (0.81)	10.4 (0.41)	19.1 (0.75)
N600	0.4 (0.9)	3/8-18 NPTF	55.4 (2.18)	49.5 (1.95)	63.5 (2.50)	31.8 (1.25)	25.4 (1.00)	12.7 (0.50)	25.4 (1.00)
N620	0.2 (0.5)	9/16-18 UNF #6 SAE	47.8 (1.88)	42.7 (1.68)	60.5 (2.38)	30.2 (1.19)	25.4 (1.00)	12.7 (0.50)	20.6 (0.81)
N800	0.6 (1.3)	1/2-14 NPTF	68.6 (2.70)	61.5 (2.42)	66.5 (2.62)	33.3 (1.31)	31.8 (1.25)	15.7 (0.62)	30.2 (1.19)
N820	0.4 (0.9)	3/4-16 UNF #8 SAE	56.9 (2.24)	51.1 (2.01)	76.2 (3.00)	38.1 (1.50)	28.4 (1.12)	14.2 (0.56)	25.4 (1.00)
N1020	0.6 (1.3)	7/8-14 UNF #10 SAE	68.6 (2.70)	61.5 (2.42)	88.9 (3.50)	44.5 (1.75)	31.8 (1.25)	15.7 (0.62)	30.2 (1.19)
N1200	1.0 (2.2)	3/4-14 NPTF	85.9 (3.38)	71.4 (2.81)	82.6 (3.25)	41.1 (1.62)	38.1 (1.50)	19.1 (0.75)	35.1 (1.38)
N1220	1.0 (2.2)	1 1/6-12 UN #12 SAE	85.9 (3.38)	71.4 (2.81)	101.6 (4.00)	50.8 (2.00)	38.1 (1.50)	19.1 (0.75)	35.1 (1.38)
N1600	2.1 (4.6)	1-11 1/2 NPTF	123.7 (4.87)	106.9 (4.21)	108.0 (4.25)	53.8 (2.12)	44.5 (1.75)	22.4 (0.88)	47.8 * (1.88)
N1620	2.1 (4.6)	1 5/16-12 UN #16 SAE	130.8 (5.15)	114.0 (4.49)	108.0 (4.25)	53.8 (2.12)	57.2 (2.25)	28.4 (1.12)	47.8 * (1.88)
N2000	2.9 (6.4)	1 1/4-11 1/2 NPTF	130.0 (5.12)	113.3 (4.46)	108.0 (4.25)	53.8 (2.12)	57.2 (2.25)	28.4 (1.12)	47.8 * (1.88)
N2020	2.9 (6.4)	1 5/8-12 UN #20 SAE	140.2 (5.52)	123.4 (4.86)	114.3 (4.50)	57.2 (2.25)	69.9 (2.75)	60.5 (2.38)	47.8 * (1.88)

* = Hex

General Description

Series 6N needle valves are ideal as speed controls on hydraulic and pneumatic systems where a reverse flow check is not needed. They provide excellent control and a reliable shut-off in a very small envelope.

