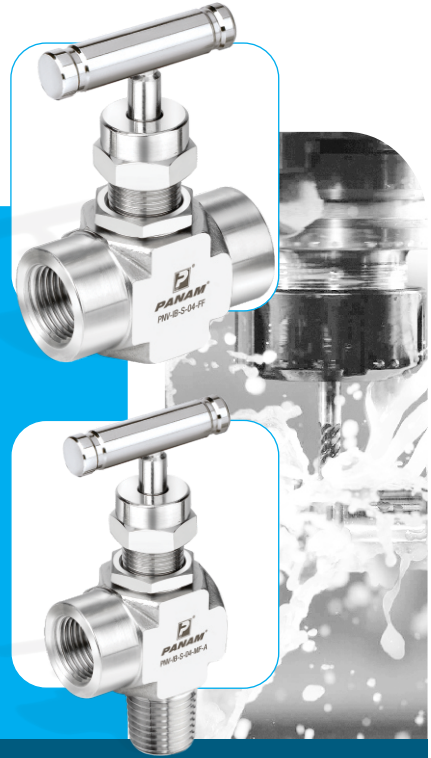




PANAM[®]
ENGINEERING
BEYOND
LIMITS

Needle Valves (IB Series)

Maximum Working Pressure upto
6,000 psi (414 bar)



+91 22 2831 5555

sales@panamengineers.com

www.panamengineers.com

Rev/03/2020

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 wide range of Needle Valves IB Series in various materials such as Stainless Steel, Monel, Hastelloy, Duplex, Super Duplex etc.. and in accordance to customer requirements.

PANAM[®] offers Needle Valves IB Series with a variety of end connections including NPT Tapered, ISO (BSPT) Tapered, ISO (BSPP) Parallel and Metric Threads with Tube Fittings, Flare Fittings, Weld Fittings etc... 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.

PANAM[®] Needle Valves IB Series Valves are supplied to meet current revision of NACE MR-01-75 & NACE MR-01-03. All Valves are 100% factory tested in accordance with MSS-SP-99. Heat Code Traceability and Maximum working pressure upto 6,000 psi (414 bar) also available with higher working pressure as per customer requirements.

Contents

• Introduction	1
• Characteristics	1
• Benefits	1
• Design and Materials of Needle Valves (IB series) with Straight Configuration	2
• End Connections and Sizes of Needle Valve (IB Series) with Straight Configuration	3
• Design and Materials of Needle Valves (IB series) with Angular Configuration	5
• End Connections and Sizes of Needle Valve (IB Series) with Angular Configuration	6
• Stem Tip Options of Needle Valves (IB Series)	8
• Handles From Nylon with Stainless Steel Insert	8
• Pressure vs Temperature for Needle Valve (IB Series)	9
• Sealing Material Characteristics	9
• Seal Adjustment	9
• Testing	10
• Cleaning and Packaging	10
• Ordering Information	10
• Ordering Information for Spare Parts	11
• Safety	11
• Other Products	12

Needle Valves IB Series 6,000 psi (414 bar)

PANAM® IB Series needle valves are specially designed and manufactured for use in rugged, corrosive & hazardous environments up to 6,000 psi (414 bar). **PANAM**® IB Series needle valves are used in process control, instrumentation and flow control applications. Valves are precision machined, designed for durability and maximum efficiency and provide high quality, low cost alternatives used in a wide variety of fluid and gaseous control systems. Quality of IB Series needle valves meets the stringent requirements of the customers.

Valves can be supplied to meet current revision of NACE MR-01-75 (Sour Gas Service).

All Valves are 100% factory tested in accordance with MSS-SP-99. IB Series needle valves are manufactured from high-quality stainless steel.

