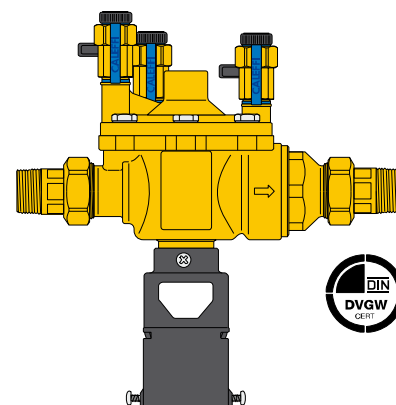


Operation manual

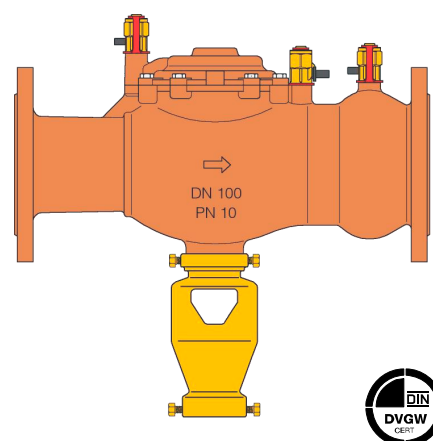
Euro system separator GENO[®]-DK 2

Euro system separator GENO[®]-DK 2-Maxi

Euro system separator GENO[®]-DK-Maxi



Euro system separator GENO[®]-DK 2 nominal diameter DN 15/20



Euro system separator GENO[®]-DK 2-Maxi DN 100

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Grünbeck Wasseraufbereitung GmbH
Josef-Gruenbeck-Str. 1 · 89420 Hoechstädt
GERMANY
☎ +49 9074 41-0 · 📠 +49 9074 41-100
www.gruenbeck.com · info@gruenbeck.com



A company certified by TÜV SÜD
in accordance with DIN EN ISO 9001,
DIN EN ISO 14001 and SCC

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Operation log

Publisher's information

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Publisher responsible for contents:

Grünbeck Wasseraufbereitung GmbH

Josef-Grünbeck-Str. 1 • 89420 Hoechstädt/Germany

Phone +49 9074 41-0 • Fax +49 9074 41-100

www.gruenbeck.de • service@gruenbeck.de

Print: Grünbeck Wasseraufbereitung GmbH

Josef-Grünbeck-Str. 1, 89420 Hoechstädt/Germany

A General information

1 | Preface

Thank you for opting for a Grünbeck product. Backed by decades of experience in the area of water treatment, we provide solutions for all processes.

All Grünbeck systems and devices are made of high-quality materials. This ensures reliable operation over many years, provided you treat the systems with the required care. This operation manual assists you with important information. Carefully read the present operation manual prior to installing, operating or maintaining the system.

Customer satisfaction is our prime objective and providing customers with qualified advice is crucial. If you have any questions concerning this system, possible extensions or general water and waste water treatment, our customer service staff, as well as the experts at our headquarters in Hoechststadt, are available to help you.

Advice and assistance

For advice and assistance please contact your local representative (see www.gruenbeck.com) or get in touch with our service hotline on +49 9074 41-333. We can connect you with the appropriate expert more quickly if you provide the required system data. In order to have this data handy at all times, please copy it from the type designation plate to the overview in chapter C, item 1.

2 | Warranty

All devices and systems supplied by Grünbeck Wasseraufbereitung GmbH are manufactured according to the most recent technical standards and subjected to a comprehensive quality assurance system. All warranty claims are subject to our Standard Terms and Conditions of Sale and Delivery.

3 | General safety information

Operating personnel Only persons who have read and understood this operation manual are permitted to work with the system. The safety guidelines are to be strictly adhered to.

Symbols and notes Important notes in this operation manual are characterised by symbols. Please pay particular attention to these notes in order to ensure a danger-free, safe and productive system operation.



Danger! Failure to adhere to these notes will cause serious or life-threatening injury, extreme damage to property or inadmissible contamination of drinking water.



Warning! Failure to adhere to these notes may cause injury, damage to property or contamination of the drinking water.



Attention! Failure to adhere to these notes may result in damage to the system or other objects.



Note: This symbol characterises notes and tips to make your work easier.



Tasks with this symbol may only be performed by Grünbeck's technical customer service/authorised service company or by persons expressly authorised by Grünbeck.



Tasks with this symbol may only be performed by personnel instructed in electrical engineering according to the VDE guidelines or according to the guidelines of a similar local institution.



Tasks with this symbol may only be performed by water companies or approved installation companies.

4 | Transportation and storage



Attention! The system may be damaged by frost or high temperatures. Protect from frost during shipping and storage! Do not install or store system next to objects which radiate a lot of heat.

The system may only be transported and stored in its original packing. Ensure that it is handled with care and placed the right side up (as indicated on the packing).

5 | Disposal of used parts and materials

Used parts and materials are to be disposed of, or made available for recycling purposes, according to the applicable local guidelines.

If a material is subject to specific regulations, adhere to the notes indicated on the packing.

If in doubt, contact your local waste disposal authority or the manufacturer for more information.

B Basic information (system separators)

1 | Laws, regulations, standards

In the interest of good health, rules cannot be ignored when it comes to the processing of drinking water. This operation manual takes the applicable German guidelines into account and provides all the information you need to safely operate your system separators.

