

Compressed Air Filters

HF SERIES 20 to 21250 scfm (34 to 36104 nm³/h)



Compressed Air Treatment

Reduce Operating Costs

The HF Series has been designed utilizing quality media and manufacturing techniques. The result is increased performance, reduced size and lower operating pressure drop, in a variety of grades to match your requirements.

Hankison filters remove more contaminants with less pressure drop through housings that have large flow areas. Compare the operating pressure drop of competitive brands and remember that for every extra 2 psi of pressure drop, power input needs to be increased by 1%. A systems approach has been used to allow for convenient matching of filter types to achieve the air quality you desire, while comprehensive third party testing guarantees performance to CAGI¹, ISO² and PNEUROP³ standards.

With a greater selection of filter grades, more models to choose from and worldwide technical and service support, Hankison offers a systemized solution for your compressed air quality needs.

Quality Compressed Air

A typical compressed air system is contaminated with abrasive solid particles such as dust, dirt, rust and scale, compressor lubricants (mineral or synthetic), condensed water droplets and acidic condensates and oil and hydrocarbon vapors.

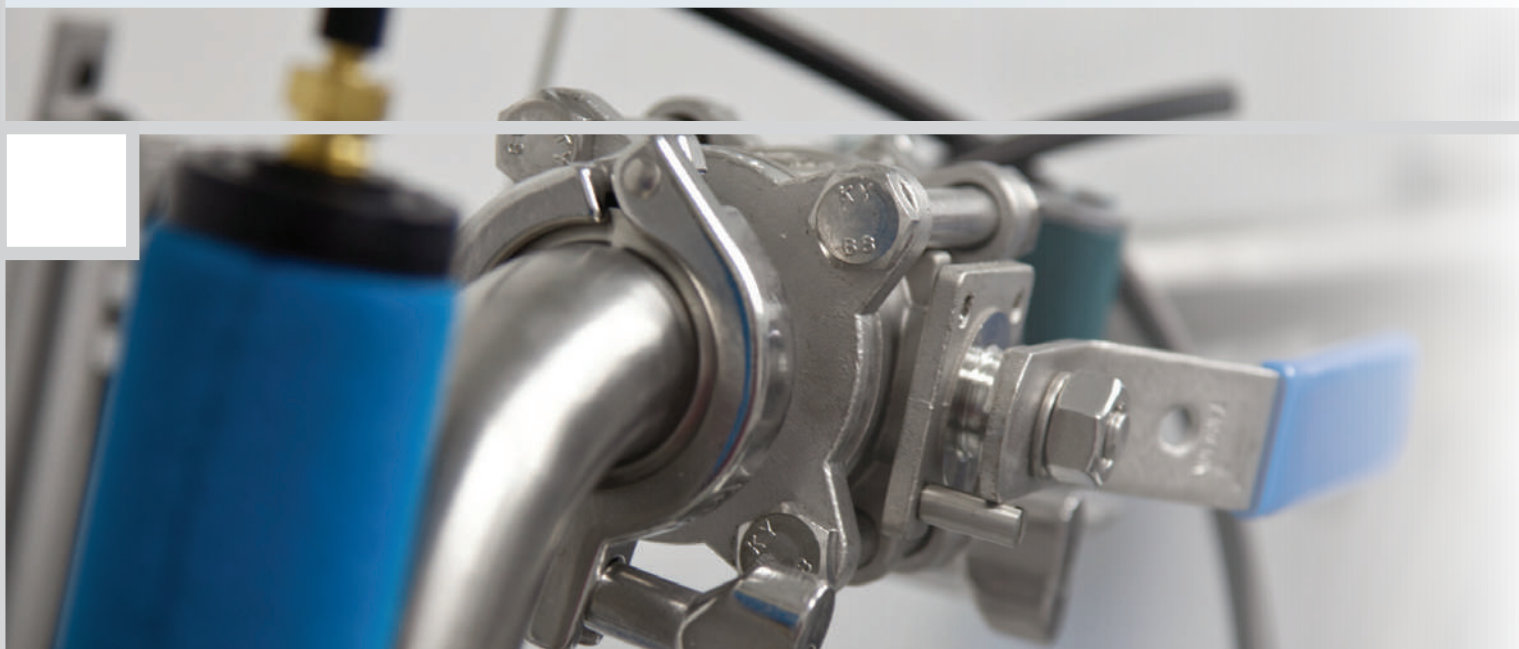
If not removed, these contaminants increase pneumatic equipment maintenance costs, lead to instrument and control failure, contribute to poor product fit and finish, and contaminate processes.

