

Filters

Maximum Working Pressure upto
6000 psi (414 bar)



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 Filters from different materials like Stainless Steel & Brass and as per customer's requirements.

PANAM[®] offers Filters with a variety of end connections including NPT Tapered, ISO Tapered (BSPT), ISO Parallel (BSPP), Metric.

PANAM[®] Filters are 100% factory tested, comply with NACE MR0175 with Heat Code Traceability. Filters can be supplied also for oxygen application after a special cleaning.

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Description

PANAM® filters are of T-type direct-flow micron filters designed to protect system components from solid particles and suspended particles of liquids.

Technical Characteristics of T-Type Filters

- The filter element can be removed without dismantling the filter.
- Safe filter cover design for application under high pressure.
- Nominal pore size of the replaceable sintered filter element: 0.5, 2, 7, 15, 40, 60, 90 microns.
- Nominal pore size of the replaceable mesh filter element: 40, 90, 140, 230, 440 microns
- Working Pressure Up to 6000 psi (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.

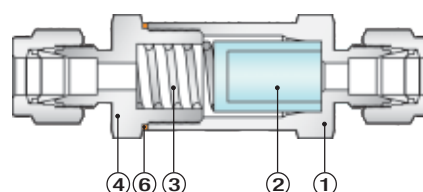
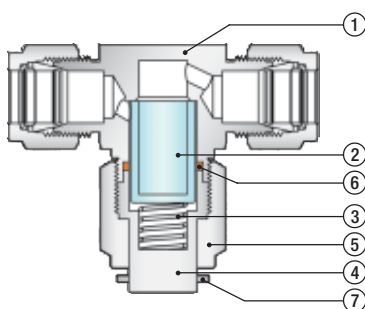


Technical Characteristics of In-Line Filters

- Compact design, also for the application in confine space.
- Nominal pore size of the replaceable sintered filter element: 0.5, 2, 7, 15, 40, 60, 90 microns.
- Nominal pore size of the replaceable mesh filter element: 40, 90, 140, 230, 440 microns.
- Working Pressure Up to 3000 psi (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.

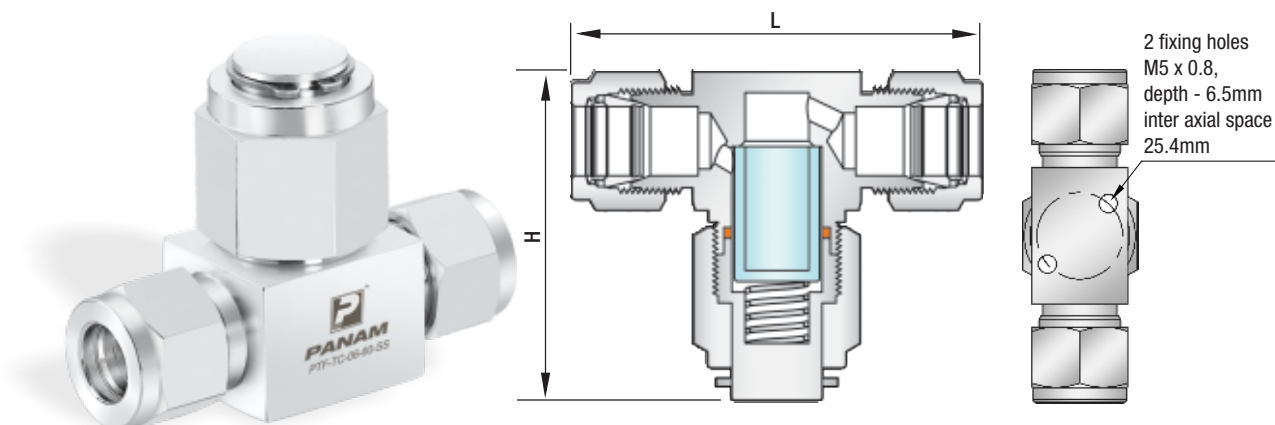


Design and Materials



No	Part	Material / Specification ASTM	
		T-Shape	In-Line
1	Filter Body	Stainless Steel 316 / A479	
2	Filter Element	Sintered or Mesh / Stainless Steel 316	
3	Spring	Stainless Steel 302 / A313	
4	Cover	Stainless Steel 316 / A479	
5	Cover Nut	Stainless Steel / A479	-
6	O-Ring	Silver Plated 316 SS / A240	
7	Locking Ring	Stainless Steel	-

