

INSTRUCTIONS FOR INSTALLATION, OPERATION AND MAINTENANCE

KESSEL *EasyClean* modular grease separator Standard, Direct - round, 3-piece in NS 1, 2, 3, 4

GB Page 1- 19

for installation in frost-free rooms



Product advantages

- to DIN 4040
- to Euro standard EN 1825
- 100% resistance to aggressive fatty acids
- Fast, simple installation
- Low weight
- Easy to operate
- Upgrade to all Variants possible
- 20-year guarantee for the tank



Installation Commissioning Briefing
of the system was carried out by your specialist company:

Name/signature

Date

Town/city

Stamp of specialist company

Subject to technical modifications

KESSEL

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1 Introduction

Dear Customer,

We are pleased that you have decided to buy one of our products. We are certain that it will fully meet your requirements.

These installation, operating and maintenance instructions contain important information that has to be observed during installation, assembly, operation, maintenance and repair. Prior to carrying out any work on the system, the operator and the responsible specialist staff must carefully read and understand these instructions. We wish you smooth and successful installation.

In trying to keep our quality standard as high as possible, we rely on your help of course. Please let us know of any possible improvements we could make to our product.

Do you have any questions? We look forward to hearing from you.

1.1 Product description, general

The grease separator separates grease, oil and sludge from the wastewater. The grease separator has been designed in accordance with EN 1825. The separated material can be drawn off / pumped away at any time and during operation.

1.2 Use

Animal and vegetable oils and fats must not be discharged into public disposal systems and into bodies of water, since they can cause narrowing of cross-sections and blockages in the disposal pipes when they set. In addition, fatty acids are produced after a short decomposing time, leading to unpleasant odours and corroding pipes and constructional elements of the draining systems. The solidified grease layer on the surface of the water also hinders the necessary oxygen supply to bodies of water and sewage treatment plants.

DIN 1986 Part 1 requires harmful substances to be retained. For these reasons, grease separator systems according to DIN 4040 or prEN 1825 must be planned, and disposal must take place accordingly.

1.3 System types

The following versions of the grease separator are produced:

System type A: “Standard” - without direct disposal pipe

System type B: “Direct” - with direct disposal pipe

System components, system type A:

- Separator for sludge and grease

System components, system type B:

- Separator for sludge and grease
- Direct disposal pipe (flow direction optionally left or right)

Optional system components and accessories:

- Refill inlet
- Sampling device
- Lifting stations

Note.

The separators can be upgraded up to “Auto Mix & Pump” system type (fully automatic).

1.4 Article number overview

Nominal size	A	B
1	93001-R2-TS	93001-D1-R2-TS
2	93002-R2-TS	93002-D1-R2-TS
3	93003-R2-TS	93003-D1-R2-TS
4	93004-R2-TS	93004-D1-R2-TS

1.5 Type plate

Information on the grease separator system type plate

10 Hardware revision status

52 Material designation

53 Material number

55 Standard

56 Free text / explanation

57 Free text / explanation

58 Free text / explanation

59 Free text / explanation

75 Free text / explanation

76 Material

77 Approval

78 Gross weight

79 Date of manufacture

80 Order number

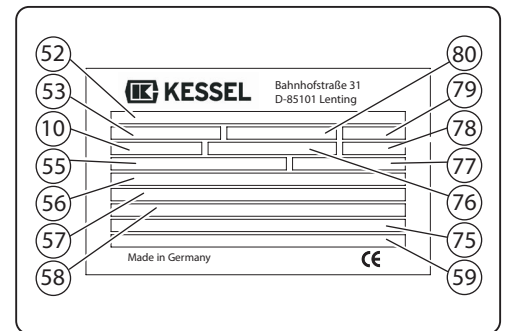


Fig. [1]

1.6 Scope of delivery

- Grease separator (see 1.8 Assemblies, functional characteristics and dimensions on page 7)
- Operating and maintenance instructions

1.7 General information on these operating and maintenance instructions

Symbols and keys used

<1> Reference in the text to a key number in a figure

[2] Reference to a figure

• Work step

3. Work step in numbered order

– List

Italics Italic font: Reference to a section / item in the control menu



CAUTION: Warns of a hazard for persons and material. Disregarding of the instructions marked with this symbol can lead to serious injuries and material damage.