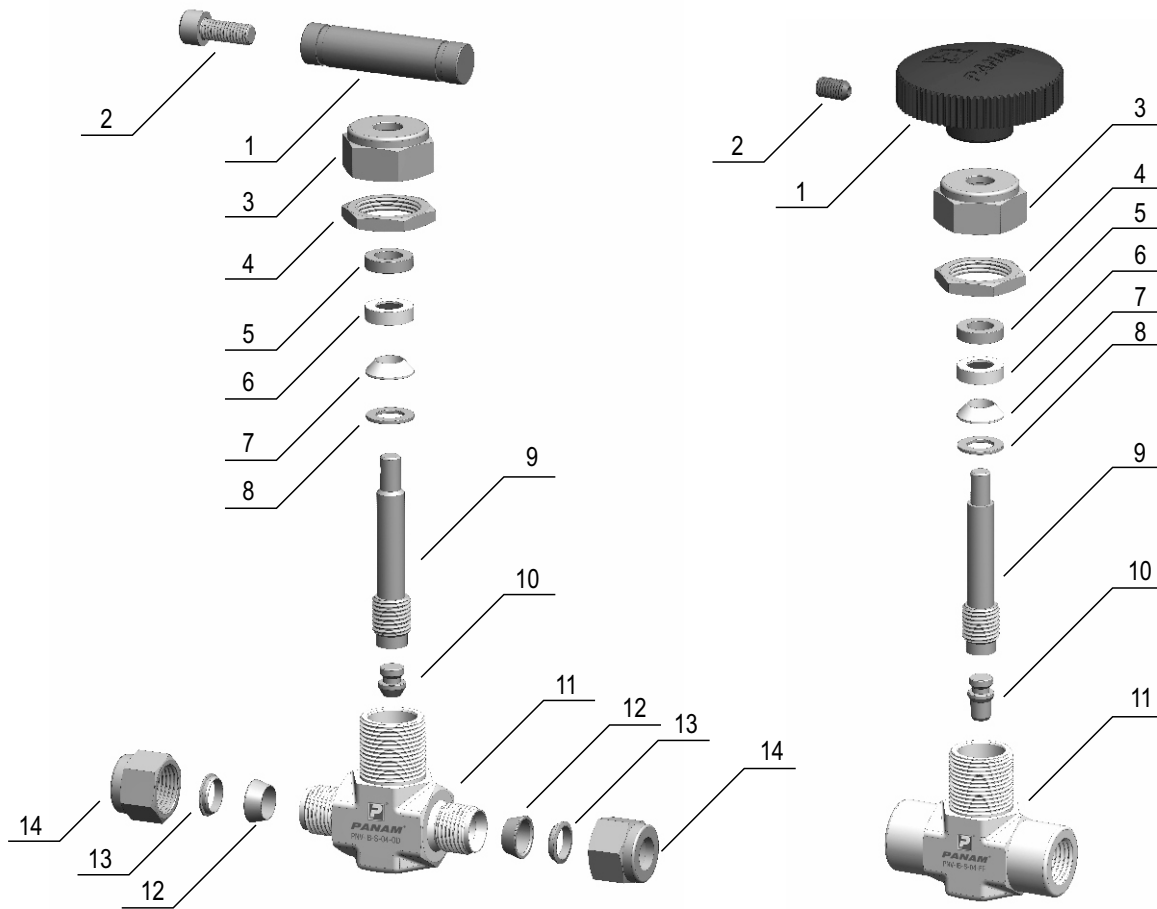
Characteristics

- Maximum working pressure 6,000 psi (414 bar).
- Packing material - PTFE / PEEK / Graphoil.
- Working temperature from -40°C to +315°C (-40°F to +600°F) with stem seal from PEEK material.
- Working temperature from -40°C to +648°C (-40°F to +1200°F) with stem seal from Graphoil.
- Standard material – Stainless Steel F 316.
- Working temperature from -54°C to 232°C (-65°F to 450°F) with stem seal from PTFE.
- CV from 0.09 to 1.8.
- End connections from 1/8" to 3/4" (3mm to 18mm).
- Variety of end connections includes male/female threaded pipe ends and compressions tube end connections for **PANAM**® metric or fractional sizes.
- Different types of threads - NPT tapered, ISO (BSPT) tapered, ISO (BSPP) parallel, metric.

Benefits

- One-piece design for better strength and safety.
- Stainless steel F316 to ASTM A182 Construction - for high corrosion resistance.
- Panel Mounting Option Available.
- PTFE stem packing as standard material.
- Stem thread rolled & hard plated for additional strength & maximum service life.
- Mirror finish stem, furnished to a 16RMS extends packing life and smooth stem operation.
- Non rotating Vee / Ball tip design which forms a bearing joint with the stem and eliminates rotation between plug & seat at closure.
- Regulating stem tip for flow control.
- Standard stainless steel SS304 handle for V - type needle valves with ball tip.
- Standard round black nylon handle with stainless steel insert – for needle valves with regulating stem tip. Available in different colours.
- Available with compression end connections to exclude tapered threads and sealing materials (Teflon tape).

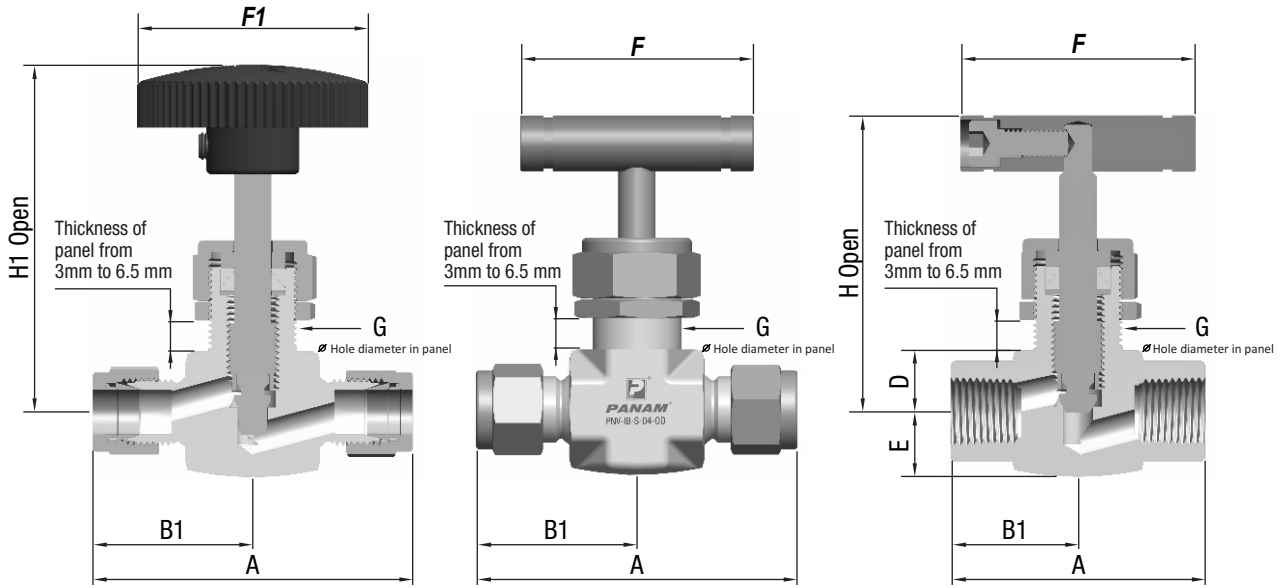
Design and Materials of Needle Valves (IB series) with Straight Configuration



No	Part	Material	Qty.
1	Handle	ASTM A479 SS 304	1
2	Driver Screw	ASTM A479 SS 316	1
3	Stem Seal Washer	ASTM A479 SS 316	1
4	Panel Mounting Screw	ASTM A479 SS 316	1
5	Stem Packing Upper Washer	ASTM A479 SS 316	1
6	Upper Stem Packing	PTFE/PEEK/Grafoil	1
7	Lower Stem Packing	PTFE/PEEK/Grafoil	1
8	Stem Packing Lower Washer	ASTM A479 SS 316	1
9	Stem	ASTM A479 SS 316	1
10	Stem Tip	ASTM A564 SS 174	1
11	Body	ASTM A182 F316	1
12	Front Ferrule	ASTM A479 SS 316	2
13	Back Ferrule	ASTM A479 SS 316	2
14	Washer Nut	ASTM A479 SS 316	2

No	Part	Material	Qty.
1	Handle	Nylon	1
2	Driver Screw	ASTM A479 SS 316	1
3	Stem Seal Washer	ASTM A479 SS 316	1
4	Panel Mounting Screw	ASTM A479 SS 316	1
5	Stem Packing Upper Washer	ASTM A479 SS 316	1
6	Upper Stem Packing	PTFE/PEEK/Grafoil	1
7	Lower Stem Packing	PTFE/PEEK/Grafoil	1
8	Stem Packing Lower Washer	ASTM A479 SS 316	1
9	Stem	ASTM A479 SS 316	1
10	Stem Tip	ASTM A564 SS 174	1
11	Body	ASTM A182 F316	1

