____Operating and installation instructions

IWM® - Intelligent Water-Management

GEP INDUSTRIAL INLINE–FILTER A- to C-Class

- **Before use, please read carefully !**
- **Please follow all safety instructions exactly !**
- **Please retain this document for future use !**

It is imperative to read these operating and installation instructions BEFORE installation and commissioning of the plant! In addition, further operating and installation instructions regarding the components and accessories of the GEP industrial inline–filter shall also be taken into consideration.

On acceptance of the equipment an examination shall take place to check for any transport damage. The freight company shall be liable for any damage caused, not the manufacturer or the supplier.
After the delivery, acceptance and commissioning of the GEP industrial-inline-filter no transport damage can be claimed whatsoever.
Should the outer packing be damaged, the inline-filter shall be unpacked in the presence of the freight company representative or driver, in order to find any serious damage to the filter itself, which then shall be reported to the freight company representative or driver in writing.
The goods shall remain at the customer's premises until the transport damage issue has been resolved!

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Service No.: 0049 / 3 77 54 / 33 61 0
Service No.: for **Quick-Service** see contract

We reserve the right to make technical alterations and changes.
We shall not be liable for any printing errors!

Contents

Explanation of symbols

Attention !
Non-observance of these instructions may lead to serious damage to equipment and property !

Danger !
Non-observance of these instructions may lead to personal injury !

Symbols only will be used throughout the rest of these operating instructions !

Foreword

You have acquired a high quality product and we congratulate you on your decision. In order for you to enjoy the perfect performance of your GEP industrial inline-filter for a long time to come, please read carefully and observe diligently all the operating and installation instructions.

This product has been thoroughly checked as part of our manufacturing process and carefully packed for transport. It is your guarantee that the GEP industrial inline-filter will be delivered to your premises in perfect working order. In the event of malfunction during operation please contact your contract partner or dealer.

Responsibilities:

The customer/user shall be responsible for all measures taken for:

- proper installation.

avoidance of all damage arising from improper operation:

- as filter in rainwater usage plants.
- in domestic or large scale rainwater usage plants.
- for volume flow please check table, at flow velocities of 0.5 metres per second.
- for fitting into building/construction works.

Any costs arising from improper operation or installation will not be accepted nor reimbursed.

Foreword

Questions regarding filter and ordering of spare parts

- only through your contract partner or dealer.
- always state delivery address.
- always state exact product description.

When accepting the goods please satisfy yourself regarding:

- the condition of the units.
- the completeness of the scope of delivery.

Scope of delivery:

GEP Industrial Inline-Filter A-Class with optional spray lance.

- Filter housing.
- Stainless steel filter insert.

GEP Industrial Inline-Filter C-Class – operation control via water manager MAX.

- Filter housing with built-in motor.
- Stainless steel filter insert.

GEP Industrial Inline-Filter C-Class – with external controls.

- Filter housing with built-in motor.
- Stainless steel filter insert.
- Switch box with external controls.

Foreword

Important information!

- Do not fill with or use to transport inflammable and/or potentially explosive media, food or wastewater!
- The diameter of the waste and overflow outlet (sewage connection point) must not be less than the diameter of the inlet pipe to the GEP industrial inline-filter!
- The following types of installation or operation are not permitted:
  - Connection to intensively planted roof areas.
  - Connection to unsealed asbestos roofs.
  - Connection to areas trafficed by motor vehicles.
  - Building into areas where the use of motor vehicles is envisaged.
- The following are suitable as catchment areas for the GEP industrial inline-filter:
  - Roof areas made from slate, clay tiles, concrete tiles, plastic.
  - Roof areas with extensive roof greening but with non-discolouring granulate.
  - Fibre-containing materials (only C-Class).
- Warranty claims will not be accepted if the operating and installations instructions are not observed.

Product description

Product advantages

- No limit to connected roof surface area.
- Self-cleaning when filter performance drops.
- No height difference between inlet and outlet.
- 99% efficiency, C-Class.
- Suitable for fibre-containing fabrics, C-Class

The GEP industrial inline-filter is a specially developed filter system for rainwater usage. It is integrated into the reservoir and has a plug-in ready system. The patented IWM® working principle used in the C-Class unit makes it possible to clean the filter surface almost entirely and fully automatically. The special design allows for installation without a height difference between inlet and outlet.

