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Proportional Relief Valves

RV, RL and RM Series



Proportional Relief Valves

RV, RL and RM Series

Introduction

TaiKS relief valves OPEN when system pressure reaches the set pressure and CLOSE when system pressure falls below the set pressure.



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
 - Back pressure is the pressure of the outlet of valves. It increases the set pressure of proportional relief valves.
 - RV and RM series: Balanced 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
- Lead seal through lock wire holes to lock proportional relief valve so as to secure a set pressure effectively
- Variety of seal materials
- Label identifies the set pressure range

Applications

Relief valves are proportional relief valves that open gradually as the pressure increases. Consequently, they do not have a capacity rating at a given pressure rise (accumulation), and they are not certified to ASME or any other codes.

- Some system applications require relief valves to meet specific safety codes. The system designer and user must determine when such codes apply and whether these relief valves conform to them.
- TaiKS proportional relief valves should never be used as ASME Boiler and Pressure Vessel Code safety relief devices.
- TaiKS proportional relief valves are not "Safety Accessories" as defined in the Pressure Equipment Directive 2014/68/EU.

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)
EPDM	30 to 250 (-1 to 121)

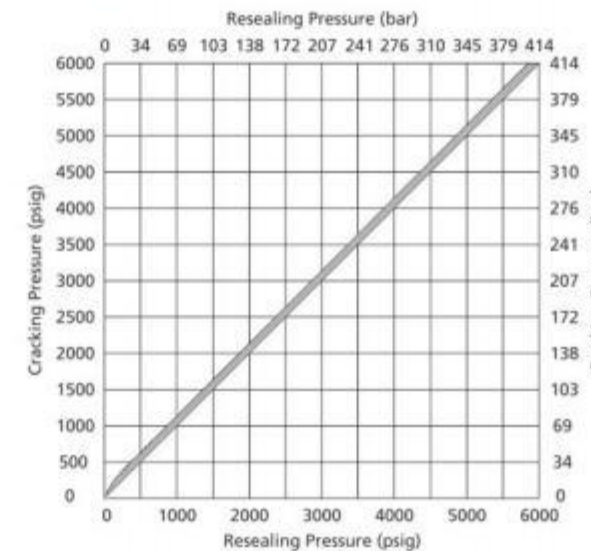
Set Pressure and Resealing Pressure

Set pressure: The set pressure is the upstream pressure at which the first indication of flow occurs. The repeatability of set pressure of each valve after initial relief is $\pm 5\%$ at room temperature.

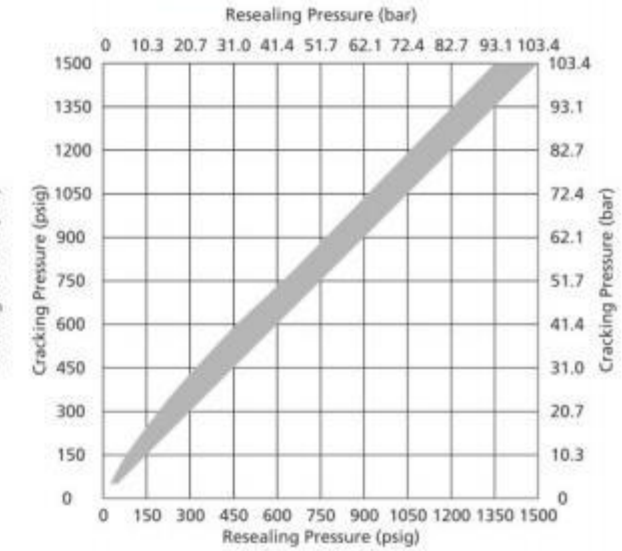
Resealing pressure: The resealing pressure is the upstream pressure at which there is no indication of flow. Resealing pressure is always lower than set pressure.

Note: For valves not acutated for a period of time, the initial relief pressure may be higher than the set pressure.

