

MANN+HUMMEL IQORON-V 7



Installation and Maintenance Manual



Contact information

This installation and maintenance manual is a component part of the scope of delivery. It must be kept in a safe place and remain with the equipment in the event of resale.

We reserve the right to make technical improvements to the products described in this installation and maintenance manual without notification.

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1 Foreword

This installation and maintenance manual serves to help you become familiar with the IQORON-V and its intended use.

This installation and maintenance manual contains important information on operating the components safely, properly and economically. Observation of the manual helps avoid potential risks, reduce repair costs and downtimes as well as improve machine reliability and increase its service life.

The manual must be available to every person charged with working on the filter.

Where necessary, this manual must be supplemented by instructions containing existing national laws on accident prevention and environmental protection (particularly in respect of disposing of disassembled parts).

We reserve the right to make technical modifications to the filter and/or alter the content of this installation and maintenance manual without notification.

Information for the operator:

The operator is responsible for the provision of working equipment complying with basic health and safety requirements in accordance with the Ordinance on Industrial Safety and Health. This also includes deploying the work equipment such that it is only used within the scope of its intended use. The operator can define individual maintenance and service plans and intervals in addition to those stipulated in the installation and maintenance manual.

2 Scope of Delivery

The delivery contains the 2-piece air filter housing with main filter element and dust discharge valve. The filter is delivered fully assembled.

The maintenance indicator and secondary filter element are optionally available and, therefore, not automatically supplied as a component part of the delivery.

Compare the part number on the delivery with that in our catalogue. Order the optional parts, if necessary.

3 Safety

3.1 Warning labels and symbols



This symbol appears in all the sections of the manual in which the information provided must be strictly observed to prevent damage or destruction of system parts.



This symbol appears in all the sections of the manual in which the information provided must be carefully observed to ensure trouble-free, economic operation.

3.2 Intended use

The IQORON-V has been constructed according to state-of-the-art technology and accepted safety-related regulations. However, the functional safety of connected equipment can be at risk when:

- the IQORON-V is used improperly,
- the operating conditions have changed,
- reconstructions have been made without prior consultation with the manufacturer,
- the necessary maintenance and repair work has been neglected.

The IQORON-V may only be used when it is in a technically safe working condition and for its intended use, taking the relevant technical design, safety and risk aspects into account and observing the information in the installation and maintenance manual! Investigate faults (or have them investigated) immediately, particularly those which could impair safety!

The IQORON-V has been exclusively designed for the mechanical filtration of air. Any other use above or beyond this, such as filtering aggressive, combustible and/or explosive materials, is considered unintended use.

The manufacturer/supplier is not considered liable for damage resulting from unintended use.

Intended use also includes observing the information in the installation and maintenance

manual and meeting all the inspection and maintenance conditions.

3.3 Operating safety

The IQORON-V may only be serviced and operated by appropriately trained, authorized personnel.

The operator is obliged to inspect the IQORON-V once a week for visible signs of damage and defects. Any changes (including those in the operating behaviour) which could affect functional safety must be reported immediately.

All labels and identifications on the IQORON-V must be kept in a legible condition.

4 Function Description

The IQORON-V is a two-stage dry air filter intended to clean the intake air of air aspirating machines of all types (e.g. engines, compressors, fans).

The air drawn in initially flows through the cyclone block (Pos. 1). The cyclone cells filter out 90% of the particulate matter. This initially separated dirt is fed back into the ambient air via the dust discharge valve. This pre-filtering process (filter stage 1) makes the IQORON-V particularly suitable for use in applications which involve high concentrations of dust.

The cleaned air then flows through the main filter element (2nd filter stage Pos. 2) and downstream secondary element (option, Pos. 6) to the clean air connection (Pos. 8). The filter elements form a seal when assembled due to their shape. This shaping has the following advantages:

- minimal assembly and disassembly forces,
- defined contact forces for the seals,
- high level of protection against penetration by dust.

In addition to the clean air connection (Pos. 5), there is also an adapter (M10x1, Pos. 4) to connect a maintenance indicator or switch. The maintenance indicator/switch indicates when the vacuum produced by the suction has exceeded a prescribed value (e.g. +50 mbar). This means that the prescribed maximum filter flow resistance has been exceeded and the filter must be serviced.

The secondary element (Pos.6) protects the engine from penetration by dust during maintenance and, to a certain extent, during operation with a main filter element damaged through improper handling.

