

# Filters

FT, FB, F and FW Series



 **Finelok**<sup>®</sup>  
Instrumentation Solutions

[www.finelok.com](http://www.finelok.com)

## 1 Filters

## Filtration Definitions

- ★ Sintered element: metal powder (alloys are available) is pressed in a die at sufficient pressure that the powder particles adhere at their contact points.
- ★ Strainer element: the strainer is cup-shaped and includes an inner cup-shaped support structure having staggered perforations extending through the surfaces thereof, an outer cup-shaped strainer structure constructed of wire mesh is closely received over the support structure
- ★ Element nominal pore size: the element nominal pore size is normally calculated from the pressure required to cause air to bubble from the largest pore in the filter element when submerged in a test liquid.

## Features

## Tee-type Filters

## FT Series

- ★ Filter element replaceable without removing body from system
- ★ Union bonnet design
- ★ Nominal pore sizes for sintered element: 0.5, 2, 7, 15, 40, 60 and 80 $\mu$ m
- ★ Nominal pore sizes for strainer element: 100, 150, 250 and 450 $\mu$ m
- ★ Maximum working pressure: 6000 psig (414 bar)
- ★ Working temperature: -20F to 900F (-28°C to 482°C)
- ★ Body materials: 316 SS, 316LSS, 304 SS, 304LSS, 904L SS, and Brass
- ★ Variety of end connections available

## Bypass Filters

## FB Series

- ★ Bypass port at filter bottom for the ease of sampling or purging
- ★ Union bonnet design
- ★ Nominal pore sizes for sintered element: 0.5, 2, 7, 15, 40, 60 and 80 $\mu$ m
- ★ Nominal pore sizes for strainer element: 100, 150, 250 and 450 $\mu$ m
- ★ Maximum working pressure: 6000 psig (414 bar)
- ★ Working temperature: -20F to 900F (-28°C to 482°C)
- ★ Body materials: 316 SS, 316LSS, 304 SS, 304LSS, 904L SS, and Brass
- ★ Variety of end connections available

## In-line Filters

## FI Series

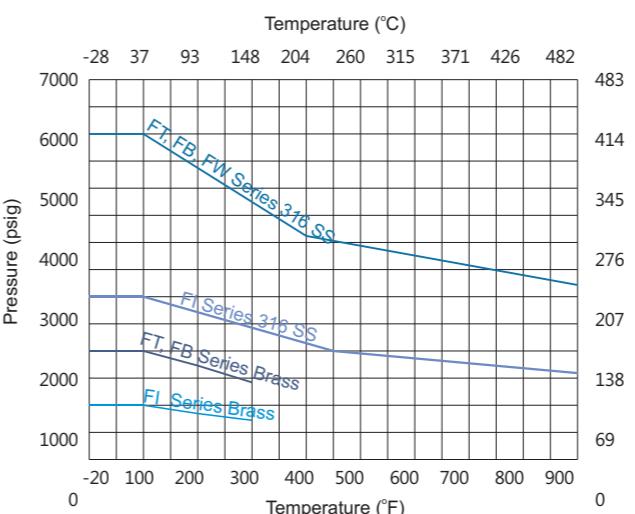
- ★ Compact and space-saving design
- ★ Nominal pore sizes for sintered element: 0.5, 2, 7, 15, 40, 60 and 80 $\mu$ m
- ★ Nominal pore sizes for strainer element: 100, 150, 250 and 450 $\mu$ m
- ★ Maximum working pressure: 3000 psig (207 bar)
- ★ Working temperature: -20F to 900F (-28°C to 482°C)
- ★ Body materials: 316 SS, 316LSS, 304 SS, 304LSS, 321 SS, 904L SS, and Brass
- ★ Variety of end connections available

