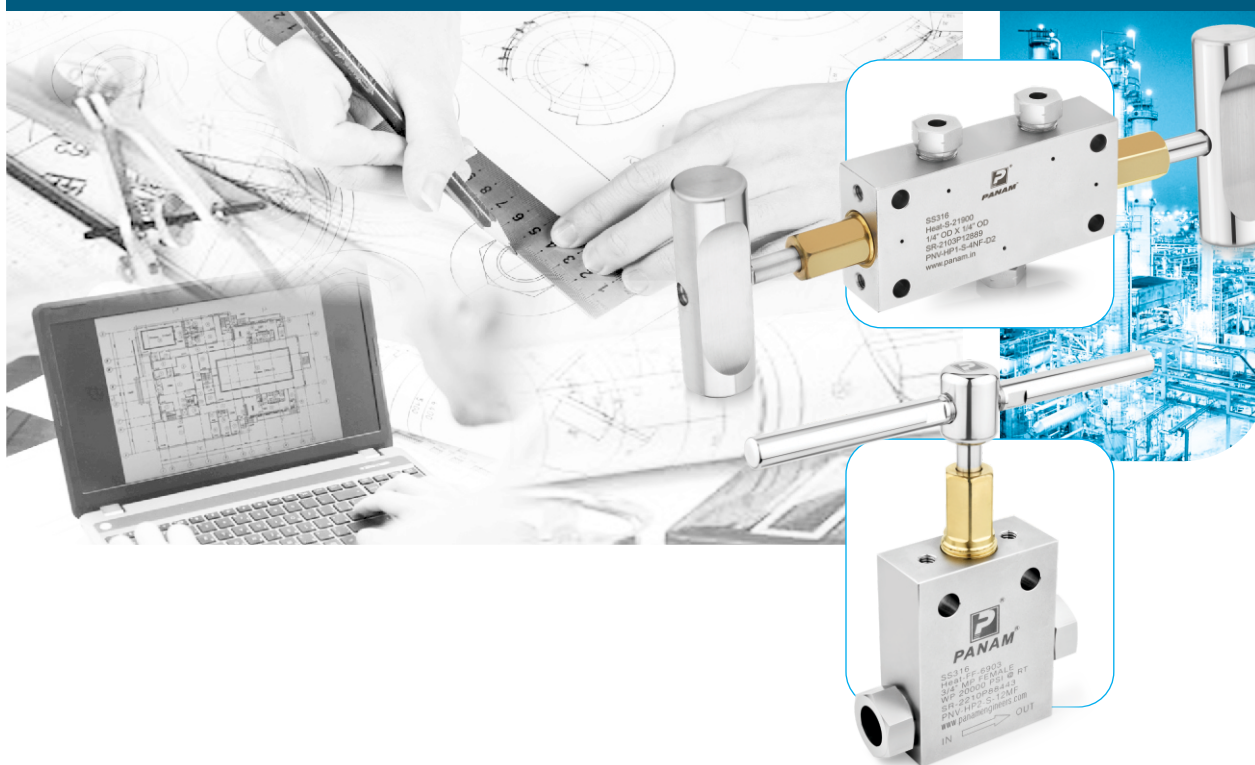
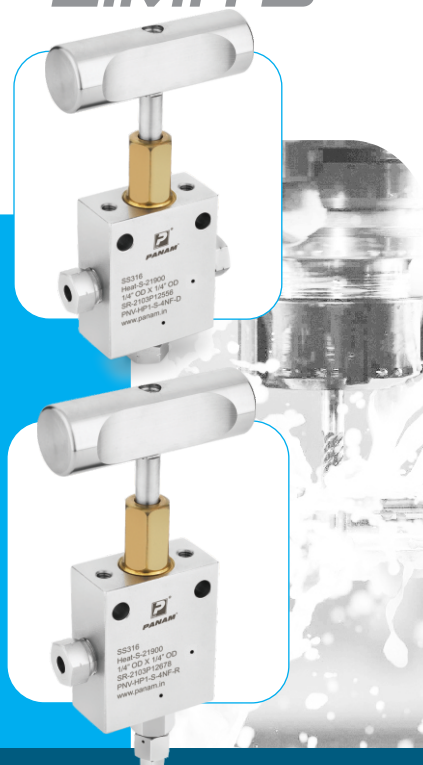




PANAM
ENGINEERING
BEYOND
LIMITS

Needle Valves (HP Series)

Maximum Working Pressure upto
60000 psi (4134 bar)



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Rev/04/2023

Introduction

PANAM[®] has emerged as renowned name in Global market for 'Instrumentation Fittings & Valves'. Since its inception in 1998 to present day, **PANAM**[®] has added new product every year and has broadened its product portfolio and its clientele base by supplying to potential customers worldwide. Key core values like Timely Delivery, Quality Consistency, Product Improvisation and after sales service has been instrumental in the phase wise evolution of company. Continuous improvement is the key to success, Customer feedback are taken with positive attitude and product are constantly groomed to a new quality and performance level to cope up with the competition. Our products are known for providing high-quality, high-reliability, low-cost options for the oil and gas industry. Over the year, the company has evolved from a product based company to a complete system solution provider. Over the coming years the entity of the company will attain state of the art operational efficiency for maintaining a competitive edge, with the advent increase in the utilization of its products in oil, gas and power sector.

PANAM[®] is having state of the art manufacturing facility span over an area of 65,000 sqft with a fleet of CNC Machines, VMC Machines, Semi-Automatic Lathe Machines, High Pressure Test Bench with SCADA control, Configuration Centre for Transmitters and dedicated R&D Team.

PANAM[®] offers a large variety of Needle Valves (HP Series) from different materials like Stainless Steel, Inconel 625, Super Duplex as per the customer's requirements.

PANAM[®] offers Needle Valves (HP Series) with a variety of end connections including NPT Tapered, Medium and High Pressure Cone End Threads etc.

PANAM[®] Needle Valves (HP Series) are 100% factory tested, comply with NACE MR0175 / ISO 15156 with Heat Code Traceability. Maximum Working Pressure up to 60000 psi (4134 bar). The product meets and even exceeds the requirements of ASME and MSS series standards. All materials are supplied in compliance with ASTM Specifications and verified by NABL approved third party laboratories.

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Needle Valves (HP Series) For Pressure up to 60000 psi (4134 bar)

PANAM® Needle valves (HP Series) are specially designed and manufactured for use in rugged, corrosive & hazardous environments up to 60000 psi (4134 bar). These valves are used in process control, instrumentation and flow control applications. **PANAM**® Needle valves (HP Series) are precision machined, designed for durability and maximum efficiency and provide high quality Valves. Needle valves (HP Series) meets the stringent requirements of the customers.

All Valves are 100% factory tested.

Features

Working Pressure up to 60000 psi (4134 bar)
 Connection sizes - 1/4", 3/8", 1/2", 9/16", 3/4", 1"
 Connection Type - Medium and high pressure cone and thread, NPT threads, BSPT threads & BSPP threads
 Panel mounting option available
 Vee type stem is standard
 Bonnet machined from C63000 for reduced operation torque
 Packing below stem threads
 Full open in 4 to 5 turns for 1/4", 3/8", 1/2", 9/16" valves
 Full open in 3 to 4 turns for 3/4", 1" valves
 Two-piece, heavy-duty, non-rotating stem for a robust and reliable assembly
 Temperature up to 250°F (121°C) with glass filled PTFE packing, up to 1200°F (648°C) with Grafoil packing
 Valves can be supplied to meet current revision of NACE MR0175 and NACE MR0103 (Sour Gas Service).

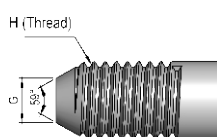
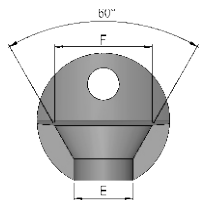
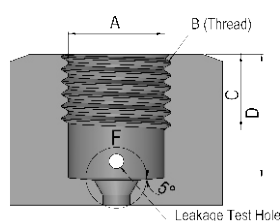
Testing

Every Needle Valve - HP Series is factory tested up to its maximum pressure rating to a requirement of no detectable leakage

Cleaning and Packaging

All **PANAM**® Needle Valve - HP series are cleaned and packaged in accordance with **PANAM**® standard cleaning and packaging (PWI/5.7/21)

Dimensions - Cone & Thread End Connection

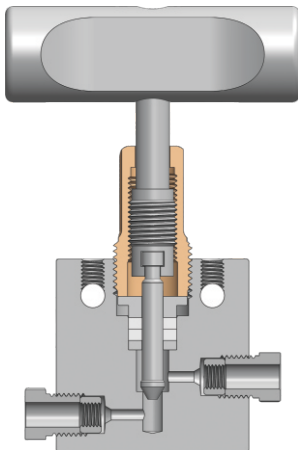


Tube Size, in.	Dimensions in. (mm)							
	A	B	C	D	E	F	G	H
Medium Pressure 20000 psi (1378 bar)								
1/4	0.39	7/16	0.28	0.50	0.11	0.19	0.14	1/4
	(9.9)	(20.0)	(7.1)	(12.7)	(2.8)	(4.6)	(3.6)	(28.0)
3/8	0.52	9/16	0.38	0.63	0.20	0.31	0.25	3/8
	(13.2)	(18.0)	(9.7)	(16.0)	(5.1)	(7.9)	(6.4)	(24.0)
9/16	0.75	13/16	0.44	0.75	0.31	0.50	0.41	9/16
	(19.0)	(16.0)	(11.2)	(19.0)	(7.9)	(12.7)	(10.4)	(18.0)
3/4	0.95	3/4	0.70	0.94	0.44	0.63	0.56	3/4
	(24.1)	(14NPSM)	(17.8)	(23.9)	(11.2)	(16.0)	(14.2)	(16.0)
1	1.30	1-3/8	0.81	1.31	0.56	0.88	0.72	1
	(33.0)	(12.0)	(20.6)	(33.3)	(14.2)	(22.4)	(18.3)	(14.0)
High Pressure 60000 psi (4134 bar)								
1/4	0.52	9/16	0.38	0.44	0.09	0.17	0.13	1/4
	(13.2)	(18.0)	(9.7)	(11.2)	(2.3)	(4.3)	(3.3)	(28.0)
3/8	0.69	3/4	0.53	0.63	0.13	0.27	0.22	3/8
	(17.5)	(16.0)	(13.5)	(16.0)	(3.3)	(6.9)	(5.6)	(24.0)
9/16	1.05	1-1/8	0.62	0.75	0.19	0.38	0.28	9/16
	(26.7)	(12.0)	(15.7)	(19.0)	(4.6)	(9.7)	(7.1)	(18.0)

