Check Valves, Filters and Relief Valves

Catalog 4135-CV

April 2019

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Parker

ENGINEERING YOUR SUCCESS.

F Series Inline Filters

Introduction

Parker F Series Inline Filters are designed for protection of instrumentation systems from undesirable materials. Component changes or repair and maintenance can admit dirt, chips, scale, or other contaminants to the small bore tubing.

Features

- Compact inline design with large filtration area
- Stainless steel and brass construction
- Replaceable sintered 316 stainless steel filter element
- Standard sintered metal micron ratings: 1, 5, 10, 50, and 100
- Optional 250 and 450 micron wire cloth filter elements
- Port connections include male and female NPT, CPI™, A-LOK®, VacuSeal, and BSP
- Heat code traceability

Specifications

Pressure Rating:

316 SS
- 1/8" to 3/4" .....6000 psig (414 bar) CWP
- 1".....5000 psig (345 bar) CWP

All sizes with PTFE Seals .....4000 psig (276 bar) CWP

Brass - 1/8" to 1".....3000 psig (207 bar) CWP

Temperature Rating:

Fluorocarbon Rubber...-15°F to +400°F (-26°C to +204°C)

Nitrile Rubber.....-30°F to +275°F (-34°C to +135°C)

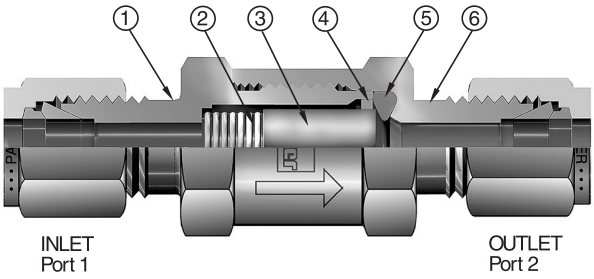
Ethylene Propylene Rubber .....-70°F to +275°F (-57°C to +135°C)

Neoprene Rubber.....-45°F to +250°F (-43°C to +121°C)

PTFE .....-65°F to +400°F (-54°C to +204°C)

Highly Fluorinated Fluorocarbon Rubber .....-15°F to +200°F (-26°C to +93°C)

Materials of Construction



Model shown: 4A-F4L-50-SS

Note: Flow direction reversed with wire mesh elements.

Materials of Construction

Item #	Part	Stainless Steel Filter	Brass Filter
1	Body	ASTM A276, Type 316	ASTM B16, Alloy C36000
2	Spring	316 Stainless Steel	
3	Filter Element	316 Stainless Steel	
4	Guide Ring	PTFE	
5	Seal*	Fluorocarbon Rubber*	
6	Cap	ASTM A276, Type 316	ASTM B16, Alloy C36000

*Optional seal materials are available.

Lubrication: Perfluorinated Polyether.

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Flow Calculations with 100 psig (7 bar) Inlet Pressure