The right Hankison filter or filter system will remove these contaminants allowing your compressed air system to deliver the quality of air required by your application—whether it's plant air, instrument air, medical air or helping to ensure consistent output quality while minimizing operating costs.

1 CAGI - Compressed Air And Gas Institute

2 ISO - International Standards Organization

3 PNEUROP - European Committee of Manufacturers of Compressors, Vacuum Pumps and Pneumatic Tools



Engineered for Efficiency

Modular Housings for Flows through 780 scfm

- Manufactured from top quality aluminum, zinc and steel
- Chromated and epoxy powder painted (interior and exterior) for added durability and corrosion resistance
- 300 psig (21 barg) maximum working pressure (tested to a 5:1 safety factor)

Easy to Operate

Differential Pressure Gauge

- Differential pressure indicators
 - » Indicates optimum time for element change – maximizing your element investment while minimizing pressure drop
 - » Large, easy to read gauge face
 - » Dual faces allow housings to be mounted in any flow direction
 - » Can be mounted remotely
 - » Switch for remote indication available
- Slide indicator
 - » Changes color when filter element requires replacement

Liquid level indicator

- Allows visual monitoring of liquid level and signals the need for preventative maintenance to avoid downstream contamination
- Manufactured from thermoset polyurethane, compatible with synthetic lubricants

Internal automatic drains

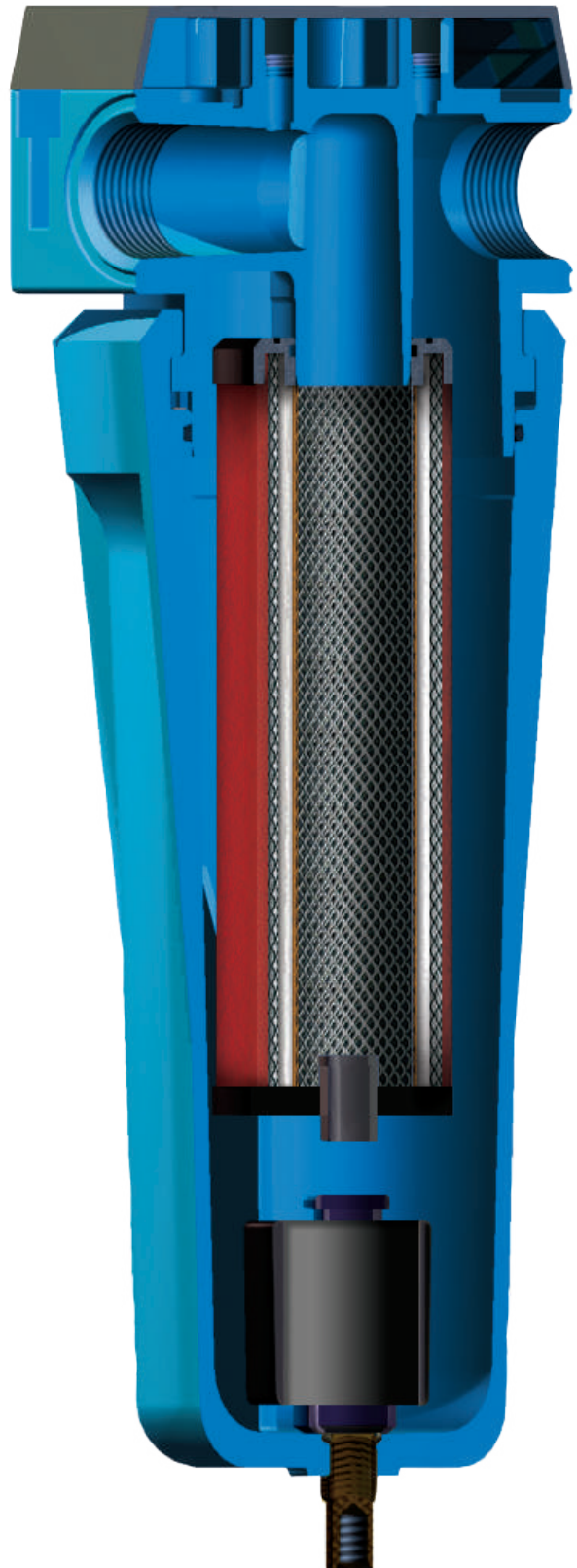
- Pilot operated, pneumatically actuated to reliably discharge collected liquid
- Viton seals - compatible with synthetic lubricants
- Inlet screen for additional protection
- Discharge fitting threaded to facilitate drain line connection