Among other things, the regulations stipulate that only approved companies are permitted to make major modifications to water treatment facilities, and that tests, inspections and maintenance are to be performed on the devices at regular intervals.

2 | Protection of drinking water

Drinking water is still the most important nourishment which cannot be replaced by anything else. Also in trade and industry water and drinking water are irreplaceable.

For the protection of drinking water, the parties directly involved such as the water supply authorities, installers (plumber) and operators must observe legal and technical regulations.

Only a free outlet offers the maximum security against the entering of non-drinking water, foreign and harmful substances into the drinking water by back-flowing, back-pressing and back-sucking. Other safety devices may also be used for economical and operational reasons. However, only safety devices with proven qualification may be used (e.g. such as DIN-DVGW or DVGW mark of conformity).

In order to be able to properly select the safety devices which differ in function and efficiency, the impairments are classified in five liquid categories. In case several substances and micro-organisms may get into the drinking water simultaneously, the most dangerous substance or micro-organism determines the liquid category.

3 | Classification of liquid categories

Liquid category 1	<p>Water for human consumption that is withdrawn directly from a drinking water installation.</p> <p>Examples: Temporary turbidity due to air bubbles.</p>
Liquid category 2	<p>Liquids that do not represent a health risk to human beings.</p> <p>Liquids that are suitable for human consumption - including water originating from a drinking water installation - that may exhibit modifications with regard to taste, smell, colour or temperature (heating up or cooling down).</p> <p>Examples: Coffee, heated drinking water.</p>
Liquid category 3	<p>Liquids that represent a health risk to human beings due to the presence of one or several poisonous or highly poisonous substances.</p> <p>Examples: Ethylene glycol, copper sulphate solution, heating water without additives or with additives as per liquid category 3.</p>
Liquid category 4	<p>Liquids that represent a health risk to human beings due to the presence of one or several poisonous or highly poisonous substances or one or several radioactive, mutagenic or carcinogenic substances.</p> <p>Examples: Lindane, phosalone, parathion (insecticides), hydrazine, heating water with additives as per liquid category 4.</p>
Liquid category 5	<p>Liquids that represent a health risk to human beings due to the presence of microbial or viral pathogens of communicable diseases.</p> <p>Examples: Hepatitis viruses, salmonellae</p>
(excerpt of DIN EN 1717, part 5.2)	



Attention! System separators are safety devices. They protect the drinking water against changed drinking water. They can only work reliably provided regular inspections and maintenance are performed.

4 | Function

The system separator consists of two non-return valves, a middle chamber and a membrane-controlled discharge valve. The water entering the system separator opens the non-return valve on the inlet side (A) and at the same time exerts pressure via the drain (1) on the membrane (2) which closes the discharge valve by means of a rod and thus the water opens the second non-return valve. Due to the pressure loss caused by the non-return valve (A), the pressure in the middle chamber is – under normal operating conditions - always at least 140 mbar (1.4 m WC) less than the back pressure. The difference in pressure Δp between the inlet side and the middle chamber can be specified as a safety basis so that in the event of damage occurring or a pressure loss, the discharge valve already opens when the pressure in the middle chamber is still 140 mbar lower than the inlet pressure. Moreover in the event of damage to the membrane, the safety gasket thrust by the contrast spring (3) to the housing prevents the return of the water via the drain (item 1).

Consequently no water can get back from the middle chamber to the inlet area. It is also not possible even in the event of minor leaks at the non-return valve, which would be indicated by an outflow of water from the middle chamber as soon as the pressure difference Δp is lower than 140 mbar.



Note: Prior to start up, the air above the membrane must be blown off in order to ensure safe operation.

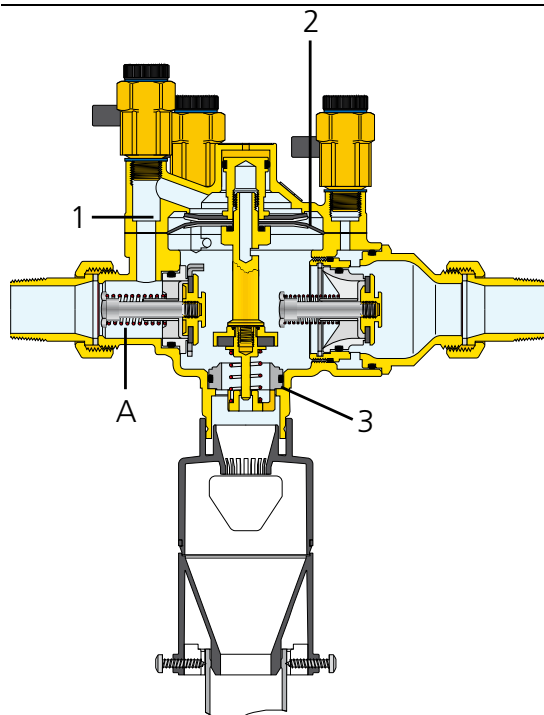


Fig. B-1: Detail drawing of Euro system separator GENO®-DK 2, 1 1/4"

C Product description (system separators)

1 | Type designation plate

The type designation plate is located on the housing of the system separator. If you have questions concerning the system, please specify the information shown on the type designation plate of the unit in order to speed up the processing of your request. Please copy the data given on the designation plate to the table below in order to have it handy whenever necessary.