Operation

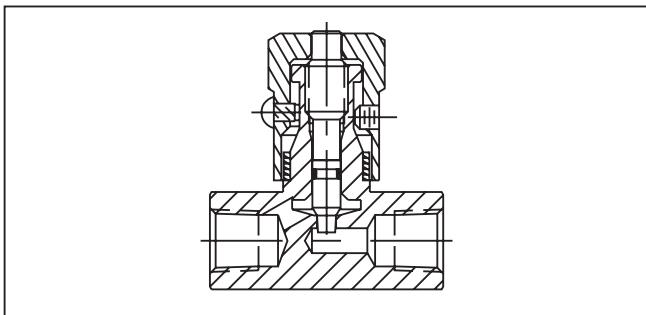
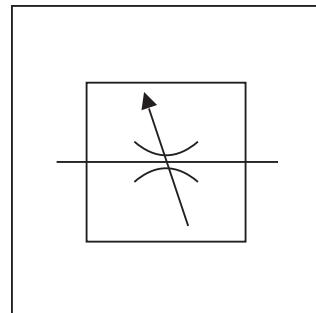
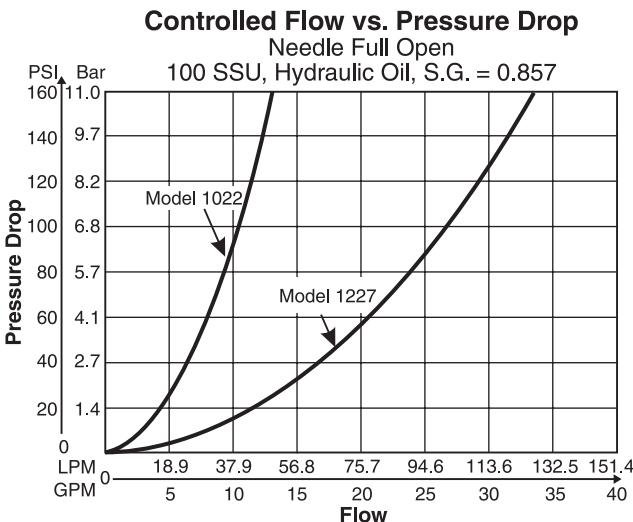
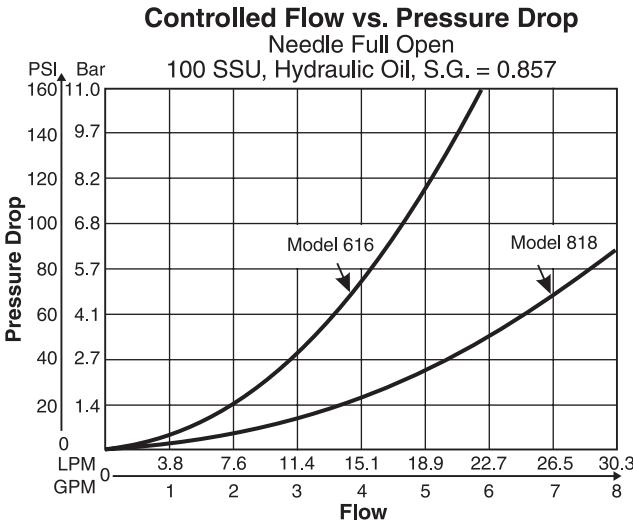
A two-step needle allows fine adjustment at low flow by using the first three turns of the adjusting knob. The next three turns open the valve to full flow, and also provide standard throttling adjustments.

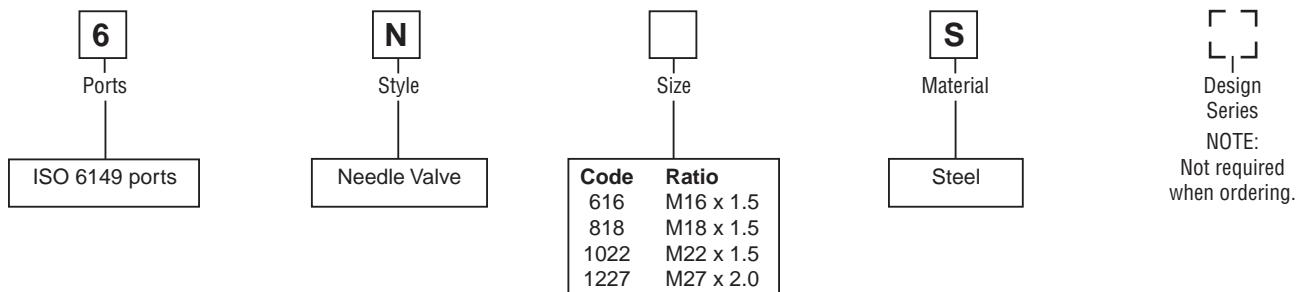
Features

- Meets ISO 6149 standards.
- Hard metric dimensions.
- Reliable leak-free performance — straight thread port with o-ring sealing.
- Global interchangeability.