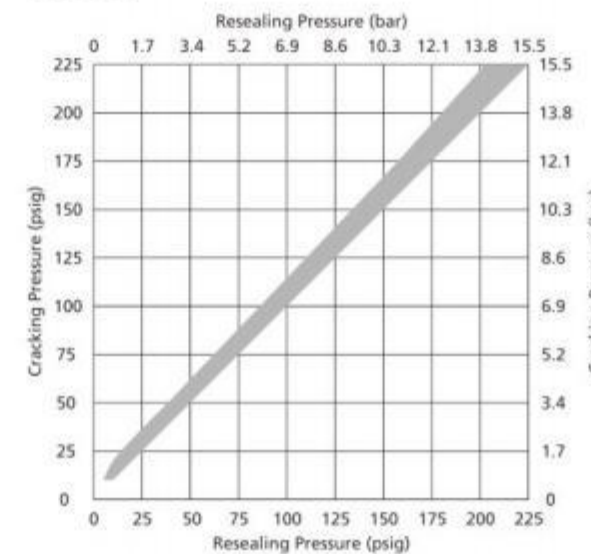
RV Series



RM Series

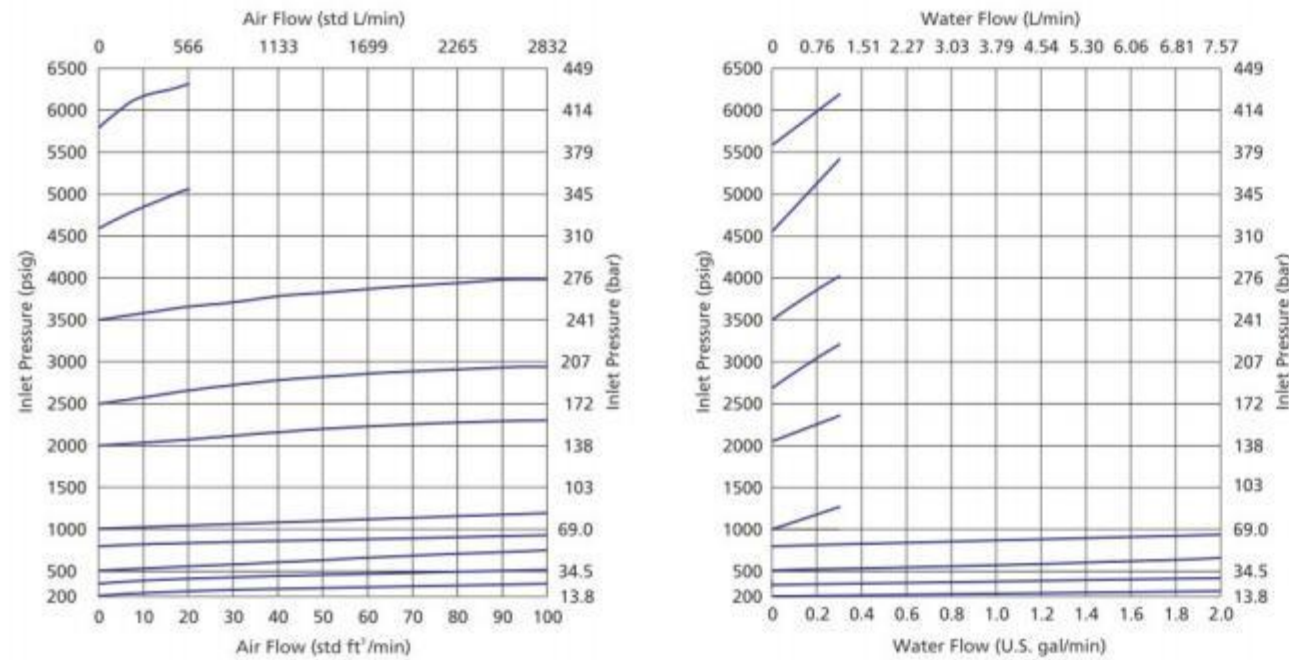


RL Series

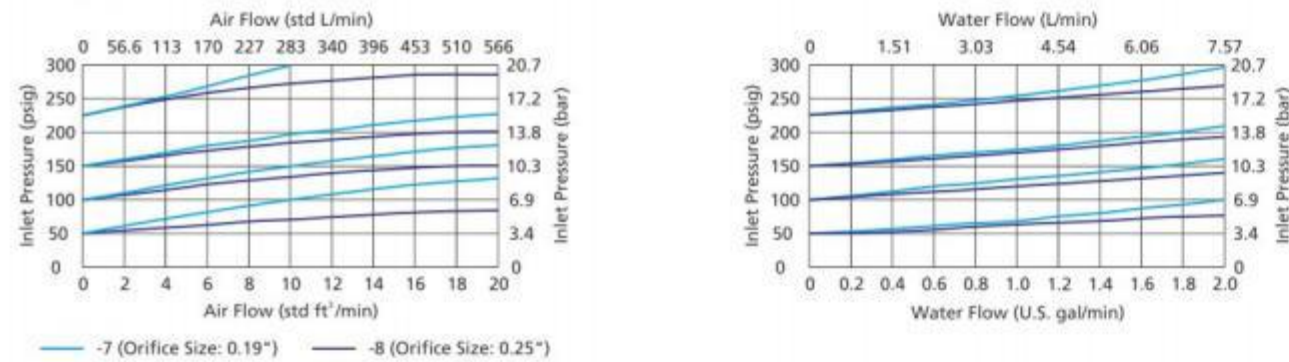


Flow Data at 70°F (20°C)

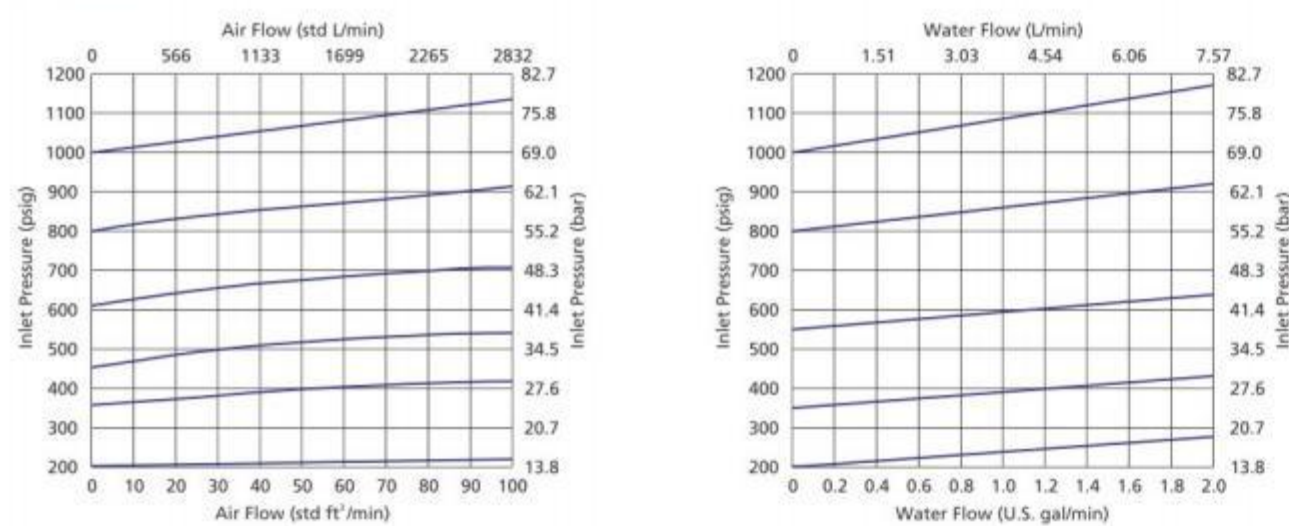
RV Series



RL Series



RM Series



Standard Materials of Construction

RV Series

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

Note: Wetted components are listed in italics.