Euro system separator GENO®-DK

Serial no.: /

Order no.:

2 | Designated application

The Euro system separator version BA is a safety device to be installed in water pipes when special tapping devices and appliances are connected to the drinking water supply system. The Euro system separator prevents used or modified water from flowing back, pressing back or being sucked back into the drinking water system. Version BA is approved **as safety device for systems up to liquid 4** (included) according to DIN EN 1717 (see chapter B; classification of liquid categories).



Attention! System separators are safety devices. They protect the drinking water from modified drinking water. They can only work reliably provided regular inspections and maintenance are performed.

3 | Technical specifications

Table C-1: Technical specifications		Euro system separator GENO®-DK 2					
Connection data							
Nominal connection diameter		DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
Threaded connection	[R]	½"	¾"	1"	1¼"	1½"	2"
Performance data							
Nominal pressure		PN 10					
Min. flow pressure	[bar]	1					
Max. flow	[m³/h]	1.9	3.3	5.2	7.2	13.5	21
KV value (Δp = 1 bar)	[m³/h]	3.5	4.5	7.6	9.4	22.2	32.5
Dimensions and weight							
A Drain connection Ø	[mm]	40/50				50	
B Installation length with water meter screw connection	[mm]	227		280		387	395
C Installation length with water meter screw connection	[mm]	153		187		274	
D System height with outlet funnel	[mm]	263		292		382	
E Height above centre of pipe connection	[mm]	103		100		130	
Weight empty	[kg]	3		4.7		10.7	11.8
Operating weight	[kg]	3.4		5.2		12.5	13.6
Test mark/Certification mark							
DVGW registration number		NW-6305BR0345					
Ambient data							
Max. water temperature	[°C]	65					
Max. ambient temperature	[°C]	70					
Order no.		132 510	132 520	132 530	132 540	132 560	132 570

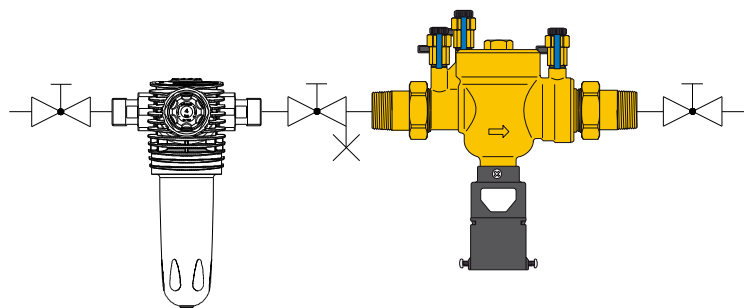


Fig. C-1: Install. example filter combination fine filter BOXER®-KD with Euro system sep. GENO®-DK 2 nom. diameter DN 25/32

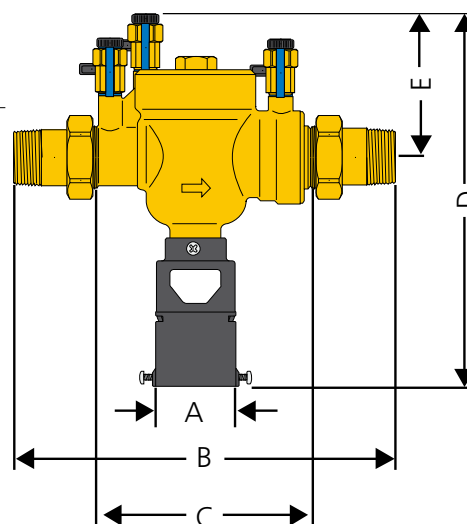


Fig. C-2: Dimensional drawing of Euro system separator GENO®-DK 2 nominal diameter DN 25/32

Table C-2: Technical specifications		Euro system separator GENO®-DK 2-Maxi			
Connection data					
Nominal connection diameter		DN 50	DN 65	DN 80	DN 100
Performance data					
Nominal pressure		PN 10			
Min. flow pressure [bar]		1			
Max. flow [m³/h]		25	35	50	80
KV value (Δp = 1 bar) [m³/h]		42	55	88	122
Dimensions and weight					
A Drain connection Ø [mm]		50		80	
B Installation length without counter-flanges [mm]		302	305	470	
C System height with outlet funnel [mm]		382	385	484	
D Height above centre of pipe connection [mm]		129	132.5	170	
Weight empty [kg]		13.2	17	26.5	28
Operating weight [kg]		16	19.8	33.1	34.2
Test mark/Certification mark					
DVGW registration number		NW-6305BR0345			
Ambient data					
Max. water temperature [°C]		65			
Max. ambient temperature [°C]		70			
Order no.		132 460	132 465	132 470	132 475

