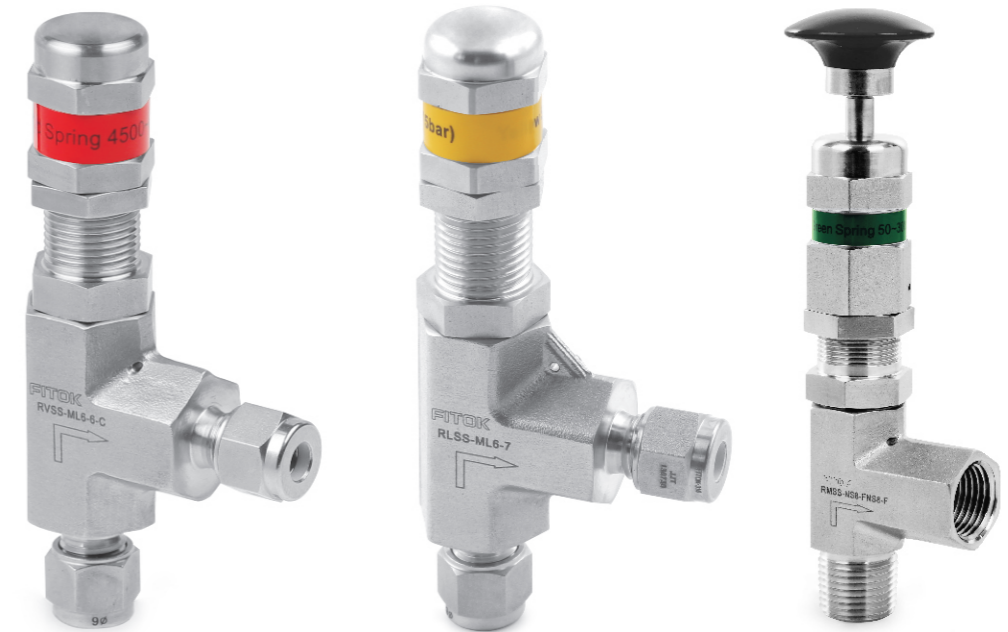


Proportional Relief Valves

RV, RL and RM Series



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FK-IC-GV-07-EN-140821

FITOK
Valves and Fittings

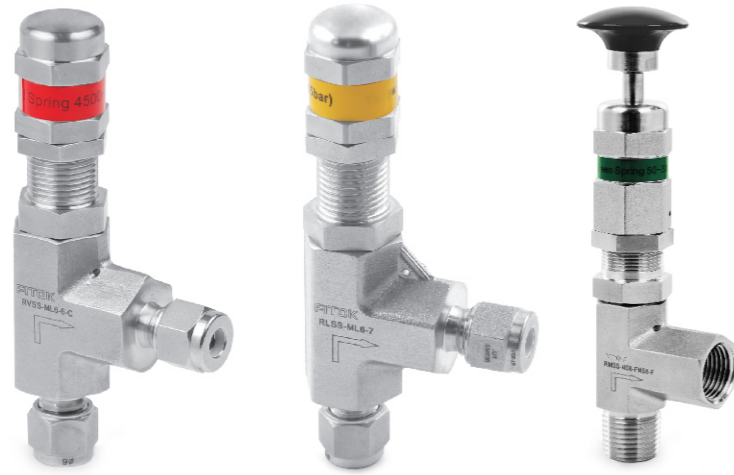
www.fitokgroup.com

Proportional Relief Valves

RV, RL and RM Series

Introduction

Relief Valve open when system pressure reaches the set pressure, allowing the medium to flow out and relieve the system pressure. The valve closes when the system pressure is down to the resealing pressure. The opening height and the system pressure are direct proportional. However, there's no limit for relieving capacity, so valves in these series should be selected carefully according to system requirements.



Features

- Set pressure:
 - RV series: 7 color-coded springs available for a wide range of set pressure, 50 to 6000 psig @ 70°F (3.4 to 414 bar @ 20°C)
 - RL series: 10 to 225 psig @ 70°F (0.68 to 15.5 bar @ 20°C)
 - RM series: 3 color-coded springs available for a wide range of set pressure, 50 to 1500 psig @ 70°F (3.4 to 103 bar @ 20°C)
- Maximum outlet pressure:
 - RV series: 1500 psig (103 bar)
 - RL series: 225 psig (15.5 bar)
 - RM series: 1500 psig (103 bar)
- Orifice Size:
 - RV series: 0.14" (3.6 mm)
 - RL series: 0.19" (4.8 mm) and 0.25" (6.4 mm)
 - RM series: 0.25" (6.4 mm)
- Back pressure and Pre-set pressure
 - RV and RM series: Balance stem design to eliminate the effect of system back pressure
 - RL series: Pre-set pressure = Desired pressure - 0.8 × Back pressure
- Working temperature: -10°F to 300°F (-23°C to 148°C)
- Variety of end connections
- Liquid or gas service
- Adjustable bonnet cap and adjustable set pressure
- Lock wired secure cap to maintain set pressure
- Variety of seal materials
- Label identifies the set pressure range
- Manual override handle available to open the valve without changing the set pressure which pressure lower than 1500 psig