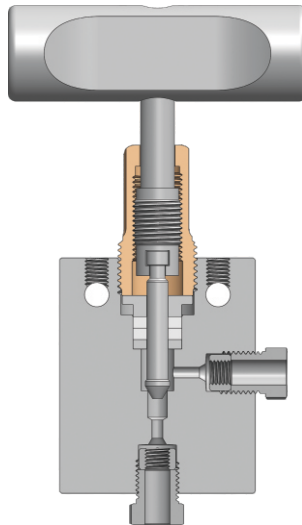
Dimensions are for reference only and subject to change

Body Styles

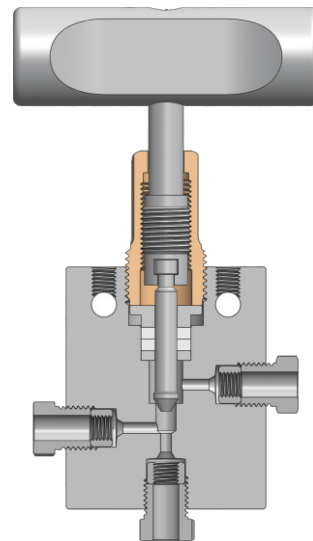
Straight



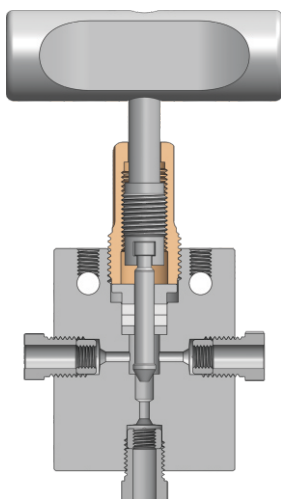
Angle



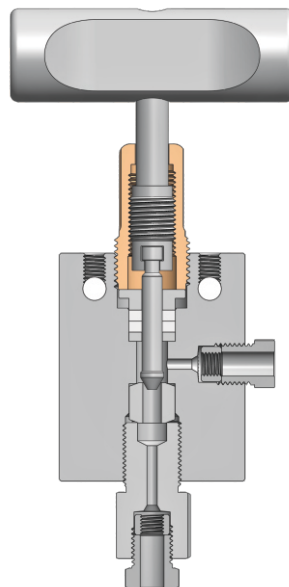
Mixture (2 inlet Ports)



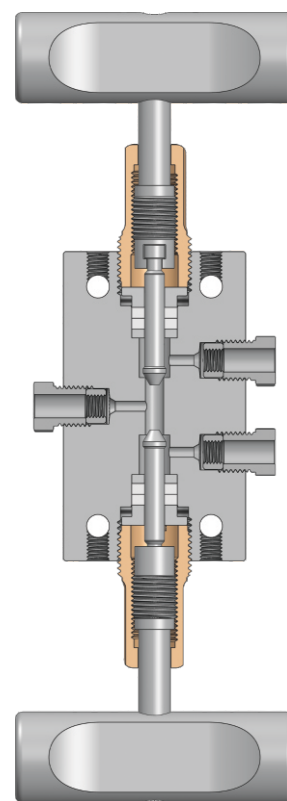
Diverter (2 Outlet Ports)



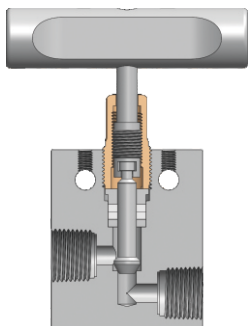
Replaceable Seat



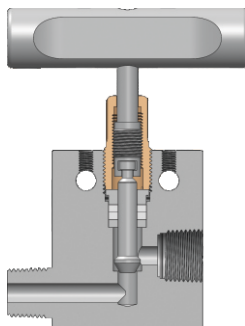
Diverter 2 (1 Inlet Port)



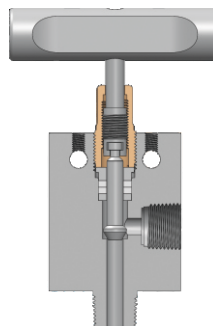
Available with NPT End Connections Only



**2-Way Straight
Female to Female NPT**

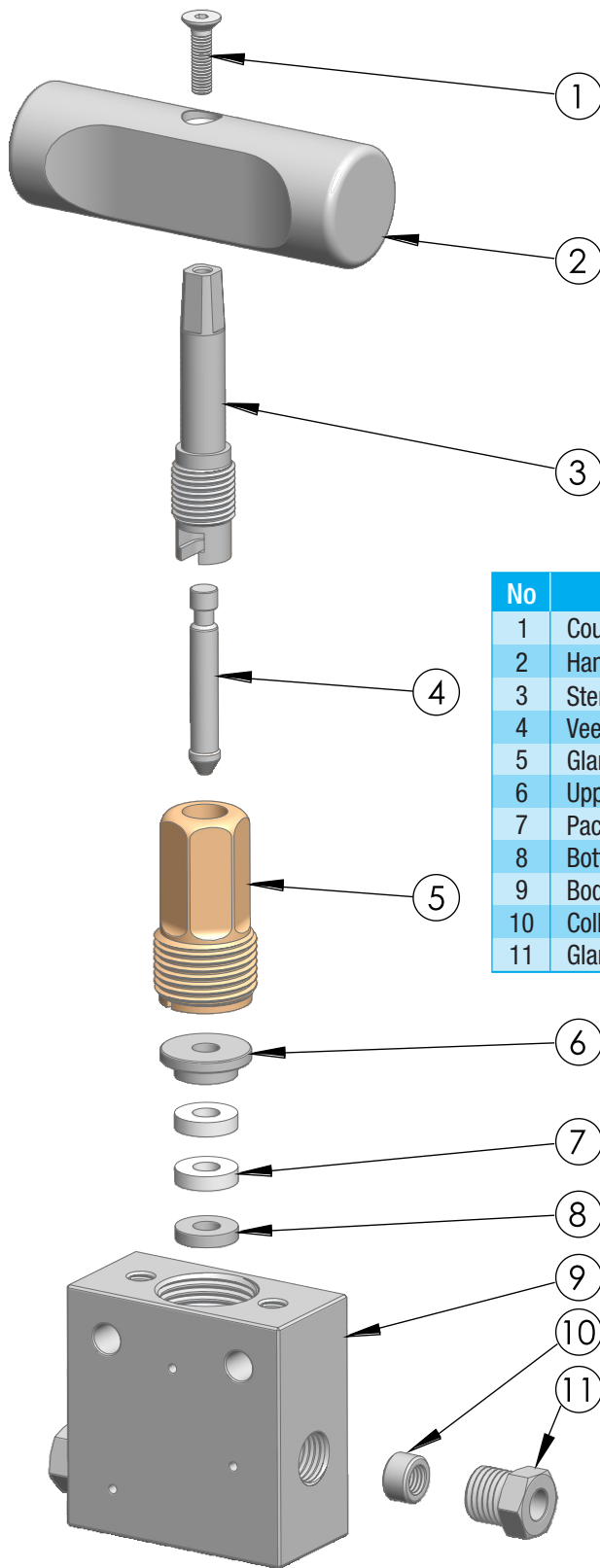


**2-Way Straight
Male to Female NPT**



**2-Way Angle
Male to Female NPT**

Material of Construction - Needle Valve (HP Series) upto 60000 psi (4134 bar)

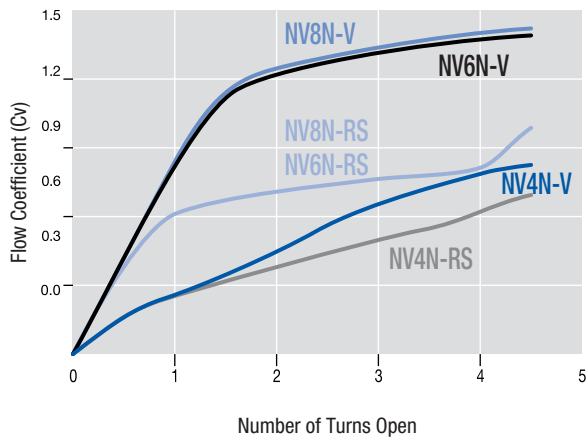


No	Part	Qty	Material
1	Counter Shank Screw	1	ASTM A193 B8M
2	Handle	1	ASTM A479 SS316
3	Stem	1	ASTM A479 SS316
4	Vee Tip	3	ASTM A584 SS174
5	Gland Body	1	C63000
6	Upper Gland	1	ASTM A479 SS316
7	Packing	1	Glass Filled PTFE
8	Bottom Gland	1	ASTM A479 SS316
9	Body	1	ASTM A479 SS316
10	Collar	1	ASTM A276 SS316
11	Gland	1	ASTM A276 SS316

