INSTRUCTIONS FOR INSTALLATION, OPERATION AND MAINTENANCE

KESSEL Grease separator *EasyClean* free Mix, Auto Mix, Mix & Pump, Auto Mix & Pump - oval in NS 2, 4, 7, 10, 15, 20, 25, 30

GB Page 1- 61

for set-up in frost-free rooms

Product advantages

- ❏ in accordance with DIN 4040
- ❏ in accordance with Euro standard EN 1825
- ❏ 100% resistant to aggressive fatty acids
- ❏ Easy operation
- ❏ Upgrading to all variants possible
- ❏ 20 year guarantee for tanks

☐ Installation ☐ Putting into operation ☐ Instructional briefing for the system was carried out by your specialist company:

Name/signature Date Town/City

Stamp of specialist company

KESSEL

As at 2019/11

Code no. 010-917_SON_EN

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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 heed 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 greases, oils and sludge out of the wastewater. The grease separator system has been designed in accordance with EN 1825. The waste can be extracted off at any time and without interrupting operation. Depending on the model type, the grease separator system is equipped with an electric system control and pump as well as various control valves. A viewing window makes it possible to check the amount of grease collected in the system tank.

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 trapped. 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

C D E F

The grease separator system is made in these versions:

System type (code for installation)	System designation	Control unit type	Direct disposal pipe	Refill inlet	Inspection window	RemoteControl**	2 solenoid valves	Two-way valve, manual	Two-way valve, electric
C	Grease separator Mix - oval	-	x	x	x*				
D	Grease separator Auto Mix - oval	“Auto Mix”	x	x	x	x*	x		
E	Grease separator Mix & Pump- oval	“Mix & Pump”	x	x	x	x*		x	
F	Grease separator Auto Mix & Pump- oval	“Auto Mix & Pump”	x	x	x	x*	x		x

* Optional

** Wired remote control

1.4 Overview of article numbers

Nominal size	C	D	E	F
2	93002.04/DS	93002.04/MS	93002.04/DSP	93002.04/PVS
4	93004.04/DS	93004.04/MS	93004.04/DSP	93004.04/PVS
7	93007.04/DS	93007.04/MS	93007.04/DSP	93007.04/PVS
10	93010.04/DS	93010.04/MS	93010.04/DSP	93010.04/PVS
15	93015.01/DS	93015.01/MS	93015.01/DSP	93015.01/PVS
20	93020.01/DS	93020.01/MS	93020.01/DSP	93020.01/PVS
25	93025.01/DS	93025.01/MS	93025.01/DSP	93025.01/PVS
30	93030.01/DS	93030.01/MS	93030.01/DSP	93030.01/PVS

1.5 Type plate

Information on the type plate of the grease separator system

10	Serial number
52	Material description
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

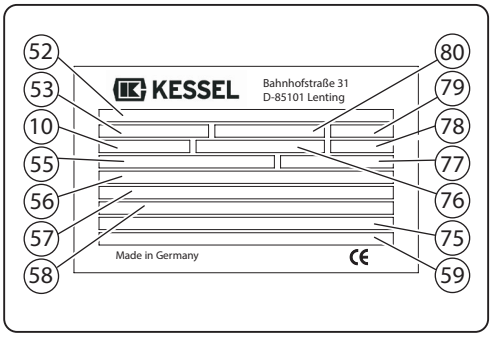

Abb. [1]

Information on the type plate of the control unit

1	Name of the control unit
2	Material number of the control unit
3	Connection voltage and connection frequency
4	Current consumption range
5	Protective rating (IP)
6	Serial number of the control unit
7	Spare part number of the control unit
8	Danger sign (electr. control unit)
9	Protective class I - protective earth
10	CE marking
11	Hazardous waste electric device - emptying not via domestic waste
12	Hardware revision status

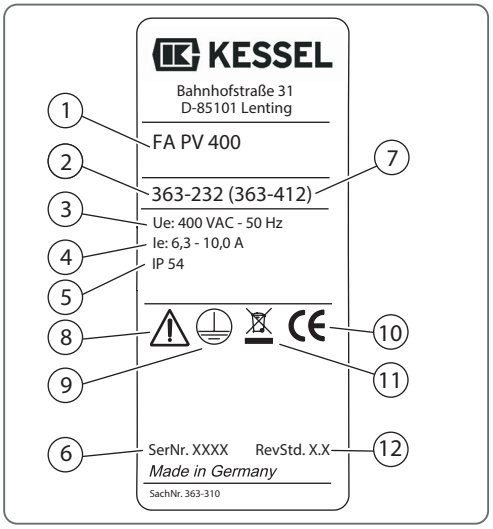

Abb. [2]

1.6 Scope of delivery

– Grease separator syst(see 1.8 Assemblies and functional characteristics on page 8)
– Operating and maintenance instructions
– Solenoid valves (except for system type C - “Mix” variant)

1.7 General information on these operating and maintenance instructions

Symbols and keys used

<1>	Reference in the text to a key number in an illustration
[2]	Reference to an illustration (Figure)
•	Work step
3.	Work step in numbered order
–	List
Italics	Italic type: Reference to a section / item in the control menu

CAUTION: Warns of a hazard for persons and material. Ignoring 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.

