MANN+HUMMEL IQORON
The new compact air cleaner for high requirements

IQORON: An intelligent solution

The newly developed IQORON air cleaner series from MANN+HUMMEL meets current and future requirements for greater air throughput and reduced installation space and is therefore the ideal solution for demanding applications.

Advantages at a glance:

- low space requirement through compact design
- long filter service life through highly efficient multi-cyclone block pre-cleaner and the CompacPleat double-bellows element
- highest reliability through filter element with axial seal and additional secondary element with radial seal
- inline air flow enables numerous installation possibilities
- easy monitoring of the dirt accumulation level through integrated connection for service switch
- cleaning of multi-cyclone block made easy through central fixing screw
- eco-friendly disposal of metal-free filter element (fully incinerable)
- problem-free fitting to different units through variable installation positions
- quick first-fit through various fixing possibilities

Variations of the IQORON series

Target applications

IQORON

The power pack: with a high power density and long service life

Dimensions and part numbers on pages 8 - 9.

IQORON-V

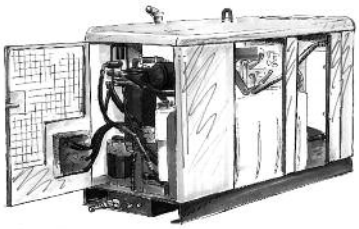
High performance cyclone technology – also without scavenging

Dimensions and part numbers on page 14.

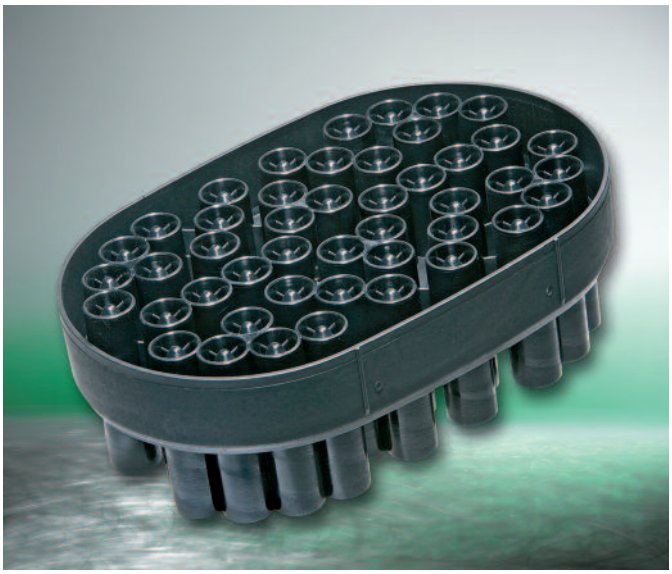
IQORON-S

The single-stage filter for low pressure drop

Dimensions and part numbers on page 15.



Pre-separation through high performance cyclone technology



IQORON multi-cyclone block

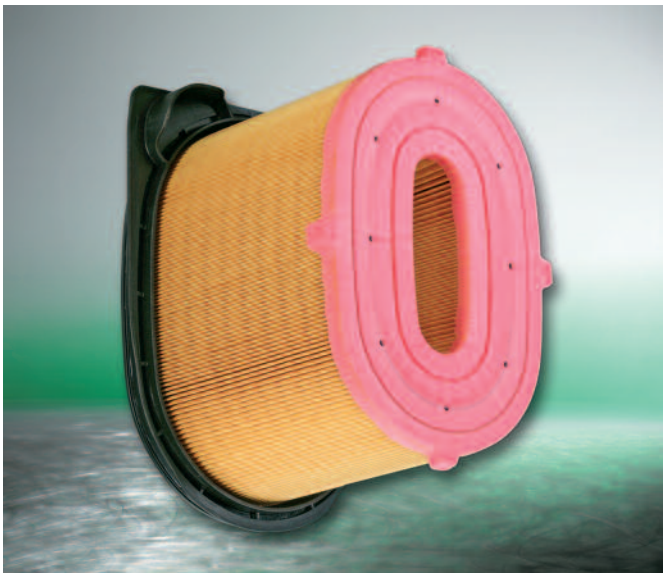
A more efficient precleaner leads to a longer filter service life and as a result it is not necessary to change the filter element as often – an advantage which has an immediate effect on the economy of the machine.

The best and most technically advanced solution is achieved by the connection in parallel of many small, separate precleaner cells in a multi-cell separator, the so-called multi-cyclone block.

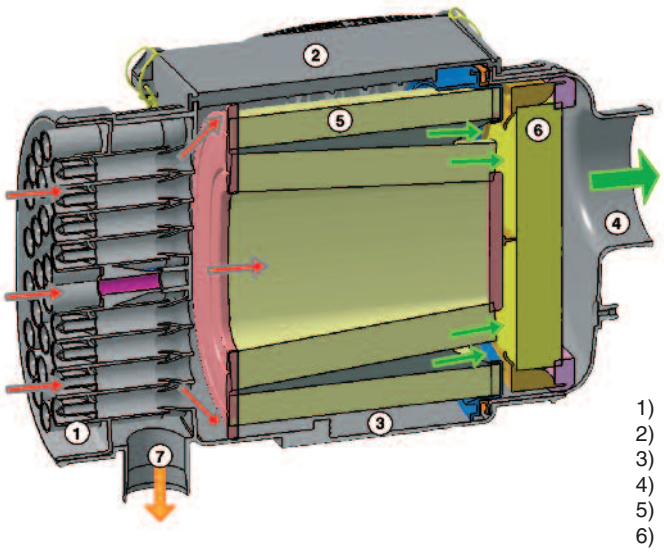
The multi-cyclone block of the IQORON from MANN+HUMMEL with its pre-cleaner cells is a real filtration highlight with an efficiency of more than 95%. Compared to a conventional standard two-stage filter with a pre-separation efficiency of 85%, the IQORON multi-cyclone block offers dust pre-separation which is 3 times as effective.

New CompacPleat filter element

The core of the IQORON is the newly developed MANN+HUMMEL CompacPleat double-bellows element. In comparison to a conventional filter element in the same installation space the CompacPleat has a considerably larger surface area. In addition, the air cleaner with its linear air flow allows numerous installation possibilities. The metal-free filter element is easily disposed of by incineration and therefore eco-friendly. The element carrier frame (if available) is re-used which makes it only necessary to change the filter insert with the integrated seal. In this way the IQORON is able to make a contribution towards conservation of resources.



New CompacPleat filter element

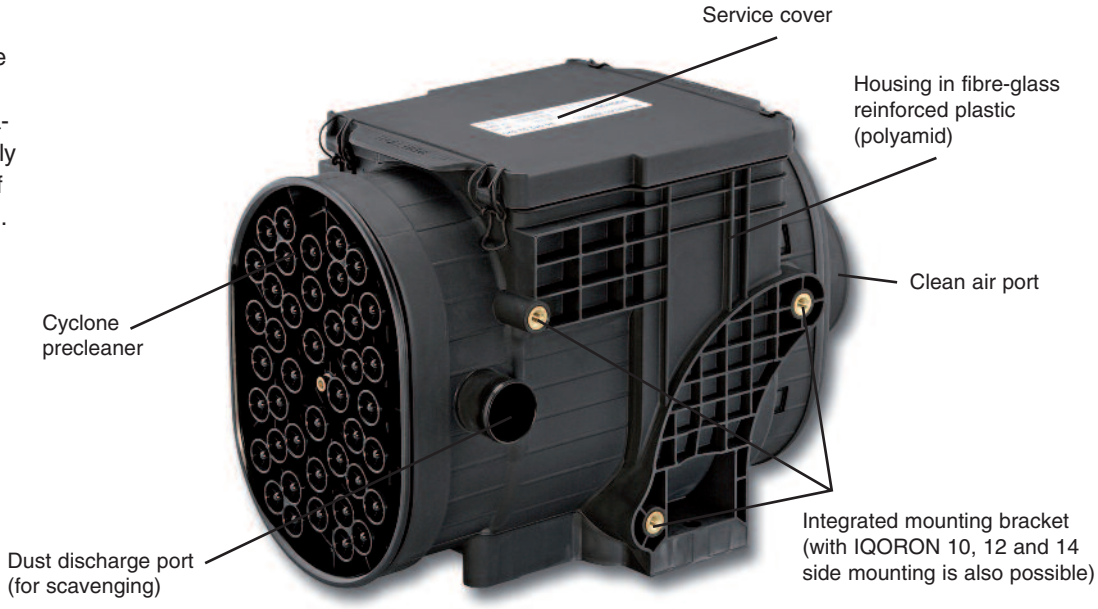


Basic principle of the new IQORON

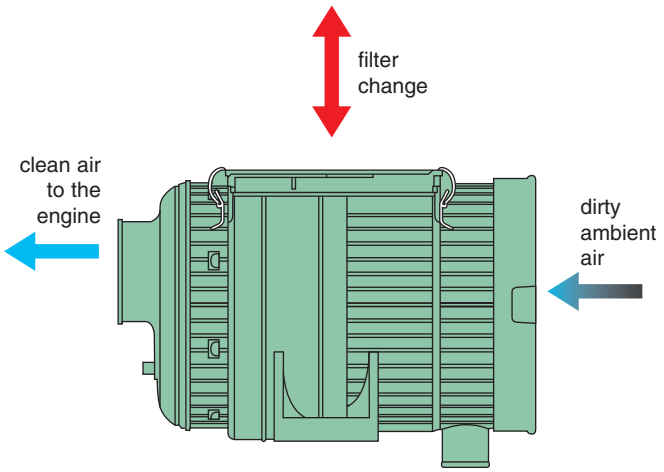
1) Cyclone block
2) Service cover
3) Housing
4) Clean air port
5) CompacPleat double bellows element
6) Secondary element
7) Dust discharge port

IQORON: An intelligent solution

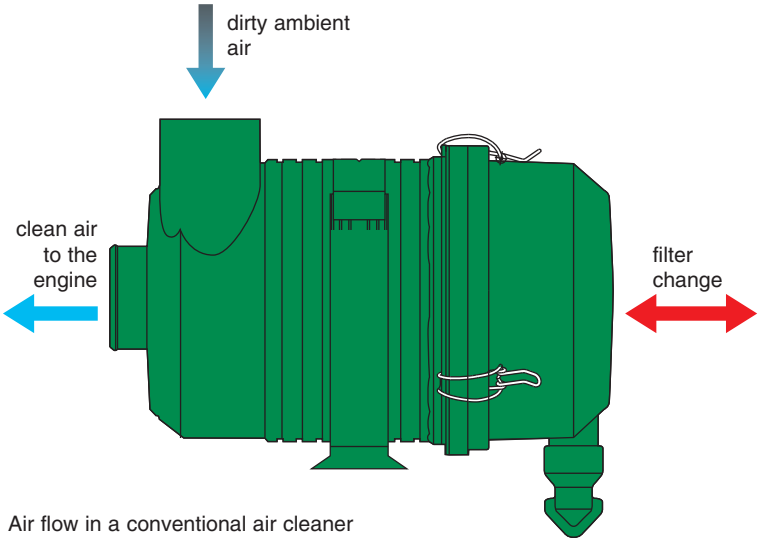
The IQORON is a two-stage air cleaner with a highly efficient cyclone block. The cleaner is scavenged continuously to fully exploit its efficiency of more than 95% (see page 7).