Note: Technical information or instructions which must be paid particular attention.

1.8 Assemblies, functional characteristics and dimensions

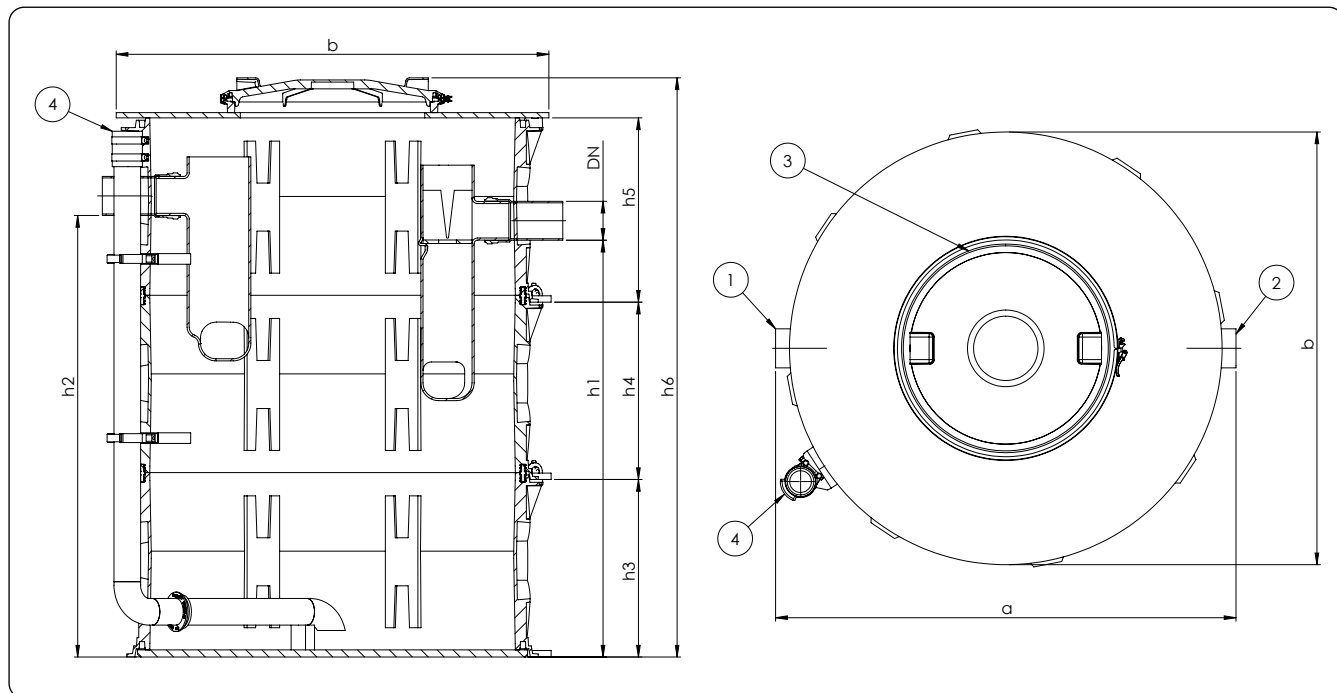


Fig. [2]

Note: Figure shows system type B

- 1 Inlet
- 2 Outlet
- 3 Cover
- 4 Direct disposal pipe DN65 (for system type B)

Nominal size	Cover diameter		a	b	h1	h2	h3	h4	h5	h6	Weight	Sludge trap	wastewater content Separator	Grease storage	Total volume	
	DN	OD														
NS 1	100	110	630	1300	1240	600	670	550	580	580	1133	95kg	100 l	380 l	80 l	480 l
NS 2	100	110	630	1300	1240	715	785	550	580	580	1383	95kg	200 l	380 l	100 l	580 l
NS 3	100	110	630	1300	1240	885	955	550	300	580	1383	110kg	300 l	420 l	120 l	720 l
NS 4	100	110	630	1300	1240	1175	1245	550	550	580	1633	120kg	400 l	560 l	160 l	960 l

Note: The dimensions apply to all system types.