A secondary element can be retrofitted on the IQORON-V at any time.

! Operation with only a secondary element is not permitted and can lead to engine damage!

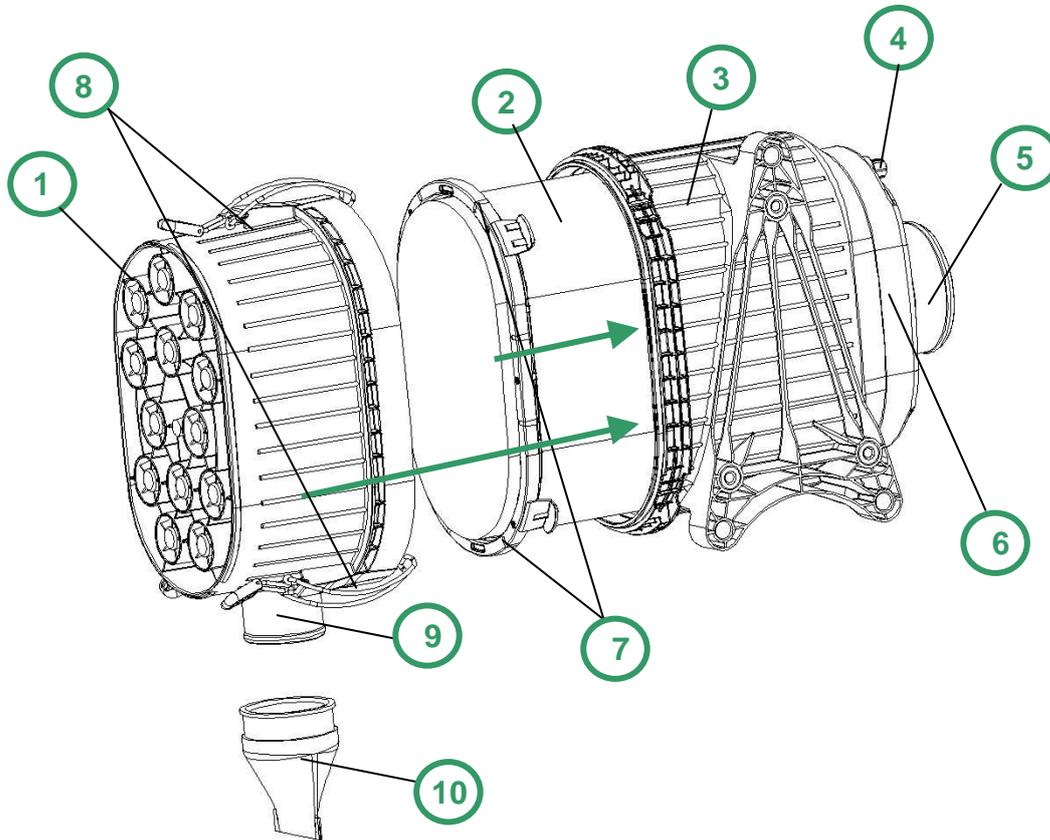


Fig. 1 IQORON-V7

Pos.	Name	Pos.	Name
1	Lid with cyclone block	6	Secondary element (in housing)
2	Main filter element	7	Notches to set up installation position accurately
3	Housing	8	Wire clamp fasteners
4	Connection for maintenance indicator/switch	9	Dust discharge connection
5	Clean air connection	10	Dust discharge valve

5 Installation

5.1 General information

Check that the scope of delivery is complete and that there are no signs of damage.

If parts of the delivery are damaged, please inform your sales partner.

In order to maintain a high degree of pre-filtering and minimal soiling of the filter element by dust, thus ensuring a long service life of the filter and low levels of maintenance, take the following into account when choosing the installation location:

- Assemble the filter in a splashproof, low-dust area (e.g. not in the spraying range of wheels).
- There must be sufficient space to disassemble the elements and for inspection and maintenance work.



The clean air connection (Pos. 5) must be horizontal or point upwards so that no dirt can drop into the clean air lines during maintenance.

- The dust discharge connection (Pos. 10) should point downwards so that the pre-filtered dirt can be discharged.



The service life of the air filter can be increased by implementing an exhaust extraction system (exhaust ejector).



In the case of versions equipped with a dust discharge valve and horizontal installation position, the dust discharge valve must point downwards; if necessary, remove the bottom housing section and turn it before reinstalling.