Temperature Range of Sealing Materials

O-ring Material	Temperature Ranges °F (°C)
Fluorocarbon Rubber	25 to 250 (-4 to 121)
Buna-N Rubber	0 to 250 (-17 to 121)
Neoprene Rubber	-10 to 300 (-23 to 148)
Ethylene Propylene Rubber	30 to 250 (-1 to 121)

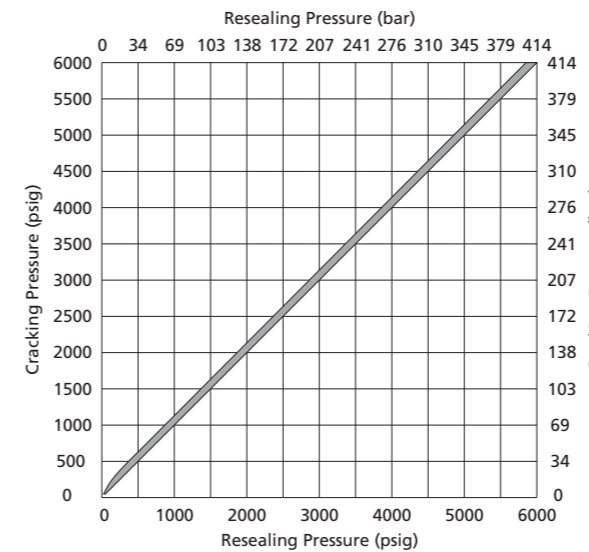
Cracking Pressure and Resealing Pressure

Cracking pressure: The pressure at which the first indication of flow occurs. The repeatability of the cracking pressure of each valve after initial relief is within ±5% at room temperature.

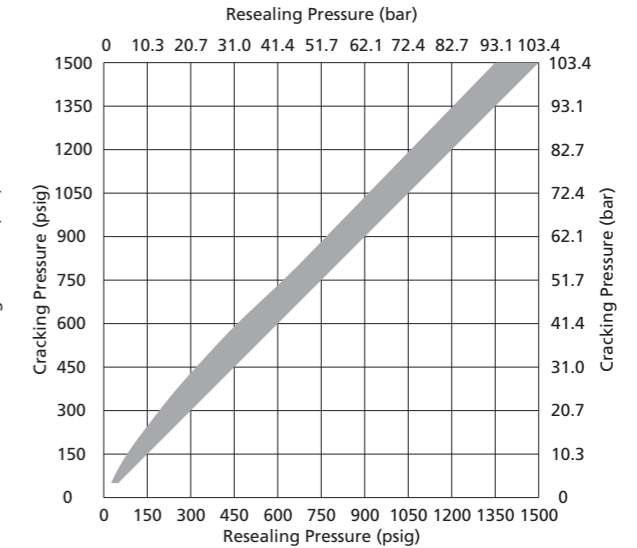
Resealing pressure: The pressure at which there is no indication of flow. Resealing pressure is always lower than the set pressure.

Back pressure: The pressure of the outlet of the valve. It increases the set pressure.

