

# Compressed air filtration

the new generation

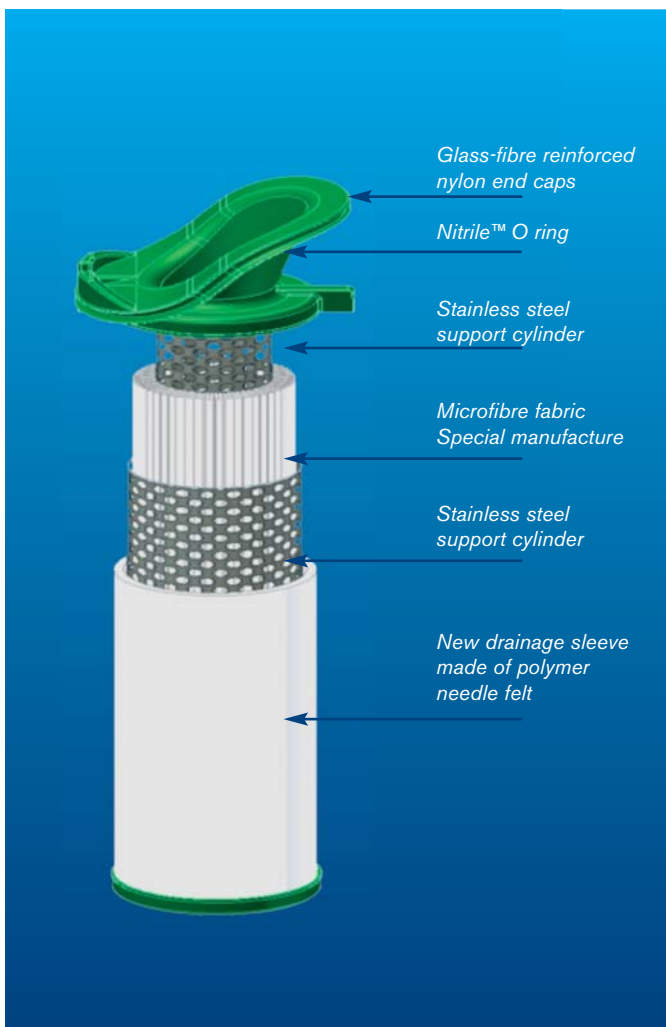


# Compressed air filtration - the new generation

Hankison is one of the leading manufacturers of compressed-air drying and filtration systems.

Hankison products are renowned throughout the world for their outstanding performance, their proven reliability and optimum energy saving capabilities.

The NGF Series is based on the latest state-of-the-art compressed-air filtration materials and was developed to ensure excellent compressed-air quality with low operating costs.



## Compressed-air quality and energy savings

The new NGF Series was developed to comply with the internationally recognised compressed-air standard ISO 8573.

The performance of the filter elements was established in accordance with ISO 12500 test specifications.

Pleated filter elements with a particularly large surface area are used as the filter medium for the NGF Series.

This considerably reduces pressure loss.

The unique design of the filter element caps enables turbulence-free transition for incoming and outgoing compressed air.

The optimised flow paths and the new design of the end caps also minimise the pressure loss for this filter series.

All materials are silicon-free/  
paint-compatible

Inlet and outlet flanges ensure easy installation.  
Connections from R 1/4" to R 3"

Nitrile™ O ring seal

Patented Venturi-Wave™ element design  
Patent no. 7,618,480

Aluminium die-cast housing

Coloured end caps on the filter elements  
clearly define the filtration efficiency.

Drainage sleeve made of  
polymer needle felt ensures optimum drainage  
and is resistant to all standard compressor oils.

Pleated filter element with 96% cavity space.  
Up to 50% reduction in  $\Delta p$  compared to conventional  
filter elements.

Automatic condensate drain  
for secure condensate drainage.

## Unique filter sizes

14 models cover volume flows from 34 m<sup>3</sup>/h to 2,549 m<sup>3</sup>/h.

Specifically designed housings with optimised flow paths  
reduce pressure loss.

The light, compact design makes installation easy and also saves space.

The housings have optimum anti-corrosion protection  
due to a double powder coating.



