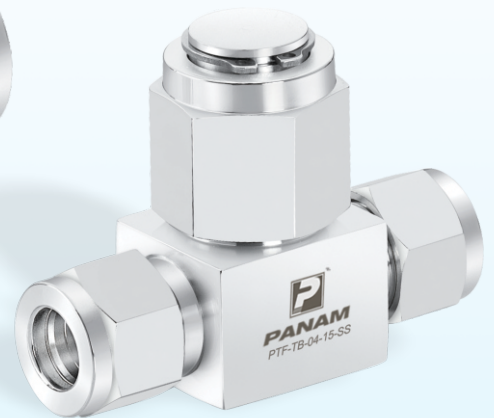


Filters



www.panamengineers.com

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 is manufacturing a wide range of Filters and Instrumentation products in different sizes and materials like Stainless Steel & Other Alloys (e.g. Monel, Hastalloy, Duplex, Super Duplex etc. as per the customer's requirements). **PANAM** offers its products in various end connections like NPT, BSPP, BSPT, ISO Tapered, ISO Parallel, Tube & Pipe Socket Welded Ends, etc.

PANAM 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 Filters are 100% factory tested and are in compliance with NACE MR0175 & NACE MR0103 with Heat Code Traceability. Working pressure upto 6,000 psig (413 bar) and also available in higher ratings on request.

Features (Tee-Type Filters)

- Filter Element can be replaced without removing body from system.
- Safe Union Bonnet Design for High Pressure Rating.
- Nominal Pore Sizes for Replaceable Sintered Element: 0.5, 2, 7, 15, 60, 90 µm (microns).
- Nominal Pore Sizes for Replaceable Strainer Element: 40, 140, 230, 440 µm (microns).
- Working Pressure Up to 6000 psig (414 bar).
- Working Temperature Up to -20°F to 900° F (-28°C to 482°C).
- Various End Connections are available. It includes **PANAM** Tube Fittings & NPT.



Features (In-Line Filters)

- Compact Design. It can be used where space is limited.
- Nominal Pore Sizes for Replaceable Sintered Element: 0.5, 2, 7, 15, 60, 90 µm (microns).
- Nominal Pore Sizes for Replaceable Strainer Element: 40, 140, 230, 440 µm (microns).
- Working Pressure Up to 3000 psig (207 bar).
- Working Temperature Up to -20°F to 900° F (-28°C to 482°C).
- Various End Connections are available. It includes **PANAM** Tube Fittings & NPT.



Ordering Information

P-IF-IA-06-15-SS-SG

Filter Type		Filter Series	End Connections		Nominal Pore Size		Body Material		Special Requirement	
IF	Inline Filter	IA	02	1/8" OD	05	0.5 µm	SS	SS 316	SG	NACE
TF	Tee Filter	IB	04	1/4" OD	2	2 µm	B	Brass		
		IC	06	3/8" OD	7	7 µm				
		ID	08	1/2" OD	15	15 µm				
		TA	2N-M	1/8" NPT MALE	40	40 µm				
		TB	2N-F	1/8" NPT FEMALE	60	60 µm				
		TC	4N-M	1/4" NPT MALE	90	90 µm				
		TD	4N-F	1/4" NPT FEMALE	140	140 µm				
			6N-M	3/8" NPT MALE	230	230 µm				
			8N-M	1/2" NPT MALE	440	440 µm				
			M03	3mm OD						
			M06	6mm OD						
			M08	8mm OD						
			M10	10mm OD						
			M12	12mm OD						

Filtration

Filter Element: The component within the filter which traps media contamination.

Filtration Area: The actual surface area of the filter element available to trap contamination.