Fig. 2 Scope of delivery

5.2 Securing the filter

- Secure the IQORON-V on a stable base, where it will not be subject to vibration, using screws or stud bolts, washers and self-locking nuts (M8) (tightening torque 10 +/- 2 Nm). Depending on the version, threaded inserts M8 and/or fixation eyelets are provided on the filter for this purpose.
- Slide on the clean air hose and tighten in place with suitable hose clips taking care not to deform the connection.
- Remove the cover cap from the thread (Pos. 4).
- Screw the maintenance indicator or switch (option) to the connection thread (M10x1, Pos. 4).

6 Maintenance



Cleaning, maintenance and repair work may only be carried out when the assembly is switched off (engine, compressor, fans, etc.).

Never start up with the filter element disassembled!

Component	Activity	Time for maintenance
Main filter element	Change (If it cannot be changed, the main filter element can be cleaned in emergencies as described in Section 6.2.2).	In accordance with the operating manual from the respective devices or engines, or after the maintenance indicator/switch has triggered or after 2 years at the latest.
Secondary element	Change	After maintenance has been carried out 5 times on the main element or after 2 years at the latest.
Pipe and clean air lines (connection hoses)	Check for damage/leaks.	Monthly and after repair work.
Dust discharge valve	Check for signs of damage/the function, clean	According to local dust concentration (e.g. daily in the case of heavy accumulation of dust)
Cyclone block	Check for signs of damage and clean	According to conditions of use and type of contamination.
Plastic housing and holder	Check for signs of damage and cracks.	During filter maintenance.
Maintenance indicator/switch	Check the function ¹⁾	Annually

¹⁾ To achieve the maximum permissible vacuum in the air intake system, the intake opening must be reduced in size **slowly** by covering it (e.g. with a piece of carton or metal plate) while the engine is running until the maintenance indicator/switch is triggered.

The air intake opening must **not** be reduced further in size after the maintenance indicator/switch has been triggered to prevent any damage being caused.

If leak tests must be carried out using higher pressure or vacuum levels, the maintenance indicator/switch must be disassembled for the period of the test and the connection on the filter sealed.

Reset the maintenance indicator after the test by actuating the Reset button.

6.1 Maintenance plan

6.2 Maintenance of the main filter element



Maintenance of the main filter element (Pos. 2) need only be performed when the maintenance indicator/switch has been triggered or according to the device or engine manufacturer's instructions.

Regardless of the number of operating hours, the main filter element must be changed after 2 years at the latest.



Never continue to use damaged main filter elements.

In case of doubt, always install a new main filter element.

- Clean the main filter element with compressed air (maximum 5 bar) carefully, applying the compressed air from the clean side (seal side) until no more dust is blown out. The tip of the compressed air gun must not touch the main filter element.

6.2.1 Disassembling the main filter element

- Unlock the wire clamp fasteners (Pos. 8) and remove the housing cover (Pos. 1).
- Remove the main filter element (Pos. 2) and dispose of it according to local regulations.
- Clean the inside of the housing, frame and lid thoroughly with a damp cloth. In the case of filters without a secondary element, pay particular attention here that no dust or dirt gets into the clean air side of the filter.
- Check all the parts for signs of damage and wear, replace them as necessary.

6.2.2 Cleaning the main filter element

Never wash out or beat the main filter element.



When blowing clean, ensure no dust gets into the inside of the main filter element.



Since small defects are difficult to detect or cannot be detected, we recommend always installing new elements to protect engines or equipment!

We assume no liability for the suitability of cleaned elements.

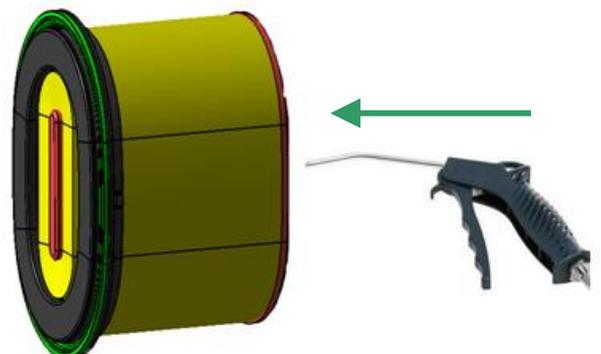


Fig. 3 Cleaning the main filter element



Prior to reinstallation, the cleaned main filter element must be checked thoroughly for signs of damage to the filter paper and seals.

6.2.3 Installing the main filter element

! Only use original MANN+HUMMEL elements!