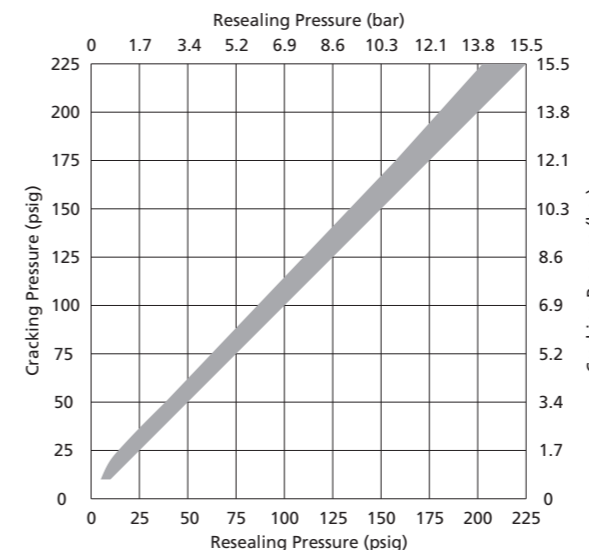
RV Series



RM Series

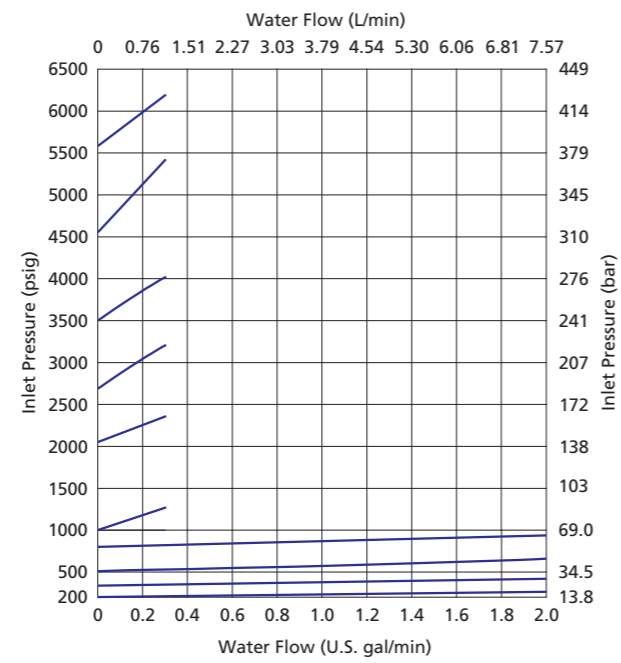
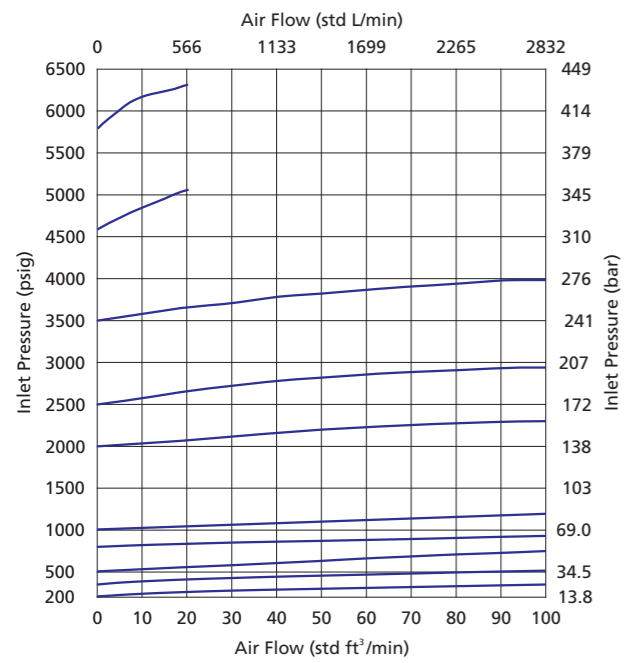


RL Series

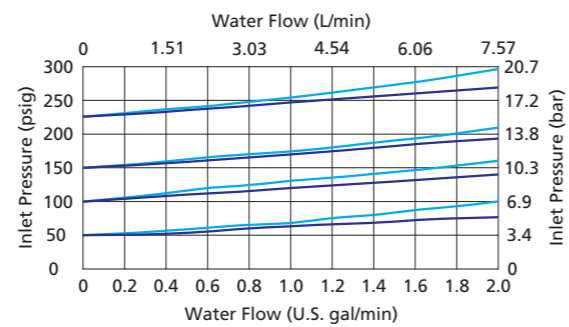
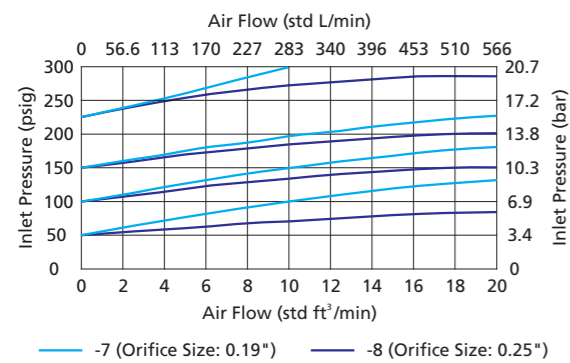


Flow Data at 70°F (20°C)