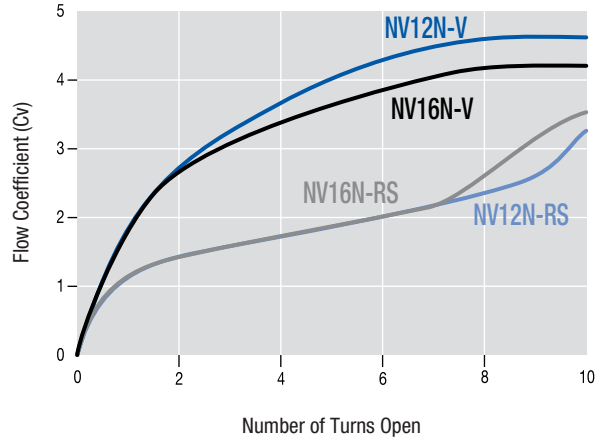
Flow Coefficient at Turns Open

NPT End Connections, 2-Way Straight Pattern

15000 psi (1034 bar) Pressure Rating

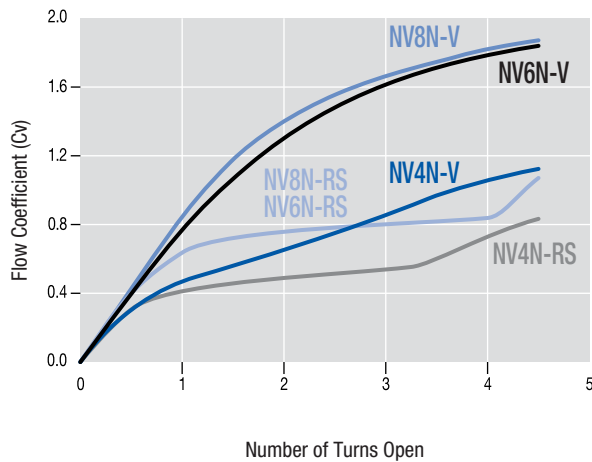


10000 psi (689 bar) Pressure Rating

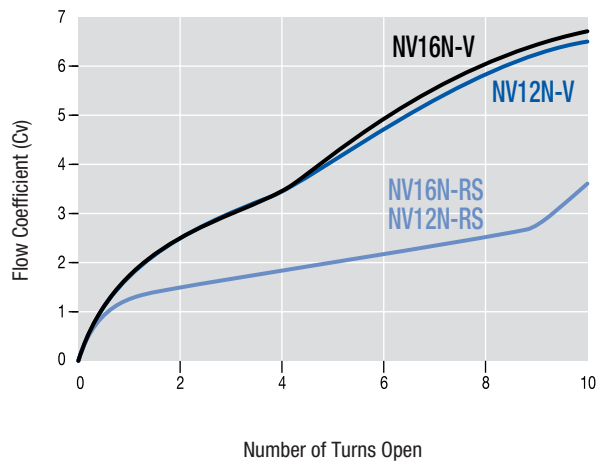


NPT End Connections, 2-Way Angle Pattern

15000 psi (1034 bar) Pressure Rating



10000 psi (689 bar) Pressure Rating

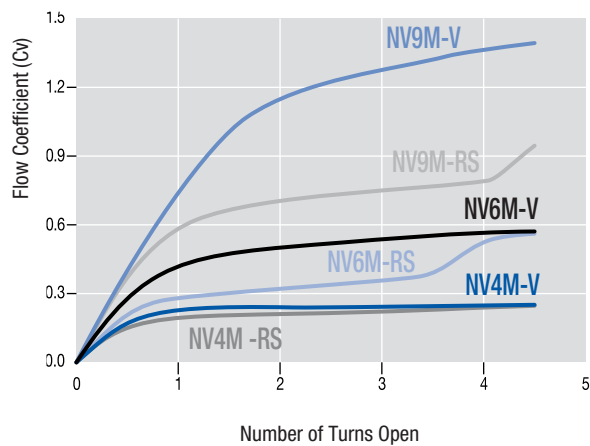


V = Vee Stem Tip; RS = Regulating Stem Tip

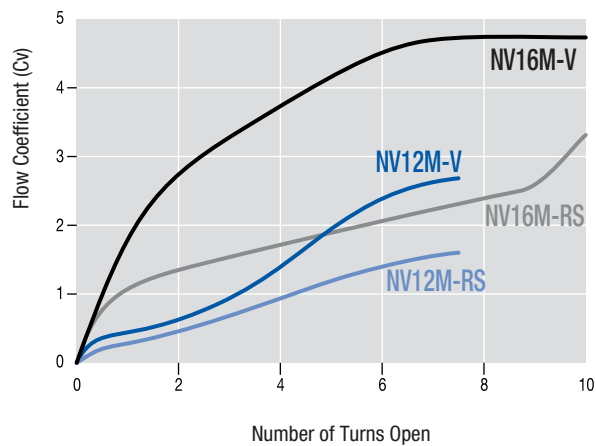
Flow Coefficient at Turns Open

Medium Pressure C&T End Connections, 2-Way Straight Pattern

20000 psi (1378 bar) Pressure Rating

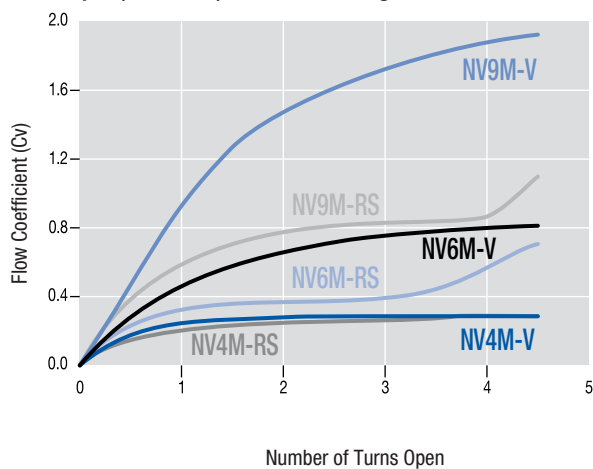


20000 psi (1378 bar) Pressure Rating

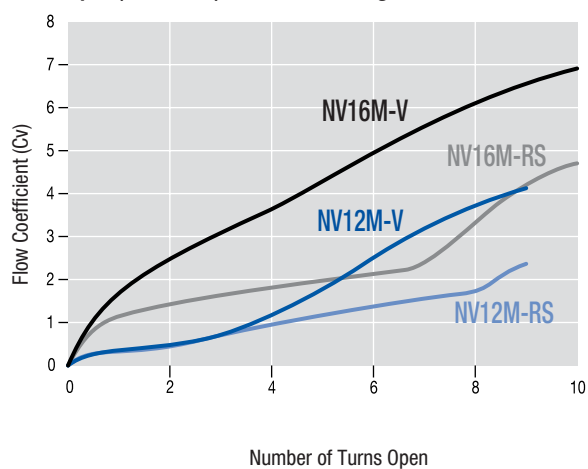


Medium Pressure C&T End Connections, 2-Way Angle Pattern

20000 psi (1378 bar) Pressure Rating



20000 psi (1378 bar) Pressure Rating

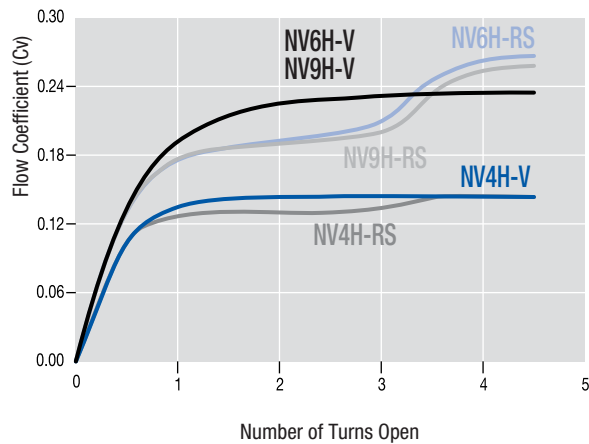


V = Vee Stem Tip; RS = Regulating Stem Tip

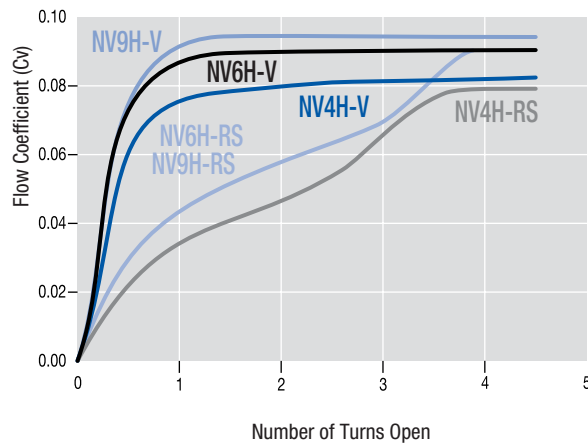
Flow Coefficient at Turns Open

High Pressure C&T End Connections, 2-Way Straight Pattern

30000 psi (2067 bar) Pressure Rating

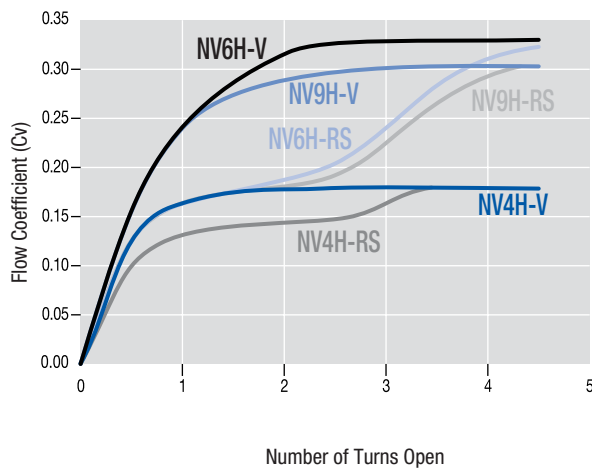


60000 psi (4134 bar) Pressure Rating

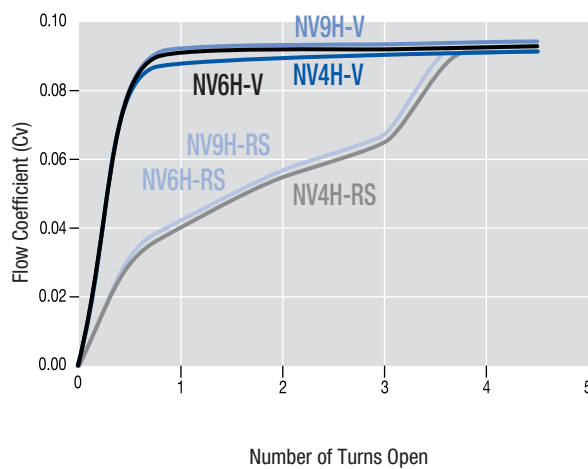


High Pressure C&T End Connections, 2-Way Angle Pattern

30000 psi (2067 bar) Pressure Rating

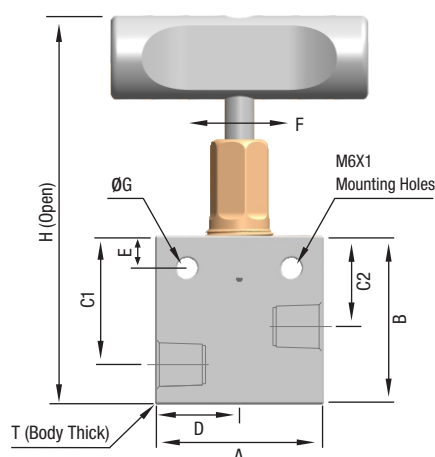


60000 psi (4134 bar) Pressure Rating



V = Vee Stem Tip; RS = Regulating Stem Tip

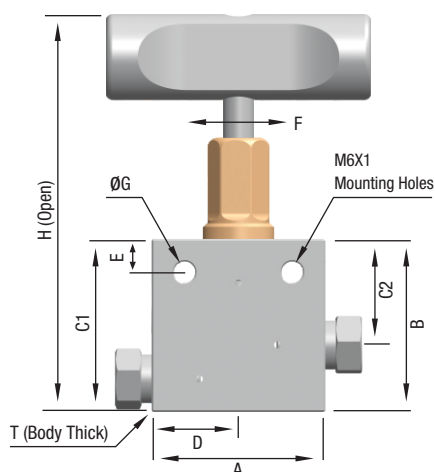
Needle Valve - HP Series (Straight)