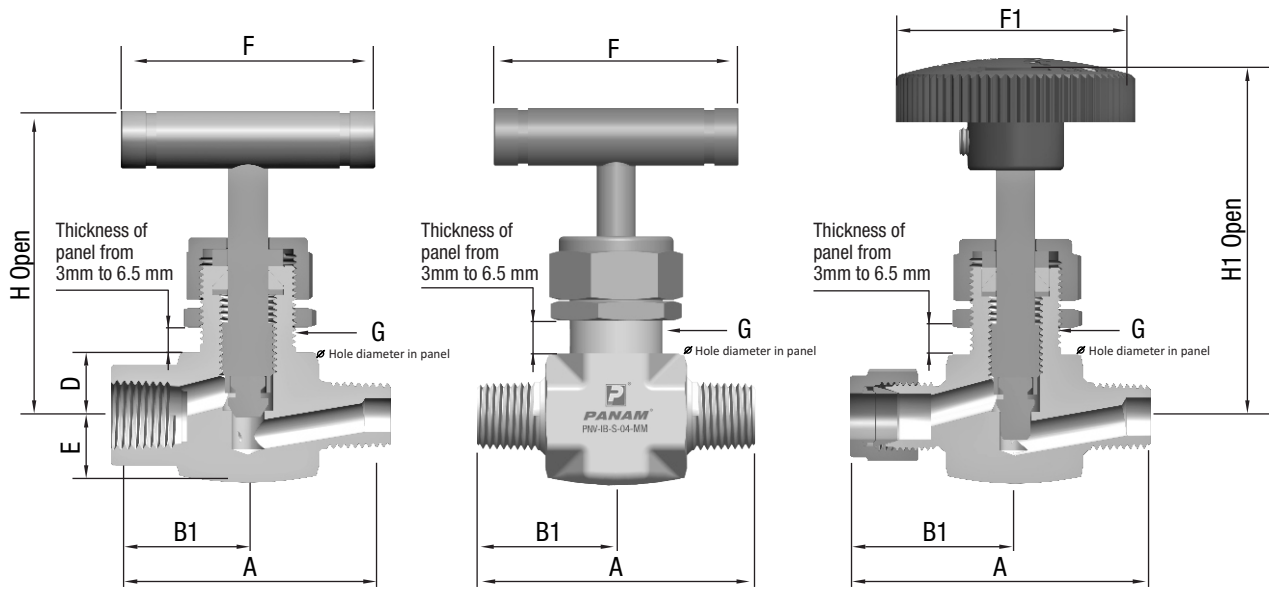
End Connections and Sizes of Needle Valve (IB Series) with Straight Configuration



End Connection		Part Number	Cv	Orifice		A		B1		D		E		F		F1		G		H		H1	
Type	Size			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
PANAM Tube Fitting (inch)	1/8"	PNV-IB-S-02-OD	0.09	2.0	0.08	55.6	2.19	27.8	1.09	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	59.0	2.32	69.0	2.72
	1/4"	PNV-IB-S-04-OD	0.37	4.4	0.17	59.5	2.34	29.8	1.17	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	3/8"	PNV-IB-S-06-OD	0.73	6.4	0.25	68.7	2.70	34.4	1.35	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	1/2"	PNV-IB-S-08-OD	0.73	6.4	0.25	77.0	3.03	38.5	1.52	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/4"	PNV-IB-S-12-OD	1.80	9.5	0.37	85.0	3.35	42.5	1.67	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	105.0	4.13
PANAM Tube Fitting (metric)	3mm	PNV-IB-S-M03-OD	0.09	2.0	0.08	55.6	2.19	27.8	1.09	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	58.0	2.28	68.0	2.68
	6mm	PNV-IB-S-M06-OD	0.37	4.4	0.17	59.0	2.32	29.5	1.16	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	8mm	PNV-IB-S-M08-OD	0.37	4.4	0.17	60.0	2.36	30.0	1.18	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	10mm	PNV-IB-S-M10-OD	0.73	6.4	0.25	71.2	2.80	35.6	1.40	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	12mm	PNV-IB-S-M12-OD	0.73	6.4	0.25	77.0	3.03	38.5	1.52	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	14mm	PNV-IB-S-M14-OD	1.80	9.5	0.37	84.0	3.31	42.0	1.65	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	105.0	4.13
	16mm	PNV-IB-S-M16-OD	1.80	9.5	0.37	84.0	3.31	42.0	1.65	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	105.0	4.13
NPT Female	1/8"	PNV-IB-S-02-FF	0.37	4.4	0.17	44.0	1.73	22.0	0.87	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	55.0	2.17	68.0	2.68
	1/4"	PNV-IB-S-04-FF	0.73	6.4	0.25	54.0	2.13	27.0	1.06	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06-FF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
	1/2"	PNV-IB-S-08-FF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
BSPT Female	1/8"	PNV-IB-S-02R-FF	0.37	4.4	0.17	44.0	1.73	22.0	0.87	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	55.0	2.17	68.0	2.68
	1/4"	PNV-IB-S-04R-FF	0.73	6.4	0.25	54.0	2.13	27.0	1.06	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06R-FF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
	1/2"	PNV-IB-S-08R-FF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
BSPP Female	1/8"	PNV-IB-S-02G-FF	0.37	4.4	0.17	44.0	1.73	22.0	0.87	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	55.0	2.17	68.0	2.68
	1/4"	PNV-IB-S-04G-FF	0.73	6.4	0.25	54.0	2.13	27.0	1.06	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06G-FF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
	1/2"	PNV-IB-S-08G-FF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
Metric Thread	M20xM1.5	PNV-IB-S-20M-FF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09

Note: Sizes are for reference only and can be changed. All sizes in mm unless specified otherwise