The inline concept of the IQORON

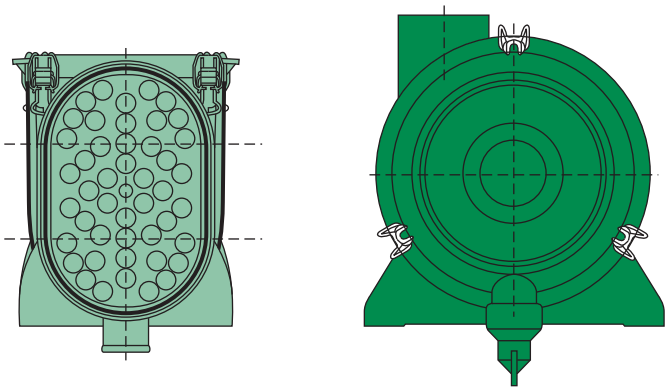


Air flow in the new IQORON air cleaner



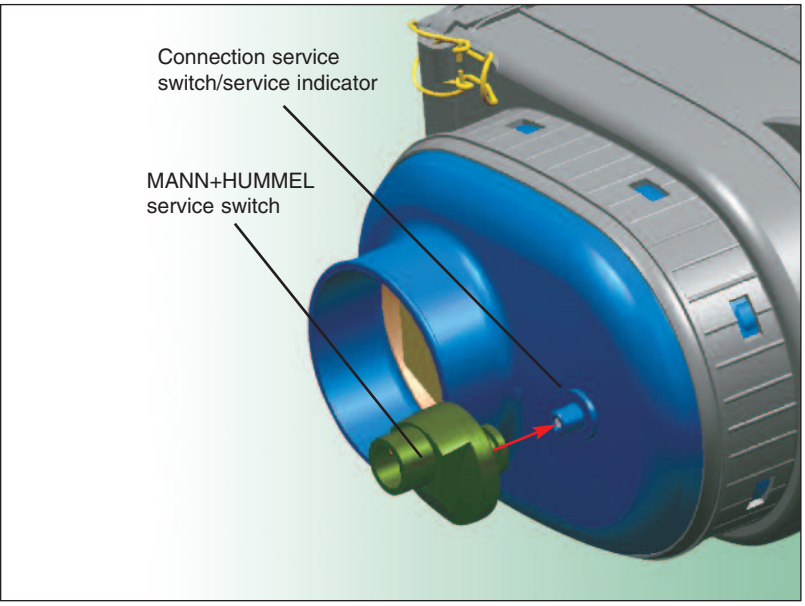
Air flow in a conventional air cleaner

A filter for tight installation conditions



A size comparison with a conventional filter and same service life shows: IQORON saves valuable installation space!

Details



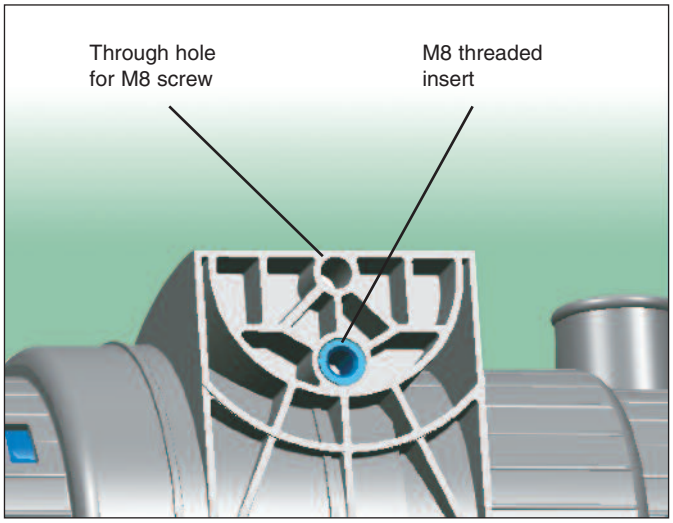
Connection service switch/ service indicator

The IQORON filter housing has an integrated M10x1 threaded connection for a service switch or indicator. Further parts are not required. We recommend the use of a MANN+HUMMEL service switch or indicator to monitor the dirt level.

If a service switch is not used, the connection is sealed to be dust-tight using the supplied protection cover.

Fixing

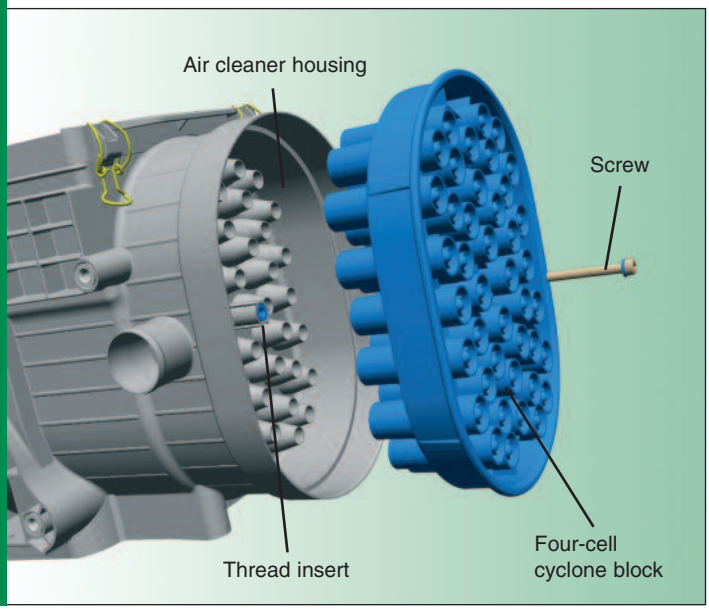
Fixing to the bracket can be made using the through-hole or also using an M8 threaded insert. This removes the need for washers and nuts and considerably shortens the time required for the first-fit of the filter to the vehicle.



Secondary element

The IQORON is equipped with a separate secondary element so that the cleaner can also perfectly protect the engine while servicing the main element.
This secondary element is perfectly positioned for the flow behind the filter element and has its own radial seal for the housing. This prevents the ingress of dirt in the intake system even when the main element is removed or damaged through inappropriate handling.
The IQORON secondary element is also metal-free and therefore eco-friendly and fully incinerable.

Installation and maintenance



Servicing the pre-separator

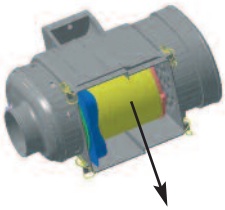
If particularly unfavourable application conditions occur (e.g. simultaneous ingress of large amounts of dust particles and water) and the pre-separator does block, then it can be easily and quickly serviced:

After unscrewing the central holding screw the cyclone block is removed from the housing and cleaned either with compressed air or by washing out.

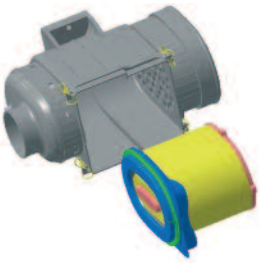
Changing the filter elements

IQORON 7

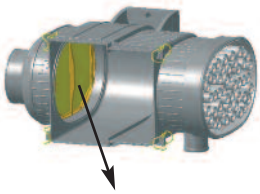
Step 1
Remove the cover.



Step 2
Now remove the main element.

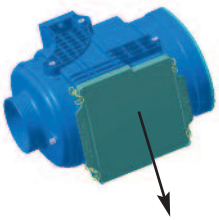


Step 3
Dispose the used element.

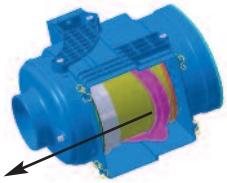


Step 4
Now there is access to the secondary element, which must also be changed regularly.

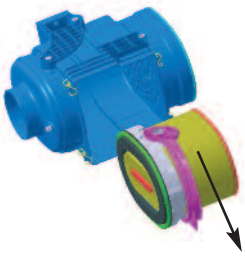
IQORON 10,12 and 14



Step 1
Remove the cover.

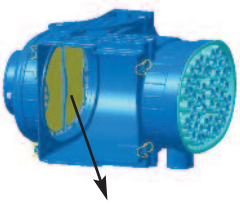


Step 2
Undo the lever by pulling towards the clean air side (see arrow).



Step 3
Now remove the main element together with the frame.

Step 4
Dispose the used element and re-use the frame.