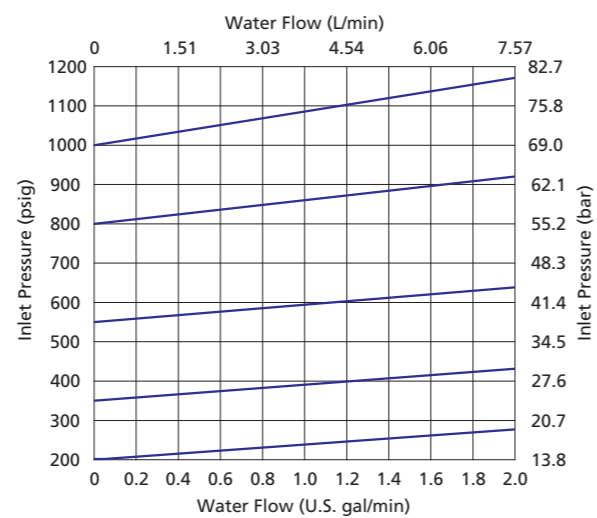
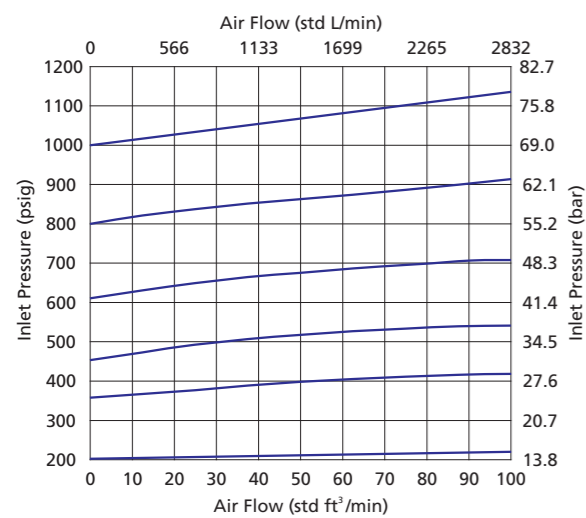
RV Series



RL Series



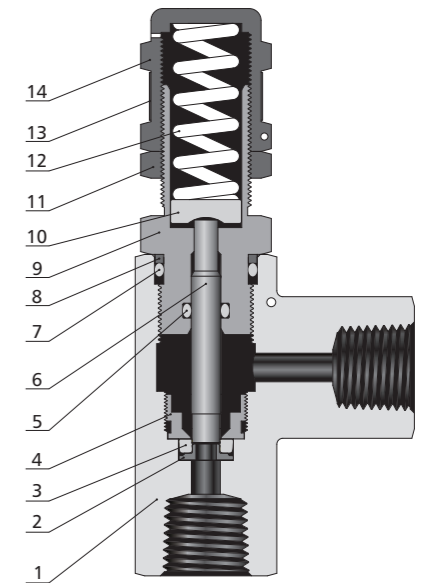
RM Series



Standard Materials of Construction

RV Series

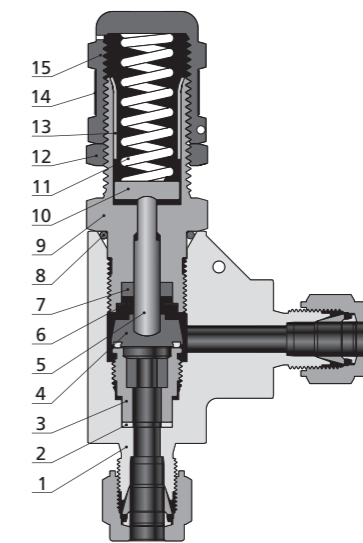
Component	Material Grade/ASTM Specification	
1	Body	316 SS/A182
2	Insert	316 SS/A479
3	O-ring	Fluorocarbon FKM
4	Seat Retainer	316 SS/A479
5	O-ring	Fluorocarbon FKM
6	Stem	316 SS/A479
7	O-ring	Fluorocarbon FKM
8	Seal Retainer	PTFE
9	Bonnet	316 SS/A479
10	Spring Support	316 SS/A276
11	Lock Nut	17-4PH powdered metal
12	Spring	S17700 SS/AMS 5678
13	Label	Polyester
14	Bonnet Cap	316 SS/A479



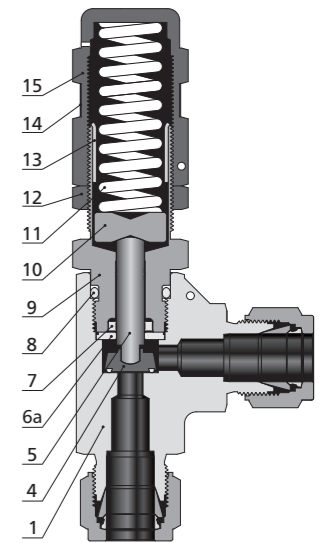
1. Lubricant: Silicone-based
2. Contact the authorized representative or FITOK Group for other materials.