Pressure Drop Δ	F2L		F4L		F6L		F8L		F12L		F16L	
	Water gpm at 60°F (16°C)	Air SCFM at 60°F (16°C)	Water gpm at 60°F (16°C)	Air SCFM at 60°F (16°C)	Water gpm at 60°F (16°C)	Air SCFM at 60°F (16°C)	Water gpm at 60°F (16°C)	Air SCFM at 60°F (16°C)	Water gpm at 60°F (16°C)	Air SCFM at 60°F (16°C)	Water gpm at 60°F (16°C)	Air SCFM at 60°F (16°C)
	1 Micron		1 Micron		1 Micron		1 Micron		1 Micron		1 Micron	
5	0.04	0.38	0.13	1.34	0.13	1.38	0.56	5.91	0.66	6.90	0.91	9.52
10	0.05	0.52	0.18	1.86	0.19	1.93	0.80	8.24	0.93	9.61	1.28	13.27
50	0.11	1.03	0.40	3.67	0.42	3.80	1.78	16.21	2.08	18.92	2.87	26.12
	5 Micron		5 Micron		5 Micron		5 Micron		5 Micron		5 Micron	
5	0.06	0.61	0.26	2.74	0.31	3.26	0.92	9.69	1.81	18.96	1.88	19.75
10	0.08	0.85	0.37	3.82	0.44	4.54	1.31	13.50	2.56	26.41	2.66	27.52
50	0.18	1.67	0.83	7.53	0.98	8.94	2.92	26.57	5.71	51.99	5.95	54.18
	10 Micron		10 Micron		10 Micron		10 Micron		10 Micron		10 Micron	
5	0.25	2.63	0.38	4.01	0.45	4.74	1.68	17.67	2.33	24.45	3.04	31.88
10	0.35	3.66	0.54	5.59	0.64	6.60	2.38	24.61	3.30	34.06	4.30	44.42
50	0.79	7.21	1.21	11.00	1.43	13.00	5.32	48.45	7.37	67.05	9.61	87.44
	50 Micron		50 Micron		50 Micron		50 Micron		50 Micron		50 Micron	
5	0.37	3.92	0.76	7.95	1.80	18.89	3.67	38.52	5.23	54.87	7.64	80.16
10	0.53	5.46	1.07	11.08	2.55	26.31	5.19	53.67	7.40	76.46	10.81	111.70
50	1.18	10.75	2.40	21.81	5.69	51.80	11.61	105.65	16.54	150.50	24.16	219.86
	100 Micron		100 Micron		100 Micron		100 Micron		100 Micron		100 Micron	
5	0.51	5.37	1.33	13.94	2.74	28.72	5.13	53.77	7.95	83.42	8.38	87.88
10	0.72	7.49	1.88	19.42	3.87	40.01	7.25	74.92	11.25	116.24	11.85	122.45
50	1.62	14.73	4.20	38.22	8.65	78.76	16.21	147.48	25.14	228.81	26.49	241.03
	250 Micron		250 Micron		250 Micron		250 Micron		250 Micron		250 Micron	
5	0.58	6.03	1.77	18.46	5.41	56.57	8.95	93.50	14.28	149.18	19.14	200.01
10	0.82	8.37	2.50	25.62	7.66	78.51	12.65	129.75	20.19	207.02	27.07	277.56
50	1.82	15.85	5.59	48.53	17.12	148.74	28.29	245.81	45.14	392.21	60.52	525.83
	450 Micron		450 Micron		450 Micron		450 Micron		450 Micron		450 Micron	
5	0.78	8.08	1.82	18.92	7.02	73.18	9.05	94.28	15.36	160.03	19.81	206.39
10	1.10	11.18	2.57	26.17	9.93	101.23	12.80	130.43	21.72	221.38	28.01	285.51
50	2.45	20.54	5.74	48.07	22.21	185.94	28.62	239.57	48.57	406.62	62.64	524.43

Flow / Filter Data

Filter Series	Effective Filtration Area		C_V*						
			1 Micron	5 Micron	10 Micron	50 Micron	100 Micron	250 Micron	450 Micron
	sq in	sq mm	Micron Range .5 to 3	Micron Range 5 to 10	Micron Range 10 to 20	Micron Range 40 to 50	Micron Range 100 to 150	Micron Range 225 to 275	Micron Range 400 to 500
F2L	0.39	252	0.016	0.026	0.112	0.167	0.229	0.258	0.347
F4L	0.70	452	0.057	0.117	0.171	0.339	0.594	0.790	0.812
F6L	1.57	1013	0.059	0.139	0.202	0.805	1.224	2.421	3.141
F8L	2.53	1632	0.252	0.413	0.753	1.642	2.292	4.001	4.047
F12L	3.77	2432	0.294	0.808	1.042	2.339	3.556	6.384	6.869
F16L	4.47	2884	0.406	0.842	1.359	3.417	3.746	8.559	8.859

* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_1 - P_2 / P_1 = x_T$.
X_T =1.0 for micron sizes 1 through 100; 0.79 for the 250 micron size, and 0.68 for the 450 micron size.

Maximum Pressure Differential Across Clean Filters at 70°F (21°C)

	1 micron	5 micron	10 micron	50 micron	100 micron	250 micron	450 micron
psig	2250	1950	1750	1150	1000	1000	1000
bar	155	134	120	79	69	69	69