To avoid the descriptions of control unit operation becoming unnecessarily difficult to read, no menu prompting details are described if these can be considered standard and self-explanatory.

If, for example, a section such as *Maintenance* is to be chosen, the manual does not read

Press down cursor key => Select entry *Maintenance* => Press OK key

Instead, it simply reads “Select*Maintenance* ”

1.8 Assemblies and functional characteristics

Illustration shows system type F

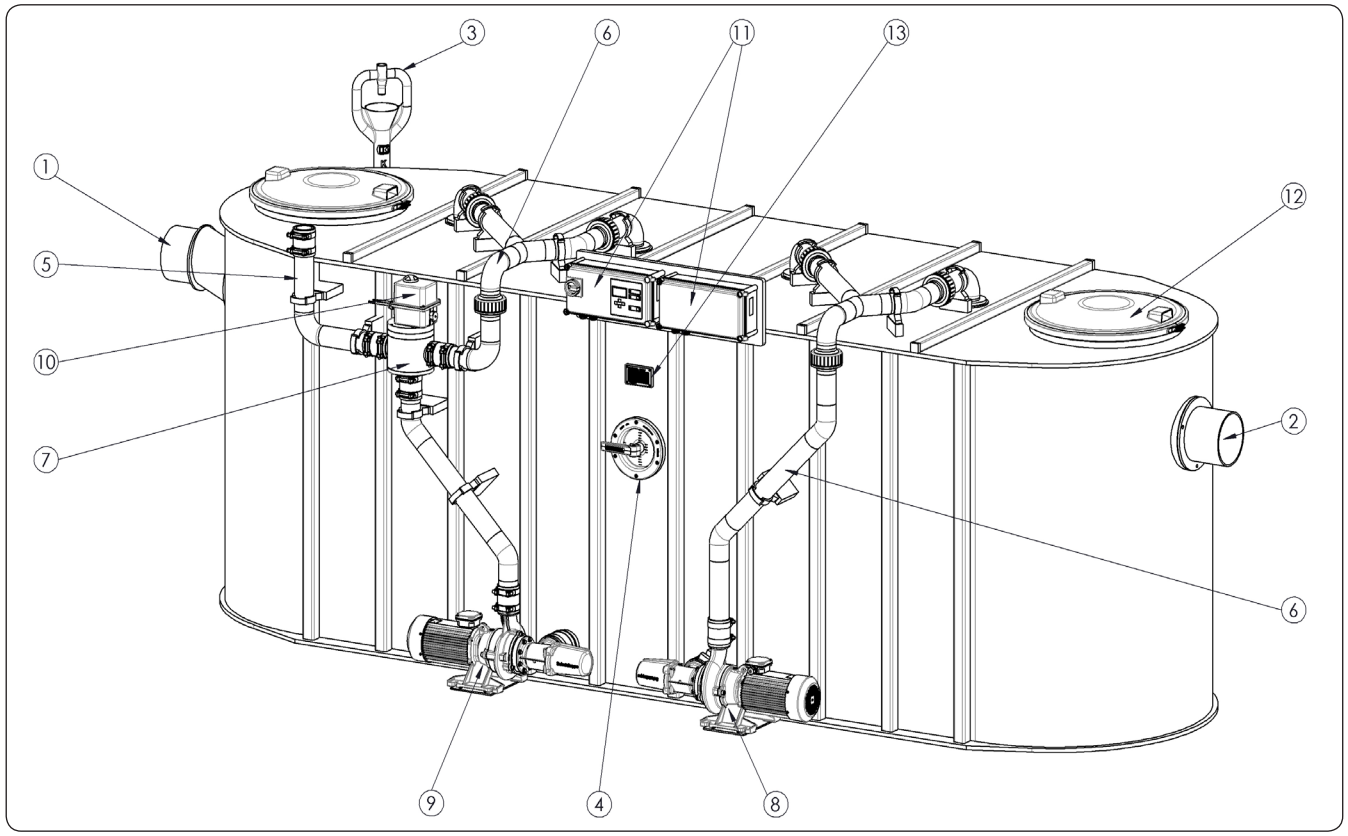

Abb. [3]

1	Inlet
2	Outlet
3	Refill inlet
4	Inspection window
5	Direct disposal pipe
6	Pressure pipe
7	Switchover valve
8	Pump (cleaning and shredding)*
9	Pump (disposal)
10	Actuator valve switchover valve (system type F)
11	Control unit (system type D E F)
12	Inspection cover
13	Type plate

* There is only one pump with nominal sizes 2, 4, 7, 10 and 15. This cleans, shreds and disposes.