Easy to Install

- Modular connections allow housings to be connected in series easily, while saving space
- Wall mounting bracket optional
- Can be mounted for left or right entry
- New space saving design reduces service clearances

Easy to Maintain

- ¼ turn, self locking bayonet head to bowl connections (through 1")
- Push on elements make element replacement quick and easy
- If housing is not depressurized before disassembly, escaping air gives audible warning
- Captive O-ring
- Ribbed bowls allow use of C spanner
- Color coded elements for easy identification



Seven Element Grades for Enhanced Performance

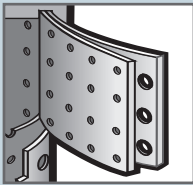
Features

- Withstands temperatures to 150°F (66°C)
- Push-on elements provide simple replacement
- Piston type seal keeps unfiltered air from by-passing element
- Stainless steel, corrosion resistant inner and outer cores
 - » Low resistance to flow
 - » Seam welded durability
- Matrix blended fiber media
 - » Large, effective surface area ensures high efficiencies and minimizes pressure drop
- Coated, closed cell foam sleeve
 - » Resists chemical attack from oils and acids
 - » Ensures high efficiencies by preventing re-entrainment of coalesced liquids
- Chemically resistant end caps
- Silicone free

Air Quality/Pressure Drop

Grade	Solid Particulate microns	Remaining Oil ppm	Pressure Drop			
			Dry		Wet	
			psid	barg	psid	barg
11	10	-	0.8	0.06	0.8	0.06
9	3	5	1	0.07	1.5	0.11
7	1	1	1	0.07	2	0.14
6	1	-	1	0.07	-	-
5	0.01	0.008	1	0.07	3	0.21
3	0.01	0.0008	2	0.07	6	0.42
1	0.01	0.003	1	0.07	-	-

Grade 11 Impact Type Moisture Separator

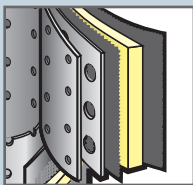


- Provides bulk liquid removal
- Maximum inlet liquid load: 30,000 ppm w/w

Operation

- Two stainless steel orifice tubes provide 10 micron mechanical separation

Grade 9 Separator/Filter

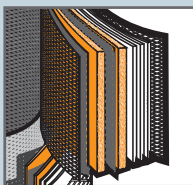


- Mechanical for bulk liquid removal plus a 3.0 micron coalescer
- Maximum remaining oil content¹: 5 ppm w/w

Operation

- **First stage** - two stainless steel orifice tubes provide 10 micron mechanical separation
- **Second stage** - in-depth fiber media captures solid and liquid particles to 3 microns