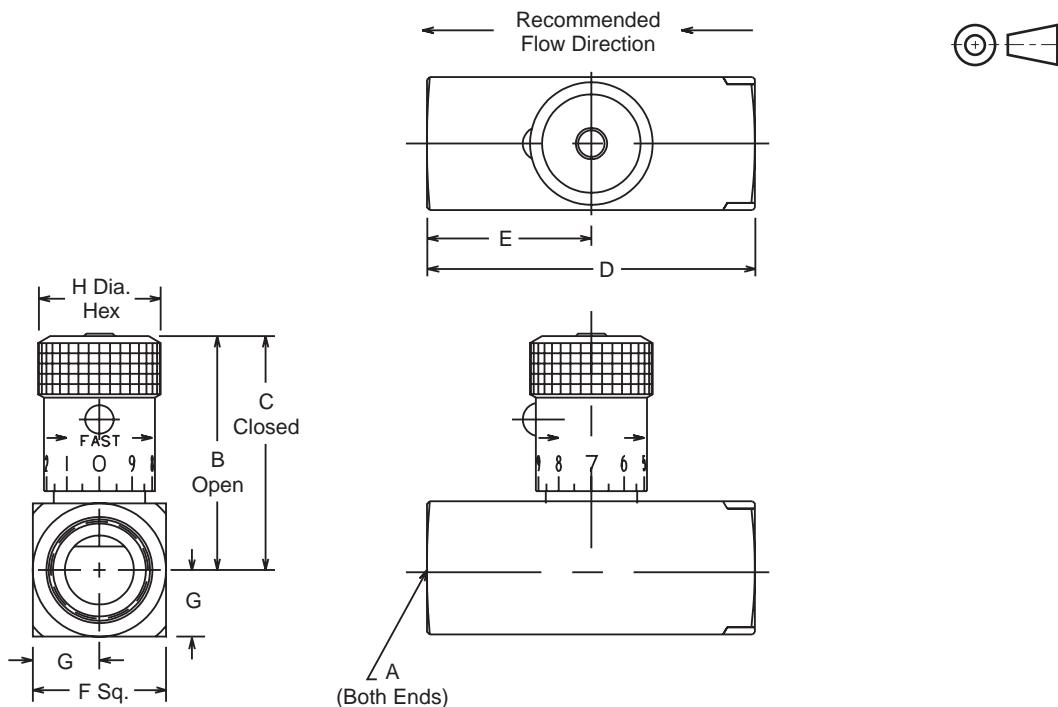
Specifications

Maximum Operating Pressure	345 Bar (5000 PSI)		
Maximum Flow	M16 x 1.5	19 LPM	(5 GPM)
	M18 x 1.5	30 LPM	(8 GPM)
	M22 x 1.5	57 LPM	(15 GPM)
	M27 x 2.0	95 LPM	(25 GPM)
Material	Body	ASTM 12L14	Carbon Steel
	Knob	ASTM 12L14	Carbon Steel
	Needle	ASTM 416	Stainless Steel
Temperature Range of Seal Compound	-40°C to +121°C (-40°F to +250°F) Nitrile (Standard)		

**Performance Curves**

Ordering Information**Dimensions**

Inch equivalents for millimeter dimensions are shown in (**)



Model Number	Weight kg (lbs.)	A	B	C	D	E	F	G	H
6N616	0.2 (0.5)	M16 x 1.5	47.8 (1.88)	42.7 (1.68)	60.5 (2.38)	30.2 (1.19)	25.4 (1.00)	12.7 (0.50)	20.6 Ø(0.81)
6N818	0.4 (0.9)	M18 x 1.5	56.9 (2.24)	51.1 (2.01)	76.2 (3.00)	38.1 (1.50)	28.4 (1.12)	14.2 (0.56)	25.4 Ø(1.00)
6N1022	0.6 (1.3)	M22 x 1.5	68.6 (2.70)	61.5 (2.42)	88.9 (3.50)	44.5 (1.75)	31.8 (1.25)	15.7 (0.62)	30.2 Ø(1.19)
6N1227	1.0 (2.2)	M27 x 2.0	85.9 (3.38)	71.4 (2.81)	101.6 (4.00)	50.8 (2.00)	38.1 (1.50)	19.1 (0.75)	35.1 Ø(1.38)

General Description

Series MV high-precision metering and shut-off valves allow extremely close control of fluids used in actuating and governing equipment.