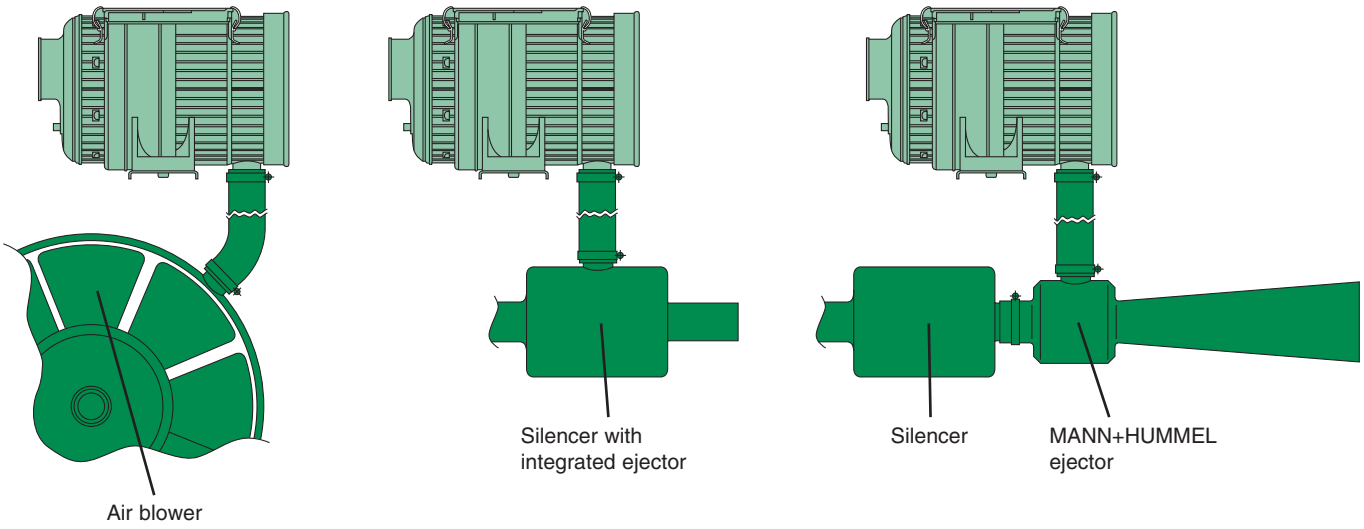


Step 5
Now there is access to the secondary element, which must also be changed regularly.

Continuous scavenging

The following pictures show the different possibilities of how to realise dust removal through scavenging.

To guarantee reliable, problem-free running of the IQORON it is necessary to continuously scavenge the pre-separator of the air cleaner. This removes the pre cleaned dust from the pre-separator and avoids deposits building up which otherwise lead to a considerable reduction in efficiency and service life. The condition for reliable dust scavenging is a negative pressure of at least 8 mbar via the preseparator with a nominal volume flow of the filter. To determine the required total negative pressure, it is necessary to include the pipe resistance values of the raw air pipe and scavenging pipe. If there is any uncertainty we recommend measurement of the actual negative pressure present.



Scavenging using a blower

The engine cooling fan can be used for the scavenging provided the negative pressure generated is at least 8 mbar. This is usually the case with modern engine fans which at the present time generate a negative pressure of up to 20 mbar. Alternatively, the use of a special suction fan is possible, for example mechanically driven with a V-belt or electrically driven.

Scavenging with an integrated ejector

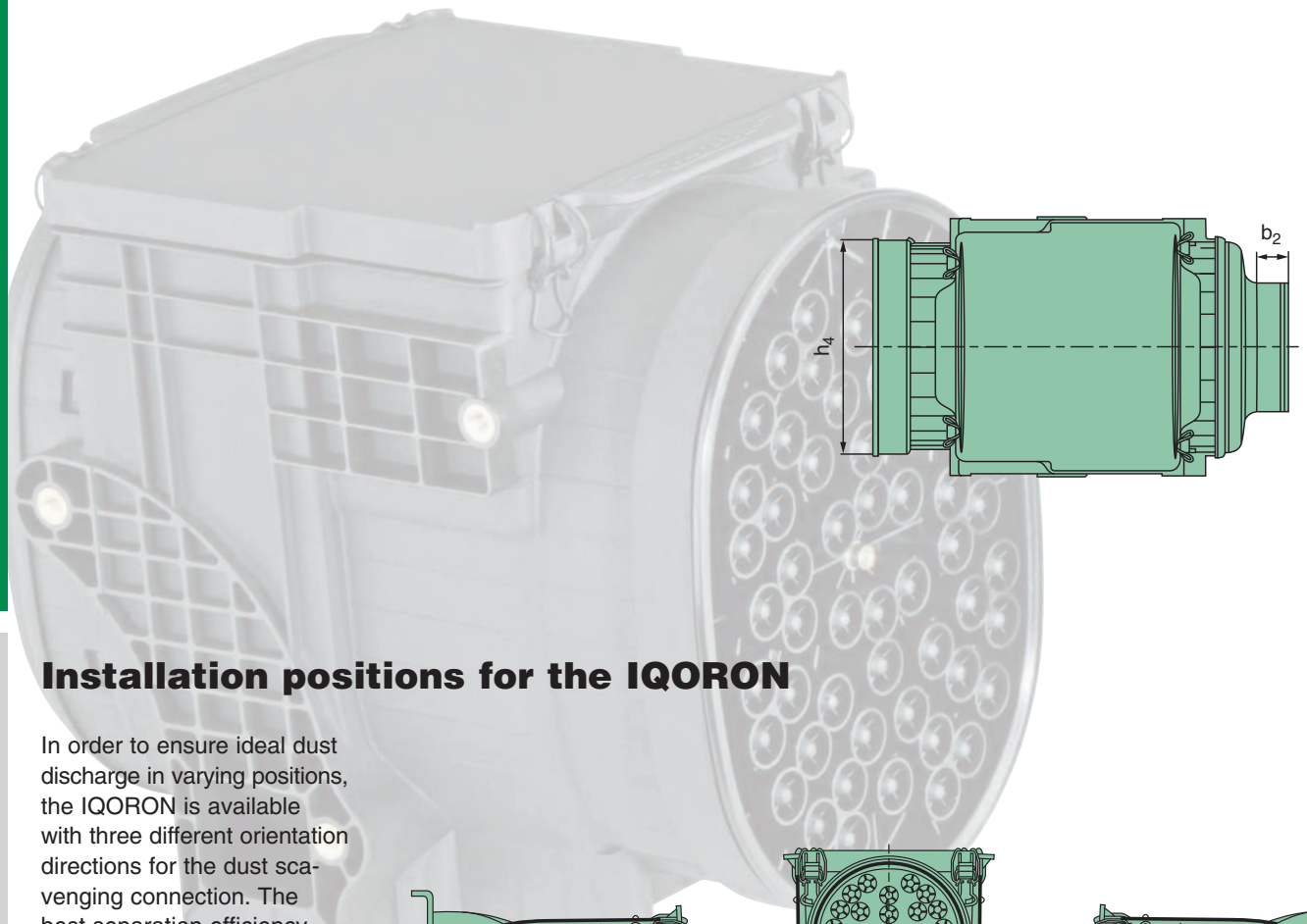
A frequently used space saving alternative is to use an exhaust ejector in the silencer of the exhaust pipe to eject the pre cleaned dust back into the environment together with the engine exhaust fumes.

Scavenging with MANN+HUMMEL ejector fitted downstream

The scavenging can be easily realised using the proven MANN+HUMMEL ejectors which are installed downstream of the silencer. The integrated venturi tube generates the required negative pressure. A pipe connects the IQORON to the ejector and the separated dust is blown out of the exhaust pipe. When using exhaust ejectors care should be taken that the permissible exhaust back pressure is not exceeded.

IQORON

Dimensions and part numbers



Installation positions for the IQORON

In order to ensure ideal dust discharge in varying positions, the IQORON is available with three different orientation directions for the dust scavenging connection. The best separation efficiency is achieved when the dust discharge port is pointed downwards. If the direction deviation of the dust discharge port to the vertical is more than 45°, the next port position should be used.

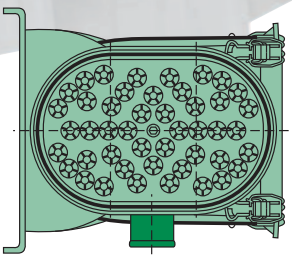


Fig. 1

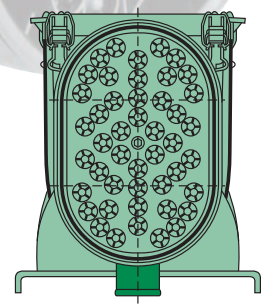


Fig. 2

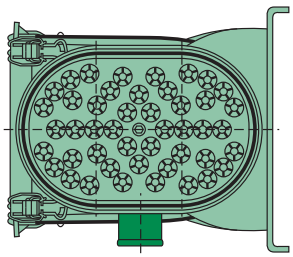
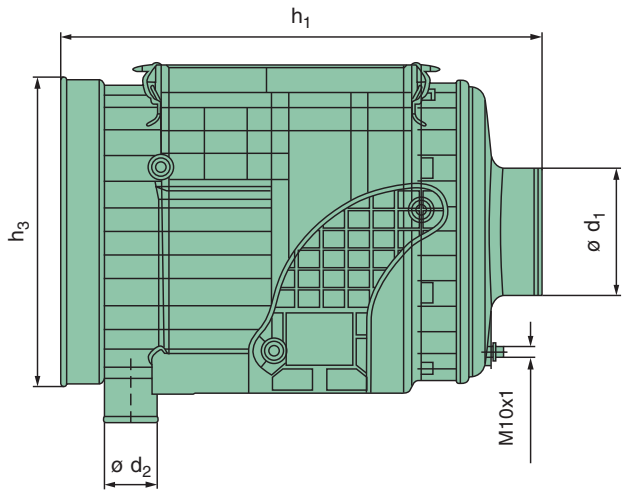