Connection Type	Part No	Size inch	Dimensions in, (mm)											
			Orifice	A	B	C1	C2	D	E	F	G	H	T	
10000 psig (689 bar)														
Female to Female NPT	PNV-HP-S-2NF	1/8	0.19	2.00	1.77	1.26	1.00	1.00	0.38	1.38	0.25	3.78	1.00	
			(4.80)	(50.80)	(45.00)	(32.00)	(25.40)	(25.40)	(9.70)	(35.00)	(6.40)	(96.00)	(25.40)	
	PNV-HP-S-4NF	1/4	0.19	2.00	1.77	1.26	1.00	1.00	0.38	1.38	0.25	3.78	1.00	
			(4.80)	(50.80)	(45.00)	(32.00)	(25.40)	(25.40)	(9.70)	(35.00)	(6.40)	(96.00)	(25.40)	
	PNV-HP-S-6NF	3/8	0.19	2.00	1.77	1.26	1.00	1.00	0.38	1.38	0.25	3.78	1.00	
			(4.80)	(50.80)	(45.00)	(32.00)	(25.40)	(25.40)	(9.70)	(35.00)	(6.40)	(96.00)	(25.40)	
	PNV-HP-S-8NF	1/2	0.25	2.50	2.17	1.50	1.22	1.25	0.38	1.57	0.34	4.49	1.26	
			(6.40)	(63.50)	(55.00)	(38.00)	(31.00)	(31.75)	(9.70)	(40.00)	(8.70)	(114.00)	(32.00)	
	PNV-HP-S-12NF	3/4	0.37	2.68	2.50	1.69	1.32	1.34	0.38	1.75	0.34	4.96	1.50	
			(9.50)	(68.00)	(63.50)	(43.00)	(33.50)	(34.00)	(9.70)	(44.50)	(8.70)	(126.00)	(38.00)	
	PNV-HP-S-16NF	1	0.37	3.15	2.76	1.77	1.40	1.57	0.38	1.75	0.34	5.20	1.77	
			(9.50)	(80.00)	(70.00)	(45.00)	(35.50)	(40.00)	(9.70)	(44.50)	(8.70)	(132.00)	(45.00)	
Male to Female NPT	PNV-HP-S-4NMF	1/4	0.19	2.50	1.77	1.38	1.00	0.95	0.38	1.38	0.25	3.78	1.00	
			(4.80)	(63.50)	(45.00)	(35.00)	(25.40)	(24.25)	(9.70)	(35.00)	(6.40)	(96.00)	(25.40)	
	PNV-HP-S-6NMF	3/8	0.19	2.50	1.77	1.38	1.00	0.95	0.38	1.38	0.25	3.78	1.00	
			(4.80)	(63.50)	(45.00)	(35.00)	(25.40)	(24.25)	(9.70)	(35.00)	(6.40)	(96.00)	(25.40)	
	PNV-HP-S-8NMF	1/2	0.25	3.00	2.17	1.65	1.22	1.18	0.38	1.57	0.34	4.49	1.26	
			(6.40)	(76.20)	(55.00)	(42.00)	(31.00)	(30.00)	(9.70)	(40.00)	(8.70)	(114.00)	(32.00)	
	PNV-HP-S-12NMF	3/4	0.37	3.43	2.50	1.89	1.32	1.34	0.38	1.75	0.34	4.96	1.50	
			(9.50)	(87.00)	(63.50)	(48.00)	(33.50)	(34.00)	(9.70)	(44.50)	(8.70)	(126.00)	(38.00)	
	PNV-HP-S-16NMF	1	0.37	3.94	2.76	1.97	1.40	1.97	0.38	1.75	0.34	5.20	1.77	
			(9.50)	(100.00)	(70.00)	(50.00)	(35.50)	(50.00)	(9.70)	(44.50)	(8.70)	(132.00)	(45.00)	
	15000 psig (1034 bar)													
	Female to Female NPT	PNV-HP1-S-4NF	1/4	0.25	2.00	2.00	1.63	1.19	1.00	0.38	1.24	0.25	4.84	1.00
(6.40)				(50.80)	(50.80)	(41.30)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(123.00)	(25.40)	
PNV-HP1-S-6NF		3/8	0.31	2.50	2.88	2.38	1.75	1.25	0.50	1.38	0.34	5.51	1.00	
			(7.90)	(63.50)	(73.20)	(60.40)	(44.50)	(31.75)	(12.70)	(35.00)	(8.70)	(140.00)	(25.40)	
PNV-HP1-S-8NF		1/2	0.31	2.50	3.00	2.38	1.75	1.25	0.50	1.38	0.34	5.59	1.25	
			(7.90)	(63.50)	(76.20)	(60.40)	(44.50)	(31.75)	(12.70)	(35.00)	(8.70)	(142.00)	(31.80)	
Male to Female NPT	PNV-HP1-S-4NMF	1/4	0.25	2.50	2.00	1.63	1.19	1.00	0.38	1.24	0.25	4.84	1.00	
			(6.40)	(63.50)	(50.80)	(41.30)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(123.00)	(25.40)	
	PNV-HP1-S-6NMF	3/8	0.31	3.00	2.88	2.38	1.75	1.25	0.50	1.38	0.34	5.51	1.00	
			(7.90)	(76.20)	(73.20)	(60.40)	(44.50)	(31.75)	(12.70)	(35.00)	(8.70)	(140.00)	(25.40)	
	PNV-HP1-S-8NMF	1/2	0.31	3.25	3.00	2.38	1.75	1.25	0.50	1.38	0.34	5.59	1.25	
			(7.90)	(82.50)	(76.20)	(60.40)	(44.50)	(31.75)	(12.70)	(35.00)	(8.70)	(142.00)	(31.80)	

Dimensions are for reference only and subject to change

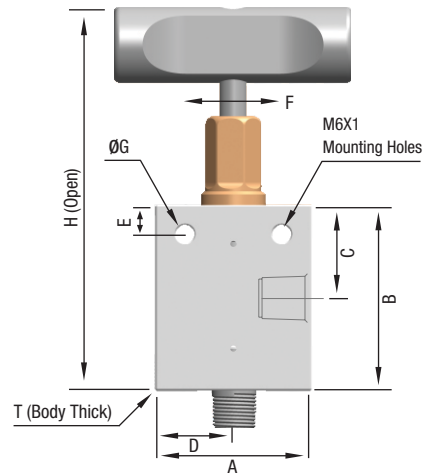
Needle Valve - HP Series (Straight)



Connection Type	Part No	Size inch	Dimensions in, (mm)										
			Orifice	A	B	C1	C2	D	E	F	G	H	T
20000 psig (1378 bar)													
PANAM® MP Cone and Thread	PNV-HP2-S-4MF	1/4	0.13	2.00	2.00	1.63	1.19	1.00	0.38	1.24	0.25	4.84	1.00
			(3.20)	(50.80)	(50.80)	(41.30)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(123.00)	(25.40)
	PNV-HP2-S-6MF	3/8	0.20	2.00	2.00	1.63	1.19	1.00	0.38	1.24	0.25	4.84	1.00
			(5.10)	(50.80)	(50.80)	(41.30)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(123.00)	(25.40)
	PNV-HP2-S-9MF	9/16	0.31	2.50	2.88	2.38	1.75	1.25	0.50	1.38	0.34	5.4	1.00
			(7.90)	(63.50)	(73.20)	(60.50)	(44.50)	(31.75)	(12.70)	(35.00)	(8.70)	(139.00)	(25.40)
	PNV-HP2-S-12MF	3/4	0.44	3.00	3.75	3.00	2.25	1.50	0.62	1.75	0.44	7.07	1.38
			(11.20)	(76.20)	(95.30)	(76.20)	(57.20)	(38.10)	(15.70)	(44.50)	(11.20)	(179.60)	(35.10)
	PNV-HP2-S-16MF	1	0.56	4.12	4.75	3.75	2.82	2.06	1.12	2.50	0.56	8.96	1.75
			(14.20)	(104.60)	(120.70)	(95.30)	(71.60)	(52.30)	(28.40)	(63.50)	(14.20)	(227.60)	(44.50)
30000 psig (2067 bar)													
PANAM® HP Cone and Thread	PNV-HP3-S-4HF	1/4	0.09	2.00	2.00	1.50	1.12	1.00	0.38	1.38	0.28	4.72	1.00
			(2.40)	(50.80)	(50.80)	(38.10)	(28.50)	(25.40)	(9.70)	(35.10)	(7.10)	(120.00)	(25.40)
	PNV-HP3-S-6HF	3/8	0.13	2.00	2.00	1.50	1.12	1.00	0.38	1.38	0.28	4.72	1.00
			(3.20)	(50.80)	(50.80)	(38.10)	(28.50)	(25.40)	(9.70)	(35.10)	(7.10)	(120.00)	(25.40)
	PNV-HP3-S-9HF	9/16	0.13	2.62	2.50	1.62	1.12	1.31	0.38	1.38	0.28	5.20	1.50
(3.20)			(66.50)	(63.50)	(41.10)	(28.50)	(33.25)	(9.70)	(35.10)	(7.10)	(132.00)	(31.80)	
60000 psig (2067 bar)													
PANAM® HP Cone and Thread	PNV-HP6-S-4HF	1/4	0.06	2.00	2.12	1.69	1.31	1.00	0.38	1.38	0.28	4.88	1.00
			(1.60)	(50.80)	(53.80)	(43.00)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(121.00)	(25.40)
	PNV-HP6-S-6HF	3/8	0.06	2.00	2.25	1.69	1.31	1.00	0.38	1.38	0.28	5.04	1.00
			(1.60)	(50.80)	(57.20)	(43.00)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(121.00)	(25.40)
	PNV-HP6-S-9HF	9/16	0.06	2.62	2.50	1.75	1.31	1.31	0.38	1.38	0.28	5.28	1.50
(1.60)			(66.50)	(63.50)	(44.40)	(33.30)	(33.25)	(9.70)	(35.10)	(7.10)	(134.10)	(31.80)	