Operation

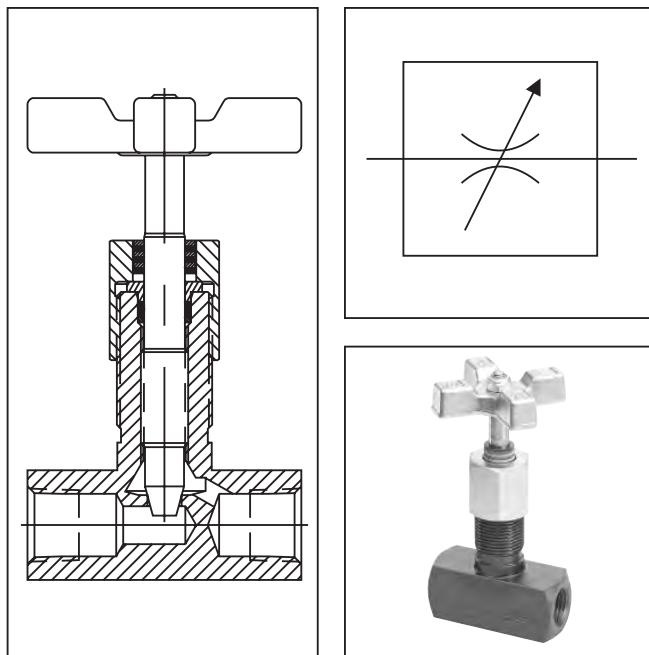
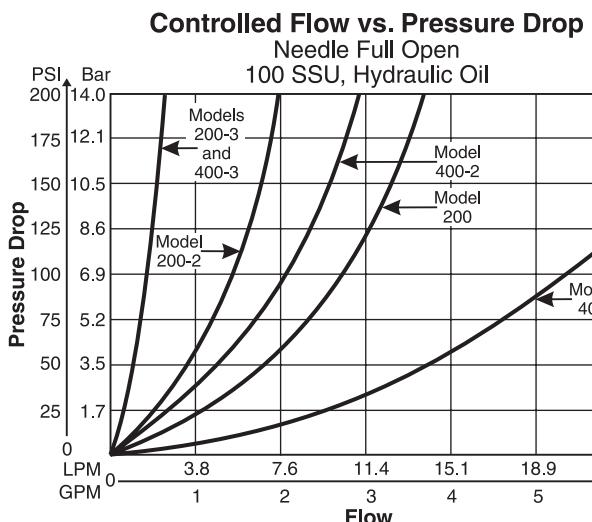
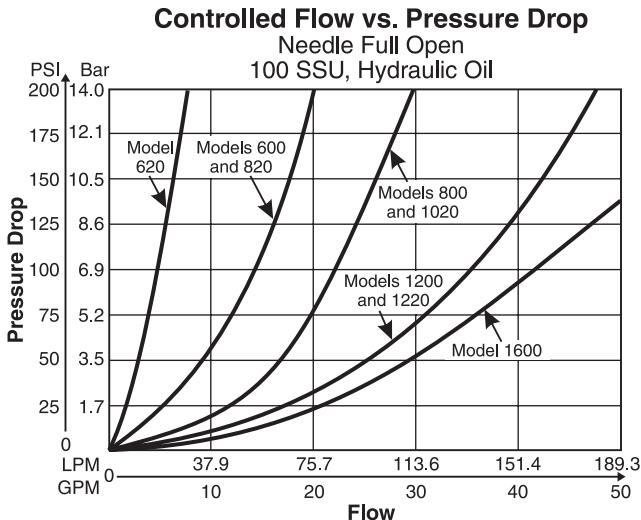
The standard needle allows fine adjustment at low flow by using the first three turns of the adjusting knob. The next three turns open the valve to full flow, and also provide standard throttling adjustments.

Features

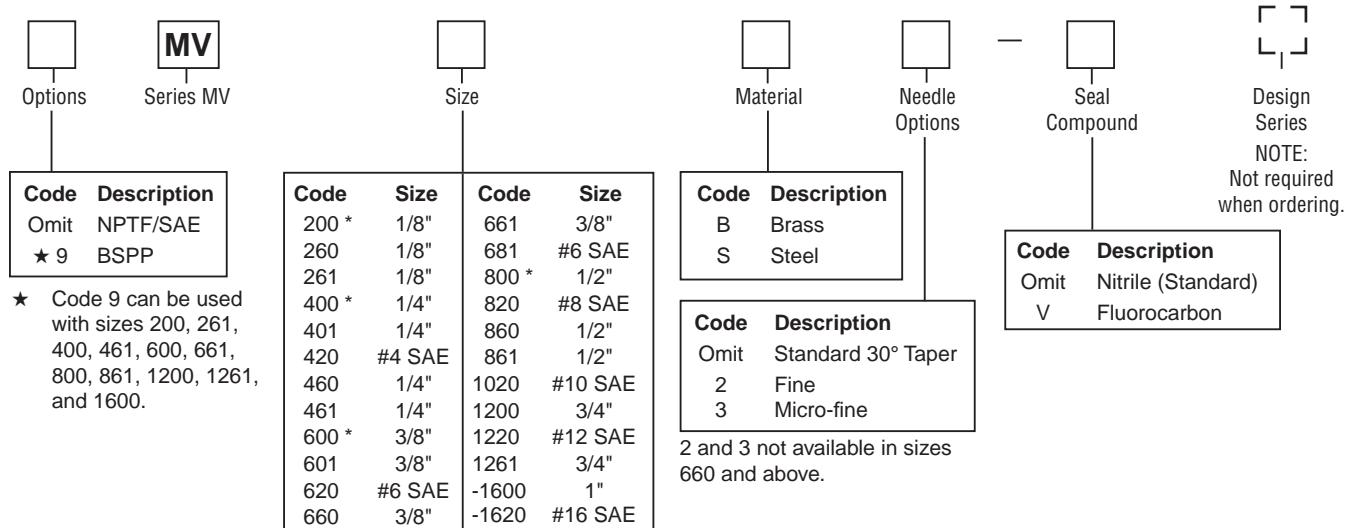
- The exclusive "Colorflow" color-band reference scale on the valve stem is a great convenience and time-saver in setting the valve originally and in returning it to any previous setting.
- Fine and Micro-fine needles available for extremely fine control.
- MVK mounting kit makes panel mounting simple.
- High efficiency o-ring stem seal that eliminates packing.