Types of Connections and Sizes of T-Type Filters

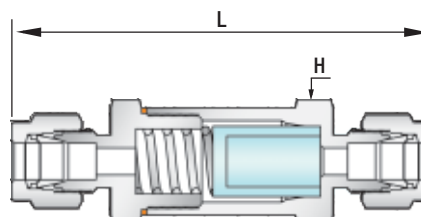


Series	End Connections			Sizes		
	Code	Size	Type of Connection	Orifice Inch (mm)	L mm (Inch)	H mm (Inch)
TA	02	1/8"	PANAM ® Tube Fittings	0.094 (2.39)	57.7 (2.27)	47.5 (1.87)
	2N-F	1/8"	NPT Female		50.8 (2.00)	54.9 (2.16)
	M03	3 mm	NPT Male		50.8 (2.00)	54.9 (2.16)
TB	04	1/4"	PANAM ® Tube Fittings	0.174 (4.41)	62.7 (2.47)	47.5 (1.87)
	4N-M	1/4"	NPT Female		54.1 (2.13)	47.5 (1.87)
	4N-F	1/4"	NPT Male		54.1 (2.13)	47.5 (1.87)
	M06	6 mm	PANAM ® Tube Fittings		62.5 (2.46)	47.5 (1.87)
TC	06	3/8"	PANAM ® Tube Fittings	0.213 (5.41)	72.1 (2.84)	56 (2.20)
	6N-M	3/8"	NPT Female		60.5 (2.38)	56 (2.20)
	M08	8 mm	PANAM ® Tube Fittings		72.1 (2.84)	56 (2.20)
TD	08	1/2"	PANAM ® Tube Fittings	0.250 (6.35)	77.2 (3.04)	56 (2.20)
	M10	10 mm	PANAM ® Tube Fittings		72.6 (2.86)	56 (2.20)
	M12	12 mm	PANAM ® Tube Fittings		77.2 (3.04)	56 (2.20)
	8N-M	1/2"	NPT Female		69.9 (2.75)	56 (2.20)

Note: Dimensions are for reference only and are subject to change.

Dimensions for **PANAM**® Tube Fittings are based on hand-tightened compression nuts.

Connection Types and Sizes of In-Line Filters



Series	End Connections			Sizes		
	Code	Size	Type of Connection	Orifice Inch (mm)	L mm (Inch)	H mm (Inch)
IA	02	1/8"	PANAM ® Tube Fittings	0.094 (2.39)	59.7 (2.35)	9/16
	2N-F	1/8"	NPT Female		54.9 (2.16)	9/16
	M03	3 mm	PANAM ® Tube Fittings		60.5 (2.38)	9/16
IB	04	1/4"	PANAM ® Tube Fittings	0.187 (4.75)	74.9 (2.95)	3/4
	4N-F	1/4"	NPT Female		72.9 (2.87)	3/4
	4N-M	1/4"	NPT Male		68.3 (2.69)	3/4
	M06	6 mm	PANAM ® Tube Fittings		75.2 (2.96)	3/4
	M08	8 mm	PANAM ® Tube Fittings		78.5 (3.10)	3/4
IC	06	3/8"	PANAM ® Tube Fittings	0.281 (7.14)	81.5 (3.21)	1
	6N-M	3/8"	NPT Male		71.1 (2.80)	1
	M10	10 mm	PANAM ® Tube Fittings		83.9 (3.30)	1
	M12	12 mm	PANAM ® Tube Fittings		87.9 (3.46)	1
ID	08	1/2"	PANAM ® Tube Fittings	0.406 (10.3)	88.6 (3.49)	1
	8N-M	1/2"	NPT Male		81.6 (3.21)	1

Note: Dimensions are for reference only and are subject to change.