1.9 Illustrations and dimensions

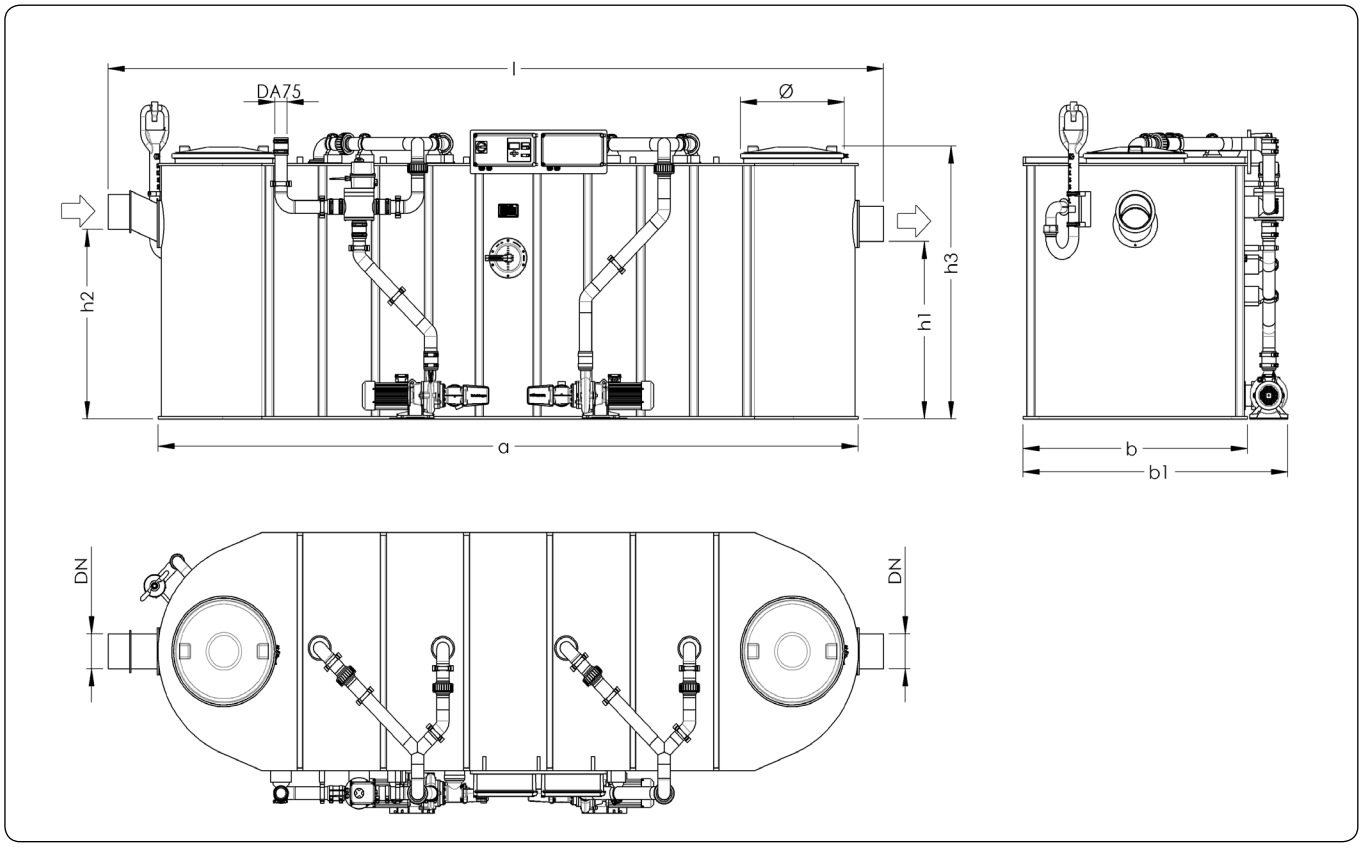

Abb. [4]