A–Class

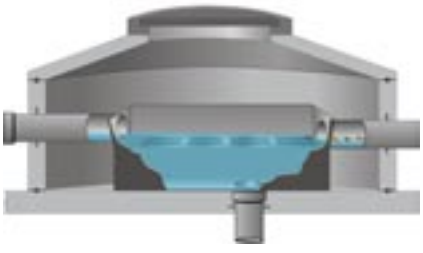
Operating method

The rainwater volume is filtered over a stainless steel slotted strainer (sieve) into the cistern.

The filling of the reservoir makes the water level rise within the filter until it reaches the surface of the filtering fabric.

Further water volume takes the **loosened** dirt particles into a special downstream drainage system (extraction unit).

Optionally, the A-Class filter can be supplied with a specially developed spray lance in order to reduce the maintenance intervals. The customer shall provide the connection to the water supply for the additional equipment. The filter-cleaning operation can be activated manually or using pre-determined time cycles (magnetic valve and timer control) An additional building located water connection point ensures the supply for this auxiliary option.



A-Class in cleaning mode

C–Class

Operating method

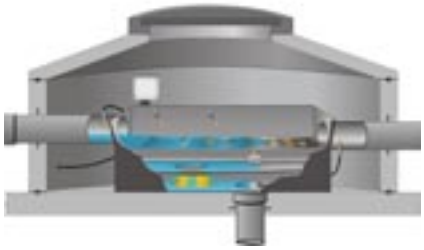
The rainwater runs over a stainless steel slotted strainer (sieve) and only filtered water flows into the cistern.

Product description

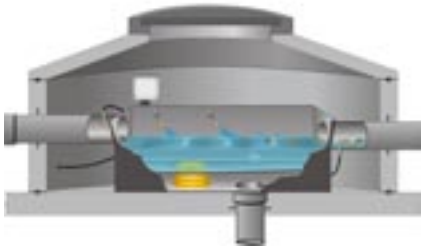
Independent of the water level of the reservoir and in conjunction with the water manager MAX, the performance of the filter is continuously checked.

As the filter performance decreases, a fully automatic cleaning cycle comes into operation automatically.

This is initiated by the IWM® cleaning control system, which measures the volume flow in the inlet and outlet of the industrial inline-filter.



C-Class in operating mode



C-Class in cleaning mode

If a reduction of the filter performance is detected as a result of these measurements, the lower chamber number 2 will hydraulically close and become fully filled with water. The created water layer on top of the strainer surface (sieve surface) permits troublefree flushing away of almost all contamination particles. Following this, special jets completely clean the filter fabric from incrustation and biomatting.

Further water volumes flush the released contamination particles automatically into a downstream special water extraction facility.

A button at the filter terminal box or, in the case of the C-Class unit with external controls, a button at the control box can be used to start the cleaning cycle manually.

Additionally, the standard weekly cleaning cycle for the filter can be automatically carried out by means of a timer control.

Filters C-Class with **external controls have limited** control functions and fault-reporting features.

Product description

A- and C-Class	Roof area	Volume flow*	Nominal diameter**	Maintenance filter area A-Class	Maintenance filter area C-Class
GEP Inline _ 0.1	0.1 ha	30 l/s	DN 300	**Depending on local conditions** Optionally return flushable	**Maintenance free** automatically fully return flushable (100%)
GEP Inline _ 0.2	0.2 ha	60 l/s	DN 300		
GEP Inline _ 0.5	0.5 ha	150 l/s	DN 300		
GEP Inline _ 1.0	1.0 ha	300 l/s	DN 500		
GEP Inline _ 2.0	2.0 ha	600 l/s	DN 500		
GEP Inline _ 3.0	3.0 ha	900 l/s	DN 500		
GEP Inline _ 4.0	4.0 ha	1200 l/s	DN 650		

Further sizes on request.

* maximum volume flow at 300 l/(s*ha)

Transport and installation

1. General

1.1. The installation of the filter should only be carried out by an authorised specialist company or by suitably skilled personnel of the user/operator.

1.2. In addition to the instructions pertaining to this plant, the generally applicable technical standards shall be observed.

