

# Compressed air filtration solutions

# Protect the Environment

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## and your Investments

Compressed air is a fundamental source of energy for the large majority of industrial processes. However, air from a compressor is often too humid, contaminated or hot to be used in the production chain without prior treatment.

The application of high-quality air ensures continuity and reliability of industrial applications, the highest quality standards for finished products and the optimization of production costs.

Parker Hiross offers a range of refrigerated air drying solutions including:

- **Air and water-cooled aftercoolers,**
- **Centrifugal separators,**
- **Refrigeration and adsorption dryers,**
- **Condensate drains,**
- **Oil/water separators,**
- **Water chillers and dry coolers.**

The Parker Hiross **filters** of the **Hyperfilter 2000** range operate in combination with all the products on offer, optimising and improving the efficacy of the quality treatment.

### Caring for the environment:

Parker Hiross has been awarded ISO14001 certification and puts environmental standards at the heart of its production and design.

The Parker Hiross solutions guarantee:

- **Zero pollution risks**, due to its refrigeration system, which has been researched, developed and accurately tested to avoid any refrigerant loss.
- **No water loss**, thanks to the use of water in closed circuit;
- **Top energy efficiency**, reducing electrical energy consumption to a minimum.

### A safe investment:

Designed for industrial applications, Parker Hiross solutions ensure:

- **Careful energy consumption**, by means of the components and technical choices, which aim to reach the maximum energy efficiency and control accuracy in any condition.
- **Reduced maintenance**, thanks to the careful approach to product design, commissioning and operation.
- **Maximum flexibility of use in any application;**
- **High wear-and-tear resistance.**