RL Series

Component	Material Grade/ASTM Specification	
1	Body	316 SS/A182
2	Gasket (Only 7 Orifice)	316 SS/A479
3	Seat (Only 7 Orifice)	316 SS/A479
4	Bonded disc	316 SS/A479+Fluorocarbon FKM
5	Stem	316 SS/A479
6	Retainer (Only 7 Orifice)	316 SS/A479
6a	Ring (Only 8 Orifice)	316 SS/A479
7	Quad Seal	Fluorocarbon FKM
8	O-ring	Fluorocarbon FKM
9	Bonnet	316 SS/A479
10	Spring Support	316 SS/A276
11	Spring	S17700 SS/AMS 5678
12	Lock Nut	17-4PH powdered metal
13	Sleeve	304SS/A240
14	Label	Polyester
15	Bonnet Cap	316 SS/A479



Orifice 7 in. (mm)
0.19 (4.8)

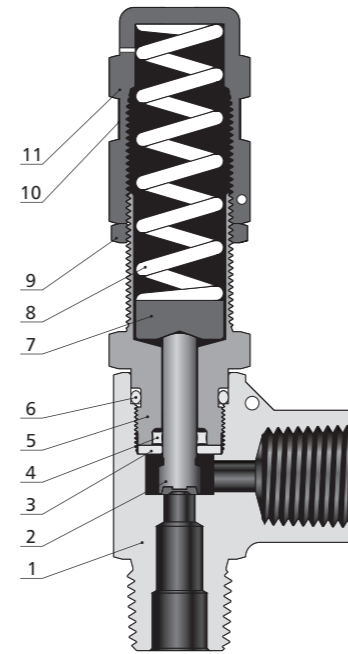


Orifice 8 in. (mm)
0.25 (6.4)

1. Lubricant: Silicone-based
2. Contact the authorized representative or FITOK Group for other materials.

RM Series

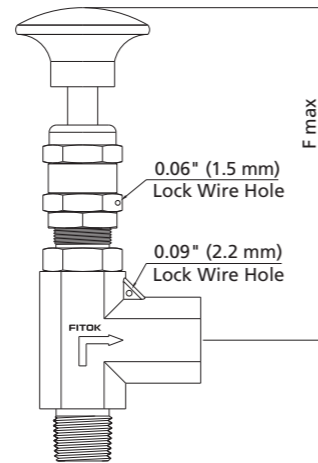
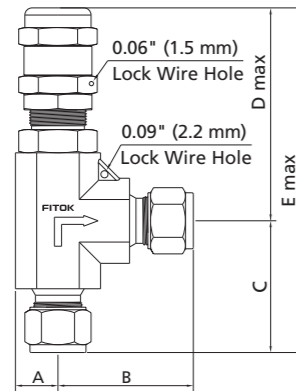
Component	Material Grade/ASTM Specification	
1	Body	316 SS/A182
2	Stem	316 SS/A479+Fluorocarbon FKM
3	Retainer	316 SS/A479
4	Seal	Fluorocarbon FKM
5	Bonnet	316 SS/A479
6	O-ring	Fluorocarbon FKM
7	Spring Support	316 SS/A276
8	Spring	S17700 SS/AMS 5678
9	Lock Nut	17-4PH powdered metal
10	Label	Polyester
11	Bonnet Cap	316 SS/A479



- 1. Lubricant: Silicone-based
- 2. Contact the authorized representative or FITOK Group for other materials.

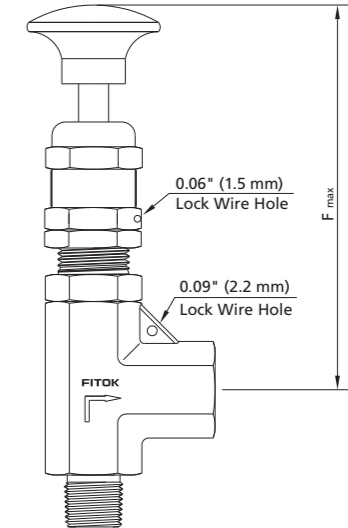
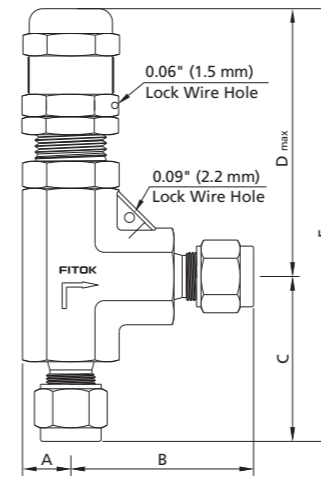
Dimensions