## All-welded In-line Filters

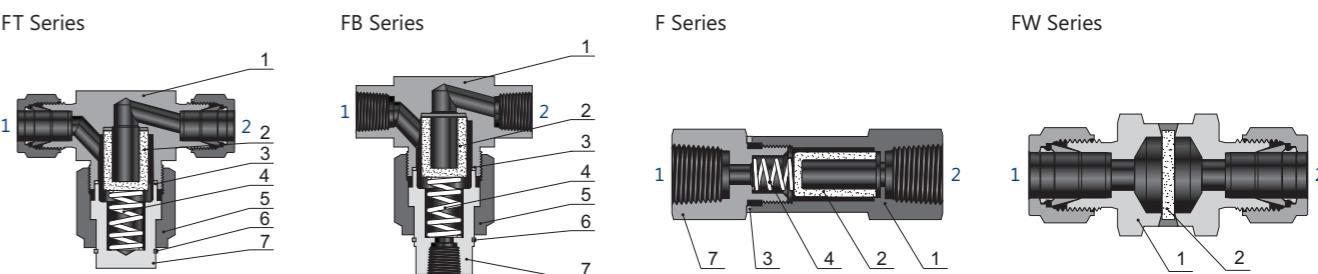
## FW Series

- ★ Large filtration area and high flow coefficient
- ★ All-welded construction for elimination of leakage
- ★ Easy cleaning of filters by backflushing
- ★ Full-penetration weld between body and element
- ★ Nominal pore sizes for sintered element: 0.5, 2, 7, 15, 40, 60 and 80 $\mu$ m
- ★ Maximum working pressure: 6000 psig (414 bar)
- ★ Working temperature: -20F to 900F (-28°C to 482°C)
- ★ Body materials: 316 SS, 316LSS, 304 SS, 304LSS, and 904L SS
- ★ Variety of end connections available

## Pressure vs. Temperature



Contact the authorized representative or FINELOK for curve graph of other materials.



## Standard Materials of Construction

Component	Material Grade/ASTM Specification	
	316 SS	Brass
1 Body	316 SS/A479	Brass C36000/B16
2 Element	Sintered 316 SS or strainer 316 SS	Sintered 316 SS or strainer 316 SS
3 Gasket	PTFE/D1710 or silver-plated 316 SS/A240	PTFE/D1710 or aluminum/B209
4 Spring	302 SS/A313	302 SS/A313
5 Bonnet Nut	316 SS/A479	C36000/B16
6 Backup Ring		316 SS/A276
7 Bonnet	316 SS/A479	C36000/B16

1. FW Series filters not available in brass

2. Lubricants: molybdenum disulfide-based and silicone-based

## Maximum Differential Pressure of Clean Filter at 70°F (20°C)

Series	Maximum Differential Pressure psig (bar)										
	0.5 micron	2 micron	7 micron	15 micron	40 micron	60 micron	80 micron	100 micron	150 micron	250 micron	450 micron
FT, FB, F	2250 (155.2)	2250 (155.2)	1950 (134.5)	1750 (120.3)	1150 (79.3)	1150 (79.3)	1000 (68.9)	1000 (68.9)	1000 (68.9)	1000 (68.9)	1000 (68.9)
FW	600 (41.4)	100 (6.9)	100 (6.9)	100 (6.9)	—	—	—	—	—	—	—

## Elements

## Filtration Area

Nominal Pore Size $\mu\text{m}$	Pore Size Range $\mu\text{m}$	Element Type
0.5	0.5 to 2	Sintered
2	1 to 4	
7	5 to 10	
15	11 to 25	
40	35 to 53	
60	50 to 75	
80	70 to 95	
100	—	
150	—	
250	—	
450	—	
Strainer		

Series	Orifice in. (mm)	Filtration Area in. <sup>2</sup> (mm <sup>2</sup> )	
		Sintered	Strainer
2FT, 2FB	0.094 (2.04)	1.30 (830)	1.00 (640)
4FT, 4FB	0.172 (4.36)	1.30 (830)	1.00 (640)
6FT, 6FB	0.213 (5.41)	2.00 (1280)	1.70 (1090)
8FT, 8FB	0.250 (6.35)	2.00 (1280)	1.70 (1090)
2F	0.094 (2.39)	0.55 (350)	—
4F	0.187 (4.75)	1.30 (830)	1.00 (640)
6F	0.281 (7.14)	2.00 (1280)	1.70 (1090)
8F	0.406 (10.30)	2.00 (1280)	1.70 (1090)
4FW	0.187 (4.75)	0.44 (283)	—

