Root Valves

RTV Series

Contents

Root Valves

RTV1 Series

Features

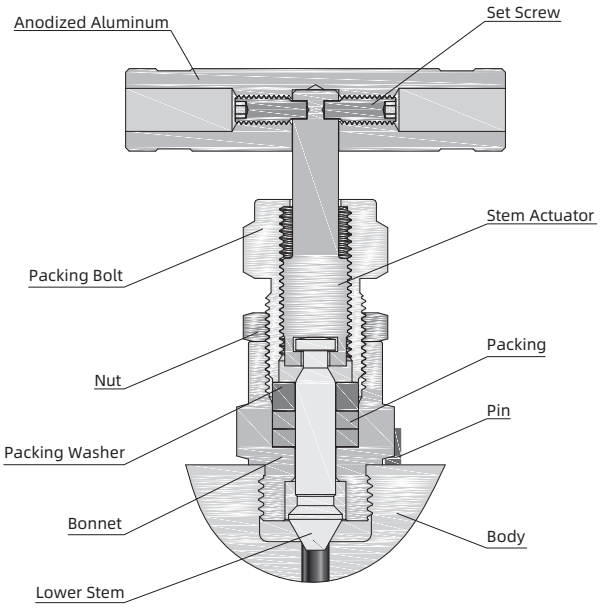
- Maximum working pressure up to 10000 psig (689 bar)
- Working temperature up to 1200°F (649°C) with Graphite packing
- Pressure ratings in accordance with ASME B16.34
  Every valve is hydraulic pressure tested in accordance with EN 12266-1 and API 598, every set is tested with nitrogen for leak-tight performance at 6000 psig
- Fire-tested design in accordance with BS 6755 part 2/API 607

Needle Valve specification

- Maximum working pressure up to 10000 psig (689 bar)
- Working temperature:
  PTFE: -65°F to 450°F (-54°C to 232°C)
  Graphite: -65°F to 1200°F (-54°C to 649°C)
- Two-stem design: thread hardened upper stem and smooth surface hardened lower stem
- Upper stem thread lubricant is isolated from system fluid
- The nonrotating lower stem, linearly instead of helical movement, avoids galling damage to the seat and tip, as well as reduces the total friction area between the packing and the lower stem
- Stem back seating seals in fully open position
- Panel mounting is available as an option
- Double lock-pins enable steady and durable fastening of the handle
- Handle of different colors are available for option

Needle Valve structural materials

Component	Material / ASTM Specification
Body	316 S.S. / ASTM A182
	A105 / ASTM A105
	LF2 / ASTM A350
Lower Stem	316 S.S. / ASTM A479
Bonnet	316 S.S. / ASTM A479
Packing	Graphite
Packing Washer	316 S.S. / ASTM A479
Packing Bolt	316 S.S. / ASTM A479
Stem Actuator	316 S.S. / ASTM A479
Set Screw	304 S.S.
Anodized Aluminum	6061
Nut	S17400 / ASTM B783
Pin	304 S.S.



- The above materials are the basic configuration, which can be configured according to the user's requirements
- Process interface valves for sour gas service are available, materials are selected in accordance with NACE MR0175/ISO 15156

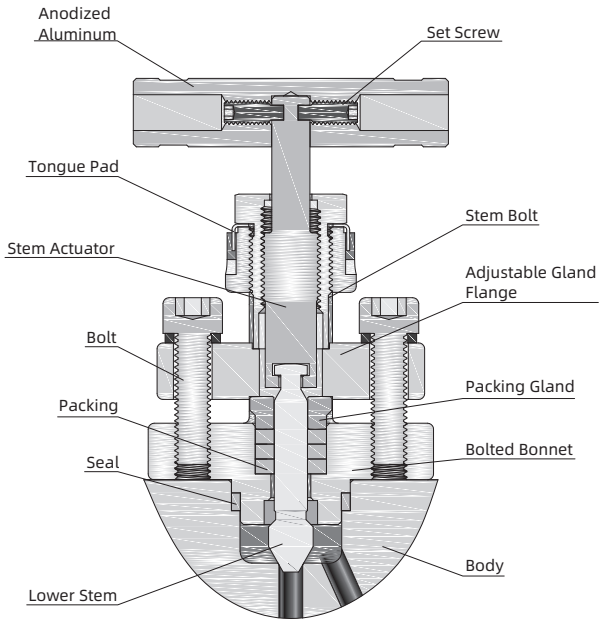
OS&Y Needle Valve specification

- Maximum working pressure is 10000 psig(689 bar)
- Working temperature are as follows:
  PTFE: -65°F to 450°F (-54°C to 232°C)
  Graphite: -65°F to 1200°F (-54°C to 649°C)
- Two-stem design: thread hardened upper stem and smooth surface hardened lower stem
- Upper stem thread lubricant is isolated from system fluid
- The nonrotating lower stem, linearly instead of helical movement, avoids galling damage to the seat and tip, as well as reduces the total friction area between the packing and the lower stem
- Bolted bonnet enhance strength and reliability
- Back seat design provides secondary stem sealing and prevents stem blowout
- Adjustable gland flange allows easy access to the packing gland and packing adjustment for an effective stem seal
- Stem bolt is formed by precision casting which enhances strength and perfect stem alignment
- Two handle pins make the handle fixed firmly and lastingly