Grade 7 Air Line Filter



- Provides removal of liquid water and oil
- Removes solid particulate to 1.0 micron
- Maximum remaining oil content¹: 1.0 ppm w/w

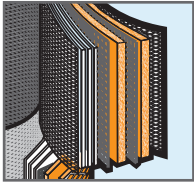
Operation

- **First stage** - captures larger particles with alternate layers of fiber media and screen
- **Second stage** - coalesces aerosols and captures solid particles with multiple layers of epoxy bonded, blended fiber media

¹ Filter efficiency has been established in accordance with CAGI standard ADF400 and is based on 100°F (38°C) inlet temperature.

² Filter efficiency has been established in accordance with CAGI standard ADF500 and is based on 100°F (38°C) inlet temperature.

Grade 6 Desiccant Dust Removal After-filter

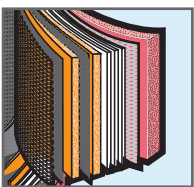


- Removes solid particulate to 1.0 micron

Operation

- **First stage** - coalesces aerosols and captures solid particles with multiple layers of epoxy bonded, blended fiber media
- **Second stage** - captures larger particles with alternate layers of fiber media and media screen

Grade 5 High Efficiency Oil Removal Filter

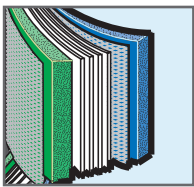


- Designed for coalescing fine water and oil aerosols
- Removes solid particulate to 0.01 micron
- Maximum remaining oil content¹: 0.008 ppm w/w

Operation

- **First stage** - multiple layers of fiber media and screen remove larger particles, pre-filtering the air
- **Second stage** - multiple layers of bonded, blended fiber media for fine coalescence

Grade 3 Maximum Efficiency Oil Removal Filter



- Designed for coalescing ultra-fine oil aerosols
- Removes solid particulate to 0.01 micron
- Maximum remaining oil content¹: 0.0008 ppm w/w

Operation

- **First stage** - coated, closed cell foam sleeve acts as prefilter and flow disperser
- **Second stage** - multiple layers of matrix blended fiber media for ultra-fine coalescence

Grade 1 Oil Vapor Removal Filter



- Removes oil and hydrocarbon vapors normally adsorbed by activated carbon
- Removes solid particulate to 0.01 micron
- Maximum remaining oil content²: 0.003 ppm w/w
- Multiple layers of fine media prevent particle migration
- Designed for 1000 hour life at rated conditions

Operation

- **First stage** - multiple layers of fiber media and screen remove larger particles, pre-filtering the air
- **Second stage** - multiple layers of bonded, blended fiber media for fine coalescence

¹ Filter efficiency has been established in accordance with CAGI standard ADF400 and is based on 100°F (38°C) inlet temperature.

² Filter efficiency has been established in accordance with CAGI standard ADF500 and is based on 100°F (38°C) inlet temperature.