1. Lubricant: Silicone-based

2. Contact TaiKS or our authorized distributors for other materials

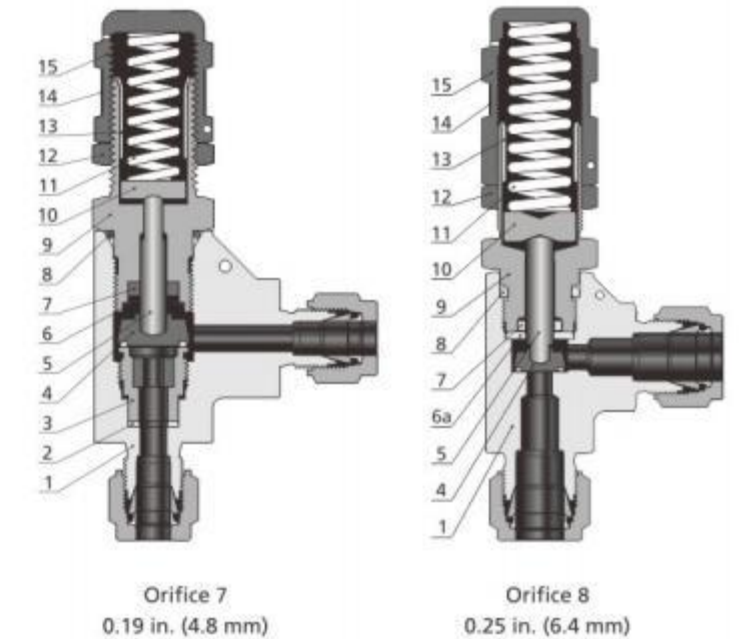
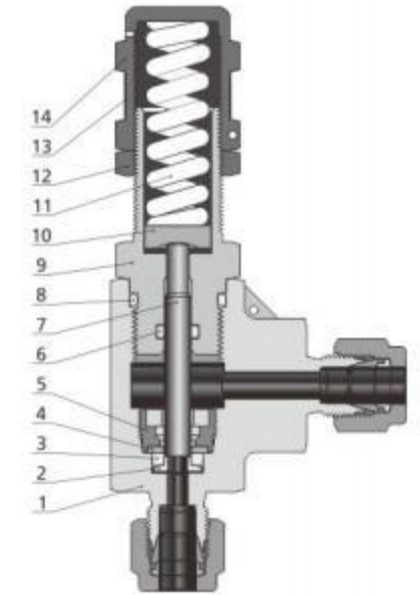
RL Series

Component	Material Grade/ASTM Specification
1 Body	316 SS/A182
2 Gasket	316 SS/A479
3 Seat	316 SS/A479
4 Bonded disc	316 SS/A479+Fluorocarbon FKM
5 Stem	316 SS/A479
6 Retainer	316 SS/A479
6a Ring	316 SS/A479
7 Quad Seal	Fluorocarbon FKM
8 O-ring	Fluorocarbon FKM
9 Bonnet	316 SS/A479
10 Spring Support	316 SS/A479
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

Note: Wetted components are listed in italics.

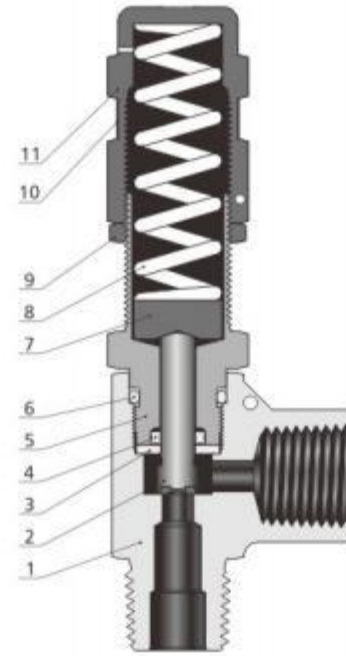
1. Lubricant: Silicone-based

2. Contact TaiKS or our authorized distributors 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/A479
8 Spring	S17700 SS/AMS 5678
9 Lock Nut	17-4PH powdered metal
10 Label	Polyester
11 Bonnet Cap	316 SS/A479



Note: Wetted components are listed in italics.