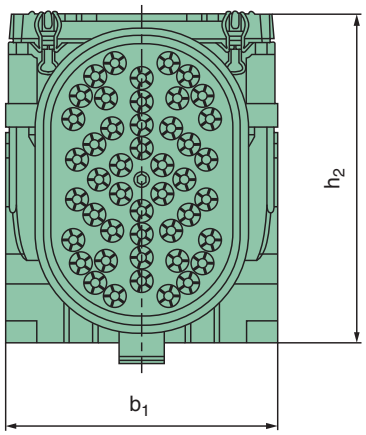
Fig. 3

Size	Nominal flow rate [m³/min]	Fig.	Part no. without secondary element	Part no. with secondary element	Replacement filter element MANN-FILTER main element	Replacement filter element MANN-FILTER secondary element	Weight [kg]
IQORON 7	4.5 - 7	1	**45 215 95 913**	**45 215 95 910**	**C 23 220**	**CF 2125**	3.5
		2	**45 215 95 914**	**45 215 95 911**			
		3	**45 215 95 915**	**45 215 95 912**			
IQORON 10	7 - 10	1	**45 395 95 913**	**45 395 95 910**	**C 27 380**	**CF 2530**	5.0
		2	**45 395 95 914**	**45 395 95 911**			
		3	**45 395 95 915**	**45 395 95 912**			
IQORON 12	9 - 12	1	**45 395 95 993**	**45 395 95 990**	**C 27 380**	**CF 2530/1**	5.3
		2	**45 395 95 994**	**45 395 95 991**			
		3	**45 395 95 995**	**45 395 95 992**			
IQORON 14	10 - 14	1	**45 505 95 913**	**45 505 95 910**	**C 30 500**	**CF 2851**	6.5
		2	**45 505 95 914**	**45 505 95 911**			
		3	**45 505 95 915**	**45 505 95 912**			

IQORON

Dimensions and part numbers





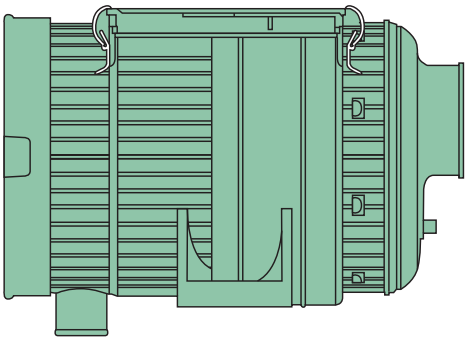


Fig. A

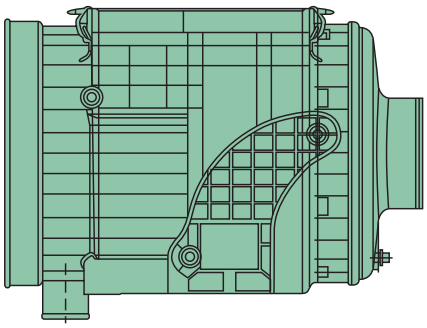


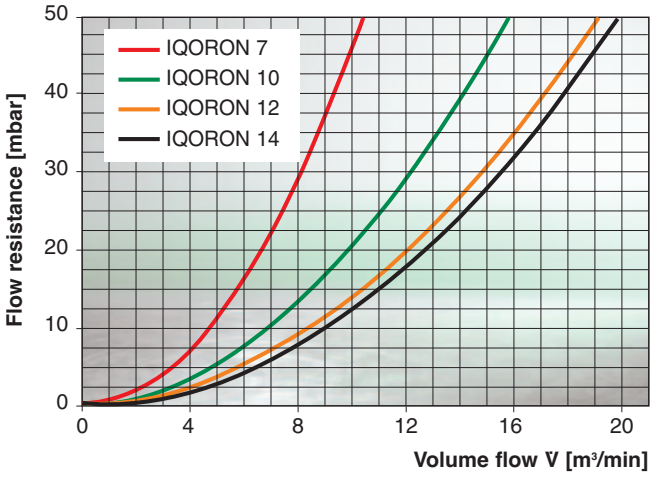
Fig. B

Size	Fig.	Dimensions in mm *[Dimensions in inches]*							
		d_1	d_2	h_1	h_2	h_3	h_4	b_1	b_2
IQORON 7	A	89 *(3.50)*	40 *(1.57)*	368 *(14.49)*	240 *(9.45)*	226 *(8.90)*	153 *(6.02)*	188 *(7.40)*	30 *(1.18)*
IQORON 10	B	110 *(4.33)*	40 *(1.57)*	420 *(16.54)*	287 *(11.30)*	266 *(10.47)*	189 *(7.44)*	236 *(9.29)*	30 *(1.18)*
IQORON 12	B	110 *(4.33)*	40 *(1.57)*	425 *(16.73)*	287 *(11.30)*	293 *(11.54)*	216 *(8.50)*	236 *(9.29)*	30 *(1.18)*
IQORON 14	B	130 *(5.12)*	54 *(2.13)*	420 *(16.54)*	316 *(12.44)*	293 *(11.54)*	216 *(8.50)*	260 *(10.24)*	30 *(1.18)*

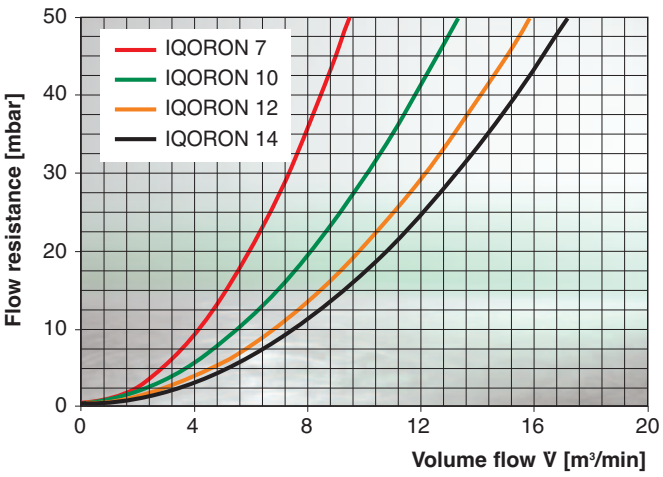
IQORON

Flow characteristics ...

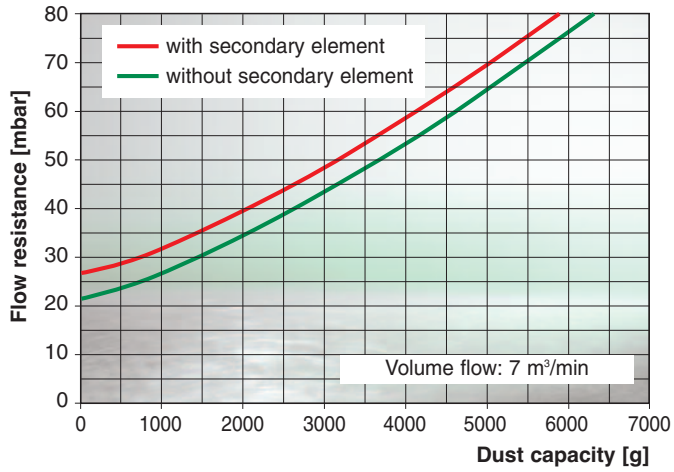
... for flow rates as per ISO 5011
without secondary element



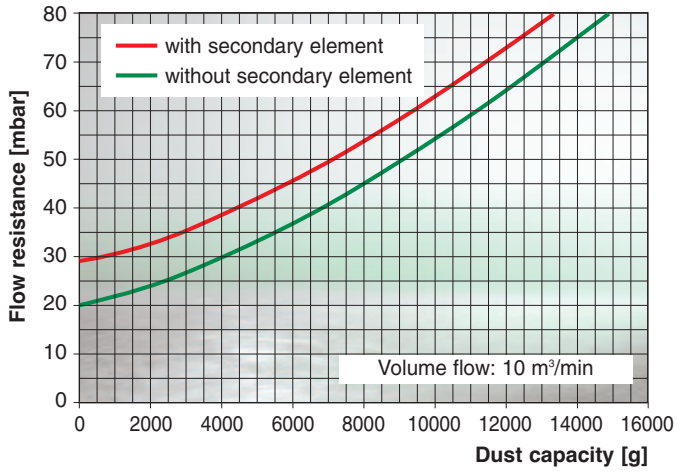
... for flow rates as per ISO 5011
with secondary element



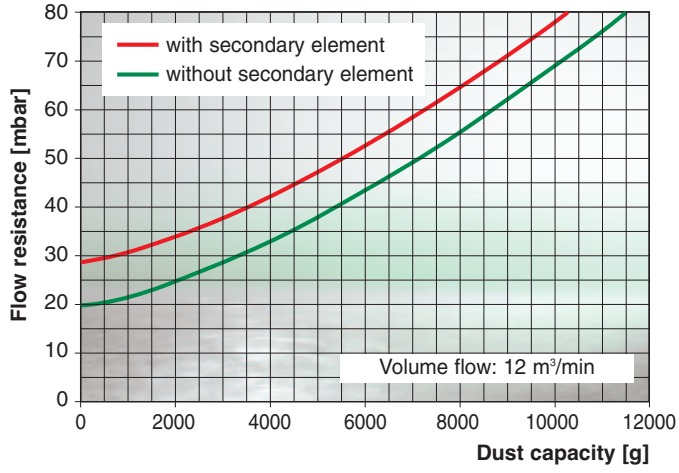
... for dust capacity as per ISO 5011
IQORON 7



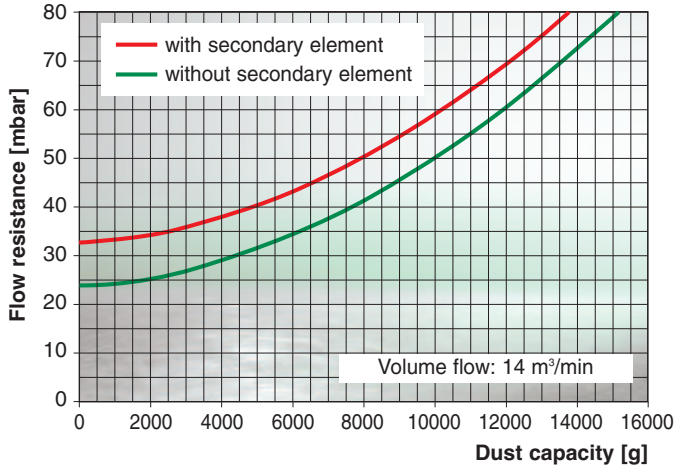
... for dust capacity as per ISO 5011
IQORON 10



