

P119 Control Valve

- Tight Shut-off
- Easy Installation
- Leak Detection
- Low Seat Leakage
- Gas or Liquid Service
- Inline Maintenance
- NACE Capability

The Type P119 Control Valve is versatile and can be used for on-off or throttling service. Spring ranges from 3-15 psi to 30-60. The valve can be used in corrosive or non-corrosive gases or liquids, limited by available compatible materials. Maintenance on the valve can be accomplished without removing the valve body from the line (pressure must be removed and the valve isolated before attempting.) A vent is provided in the valve actuator to detect leakage of actuator stem seals. Our composition disc assembly and seat offer positive shutoff at maximum body working pressure. NACE construction materials are standard for the steel body valve only, and comply with the National Association of Corrosion Engineers MR-01-75.

Applications

- On-Off or Throttling Control
- Heater Fuel Valve Control
- Gas Distribution

P119 Part Matrix

P119	0	0					
						Port Size	
06						3/4 NPT	* 1-1/4" Available in Iron Bodies Only
08						1 NPT	
12						1-1/4 NPT*	
						Spring Range	
						PSIG	BAR
015						3 - 15	.20 - 1.03
020						5 - 20	.34 - 1.38
035						5 - 35	.34 - 2.41
060						30 - 60	2.07 - 4.14
						Orifice	
	2					1/8"	
	3					3/16"	
	4					1/4"	
	5					5/16"	
	6					3/8"	
	8					1/2"	
	9					9/16"	
						Seat/Diaphragm Material	
	00					Nitrile	
	22					Fluorocarbon	
						Body Material	**Units with a Steel Body selection will automatically be provided with internal parts conforming to NACE MR 0175. Orifice and Seat Housing will be made from 316SS.
	0					Iron	
	2					Steel**	



Specifications

Body Sizes and End Connection Styles	3/4, 1 or 1-1/4 NPT screwed	
Maximum Inlet Pressure	150 PSIG	10.3 BAR
Maximum Pressure Drop	150 PSIG	10.3 BAR
	For all port diameters	
Maximum Spring Case Pressure	150 PSIG	10.3 BAR
Spring Ranges	See Table	
Material Temperature Capabilities	With Nitrile Seat / Diaphragm	
	-20 to 170 °F	-29 to 77 °C
	With Fluoroelastomer Seat / Diaphragm	
	40° to 250 °F	4.4 to 121 °C
	Note: Not for use with hot water or ammonia.	
Orifice Size and Flow Coefficients	See Table	
Pressure Setting Adjustment	May be adjusted throughout each spring range by rotating the adjusting screw	
Actuator Pressure Connection	1/4 NPT female	
Spring Case and Bonnet Vents	1/4 NPT female	
Weight	lbs.	kg.
3/4"	4.8	2.2
1"	4.8	2.2
1-1/4"	4.7	2.1

Materials of Construction

Body	Cast Iron or WCB Steel
Spring Case	Aluminum
Bonnet	Aluminum
Disk Holder Assembly	Aluminum and Nitrile (standard), Stainless Steel and Nitrile, Stainless Steel and Fluoroelastomer or Aluminum and Fluoroelastomer
Orifice	Aluminum (standard) or 316 Stainless Steel
Diaphragm	Nitrile or Fluoroelastomer
O-rings	Nitrile (standard) or Fluoroelastomer
Stem Wiper	TFE
Adjusting Screw	Steel
Spring	Steel

P119 Flow Coefficients

Orifice Size		3/4 Inch Body	1 Inch Body	1-1/4 Inch Body
Inches	mm	C _v	C _v	C _v
1/8	3.2	0.45	0.45	0.45
3/16	4.8	0.93	0.93	0.93
1/4	6.4	1.6	1.6	1.6
5/16	7.9	2.7	2.7	2.7
3/8	9.5	3.3	3.4	3.6
1/2	12.7	4.6	5.0	5.7
9/16	14.3	5.7	6.0	7.0