Dimensions are for reference only and subject to change

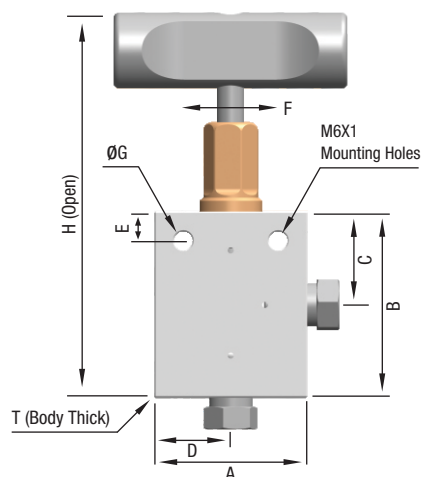
Needle Valve - HP Series (Angle)



Connection Type	Part No	Size inch	Dimensions in, (mm)									
			Orifice	A	B	C	D	E	F	G	H	T
10000 psig (689 bar)												
Female to Female NPT	PNV-HP-S-4NF-A	1/4	0.19	2.00	2.00	1.00	1.00	0.38	1.38	0.25	4.02	1.00
			(4.80)	(50.80)	(50.80)	(25.40)	(25.40)	(9.70)	(35.00)	(6.40)	(102.00)	(25.40)
	PNV-HP-S-6NF-A	3/8	0.19	2.00	2.00	1.00	1.00	0.38	1.38	0.25	4.20	1.00
			(4.80)	(50.80)	(50.80)	(25.40)	(25.40)	(9.70)	(35.00)	(6.40)	(102.00)	(25.40)
	PNV-HP-S-8NF-A	1/2	0.31	2.50	2.50	1.22	1.25	0.38	1.57	0.34	4.80	1.26
			(7.90)	(63.50)	(63.50)	(31.00)	(31.75)	(9.70)	(40.00)	(8.70)	(122.00)	(32.00)
	PNV-HP-S-12NF-A	3/4	0.37	2.68	2.68	1.32	1.34	0.38	1.75	0.34	5.20	1.50
			(9.50)	(68.00)	(68.00)	(33.50)	(34.00)	(9.70)	(44.50)	(8.70)	(132.00)	(38.00)
	PNV-HP-S-16NF-A	1	0.37	3.15	3.15	1.40	1.57	0.38	1.75	0.34	5.59	1.77
			(9.50)	(80.00)	(80.00)	(35.50)	(40.00)	(9.70)	(44.50)	(8.70)	(142.00)	(45.00)
Male to Female NPT	PNV-HP-S-4NMF-A	1/4	0.19	2.00	2.00	1.00	1.00	0.38	1.38	0.25	4.02	1.00
			(4.80)	(50.80)	(50.80)	(25.40)	(25.40)	(9.70)	(35.00)	(6.40)	(102.00)	(25.40)
	PNV-HP-S-6NMF-A	3/8	0.19	2.00	2.00	1.00	1.00	0.38	1.38	0.25	4.02	1.00
			(4.80)	(50.80)	(50.80)	(25.40)	(25.40)	(9.70)	(35.00)	(6.40)	(102.00)	(25.40)
	PNV-HP-S-8NMF-A	1/2	0.31	2.50	2.56	1.22	1.25	0.38	1.57	0.34	4.88	1.50
			(7.90)	(63.50)	(65.00)	(31.00)	(31.75)	(9.70)	(40.00)	(8.70)	(124.00)	(38.00)
	PNV-HP-S-12NMF-A	3/4	0.37	2.68	2.83	1.32	1.34	0.38	1.75	0.34	5.31	1.50
			(9.50)	(68.00)	(72.00)	(33.50)	(34.00)	(9.70)	(44.50)	(8.70)	(135.00)	(38.00)
	PNV-HP-S-16NMF-A	1	0.37	3.15	3.35	1.40	1.57	0.38	1.75	0.34	5.79	1.77
			(9.50)	(80.00)	(85.00)	(35.50)	(40.00)	(9.70)	(44.50)	(8.70)	(147.00)	(45.00)
15000 psig (1034 bar)												
Female to Female NPT	PNV-HP1-S-4NF	1/4	0.25	2.00	2.00	1.63	1.00	0.38	1.24	0.25	4.84	1.00
			(6.40)	(50.80)	(50.80)	(41.30)	(25.40)	(9.70)	(31.50)	(6.40)	(123.00)	(25.40)
	PNV-HP1-S-6NF	3/8	0.31	2.50	2.88	20.38	1.25	0.50	1.38	0.34	5.51	1.00
			(7.90)	(63.50)	(73.20)	(60.40)	(31.75)	(12.70)	(35.00)	(8.70)	(140.00)	(25.40)
	PNV-HP1-S-8NF	1/2	0.31	2.50	3.00	2.38	1.25	0.50	1.38	0.34	5.59	1.25
			(7.90)	(63.50)	(76.20)	(60.40)	(31.75)	(12.70)	(35.00)	(8.70)	(142.00)	(31.80)
Male to Female NPT	PNV-HP1-S-4NMF-A	1/4	0.25	2.00	2.59	01.63	1.00	0.38	1.24	0.25	4.84	1.00
			(6.40)	(50.80)	(65.80)	(41.30)	(25.40)	(9.70)	(31.50)	(6.40)	(123.00)	(25.40)
	PNV-HP1-S-6NMF-A	3/8	0.31	2.50	3.47	2.38	1.25	0.50	1.38	0.34	5.51	1.00
			(7.90)	(63.50)	(88.20)	(60.40)	(31.75)	(12.70)	(35.00)	(8.70)	(140.00)	(25.40)
	PNV-HP1-S-8NMF-A	1/2	0.31	2.50	3.75	2.38	1.25	0.50	1.38	0.34	5.59	1.25
			(7.90)	(63.50)	(95.20)	(60.40)	(31.75)	(12.70)	(35.00)	(8.70)	(142.00)	(31.80)

Dimensions are for reference only and subject to change

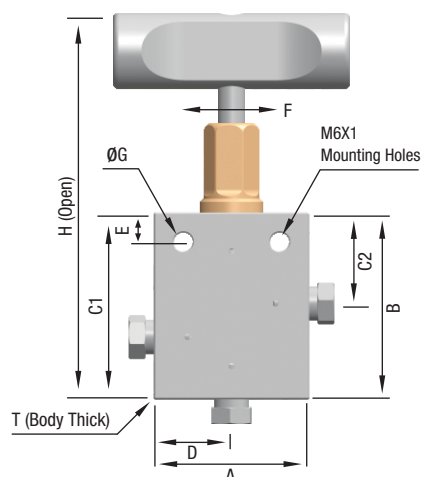
Needle Valve - HP Series (Angle)



Connection Type	Part No	Size inch	Dimensions in, (mm)									
			Orifice	A	B	C	D	E	F	G	H	T
20000 psig (1378 bar)												
PANAM® MP Cone and Thread	PNV-HP2-S-4MF-A	1/4	0.13	2.00	2.44	1.19	1.00	0.38	1.24	0.25	5.28	1.00
			(3.20)	(50.80)	(62.00)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(134.10)	(25.40)
	PNV-HP2-S-6MF-A	3/8	0.20	2.00	2.44	1.19	1.00	0.38	1.24	0.25	5.28	1.00
			(5.10)	(50.80)	(62.00)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(134.10)	(25.40)
	PNV-HP2-S-9MF-A	9/16	0.31	2.50	3.38	1.75	1.25	0.50	1.38	0.34	5.94	1.00
			(7.90)	(63.50)	(85.90)	(44.50)	(31.75)	(12.70)	(35.10)	(8.70)	(151.00)	(25.40)
	PNV-HP2-S-12MF-A	3/4	0.44	3.00	4.25	2.25	1.50	0.62	1.75	0.44	7.56	1.38
			(11.2)	(76.00)	(108.00)	(57.20)	(38.10)	(15.70)	(44.50)	(11.20)	(192.00)	(35.10)
PNV-HP2-S-16MF-A	1	0.56	4.12	5.13	2.82	2.06	1.12	2.50	0.56	9.45	1.75	
		(14.2)	(104.60)	(130.30)	(71.60)	(52.30)	(28.40)	(63.50)	(14.20)	(240.00)	(44.50)	
30000 psig (2067 bar)												
PANAM® HP Cone and Thread	PNV-HP3-S-4HF-A	1/4	0.09	2.00	2.00	1.12	1.00	0.38	1.38	0.28	4.72	1.00
			(2.40)	(50.80)	(50.80)	(28.40)	(25.40)	(9.70)	(35.10)	(7.10)	(120.00)	(25.40)
	PNV-HP3-S-6HF-A	3/8	0.13	2.00	2.12	1.12	1.00	0.38	1.38	0.28	4.84	1.00
			(3.20)	(50.80)	(53.80)	(28.40)	(25.40)	(9.70)	(35.10)	(7.10)	(123.00)	(25.40)
PNV-HP3-S-9HF-A	9/16	0.13	2.62	2.44	1.12	1.31	0.38	1.38	0.28	5.20	1.50	
		(3.20)	(66.50)	(52.00)	(28.50)	(33.25)	(9.70)	(35.10)	(7.10)	(132.00)	(38.10)	
60000 psig (4134 bar)												
PANAM® HP Cone and Thread	PNV-HP6-S-4HF-A	1/4	0.06	2.00	2.38	1.31	1.00	0.38	1.38	0.28	5.16	1.00
			(1.60)	(50.80)	(60.50)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(131.00)	(25.40)
	PNV-HP6-S-6HF-A	3/8	0.06	2.00	2.62	1.31	1.00	0.38	1.38	0.28	5.39	1.00
			(1.60)	(50.80)	(66.50)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(137.00)	(25.40)
	PNV-HP6-S-9HF-A	9/16	0.06	2.62	2.81	1.31	1.31	0.38	1.38	0.28	5.59	1.50
(1.60)			(66.50)	(71.40)	(33.30)	(33.25)	(9.70)	(35.10)	(7.10)	(142.00)	(38.10)	