1.8.1 Figure: Type A systems



Fig. [3]

1.8.2 Figure: Type B systems



Fig. [4]

2 Safety

2.1 Intended use

The grease separator system is solely intended to be used for the removal of separator secret and grease from wastewater.

The system must not be used in a potentially explosive environment.

Any

- modifications or attachments
- use of non-genuine spare parts
- Carrying out of repairs performed by companies or persons not authorised by the manufacturer can lead to loss of the guarantee.

Later extensions to the Kessel grease separators must be carried out by Kessel Factory Customer Service.

2.2 Personnel selection and qualification

People who operate and/or install the grease separator systems must

- be at least 18 years old.
- have been sufficiently trained for the respective tasks.
- be familiar with and follow the relevant technical rules and safety regulations.

The owner-operator decides on the required qualifications for the

- Operating personnel
- Maintenance personnel
- Repair personnel

The owner-operator must ensure that only qualified personnel work on the grease separator.

Qualified personnel are persons who, on the basis of their training and experience as well as their knowledge of the relevant provisions, current standards and accident prevention regulations, can carry out the required tasks and both recognise and avoid any possible hazards.

Work on electrical components may only be carried out by specially trained personnel and under adherence to all the valid accident prevention regulations (UVV).

2.3 Organisational safety measures

The operating and maintenance instructions must always be kept near the grease separator system.

2.4 Hazards caused by the product

2.4.1 Risk of slipping when the system is emptied



During cleaning work, greasy liquid and/or grease can wet the floor. This results in a slipping hazard. Always remove any liquid and/or grease that has leaked immediately, and wear suitable footwear.

2.4.2 Risk of infection in case of contact with the wastewater



The wastewater contains bacteria. There is a risk of infection in the event of contact with mucous membranes, eyes, wounds or when absorbed into the body. If any parts of the body come into contact with wastewater, clean immediately and change contaminated clothing. Wear personal protective equipment.

3 Installation

3.1 Recommendations for the installation location / operation

- clean, horizontal set-up area
- well vented or ventilated room and one with a level set-up area capable of bearing an appropriate load.
- room temperature at least 15°C.
- sealed flooring with integrated drain.
- hot and cold water connections
- room height at least 60 cm higher than the grease separator so that the service access cover can be opened for cleaning work.
- clear working space of at least 1 m in front of the grease separator.
- inlet with stilling section of at least 1 m (gradient 1: 50). transition from on-site downpipe to stilling section fitted with 2x 45° bends¹.
- If the inlet pipe is longer than 10 m, it must be vented separately.
- Foreign objects (cutlery, crown corks, mustard sachets, bones, etc.) interfere with or damage separating operation. We recommend fitting a coarse particle strainer.
- If the grease separator system is installed below the locally specified backwater level, a lifting station must be installed downstream in accordance with DIN EN 1825, unless local regulations specify otherwise.

3.2 Setting up / installing the grease separator system

During installation, the pertinent regulations in EN 1825 and DIN 1986 must be heeded.



When full, the grease separator system is heavy. Make sure it is placed on a surface with sufficient load-bearing capacity (for volume, see “Technical data”, page 16).



The grease separator is delivered screwed together and ready for operation. The tank is packed on a pallet together with the installation material and the accessories. If it is not possible to transport the system into the planned room in one piece, it can be dismantled. The components are easy to transport and fit through any standard door.

The setup is as follows:

- Dismantle the grease separator
 - Remove the seals as those that have already been greased can no longer be used.
 - Two replacement seals are included

1) Reduction of the risk of sucking siphons empty and odour traps. Less air input and movement as well as less odour formation and foaming in the separator.

Installation

- Installation:
 - Install the base section and align horizontally.
 - Use replacement seal.
 - Place the sealing gasket <32> onto the seat groove of the base element.
 - Use a rubber hammer to knock the sealing gasket into the seat groove at four equidistant points <A B C D> around the edge.
 - Hammer the sealing gasket completely into the seat groove. Make sure that the seal is neither bulged nor stretched.
 - Grease the top side of the sealing gasket slightly.
- Connect the chamber parts as shown in "Fig. [6]".
- Place an intermediate section or top section on the base element. Make sure that this is aligned according to the coding <33> and <34>
- 4 x screws or bolts in the holes can be used for centring
- Fix the chamber sections with connection wedges and assemble as follows:
 - If the shaft sections have been centred correctly with screws or bolts they fit correctly.
 - For easier assembly, use pliers to press together connecting surfaces if necessary.
 - Knock in the connecting wedges <7> with a hammer.
 - Insert the seal for the next element, etc. as described above.
 - Tightly screw the separator with the enclosed screws.