Filtration Area

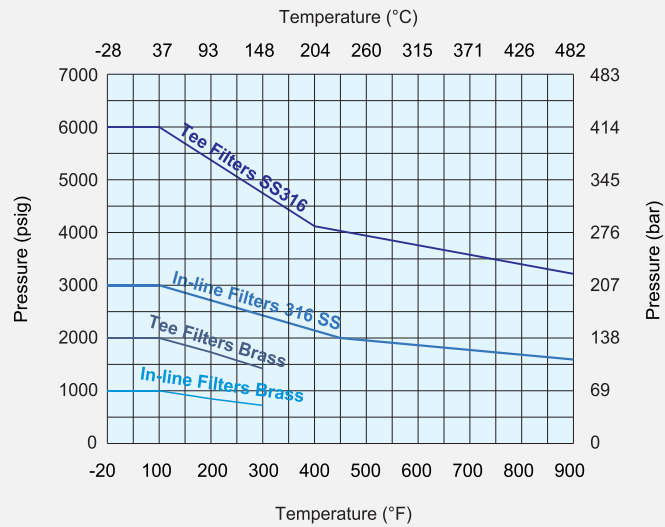
Filter Type	Filter Series	Filtration Area in. ² (mm ²)	
		Sintered Element	Strainer Element
In-Line Type	IA	0.55 (350)	-
	IB	1.3 (830)	1.0 (640)
	IC	2.0 (1280)	1.7 (1090)
	ID	2.0 (1280)	1.7 (1090)
Tee Type	TA	1.3 (830)	1.0 (640)
	TB	1.3 (830)	1.0 (640)
	TC	2.0 (1280)	1.7 (1090)
	TD	2.0 (1280)	1.7 (1090)

Elements - Elements remove 95% of particles larger than the nominal pore size.

Nominal Pore Size (µm)	Pore Size Range (µm)	Element Type	Element Designator
0.5	0.5 to 2	Sintered	05
2	1 to 4		2
7	5 to 10		7
15	11 to 25		15
60	50 to 75		60
90	75 to 100	Strainer	90
40	-		40
140	-		140
230	-		230
440	-		440

To ensure leak proof tight seal, **PANAM** recommends use of pipe thread sealant on all NPT threads. The most effective sealing method is the use of Teflon tape. Tape should be used on male NPT tapered threads. Clean both male and female tapered threads, wrap tape in direction of male tapered, cut off excess tape.

Pressure Temperature Ratings



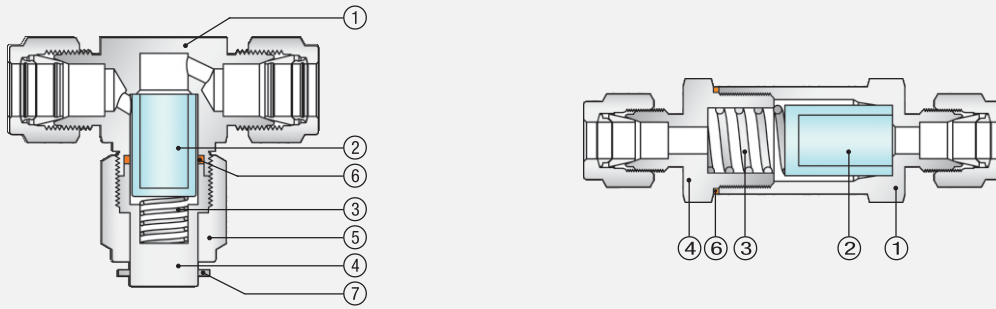
Ratings are based on standard materials of construction. Ratings for T series filters with Non-standard gaskets may have restrictions in pressure ratings due to working temperature limitations.

Filter Type	Tee Type				In-Line Type				Tee Type				In-Line Type							
	TA	TB	TC	TD	IA	IB	IC	ID	TA	TB	TC	TD	IA	IB	IC	ID				
Material	SS 316								Brass											
Temperature °F (°C)	Working Pressure in psig (bar)																			
-20 (-28) to 100 (38)	6000 (413)				3000 (206)				2500 (172)				2000 (137)				1000 (68.9)			
200 (93)	5160 (355)				2580 (177)				2150 (148)				1730 (119)				780 (53.7)			
300 (148)	4660 (321)				2330 (160)				1940 (133)				1470 (101)				680 (46.8)			
400 (204)	4280 (294)				2140 (147)				1780 (122)				-				-			
500 (260)	3980 (274)				1990 (137)				1660 (114)				-				-			
600 (315)	3760 (259)				1880 (129)				1560 (107)				-				-			
650 (343)	3700 (254)				1845 (127)				1540 (106)				-				-			
700 (371)	3600 (248)				1800 (124)				1500 (103)				-				-			
750 (398)	3520 (242)				1760 (121)				1460 (100)				-				-			
800 (426)	3460 (238)				1725 (118)				1440 (99.2)				-				-			
850 (454)	3380 (232)				1690 (116)				1410 (97.1)				-				-			
900 (482)	3280 (225)				1640 (112)				1360 (93.7)				-				-			