## *Free your Energy*

# with the Parker Hiross solutions

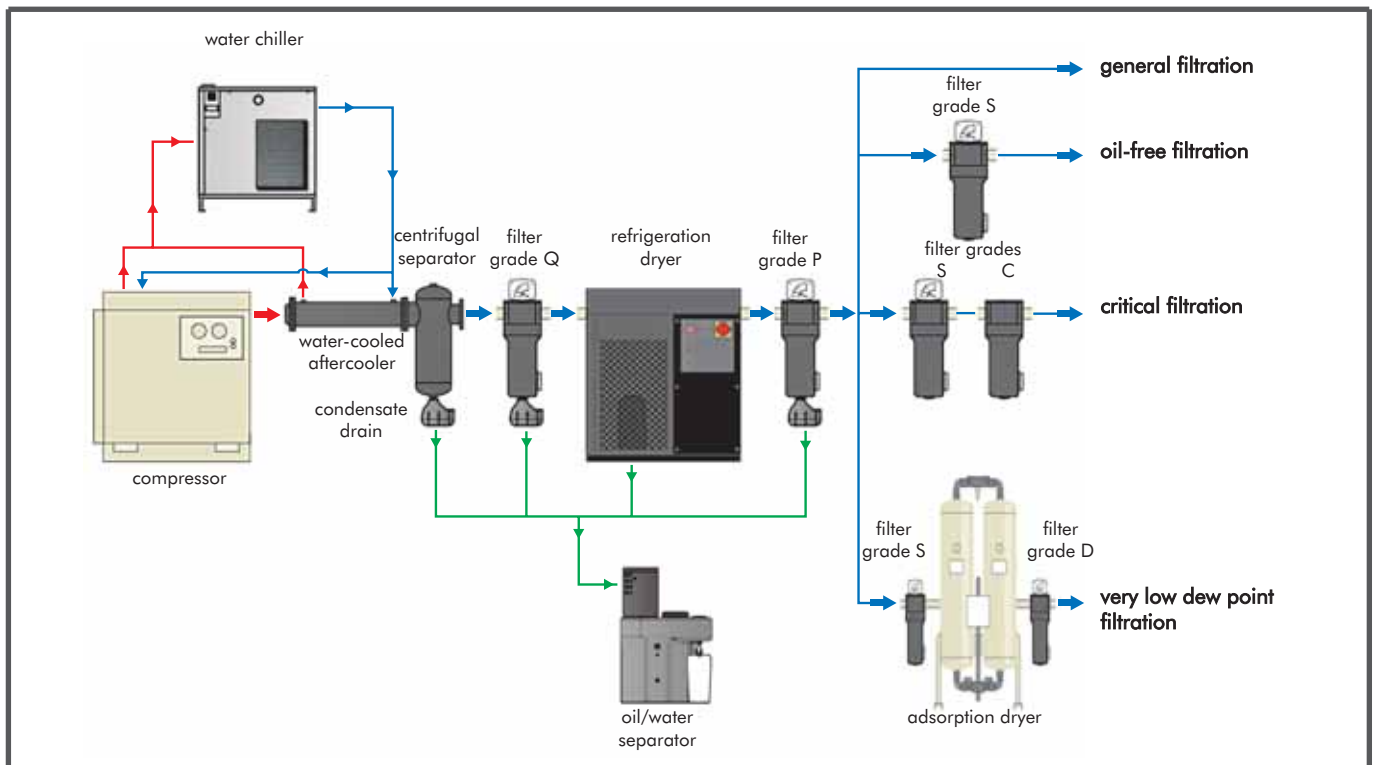
Compressed air filters



Hyperfilter  
5 filtration grades  
(0,53 - 450 m<sup>3</sup>/min)

even for high pressures  
(3,1 - 77,5 m<sup>3</sup>/min)

## Hyperfilter and the other Parker Hiross solutions in a compressed air network



# Compressed air filters

## Hyperfilter 2000



The Hyperfilter 2000 range guarantees a complete filtration with the 5 filtration grades D, Q, P, S and C.

The **Q, P and S grades** are coalescing filters for liquid and oily condensates. The particles are held by the filter element surface depending on their size (mechanical filtration) as follows:

- Particles  $> 1$  micron: these are captured by *inertial impact* on the element surface.
- Particles  $0,3 - 1$  micron: these are collected by *direct interception*, whereby the particles collide with the filter fibre and stick to it.
- Particles  $< 1$  micron: these are held by *casual collision* (Brownian motion), whereby they move across the streamline and are picked up by the filter fibre.

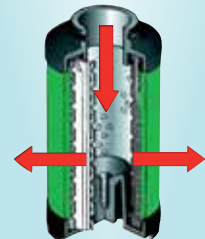
The **D grade** are filters for dry dust up to 3 micron. Reserve flow maximises the filtration surface and facilitates dust removal. The element life is lengthened and pressure drops are further reduced, thus saving energy. The element has been specially strengthened to optimise reverse flow operation.

The **C grade** are active carbon filters and remove oil vapours and odours through adsorption.

### Operation



- 1) The air enters the filter.
- 2) The air passes through the filter element, which holds virtually all solid and liquid particles with a size higher than the grade of filtration installed.
- 3) The filtered liquid and solid particles drop to the bottom of the filter to be removed by the condensate drain.
- 4) The filtered air exits the filter.



The air flow in the D grade is inverse compared to the diagram above: from the outside to the inside.

### The range

**Hyperfilter 2000**  
**HFN005-HFS4500**

24 models for  
5 filtration grades

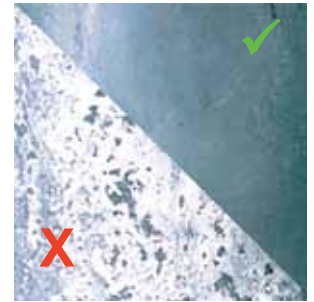
**HFP031-780**  
9 models for high pressures  
up to 50 barg

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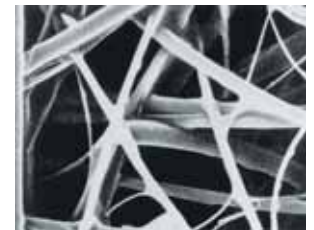
# Compressed air filters

## Features

- **Hiroshield protection:** all threaded models feature unique Hiroshield surface protection treatment, applied to both the inside and the outside of the filter housing. Hiroshield ensures that Hyperfilter 2000 can withstand even the toughest industrial conditions. As a result the Hyperfilter 2000 housing is backed up by a 5 year warranty (under specified operating conditions).