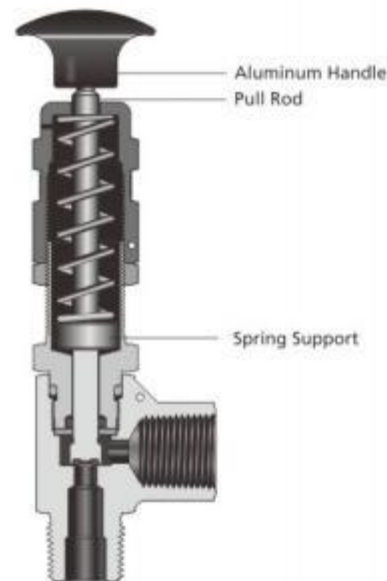
1. Lubricant: Silicone-based

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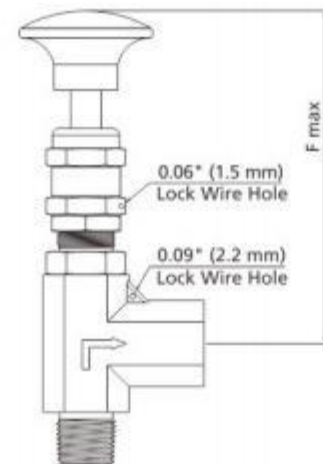
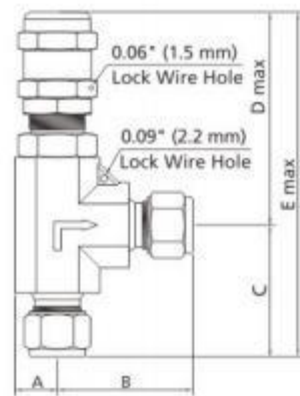
Manual Override Handles

Lift the aluminum handle with hand to open the proportional relief valve without changing the set pressure.
For use with following valves :

RV Series — set pressure range 50~1500 psig
RL Series — set pressure range 10~225 psig
RM Series— set pressure range 50~300 psig



Dimensions



RV Series

Basic Ordering Number	Connection Type and Size		Orifice in. (mm)	Dimensions, in. (mm)					
	Inlet	Outlet		A	B	C	Dmax	Emax	Fmax
RV□□-FL4-6-□	1/4" TaiKS	1/4" TaiKS	0.14 (3.6)	0.46 (11.9)	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" TaiKS	3/8" TaiKS		0.54 (13.7)	1.72 (43.7)	1.72 (43.7)	4.09 (103.9)	5.81 (147.6)	5.37 (136.4)
RV□□-FL8-6-□	1/2" TaiKS	1/2" TaiKS		0.46 (11.9)	1.60 (40.6)	1.44 (36.6)	2.70 (68.6)	4.14 (105.2)	4.09 (104.9)
RV□□-ML6-6-□	6 mm TaiKS	6 mm TaiKS		0.54 (13.7)	1.83 (46.5)	1.83 (46.5)	4.09 (103.9)	5.92 (150.4)	5.37 (136.4)
RV□□-ML8-6-□	8 mm TaiKS	8 mm TaiKS		0.46 (11.9)	1.17 (29.7)	1.38 (34.9)	2.70 (68.6)	4.08 (103.5)	4.28 (108.7)
RV□□-ML12-6-□	12 mm TaiKS	12 mm TaiKS			1.19 (30.2)	2.70 (68.6)	3.89 (98.8)	4.09 (103.9)	4.09 (103.9)
RV□□-FNS4-6-□	1/4 Female NPT	1/4 Female NPT			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			1.17 (29.7)	1.38 (34.9)	2.70 (68.6)	4.08 (103.5)	4.28 (108.7)
RV□□-FRT4-6-□	1/4 Female BSPT	1/4 Female BSPT			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 Type and Size		Orifice in. (mm)	Dimensions, in. (mm)					
	Inlet Size	Outlet Size		A	B	C	D	E	F
RL□□-FL4-7	1/4" TaiKS	1/4" TaiKS	0.19 (4.8)	0.46 (11.9)	1.60 (40.6)	1.44 (36.6)	4.09 (104.0)	4.14 (105.0)	4.09 (103.9)
RL□□-ML6-7	6 mm TaiKS	6 mm TaiKS			1.17 (29.7)	1.38 (34.9)		4.08 (103.5)	
RL□□-NS4-7	1/4 Male NPT	1/4 Male NPT			1.17 (29.7)	1.38 (34.9)		4.08 (103.5)	
RL□□-RT4-7	1/4 Male BSPT	1/4 Male BSPT			1.17 (29.7)	1.38 (34.9)		4.08 (103.5)	
RL□□-FNS4-7	1/4 Female NPT	1/4 Female NPT			1.17 (29.7)	1.38 (34.9)		4.08 (103.5)	
RL□□-FRT4-7	1/4 Female BSPT	1/4 Female BSPT			1.17 (29.7)	1.38 (34.9)		4.08 (103.5)	
RL□□-FL8-8	1/2" TaiKS	1/2" TaiKS	0.25 (6.4)	0.54 (13.7)	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 TaiKS	12 mm TaiKS			1.44 (36.6)	1.44 (36.6)		5.52 (140.0)	
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			1.44 (36.6)	1.44 (36.6)		5.52 (140.0)	
RL□□-FNS8-8	1/2 Female NPT	1/2 Female NPT			1.44 (36.6)	1.44 (36.6)		5.52 (140.0)	
RL□□-FRT8-8	1/2 Female BSPT	1/2 Female BSPT			1.44 (36.6)	1.44 (36.6)		5.52 (140.0)	