Differential Pressure Ratings

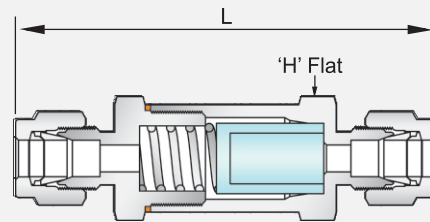
Element Designator	Nominal Pore Size (µm)	Cv Factor	Maximum Differential Pressure Across Clean Filters at 70°F psig (bar)
05	0.5	0.046	1160 (80 bar)
2	2	0.056	
7	7	0.12	
15	15	0.13	
60	60	0.38	
90	90	0.50	

Standard Material of Construction



Sr. No.	Component	Material Grade/ASTM Specification	
		T Series	I Series
1	Body	SS 316/A479	
2	Element	Sintered SS 316 or Strainer SS 316	
3	Spring	SS 302/A313	
4	Bonnet	SS 316/A479	
5	Bonnet Nut	SS 316/A479	-
6	Gasket	SS 316/A240 Silver Plated	
7	Retainer Ring	Stainless Steel	-

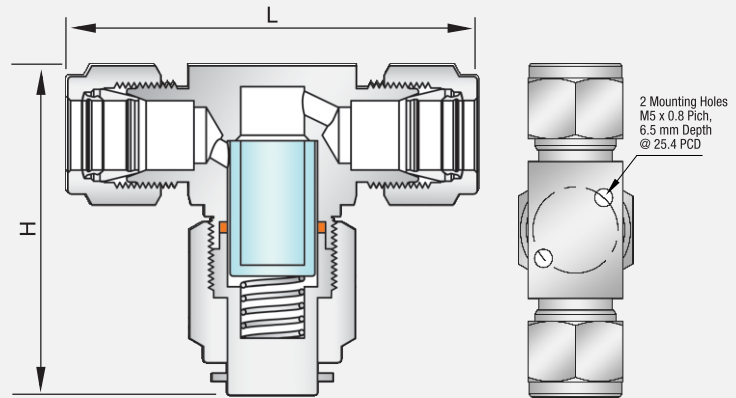
Dimensions (In-Line Filters)



Filter Series	End Connections			Dimensions		
	Designator	Size	Inlet/Outlet Type	Orifice in. (mm)	Length L mm (in.)	Across Flat H in.
IA	02	1/8 in.	Tube Fitting	0.094 (2.39)	59.7 (2.35)	9/16
	2N-F	1/8 in.	Female NPT		54.9 (2.16)	9/16
	M03	3 mm	Tube Fitting		60.5 (2.38)	9/16
IB	04	1/4 in.	Tube Fitting	0.187 (4.75)	74.9 (2.95)	3/4
	4N-F	1/4 in.	Female NPT		72.9 (2.87)	3/4
	4N-M	1/4 in.	Male NPT		68.3 (2.69)	3/4
	M06	6 mm	Tube Fitting		75.2 (2.96)	3/4
	M08	8 mm	Tube Fitting		78.5 (3.10)	3/4
IC	06	3/8 in.	Tube Fitting	0.281 (7.14)	81.5 (3.21)	1
	6N-M	3/8 in.	Male NPT		71.1 (2.80)	1
	M10	10 mm	Tube Fitting		83.9 (3.30)	1
	M12	12 mm	Tube Fitting		87.9 (3.46)	1
ID	08	1/2 in.	Tube Fitting	0.406 (10.3)	88.6 (3.49)	1
	8N-M	1/2 in.	Male NPT		81.6 (3.21)	1

Note: Dimensions are for reference only and are subject to change. Dimension shown with **PANAM** tube fittings nuts are in finger-tight position.