Dimensions for **PANAM**® Tube Fittings are based on hand-tightened compression nuts.

Filter Elements and Filtration Area

Filter element is a filter component that filters and prevents the process medium from the pollution. Filter elements remove 95% of particles which exceed the nominal pore size.

Filtration area is the actual surface area of the filter element for trapping the contaminants.

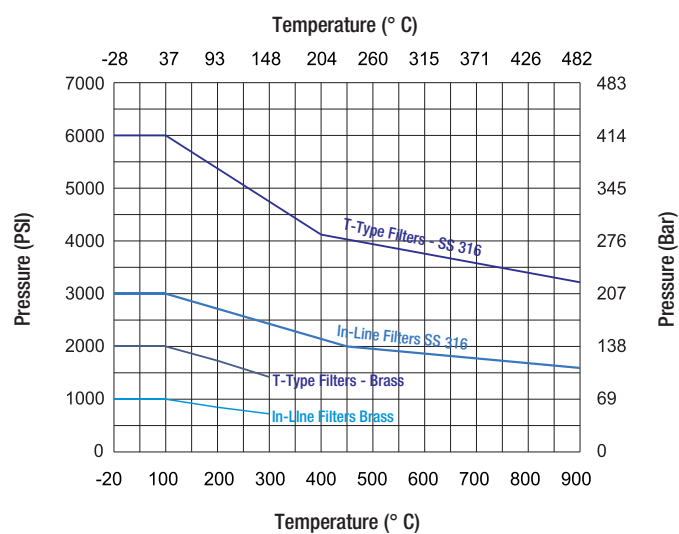
Filter Elements

Nominal Pore Size µm	Range of Sizes Pores µm	Type of Filtering Element	Designation of Filtering Element
0.5	From 0.5 To 2	Sintered	05
2	From 1 To 4		2
7	From 5 To 10		7
15	From 11 To 25		15
40	From 35 To 53		40
60	From 50 To 75		60
90	From 75 To 100		90
40	-	Mesh	40
90	-		90
140	-		140
230	-		230
440	-		440

Filtration Area

Filter Type	Filter Series	Filtration Area inch (mm)	
		Sintered	Mesh
In-Line	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)
T-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)

Pressure V/S. Temperature



The information in the table is valid for a standard stainless-steel O-ring.

When using non-standard O-rings, the working pressure and temperature may be below the specified values.

Filter Type	T-Type				In-Line				T-Type				In-Line			
Filter Series	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 psi (bar)															
From -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)		-				-			