Dimensions are for reference only and subject to change

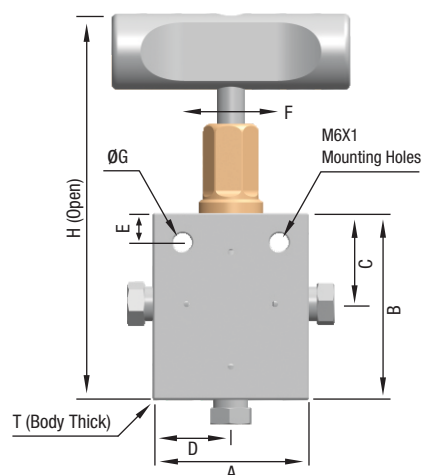
Needle Valve - HP Series 3 Way (2 Inlet Ports)



Connection Type	Part No	Size inch	Dimensions in, (mm)										
			Orifice	A	B	C1	C2	D	E	F	G	H	T
15000 psig (1034 bar)													
Female to Female	PNV-HP1-S-4NF-M	1/4	0.25	2.00	2.62	1.63	1.19	1.00	0.38	1.24	0.25	5.47	1.00
			(6.40)	(50.80)	(66.50)	(41.30)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(139.00)	(25.40)
	PNV-HP1-S-6NF-M	3/8	0.31	2.50	3.38	2.38	1.75	1.25	0.50	1.38	0.34	6.22	1.00
			(7.90)	(63.50)	(85.90)	(60.40)	(44.50)	(31.75)	(12.70)	(35.10)	(8.70)	(158.00)	(25.40)
PNV-HP1-S-8NF-M	1/2	0.31	2.50	3.38	2.38	1.75	1.25	0.50	1.38	0.34	6.22	1.25	
		(7.90)	(63.50)	(85.90)	(60.40)	(44.50)	(31.75)	(12.70)	(35.10)	(8.70)	(158.00)	(31.80)	
20000 psig (1378 bar)													
PANAM MP Cone and Thread	PNV-HP2-S-4MF-M	1/4	0.13	2.00	2.62	1.63	1.19	1.00	0.38	1.24	0.25	5.47	1.00
			(3.20)	(50.80)	(66.50)	(41.30)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(139.00)	(25.40)
	PNV-HP2-S-6MF-M	3/8	0.20	2.00	2.62	1.63	1.19	1.00	0.38	1.24	0.25	5.47	1.00
			(5.10)	(50.80)	(66.50)	(41.30)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(139.00)	(25.40)
PNV-HP2-S-9MF-M	9/16	0.31	2.50	3.63	1.75	1.75	1.25	0.50	1.38	0.34	6.22	1.00	
		(7.90)	(63.50)	(92.20)	(44.50)	(44.50)	(31.75)	(12.70)	(35.10)	(8.70)	(158.00)	(25.40)	
30000 psig (2067 bar)													
PANAM HP Cone and Thread	PNV-HP3-S-4HF-M	1/4	0.09	2.00	2.12	1.50	1.12	1.00	0.38	1.38	0.28	4.84	1.00
			(2.40)	(50.80)	(53.80)	(38.10)	(28.50)	(25.40)	(9.70)	(35.10)	(7.10)	(123.00)	(25.40)
	PNV-HP3-S-6HF-M	3/8	0.13	2.00	2.50	1.50	1.12	1.00	0.38	1.38	0.28	5.24	1.00
			(3.20)	(50.80)	(63.50)	(38.10)	(28.50)	(25.40)	(9.70)	(35.10)	(7.10)	(133.00)	(25.40)
PNV-HP3-S-9HF-M	9/16	0.13	2.62	2.88	1.56	1.12	1.31	0.38	1.38	0.28	5.63	1.50	
		(3.20)	(66.50)	(73.20)	(39.60)	(28.50)	(33.25)	(9.70)	(35.10)	(7.10)	(143.00)	(38.10)	
60000 psig (4134 bar)													
PANAM HP Cone and Thread	PNV-HP6-S-4HF-M	1/4	0.06	2.00	2.38	1.69	1.31	1.00	0.38	1.38	0.28	5.16	1.00
			(1.60)	(50.80)	(60.50)	(43.00)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(131.00)	(25.40)
	PNV-HP6-S-6HF-M	3/8	0.06	2.00	2.75	1.69	1.31	1.00	0.38	1.38	0.28	5.51	1.00
			(1.60)	(50.80)	(69.80)	(42.90)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(140.00)	(25.40)
PNV-HP6-S-9HF-M	9/16	0.06	2.62	3.03	1.75	1.31	1.31	0.38	1.38	0.28	5.83	1.50	
		(1.60)	(66.50)	(77.00)	(44.50)	(33.30)	(33.25)	(9.70)	(35.10)	(7.10)	(148.00)	(38.10)	

Dimensions are for reference only and subject to change

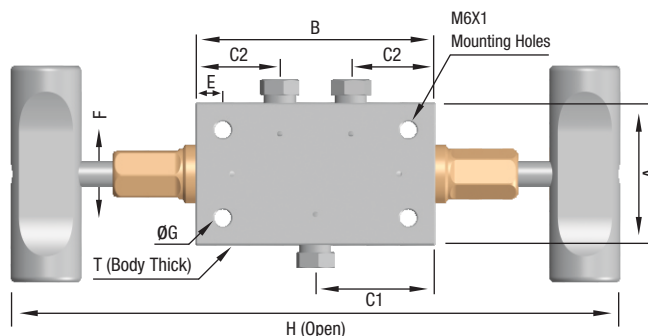
Needle Valve - HP Series 3 Way (2 Outlet Ports)



Connection Type	Part No	Size inch	Dimensions in, (mm)									
			Orifice	A	B	C	D	E	F	G	H	T
15000 psig (1034 bar)												
Female to Female	PNV-HP1-S-4NF-D	1/4	0.25	2.00	2.44	1.19	1.00	0.38	1.24	0.25	5.28	1.00
			(6.40)	(50.80)	(62.00)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(134.00)	(25.40)
	PNV-HP1-S-6NF-D	3/8	0.31	2.50	3.38	1.75	1.25	0.50	1.38	0.34	5.98	1.00
			(7.90)	(63.50)	(85.90)	(44.50)	(31.75)	(12.70)	(35.10)	(8.60)	(152.00)	(25.40)
	PNV-HP1-S-8NF-D	1/2	0.31	2.50	3.38	1.75	1.25	0.50	1.38	0.34	5.98	1.25
			(7.90)	(63.50)	(85.90)	(44.50)	(31.75)	(12.70)	(35.10)	(8.60)	(152.00)	(31.80)
20000 psig (1378 bar)												
PANAM® MP Cone and Thread	PNV-HP2-S-2MF-D	1/4	0.13	2.00	2.44	1.19	1.00	0.38	1.24	0.25	5.28	1.00
			(3.20)	(50.80)	(62.00)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(134.00)	(25.40)
	PNV-HP2-S-6MF-D	3/8	0.20	2.00	2.44	1.19	1.00	0.38	1.24	0.25	5.28	1.00
			(5.10)	(50.80)	(62.00)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(134.00)	(25.40)
	PNV-HP2-S-9MF-D	9/16	0.31	2.50	3.38	1.75	1.25	0.50	1.38	0.34	5.94	1.00
			(7.90)	(63.50)	(85.90)	(44.50)	(31.75)	(12.70)	(35.10)	(8.70)	(151.00)	(25.40)
30000 psig (2067 bar)												
PANAM® HP Cone and Thread	PNV-HP3-S-4HF-D	1/4	0.09	2.00	2.00	1.12	1.00	0.38	1.38	0.28	4.72	1.00
			(2.40)	(50.80)	(50.80)	(28.50)	(25.40)	(9.70)	(35.10)	(7.10)	(120.00)	(25.00)
	PNV-HP3-S-6HF-D	3/8	0.13	2.00	2.12	1.12	1.00	0.38	1.38	0.28	4.84	1.00
			(3.20)	(50.80)	(53.80)	(28.50)	(25.40)	(9.70)	(35.10)	(7.10)	(123.00)	(25.40)
	PNV-HP3-S-9HF-D	9/16	0.13	2.62	2.44	1.12	1.31	0.38	1.38	0.28	5.20	1.00
			(3.20)	(66.50)	(62.00)	(28.50)	(33.25)	(9.70)	(35.10)	(7.10)	(132.00)	(25.40)
60000 psig (4134 bar)												
PANAM® HP Cone and Thread	PNV-HP6-S-4HF-D	1/4	0.06	2.00	2.38	1.31	1.00	0.38	1.38	0.28	5.16	1.00
			(1.60)	(50.80)	(60.50)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(131.00)	(25.00)
	PNV-HP6-S-6HF-D	3/8	0.06	2.00	2.62	1.31	1.00	0.38	1.38	0.28	5.39	1.00
			(1.60)	(50.80)	(66.50)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(137.00)	(25.40)
	PNV-HP6-S-9HF-D	9/16	0.06	2.62	2.81	1.31	1.31	0.38	1.50	0.28	5.59	1.50
			(1.60)	(66.50)	(71.40)	(33.30)	(33.25)	(9.70)	(38.10)	(7.10)	(142.00)	(38.10)

Dimensions are for reference only and subject to change

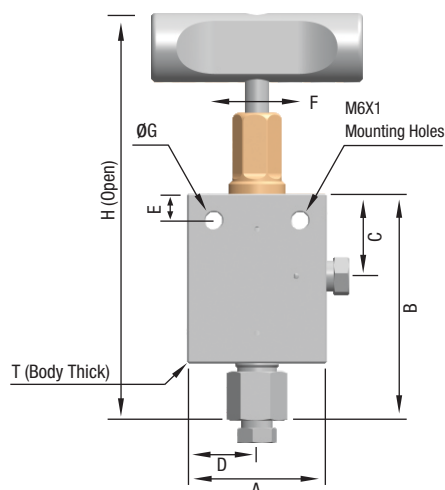
Needle Valve - HP Series 2 Stem Manifold