- **Borosilicate filter media:** the borosilicate filter media offers an extremely high void volume, lengthening the element's life and cutting energy costs to a minimum. Anti re-entrainment barriers ensure there is no oil carry-over. The filter material fully complies with ISO 8573.1 filtration grading.



- **Oil & water proof:** Hyperfilter 2000's filter media features a special treatment which ensures that the element actively repels both oil and water. Compared with typical filters this reduces pressure drops and, as a consequence, running costs, as well as ensuring a higher filtration efficiency.



- **High quality materials:** all elements feature corrosion resistant end caps and high strength inner and outer supports in stainless steel. Hyperfilter 2000 elements are fully compatible with both synthetic and mineral oils. The element is fitted into the housing using a tierod, ensuring easy installation and well as secure fit.



## Accessories & versions

- kit for installation in series of two or more filters;
- wall mounting kit;
- counterflanges kit (for flanged models);
- remote contact kit;
- element supervision indicator;
- differential pressure gauge;
- flanged models can be supplied in stainless steel for aggressive ambients.



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# Compressed air filters

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## Hyperfilter

The **differential pressure gauge**, visible from both sides, warn when the element needs changing. Both a warning light and a remote contact are also available. Alternatively, it is possible to install an indicator on the filter.

The new look **housing** features a redesigned inside to reduce pressure drops even further, saving energy

The **HDI zero-loss drain** (standard on models HFN005-072 for filtration grades Q, P and S) features an auto-cleaning protection screen for highest reliability. Simply press the drain to verify its correct operation.




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# Compressed air filters

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## Hyperfilter



The **air-tight seal** cannot be opened when the filter is under pressure, offering added protection.



To maintain your guaranteed air quality, **filter elements** must be replaced every year with genuine Parker Hiross parts. Throughout its life, the filter element is constantly under bombardment from oily, acidic condensate and high velocity dirt particles, which it has to remove and retain to protect your compressed air system. Over time, this can weaken the filter media and reduce filtration performance. **Annual filter element changes** are therefore essential, and failure to replace every year could result in reduced production performance, degrading air quality and increased operational costs.

The **sight glass** (up to HFN205) offers easy verification of correct filter operation.

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# Quality compressed air

## ISO 8573.1:2001 classification (air purity grade) and Hyperfilter 2000 filtration grades

ISO class	Solid particles Max number of particles per m <sup>3</sup>			Pressure dew point °C	Oil (including vapours) mg/m <sup>3</sup>
	0,1-0,5 micron	0,5-1 micron	1,0-5 micron		
1	100 (S)	1	0	-70 (adsorption dryers)	0,01 (S, C)
2	100.000	1.000 (P)	10	-40 (adsorption dryers)	0,1 (P)
3	-	10.000	500 (Q, D)	-20 (adsorption dryers)	1
4	-	-	1.000	3 (refrigeration dryers)	5
5	-	-	20.000	7 (refrigeration dryers)	-
6	-	-	-	10 (refrigeration dryers)	-

### Solid particles

Class 1: Grade S. For particles up to 0,01 micron.

Class 2: Grade P. For particles up to 1 micron.

Class 3: Grade Q and D. For particles up to 3 micron. D grade is specifically designed for the filtration of dry dust, downstream the dryer.

### Oil

Class 1: Grade S. Max concentration 0,01 mg/m<sup>3</sup>.

Grade C. Max concentration 0,003 mg/m<sup>3</sup>.

Class 2: Grade P. Max concentration 0,1 mg/m<sup>3</sup>.

### Filter element life

To maintain unchanged the air quality guaranteed by Hyperfilter 2000 it is fundamental to replace the filter element **at least every 12 months** (see table below) with genuine **Parker Hiross spare parts**.