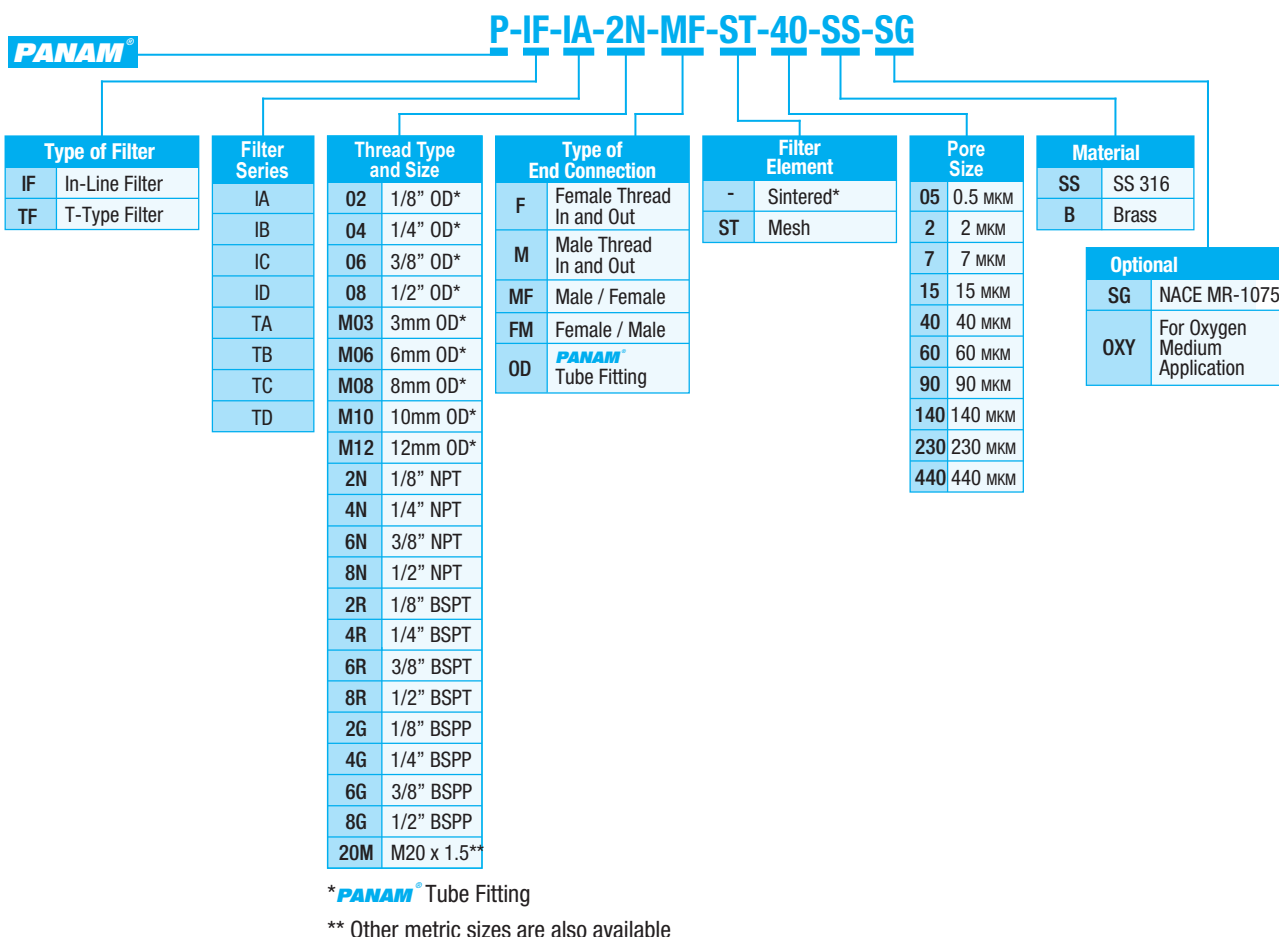
Maximum differential pressure with a clean filter at 21° C (70° F)

Maximum Differential Pressure psi (bar)									
0.5 MKM	2 MKM	7 MKM	15 MKM	40 MKM	60 MKM	90 MKM	140 MKM	230 MKM	440 MKM
2250 (152.2)	2250 (152.2)	1950 (134.5)	1750 (120.7)	1150 (79.3)	1150 (79.3)	1000 (69.0)	1000 (69.0)	1000 (69.0)	1000 (69.0)

Testing

Each **PANAM**® filter is hydrostatically tested at a pressure 1.5 times higher the maximum working pressure. The leak test is carried out with nitrogen at a pressure of 1000 psi (69 bar).

Ordering Information



Filter Installation Recommendations

Filters are installed in strict accordance with the direction of flow of the medium. The direction of flow must match the direction of the arrow on the filter body. If the filter has **PANAM**® tube fittings, the installation shall be carried out together with the installation instruction for the tube fittings.

When installing a filter with a thread connection (male or female tapered NPT or BSPT), PTFE tape or special sealants for the tapered thread shall be used. The sealant usually contains a lubricant, it fills the voids between threads and prevents from thread galling.