Connection Type	Part No	Size inch	Dimensions in, (mm)										
			Orifice	A	B	C1	C2	D	E	F	G	H	T
15000 psig (1034 bar)													
Female to Female	PNV-HP1-S-4NF-D2	1/4	0.25	2.00	3.38	1.69	1.19	1.00	0.38	1.24	0.25	9.06	1.00
			(6.40)	(50.80)	(85.90)	(42.90)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(230.00)	(25.40)
	PNV-HP1-S-6NF-D2	3/8	0.31	2.50	5.12	2.56	1.75	1.25	0.50	1.38	0.34	10.31	1.00
			(7.90)	(63.50)	(130.00)	(65.00)	(44.50)	(31.75)	(12.70)	(35.10)	(8.60)	(262.00)	(25.40)
	PNV-HP1-S-8NF-D2	1/2	0.31	2.50	5.12	2.56	1.75	1.25	0.50	1.38	0.34	10.31	1.25
			(7.90)	(63.50)	(130.00)	(65.00)	(44.50)	(31.75)	(12.70)	(35.10)	(8.60)	(262.00)	(31.80)
20000 psig (1378 bar)													
PANAM® MP Cone and Thread	PNV-HP2-S-4MF-D2	1/4	0.13	2.00	3.38	1.69	1.19	1.00	0.38	1.24	0.25	9.06	1.00
			(3.20)	(50.80)	(85.90)	(42.90)	(30.20)	(25.40)	(9.72)	(31.50)	(6.40)	(230.00)	(25.40)
	PNV-HP2-S-6MF-D2	3/8	0.20	2.00	3.38	2.56	1.75	1.00	0.38	1.24	0.25	9.06	1.00
			(5.10)	(50.80)	(85.90)	(65.00)	(44.50)	(25.40)	(9.70)	(31.50)	(6.40)	(230.00)	(25.40)
	PNV-HP2-S-9MF-D2	9/16	0.31	2.50	5.12	2.56	1.75	1.25	0.50	1.38	0.34	10.31	1.00
			(7.90)	(63.50)	(130.00)	(65.00)	(44.50)	(31.75)	(12.70)	(35.10)	(8.70)	(262.00)	(25.40)
30000 psig (2067 bar)													
PANAM® HP Cone and Thread	PNV-HP3-S-4HF-D2	1/4	0.09	2.00	3.06	1.53	1.12	1.00	0.38	1.38	0.28	8.54	1.00
			(2.40)	(50.80)	(77.70)	(38.90)	(28.40)	(25.40)	(9.70)	(35.10)	(7.10)	(217.00)	(25.40)
	PNV-HP3-S-6HF-D2	3/8	0.13	2.00	3.25	1.62	1.12	1.00	0.38	1.38	0.28	8.74	1.00
			(3.20)	(50.80)	(82.60)	(41.10)	(28.40)	(25.40)	(9.70)	(35.10)	(7.10)	(222.00)	(25.40)
	PNV-HP3-S-9HF-D2	9/16	0.13	2.62	3.75	1.88	1.12	1.31	0.38	1.38	0.28	9.21	1.50
			(3.20)	(66.50)	(95.20)	(47.80)	(28.40)	(33.25)	(9.70)	(35.10)	(7.20)	(234.00)	(38.10)
60000 psig (4134 bar)													
PANAM® HP Cone and Thread	PNV-HP6-S-4HF-D2	1/4	0.06	2.00	3.44	1.72	1.31	1.00	0.38	1.38	0.28	8.98	1.00
			(1.60)	(50.80)	(87.40)	(43.70)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(228.00)	(25.40)
	PNV-HP6-S-6HF-D2	3/8	0.06	2.00	3.75	1.88	1.31	1.00	0.38	1.38	0.28	9.29	1.00
			(1.60)	(50.80)	(95.20)	(47.80)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(236.00)	(25.40)
	PNV-HP6-S-9HF-D2	9/16	0.06	2.62	4.13	2.06	1.31	1.31	0.38	1.38	0.28	9.65	1.50
			(1.60)	(66.50)	(105.00)	(52.00)	(33.30)	(33.25)	(9.70)	(35.10)	(7.10)	(245.00)	(38.10)

Dimensions are for reference only and subject to change

Needle Valve - HP Series (Replaceable Seat)



Connection Type	Part No	Size inch	Dimensions in, (mm)									
			Orifice	A	B	C	D	E	F	G	H	T
15000 psig (1034 bar)												
Female to Female	PNV-HP1-S-4NF-R	1/4	0.25	2.00	3.30	1.19	1.00	0.38	1.38	0.25	6.19	1.00
			(6.40)	(50.80)	(83.80)	(30.20)	(25.40)	(9.70)	(35.10)	(6.40)	(157.20)	(25.40)
	PNV-HP1-S-6NF-R	3/8	0.31	2.50	4.51	1.75	1.25	0.50	1.38	0.34	7.09	1.00
			(7.90)	(63.50)	(114.60)	(44.50)	(31.75)	(12.70)	(35.10)	(8.70)	(180.00)	(25.40)
	PNV-HP1-S-8NF-R	1/2	0.31	2.50	4.62	1.75	1.25	0.50	1.38	0.34	7.20	1.25
			(7.90)	(63.50)	(117.30)	(44.50)	(31.75)	(12.70)	(35.10)	(8.70)	(183.00)	(31.80)
20000 psig (1378 bar)												
PANAM® MP Cone and Thread	PNV-HP2-S-4MF-R	1/4	0.13	2.00	3.30	1.19	1.00	0.38	1.24	0.25	6.04	1.00
			(3.20)	(50.80)	(83.80)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(153.50)	(25.40)
	PNV-HP2-S-6MF-R	3/8	0.20	2.00	3.30	1.19	1.00	0.38	1.24	0.25	6.04	1.00
			(5.10)	(50.80)	(83.80)	(30.20)	(25.40)	(9.70)	(31.50)	(6.40)	(153.50)	(25.40)
	PNV-HP2-S-9MF-R	9/16	0.31	2.50	4.65	1.75	1.25	0.50	1.38	0.34	7.20	1.00
			(7.90)	(63.50)	(118.00)	(44.50)	(31.75)	(12.70)	(35.10)	(8.70)	(183.00)	(25.40)
	PNV-HP2-S-12MF-R	3/4	0.44	3.00	5.39	3.14	1.50	0.62	1.75	0.44	8.82	1.38
			(11.20)	(76.20)	(137.00)	(79.80)	(38.10)	(15.70)	(44.50)	(11.20)	(224.00)	(35.10)
PNV-HP2-S-16MF-R	1	0.56	3.62	7.17	4.48	1.81	1.12	2.50	0.56	10.51	1.75	
		(14.20)	(91.90)	(182.00)	(113.70)	(45.95)	(28.40)	(63.50)	(14.20)	(267.00)	(44.50)	
30000 psig (2067 bar)												
PANAM® HP Cone and Thread	PNV-HP3-S-4HF-R	1/4	0.09	2.00	3.12	1.12	1.00	0.38	1.38	0.28	5.83	1.00
			(2.40)	(50.80)	(79.20)	(28.50)	(25.40)	(9.70)	(35.10)	(7.10)	(148.00)	(25.40)
	PNV-HP3-S-6HF-R	3/8	0.13	2.00	3.39	1.12	1.00	0.38	1.38	0.28	6.10	1.00
			(3.20)	(50.80)	(86.10)	(28.50)	(25.40)	(9.70)	(35.10)	(7.10)	(155.00)	(25.40)
	PNV-HP3-S-9HF-R	9/16	0.13	2.62	3.82	1.19	1.31	0.38	1.38	0.28	6.54	1.50
			(3.20)	(66.50)	(97.00)	(30.20)	(33.25)	(9.70)	(35.10)	(7.10)	(166.00)	(38.10)
60000 psig (4134 bar)												
PANAM® HP Cone and Thread	PNV-HP6-S-4HF-R	1/4	0.06	2.00	3.45	1.31	1.00	0.38	1.38	0.28	6.18	1.00
			(1.60)	(50.80)	(87.60)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(157.00)	(25.40)
	PNV-HP6-S-6HF-R	3/8	0.06	2.00	3.75	1.31	1.00	0.38	1.38	0.28	6.50	1.00
			(1.60)	(50.80)	(95.20)	(33.30)	(25.40)	(9.70)	(35.10)	(7.10)	(165.00)	(25.40)
	PNV-HP6-S-9HF-R	9/16	0.06	2.62	4.00	1.31	1.31	0.38	1.38	0.28	6.73	1.50
			(1.60)	(66.50)	(101.60)	(33.30)	(33.25)	(9.70)	(35.10)	(7.10)	(171.00)	(38.10)

Dimensions are for reference only and subject to change

Ordering Information

PNV-HP2-S-4MF-A-HT

PANAM® Valves

PNV - Needle Valve

Series

- HP** - Working Pressure 10000 psi
- HP1** - Working Pressure 15000 psi
- HP2** - Working Pressure 20000 psi
- HP3** - Working Pressure 30000 psi
- HP6** - Working Pressure 60000 psi

Material

S - SS 316

Connection Size

4 - 1/4" **6** - 3/8" **8** - 1/2" **9** - 9/16" **12** - 3/4" **16** - 1"

Connection Type

FOR HP & HP1 SERIES

- NM** - NPT Male
- NF** - NPT Female
- NMF** - NPT Male X Female

FOR HP2 SERIES

- MF** - Medium Pressure Female

FOR HP3 & HP6 SERIES

- HF** - High Pressure Female (For 1/4", 3/8", 9/16" Only)