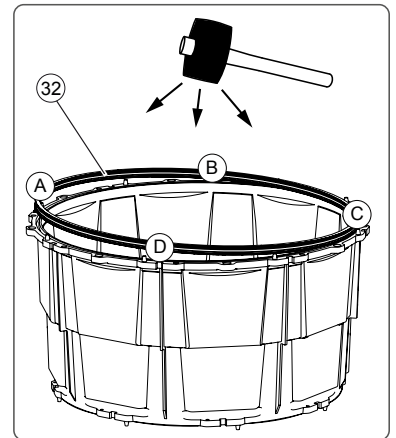


Fig. [5]

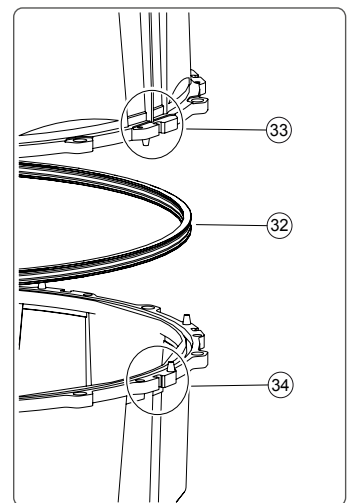


Fig. [6]



The inlet and outlet pipes must be connected on site. After commissioning, check the connection pipes for leaks. If water leaks, check the fit of the connections.

The following note applies to system type B only (Variant D)

- The direct disposal pipe must be connected on site.
- We recommend use of a woven fabric hose and 2 screw clamps tightened to 10 Nm torque for the connection to the PE pipe DN 70 with hot plate weld upset.
- If connected to a steel pipe it must be secured by a restrained joint.
- The Storz-B coupling supplied (R 2 1/2" internal thread) must be installed at the end of the disposal pipe, in a place that is easily accessible for the disposal vehicle.

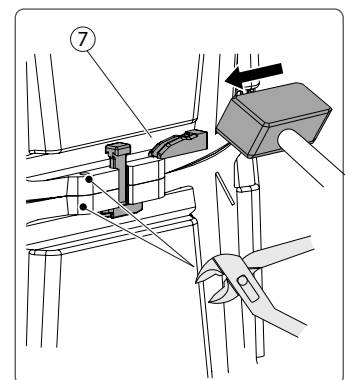


Fig. [7]

3.3 Initial fill and pressure test (leak test)

- Make sure that there are no foreign materials or soiling in the grease separator.
- Check the system for leaktightness, transport and installation damage, and check the pipe connections.
- Completely fill the whole grease separator with water.

- Carry out pressure test, to do this
 - open service access cover.
 - use suitable means to close off the outlet and inlet.
 - Completely¹ fill the grease separator with water and make sure that there are no leaks (e.g. bubble).
 - Restore the functionality of the outlet and inlet

The system is now ready for use.

3.4 Briefing / handover

The commissioning and briefing are generally carried out by factory customer service employees.

- The following points must be fulfilled for the commissioning and briefing:
 - Sanitary installations must be completed
 - System filled with water and ready for operation
 - The disposal company must attend the handover.
- The following persons should be present at the handover:
 - Person authorised to perform the acceptance on behalf of the building owner
 - Sanitary fitter
- In addition, we recommend the participation of
 - Operating personnel
 - Disposal company
 - System operator
- Briefing:
 - Information about disposal
 - Practical demonstration of the operating possibilities
 - Functional test
 - Information on disposal intervals
- Handover of installation and operating instructions
- After the instructional briefing has been completed, the grease separator must be made ready for operation again, i.e. the system must be completely filled with cold water.
- Drawing up the handover certificate. Make sure that there are no foreign materials or soiling in the grease separator.