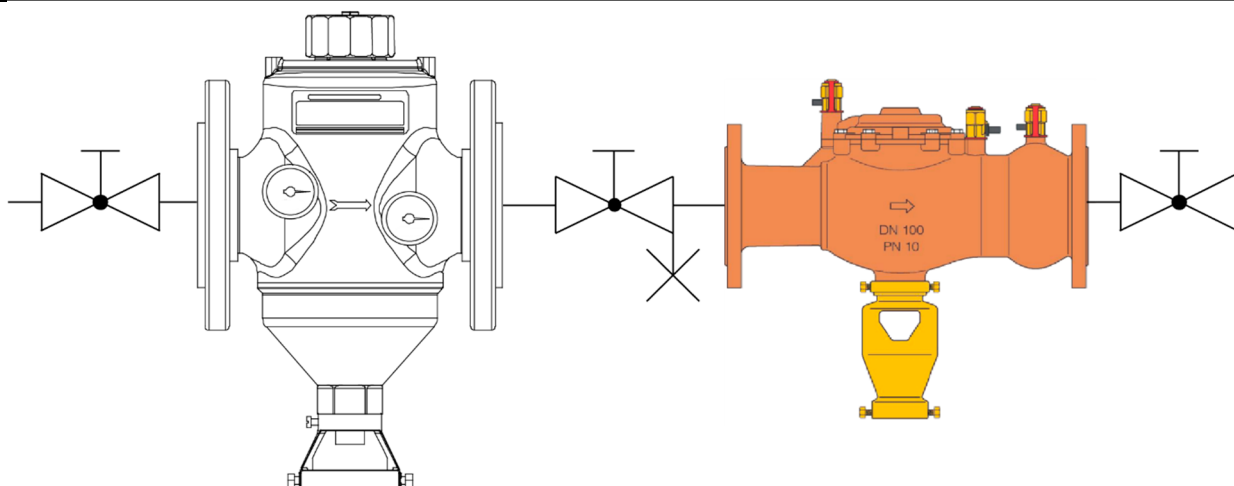


Fig. C-3: Installation example for GENO®-backwash filter MX DN 100 with Euro system separator GENO®-DK 2-Maxi DN 100

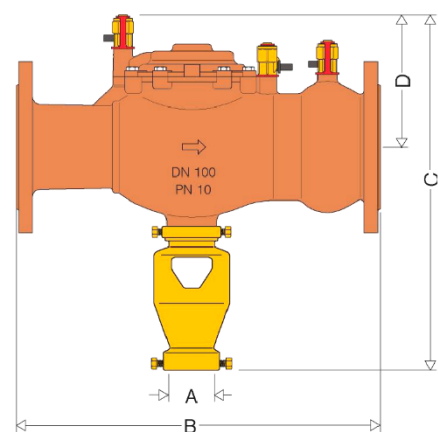
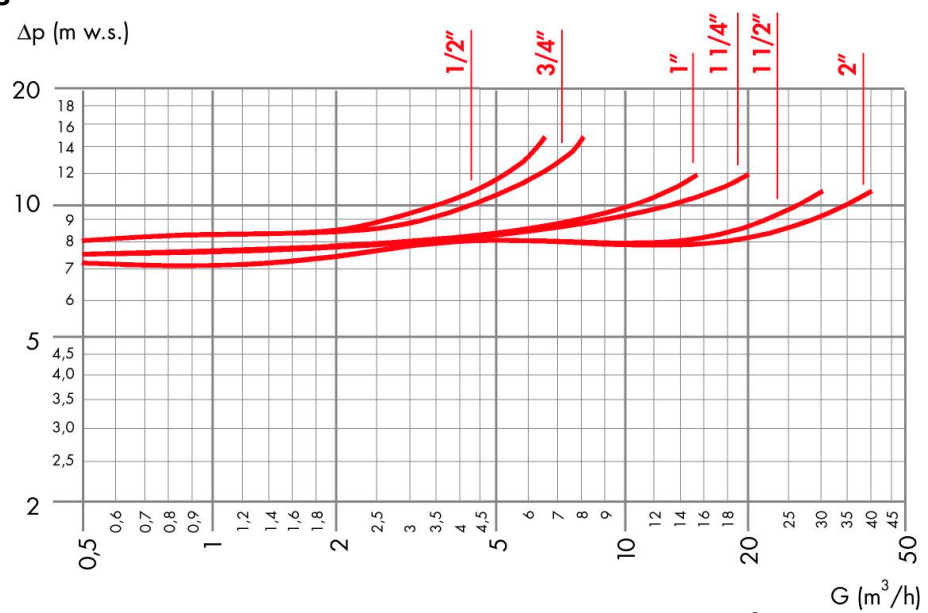


Fig. C-4: Dimensional drawing Euro system separator GENO®-DK 2-Maxi DN 100

Table C-3: Technical specifications		Euro system separator GENO®-DK 2-Maxi		
Connection data				
Nominal connection diameter		DN 150	DN 200	DN 250
Performance data				
Nominal pressure		PN 10		
Min. flow pressure	[bar]	1		
Max. flow	[m³/h]	227	363	523
KV value (Δp = 1 bar)	[m³/h]	227	363	523
Dimensions and weight				
A Drain connection Ø	[mm]	90		
B Installation length without counter-flanges	[mm]	600	780	930
C System height with outlet funnel	[mm]	839	922	
D Height above centre of pipe connection	[mm]	310	350	
Weight empty	[kg]	103	111	142
Operating weight	[kg]	123	150	200
DVGW test mark/Certification mark				
DVGW registration number		-		
Ambient data				
Max. water temperature	[°C]	60		
Max. ambient temperature	[°C]	-		
Order no.		132 720	132 725	132 730