Annual filter element changes ensure:

- Optimal performance is maintained
- Air quality continues to meet international standards
- Low operational costs
- Continued protection of downstream equipments & processes

Failure to perform the scheduled replacement can lead to increasing system pressure drops:

Grade	pressure drop (barg)		
	new	wet	change at
D, Q, P	0,07	0,14	0,35
S	0,10	0,20	0,35
C	0,07	n.a.	1.000h to 25°C

\*nominal working conditions at 7 barg

### Differential gauge

When the differential pressure indicator and gauge indicate a pressure value of 0,35 barg (red area) it is necessary to replace the filter element.



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# Filtration grades & applications

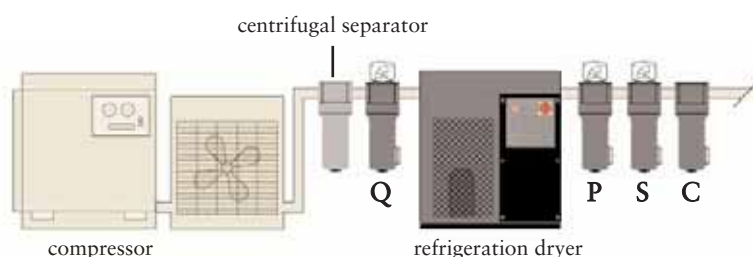
To achieve the ISO 8573.1 2001 air quality standards a careful approach to system design, commissioning and operation must be employed. It is highly recommended that the compressed air is treated **prior to entry** into the distribution system as well as **at each usage point or application**.

This approach to system design provides the most cost effective solution to system purification as it not only removes the contamination already in the distribution system, it ensures that only the most critical areas receive air treated to the highest levels.

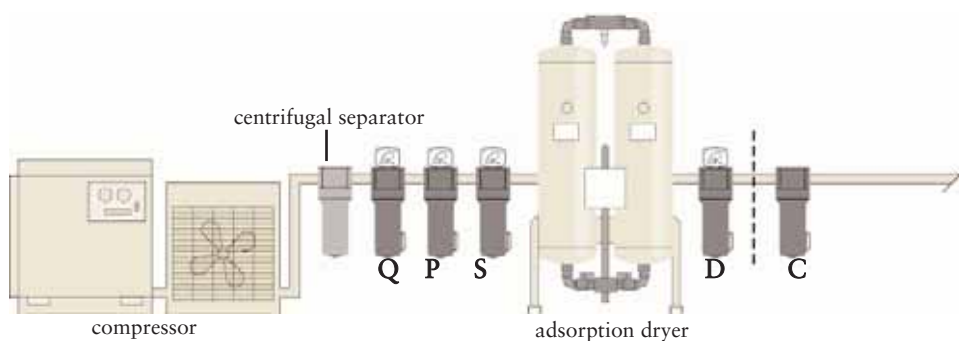
In many instances the compressed air system will be supplying air to more than one application and although the purification equipment specified in the compressor room would remain unchanged, the point of use will vary depending upon the air quality requirements of each application.

For example, air used for the pneumatic conveying of food stuffs or ingredients will require the highest levels of purification, whilst the air used to operate the pneumatics on the production machinery may only require general purpose protection.

An element of a lower filtration grade is normally installed as a pre-filter of a higher grade. In this way, the element life downstream the system is lengthened and energy wastages are prevented.



Grade	Filtration type	Typical applications
Q	general purpose	bulk liquid & solid removal , vacuum pump pre-filter, air blowers, refrigeration dryer pre-filter, large pneumatic tools
P	fine filtration	general pneumatic tools & controls, air conveyors, compressed air motors, sand blasting, shipyards & shipping, vacuum pump post-filter, metal working, adsorption dryer pre-filter (oil-free), air motors
S	oil-free filtration	air conveyors, spray painting, air logistics, instrumentation, air gauging, fine pneumatic tools, adsorption dryer pre-filter (non oil-free), oil-free air
C	critical filtration	hospital & medical, film processing, pharmaceuticals, non-critical breathing air (without CO/CO <sub>2</sub> removal), critical instrumentation, smell, taste and il damp removal, production / packaging / transport of food, breweries, drinks and dairies