## Flow Data at 70°F (20°C)

## FT, FB Series

Pressure Drop to Atmosphere $\Delta p$ psig (bar)	2 Series		4 Series		6, 8 Series	
	Water Flow, U.S. gal (L/min)	Air Flow, std ft <sup>3</sup> /min (std L/min)	Water Flow, U.S. gal (L/min)	Air Flow, std ft <sup>3</sup> /min (std L/min)	Water Flow, U.S. gal (L/min)	Air Flow, std ft <sup>3</sup> /min (std L/min)
	0.5 Micron Cv = 0.035		0.5 Micron Cv = 0.035		0.5 Micron Cv = 0.052	
5 (0.34)	0.07 (0.26)	0.40 (11.3)	0.07 (0.26)	0.40 (11.3)	0.11 (0.43)	0.47 (13.3)
10 (0.69)	0.11 (0.42)	0.50 (14.2)	0.11 (0.42)	0.50 (14.2)	0.16 (0.62)	0.74 (21.0)
50 (3.45)	0.25 (0.95)	1.33 (37.7)	0.25 (0.95)	1.33 (37.7)	0.36 (1.38)	1.96 (55.5)
	2 Micron Cv = 0.068		2 Micron Cv = 0.072		2 Micron Cv = 0.096	
5 (0.34)	0.15 (0.56)	0.77 (21.8)	0.16 (0.60)	0.82 (23.2)	0.21 (0.81)	1.09 (30.9)
10 (0.69)	0.22 (0.83)	0.97 (27.5)	0.22 (0.83)	1.02 (28.9)	0.30 (1.14)	1.37 (38.8)
50 (3.45)	0.48 (1.81)	2.58 (73.1)	0.51 (1.93)	2.72 (77.0)	0.67 (2.53)	3.64 (103.1)
	7 Micron Cv = 0.158		7 Micron Cv = 0.165		7 Micron Cv = 0.35	
5 (0.34)	0.35 (1.32)	1.80 (51.0)	0.37 (1.40)	1.88 (53.2)	0.78 (2.96)	4.00 (113.3)
10 (0.69)	0.50 (1.89)	2.25 (63.7)	0.52 (1.96)	2.35 (66.5)	1.10 (4.18)	5.00 (141.6)
50 (3.45)	1.12 (4.22)	5.98 (169.3)	1.16 (4.38)	6.25 (177.0)	2.47 (9.35)	13.30 (376.6)
	15 Micron Cv = 0.19		15 Micron Cv = 0.20		15 Micron Cv = 0.37	
5 (0.34)	0.42 (1.61)	2.16 (61.2)	0.44 (1.66)	2.28 (64.6)	0.82 (3.12)	4.20 (118.9)
10 (0.69)	0.60 (2.27)	2.71 (76.7)	0.63 (2.38)	2.85 (80.7)	0.82 (3.12)	5.28 (149.5)
50 (3.45)	1.34 (5.06)	7.20 (203.9)	1.41 (5.33)	7.58 (214.6)	2.61 (9.88)	14.00 (396.4)
	40 Micron Cv = 0.23		40 Micron Cv = 0.24		40 Micron Cv = 0.42	
5 (0.34)	0.51 (1.94)	2.62 (74.2)	0.54 (2.04)	2.74 (77.6)	0.93 (3.54)	4.80 (135.9)
10 (0.69)	0.73 (2.76)	3.28 (96.8)	0.76 (2.87)	3.42 (96.8)	1.32 (5.02)	6.00 (169.9)
50 (3.45)	1.63 (6.16)	8.74 (247.5)	1.70 (6.42)	9.11 (258.0)	2.96 (11.20)	15.90 (450.2)
	60 Micron Cv = 0.24		60 Micron Cv = 0.25		60 Micron Cv = 0.45	
5 (0.34)	0.54 (2.04)	2.74 (77.6)	0.56 (2.11)	2.85 (80.7)	1.00 (3.78)	5.10 (144.4)
10 (0.69)	0.76 (2.87)	3.42 (96.8)	0.79 (2.98)	3.57 (101.1)	1.42 (5.37)	6.40 (181.2)
50 (3.45)	1.70 (6.42)	9.11 (258.0)	1.77 (6.70)	9.49 (268.7)	3.18 (12.00)	17.00 (481.4)
	80 Micron Cv = 0.25		80 Micron Cv = 0.26		80 Micron Cv = 0.67	
5 (0.34)	0.56 (2.11)	2.85 (80.7)	0.58 (2.19)	2.96 (83.8)	1.49 (5.66)	7.64 (216.3)
10 (0.69)	0.79 (2.98)	3.57 (101.1)	0.82 (3.10)	3.70 (104.8)	2.11 (5.89)	9.55 (270.4)
50 (3.45)	1.77 (6.70)	9.49 (268.7)	1.84 (6.95)	9.80 (277.5)	4.73 (17.90)	25.40 (719.2)
	100 Micron Cv = 0.27		100 Micron Cv = 0.28		100 Micron Cv = 0.72	
5 (0.34)	0.60 (2.27)	3.08 (87.2)	0.62 (2.34)	3.20 (90.6)	1.61 (6.08)	8.20 (232.2)
10 (0.69)	0.85 (3.21)	3.85 (109.0)	0.88 (3.30)	4.00 (113.2)	2.27 (8.61)	10.20 (288.8)
50 (3.45)	1.91 (7.22)	10.20 (288.8)	1.98 (7.48)	5.30 (150.1)	5.09 (19.20)	27.20 (770.2)
	150, 250, 450 Micron Cv = 0.55		150, 250, 450 Micron Cv = 0.58		150, 250, 450 Micron Cv = 0.82	
5 (0.34)	1.23 (4.65)	6.28 (177.8)	1.30 (4.91)	6.60 (186.9)	1.83 (6.93)	9.36 (265.0)
10 (0.69)	1.74 (6.58)	7.85 (222.3)	1.83 (6.91)	8.20 (232.2)	2.59 (9.80)	11.70 (331.3)
50 (3.45)	3.89 (14.70)	20.80 (589.0)	4.10 (15.50)	21.90 (620.1)	5.79 (21.90)	27.20 (770.2)