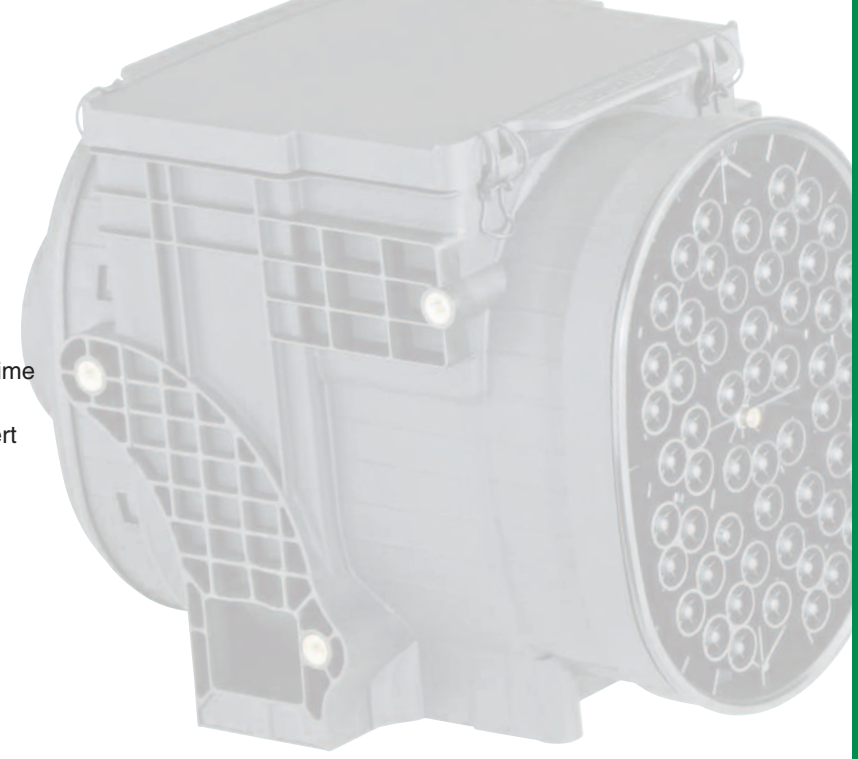
... for dust capacity as per ISO 5011
IQORON 12



... for dust capacity as per ISO 5011
IQORON 14



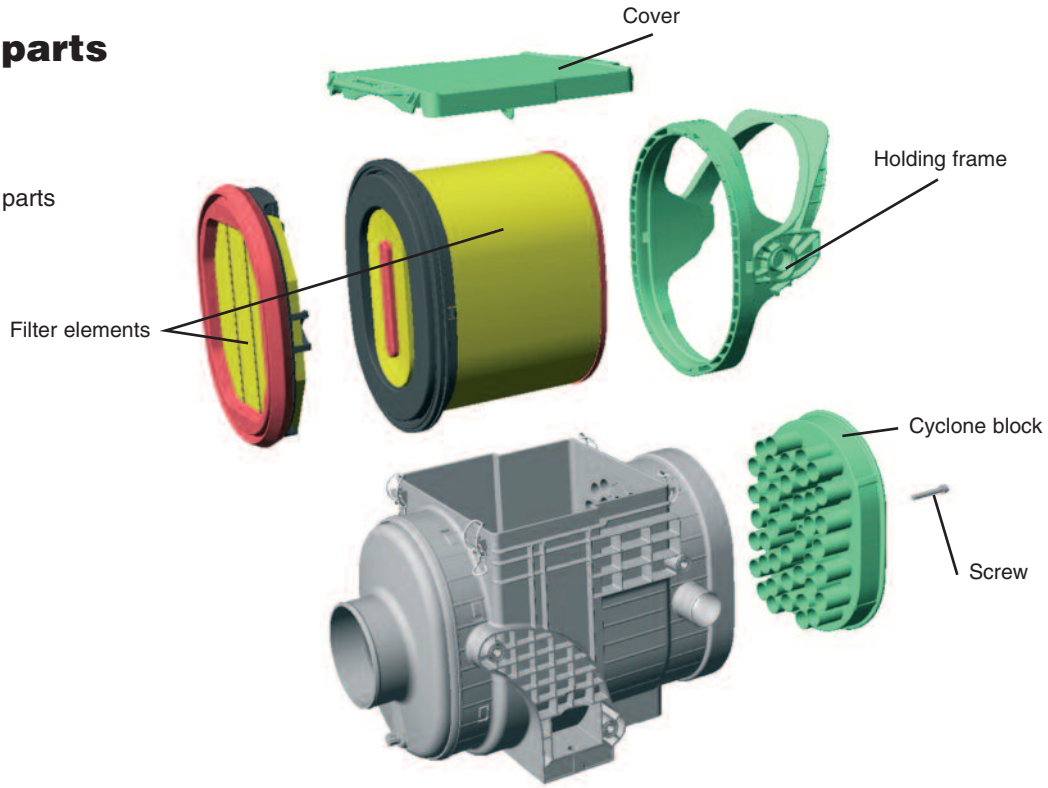
Further specifications



Operating temperatures for continuous operation	-30 °C to +100 °C +120 °C for a short time
Tightening torque for mounting screws	15 Nm threaded insert 23 Nm through-hole
Tightening torque for hose clamp (on the clean side)	max. 5 Nm
Housing material	PA6 GF 30

Replacement parts

Here are the replacement parts for the IQORON.



Size	Part no.				Replacement filter element	
	Cover	Cyclone block	Holding frame complete	Screw	MANN-FILTER main element	MANN-FILTER secondary element
IQORON 7	**45 215 17 999**	**45 210 12 109**	**N/A**	**01 105 06 050**	**C 23 220**	**CF 2125**
IQORON 10	**45 395 17 999**	**45 420 12 109**	**45 395 12 999**	**01 105 06 050**	**C 27 380**	**CF 2530**
IQORON 12	**45 395 17 999**	**45 550 12 109**	**45 395 12 999**	**01 105 06 050**	**C 27 380**	**CF 2550/1**
IQORON 14	**45 505 17 999**	**45 550 12 109**	**45 505 12 999**	**01 105 06 050**	**C 30 500**	**CF 2851**

IQORON-V/S

The IQORON-V is a two-stage filter. „V“ stands for dust discharge via a valve.

The IQORON-S is a single-stage filter. „S“ stands for „single stage“. It is suitable for applications which require a low pressure drop in the filter system – e.g. in compressors.

The clever design means it is possible to convert an IQORON-S into an IQORON-V at any time. This is achieved just by replacing the raw air grid of the single-stage filter with the cyclone precleaner. All the mounting points and clean air hoses remain intact. The reverse changeover works in exactly the same way. And of course the IQORON-V and IQORON-S are both equipped with CompacPleat elements from MANN+HUMMEL.

This allows a compact design with low pressure drop and a high simultaneous dust holding capacity.

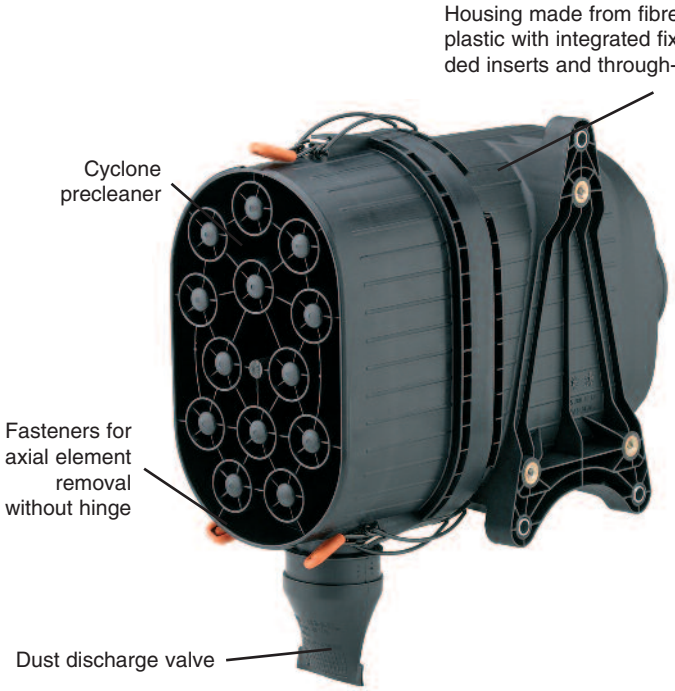
The new IQORON-V/S filters are suitable for all applications where high filter performance is required in a small installation space, for example with construction machines such as compact loaders and backhoe loaders, for tractors, forklifts, mobile and stationary compressors and for numerous other applications.

Advantages at a glance:

- oval design allows use in extremely tight installation spaces
- inline air flow enables space-saving fitting concepts
- high filtration performance
- easy element change without obstructive hinge mechanics
- version as two-stage filter with long service life or as single-stage filter with low initial pressure drop

IQORON-V

Two-stage filter



The IQORON-V is the ideal filter for all machines which require high reliability under heavy dust conditions. These are, for example, construction and agricultural machines and mobile compressors. Other applications also include machines and vehicles in horticulture and landscaping, as well as forklifts.