Total System Protection

HF Series Element Specifications

Element Grade	Description	ISO Performance Data	Where Applied
 <p>Grade 11 Impaction Type Moisture Separators</p>	Moisture separator removes bulk liquid from your system.	<ul style="list-style-type: none"> Removes liquids and solids 10 microns and larger 	Downstream of aftercoolers
 <p>Grade 9 Separator/Filter</p>	Separator/filter removes bulk liquid and solids.	<ul style="list-style-type: none"> Removes solids 3.0 microns and larger Remaining oil content 5 ppm/w <p>ISO 8573.1 Quality Class:</p> <ul style="list-style-type: none"> Solid Particles - Class 2 Remaining Oil Content - Class 4 	At point-of-use if no aftercooler/separator used upstream
 <p>Grade 7 Air Line Filter</p>	General purpose filtration to protect pneumatically operated tools, motors and cylinders.	<ul style="list-style-type: none"> Removes solids 1.0 micron and larger Remaining oil content 1.0 ppm/w <p>ISO 8573.1:2010 Quality Class:</p> <ul style="list-style-type: none"> Solid Particles - Class 2, Remaining Oil Content: Class 4 	Upstream of ultra high efficiency oil removal filters At point-of-use if aftercooler/separator installed upstream
 <p>Grade 6 Desiccant Dust Removal Afterfilter</p>	Dry particulate filtration protects compressed air lines and factory piping from abrasive desiccant dust.	<ul style="list-style-type: none"> Removes solids 1.0 microns and larger <p>No liquid should be present at filter inlet</p>	Downstream of pressure-swing (heatless) desiccant dryers
 <p>Grade 5 High Efficiency Oil Removal Filter</p>	Fine coalescer provides oil free air for industrial applications such as spray painting, injection molding, instrumentation and control valves.	<ul style="list-style-type: none"> Removes 99,999+% of solids 0.01 micron and larger Remaining oil content < 0.008 ppm/w <p>ISO 8573.1: 2010 Air Quality Class:</p> <ul style="list-style-type: none"> Solid Particles - Class 1 Remaining Oil Content - Class 1 	Upstream of desiccant dryers Downstream of refrigerated dryers At point-of-use if aftercooler/separator installed upstream
 <p>Grade 3 Maximum Efficiency Oil Removal Filter</p>	Ultra fine coalescer delivers oil free air for critical applications including, conveying, electronics manufacturing and nitrogen replacement.	<ul style="list-style-type: none"> Removes 99,999+% of solids 0.01 micron and larger Remaining oil content < 0.0008 ppm/w <p>ISO 8573.1: 2010 Air Quality Class:</p> <ul style="list-style-type: none"> Solid Particles - Class 1 Remaining Oil content - Class 1 	Upstream of desiccant or membrane dryers; use a Grade 7 as a prefilter if heavy liquid loads are present Downstream of refrigerated dryers
 <p>Grade 1 Oil Vapor Removal Filter</p>	Activated carbon filter removes oil vapor and provides oil free air for food and drug manufacturing, breathing air and gas processing.	<ul style="list-style-type: none"> Removes solids 0.01 micron and larger Remaining oil content < 0.003 ppm/w (as a vapor) <p>ISO 8573.1: 2010 Air Quality Class:</p> <ul style="list-style-type: none"> Solid Particles - Class 1 Remaining Oil Content - Class 1 	Downstream of high efficiency oil removal filters
Filter Type	Description	ISO Performance Data	Where Used
 <p>High Temperature Dry Particulate</p>	High Temperature Dry Particulate Afterfilter	<ul style="list-style-type: none"> Removes solids 1.0 micron and larger <p>No liquid should be present at filter inlet</p>	Downstream of heat reactivated desiccant dryers

Accessories and Options

The HF Series is supported by a complete line of accessories and options making filter installation and differential pressure monitoring easy.

Versatile Installation



Filter Connectors

Easily connects filters in series

- *Optional Modular 12-48 grades (11-1)*
- *Optional ASME 52, 54-92 grades (11-1)*



Wall Mount Bracket

Provides installation flexibility

- *Optional Modular 12-48 grades (11-1)*
- *Optional ASME 52, 54-92 grades (11-1)*



Pressure Monitoring



Differential Pressure Slide Indicator

Color indicator moves based on differential pressure

- *Standard Modular 12-20 grades (11-3)*



Differential Pressure Gauge

Two color gauge face indicates element change-out based on differential pressure

- *Standard Modular 24-48 grades (9-3)*
- *Standard ASME 52, 54-92 grades (9-3)*



Electronic Filter Monitor

Predicts the optimal time to change the element

- *Optional Modular 12-48 grade (11-1)*
- *Optional Modular 52-92 grade (11-1)*

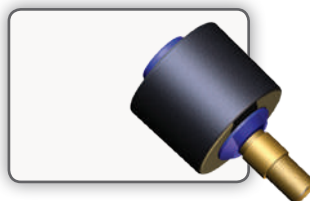
Condensate Management



Manual Drain

Condensate may be drained manually through clockwise adjustment

- *Standard Modular 36-48 grades (11-9)*
- *Standard ASME 54-92 grades (11-1)*



No Air Loss Internal Float Drain

Effectively removes condensate without loss of air

- *Standard Modular 12-28 grades (11-3), Standard Modular 32-48 grades (7-3)*
- *Standard ASME 52 grades (9-3)*