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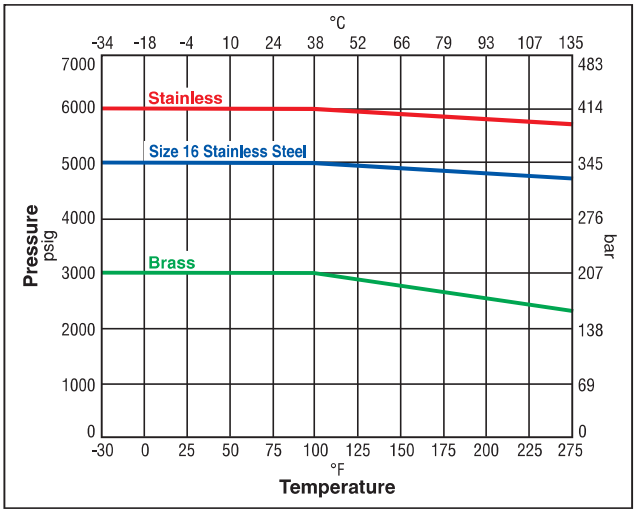
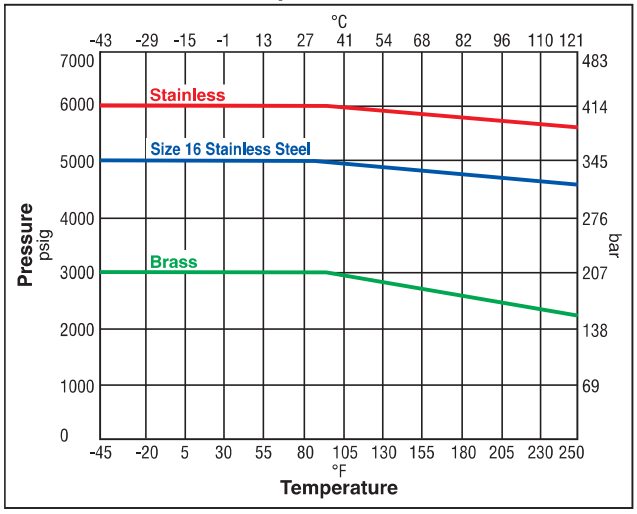
Pressure vs. Temperature

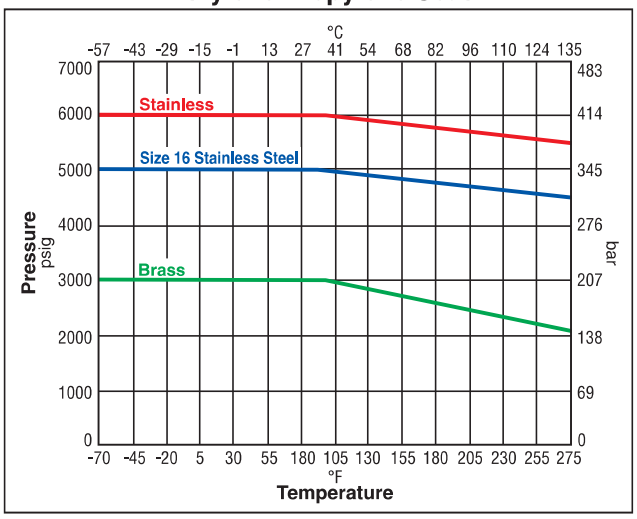
Nitrile Seat



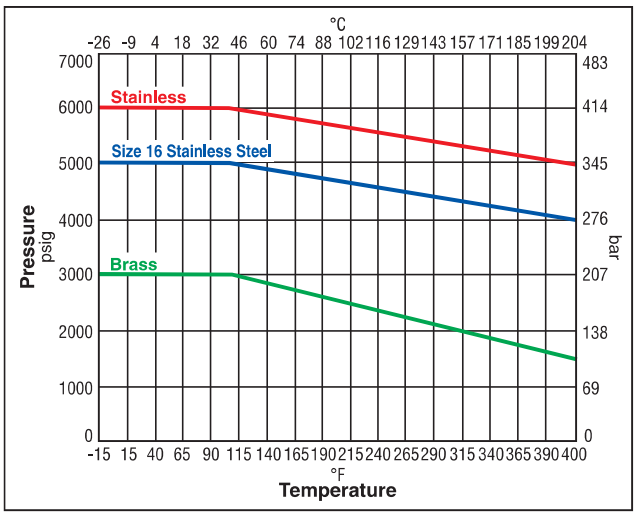
Neoprene Seat



Ethylene Propylene Seat



FluorocarbonSeat



Note: To determine MPa, multiply bar by 0.1

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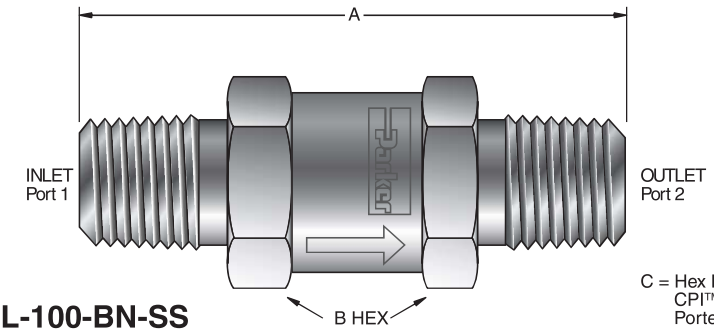
Dimensions



C = Hex Diameter of Nuts on CPI™ and A-LOK® Compression Ported Valves

Model shown: 4M-F4L-100-BN-SS

Dimensions in inches (millimeters) are for reference only, subject to change.