Large surface area due to pleating

## The benefits at a glance

- Maximum operating pressure 16 barg
- Maximum inlet temperature +66°C
- Large effective surface area, up to 4.5 times larger than with traditional wrapped elements
- Pleated filter medium made of borosilicate
  - improved continuous service life
  - reduced pressure loss
- Internal and external stainless steel supports increase the stability of the filter element
- Specially treated drainage sleeve increases discharge capacity
- Colour-coded end caps on the filter elements enables easy identification and replacement of original parts
- Filters can easily be joined together by means of a clamp connection
- Differential pressure gauge mounted on the filter head
- Element change after 12 months or upon reaching 400 mbar differential pressure
- Change active carbon elements after 1000 operating hours maximum (based on 20°C inlet temperature)

## International standards for testing and measuring compressed-air quality

### ISO 12500

ISO 12500 defines the universal test methods for compressed-air filter manufacturers.

Critical input parameters are specified for oil inlet conditions and input particle sizes.

- ISO 12500-1 defines the testing of coalescence filters for aerosol separation.
- ISO 12500-2 defines the oil-vapour adsorption for adsorption filters.
- ISO 12500-3 defines the particle size for particle filtration.

The NGF Series is tested and certified to ISO 12500..

#### NGF filter series performance data

Filtration grade	SF	PF	HF	UF	CF
Particles <sup>1</sup>	3.0µm	1.0µm	0.01µm	0.01µm	0.01µm
Particle retention efficiency	-	99.999+%	99.999+%	99.999+%	99.999+%
Oil retention efficiency	50%	80%	99.9+%	99.99+%	-
Residual Oil Content <sup>2</sup> mg/m <sup>3</sup>	5.0	2.0	<0.01	<0.001 <sup>3</sup>	<0.004 <sup>4</sup>

<sup>1</sup>Liquid particles with 0.01 to 5 µm    <sup>2</sup>Oil inlet concentration 10 mg/m<sup>3</sup>

<sup>3</sup>Oil particles    <sup>4</sup>Oil vapour

#### ISO 8573.1:2009 Quality classes

ISO 8573, the international standard for compressed-air quality, defines the quantity of component parts remaining in the compressed air such as oils, particles, aerosols.

- This standard differentiates three basic forms of contamination in compressed air: solids, water and oil.
- Contamination is classified and used to indicate a quality class, beginning with Class 0, the highest quality level to Class 9, the lowest quality level.

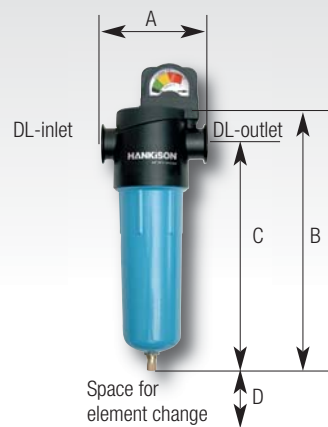
Filtration grade	ISO Quality Class Solids	ISO Quality Class Oil
SF	3	5
PF	2	4
HF	1	1
UF	1	1
CF	1	1

#### NGF filter series differential pressures\*

Filter	Filter stage	Initial differential pressure element	
		Dry Δp	Wet Δp
■ SF	Centriflex	0.06 bar	0.07 bar
□ PF	Universal filter	0.04 bar	0.10 bar
■ HF	Heavy-duty fine filter	0.04 bar	0.12 bar
■ UF	Heavy-duty ultra-fine filter	0.06 bar	0.14 bar
■ CF	Activated carbon filter	0.07 bar	-