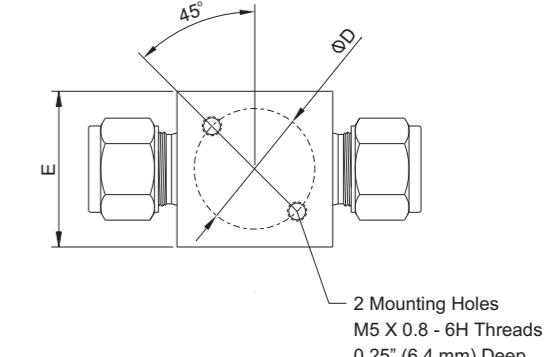
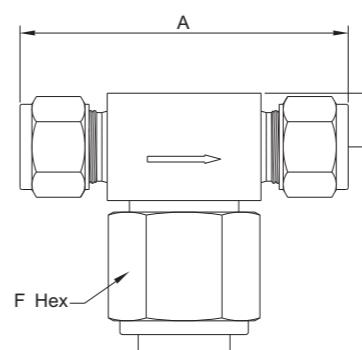
## FI Series

Pressure Drop to Atmosphere $\Delta p$ psig (bar)	2 Series		4 Series		6, 8 Series	
	Water Flow, U.S. gal (L/min)	Air Flow, std ft <sup>3</sup> /min (std L/min)	Water Flow, U.S. gal (L/min)	Air Flow, std ft <sup>3</sup> /min (std L/min)	Water Flow, U.S. gal (L/min)	Air Flow, std ft <sup>3</sup> /min (std L/min)
	0.5 Micron Cv = 0.008		0.5 Micron Cv = 0.038		0.5 Micron Cv = 0.187	
5 (0.34)	0.01 (0.03)	0.09 (2.6)	0.08 (0.30)	0.42 (11.9)	0.41 (1.54)	2.09 (59.2)
10 (0.69)	0.02 (0.07)	0.11 (3.1)	0.12 (0.45)	0.52 (14.7)	0.59 (2.23)	2.56 (72.5)
50 (3.45)	0.05 (0.18)	0.30 (8.5)	0.26 (0.98)	1.42 (40.2)	1.32 (4.98)	6.99 (197.9)
	2 Micron Cv = 0.022		2 Micron Cv = 0.106		2 Micron Cv = 0.374	
5 (0.34)	0.04 (0.15)	0.24 (6.8)	0.23 (0.86)	1.18 (33.4)	0.83 (3.13)	4.20 (118.9)
10 (0.69)	0.06 (0.22)	0.30 (8.5)	0.42 (1.58)	1.45 (41.1)	1.18 (4.46)	5.13 (145.3)
50 (3.45)	0.15 (0.56)	0.82 (23.2)	0.74 (2.79)	3.96 (112.1)	2.64 (9.97)	14.00 (396.4)
	7 Micron Cv = 0.02					