Basic Part Number	End Connections	Dimensions						Options			
		A†		B		C		Micron Rating	Seal Material		Body Material
	Inlet & Outlet Port	inch	mm	inch	mm	inch	mm				
2A-F2L-10-SS	1/8" A-LOK® Compression	2.29	58.2	.625	15.9	.438	11.1	**1** micron	**BN**	Nitrile Rubber	**B** Brass
2F-F2L-10-SS	1/8" Female NPT	1.86	47.2	.625	15.9	–	–	**5** micron			
2KF-F2L-10-SS	1/8" Female BSP/ISO Tapered	1.86	47.2	.625	15.9	–	–	**50** micron	**EPR**	Ethylene Propylene Rubber	
2KM-F2L-10-SS	1/8" Male BSP/ISO Tapered	1.77	45.0	.625	15.9	–	–	**100** micron			
2M-F2L-10-SS	1/8" Male NPT	1.77	45.0	.625	15.9	–	–	**250** micron			
2Z-F2L-10-SS	1/8" CPI™ Compression	2.29	58.2	.625	15.9	.438	11.1	**450** micron			
M3A-F2L-10-SS	3mm A-LOK® Compression	2.30	58.4	.625	15.9	.472	12.0				
M3Z-F2L-10-SS	3mm CPI™ Compression	2.30	58.4	.625	15.9	.472	12.0		**NE**	Neoprene Rubber	
4A-F4L-10-SS	1/4" A-LOK® Compression	2.42	61.5	.750	19.1	.563	14.3				
4F-F4L-10-SS	1/4" Female NPT	2.40	61.0	.750	19.1	–	–				
4KF-F4L-10-SS	1/4" Female BSP/ISO Tapered	2.40	61.0	.750	19.1	–	–				
4KM-F4L-10-SS	1/4" Male BSP/ISO Tapered	2.18	55.4	.750	19.1	–	–		**T****	PTFE	
4M-F4L-10-SS	1/4" Male NPT	2.18	55.4	.750	19.1	–	–				
4V-F4L-10-SS	1/4" VacuSeal	2.22	56.4	.750	19.1	–	–		**KZ**	Highly Fluorinated Fluorocarbon Rubber	
4TA-F4L-10-SS	1/4" Tube Adapter	2.35	59.7	.750	19.1	–	–				
4Z-F4L-10-SS	1/4" CPI™ Compression	2.42	61.5	.750	19.1	.563	14.3				
M6A-F4L-10-SS	6mm A-LOK® Compression	2.43	61.7	.750	19.1	.551	14.0				
M6Z-F4L-10-SS	6mm CPI™ Compression	2.43	61.7	.750	19.1	.551	14.0				
6A-F6L-10-SS	3/8" A-LOK® Compression	3.27	83.1	1.000	25.4	.688	17.5		** Only available with stainless steel filters.		
6F-F6L-10-SS	3/8" Female NPT	3.03	77.0	1.000	25.4	–	–				
6KF-F6L-10-SS	3/8" Female BSP/ISO Tapered	3.03	77.0	1.000	25.4	–	–				
6KM-F6L-10-SS	3/8" Male BSP/ISO Tapered	2.96	75.2	1.000	25.4	–	–				
6M-F6L-10-SS	3/8" Male NPT	2.96	75.2	1.000	25.4	–	–				
6V-F6L-10-SS	3/8" VacuSeal	3.56	90.4	1.000	25.4	–	–				
6Z-F6L-10-SS	3/8" CPI™ Compression	3.27	83.1	1.000	25.4	.688	17.5				
8A-F8L-10-SS	1/2" A-LOK® Compression	4.08	103.6	1.250	31.8	.875	22.2				
8F-F8L-10-SS	1/2" Female NPT	3.56	90.4	1.250	31.8	–	–				
8KF-F8L-10-SS	1/2" Female BSP/ISO Tapered	3.56	90.4	1.250	31.8	–	–				
8KM-F8L-10-SS	1/2" Male BSP/ISO Tapered	3.56	90.4	1.250	31.8	–	–				
8M-F8L-10-SS	1/2" Male NPT	3.56	90.4	1.250	31.8	–	–				
8V-F8L-10-SS	1/2" VacuSeal	3.56	90.4	1.250	31.8	–	–				
8Z-F8L-10-SS	1/2" CPI™ Compression	4.08	103.6	1.250	31.8	.875	22.2				
M12A-F8L-10-SS	12mm A-LOK® Compression	4.06	103.1	1.250	31.8	.866	22.0				
M12Z-F8L-10-SS	12mm CPI™ Compression	4.06	103.1	1.250	31.8	.866	22.0				
12A-F12L-10-SS	3/4" A-LOK® Compression	4.34	110.2	1.375	34.9	1.125	28.6				
12F-F12L-10-SS	3/4" Female NPT	4.09	103.9	1.375	34.9	–	–				
12KF-F12L-10-SS	3/4" Female BSP/ISO Tapered	4.09	103.9	1.375	34.9	–	–				
12KM-F12L-10-SS	3/4" Male BSP/ISO Tapered	4.09	103.9	1.375	34.9	–	–				
12M-F12L-10-SS	3/4" Male NPT	4.09	103.9	1.375	34.9	–	–				
12V-F12L-10-SS	3/4" VacuSeal	4.64	117.9	1.375	34.9	–	–				
12Z-F12L-10-SS	3/4" CPI™ Compression	4.34	110.2	1.375	34.9	1.125	28.6				
M20A-F12L-10-SS	20mm A-LOK® Compression	4.32	109.7	1.375	34.9	1.260	32.0				
16A-F16L-10-SS	1" A-LOK® Compression	4.63	117.6	1.625	41.3	1.500	38.1				
16F-F16L-10-SS	1" Female NPT	4.84	122.9	1.625	41.3	–	–				
16KF-F16L-10-SS	1" Female BSP/ISO Tapered	4.84	122.9	1.625	41.3	–	–				
16KM-F16L-10-SS	1" Male BSP/ISO Tapered	4.52	114.8	1.625	41.3	–	–				
16M-F16L-10-SS	1" Male NPT	4.52	114.8	1.625	41.3	–	–				
16Z-F16L-10-SS	1" CPI™ Compression	4.63	117.6	1.625	41.3	1.500	38.1				
M25A-F16L-10-SS	25mm A-LOK® Compression	4.74	120.4	1.625	41.3	1.496	38.0				
M25Z-F16L-10-SS	25mm CPI™ Compression	4.74	120.4	1.625	41.3	1.496	38.0				