\*Differential pressures do not exceed the values specified in ISO 12500





Model	Flow Capacity [m³/h]	Max. Volume Pressure [bar pressure]	Weight [kg]	Dimensions				Connection R	Filter element
				A [mm]	B [mm]	C [mm]	D [mm]		
F02-B-SF/PF/HF/UF/CF	34	16,0	0,8	113,6	205,5	171,4	102,0	1/4"	SF/PF/HF/UF/CF-02
F03-B-SF/PF/HF/UF/CF	59	16,0	0,8	113,6	205,5	171,4	102,0	3/8"	SF/PF/HF/UF/CF-03
F04-B-SF/PF/HF/UF/CF	85	16,0	0,9	113,6	252,0	216,4	102,0	1/2"	SF/PF/HF/UF/CF-04
F06-B-SF/PF/HF/UF/CF	127	16,0	1,4	132,0	262,1	219,8	127,0	3/4"	SF/PF/HF/UF/CF-06
F07-B-SF/PF/HF/UF/CF	175	16,0	1,4	132,0	262,1	219,8	127,0	3/4"	SF/PF/HF/UF/CF-07
F08-B-SF/PF/HF/UF/CF	267	16,0	1,6	132,0	326,1	283,8	127,0	1"	SF/PF/HF/UF/CF-08
F10-B-SF/PF/HF/UF/CF	437	16,0	3,8	200,0	336,7	276,1	178,0	1 1/2"	SF/PF/HF/UF/CF-10
F11-B-SF/PF/HF/UF/CF	612	16,0	4,5	200,0	433,7	373,1	178,0	1 1/2"	SF/PF/HF/UF/CF-11
F12-B-SF/PF/HF/UF/CF	681	16,0	5,3	200,0	566,0	505,4	178,0	2"	SF/PF/HF/UF/CF-12
F13-B-SF/PF/HF/UF/CF	993	11,0	8,4	230,8	634,4	550,0	204,0	2 1/2"	SF/PF/HF/UF/CF-13
F14-B-SF/PF/HF/UF/CF	1317	11,0	8,4	230,8	634,4	550,0	204,0	2 1/2"	SF/PF/HF/UF/CF-14
F15-B-SF/PF/HF/UF/CF	1750	11,0	8,4	230,8	634,4	550,0	204,0	2 1/2"	SF/PF/HF/UF/CF-15
F16-B-SF/PF/HF/UF/CF	2039	11,0	12,6	230,8	817,1	732,7	204,0	3"	SF/PF/HF/UF/CF-16
F17-B-SF/PF/HF/UF/CF	2549	11,0	28,7	230,8	1085,1	1000,7	204,0	3"	SF/PF/HF/UF/CF-17

#### Correction Factors

Operating pressure bar [g]	2	3	4	5	6	7	8	10	12	14
Factor	0.38	0.52	0.63	0.75	0.88	1.00	1.13	1.38	1.65	1.87

## HANKISON NGF filter series - naming convention

### Configuration

F 1 - 2 - 3

#### 1 Housing-connection-Volume flow

Model	Connection*	Flow rate @ 7 bar g
02	1/4"	34 m³/h
03	3/8"	59 m³/h
04	1/2"	85 m³/h
06	3/4"	127 m³/h
07	3/4"	175 m³/h
08	1,0"	267 m³/h
10	1,5"	437 m³/h
11	1,5"	612 m³/h
12	2,0"	681 m³/h
14	2,5"	1317 m³/h
15	2,5"	1750 m³/h
16	3,0"	2039 m³/h
17	3,0"	2549 m³/h

#### 2 Filter element

SF	Centriflex
PF	Universal filter
HF	Heavy-duty fine filter
UF	Heavy-duty ultra-fine filter
CF	Active carbon filter

#### Example: F02-SF-DP1

**Flow rate and connection:**  
34 m³/h; R 1/4"

**Filter element:** SF, Centriflex

**Options:** Automatic condensate drain, differential pressure indicator

#### 3 Options

T	Manual drain
D	Automatic condensate drain
P1	Differential pressure indicator
G1	Differential pressure gauge
M	Filter monitor
X	Adaptor for external condensate drain (02-12)
Z1	Electronic level-controlled condensate drain SXD-1
Z2	Electronic level-controlled condensate drain SXD-3
Z3	Electronic level-controlled condensate drain SXD-10
W	External automatic condensate drain
O	Oil indicator



## New Generation Filter Series SF

Removes liquid and solid particles larger than 3 µm.  
Residual oil content based on 20 °C and 1 bar absolute: 5 ppm w/w

Maximum permissible inlet load 25,000 ppm w/w.  
ISO 8573.1  
Quality classes - particles: class 3, oil: class 5



## New Generation Filter Series UF

Removes liquid and solid particles larger than 0.01 µm.  
Residual oil content based on 20 °C and 1 bar absolute: 0.0008 ppm w/w

Maximum permissible inlet load 100 ppm w/w.  
ISO 8573.1  
Quality classes - particles: class 1, oil: class 1