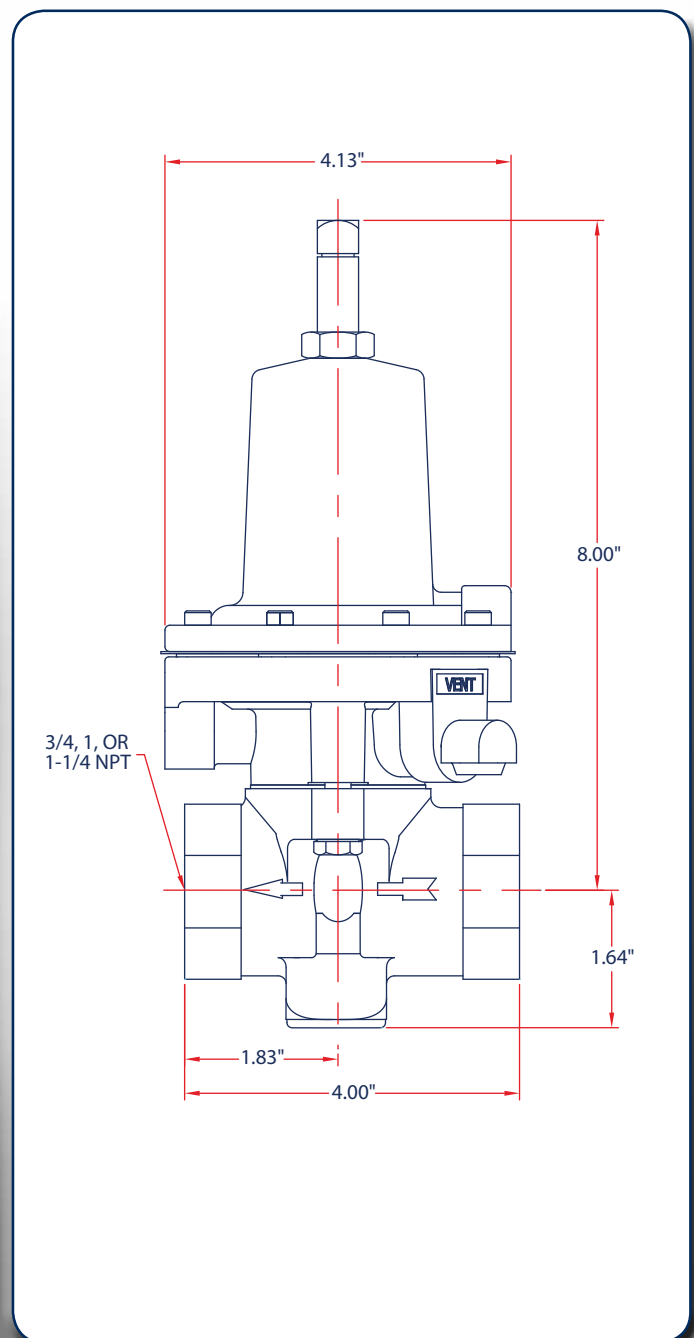
P119 Control Valve Rebuild Kits

	Kit Includes	Part Number
1/8" - 3/8" Orifice, Nitrile	Diaphragm assembly, seat assembly, O-rings, hairpin clip, retaining ring and stem seal wiper.	971-P11-900
1/2" - 9/16" Orifice, Nitrile		971-P11-901
1/8" - 3/8" Orifice, Fluorocarbon		971-P11-902
1/2" - 9/16" Orifice, Fluorocarbon		971-P11-903
1/8" - 3/8" Orifice, Nitrile/NACE		971-P11-904
1/2" - 9/16" Orifice, Nitrile/NACE		971-P11-905
1/8" - 3/8" Orifice, Fluorocarbon/NACE		971-P11-906
1/2" - 9/16" Orifice, Fluorocarbon/NACE		971-P11-907

P119 Spring Selection

Spring Range		Spring Part Number	Spring Color Code
PSIG	BAR		
3 - 15	0.2 - 1.0	655-689-000	Red
5 - 20	0.3 - 1.4	655-676-000	Silver
5 - 35	0.3 - 2.4	655-703-000	Blue
30 - 60	2.1 - 4.1	655-690-000	Green