RV Series



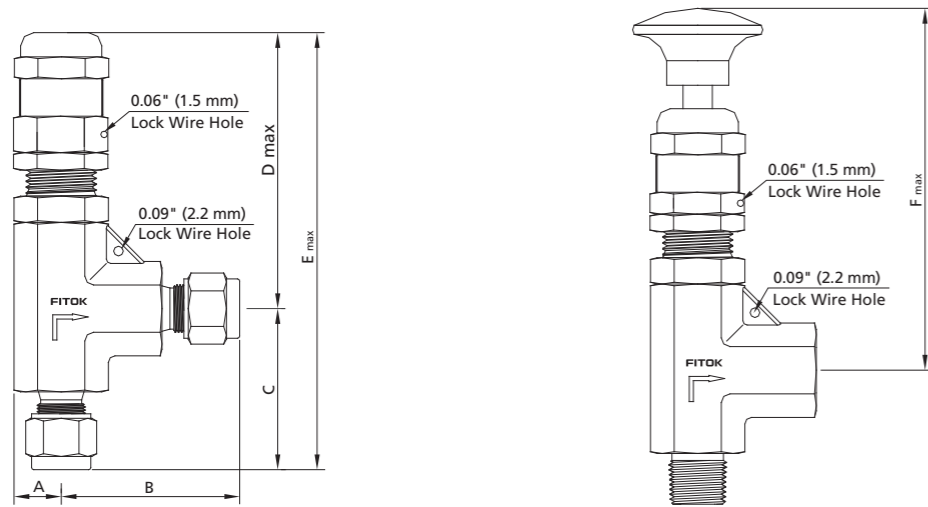
Basic Ordering Number	Connection Type and Size		Orifice in. (mm)	Dimension in. (mm)					
	Inlet	Outlet		A	B	C	Dmax	Emax	Fmax
RV □ -FL4-6	1/4" FITOK	1/4" FITOK	0.14 (3.6)	0.43 (10.9)	1.60 (40.6)	1.44 (36.6)	2.70 (68.6)	4.14 (105.2)	4.09 (103.9)
RV □ -FL6-6	3/8" FITOK	3/8" FITOK							
RV □ -FL8-6	1/2" FITOK	1/2" FITOK		0.50 (12.7)	1.72 (43.7)	1.72 (43.7)	4.09 (103.9)	5.81 (147.6)	5.37 (136.4)
RV □ -ML6-6	6 mm FITOK	6 mm FITOK		0.43 (10.9)	1.60 (40.6)	1.44 (36.6)	2.70 (68.6)	4.14 (105.2)	4.09 (104.9)
RV □ -ML8-6	8 mm FITOK	8 mm FITOK							
RV □ -ML12-6	12 mm FITOK	12 mm FITOK		0.50 (12.7)	1.83 (46.5)	1.83 (46.5)	4.09 (103.9)	5.92 (150.4)	5.37 (136.4)
RV □ -FNS4-6	1/4 Female NPT	1/4 Female NPT		0.43 (10.9)	1.17 (29.7)	1.38 (34.9)	2.70 (68.6)	4.08 (103.5)	4.28 (108.7)
RV □ -NS4-6	1/4 Male NPT	1/4 Male NPT		0.43 (10.9)	1.17 (29.7)	1.19 (30.2)	2.70 (68.6)	3.89 (98.8)	4.09 (103.9)
RV □ -FRT4-6	1/4 Female BSPT	1/4 Female BSPT		0.43 (10.9)	1.17 (29.7)	1.38 (34.9)	2.70 (68.6)	4.08 (103.5)	4.28 (108.7)