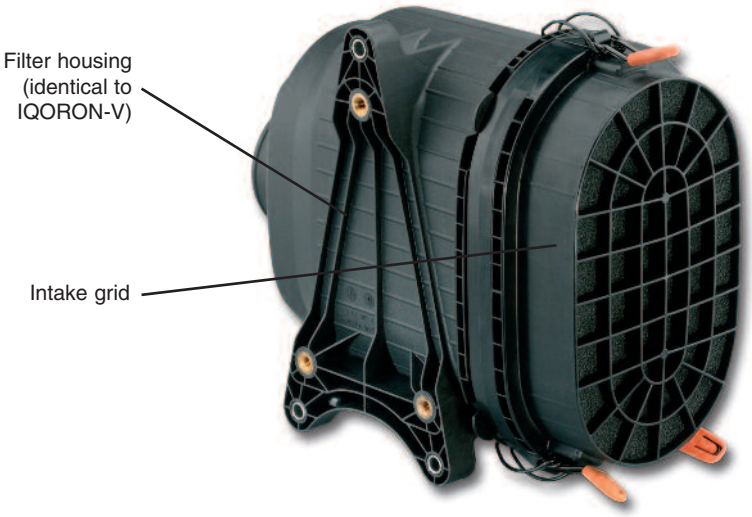
The cyclone pre-separator offers excellent pre-separation. The IQORON-V achieves a pre-separation efficiency of 95% with scavenging and 90% without scavenging (with SAE coarse).
Two different positions for the dust discharge port enable the filter to be fitted in a vertical or horizontal position.

The precleaner can easily be cleaned should it become clogged during operation.

IQORON-S

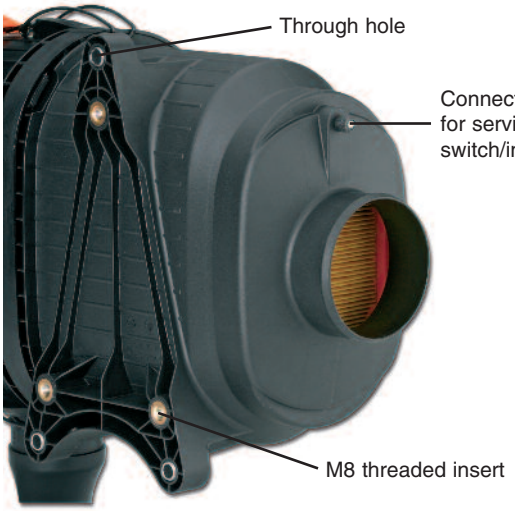
Single-stage filter

The IQORON-S is suitable for use with all applications where very low pressure drop is a requirement. This is naturally especially true for compressors, but also includes stationary engines used for energy generation and machines which operate in low dust conditions. This is where the IQORON-S shows its strength – with a very low pressure drop.



The IQORON-S can be converted to an IQORON-V at any time if the dust conditions make this necessary: simply remove the raw air grid and replace it with the precleaner.

Filter housing



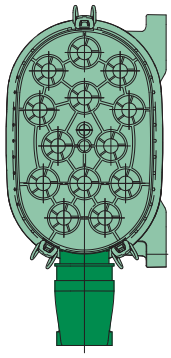
The housing is made from especially robust, fibre-glass reinforced plastic. This choice of material offers advantages with regard to the possible mechanical stress load and operating temperatures. As a result the IQORON-V/S can be used continuously with temperatures up to +90 °C and for a short time with temperature peaks up to +110 °C.

The service switch or indicator can be mounted directly to the housing. In addition, the mounting possibilities are available in the standard version. The customer can choose between M8 threaded inserts or through-holes for M8 screw.

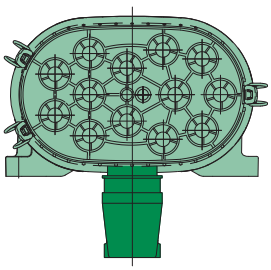
IQORON-V installation positions

The IQORON-V is available in two versions: for a horizontal or vertical fitting position. During installation make sure that the angle deviation of the dust valve to the vertical is not more than 15°.

If the filter is operated with scavenging, a deviation of max. 45° to the vertical is permissible.



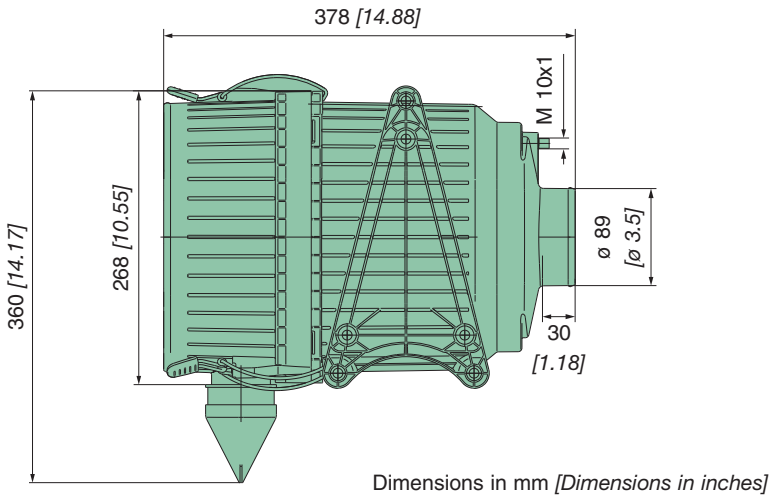
Vertical fitting



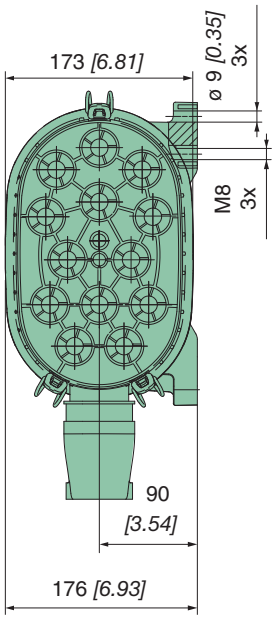
Horizontal fitting

IQORON-V

Dimensions and part numbers



Dimensions in mm *[Dimensions in inches]*



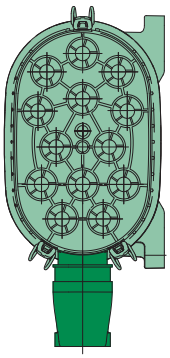


Fig. 1
Vertical fitting

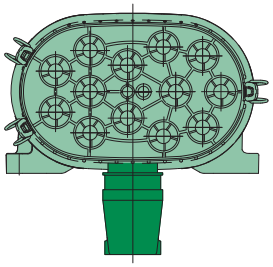
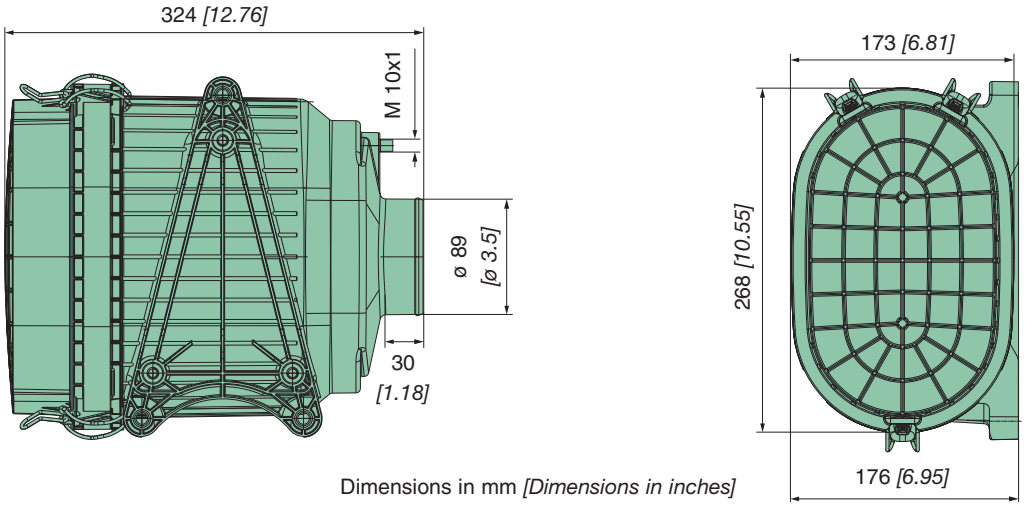


Fig. 2
Horizontal fitting

Size	Nominal flow rate [m³/min]	Fig.	Part no. without secondary element	Part no. with secondary element	Replacement filter element MANN-FILTER main element	Replacement filter element MANN-FILTER secondary element	Weight [kg]
IQORON-V 7	4.5 - 7	1 2	**45 270 95 912** **45 270 95 913**	**45 270 95 910** **45 270 95 911**	**C 26 270**	**CF 2125/1**	3.1

IQORON-S

Dimensions and part numbers



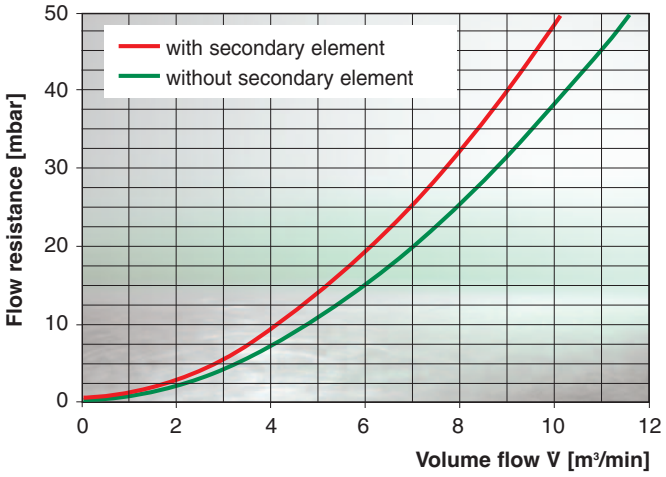
Dimensions in mm *[Dimensions in inches]*

Size	Nominal flow rate [m³/min]	Part no. without secondary element	Part no. with secondary element	Replacement filter element MANN-FILTER main element	Replacement filter element MANN-FILTER secondary element	Weight [kg]
IQORON-S 7	4 - 10	**45 270 75 912**	**45 270 75 910**	**C 26 270**	**CF 2125/1**	2.7

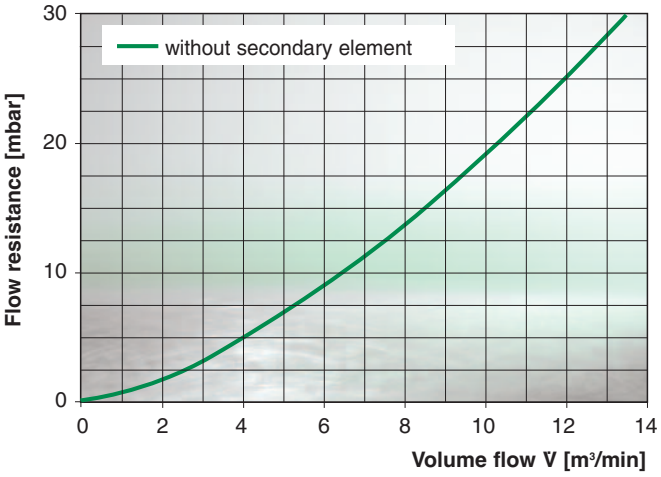
IQORON-V+S

Flow characteristics ...