D	very low dew point filtration	dust filtration, dry particle removal, pharmaceuticals, cosmetics, electronics, food, automotive, chemical, dairies, breweries, aviation, hospitals, refineries, plastics, textiles, railways, adsorption dryer post-filter
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# Technical data

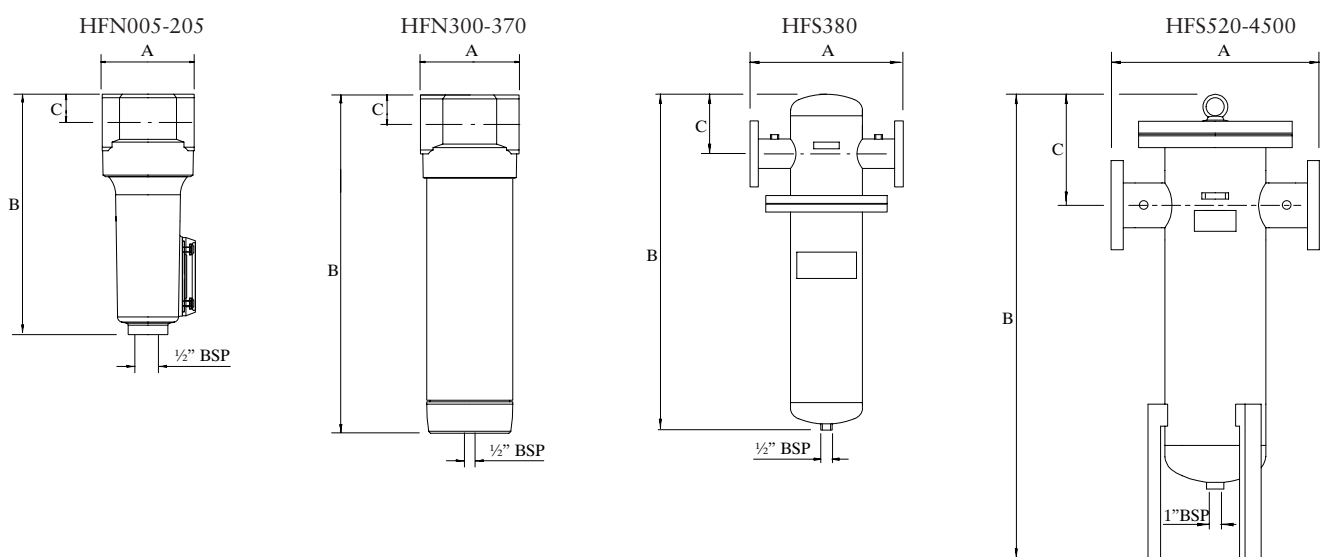
## Hyperfilter

Model	Air flow		Air connections	Max press. barg	Dimensions (mm)			Weight kg	Elements qty x type
	m <sup>3</sup> /min	m <sup>3</sup> /h			A	B	C		
HFN005	0,53	31,8	1/4"	16	69	168	21	0,6	1 x 005
HFN010	1,0	60	3/8"	16	89	267	24	1,2	1 x 010
HFN018	1,8	108	1/2"	16	89	267	24	1,2	1 x 022
HFN022	2,2	132	3/4"	16	89	267	24	1,2	1 x 022
HFN030	3,0	180	3/4"	16	109	367	34	2,4	1 x 030
HFN045	4,5	270	1"	16	109	367	34	2,4	1 x 045
HFN062	6,2	372	1 ¼"	16	109	514	34	3,0	1 x 072
HFN072	7,2	432	1 ½"	16	109	514	34	3,0	1 x 072
HFN122	12,2	732	1 ½"	16	150	550	41	5,2	1 x 135
HFN135	13,5	810	2"	16	150	550	41	5,2	1 x 135
HFN175	17,5	1050	2"	16	150	928	41	6,5	1 x 175
HFN205	20,5	1230	2"	16	150	928	41	6,6	1 x 205
HFN300	30	1800	2 ½"	16	188	733	56	13,5	1 x 300
HFN370	37	2220	3"	16	188	933	56	16,0	1 x 370
HFS380	38	2280	DN80	16	360	1145	180	46,0	1 x 370
HFS520	52	3120	DN100	12	473	1437	337	124	3 x 175
HFS610	60	3600	DN100	12	473	1437	337	125	3 x 205
HFS750	75	4500	DN100	12	473	1622	357	132	3 x 250
HFS1000	100	6000	DN150	10	520	1707	392	148	4 x 250
HFS1510	150	9000	DN150	10	590	1703	392	180	6 x 250
HFS2000	200	12000	DN200	10	660	1769	419	220	8 x 250
HFS2500	250	15000	DN200	10	700	1754	419	275	10 x 250
HFS3000	300	18000	DN250	10	980	1725	398	330	12 x 250
HFS4500	450	27000	DN300	10	1100	1830	430	440	18 x 250