Pressure Drop to Atmosphere $\Delta p$ psig (bar)	4 Series	
	Water Flow, U.S. gal (L/min)	Air Flow, std ft <sup>3</sup> /min (std L/min)
0.5 Micron Cv = 0.008		
5 (0.34)	0.01 (0.03)	0.09 (2.6)
10 (0.69)	0.02 (0.07)	0.11 (3.1)
50 (3.45)	0.05 (0.18)	0.30 (8.5)
2 Micron Cv = 0.42		
5 (0.34)	0.93 (3.50)	4.72 (133.7)
10 (0.69)	1.32 (4.98)	5.77 (163.4)
50 (3.45)	2.96 (11.10)	15.70 (444.6)
7 Micron Cv = 0.45		
5 (0.34)	1.00 (3.78)	5.04 (142.7)
10 (0.69)	1.42 (5.36)	6.16 (174.4)
50 (3.45)	3.18 (12.00)	16.80 (475.7)
15 Micron Cv = 0.76		
5 (0.34)	1.69 (6.22)	8.55 (242.1)
10 (0.69)	2.40 (9.07)	10.40 (294.5)
50 (3.45)	5.37 (20.30)	28.50 (807.0)

## Dimensions

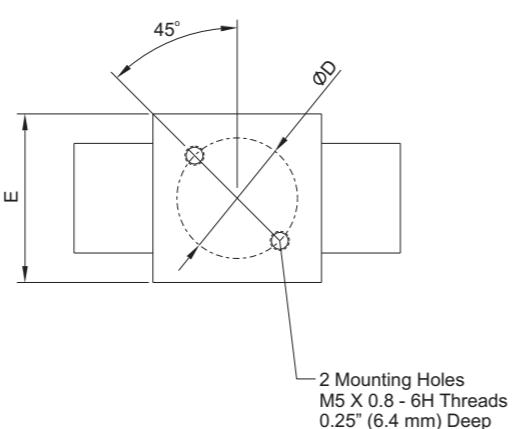
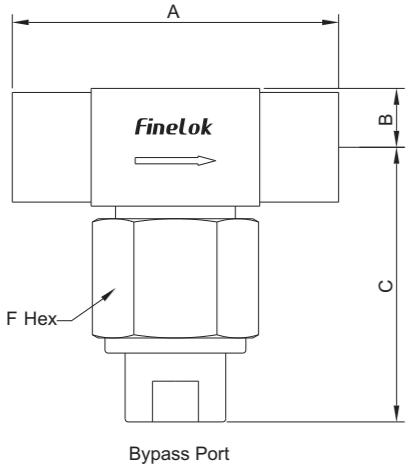
## FT Series



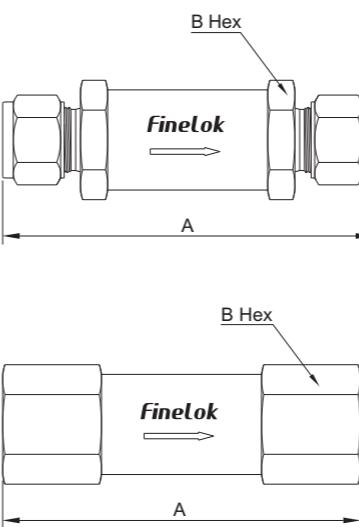
Basic Ordering Number	Connection Type and Size		Element Series	Dimension, in. (mm)					
	Inlet	Outlet		A	B	C	ΦD	E	F
-FT-S2-	1/8" FINELOK	1/8" FINELOK	2	2.27 (57.7)	0.38 (9.7)	1.49 (37.8)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
-FT-S4-	1/4" FINELOK	1/4" FINELOK	4	2.47 (62.7)					
-FT-S6-	3/8" FINELOK	3/8" FINELOK	6	2.84 (72.1)	0.46 (11.7)	1.74 (44.2)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)
-FT-S8-	1/2" FINELOK	1/2" FINELOK	8	3.04 (77.2)					
-FT-SM6-	6 mm FINELOK	6 mm FINELOK	4	2.46 (62.5)	0.38 (9.7)	1.49 (37.8)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
-FT-SM8-	8 mm FINELOK	8 mm FINELOK	6	2.84 (72.1)					
-FT-SM10-	10 mm FINELOK	10 mm FINELOK	8	2.86 (72.6)	0.46 (11.7)	1.74 (44.2)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)
-FT-SM12-	12 mm FINELOK	12 mm FINELOK	8	3.04 (77.2)					
-FT-FS4-	1/4" FS	1/4" FS	4	1.68 (42.7)	0.38 (9.7)	1.49 (37.8)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
-FT-FS6-	3/8" FS	3/8" FS	4						
-FT-FB4-	1/4" FB	1/4" FB	4						
-FT-FB6-	3/8" FB	3/8" FB	4						
-FT-FNT2-	1/8 Female NPT	1/8 Female NPT	2	2.00 (50.8)	2.13 (54.1)	0.46 (11.7)	1.74 (44.2)	1.13 (28.7)	1.13 (28.7)
-FT-FNT4-	1/4 Female NPT	1/4 Female NPT	4						
-FT-NT4-	1/4 Male NPT	1/4 Male NPT	4						
-FT-NT6-	3/8 Male NPT	3/8 Male NPT	6	2.38 (60.5)					
-FT-NT8-	1/2 Male NPT	1/2 Male NPT	8	2.75 (69.9)	1.00 (25.4)	0.46 (11.7)	1.74 (44.2)	1.13 (28.7)	1.13 (28.7)
-FT-CR4-	1/4 Male CR	1/4 Male CR	4	2.30 (58.4)					
-FT-CR8-	1/2 Male CR	1/2 Male CR	8	2.55 (64.8)					