Configuration

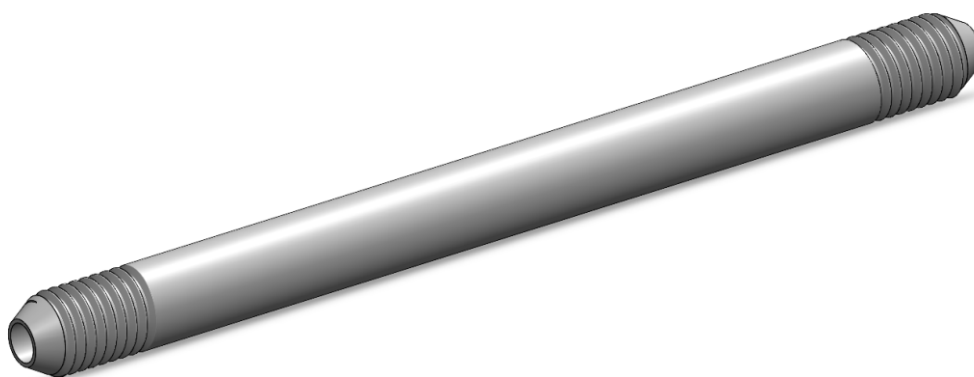
- | | |
|-----------------------------|-----------------------------------|
| A - Straight | M - 3-Way, 2 Inlets Ports |
| R - Angle Type | D - 3-Way, 2 Outlets Ports |
| R - Replaceable Seat | D2 - 2-Stem Manifold |

Options

- | | |
|------------------------------|---|
| SG - Nace MR0175 | HT - Grafoil Seal For High Temperature |
| OXY - Oxygen Cleaning | RS - Regulating Stem |

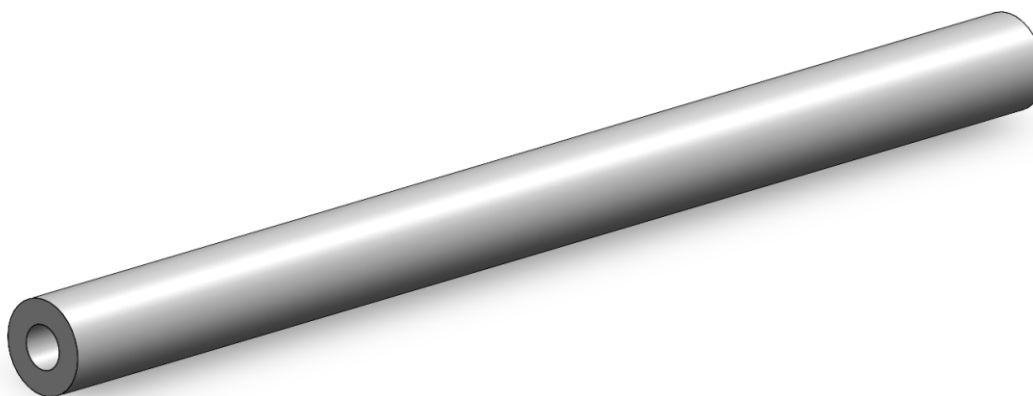
* Other materials and configurations are available upon request

Tube Nipples for Cone and Thread (Upto 60000 psi)



Connection Type	Tube Size		Part Numbers are 316 Stainless Steel Material Length in. (mm)							WP @100°F psi (bar)
	OD	ID	2.75" (69.85)	3" (76.2)	4" (101.6)	6" (152.4)	8" (203.2)	10" (203.2)	12" (304.8)	
4MF	1/4	0.109 (2.77)	PTN-4M-2.75-SS	PTN-4M-3-SS	PTN-4M-4-SS	PTN-4M-6-SS	PTN-4M-8-SS	PTN-4M-10-SS	PTN-4M-12-SS	20000 (1380)
6MF	3/8	0.203 (5.17)	-	PTN-6M-3-SS	PTN-6M-4-SS	PTN-6M-6-SS	PTN-6M-8-SS	PTN-6M-10-SS	PTN-6M-12-SS	20000 (1380)
9MF	9/16	0.312 (7.93)	-	-	PTN-9M-4-SS	PTN-9M-6-SS	PTN-9M-8-SS	PTN-9M-10-SS	PTN-9M-12-SS	20000 (1380)
12MF	3/4	0.438 (11.13)	-	-	-	PTN-12M-6-SS	PTN-12M-8-SS	PTN-12M-10-SS	PTN-12M-12-SS	20000 (1380)
16MF	1	0.562 (14.27)	-	-	-	PTN-16M-6-SS	PTN-16M-8-SS	PTN-16M-10-SS	PTN-16M-12-SS	20000 (1380)
4HF	1/4	0.083 (2.11)	PTN-4H-2.75-SS	PTN-4H-3-SS	PTN-4H-4-SS	PTN-4H-6-SS	PTN-4H-8-SS	PTN-4H-10-SS	PTN-4H-12-SS	60000 (4140)
6HF	3/8	0.125 (3.17)	-	PTN-6H-3-SS	PTN-6H-4-SS	PTN-6H-6-SS	PTN-6H-8-SS	PTN-6H-10-SS	PTN-6H-12-SS	60000 (4140)
9HF	9/16	0.188 (4.77)	-	-	PTN-9H-4-SS	PTN-9H-6-SS	PTN-9H-8-SS	PTN-9H-10-SS	PTN-9H-12-SS	60000 (4140)

Tubing For Cone End Thread Products



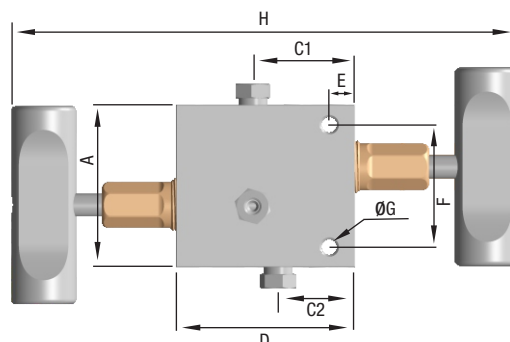
Nominal Tube OD	Connection Type	Tube Size		WP @100°F psi (bar)
		OD	ID	
1/4	4MF	1/4	0.109 (2.77)	20000 (1380)
3/8	6MF	3/8	0.203 (5.17)	20000 (1380)
9/16	9MF	9/16	0.312 (7.93)	20000 (1380)
3/4	12MF	3/4	0.438 (11.13)	20000 (1380)
1	16MF	1	0.562 (14.27)	20000 (1380)
1/4	4HF	1/4	0.083 (2.11)	60000 (4140)
3/8	6HF	3/8	0.125 (3.17)	60000 (4140)
9/16	9HF	9/16	0.188 (4.77)	60000 (4140)
3/4	12MF	3/4	0.438 (11.13)	60000 (4140)
1	16MF	1	0.562 (14.27)	60000 (4140)

Nominal Tube OD	MIn. Bend Radius (in. Mandrel Radius)
1/4	1.25
3/8	1.75
9/16	2.62
3/4	3.50
1	4.62
1/4	1.25
3/8	1.75
9/16	2.62

Bend Radius

The recommended bend radius and wall thickness limits for making a bend in cold-drawn, stainless steel seamless tubing are listed below.

2 Valve Manifold - MP Series



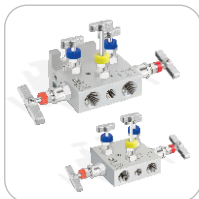
Connection Type	Part No	Size inch	Dimensions in, (mm)									
			Orifice	A	B	C1	C2	E	F	G	H	T
15000 psig (1034 bar)												
Female to Female	2VM-SS-4NF-RM-V4	1/4	0.20	2.50	2.76	1.57	1.18	0.39	1.89	0.25	8.39	1.50
			(5.10)	(63.50)	(70.00)	(40.00)	(30.00)	(10.00)	(48.00)	(6.40)	(213.00)	(38.00)
	2VM-SS-6NF-RM-V4	3/8	0.20	2.50	2.76	1.57	1.18	0.39	1.89	0.25	8.39	1.50
			(5.10)	(63.50)	(70.00)	(40.00)	(30.00)	(10.00)	(48.00)	(6.40)	(213.00)	(38.00)
	2VM-SS-8NF-RM-V4	1/2	0.20	3.00	3.00	1.74	1.23	0.39	2.00	0.25	8.58	1.50
			(5.10)	(76.20)	(76.20)	(44.20)	(31.20)	(10.00)	(50.80)	(6.40)	(218.00)	(38.00)
PANAM® MP Tube Fitting	2VM-SS-4MF-RM-V4MF	1/4	0.13	2.50	2.76	1.57	1.18	0.39	1.89	0.25	8.39	1.37
			(3.20)	(63.50)	(70.00)	(40.00)	(30.00)	(10.00)	(48.00)	(6.40)	(213.00)	(34.90)
	2VM-SS-6MF-RM-V4MF	3/8	0.20	2.50	2.76	1.57	1.18	0.39	1.89	0.25	8.39	1.37
			(5.10)	(63.50)	(70.00)	(40.00)	(30.00)	(10.00)	(48.00)	(6.40)	(213.00)	(34.90)
	2VM-SS-8MF-RM-V4MF	1/2	0.20	3.00	3.00	1.23	1.75	0.39	2.00	0.25	8.63	1.50
			(5.10)	(76.20)	(76.20)	(31.20)	(44.50)	(10.00)	(50.80)	(6.40)	(219.20)	(38.00)

Dimensions are for reference only and subject to change

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Notes

Other Products



2-3-5 VALVE MANIFOLDS



BELLOW SEAL VALVES



GAUGE ROOT VALVES



NEEDLE VALVES



HP NEEDLE VALVES



BALL VALVES



HP BALL VALVES



DOUBLE BLOCK & BLEED VALVES



MONO FLANGE VALVES



CHECK VALVES



RELIEF VALVES



FILTERS



TUBE FITTINGS



PIPE FITTINGS



HP PIPE FITTINGS



SWIVEL FITTINGS



JIC FITTINGS



WELD FITTINGS



HIGH PRESSURE FITTINGS



GAUGE SAVERS



PRESSURE GAUGES



TEMPERATURE GAUGES



PRESSURE TRANSMITTERS



TEMPERATURE TRANSMITTERS



PRESSURE REGULATORS



CONDENSATE POTS



AIR HEADERS



GRAB SAMPLING SYSTEM



PRE-FABRICATED HOOK UPS



FLANGE ADAPTERS



SWIVEL GAUGE ADAPTERS



THERMOWELLS



BLEED PLUGS



DIE-ELECTRIC FITTINGS



TUBING



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