3.1 Pressure loss curves



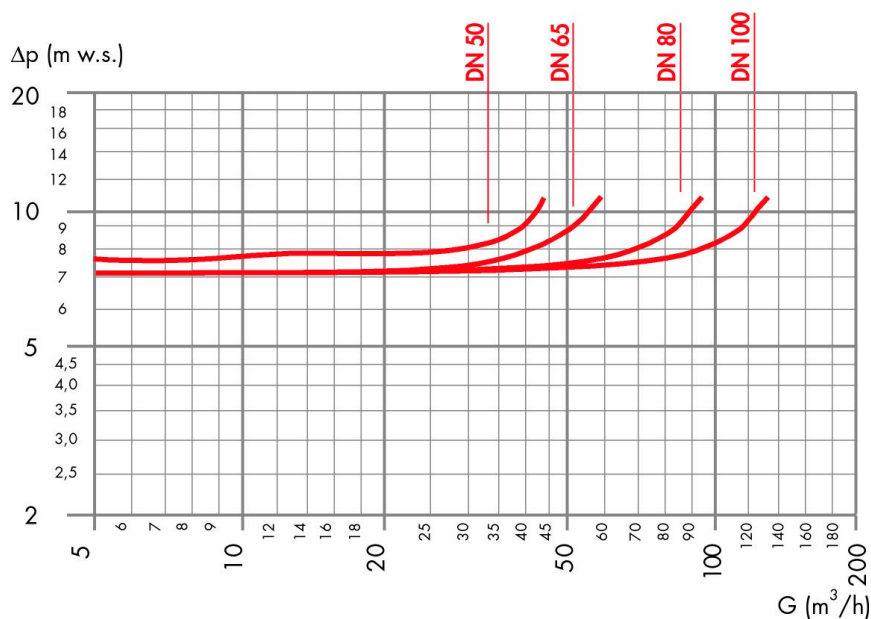


Fig. C-6: Pressure loss curve 2: Euro system separator GENO®-DK 2-Maxi

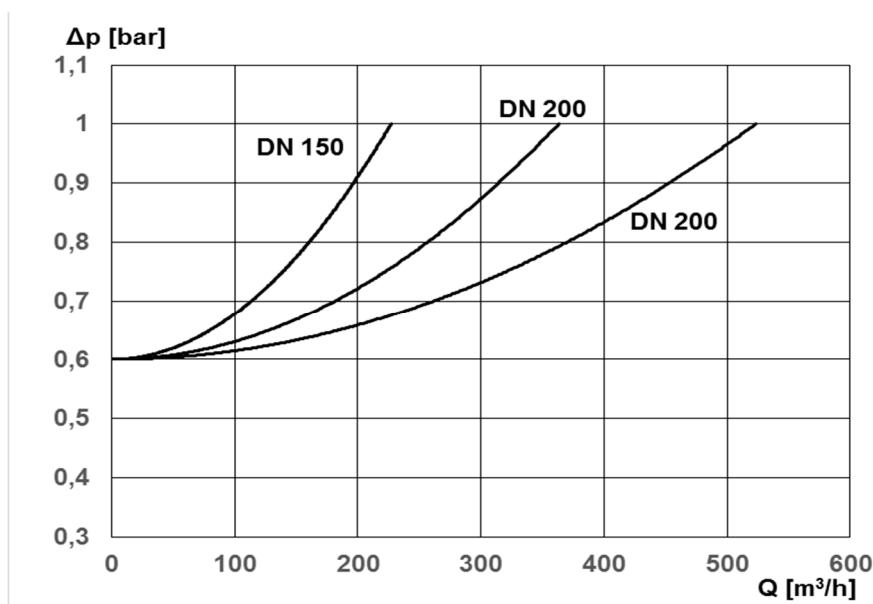


Fig. C-7: Pressure loss curve 3: Euro system separator GENO®-DK-Maxi

4 | Scope of supply

- System separator with drain connection.
- Water meter screw connections incl. seals for DK 2.
- GENO®-DK 2-Maxi, GENO®-DK-Maxi without counter-flanges and seals.
- Operation manual with operation log.

D Installation and start-up

1 | General installation information

- Please observe local directives and general regulations for installation.
- The installation site must be accessible for maintenance work and be protected against flooding and frost. It must ensure the protection of the device from chemicals, dyes, solvents and steam/vapours.
- Installation according to its nominal diameter in pipelines of the same dimensions as the unit.
- According to DIN EN 806, part 2, quick-acting shut-off fittings which may cause water hammers (positive and negative pressure peaks) may be used for permanent operation in water pipelines only under consideration of the maximum peak pressure and the operating pressure. Exceptions: fittings which are only used for testing purposes by experts.



Attention! Impurities and corrosion particles may lead to malfunctions or damages at the system separator.

The feed line must be rinsed before start-up.

2 | Water installation



Binding rules

The installation of a system separator represents a major interference with the drinking water installation, and therefore may only be performed by an authorised sanitary or heating company.

Preparatory work

1. Unpack all system components.
2. Check for completeness and perfect condition.

- Install according to installation drawing (Fig. D-1).
- Make sure that built-in parts downstream and upstream of the system (such as EBRO flaps) do not protrude into the system separator and damage components located inside.