No Air Loss Mechanical Drain

Reliably removes condensate without need for electricity

- *Optional Modular 12-48 grades (11-1)*
- *Optional ASME 52-92 grades (11-1)*

Filter Selection



Model Configuration

HF ① - ② - ③

① Housing-Connection-Flow			
Model	Connection* in	Flow @ 100 psig scfm	Flow @ 6.7 barg nm ³ /h
12	3/8" or 1/2" NPT	20	34
16	3/8" or 1/2" NPT	35	59
20	3/8" or 1/2" NPT	60	102
24	3/4" or 1" NPT	100	170
28	3/4" or 1" NPT	170	289
32	1", 1-1/4" or 1-1/2" NPT	250	425
36	1", 1-1/4" or 1-1/2" NPT	375	637
40	2" or 2-1/2" NPT	485	824
44	2-1/2" NPT	625	1061
48	2-1/2" NPT	780	1325
ASME Pressure Vessels			
52	3" NPT	625	1062
54	3" NPT	1000	1699
56	3" NPT	1250	2124
60	3" NPT	1875	3186
64	4" FLG	2500	4248
68	4" FLG	3125	5309
72	6" FLG	5000	8495
76	6" FLG	6875	11681
80	6" FLG	8750	14866
84	8" FLG	11875	20176
88	8" FLG	16250	27609
92	10" FLG	21250	36104

② Element Grade	
11	Impaction Type Separators
9	Separator/Filter
7	Air Line Filter
6	Desiccant Dust Removal Afterfilter
5	High Efficiency Oil Removal
3	Maximum Efficiency Oil Removal
1	Oil Vapor Removal

③ Options	
T	Drain Plug
D	Internal Automatic Drain
P	Differential Pressure Slide Indicator
G	Differential Pressure Gauge
L	Liquid Level Indicator
S	Corrosion Proof Stainless Steel Element
X	External Drain Adapter
M	Electronic Filter Monitor

Example: HF5-24-6-DML

Flow and Connection: 100 scfm (170 nm³/h); 3/4" NPTF

Element Grade: 5 - high efficiency oil removal filter

Options: Internal automatic drain; filter monitor; liquid level indicator

*BSP threads are available. Add B to the model number.
Example HF5B-24-6-DML

Capacity Correction Factors

HF Series flow capacities are rated @ 100 psig (6.7 barg). To size the filter for non-standard conditions, a correction factor must be applied. Table 1 provides correction factors for inlet air pressure.

Do not select filters by pipe size; use flow rate and operating pressure.

Table 1 - Correction Factors for Inlet Pressure

Inlet Pressure	psig	20	30	40	60	80	100	120	150	200	250	300
	barg	1.4	2.1	2.8	4.1	5.5	6.9	8.3	10.3	13.8	17.2	20.7
Correction Factor		0.30	0.39	0.48	0.65	0.82	1.00	1.17	1.43	1.87	2.31	2.74