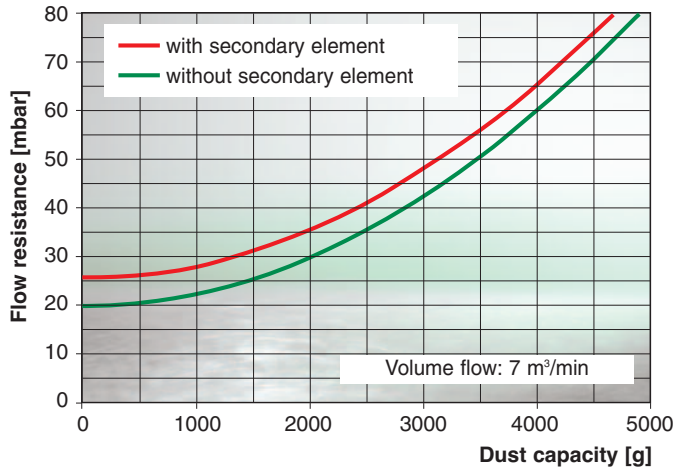
... for flow rates as per ISO 5011
IQORON-V 7 pressure drop



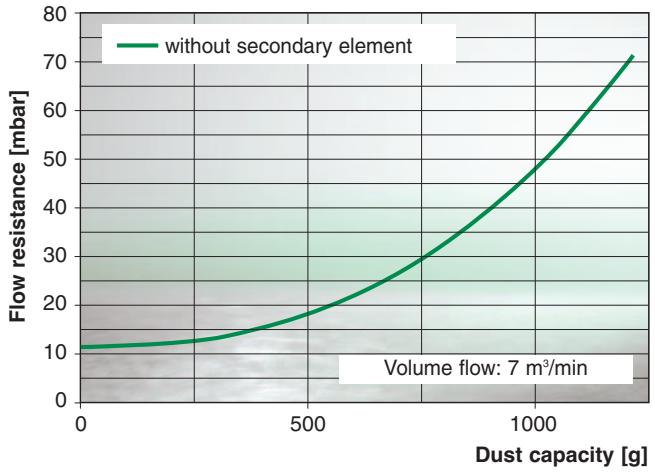
... for flow rates as per ISO 5011
IQORON-S 7 pressure drop

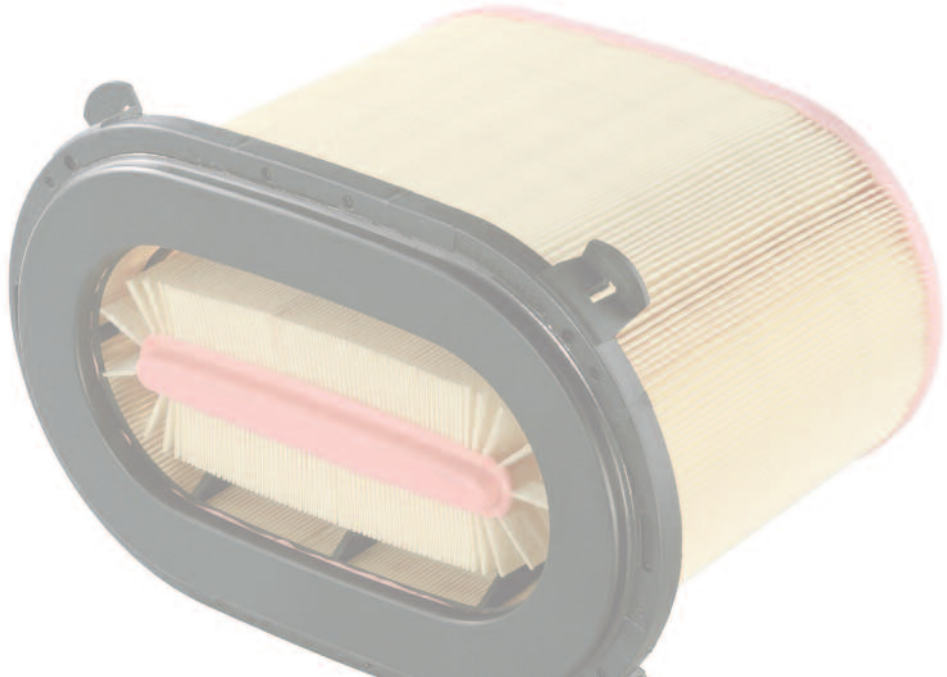


... for dust capacity as per ISO 5011
IQORON-V 7 dust capacity

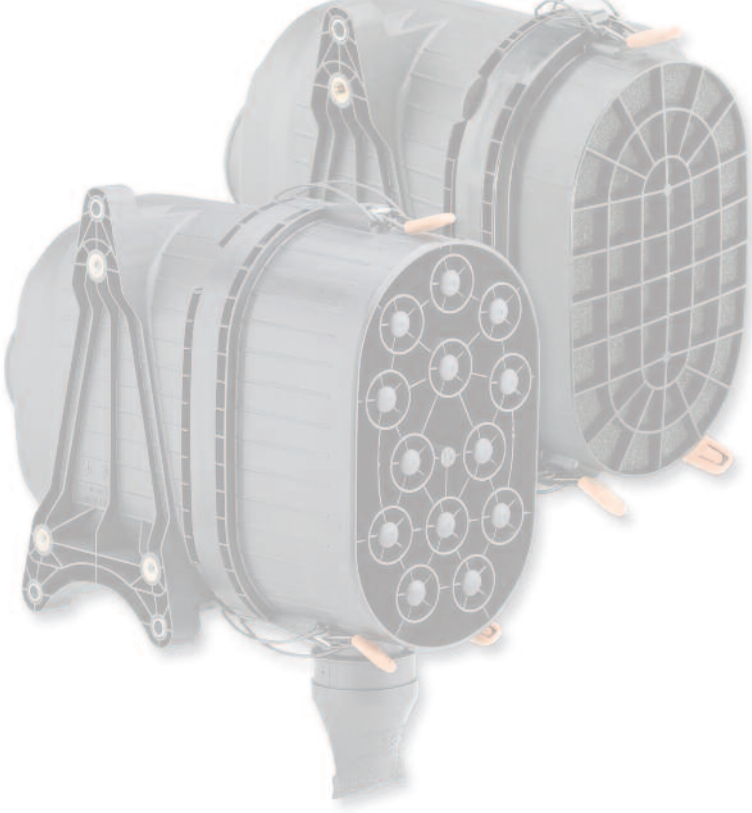


... for dust capacity as per ISO 5011
IQORON-S 7 dust capacity





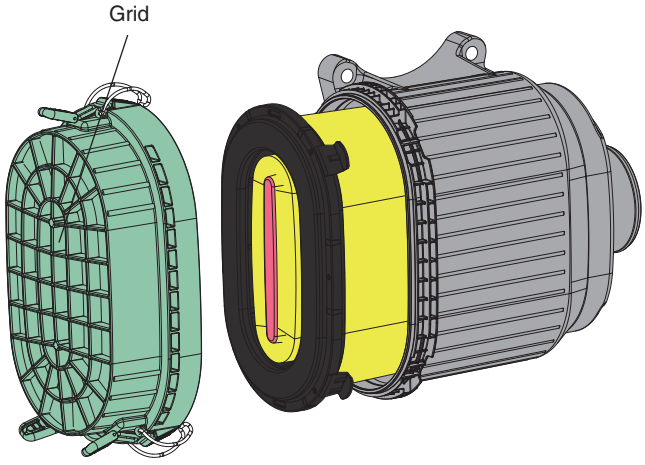
Further specifications

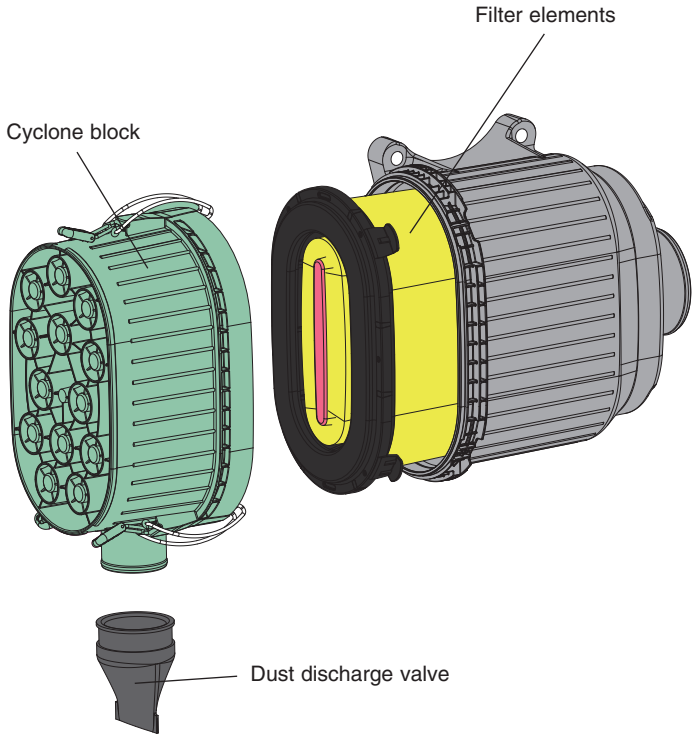


Operating temperatures for continuous operation	-30 °C to +90 °C
	+110 °C for a short time
Tightening torque for mounting screws	15 Nm threaded insert 23 Nm through-hole
Tightening torque for hose clamp (on the clean side)	max. 5 Nm
Housing material	PA6 GF 30

Replacement parts

Here are the replacement parts for the IQORON-V and the IQORON-S.