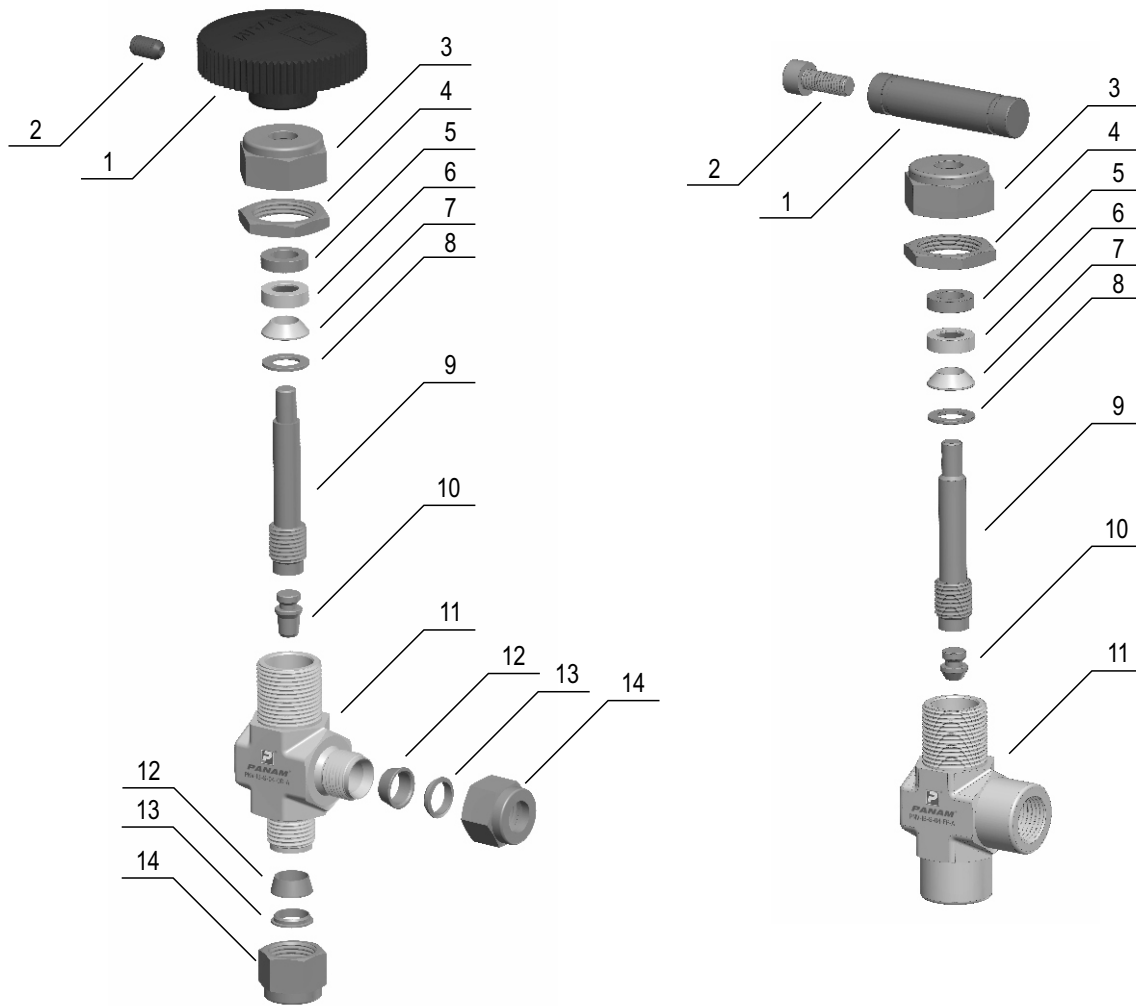
End Connections and Sizes of Needle Valve (IB Series) with Straight Configuration



End Connection		Part Number	Cv	Orifice		A		B1		D		E		F		F1		G		H		H1	
Type	Size			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
NPT Male / NPT Female	1/4"	PNV-IB-S-04-MF	0.37	4.4	0.17	55.0	2.17	27.5	1.08	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06-MF	0.73	6.4	0.25	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	1/2"	PNV-IB-S-08-MF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
BSPT Male / BSPT Female	1/4"	PNV-IB-S-04R-MF	0.37	4.4	0.17	55.0	2.17	27.5	1.08	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06R-MF	0.73	6.4	0.25	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	1/2"	PNV-IB-S-08R-MF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
NPT Male	1/8"	PNV-IB-S-02-MM	0.37	4.4	0.17	41.0	1.61	20.5	0.81	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	1/4"	PNV-IB-S-04-MM	0.37	4.4	0.17	47.0	1.85	23.5	0.93	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	3/8"	PNV-IB-S-06-MM	0.73	6.4	0.25	55.0	2.17	27.5	1.08	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
	1/2"	PNV-IB-S-08-MM	1.80	9.5	0.37	76.0	2.99	38.0	1.50	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
BSPT Male	1/8"	PNV-IB-S-02R-MM	0.37	4.4	0.17	41.0	1.61	42.3	1.67	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	1/4"	PNV-IB-S-04R-MM	0.37	4.4	0.17	47.0	1.85	42.3	1.67	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	3/8"	PNV-IB-S-06R-MM	0.73	6.4	0.25	55.0	2.17	42.3	1.67	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
	1/2"	PNV-IB-S-08R-MM	1.80	9.5	0.37	76.0	2.99	22.0	0.87	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
NPT Male PANAM Tube Fitting (inch)	1/4"	PNV-IB-S-04-MOD	0.37	4.4	0.17	53.2	2.09	23.5	0.93	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	50.0	1.97	68.0	2.68
	1/4" x 3/8"	PNV-IB-S-04-06-MOD	0.73	6.4	0.25	62.4	2.46	28.0	1.10	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06-MOD	0.73	6.4	0.25	62.4	2.46	28.0	1.10	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8" x 1/2"	PNV-IB-S-06-08-MOD	0.73	6.4	0.25	66.0	2.60	28.0	1.10	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
NPT Male PANAM Tube Fitting (metric)	1/2"	PNV-IB-S-08-MOD	1.80	9.5	0.37	86.5	3.41	38.0	1.50	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	1/4" x 6mm	PNV-IB-S-04-M06-MOD	0.37	4.4	0.17	53.2	2.09	23.5	0.93	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	50.0	1.97	68.0	2.68
	1/4"-8mm	PNV-IB-S-04-M08-MOD	0.73	6.4	0.25	62.4	2.46	28.0	1.10	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"-10mm	PNV-IB-S-06-M10-MOD	0.73	6.4	0.25	62.4	2.46	28.0	1.10	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"-12mm	PNV-IB-S-06-M12-MOD	0.73	6.4	0.25	66.0	2.60	28.0	1.10	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
Metric Thread	1/2"x12mm	PNV-IB-S-08-M12-MOD	1.80	9.5	0.37	86.5	3.41	38.0	1.50	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	M20xM1.5	PNV-IB-S-20M-MF	1.80	9.5	0.37	75.0	2.95	37.5	1.48	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	M20xM1.5	PNV-IB-S-20M-MM	1.80	9.5	0.37	76.0	2.99	38.0	1.50	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
M20xM1.5x12mm	PNV-IB-S-20M-M12-MOD	1.80	9.5	0.37	86.5	3.41	38.0	1.50	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09	

Note: Sizes are for reference only and can be changed. All sizes in mm unless specified otherwise