Dimensions (Tee Filters)



Filter Series	End Connections			Dimensions		
	Designator	Size	Inlet/Outlet Type	Orifice in. (mm)	Length L mm (in.)	Height H mm (in.)
TA	02	1/8 in.	Tube Fitting	0.094 (2.39)	57.7 (2.27)	47.5 (1.87)
	2N-F	1/8 in.	Female NPT		50.8 (2.00)	54.9 (2.16)
	M03	3 mm	Tube Fitting		50.8 (2.00)	54.9 (2.16)
TB	04	1/4 in.	Tube Fitting	0.174 (4.41)	62.7 (2.47)	47.5 (1.87)
	4N-M	1/4 in.	Male NPT		54.1 (2.13)	47.5 (1.87)
	4N-F	1/4 in.	Female NPT		54.1 (2.13)	47.5 (1.87)
	M06	6 mm	Tube Fitting		62.5 (2.46)	47.5 (1.87)
TC	06	3/8 in.	Tube Fitting	0.213 (5.41)	72.1 (2.84)	56 (2.2)
	6N-M	3/8 in.	Male NPT		60.5 (2.38)	56 (2.2)
	M08	8 mm	Tube Fitting		72.1 (2.84)	56 (2.2)
TD	08	1/2 in.	Tube Fitting	0.250 (6.35)	77.2 (3.04)	56 (2.2)
	M10	10 mm	Tube Fitting		72.6 (2.86)	56 (2.2)
	M12	12 mm	Tube Fitting		77.2 (3.04)	56 (2.2)
	8N-M	1/2 in.	Male NPT		69.9 (2.75)	56 (2.2)

Note: Dimensions are for reference only and are subject to change. Dimension shown with **PANAM** tube fittings nuts are in finger-tight position.

Testing

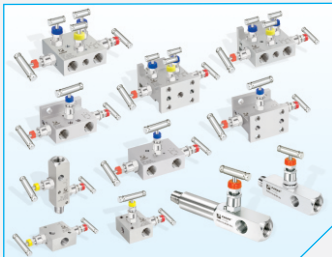
Every **PANAM** Filter is factory tested with nitrogen at 1000 psig (69 bar) to a requirement of no detectable leakage with a liquid leak detector.

Note:

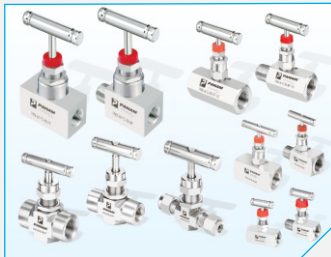
Continuous product development from time to time necessitate changes in the details contained in this catalogue. **PANAM** reserves the right to make such changes at their discretion and without prior notice.

The Selection of a Filter for any application or system design must be considered to ensure safe performance. Filter function, Filter rating, material compatibility, proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. **PANAM** accepts no liability for any improper selection, installation, operation or maintenance.

Other Products



Valve Manifolds & Gauge Root Valves



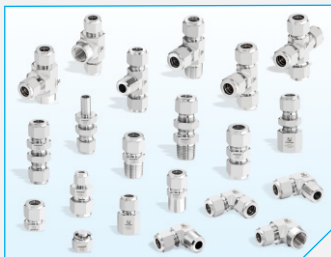
Needle Valves



Ball Valves & Check Valves



Relief Valves



Tube Fittings



Pipe Fittings



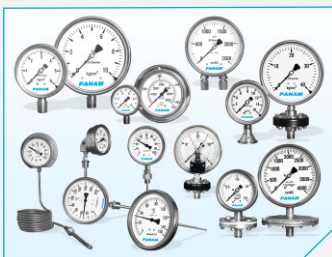
37° JIC Fittings (Flare Fittings)



Weld Fittings



Thermowells



Pressure, Temperature & Diaphragm Gauges



Pressure Transmitters



Pressure Regulators



Double Block & Bleed Valves



Air Header & Condensate Pots



Industrial Valves



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