Performances are indicated at filtration temperature of 20°C and working pressure of 7 barg. Weights are inclusive of filter element but without condensate drain. Materials: HFN005-370 in aluminium, HFS in carbon steel. Filters supplied with elements Q, P and S feature as standard HDI condensate drain up to model HFN072, HDF120 for models HFN122-HFS380 and HDF180 for models HFS520-HFS4500. Filters supplied with elements D and C feature a manual drain. All filters are for operation up to 65°C working temperature.

### Airflow correction factors for differing working conditions

working pressure barg	1	3	5	7	9	11	13	15	16
correction factors	0,49	0,69	0,89	1	1,09	1,19	1,29	1,39	1,44



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# Technical data

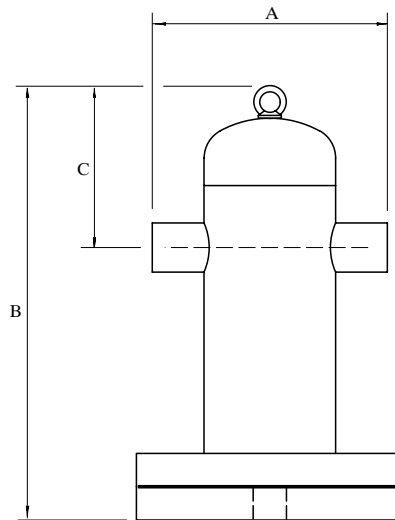
## Hyperfilter high pressure filters

Model	Airflow		Air connections	Max press. barg	Dimensions (mm)			Weight kg	Elements qty x type
	m <sup>3</sup> /min	m <sup>3</sup> /h			A	B	C		
HFP031	3,1	186	3/4"	50	125	349	111	16	1 x 010
HFP050	5,0	300	3/4"	50	125	349	111	16	1 x 016
HFP068	6,8	408	3/4"	50	125	349	111	16	1 x 022
HFP093	9,3	558	1 1/2"	50	160	475	120	17	1 x 030
HFP140	14,0	840	1 1/2"	50	160	475	120	17	1 x 045
HFP220	22,3	1338	1 1/2"	50	160	622	120	18	1 x 072
HFP420	41,9	2514	2"	50	176	758	206	30	1 x 135
HFP640	63,5	3810	2"	50	176	1135	206	40	1 x 205
HFP780	77,5	4650	2"	50	176	1135	206	40	1 x 250

Performances are indicated at the filtration temperature of 20°C and working pressure of 40 barg. Weights are for the filter housing only, matching element must be purchased separately. All high pressure filters are for operation up to 65°C working temperature. High pressure filters are available in different construction materials.

### Airflow correction factors for differing working conditions

working pressure	barg	20	25	30	35	40	45	50
correction factors		<b>0,71</b>	<b>0,79</b>	<b>0,87</b>	<b>0,94</b>	<b>1</b>	<b>1,06</b>	<b>1,11</b>



Data contained in this publication is to be considered as indicative only. The manufacturer reserves the right to modify data without prior notice.

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# Free your Energy

Release your Power

Save Energy

Purify your Air

Stop Wasting Water

Respect the Environment

Improve your Factory's performances

Focus on your Core Business