1) Fill up to 2 cm below the service access opening.

Emptying the separator

4 Emptying the separator

4.1 Emptying/disposal process in general

- Operating instructions must be displayed near the separator.
- The disposal process must be carried out exactly according to the instructions.
- Only allow approved disposal companies to empty the grease separator.
- The separator must be emptied for the first time within 2-3 weeks of putting into service (commissioning).

Notes:

- Subject to technical modifications!
- Follow the accident prevention regulations!
- SMOKING is prohibited when working on the open separator due to possible formation of biogas.

4.2 Emptying intervals

According to DIN V 4040-2 and EN 1825, unless specified otherwise, sludge traps and separators must be emptied, cleaned and refilled with fresh water every fourteen days, but at least monthly. In the case of DIN 4040 separators, the grease storage chamber must be emptied first and then the sludge trap; this prevents the sludge tank from rising.

Attention: Correct functioning is only ensured if the separator is emptied in good time. For this reason, a disposal (collection) contract should be concluded with a licensed waste management company. If possible, the emptying/ collection work should be carried out outside of business hours. When the separator tank is opened, odour pollution must be expected.

Emptying cycle flowchart (European standard EN 1825)

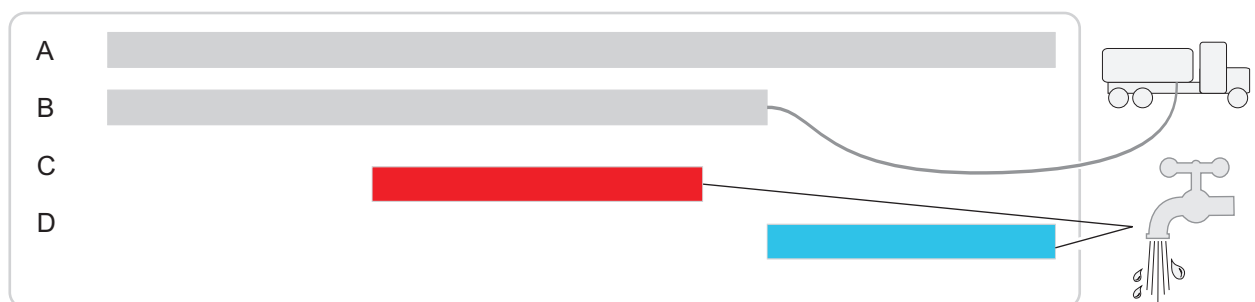



Fig. [8]

- A Emptying period
 - B Disposal vehicle extracts contents
 - C Hot water* inlet
 - D Cold water inlet
- * recommended

Emptying the separator

4.3 Emptying system type A


- Carefully loosen the clamping ring and remove the service access cover (Caution! Risk of injury)
- Pass the suction spout of the disposal vehicle past the inlet or outlet part and empty / extract the contents from the separator tank (Attention! Damage to the installed components leads to problems with the separating function.)
- When the separator tank is approx. 1-third empty, open the hot water inlet.
- When the tank is completely empty, dismantle the extraction hose of the disposal vehicle and switch off the hot water inlet.
- Clean the system tank thoroughly (spray down), dispose of grease residues.

 If the system tank is not refilled with water after emptying (top of outlet structure, bottom part), grease and suspended matter can flow freely into the sewers.

- Fill the tank up to the separator overflow.
- Clean and check cover seal (renew if necessary).
- Carefully close the service access cover with clamping ring. (Caution! Risk of injury)

4.4 Emptying system type B

- Carefully loosen the clamping ring and remove the service access cover (Caution! Risk of injury)
- Connect the extraction hose of the disposal vehicle to the direct disposal pipe.
- Empty tank (extraction).
- When the separator tank is approx. 1-third empty, open the hot water inlet.
- When the tank is completely empty, dismantle the extraction hose of the disposal vehicle and switch off the hot water inlet.
- Clean the system tank thoroughly (spray down), dispose of grease residues.

 If the system tank is not refilled with water after emptying (top of outlet structure, bottom part), grease and suspended matter can flow freely into the sewers.