Size	Fig. (see page 14)	Replacement parts IQORON-V		Replacement parts IQORON-S		Replacement filter element	
		Cyclone block	Dust discharge valve	Grid Assy. (w/o foam)	Foam	MANN-FILTER main element	MANN-FILTER secondary element
IQORON-V 7	**1**	**45 270 47 971**	**39 000 40 731**	**N/A**	**N/A**	**C 26 270**	**CF 2125/1**
	2	**45 270 47 961**					
IQORON-S 7		**N/A**	**N/A**	**45 270 12 971**	**45 280 04 009**		

Conversion table

Pressure

5 mbar	=	0.5 kPa	=	2 " H_2O
10 mbar	=	1.0 kPa	=	4 " H_2O
15 mbar	=	1.5 kPa	=	6 " H_2O
20 mbar	=	2.0 kPa	=	8 " H_2O
25 mbar	=	2.5 kPa	=	10 " H_2O
30 mbar	=	3.0 kPa	=	12 " H_2O
35 mbar	=	3.5 kPa	=	14 " H_2O
40 mbar	=	4.0 kPa	=	16 " H_2O
45 mbar	=	4.5 kPa	=	18 " H_2O
50 mbar	=	5.0 kPa	=	20 " H_2O
55 mbar	=	5.5 kPa	=	22 " H_2O
60 mbar	=	6.0 kPa	=	24 " H_2O
62.5 mbar	=	6.3 kPa	=	25 " H_2O
65 mbar	=	6.5 kPa	=	26 " H_2O
70 mbar	=	7.0 kPa	=	28 " H_2O
75 mbar	=	7.5 kPa	=	30 " H_2O
80 mbar	=	8.0 kPa	=	32 " H_2O

Weight

10 g	=			0.35 ounces		
25 g	=			0.88 ounces		
50 g	=			1.75 ounces		
100 g	=			3.5 ounces		
250 g	=			8.8 ounces		
500 g	=			17.6 ounces		
1000 g	=	1 kg	=	35.3 ounces	=	2.2 lb
2000 g	=	2 kg	=	70.5 ounces	=	4.4 lb
3000 g	=	3 kg	=	105.8 ounces	=	6.6 lb
4000 g	=	4 kg	=	141.1 ounces	=	8.8 lb
5000 g	=	5 kg	=	176.4 ounces	=	11.03 lb
10000 g	=	10 kg	=			22.05 lb
20000 g	=	20 kg	=			44.1 lb
50000 g	=	50 kg	=			110.23 lb

Volume flow m³/min → cfm

1 m³/min	=	35.3 cfm
1.7 m³/min	=	60.0 cfm
2 m³/min	=	70.6 cfm
3 m³/min	=	105.9 cfm
4 m³/min	=	141.3 cfm
4.5 m³/min	=	158.9 cfm
6 m³/min	=	211.9 cfm
8 m³/min	=	282.5 cfm
10 m³/min	=	353.1 cfm
12 m³/min	=	423.8 cfm
15 m³/min	=	529.7 cfm
18 m³/min	=	635.7 cfm
20 m³/min	=	706.3 cfm
21 m³/min	=	741.6 cfm
24 m³/min	=	847.6 cfm
25 m³/min	=	882.9 cfm
28 m³/min	=	988.8 cfm
32 m³/min	=	1130.1 cfm
37 m³/min	=	1306.6 cfm
40 m³/min	=	1412.6 cfm
42 m³/min	=	1483.2 cfm
50 m³/min	=	1765.7 cfm
60 m³/min	=	2118.9 cfm
80 m³/min	=	2825.2 cfm
100 m³/min	=	3531.5 cfm

Volume flow cfm → m³/min

25 cfm	=	0.7 m³/min
50 cfm	=	1.4 m³/min
75 cfm	=	2.1 m³/min
100 cfm	=	2.8 m³/min
150 cfm	=	4.2 m³/min
200 cfm	=	5.7 m³/min
250 cfm	=	7.1 m³/min
300 cfm	=	8.5 m³/min
350 cfm	=	9.9 m³/min
400 cfm	=	11.3 m³/min
450 cfm	=	12.7 m³/min
500 cfm	=	14.2 m³/min
550 cfm	=	15.6 m³/min
600 cfm	=	17.0 m³/min
650 cfm	=	18.4 m³/min
700 cfm	=	19.8 m³/min
750 cfm	=	21.2 m³/min
800 cfm	=	22.7 m³/min
850 cfm	=	24.1 m³/min
900 cfm	=	25.5 m³/min
950 cfm	=	26.9 m³/min
1000 cfm	=	28.3 m³/min
1500 cfm	=	42.5 m³/min
2000 cfm	=	56.6 m³/min
3000 cfm	=	85.0 m³/min

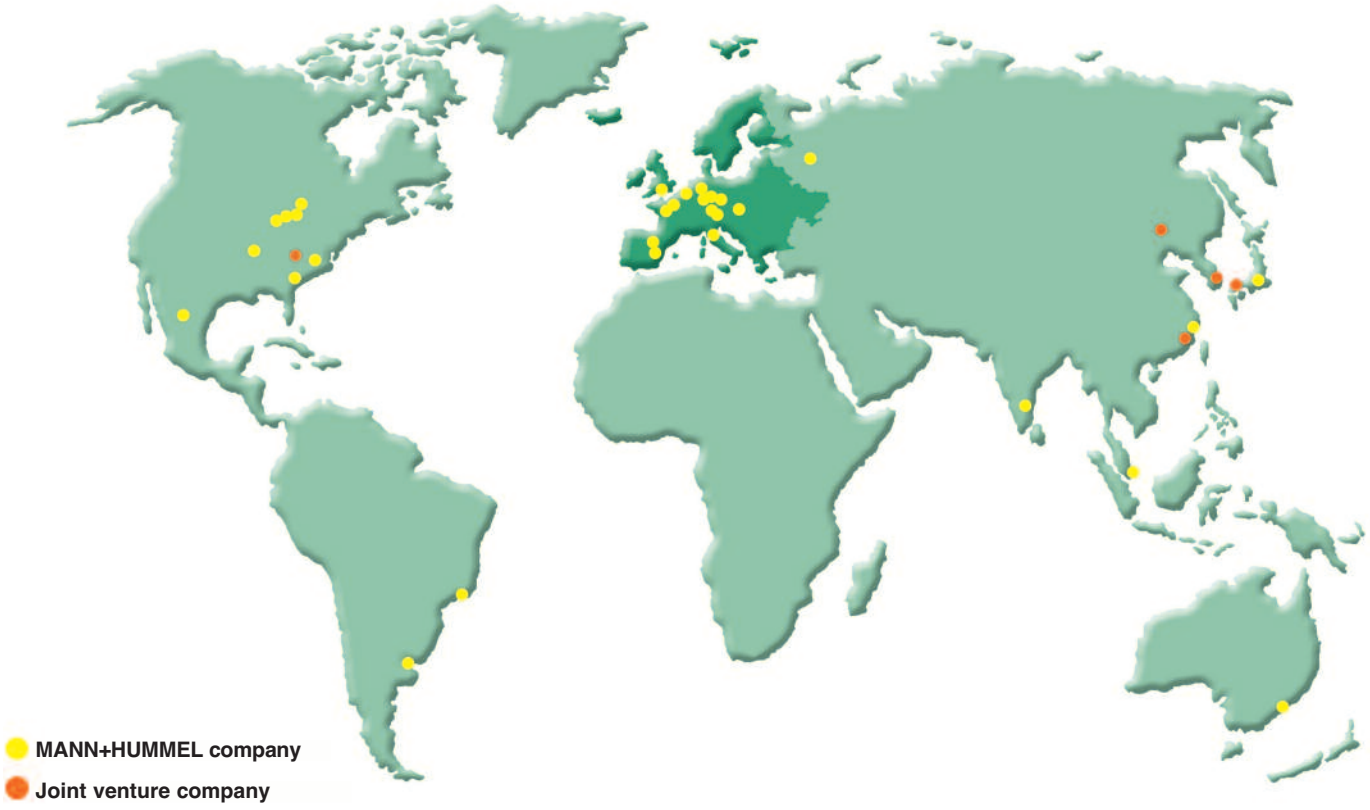
Temperature

-30 °C	=	-22.0 °F
-10 °C	=	14.0 °F
0 °C	=	32.0 °F
10 °C	=	50.0 °F
30 °C	=	86.0 °F
50 °C	=	122.0 °F
80 °C	=	176.0 °F
100 °C	=	212.0 °F
120 °C	=	248.0 °F

Output

10 kW	=	13.4 HP
20 kW	=	26.8 HP
50 kW	=	67.1 HP
100 kW	=	134.1 HP
150 kW	=	201.2 HP
200 kW	=	268.2 HP
250 kW	=	335.3 HP
500 kW	=	670.5 HP
1000 kW	=	1341.0 HP

Notes



MANN+HUMMEL Group

The MANN+HUMMEL Group is an international company with its headquarters in Ludwigsburg, Germany. The group employs approx. 11,500 people worldwide at more than 41 locations.

The company develops, produces and sells technically complex components for the automotive and other industries. A key area is high quality filtration products for vehicles, engines and industrial applications. The OEM business with global market leaders and producers of vehicles, machines and installations defines the quality and performance of the group. Filters for the international aftermarket are sold under numerous international brands as well as under the MANN-FILTER brand.

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The Industrial Filters Business Unit with its headquarters in Speyer, Germany is specialised in meeting the requirements of off-highway vehicle and engine applications, compressed air and vacuum technology, mechanical engineering and plant construction. For these and other industrial fields MANN+HUMMEL Industrial Filters offers high performance products for the filtration and separation of air, gases and liquids.

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