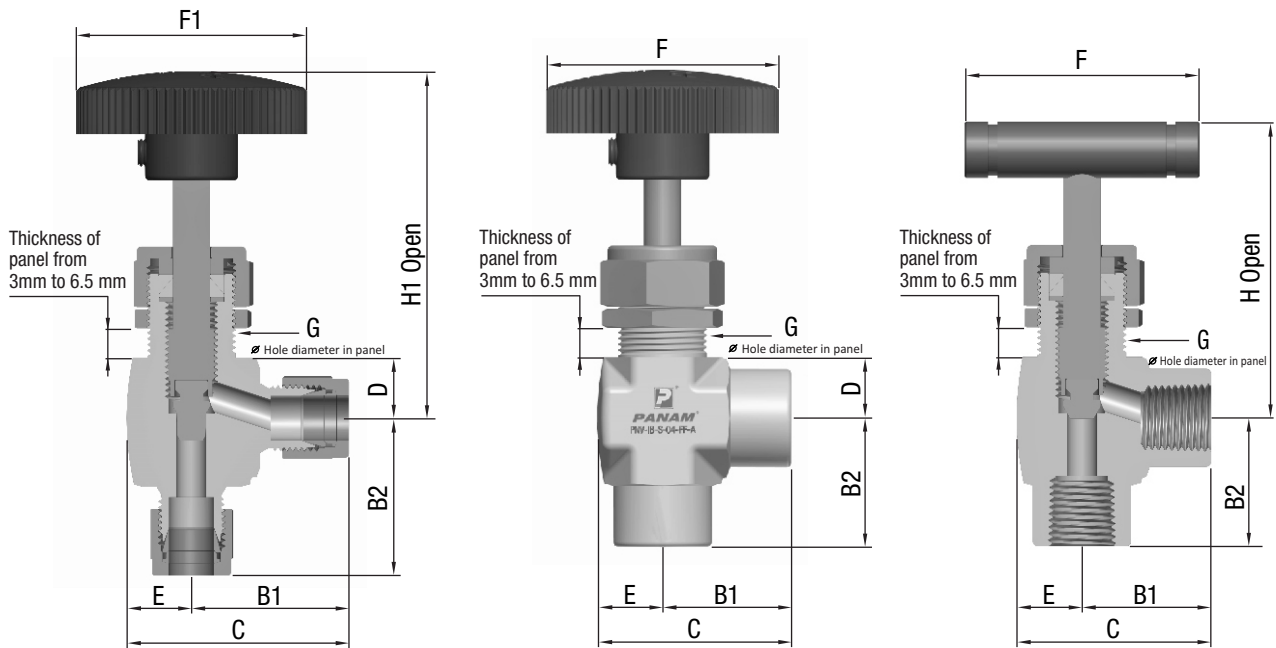
Design and Materials of Needle Valves (IB series) with Angular Configuration



No	Part	Material	Qty.
1	Handle	ASTM A479 SS 304	1
2	Driver Screw	ASTM A479 SS 316	1
3	Stem Seal Washer	ASTM A479 SS 316	1
4	Panel Mounting Screw	ASTM A479 SS 316	1
5	Stem Packing Upper Washer	ASTM A479 SS 316	1
6	Upper Stem Packing	PTFE/PEEK/Grafoil	1
7	Lower Stem Packing	PTFE/PEEK/Grafoil	1
8	Stem Packing Lower Washer	ASTM A479 SS 316	1
9	Stem	ASTM A479 SS 316	1
10	Stem Tip	ASTM A564 SS 174	1
11	Body	ASTM A182 F316	1
12	Front Ferrule	ASTM A479 SS 316	2
13	Back Ferrule	ASTM A479 SS 316	2
14	Washer Nut	ASTM A479 SS 316	2

No	Part	Material	Qty.
1	Handle	Nylon	1
2	Driver Screw	ASTM A479 SS 316	1
3	Stem Seal Washer	ASTM A479 SS 316	1
4	Panel Mounting Screw	ASTM A479 SS 316	1
5	Stem Packing Upper Washer	ASTM A479 SS 316	1
6	Upper Stem Packing	PTFE/PEEK/Grafoil	1
7	Lower Stem Packing	PTFE/PEEK/Grafoil	1
8	Stem Packing Lower Washer	ASTM A479 SS 316	1
9	Stem	ASTM A479 SS 316	1
10	Stem Tip	ASTM A564 SS 174	1
11	Body	ASTM A182 F316	1

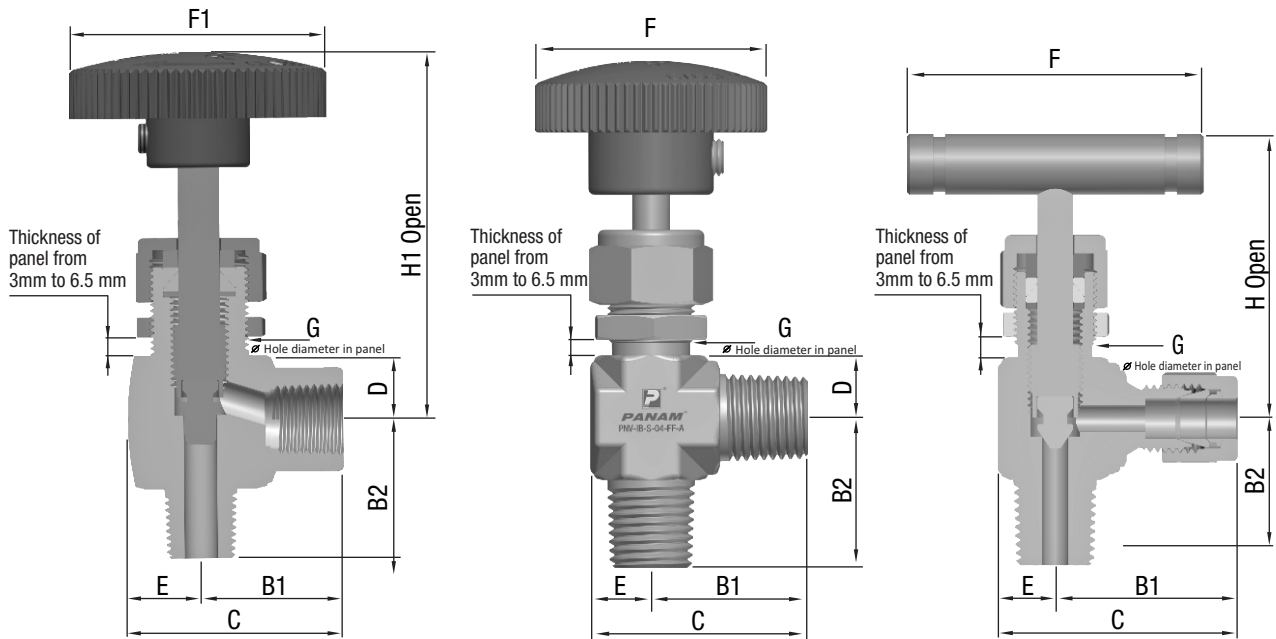
End Connections and Sizes of Needle Valve (IB Series) with Angular Configuration