- Insert a new main element in the filter housing. (The installation position is defined by notches (1) on the main filter element and on the filter housing (Pos. 7)).
- Replace the housing lid with cyclone block. Fit the wire clamp fasteners in the slot in the flange on the housing and lock them.
- The dust discharge connection (Pos. 9) should point downwards so that the pre-filtered dirt can be discharged.

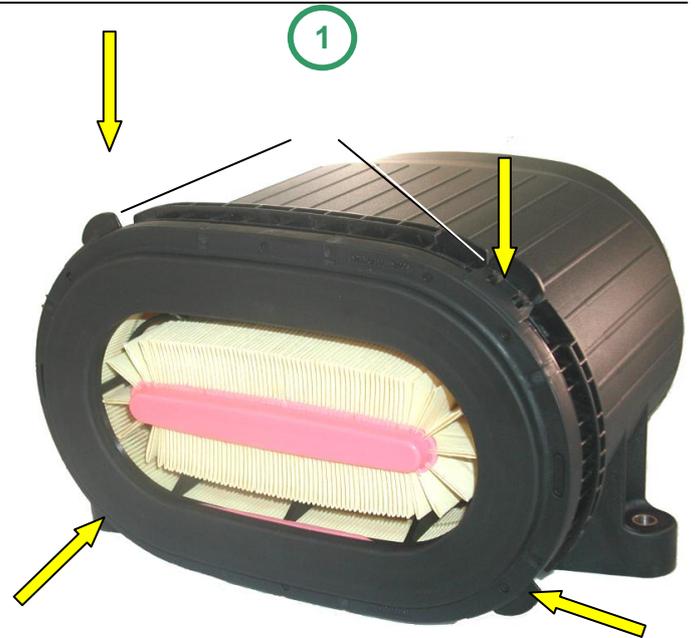


Fig. 4 Notches on the main filter element

6.3 Maintenance of the secondary element



The secondary element must be changed every 5th maintenance routine on the main filter element or after 2 years at the latest.

! Do not press on the paper bellows!

6.3.1 Disassembling the main filter element

(Refer to Section 6.2.1)

6.3.2 Changing the secondary element

! The secondary element must not be cleaned and not reused after being disassembled.

- Pull the secondary element (Pos. 6) out using the handle.
- Wipe the inside of the housing thoroughly with a damp cloth. Pay attention that no dust or dirt gets into the clean air side of the filter.
- Insert the new secondary element with the seal side at the front and slide onto the frame towards the clean side as far as possible.

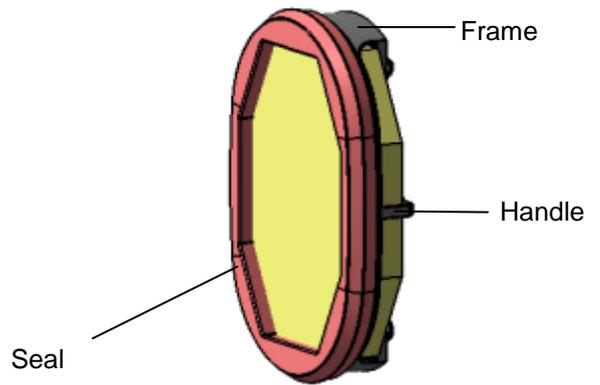


Fig. 5 Secondary element

6.3.3 Installing the main filter element (Refer to Section 6.2.3)

6.4 Maintenance of the housing lid

Blocked cyclone cells (e.g. by blades of grass sucked up) have a lower level of efficiency. To ensure a long service life for the main filter element, check the cyclone block regularly and clean it as necessary.



Be careful not to damage the cyclone cells.

Do not use any hard or sharp-edged tools!

- Open the wire clamp fasteners. Remove the housing lid together with the cyclone block.
- Unscrew the central bolt (hexagonal screw, a/f 10, Pos. a).
- Remove the cyclone block from the lid.
- Remove any foreign bodies and dust deposits from the cyclone block and inside the housing by hand or by means of a brush, for example.
- Loosen stubborn dust deposits on the lid and cyclone block by soaking in a PA6-compatible cleaning agent and remove with a water jet.
- Blow the cyclone block and lid dry to prevent new dust accumulating again.
- Slide the cyclone block in the lid.
- Tighten the hexagonal screw and washer ($M_a = 6 \pm 2 \text{ Nm}$).