P119 Dimensions



P119 Gas Sizing Equation

$$C_v = (Q / 963) \sqrt{\frac{(SG)(T)}{(\Delta P)(P_1 + P_2)}}$$

C _v	Flow Coefficient
Q	Gas Flow Rate, (SCFH)
SG	Specific Gravity
P ₁	Inlet Pressure (PSIA)
P ₂	Outlet Pressure (PSIA)
Δ P	Pressure Drop, (PSI)
T	° Rankin (° F + 460)

Useful Conversions for Gas Flow

To Convert	Multiply By	To Obtain
SCFD	0.04167	SCFH
SCFS	3600	SCFH
SCFM	60	SCFH
M ³ /Hr.	35.34	SCFH
Lb./Hr.	19.52	SCFH
Kg./Hr.	43.04	SCFH

P119 Parts

Item	Description	Part Number	
1	Adjustment Screw	648-487-000	
2	Lock Nut	634-179-000	
3	Spring Guide	626-079-000	
4	Range Spring	3-15 PSIG, Red	655-689-000
		5-20 PSIG, Silver	655-676-000
		5-35 PSIG, Blue	655-703-000
		30-60 PSIG, Green	655-690-000
5	Screen	647-023-000	
6	Machined Bonnet	604-237-000	
7	Housing	629-226-000	
8	Bushing (2 Required Per Unit)	608-074-000	
9	Stem Wiper (2 Required Per Unit)	649-305-000	
10	Seat Assemblies Aluminum	Aluminum/Nitrile for 1/8" to 3/8" Orifice	822-023-000
		Aluminum/Fluorocarbon for 1/8" to 3/8" Orifice	822-023-001
		Aluminum/Nitrile for 1/2" & 9/16" Orifice	822-023-002
		Aluminum/Fluorocarbon for 1/2" & 9/16" Orifice	822-023-003
11	Seat Assemblies Stainless NACE	316SS/Nitrile for 1/8" to 3/8" Orifice	822-024-000
		316SS/Fluorocarbon for 1/8" to 3/8" Orifice	822-024-001
		316SS/Nitrile for 1/2" & 9/16" Orifice	822-024-002
		316SS/Fluorocarbon for 1/2" & 9/16" Orifice	822-024-003
12	O-ring, (Stem)	Nitrile (2 Required Per Unit)	649-303-001
		Fluorocarbon (2 Required Per Unit)	649-304-001
13	Retaining Ring (2 Required Per Unit)	644-057-000	
14	Hair Pin - NACE	635-066-000	
15	Orifice Aluminum	1/8"	688-013-004
		3/16"	688-013-003
		1/4"	688-013-002
		5/16"	688-018-000
		3/8"	688-013-001
		1/2"	688-013-000
16	Orifice 316 Stainless Steel NACE	1/8"	688-014-004
		3/16"	688-014-003
		1/4"	688-014-002
		5/16"	688-019-000
		3/8"	688-014-001
		1/2"	688-014-000
17	Bodies	Steel - 3/4 NPT	664-320-000
		Steel - 1 NPT	664-320-001
		Iron - 3/4 NPT	664-318-000
		Iron - 1 NPT	664-318-001
		Iron - 1-1/4 NPT	664-319-000
18	Build Screws (8 Required Per Unit)	648-466-004	
19	O-ring, (Housing)	Nitrile	649-303-000
		Fluorocarbon	649-304-000
20	Vent Assembly	836-004-000	
21	Body Bolts	Iron Body (2 Required Per Unit)	648-463-005
		Steel Body (2 Required Per Unit)	648-463-008
22	NACE Tag (Not Shown)	632-503-000	
23	Lock Nut	634-180-000	
24	Stem	Aluminum	651-098-000
		Stainless Steel	651-099-000
25	Washer, Flat	662-213-001	
26	Washer	662-213-000	
27	Diaphragms	Nitrile	618-074-000
		Fluorocarbon	618-074-001
28	Piston	637-306-000	
29	Spring Retainer	643-191-000	
30	Belleville Washer	662-212-000	
31	Washer, StatOSeal	Nitrile	662-214-000
		Fluorocarbon	662-214-001
32	Disk, Teflon (Fluorocarbon Units Only)	619-056-000	
33	Blank label, Brady (Not Shown)	632-456-000	