End Connection		Part Number	Cv	Orifice		B1		B2		C		D		E		F		F1		G		H		H1	
Type	Size			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
PANAM Tube Fitting (inch)	1/8"	PNV-IB-S-02-OD-A	0.09	2.0	0.08	27.8	1.09	27.8	1.09	38.5	1.52	11.0	0.38	0.4	9.7	50.0	1.97	38.0	1.50	14.5	0.57	59.0	2.32	69.0	2.72
	1/4"	PNV-IB-S-04-OD-A	0.37	4.4	0.17	29.8	1.17	31.5	1.24	40.5	1.59	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	3/8"	PNV-IB-S-06-OD-A	0.73	6.4	0.25	34.4	1.35	34.0	1.34	48.0	1.89	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	1/2"	PNV-IB-S-08-OD-A	0.73	6.4	0.25	38.5	1.52	37.0	1.46	51.0	2.01	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/4"	PNV-IB-S-12-OD-A	1.80	9.5	0.37	42.5	1.67	41.5	1.63	62.5	2.46	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	105.0	4.13
PANAM Tube Fitting (metric)	3mm	PNV-IB-S-M03-OD-A	0.09	2.0	0.08	27.8	1.09	27.5	1.08	37.5	1.48	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	58.0	2.28	68.0	2.68
	6mm	PNV-IB-S-M06-OD-A	0.37	4.4	0.17	29.5	1.16	29.5	1.16	40.0	1.57	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	8mm	PNV-IB-S-M08-OD-A	0.37	4.4	0.17	30.0	1.18	29.5	1.16	40.0	1.57	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	10mm	PNV-IB-S-M10-OD-A	0.73	6.4	0.25	35.6	1.40	34.0	1.34	48.0	1.89	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	12mm	PNV-IB-S-M12-OD-A	0.73	6.4	0.25	38.5	1.52	37.5	1.48	52.0	2.05	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	14mm	PNV-IB-S-M14-OD-A	1.80	9.5	0.37	42.0	1.65	42.0	1.65	62.0	2.44	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	105.0	4.13
	16mm	PNV-IB-S-M16-OD-A	1.80	9.5	0.37	42.0	1.65	42.0	1.65	62.0	2.44	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	105.0	4.13
18mm	PNV-IB-S-M18-OD-A	1.80	9.5	0.37	42.0	1.65	42.0	1.65	62.0	2.44	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	105.0	4.13	
NPT Female	1/8"	PNV-IB-S-02-FF-A	0.37	4.4	0.17	22.0	0.87	22.0	0.87	32.7	1.29	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	55.0	2.17	68.0	2.68
	1/4"	PNV-IB-S-04-FF-A	0.73	6.4	0.25	27.0	1.06	27.5	1.08	41.5	1.63	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06-FF-A	1.80	9.5	0.37	37.5	1.48	37.5	1.48	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
	1/2"	PNV-IB-S-08-FF-A	1.80	9.5	0.37	37.5	1.48	37.5	1.48	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
BSPT Female	1/8"	PNV-IB-S-02R-FF-A	0.37	4.4	0.17	22.0	0.87	22.0	0.87	32.7	1.29	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	55.0	2.17	68.0	2.68
	1/4"	PNV-IB-S-04R-FF-A	0.73	6.4	0.25	27.0	1.06	27.5	1.08	41.5	1.63	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06R-FF-A	1.80	9.5	0.37	37.5	1.48	37.5	1.48	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
	1/2"	PNV-IB-S-08R-FF-A	1.80	9.5	0.37	37.5	1.48	37.5	1.48	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
BSPP Female	1/8"	PNV-IB-S-02G-FF-A	0.37	4.4	0.17	22.0	0.87	22.0	0.87	32.7	1.29	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	55.0	2.17	68.0	2.68
	1/4"	PNV-IB-S-04G-FF-A	0.73	6.4	0.25	27.0	1.06	27.5	1.08	41.5	1.63	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06G-FF-A	1.80	9.5	0.37	37.5	1.48	37.5	1.48	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
	1/2"	PNV-IB-S-08G-FF-A	1.80	9.5	0.37	37.5	1.48	37.5	1.48	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09
Metric Thread	M20x1.5	PNV-IB-S-20M-FF-A	1.80	9.5	0.37	37.5	1.48	37.5	1.48	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	87.0	3.43	104.0	4.09

Note: Sizes are for reference only and can be changed. All sizes in mm unless specified otherwise