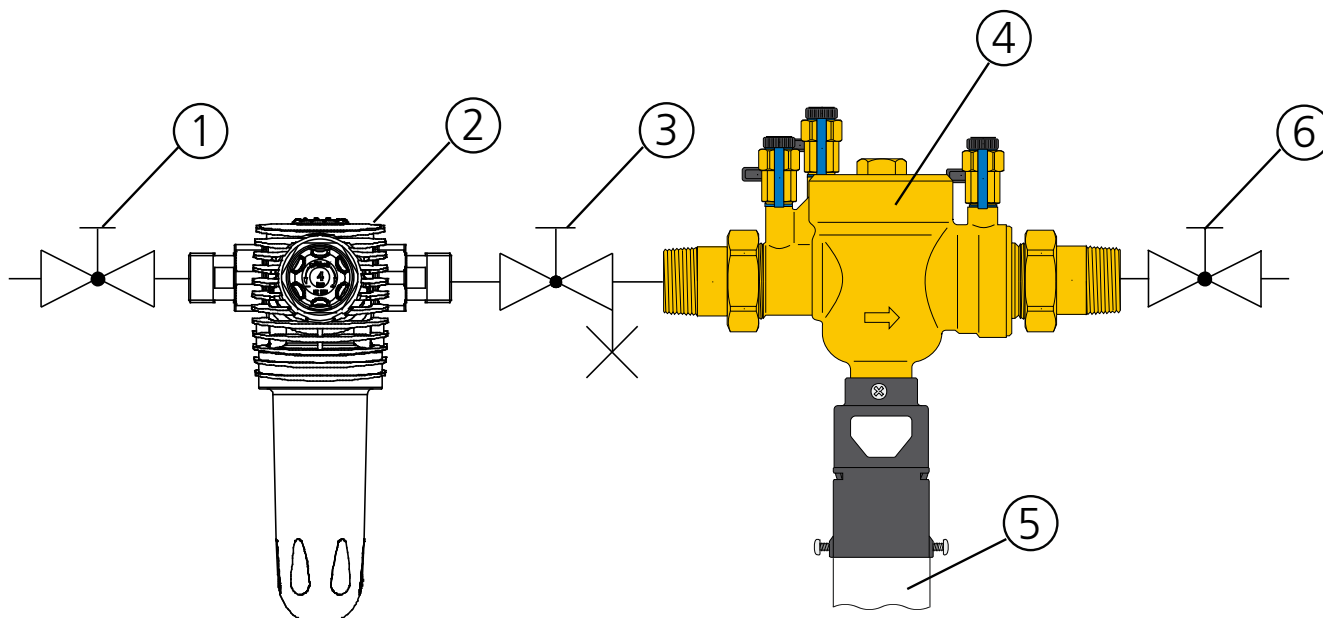


Fig. D-1: Installation example Euro system separator GENO®-DK 2

- | | |
|---|------------------------------------|
| ① Shut-off valve | ④ Euro system separator GENO®-DK 2 |
| ② Fine filter BOXER®-KD with pressure reducer | ⑤ Waste water connection |
| ③ Shut-off valve with draining | ⑥ Shut-off valve |

- Install strainer / fine filter directly upstream of the system



Attention! Observe flow direction.

- Only install the system separator horizontally and stress-free.
- Provide drain connection according to the technical specifications.
- Make sure that a free outlet is available and discharge is performed without back-flow.

3 | Start-up

- Prior to start-up, rinse the feed pipe. If necessary, dismantle the system separator.
- When (re-)installed, slowly open the shut-off valves (item 1 and item 4) upstream and downstream of the system separator. Then the system separator goes into operating position. Make sure that the discharge valve (item 5) is closed.
- Completely deaerate the system separator by opening the relief screw (item. 3).
- Carry out visual inspection. Thereby, make sure that no water leaks at any point of the system.

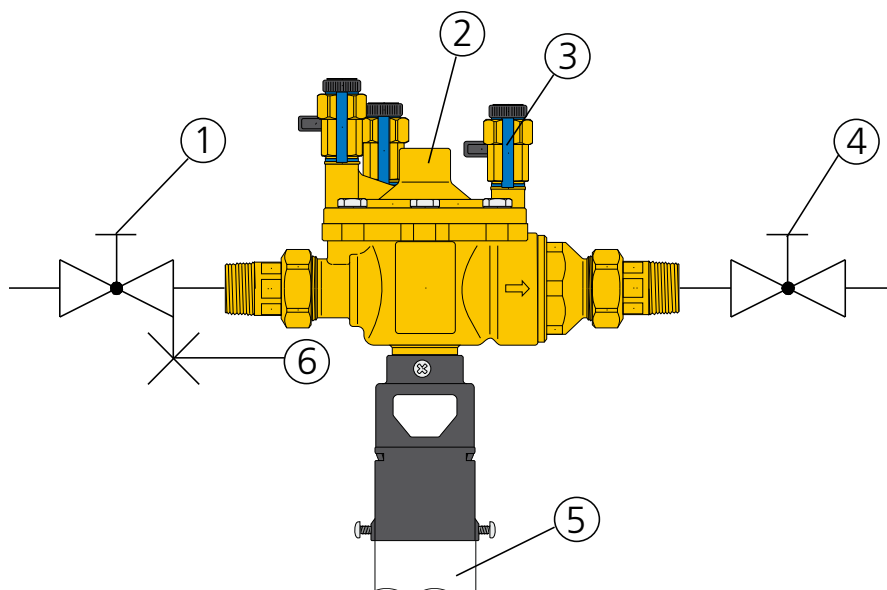


Fig. D-2: Exploded drawing of Euro system separator GENO®-DK 2

- | | | | |
|---|----------------------------------|---|-------------------------------|
| ① | Shut-off valve on inlet side | ④ | Shut-off valve on outlet side |
| ② | Euro system separator GENO®-DK 2 | ⑤ | Waste water connection |
| ③ | Relief screw | ⑥ | Discharge valve on inlet side |

4 | Functional check

After successful start-up of the system separator, close the shut-off valve (item 1). Pressure relief in the inlet pressure area is initiated by opening the discharge valve (item 5).



Note: Afterwards, the system separator must go into separating position and thereby empty the middle pressure zone.