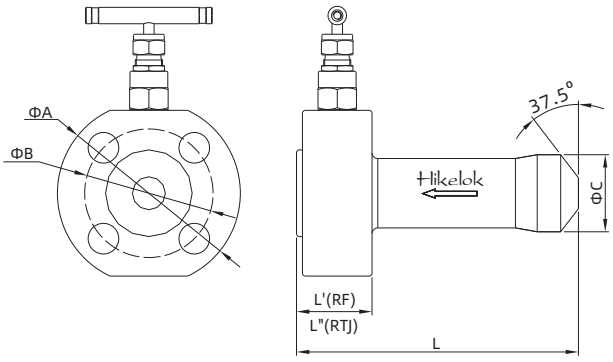
OS&Y Needle Valve structural materials

Component	Material / ASTM Specification
Body	316 S.S. / ASTM A182
	A105 / ASTM A105
	LF2 / ASTM A350
Lower Stem	316 S.S. / ASTM A479
Bolted Bonnet	316 S.S. / ASTM A182
Packing	Graphite
Adjustable Gland Flange	316 S.S. / ASTM A182
Packing Gland	316 S.S. / ASTM A479
Stem Bolt	316 S.S. / ASTM A479
Stem Actuator	316 S.S. / ASTM A479
Set Screw	304 S.S
Anodized Aluminum	6061
Tongue Pad	304 S.S.
Seal	Graphite

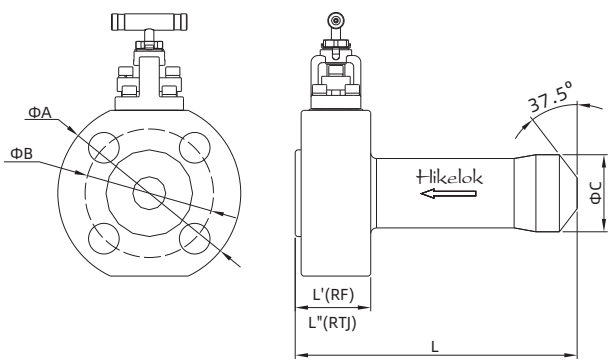
- The above materials are the basic configuration, which can be configured according to the user's requirements
- Process interface valves for sour gas service are available, materials are selected in accordance with NACE MR0175/ISO 15156



Outlet Inlet



Needle Valve



OS&Y Needle Valve

Dimensions

Flange Size	Orifice Size in.(mm)	ASME Class	L in.(mm)	L' in.(mm)	L" in.(mm)	ΦA in.(mm)	ΦB in.(mm)	ΦC in.(mm)
1/2 (DN15)	0.37 (9.5) Other orifice sizes are available	150	6.15(155.2)	1.89(48)	—	3.54 (90)	2.37 (60.3)	1.06(27.0)
		300			1.89(48)	3.74 (95)	2.63 (66.7)	
		600						
		900/1500	6.43(163.2)	2.20(56)	2.20(56)	4.72 (120)	3.25 (82.6)	
		2500				5.31(135)	3.50 (88.9)	
3/4 (DN20)		150	6.15(156.2)	1.93(49)	—	3.94 (100)	2.75 (69.9)	1.57(40.0)
		300	6.26 (159.2)	2.05 (52)	2.05 (52)	4.53 (115)	3.25 (82.6)	
		600						
		900/1500	6.43(163.2)	2.20(56)	2.20(56)	5.12 (130)	3.50 (88.9)	
		2500				5.51 (140)	3.75 (95.2)	
1 (DN25)		150	6.26 (159.2)	2.05 (52)	2.05 (52)	4.33 (110)	3.13 (79.4)	
		300	6.43(163.2)	2.20(56)	2.20(56)	4.92(125)	3.50(88.9)	
		600						
		900/1500	6.70 (170.2)	2.48 (63)	2.48 (63)	5.91 (150)	4.00(101.6)	
		2500	6.90 (175.2)	2.68 (68)	2.68 (68)	6.30 (160)	4.25(108.0)	

- The above dimensions are for reference only and may change with the upgrade of the product
- The above dimensions are based on the basic configuration (Needle Valve), and will vary with the configuration and accessories such as using OS&Y Needle Valve.