RM Series

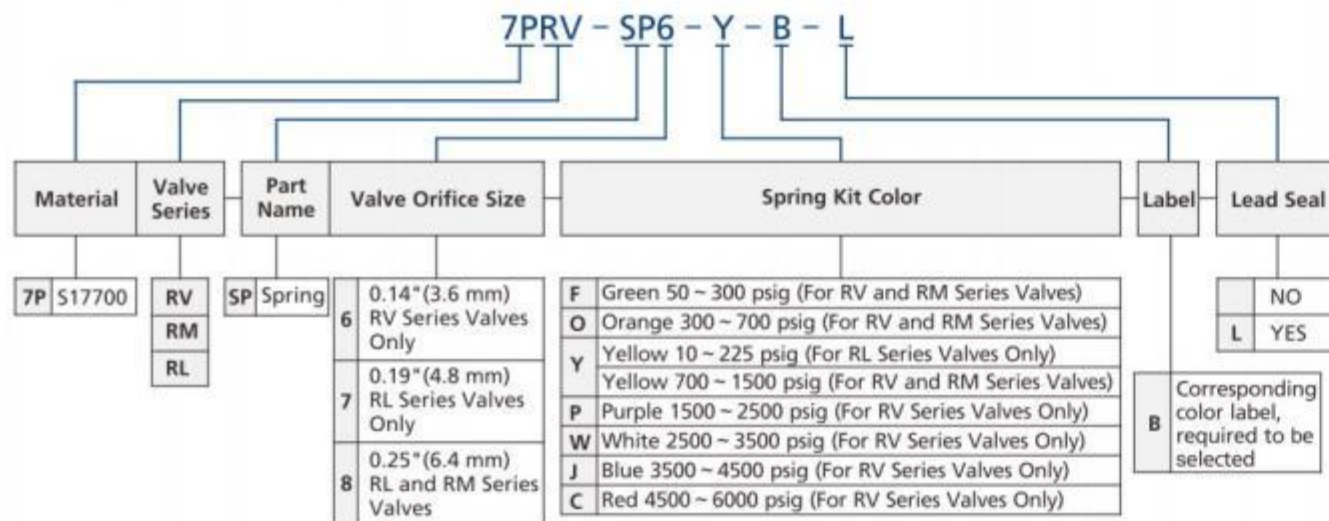
Basic Ordering Number	Connection Type and Size		Orifice in. (mm)	Dimensions, in. (mm)							
	Inlet Size	Outlet Size		A	B	C	D	E	F		
RM□□-FL8-8-□	1/2" TaiKS	1/2" TaiKS	0.25 (6.4)	0.54 (13.7)	1.83 (46.5)	1.83 (46.5)	4.09 (104.0)	5.92 (150.0)	5.37 (136.0)		
RM□□-ML12-8-□	12 mm TaiKS	12 mm TaiKS			1.44 (36.6)	1.44 (36.6)		5.52 (140.0)			
RM□□-NS8-8-□	1/2 Male NPT	1/2 Male NPT									
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. TaiKS means TaiKS double ferrule tube fittings.

2. Dimensions are shown with TaiKS nuts finger-tightened. All dimensions are for reference only and are subject to change.