## New Generation Filter Series PF

Removes liquid and solid particles larger than 1 µm.  
Residual oil content based on 20 °C and 1 bar absolute: 0.5 ppm w/w

Maximum permissible inlet load 2,000 ppm w/w.  
ISO 8573.1  
Quality classes - particles: class 2, oil: class 2



## New Generation Filter Series CF

Removes solid particles larger than 0.01 µm.  
Residual oil content based on 20 °C and 1 bar absolute: 0.003 ppm w/w (vapour phase)

Maximum permissible inlet load 0.01 ppm w/w.  
ISO 8573.1  
Quality classes - particles: class 1, oil: class 1



## New Generation Filter Series HF

Removes liquid and solid particles larger than 0.01 µm.  
Residual oil content based on 20 °C and 1 bar absolute: 0.01 ppm w/w

Maximum permissible inlet load 1,000 ppm w/w.  
ISO 8573.1  
Quality classes - particles: class 1, oil: class 1

## NGF filter elements are tested to ISO 12500 with air quality in compliance with ISO 8573.1:2009

Air Quality Classes ISO 8573.1	Compressed-air quality Solid particles			Moisture & water	Oil	
	Maximum number of particles per m <sup>3</sup> Particle size (d), µm			Maximum Pressure Dew Point	Maximum Concentration, Aerosol, Liquid and Vapour	
	0,10 < d ≤ 50	0,10 < d ≤ 1,0	0,10 < d ≤ 5,0	°C	mg/m <sup>3</sup>	ppm w/w
<b>0</b>	<b>As specified by the equipment user or supplier and more stringent than class 1</b>					
<b>1</b>	≤ 20.000	≤ 400	≤ 10	≤ -70°C	≤ 0,01	≤ 0,08
<b>2</b>	≤ 400.000	≤ 6.000	≤ 100	≤ -40°C	≤ 0,1	≤ 0,008
<b>3</b>	-	≤ 90.000	≤ 1.000	≤ -20°C	≤ 1	≤ 0,8
<b>4</b>	-	-	≤ 10.000	≤ +3°C	≤ 5	≤ 4
<b>5</b>	-	-	≤ 100.000	≤ +7°C		
	<b>Mass Concentration C<sub>p</sub> (mg/m<sup>3</sup>)</b>					
<b>6</b>	0 < C <sub>p</sub> ≤ 5			≤ +10°C		
				<b>Liquid Water Content C<sub>w</sub> g/m<sup>3</sup></b>		
<b>7</b>	5 < C <sub>p</sub> ≤ 10			C <sub>w</sub> ≤ 0,5		
<b>8</b>				0,5 < C <sub>w</sub> ≤ 5		
<b>9</b>				5 < C <sub>w</sub> ≤ 10		
<b>x</b>	C <sub>p</sub> > 0			C <sub>w</sub> ≤ 10	> 5	> 4

## Accessories and options



### Stainless steel connection kits

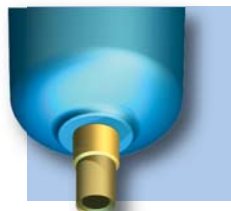
Optional (02-17)



### Wall bracket

Rugged design provides installation flexibility

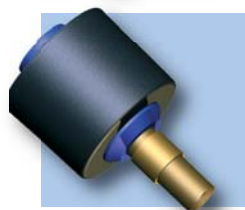
Optional (02-17)



### Manual Drain

Standard: Series CF (02-12)

Optional: Series SF, PF, HF, UF (02-12)



### Internal automatic condensate drain

Standard: Series SF, PF, HF, UF (02-12)

## Differential pressure management



### Differential pressure indicator with colour display

Standard: Series SF, PF, HF, UF (02-07)



### External automatic condensate drain

Optional: (13-17)



### Differential pressure gauge

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

Standard: Series SF, PF, HF, UF (08-17)



### Electronic level-controlled condensate drain X-DRAIN®

Optional: SF (02-08)    SXD-1  
 PF/HF/UF (02-12)    SXD-1  
 SF (09-12)    SXD-3

Standard: PF/HF/UF (13-17)    SXD-3

Standard: SF (13-17)    SXD-10



### Filter monitor

Optional (02-17)



### Oil indicator

Optional: CF (02-17)

Forhandler

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