Specifications

Maximum Operating Pressure	Brass: 140 Bar (2000 PSI) Steel: 413 Bar (6000 PSI) for MV261, 461, 661, 861. 345 Bar (5000 PSI) for MV200, 400, 401, 420, 600, 601, 620, 800, 820, 1020, 1200, 1220. 207 Bar (3000 PSI) for all other sizes and styles.
Material	Body: See ordering code Handle: Zinc alloy - Zinc chromate Needle: 416 Stainless Steel
Temperature Range of Seal Compound	-40°C to +121°C (-40°F to +250°F) Nitrile (standard) -26°C to +205°C (-15°F to +400°F) Fluorocarbon

**Performance Curves**

Ordering Information



* Sizes available in Brass

00 is Female to Female

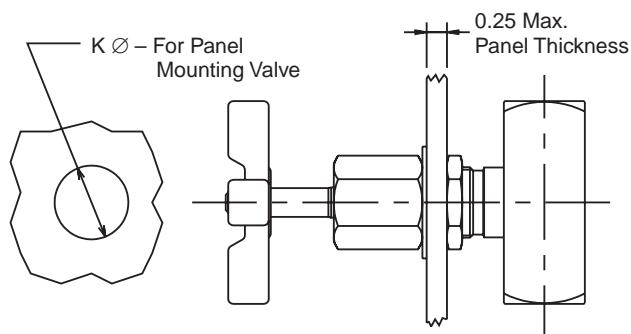
01 is Female to Male

6* is Right Angle

60 is Male to Female

61 is Female to Female

Mounting Kit

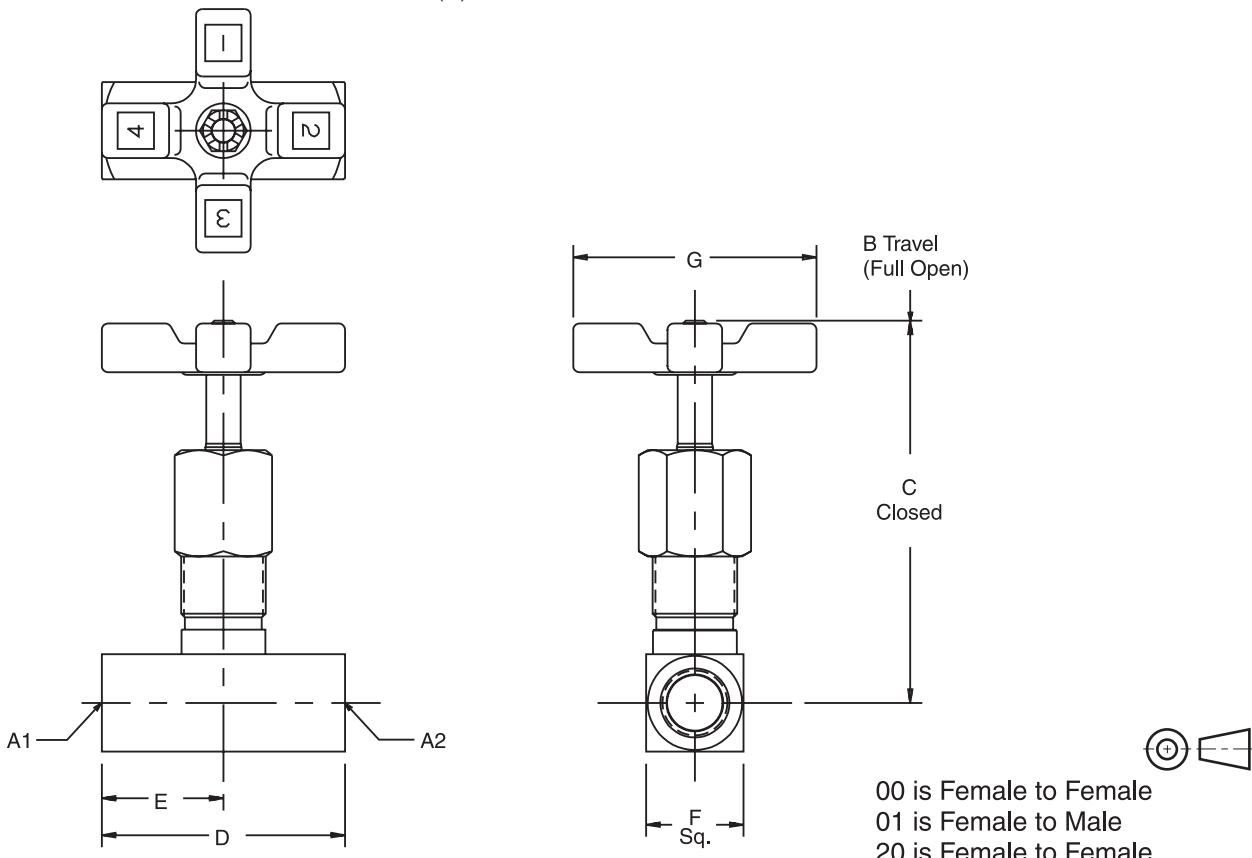


Panel Mounting Kits					
Kit Number	K	Valve Model	Kit Number	K	Valve Model
MVK2	15.0 (0.59)	MV200 MV260 MV261S MV420	MVK8	29.5 (1.16)	MV800 MV860 MV861S MV1020
MVK4	19.8 (0.78)	MV400 MV401 MV460S MV461S MV620	MVK12	35.8 (1.41)	MV1200 MV1220 MV1261
MVK6	23.1 (0.91)	MV600 MV601 MV660 MV661S MV681 MV820	MVK16	35.8 (1.41)	MV-1600 MV-1620

Model Number	Effective Orifice Area Max Flow LPM (GPM)	Control Flow in. ²	Effective Control Flow C _v