- Fill the tank up to the separator overflow.
- Clean and check cover seal (renew if necessary).
- Carefully close the service access cover with clamping ring. (Caution! Risk of injury)

5 Technical data

5.1 Requirements / basis of calculation

The parameters for operation (emptying) of the grease separator are based on the following values:

- Pumping capacity (extraction capacity) of the disposal vehicle 10 L/s = 36 m³/h.
- Cold / hot water supply 1L/s with DN25
- Room temperature at least +15° C.


	NS1	NS 2	NS 3	NS 4
Cold water requirements (inlet edge of outlet structure)	330 l	570 l	600 l	960 l
Note: the value corresponds to the volume of the separator chamber plus the volume of the sludge trap.				



Since the products described are customised versions, where the dimensions are produced in accordance with customer wishes, there can be minor deviations in the volumes.

6 Maintenance

6.1 Maintenance intervals

 The grease separator must be serviced annually by a competent expert / inspector*. In addition to the disposal/emptying measures, the following work must also be carried out:

*The term “competent” is used to describe employees of the owner/operator company or of assigned third parties who, on account of their training, knowledge and practical experience, ensure that they carry out evaluations or tests properly in the respective field.

- Complete emptying of the tank.
- Cleaning the inlet and outlet to remove grease deposits.
- Cleaning and inspecting the inside wall surfaces of the sludge trap and the grease separator.
- Functional check of the electrical devices and installations, if applicable.
- The findings and work carried out must be recorded and evaluated in the log book.


6.2 Troubleshooting

Permanent odour development

Fault	Possible cause	Measure
Odour pollution	Wastewater pipes leaking.	Check for a tight fit and check seals, repair if necessary
	No ventilation pipe, cross-section too small	Retrofit on site
	Closed room with no air exchange.	Create ventilation options, forced ventilation.
	System parts are leaking	Eliminate leaks

6.3 Cleaning the grease separator

- Make sure that no more wastewater can flow into it.
- Empty the separator tank, as described under Emptying (chapter 4 on page 14).
- Dismantle the tank’s service access cover.

 Do not clean the grease separator system using water pressure of more than 5 bar and a water temperature of more than 50°C. Do not use a high-pressure cleaner on seals. If soap is used for cleaning, rinse out / extract the residues, as otherwise they could lead to malfunctions.

- Clean all components with hot water.
- Fit the service access cover on the tank.
- Carry out a pressure test (for leaks) and then a functional check (see 3.3 Initial fill and pressure test (leak test) on page 12)).

If all the system components are leaktight, the grease separator can be put into operation again.

7 System passport / factory approval

Mat. Des.
Mat. no./Order no./Prod. Date
Rev.hrs./Material/Weight
Standard/Approval
Dimensions
Volume
Density
Designation 1
Designation 2

The system was checked for completeness and for leaks before it left the factory.

Date

Name of the tester

General inspection / maintenance requirements

8 General inspection / maintenance requirements

The owner-operator of a separator system is obliged according to valid legal principles as well as according to DIN EN 1825 / DIN 4040-100 to subject the system to a general inspection with leak test by a competent expert / inspector before commissioning and repeated every 5 years. This test may only be carried out by a competent skilled person. We will be happy to send you a quotation for the general inspection by an independent expert.

Maintenance requirements

For you, it is important that the quality and functional ability of your system is kept at the best possible standard, particularly when this is the precondition for a warranty.

If you have the maintenance carried out by the manufacturer of the system, we guarantee you continued updating and care for your system.

You would you like a quotation for a maintenance contract / general inspection? Please copy this page, complete it and then fax it to the following No.: 08456/27-173

If you have any questions please do not hesitate to contact our Service department on +49 (0) 8456 / 27462

Quotation for a general inspection or a maintenance contract for separator systems

Please send me a non-binding quotation for maintenance general inspection . (Please mark with a cross accordingly)

Sender

Name: _____

Street: _____

Postcode/Town or city: _____

Contact: _____

Tel. no.: _____

Person receiving quotation

Name: _____

Street: _____

Postcode/Town or city: _____

Contact: _____

Tel. no.: _____

Building

Name: _____

Street: _____

Postcode/Town or city: _____

Contact: _____

Tel. no.: _____

Type plate data:



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