Mounting holes not available with 1/4 female NPT end connections

FB Series



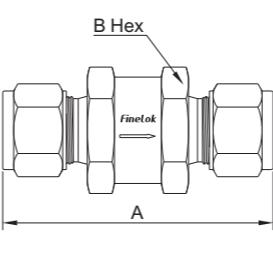
FI Series



Basic Ordering Number	Connection Type and Size		Element Series	Dimension, in. (mm)					
	Inlet	Outlet		A	B	C	ØD	E	F
-FB-S2-	1/8" FINELOK	1/8" FINELOK	2	2.27 (57.7)	0.38 (9.7)	1.98 (50.2)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
-FB-S4-	1/4" FINELOK	1/4" FINELOK	4	2.47 (62.7)		2.44 (61.9)			
-FB-S6-	3/8" FINELOK	3/8" FINELOK	6	2.84 (72.1)	0.46 (11.7)	2.74 (69.1)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)
-FB-S8-	1/2" FINELOK	1/2" FINELOK	8	3.04 (77.2)		2.96 (74.2)			
-FB-SM6-	6 mm FINELOK	6 mm FINELOK	4	2.46 (62.5)	0.38 (9.7)	2.44 (61.9)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
-FB-SM8-	8 mm FINELOK	8 mm FINELOK	6	2.84 (72.1)		2.74 (69.1)			
-FB-SM10-	10 mm FINELOK	10 mm FINELOK	8	2.86 (72.6)	0.46 (11.7)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)	
-FB-SM12-	12 mm FINELOK	12 mm FINELOK	8	3.04 (77.2)		2.96 (74.2)			
-FB-FS4-	1/4" FS	1/4" FS	4						
-FB-FS6-	3/8" FS	3/8" FS	4						
-FB-FB4-	1/4" FB	1/4" FB	4						
-FB-FB6-	3/8" FB	3/8" FB	4						
-FB-FNT2-	1/8 Female NPT	1/8 Female NPT	2	2.00 (50.8)					
-FB-FNT4-	1/4 Female NPT	1/4 Female NPT	4						
-FB-NT4-	1/4 Male NPT	1/4 Male NPT	4						
-FB-NT6-	3/8 Male NPT	3/8 Male NPT	6	2.38 (60.5)	0.46 (11.7)	2.00 (50.8)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)
-FB-NT8-	1/2 Male NPT	1/2 Male NPT	8	2.75 (69.9)					
-FB-CR4-	1/4 Male CR	1/4 Male CR	4	2.38 (60.5)	0.38 (9.7)	2.44 (61.9)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
-FB-CR8-	1/2 Male CR	1/2 Male CR	8	2.75 (69.9)	0.46 (11.7)	2.96 (74.2)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)