RL Series



Basic Ordering Number	Connection and Size		Orifice in. (mm)	Dimension in. (mm)					
	Inlet Size	Outlet Size		A	B	C	D	E	F
RL □ -FL4-7	1/4" FITOK	1/4" FITOK	0.19 (4.8)	0.43 (10.9)	1.60 (40.6)	1.44 (36.6)	2.70 (68.8)	4.14 (105.0)	4.09 (104.0)
RL □ -ML6-7	6 mm FITOK	6 mm FITOK							
RL □ -NS4-7	1/4 Male NPT	1/4 Male NPT			1.44 (36.6)	1.19 (30.2)		4.08 (103.5)	
RL □ -RT4-7	1/4 Female BSPT	1/4 Female BSPT			1.17 (29.7)	1.38 (34.9)			
RL □ -FNS4-7	1/4 Female NPT	1/4 Female NPT							
RL □ -FRT4-7	1/4 Female BSPT	1/4 Female BSPT							
RL □ -FL8-8	1/2" FITOK	1/2" FITOK	0.25 (6.4)	0.50 (12.7)	1.83 (46.5)	1.83 (46.5)	4.09 (104.0)	5.92 (150.0)	5.37 (136.0)
RL □ -ML12-8	12 mm FITOK	12 mm FITOK							
RL □ -NS8-8	1/2 Male NPT	1/2 Male NPT			1.44 (36.6)	1.44 (36.6)		5.52 (140.0)	
RL □ -RT8-8	1/2 Male BSPT	1/2 Male BSPT							
RL □ -FNS8-8	1/2 Female NPT	1/2 Female NPT							
RL □ -FRT8-8	1/2 Female BSPT	1/2 Female BSPT							

RM Series

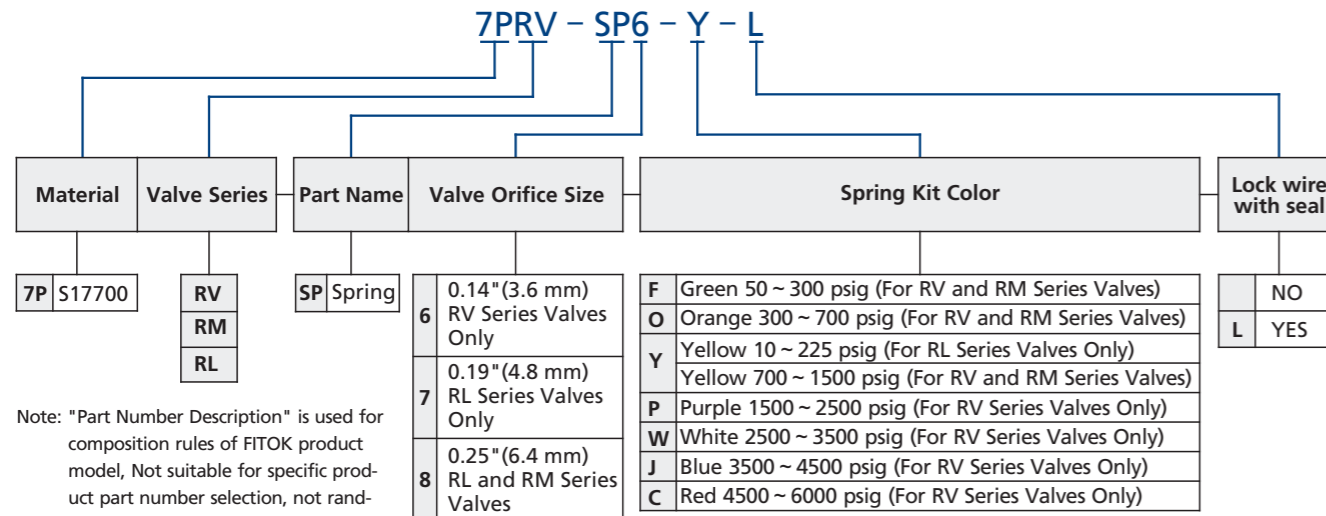


Basic Ordering Number	Connection and Size		Orifice in. (mm)	Dimension in. (mm)					
	Inlet Size	Outlet Size		A	B	C	D	E	F
RM □ -FL8-8	1/2" FITOK	1/2" FITOK	0.25 (6.4)	0.50 (12.7)	1.83 (46.5)	1.83 (46.5)	4.09 (104.0)	5.92 (150.0)	5.37 (136.0)
RM □ -ML12-8	12 mm FITOK	12 mm FITOK							
RM □ -NS8-8	1/2 Male NPT	1/2 Male NPT			1.44 (36.6)	1.44 (36.6)		5.52 (140.0)	
RM □ -RT8-8	1/2 Male BSPT	1/2 Male BSPT							
RM □ -FNS8-8	1/2 Female NPT	1/2 Female NPT							
RM □ -FRT8-8	1/2 Female BSPT	1/2 Female BSPT							

1. FITOK means FITOK double ferrule tube fittings.
2. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FITOK Group.
3. Sizes and types listed are standard. Other sizes and types are available upon request. Refer to ordering information.