How to Order

RTV1 — O — PBW8 — RF8600 — 8P — 316

Series	Valve Type	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Flange Class	Vent Type and Size	Body Material
RTV1	Needle	**PBW** Pipe Butt Weld	**8** 1/2 in. or 8 mm	**FNPT** Female NPT	**4** 1/4 in.	**300** Class 300	No VENT	**316** 316 S.S.
	O OS&Y	**MBW** Metric Tube Butt Weld	**12** 3/4 in. or 12 mm	**NPT** Male NPT	**6** 3/8 in.	**600** Class 600	**4** 1/4" NPT Female	**316L** 316L S.S.
		FBW Fractional Tube Butt Weld	**14** 14 mm	**FBT** Female BSPT	**8** 1/2 in.	**900** Class 900	**8** 1/2" NPT Female	**304** 304 S.S.
			16 1 in. or 16 mm	**MBT** Male BSPT	**12** 3/4 in.	**1500** Class 1500	**4P** 1/4" NPT Female With Plug	**304L** 304L S.S.
			18 18 mm	**FMS** Female Metric	**14** M14 x 1.5	**2500** Class 2500	**8P** 1/2" NPT Female With Plug	**A105** A105
			20 1 1/4 in. or 20mm	**MS** Male Metric (for BG)	**16** 1 in.	**4500** Class 4500		**LF2** LF2
			22 22 mm	**FBP** Female BSPP	**20** 1 1/4 in. or M20 x 1.5			
			24 1 1/2 in.	**RF** RF Flange	**22** M22 x 1.5			
			25 25 mm	**RTJ** RJ Flange	**24** 1 1/2 in. or M24 x 1.5			
			28 28 mm		**27** M27 x 2			
					32 2 in.			

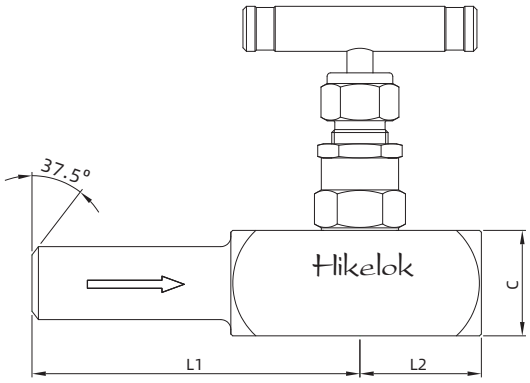
Root Valves

RTV2 Series

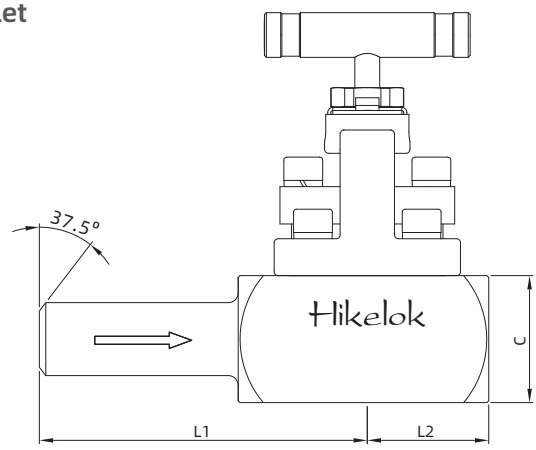
Features

- Maximum working pressure up to 10000 psig (689 bar)
- Working temperature up to 1200°F(649°C) with Graphite packing
- Pressure ratings in accordance with ASME B16.34
- Every valve is hydraulic pressure tested in accordance with EN 12266-1 and API 598, every set is tested with nitrogen for leak-tight performance at 6000 psig
- Fire-tested design in accordance with BS 6755 part 2/API 607

Inlet Outlet



Needle Valve



OS&Y Needle Valve

Dimensions

Valve Type	Pressure Class	C in.(mm)	L1 in.(mm)	L2 in.(mm)	Orifice Size in.(mm)
Needle Valve	2500	1.5(38.1)	3.62(92)	1.26(32)	0.24 (6.0)
OS&Y Needle Valve					0.16 (4.0)

Material Standards

- The material selection of RTV2 series is the same as that of RTV1 series

How to Order

RTV2 — O — PBW8 — FNPT82500 — 4 — 316

Series	Valve Type	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Pressure Class	Vent Type and Size	Body Material
RTV2	Needle	**PBW** Pipe Butt Weld	**8** 1/2 in. or 8 mm	**FNPT** Female NPT	**4** 1/4 in.	**2500** Class 2500	No VENT	**316** 316 S.S.
	O OS&Y	**MBW** Metric Tube Butt Weld	**12** 3/4 in. or 12 mm	**NPT** Male NPT	**6** 3/8 in.	**4500** Class 4500	**4** 1/4"NPT Female	**316L** 316L S.S.
		FBW Fractional Tube Butt Weld	**14** 14 mm	**FBT** Female BSPT	**8** 1/2 in.		**8** 1/2"NPT Female	**304** 304 S.S.
			16 1 in. or 16 mm	**MBT** Male BSPT	**12** 3/4 in.		**4P** 1/4"NPT Female With Plug	**304L** 304L S.S.
			18 18 mm	**FMS** Female Metric	**14** M14 x 1.5			**A105** A105
			20 1 1/4 in. or 20mm	**MS** Male Metric (for BG)	**16** 1 in.		**8P** 1/2"NPT Female With Plug	**LF2** LF2
			22 22 mm	**FBP** Female BSPP	**20** 1 1/4 in. or M20 x 1.5			
			24 1 1/2 in.	**MBP** Male BSPP (for BG)	**22** M22 x 1.5			
			25 25 mm		**24** 1 1/2 in. or M24 x 1.5			
			28 28 mm		**27** M27 x 2			
					32 2 in.			