Mounting holes not available with 1/4 female NPT end connections

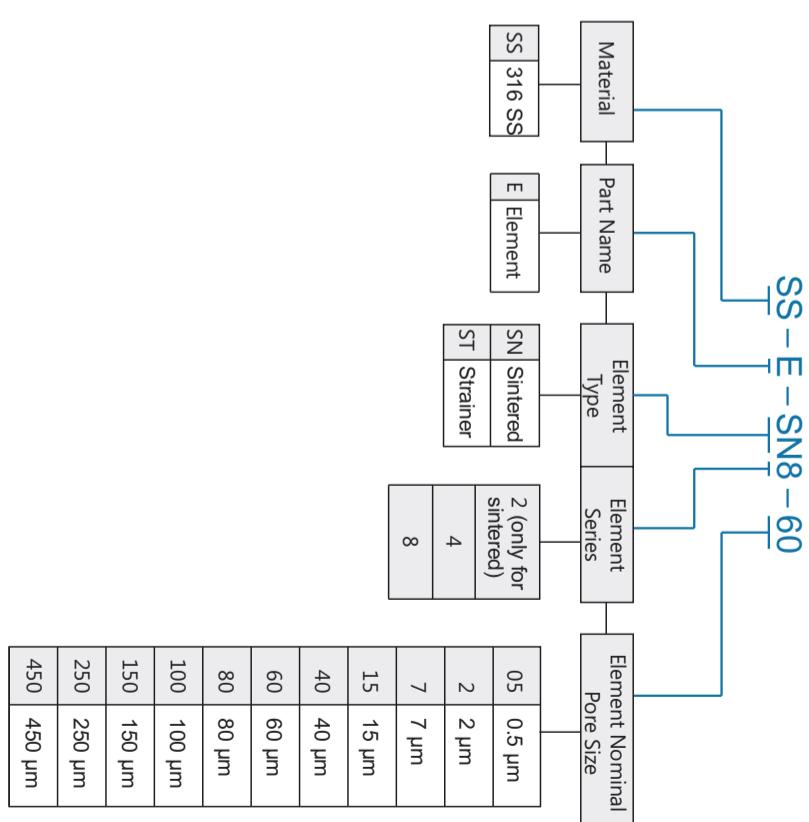
FW Series



Basic Ordering Number	Connection Type and Size		Element Series	Dimension, in. (mm)	
	Inlet	Outlet		A	B
-FW-S4-	1/4" FINELOK	1/4" FINELOK	4	0.187(4.75)	2.15(54.6)
-FW-SM6-	6 mm FINELOK	6 mm FINELOK	6		
-FW-FNT4-	1/4 Female NPT	1/4 Female NPT	4	0.453(11.5)	1.57(39.9)
-FW-NT4-	1/4 Male NPT	1/4 Male NPT	4	0.281(7.14)	1.89(48.0)
-FW-CR4-	1/4 Male CR	1/4 Male CR	4	0.187(4.75)	2.04(51.8)

1. FINELOK means FINELOK double ferrule tube fittings, CR means metal gasket seal fittings, FS means fractional tube socket weld, FB means fractional tube butt weld.
2. Sizes and types listed are standard. Other sizes and types are available upon request.
3. Dimensions are shown with FINELOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FINELOK.

## Elements Ordering Information



SS - FB - S8 - SM10 - S - P150 - S4S

Body Material	Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Element Type	Gasket Material	Element Nominal Pore Size	Bypass Port (for FB Series Only)	Special Application
SS 316 SS	FT	FNT Female NPT	2 1/8"	S Sintered	05 0.5 μm					No
6L 316L SS	FB	NT Male NPT	4 1/4"		2 2 μm					
S4 304 SS	F	FRT Female BSPT	6 3/8" or 6 mm		7 7 μm					
4L 304L SS	FW	RT Male BSPT	8 1/2" or 8 mm		15 15 μm					
S1 321 SS		FMS Female Metric Thread (for RP)	10 10 mm		40 40 μm					
B Brass		MS Male Metric Thread (for RG)	12 3/4" or 12 mm		60 60 μm					
904L 904L SS		FRP Female BSPP (for RP)	14 14 mm or M14 x 1.5		80 80 μm					
		BP Male BSPP (for RG)	16 1" or 16 mm		100 100 μm					
		S Fractional Tube Fitting	18 18 mm		150 150 μm					
		SM Metric Tube Fitting	20 1 1/4" or 20 mm or M20 x 1.5		250 250 μm					
		FS Fractional Tube Socket Weld	22 22 mm or M22 x 1.5		450 450 μm					
		FB Fractional Tube Butt Weld	25 25 mm							
		CR Male CR Fitting								

1. Standard thread pitch for metric threads are as follows:

M10 and below: 1 mm  
 M12 to M24: 1.5 mm  
 M27 and above: 2 mm

Standard thread pitch should be ignored in the ordering number, others should be specified.

## Filters Ordering Information