1.3. Filters shall be transported in such a manner as to avoid damage to the electronics or deformation of the housing.

1.4. The filters shall be unloaded with suitable equipment (e.g. cranes and special vehicles built for unloading). When loading and unloading please avoid sudden knocks. Lifting devices should always use flat webbing slings.

1.5. If necessary, proper wooden bases shall be used to temporarily store the filters.

1.6. In the direction of the flow 3 metres upstream of the filter, any deviations, alterations of direction, and constrictions shall be avoided.

1.7. The installation of the filter shall take place before setting the cistern conical head and the manhole cover. Installation is impossible through the manhole cover!

2. Emplacement, installation

2.1. Checks before lowering into tank pit

2.1.1. Ensure that the filter is in perfect working condition just before it is placed into the tank pit by an authorised, suitably skilled personnel.

2.1.2. Should any faults be detected they shall be rectified before the filter is lowered.

2.2. Preparation of the filter pit

2.2.1. The filter pit shall be prepared in such a manner that the filter cannot be damaged on lowering and fitting and cannot move from its position when the filter is filled.

2.2.2. The filter shall be fitted in such a manner that any dynamic and static forces are carried by the surrounding building parts, without causing damage to the filter itself.

2.2.3. All connections shall be flexible.

2.2.4. A working space of 50 cm shall be permanently provided around and above the filter.

2.2.5. It is imperative that the filter is **fitted horizontally**, tolerance in the flow direction (length) +/- 1mm, at the ends (width) +/- 0 .

2.2.6. Access to the filter shall be provided such that the cleaning of the component can be carried out according to the applicable statutory safety requirements at all times.

2.3. Installation/fitting instructions:

2.3.1. When connecting the feeder pipelines to the filter, only CV connectors should be used. No longitudinal or shear forces shall be transmitted to the filter.

2.3.2. The filtered water shall be delivered through a calmed inlet system into the cistern itself.

2.3.3. With filters A-Class without spray lance no overflow siphon is fitted after the cistern.

2.3.4. For cisterns not of our manufacture and delivery we recommend the fitting of the filters by fastening them on mounting rails or by resting on concrete strip footings The filter has to sit completely and fully with its entire base plate on the whole area of the footings. The dimensions of the surrounding building are to be structurally adequate. Also the water content and possible movements of the filters in any direction through back pressure, filtering, and cleaning shall be taken into account.

2.3.5. Remove the transport packaging.

2.3.6. The foil-sheet on the filter strainer (sieve) should only be removed when all other tasks on site relating to the filter have been properly completed (e.g. filter inlet flushed out, roof work completed)

3. Filter A-Class with spray lance

The following connection points shall be provided for on site.

3.1. Flushing connection point for service water supply filtered at 90 micrometres (see drinking water filter).

Standard –service point for the rinsing water connect at the filter for a pumping head of 4 bar.

0.1 to ≤ 0.5 Filter A- to C-Class	Volume flow:	7.0 m_/h
1.0 to ≤ 2.0 Filter A- to C-Class	Volume flow:	14.0 m_/h
3.0 to ≤ 4.0 Filter A- to C-Class	Volume flow:	28.0 m_/h
5.0 to ≤ 6.0 Filter A- to C-Class	Volume flow:	14.0 m_/h
7.0 to ≤ 8.0 Filter A- to C-Class	Volume flow:	28.0 m_/h

3.2. Optional on-site timer device and magnetic valve for flushing water inlet pipeline.

4. Filter C-Class

Hydraulic connection with on-site drinking water, service water pipeline network.

4.1. After pressure checks and flushing of the on-site supply pipes, the marked pipe connections shall be fitted tension free with disconnectable screw mountings.

4.2. Within the flushing supply line to the filter (Max to filter), the filter within the scope of delivery of the MAX shall be installed within the locality of the MAX unit.

4.3. Rinsing connection with service water supply, see point 3.

4.4. In all hydraulic inlet and outlets, the isolating valves shall be provided for all service and maintenance works.

4.5. In connection with the C-Class filters, the filter in the flushing supply line (Max to filter) provided in the scope of delivery of the Max shall be installed close to the Max unit.

4.6. The integrally-mounted pressure reducer shall be left at the factory set value of 0.5 bar. Any increase of this value may result in damage to the filter itself.