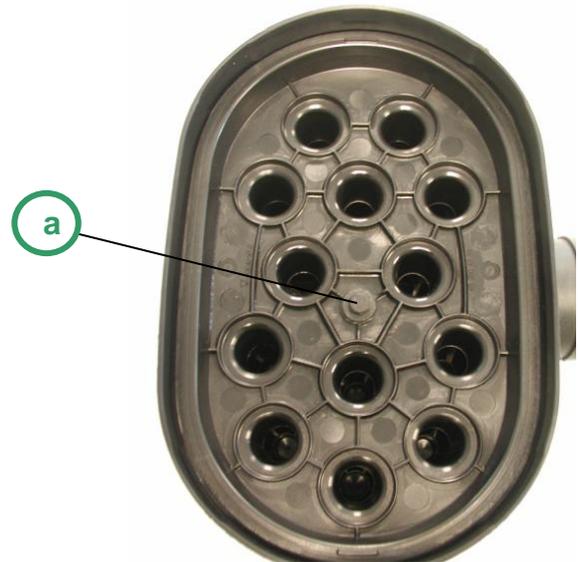


Fig. 6 Central screw, cyclone block

6.5 Maintenance of the dust discharge valve

IQORON-V

The dust discharge valve (Pos. 11) on the dust discharge connection (Pos. 10) must be checked according to the ambient dust concentration (daily in the case of heavy dust accumulation).

Any caked dust deposits must be removed by pressing the rubber lips on the valve together (refer to Fig. 7).

- The valve must be positioned in free space.
- It must not hit against anything.
- Damaged valves must be replaced.

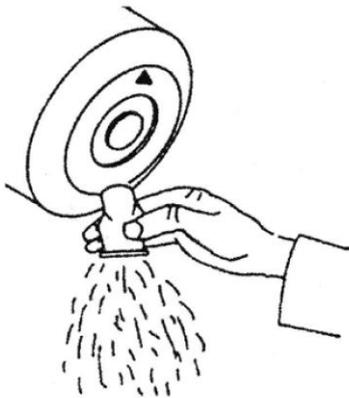


Fig. 7 Cleaning the dust discharge valve



Fig. 8 IQORON-V 7 dust discharge valve

7 Storing Filter Elements

! Protect filter elements in storage from exposure to dust, moisture and damage. It is preferable to keep them stored in their original packaging.

It is practical to keep at least one spare element in stock for each filter element used.

8 Troubleshooting

Error/Fault	Cause	Solution
Service life of main filter element unusually short	Cyclone cells blocked or damaged	Clean the cyclone block; change, if necessary (refer to Section 6.4)
Dust on clean side downstream from filter	Leaks in lines and/or connections on clean side downstream from filter	Remove dust thoroughly, seal lines and connections
Dust on clean air side in or downstream from filter	Main filter element defect	Remove dust thoroughly, check main filter element and replace together with secondary element if necessary (refer to Section 6)
	Incorrect maintenance	Remove dust thoroughly, complete maintenance in accordance with Section 6
	Housing not sealed properly	Remove dust thoroughly; check main filter element, housing and sealing for signs of damage; replace as necessary and seal properly (refer to Section 6)
	Incorrect main and/or secondary element installed	Remove dust thoroughly, install original MANN+HUMMEL filter element
Maintenance indicator/switch (option) is not triggered despite heavily soiled filter element	Maintenance indicator/switch defect	Check maintenance indicator/switch (refer to Section 6, Footnote: Maintenance Plan), replace as necessary and check again
	Lines, housing and/or main filter element leak or damaged	Clean the clean side thoroughly, eliminate leaks, replace damaged parts
Maintenance indicator/switch (option) always triggers	Main filter element worn out	Change main filter element (refer to Section 6)
	Secondary element worn out	Change secondary element (refer to Section 6.3)
	Maintenance indicator/switch defect	Replace maintenance indicator/switch

9 Disposing of Parts

Component	Material	Disposal
Main filter element	Filter paper Polyurethane foam	Dispose of according to local regulations
Secondary element	Filter paper Polyurethane foam / Adhesive PA 6	Dispose of according to local regulations
Cover with wire clamp fasteners	PA 6 GF 30 Steel	Plastics recycling center
Housing and threaded sockets	PA 6 GF 30 Brass	Dispose of according to local regulations
Foam filter	PA 6 GF 30	Plastics recycling center
Screw and washer	Steel, galvanized	Metal recycling center