Afterwards, close the discharge valve (item 6) and slowly open the shut-off valve (item 1). Subsequently the system separator must return into operating position again, and it must be completely tight.

E Troubleshooting

Even carefully designed and manufactured technical systems that are properly operated, may experience malfunctions. Table E-1 provides an overview of possible problems that may occur during the operation of the system separators and indicates their causes and the corresponding remedies.

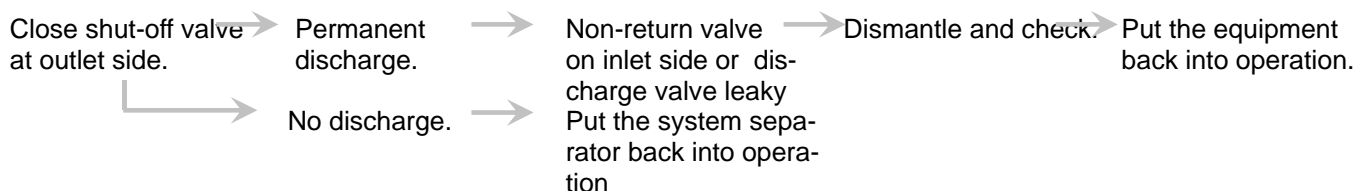


Attention! Short-term, undefined water leakage at the discharge valve, does not represent a disturbance at the system separator. It is a normal control behaviour of the system separator, caused by pressure fluctuations in the water supply system upstream of the device.

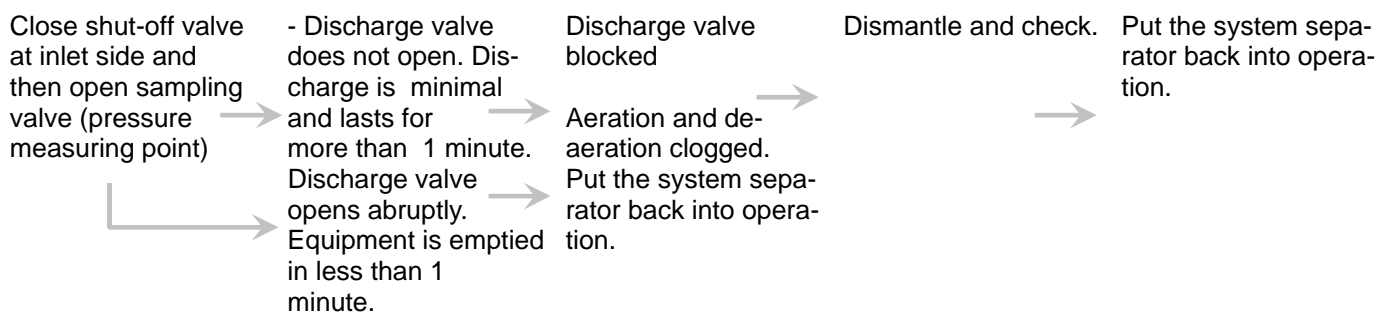


Note: In case of disturbances, e.g. permanent water leakage at the discharge valve, proceed as per check-list below: Independent of the disturbance, you may identify the fault by performing the various steps systematically.

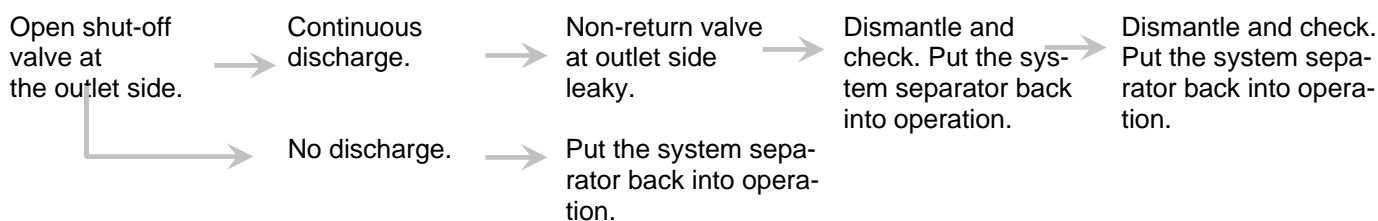
Test 1



Test 2



Test 3



Note: In case the disturbances cannot be remedied, please contact your local Grünbeck service representative (see www.gruenbeck.de)

F Maintenance, care and spare parts

1 | Basic information

In order to guarantee the reliable function of the system separators over a long period of time, some maintenance has to be performed at regular intervals. This applies in particular to safety devices used in the drinking water supply: The required measures are defined in regulations and guidelines. You must comply with all regulations and guidelines which apply at the installation site.

Inspection and maintenance according to DIN EN 806 part 5 and W/TPW 135, appendix I.

- Every 6 months, an inspection must be performed by the operator or the installation company.
- The annual maintenance must be performed by an approved, specialist company or by Grünbeck's technical customer service/authorised service company.



Note: A maintenance contract ensures that all the required maintenance work will be performed in due time.

2 | Inspection

Check for tightness, visual inspection:

- If no water is withdrawn, no water must leak at the discharge valve toward the outlet funnel.
- After opening a downstream tapping point, no leakage may occur.
- Occasional dripping at the discharge valve is a normal regulation process and indicates that the system separator is working properly (is caused by pressure fluctuations at the inlet).

3 | Maintenance

Check for tightness, visual inspection:

- After opening a downstream tapping point, no leakage may occur.