End Connections and Sizes of Needle Valve (IB Series) with Angular Configuration



End Connection		Part Number	Cv	Orifice		B1		B2		C		D		E		F		F1		G		H		H1	
Type	Size			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
NPT Male / NPT Female	1/4"	PNV-IB-S-04-MF-A	0.37	4.4	0.17	27.5	1.08	28.0	1.10	41.5	1.63	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06-MF-A	0.73	6.4	0.25	37.5	1.48	37.5	1.48	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	1/2"	PNV-IB-S-08-MF-A	1.80	9.5	0.37	37.5	1.48	38.5	1.52	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
BSPT Male / BSPT Female	1/4"	PNV-IB-S-04R-MF-A	0.37	4.4	0.17	27.5	1.08	28.0	1.10	41.5	1.63	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	69.0	2.72	81.0	3.19
	3/8"	PNV-IB-S-06R-MF-A	0.73	6.4	0.25	37.5	1.48	37.5	1.48	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	1/2"	PNV-IB-S-08R-MF-A	1.80	9.5	0.37	37.5	1.48	38.5	1.52	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
NPT Male	1/8"	PNV-IB-S-02-MM-A	0.37	4.4	0.17	20.5	0.81	21.0	0.83	31.7	1.25	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	1/4"	PNV-IB-S-04-MM-A	0.37	4.4	0.17	23.5	0.93	24.0	0.94	35.0	1.38	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	3/8"	PNV-IB-S-06-MM-A	0.73	6.4	0.25	27.5	1.08	28.0	1.10	42.0	1.65	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
	1/2"	PNV-IB-S-08-MM-A	1.80	9.5	0.37	38.0	1.50	38.5	1.52	59.5	2.34	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
BSPT Male	1/8"	PNV-IB-S-02R-MM-A	0.37	4.4	0.17	42.3	1.67	21.0	0.83	31.7	1.25	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	1/4"	PNV-IB-S-04R-MM-A	0.37	4.4	0.17	42.3	1.67	24.0	0.94	35.0	1.38	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	3/8"	PNV-IB-S-06R-MM-A	0.73	6.4	0.25	42.3	1.67	28.0	1.10	42.0	1.65	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
	1/2"	PNV-IB-S-08R-MM-A	1.80	9.5	0.37	22.0	0.87	38.5	1.52	59.5	2.34	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
NPT Male PANAM Tube Fitting (inch)	1/4"	PNV-IB-S-04-MOD-A	0.37	4.4	0.17	23.5	0.93	24.0	0.94	40.5	1.59	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	1/4" x 3/8"	PNV-IB-S-04-06-MOD-A	0.73	6.4	0.25	28.0	1.10	28.0	1.10	48.0	1.89	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
	3/8"	PNV-IB-S-06-MOD-A	0.73	6.4	0.25	28.0	1.10	28.0	1.10	48.0	1.89	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
	3/8" x 1/2"	PNV-IB-S-06-08-MOD-A	0.73	6.4	0.25	28.0	1.10	28.0	1.10	51.0	2.01	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
NPT Male PANAM Tube Fitting (metric)	1/2"	PNV-IB-S-08-MOD-A	1.80	9.5	0.37	38.0	1.50	38.5	1.52	63.5	2.50	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	1/4" x 6mm	PNV-IB-S-04-M06-MOD-A	0.37	4.4	0.17	23.5	0.93	24.0	0.94	40.5	1.59	11.0	0.43	9.7	0.38	50.0	1.97	38.0	1.50	14.5	0.57	57.0	2.24	68.0	2.68
	1/4" x 8mm	PNV-IB-S-04-M08-MOD-A	0.73	6.4	0.25	28.0	1.10	28.0	1.10	48.0	1.89	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
	3/8" x 10mm	PNV-IB-S-06-M10-MOD-A	0.73	6.4	0.25	28.0	1.10	28.0	1.10	48.0	1.89	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
	3/8" x 12mm	PNV-IB-S-06-M12-MOD-A	0.73	6.4	0.25	28.0	1.10	28.0	1.10	51.0	2.01	13.0	0.51	14.0	0.55	50.0	1.97	50.0	1.97	19.5	0.77	70.0	2.76	80.0	3.15
Metric Thread	1/2" x 12mm	PNV-IB-S-08-M12-MOD-A	1.80	9.5	0.37	38.0	1.50	38.5	1.52	63.5	2.50	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	M20x1.5	PNV-IB-S-20M-MF-A	1.80	9.5	0.37	37.5	1.48	38.5	1.52	59.0	2.32	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	M20x1.5	PNV-IB-S-20M-MM-A	1.80	9.5	0.37	38.0	1.50	38.5	1.52	59.5	2.34	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09
	M20x1.5x12mm	PNV-IB-S-20M-M12-MOD-A	1.80	9.5	0.37	38.0	1.50	38.5	1.52	63.5	2.50	19.0	0.75	21.0	0.83	70.0	2.76	78.0	3.07	23.0	0.91	89.0	3.50	104.0	4.09

Note: Sizes are for reference only and can be changed. All sizes in mm unless specified otherwise

Stem Tip Options of Needle Valves (IB Series)

PANAM® IB series needle valves are supplied with non-rotating stem tip options:

- Standard non-rotating V tip for open/close.
- Regulating non-rotating rod tip is used where some degree of flow control is required.
- Ball non-rotating stem tip for a long service life and higher durability.

V-type non-rotating stem tip



Regulating non-rotating rod tip



Regulating non-rotating stem tip



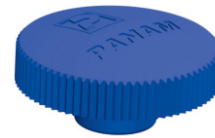
Handles From Nylon with Stainless Steel Insert



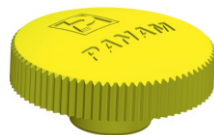
BK - Black



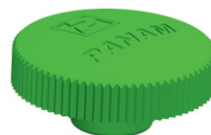
R - Red



B - Blue



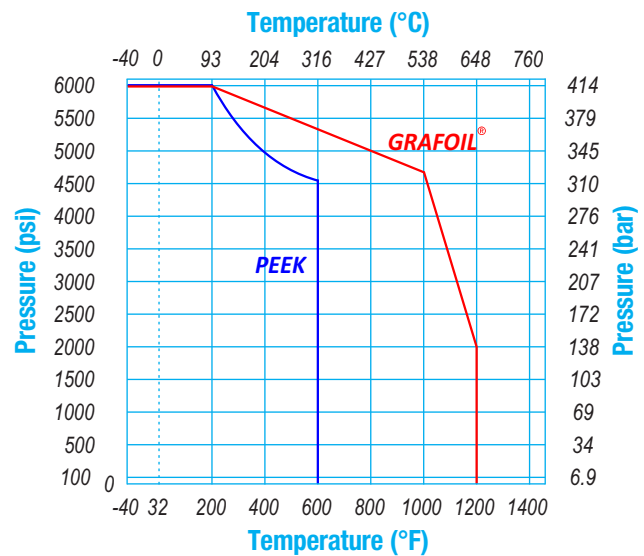
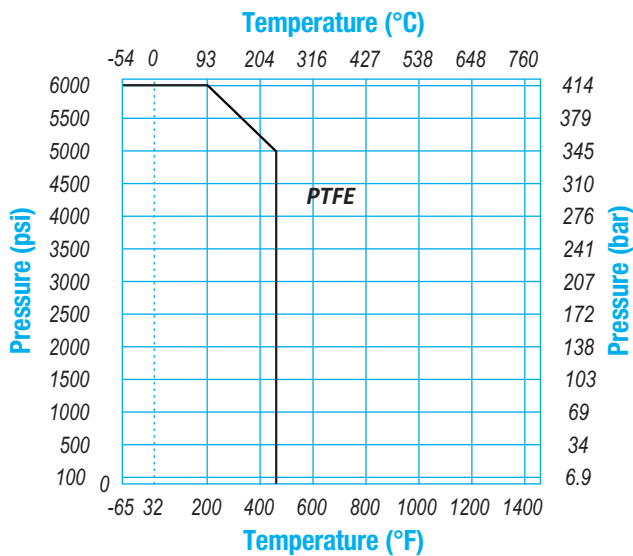
Y - Yellow



G - Green

* Black nylon handle with 316 stainless steel is used as a standard handle when regulating stem tip needle valve is ordered.