4.7. Openings for pipe lines in the buildings or between cistern and cistern dome shall be protected and made watertight and gastight in accordance with the general rules of the technology. For emergency overflow:

- See DIN 1986 or DIN-EN 12056*.
- Openings for pipe lines in the buildings or between cistern and cistern dome shall be protected and made watertight and gastight in accordance with the general rules of the technology.

4.8. Electrical connections:

- E-connection see data plate on rear side of the unit.
- At 400 V operating voltage please observe clockwise phase sequence.
- Electrical connections of the parts to be mounted inside the cisterns (i.e. pumps and sensors) with water manager MAX shall be made using the supplied cable harnesses. The cable harnesses, if not provided by the customer on site, are contained within the delivery and safety package. Sensors in the cistern or elsewhere within the plant unit with high humidity levels must be securely watertight and fed via a terminal box with IP 65 protection with geotextile valves.

- The electrical equipment shall be installed according to IEC 364/VDE 0100. All electrical connections shall have earth clamping. There shall be an independent current fault protection installed according to DIN EN 60335-2-41/VDE 0700 via an independent fuseboard arrangement (protection switch at 30 mA).
- Please take great care that all electrical connections and open cable ends of the sensor cables are not subject to wet or humid con-

ditions. **External overflowing of the filter** C-Class must never take place. Pressure-tight filters up to 0.7 bar can be supplied on request.

- Only IWM components shall be used for the controls of the filters C-Class.
- As an option we offer the possibility of lighting in the dome shaft. There are supplementary wires contained in the IWM cable package for this purpose.

- Additions to the C-Class filter with supplementary controls:
  - A main switch shall be additionally installed outside the filter room itself.
  - The **additionally** supplied float switch shall be fitted into the cistern and adjusted to react at 90% filling level.
  - The controls (with protection type IP 55) shall be mounted in a protected accessible room.

4.9. Additional information for cisterns / dome shafts.

- Dome shafts have to be absolutely watertight against the rising pressure within the cisterns. The opening of the dome shaft cover is only possible when the cistern is partly filled. Faulty dome cover gaskets should be renewed at once.
- If the overflow from the cistern runs into a public sewer, then the storage building must be secured against back pressure in accordance with DN 12056 and DIN 1989.
  - Mix water channel via lifting device
  - Divider system via non-return valve

Before each installation or de-installation of any pipelines or other jobs on the plant the entire unit must be isolated at the mains fuses!!

Advice on maintenance tasks

The GEP industrial inline-filter contains parts and components which require inspections and maintenance work to be carried out.

- Inspections of the plant unit can be carried out by the users themselves.
- Servicing and repair shall be carried out by the installation company or suitably skilled and authorised personnel of the operating company.

Inspection and maintenance of the GEP industrial inline-filter A-Class and C-Class

Note!

In the event of faulty materials please contact your contract partner/dealer.

1. Industrial-filter A- to C-Class

Inspection: Check the strainer (sieve) surface*

only with C-Class**:

- Checks of the filter for leaks and the filter building structure for dryness.
- Cleaning of the candle filter in the filter flushing pipeline.
- Function check by manually operating the button at the filter terminal box or, for C-Class, the button at the external control device.

Time intervals: Weekly * - not with C- Class filter, ** _ yearly
Implementation: By the user/operating company

<u>Supplementary - information filter insert</u>

Cleaning:

- Lift out filter insert
- To clean with a strong water jet (garden cleaner or high pressure cleaner) until all contamination has been removed.

Do not use a wire brush!!!

Maintenance: Maintenance of all moving parts and cleaning of the stone catchers

Time intervals: Yearly, only with filter C-Class

Implementation: Service partner

2. Outside Tank Sensor

Inspection: To check out correct installation
To check out all cables for cracks and age-related problems.

Time intervals: yearly

Implementation: User company

3. Outside Tanks

Inspection: Sedimentation*
To check for corrosion damage – only with steel cisterns **
Filling levels with fire fighting water tanks ***
Dome shaft covers for leaks***

Time intervals: ***every 10 years, ****yearly**, ***** monthly**

Implementation: User/operating company

Before each installation or de-installation of any pipelines or other jobs on the plant the entire unit must be isolated at the mains fuses!!