When using Teflon tape as a sealing material, wind it around the male tapered thread clockwise from the beginning of the thread. Make sure the tape does not go beyond the first thread, otherwise some of the tape may break and drop in the process. Cut off the excess tape, ensure that the tape on the fitting is properly secured, and install it with wrenches.

When installing, hold the filter body with a wrench and turn the body of the fitting attached to it, and not otherwise. The thread tightening force is regulated by the thread standard.

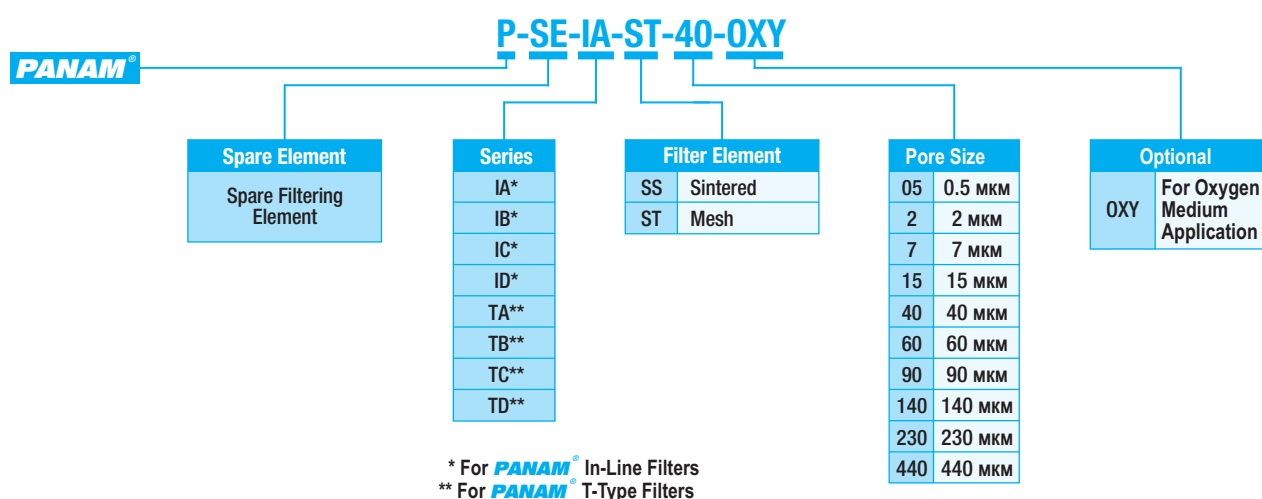
Filters shall be subject to periodic maintenance by replacing the filter element and tightening the fitting nut in case of disassembly / assembly of the connection.

Ordering Information for Spare Kit

The filter element is made of stainless steel and has a few small pores. The particles larger than the pores of the filter element do not pass through the filter and are removed from the working medium. After some time, the particles will clog the pores of the filter element, resulting in an increase in pressure loss across the Filter.

The life of the filter element depends on the amount of process medium that has passed through it, and on its purity. To ensure a minimum pressure drop across the Filter, the filter element shall be changed regularly. To replace filter elements in in-line filters, they shall be dismantled from the system.

At the same time, in the case of dismantling the Filters with tube fittings, their dismantling and subsequent installation into the system after replacing the filter element should be carried out in accordance with the instructions for disassembling and reassembling the tube fittings. Replacement of T-shape filter elements is possible without removing the filter body from the system. **PANAM®** filter spare parts kit consists of a replacement filter element and silver-plated O-ring in 316 / A240 stainless steel.



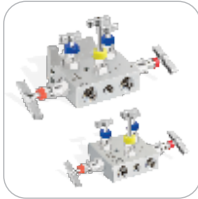
Safety

For safe operation of **PANAM®** filters 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. **PANAM ENGINEERS LLC** provides a guarantee for all manufactured and supplied products, however, is not responsible for the wrong selection, installation, operation, and technical maintenance of delivered products.

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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