MV200	11 (3)	0.0107	0.244
MV260	11 (3)	0.0107	0.244
MV261	11 (3)	0.0107	0.244
MV420	11 (3)	0.0107	0.244
MV200-2	7 (1.8)	0.0053	0.121
MV260-2	7 (1.8)	0.0053	0.121
MV261-2	7 (1.8)	0.0053	0.121
MV420-2	7 (1.8)	0.0053	0.121
MV200-3	2 (0.5)	0.0014	0.032
MV260-3	2 (0.5)	0.0014	0.032
MV261-3	2 (0.5)	0.0014	0.032
MV420-3	2 (0.5)	0.0014	0.032
MV400	19 (5)	0.0216	0.493
MV460	19 (5)	0.0216	0.493
MV461	19 (5)	0.0216	0.493
MV620	19 (5)	0.0216	0.493
MV400-2	11 (2.8)	0.0081	0.186
MV460-2	11 (2.8)	0.0081	0.186
MV461-2	11 (2.8)	0.0081	0.186
MV620-2	11 (2.8)	0.0081	0.186
MV400-3	2 (0.5)	0.0017	0.039
MV460-3	2 (0.5)	0.0017	0.039
MV461-3	2 (0.5)	0.0017	0.039
MV620-3	2 (0.5)	0.0017	0.039
MV600	30 (8)	0.0567	1.294
MV660	30 (8)	0.0567	1.294
MV661	30 (8)	0.0567	1.294
MV681	30 (8)	0.0567	1.294
MV820	30 (8)	0.0567	1.294
MV600-2	1.8 (0.5)	0.018	0.466
MV600-3	0.28 (0.1)	0.0027	0.0326
MV800	57 (15)	0.0845	1.930
MV860	57 (15)	0.0845	1.930
MV861	57 (15)	0.0845	1.930
MV1020	57 (15)	0.0845	1.930
MV1200	95 (25)	0.1400	3.205
MV1220	95 (25)	0.1400	3.205
MV1261	95 (25)	0.1400	3.205
MV-1600	151 (40)	0.1675	3.829
MV-1620	151 (40)	0.1675	3.829