Pressure vs Temperature for Needle Valve (IB Series)



Sealing Material Characteristics

PTFE (Polytetrafluorethylene)

PTFE is an excellent material for applications in clean environments. It is highly resistant to the chemical effects of a large number of organic and inorganic reagents and solvents.

- It has a low coefficient of deformation, increased strength and abrasion resistance, and a low friction coefficient.

PEEK (Polyetheretherketone)

PEEK is a semi-crystalline polymer with high temperature resistance, high mechanical strength and chemical resistance.

- Excellent material for high pressure and temperature. Resistant to chemically aggressive environments and radiation.
- Withstands temperatures up to + 260°C (up to + 500°F), boiling water or steam maintaining its physical properties.
- Excellent material for use with environments such as oxygen and nitrogen.
- PEEK is not recommended for use with concentrated sulfuric and nitric acids.

Grafoil

Grafoil (thermally expanded graphite) is a material with resistance to high temperature and chemical impacts.

- Due to its unique features, this material is used in high temperatures and corrosive environments.
- Thermally expanded graphite is one of the safest materials for sealing systems in liquid environments.
- Seals from the thermally expanded graphite is used in applications of highly volatile liquids and at extremely high temperatures.

Seal Adjustment

Since **PANAM**® Needle Valves are designed for applications in various processes, the seals may be subjected to the adjustment. Factory settings are at 69 bar (1000 psi).

The adjustment procedure is stated in installation and operating procedures for **PANAM**® Needle Valve of each series.

Testing

Every **PANAM**® valve is hydrostatically tested in accordance with MSS-SP-99. The procedure includes hydrostatic testing of the valve body and stem seal leakage check.

The hydrostatic test is carried out using pure water or other liquids with the same or lower viscosity at pressure 1.5 times higher than maximum working pressure. Pressure leakage test of the seat is carried out at pressure 1.1 times higher than maximum working pressure.

The seat and stem seal of every valve is hydraulically tested in nitrogen at 6.9 MPa (1000 psi).

Upon request, additional tests can be carried out, e.g. vibration testing, temperature test, leakage test in helium.

Cleaning and Packaging

All **PANAM**® needle valves of IB series are cleaned in accordance with Standard Procedure of **PANAM ENGINEERS LTD.**

Additionally, a special cleaning of valves from lubrication, if such valves are used in oxygen medium, with subsequent packaging according to **PANAM ENGINEERS LTD.** Special Cleaning and Packaging Procedure.

Ordering Information

PNV-IB-S-M10-OD-SG

P PANAM ®	NV Needle Valves	IB Series	S Body Material	M10 Connection Size	OD End Connections	-	-	-	-	SG Options
			S - Stainless Steel 316 SS C - Carbon Steel A 105 M - Monel H - Hastelloy B - Brass	02 - 1/8" 04 - 1/4" 06 - 3/8" 08 - 1/2" 12 - 3/4" 20M - M20 x 1.5 M03 - OD 3 mm M06 - OD 6 mm M08 - OD 8 mm M10 - OD 10 mm M12 - OD 12 mm M14 - OD 14 mm M16 - OD 16 mm M18 - OD 18 mm	OD - PANAM ® Tube Fitting FF - Female In and Out MF - Male / Female MM - Male In and Out MOD - Male / PANAM ® Tube Fitting		Stem Seal - - PTFE PK - PEEK HT - Graphoil			Options: SG - NACE MR-01-75 OXY - Cleaning for Oxygen Application
Thread Types - - NPT R - ISO Tapered G - ISO parallel M - Metric						Step Tip - - V-Type RS - Regulating BT - Ball Type				Configuration - - Straight A - Angular
*Other types, sizes and materials are available upon request.							Handle - - Standard T - Stainless steel BK - Black Nylon R - Red B - Blue Y - Yellow G - Green			* Black nylon handle for valves with RS tip T - Type handle from stainless steel for needle valves with V-type and BT tip

Ordering Information for Spare Parts

Repair kit for Needle Valve

Repair kit - SK, Includes stem seal.

Screw driver is included in repair kit H

PSP-IB-SK-M10-OD-PK

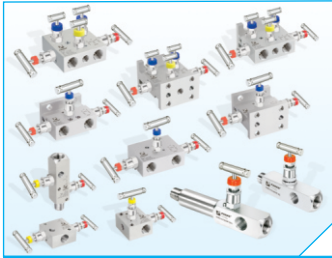
P	SP	IB	SK	-	M10	OD	-	PK
PANAM	Spare Parts	Series	Kit Type H - Handle SK - Stem Seal Kit	Configuration - Straight A - Angular	Connection Size 02 - 1/8" 04 - 1/4" 06 - 3/8" 08 - 1/2" 12 - 3/4" 20M - M20 x 1.5 M03 - OD 3 mm M06 - OD 6 mm M08 - OD 8 mm M10 - OD 10 mm M12 - OD 12 mm M14 - OD 14 mm M16 - OD 16 mm M18 - OD 18 mm	End Connections - - thread connection OD - PANAM Tube Fitting MOD - Male Thread / PANAM Tube Fitting	Handle T - Stainless steel BK - Black Nylon R - Red B - Blue Y - Yellow G - Green	Stem Seal - - PTFE PK - PEEK HT - Graphoil

Safety

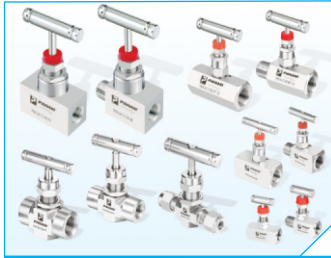
For safe operation of **PANAM** Needle Valves shall be adequately selected. When choosing materials operating conditions, compatibility of materials, purpose and product specifications shall be considered. Installation and maintenance of products shall be carried out by qualified personnel.

Wrong selection, poor installation or incorrect operation and maintenance may result in accident, cause personal injury and result in material damage.

Other Products



Valve Manifolds & Gauge Root Valves



Needle Valves



Ball Valves & Check Valves



Safety Relief Valves



Filters



Tube Fittings & HP Tube Fittings



Pipe Fittings



High Pressure Fittings



Flare Fittings 37°



Weld Fittings



Flange Adapters



Pressure Regulators



Double Block & Bleed Valves



Air Header & Condensate Pots



Tubings



PANAM ENGINEERS LTD.

203, Jaisingh Business Center, Parsiwada, Sahar Road, Andheri (East),
Mumbai - 400 099. INDIA • Tel.: +91 22 2831 5555 / 57 / 58.
Fax.: +91 22 2831 5574 • Email: sales@panamengineers.com
Website: www.panamengineers.com / www.panam.in