Functional check:

- Close the shut-off valves upstream of the system separator. Relieve the pressure from the inlet pressure zone by opening the discharge valve between the shut-off valve and the system separator.
- Empty/drain off the inlet pressure zone between the closed shut-off valves and the system separator.
- Afterwards, the system separator must go into separating position, and must completely drain the middle pressure zone.



Note: If functional disturbances are detected during inspection or maintenance, please refer to chapter E "Troubleshooting" for assistance.

4 | Spare parts

For spare parts and consumables, please contact your local Grünbeck representative (see www.gruenbeck.com).
The parts indicated in the following drawing are considered to be wearing parts.



Note: Even though these parts are wearing parts, we grant a limited warranty of 6 months for them.

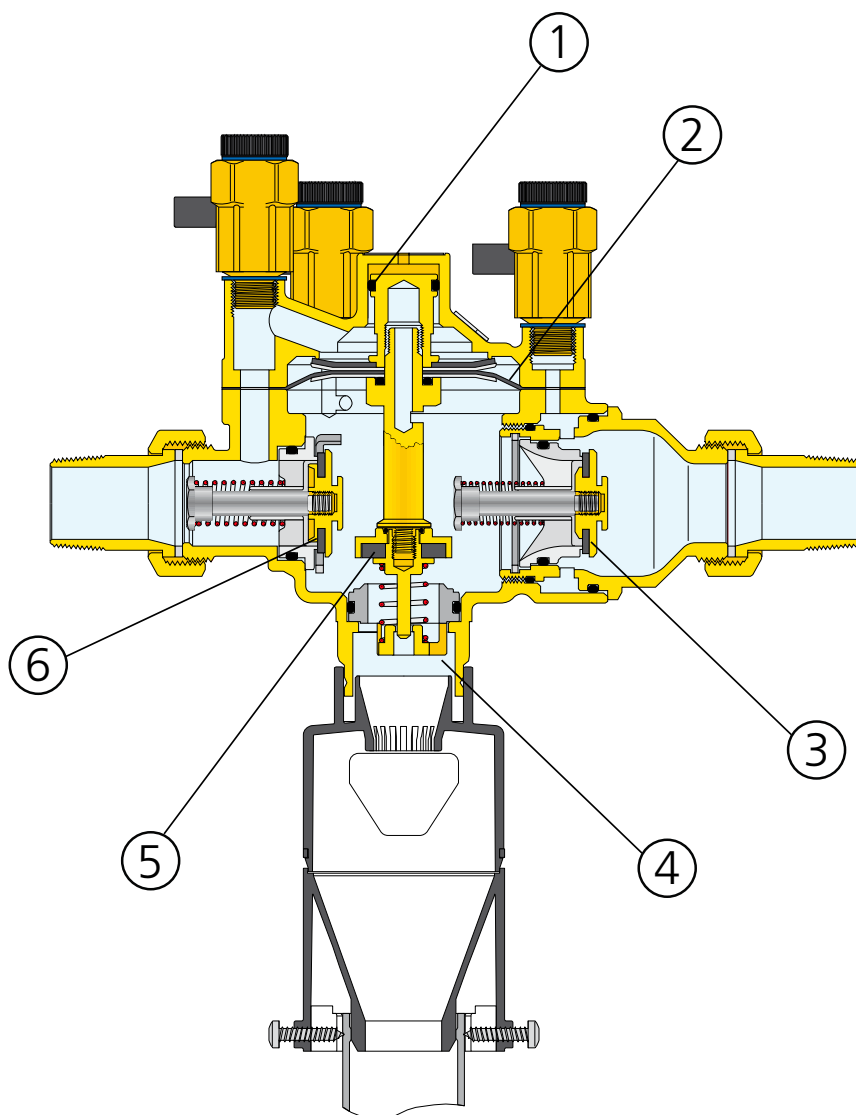


Fig. F-1: Wearing parts of Euro system separator GENO®-DK 1 1/4"

- | | | | |
|---|------------------------------|---|-----------------------------|
| ① | O-ring | ④ | Drain seat |
| ② | Control membrane* | ⑤ | Drain seal* |
| ③ | Non-return valve outlet side | ⑥ | Non return valve inlet side |

* Are supplied as complete assembly group "discharge valve".

Operation Log

Customer

Name:

Address:

.....

.....

Euro system separator GENO[®]-DK

(Please check appropriate box)

 $\frac{1}{2}$ " ☐ $\frac{3}{4}$ " ☐1" ☐1 $\frac{1}{4}$ " ☐1 $\frac{1}{2}$ " ☐2" ☐

DN 50 ☐**DN 65** ☐**DN 80** ☐**DN 100** ☐**DN 150** ☐**DN 200** ☐**DN 250** ☐

Serial number

Installed by

Connection data:

Drain connection

☐

yes

☐

no

DIN 1988/EN 1717

(Please check appropriate box)

Operation log
for inspection, maintenance and repair work
on Euro system separator GENO®-DK

Work performed	Confirmation of execution
<input type="checkbox"/> Inspection Description: _____ <input type="checkbox"/> Maintenance _____ <input type="checkbox"/> Repair _____	Company: Name: Date/ Signature:
<input type="checkbox"/> Inspection Description: _____ <input type="checkbox"/> Maintenance _____ <input type="checkbox"/> Repair _____	Company: Name: Date/ Signature:
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Operation log for inspection, maintenance and repair work on Euro system separator GENO®-DK	
Work performed	Confirmation of execution
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