Part Number Description

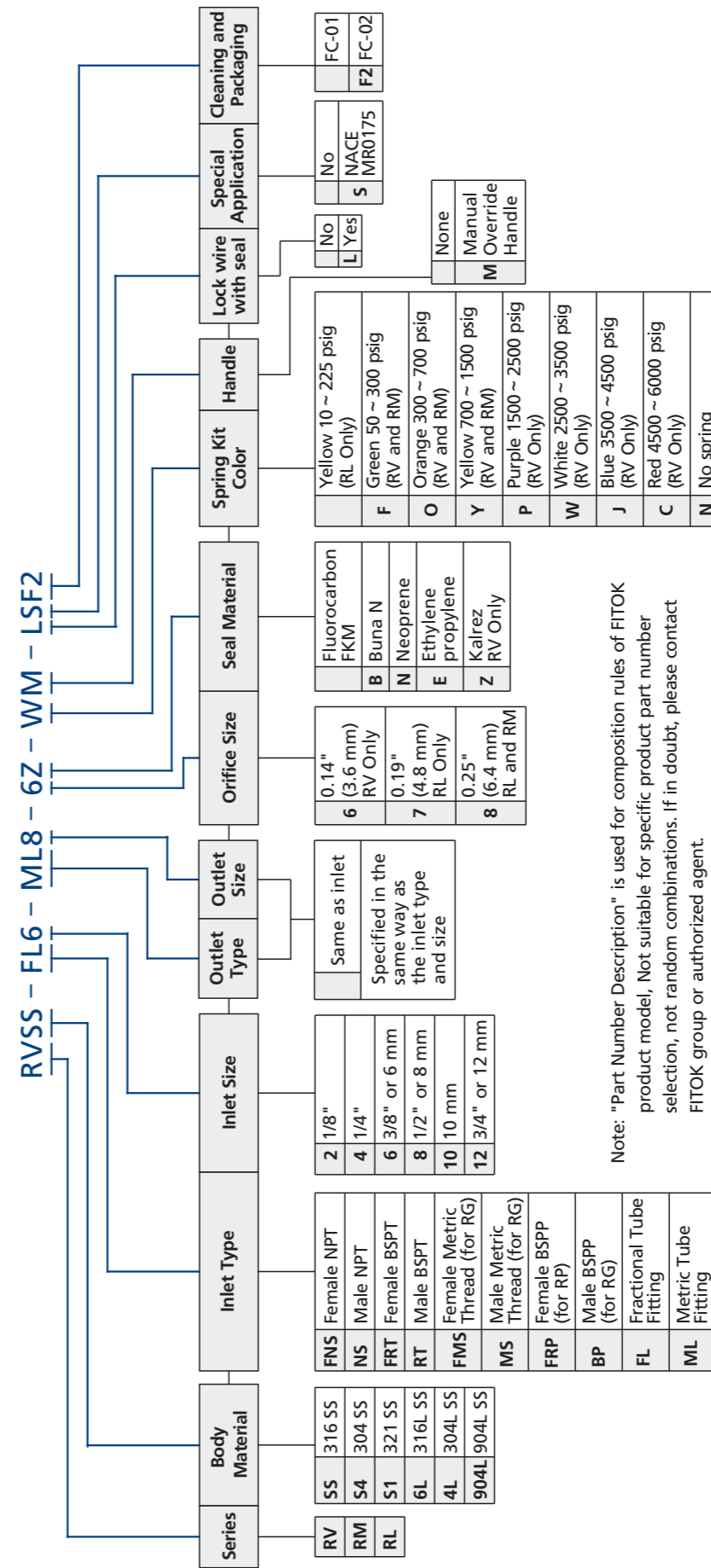
Spring for Valves



Note: "Part Number Description" is used for composition rules of FITOK product model, Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK group or authorized agent.

Every spring kit includes a corresponding color label.

Part Number Description Valves



Note: "Part Number Description" is used for composition rules of FITOK product model, Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK group or authorized agent.

1. Standard thread pitch for metric threads are as follows:
M10 and below: 1 mm
M12 to M24: 1.5 mm
M27 and above: 2 mm
Standard thread pitch should be ignored in the ordering number, others should be specified.
2. Cleaning and Packaging:
FC-01: Standard cleaning and packaging for general industrial procedures.
FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleaning requirement as stated in ASTM G93 Level C.
3. The color of the manual override handle is black. For other colors, please contact the authorized representative or FITOK Group.