Note: Optional wire cloth filter elements may slightly alter dimensions A and B on filters with combination end connections.
†For CPI™ and A-Lok®: Dimensions are measured with nuts in the finger tight position.

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F Series Inline Filters

How to Order

The part number sequence identifies product characteristics as shown in the example below.

Example: 4M-F4L-5-BN-B Describes a F Series Inline Filter with 1/4" male NPT inlet and outlet on a 1/4" in line body, 5 micron element, Nitrile seals and Brass body construction.

4M	–	F4L	–	5	–	BN	–	B
Connection Size & Type		Body Size		Micron Rating		Seal Material		Body Material

Oxygen Cleaning – Add the suffix **-C3** to the end of the part number to receive valves cleaned in accordance with ASTM G93 level C, class 500. This ASTM details cleaning methods and cleanliness levels for materials and equipment used in oxygen-enriched environments. **Example: 4M-F4L-5-BN-B-C3**

Kit Information

To order repair kits for the F Series Inline Filters simply fill in the designators from the chart below.

Size	Micron Rating	Seat Material	
F2	**1** micron	**V**	Fluorocarbon Rubber
F4	**5** micron	**BN**	Nitrile Rubber
F6	**10** micron	**EPR**	Ethylene Propylene Rubber
F8	**50** micron		
F12	**100** micron	**NE**	Neoprene Rubber
F16	**250** micron	**T**	PTFE
	450 micron	**KZ**	Highly Fluorinated Fluorocarbon

Examples: KIT-F8-10-V, KIT-F16-100-BN

Filter Kits Contain: Molded Seal, Filter Element, Guide Ring, Spring and Maintenance Instructions

Caution: When interchanging sintered metal elements with wire cloth filter elements, the flow direction is reversed.

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