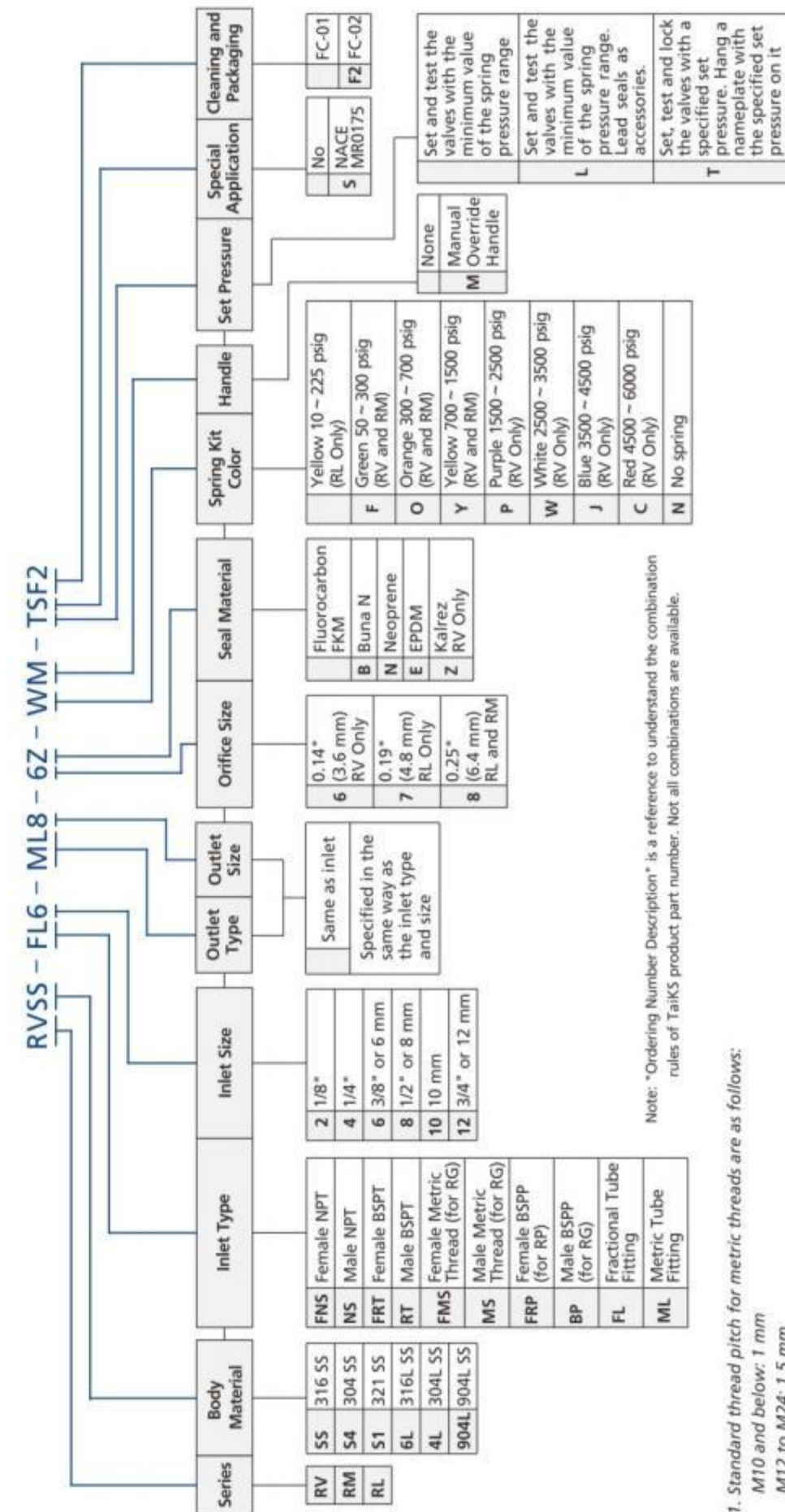
3. Sizes and types listed are standard. For other connection types and sizes, please contact TaiKS or our authorized distributors.

Spring Kit Ordering Number Description



Note: "Ordering Number Description" is a reference to understand the combination rules of TaiKS product part number. Not all combinations are available.

Every spring kit includes a spring, a label and a lead seal (optional).

Ordering Number Description
Valves

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 of ASTM G93 Level C.

3. The color of the manual override handle is black. For other colors, please contact TaiKS or our authorized distributors.

4. For Proportional Relief Valves with specified set pressure on the nameplate, add the set pressure value (unit: psig) as a suffix to the ordering number.

Example: RVSS-ML6-6-F-T-116PSIG.