Dimensions**Flow Control Valves
Series MV**

Inch equivalents for millimeter dimensions are shown in (**)



Model Number	Weight kg (lbs.)	A1	A2	B	C	D	E	F	G
MV200	0.1 (0.3)	1/8-27 NPTF Female	1/8-27 NPTF Female	69.1 (2.72)	63.8 (2.51)	38.1 (1.50)	19.1 (0.75)	15.7 (0.62)	44.5 (1.75)
MV420	0.1 (0.3)	7/16-20 UNF #4 SAE	7/16-20 UNF #4 SAE	71.6 (2.82)	66.3 (2.61)	50.8 (2.00)	25.4 (1.00)	20.6 (0.81)	44.5 (1.75)
MV400	0.3 (0.7)	1/4-18 NPTF Female	1/4-18 NPTF Female	86.9 (3.42)	81.5 (3.21)	50.8 (2.00)	25.4 (1.00)	20.6 (0.81)	50.8 (2.00)
MV401	0.3 (0.7)	1/4-18 NPTF Male	1/4-18 NPTF Female	86.9 (3.42)	81.5 (3.21)	55.4 (2.18)	30.0 (1.18)	20.6 (0.81)	50.8 (2.00)
MV620	0.5 (1.1)	9/16-18 UNF #6 SAE	9/16-18 UNF #6 SAE	89.2 (3.51)	83.8 (3.30)	60.5 (2.38)	30.2 (1.19)	25.4 (1.00)	50.8 (2.00)
MV600	0.5 (1.1)	3/8-18 NPTF Female	3/8-18 NPTF Female	99.6 (3.92)	91.9 (3.62)	63.5 (2.50)	31.8 (1.25)	25.4 (1.00)	63.5 (2.50)
MV601	0.5 (1.1)	3/8-18 NPTF Male	3/8-18 NPTF Female	99.6 (3.92)	91.9 (3.62)	68.1 (2.68)	36.3 (1.43)	25.4 (1.00)	63.5 (2.50)
MV820	0.5 (1.1)	3/4-16 UNF #8 SAE	3/4-16 UNF #8 SAE	108.7 (4.28)	101.1 (3.98)	76.2 (3.00)	38.1 (1.50)	28.4 (1.12)	63.5 (2.50)
MV800	1.0 (2.2)	1/2-14 NPTF Female	1/2-14 NPTF Female	129.3 (5.09)	116.6 (4.59)	66.5 (2.62)	33.3 (1.31)	31.8 (1.25)	82.6 (3.25)
MV1020	1.0 (2.2)	7/8-14 UNF #10 SAE	7/8-14 UNF #10 SAE	129.5 (5.10)	116.6 (4.59)	88.9 (3.50)	44.5 (1.75)	31.8 (1.25)	82.6 (3.25)
MV1200	1.6 (3.5)	3/4-14 NPTF Female	3/4-14 NPTF Female	141.8 (5.58)	127.8 (5.03)	82.6 (3.25)	41.1 (1.62)	38.1 (1.50)	98.6 (3.88)
MV1220	1.6 (3.5)	1 1/16-12 UN #12 SAE	1 1/16-12 UN #12 SAE	141.8 (5.58)	127.8 (5.03)	101.6 (4.00)	50.8 (2.00)	38.1 (1.50)	98.6 (3.88)
MV-1600	1.9 (4.2)	1-11 1/2 NPTF Female	1-11 1/2 NPTF Female	146.8 (5.78)	132.8 (5.23)	108.0 (4.25)	53.8 (2.12)	44.5 (1.75)	98.6 (3.88)
MV-1620	1.9 (4.2)	1 5/16-12 UN #16 SAE	1 5/16-12 UN #16 SAE	152.9 (6.02)	138.9 (5.47)	108.0 (4.25)	53.8 (2.12)	57.2 (2.25)	98.6 (3.88)

An optional MVK mounting kit makes panel mounting quite simple.