Product Specifications

Model	Capacity @ 100 psig (6.7 barg)		Connections in	Dimensions		Weight lbs	Replacement Element	
	scfm	nm ³ /h		H in	W in		Model	Qty.
Modular Type Housings								
HF(Grade)-12-(Conn.)-(Features) ²	20	34	3/8" or 1/2" NPT	8	4	4.2	E (Grade)-12	1
HF(Grade)-16-(Conn.)-(Features) ²	35	60	3/8" or 1/2" NPT	11	4	8.1	E (Grade)-16	1
HF(Grade)-20-(Conn.)-(Features) ²	60	102	3/8" or 1/2" NPT	13	4	8.5	E (Grade)-20	1
HF(Grade)-24-(Conn.)-(Features) ²	100	170	3/4" or 1" NPT	15	5	6.3	E (Grade)-24	1
HF(Grade)-28-(Conn.)-(Features) ²	170	289	3/4" or 1" NPT	20	5	6.9	E (Grade)-28	1
HF(Grade)-32-(Conn.)-(Features) ^{1 2}	250	425	1", 1-1/4" or 1-1/2" NPT	23	6	10.2	E (Grade)-32	1
HF(Grade)-36-(Conn.)-(Features) ^{1 2}	375	637	1", 1-1/4" or 1-1/2" NPT	27	6	11.3	E (Grade)-36	1
HF(Grade)-40-(Conn.)-(Features) ^{1 2}	485	824	2" or 2-1/2" NPT	31	8	28.0	E (Grade)-40	1
HF(Grade)-44-(Conn.)-(Features) ^{1 2}	625	1062	2-1/2" NPT	37	8	33.0	E (Grade)-44	1
HF(Grade)-48-(Conn.)-(Features) ^{1 2}	780	1325	2-1/2" NPT	43	8	38.0	E (Grade)-48	1
ASME Pressure Vessels								
HF(Grade)-52-(Conn.)-(Features) ¹	625	1062	3" NPT	41	10	37	E (Grade)-PV	1
HF(Grade)-54-(Conn.)-(Features) ¹	1000	1699	3" NPT	48	16	93	E (Grade)-54	2
HF(Grade)-56-(Conn.)-(Features)	1250	2124	3" NPT	48	16	93	E (Grade)-PV	2
HF(Grade)-60-(Conn.)-(Features)	1875	3186	3" NPT	49	16	123	E (Grade)-PV	3
HF(Grade)-64-(Conn.)-(Features)	2500	4248	4" FLG	52	20	185	E (Grade)-PV	4
HF(Grade)-68-(Conn.)-(Features)	3125	5309	4" FLG	52	20	189	E (Grade)-PV	5
HF(Grade)-72-(Conn.)-(Features)	5000	8495	6" FLG	55	24	285	E (Grade)-PV	8
HF(Grade)-76-(Conn.)-(Features)	6875	11681	6" FLG	63	28	537	E (Grade)-PV	11
HF(Grade)-80-(Conn.)-(Features)	8750	14866	6" FLG	63	28	599	E (Grade)-PV	14
HF(Grade)-84-(Conn.)-(Features)	11875	20176	8" FLG	69	33	742	E (Grade)-PV	19
HF(Grade)-88-(Conn.)-(Features)	16250	27609	8" FLG	68	39	936	E (Grade)-PV	26
HF(Grade)-92-(Conn.)-(Features)	21250	36104	10" FLG	71	46	1471	E (Grade)-PV	34

¹ Drain plugs standard. Externally mounted automatic drains are available.
² Time-based Filter Monitor recommended.

Technical Specifications

Drain Option	Maximum Operating Pressure	Maximum Operating Temperature	Minimum Operating Temperature
Filter Housings HF-12 to HF-52			
Drain Plug	300 psig (20.7 barg)	150°F (66°C)	35°F (2°C)
Internal Automatic Drain	250 psig (17.2 barg)	150°F (66°C)	35°F (2°C)
Differential Pressure Slide Indicator			
Differential Pressure Gauge			
ASME Pressure Vessels HF-54 to HF-92			
Drain Plug	225 psig (15.5 barg)	150°F (66°C)	35°F (2°C)
Internal Automatic Drain	225 psig (15.5 barg)	150°F (66°C)	35°F (2°C)
Differential Pressure Slide Indicator			
Differential Pressure Gauge			

HF Series

20 to 21250 scfm

(34 to 36104 nm³/h)



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