Nominal size	DN	OD	Cover diameter	a	Installation l	Installation b	b1	h1	h2	h3	Sludge tank	Wastewater content separator	Grease separator	Total volume
NS 2	100	110	454	1100	1250	785	1055	930	1000	1310	200 l	210 l	110 l	410 l
NS 4	100	110	454	1560	1810	785	1055	930	1000	1310	400 l	350 l	180 l	750 l
NS 7	150	160	630	1600	1850	1020	1290	1130	1200	1560	700 l	570 l	300 l	1270 l
NS 10	150	160	630	2500	2700	1020	1290	1130	1200	1560	1000 l	790 l	420 l	1790 l
NS 15	200	200	630	3300	3560	1350	1620	1130	1200	1625	1500 l	2020 l	600 l	3520 l
NS 20	200	200	630	4250	4510	1350	1620	1030	1100	1525	2000 l	2230 l	800 l	4230 l
NS 25	200	200	630	4500	4760	1350	1620	1030	1100	1525	2500 l	1950 l	1000 l	4450 l
NS 30	250	250	630	4600	4860	1350	1620	1170	1240	1625	3000 l	2250 l	1200 l	5250 l

Note: The dimensions apply for all system types.

1.9.1 Illustration system types - C

C D E F

Illustrations of the “Mix” system type for the nominal sizes 2, 4, 7, 10 and 15

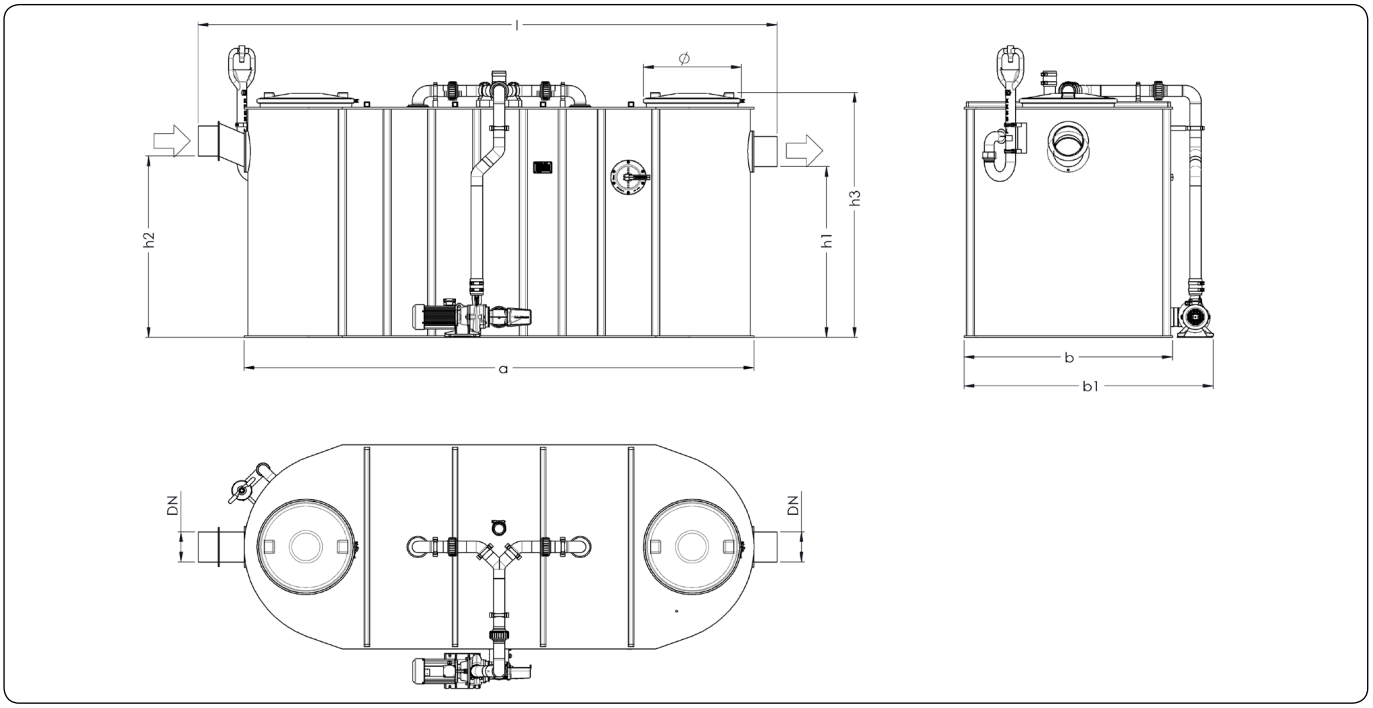

Abb. [5]

Illustrations of the “Mix” system type for the nominal sizes 20, 25 and 30

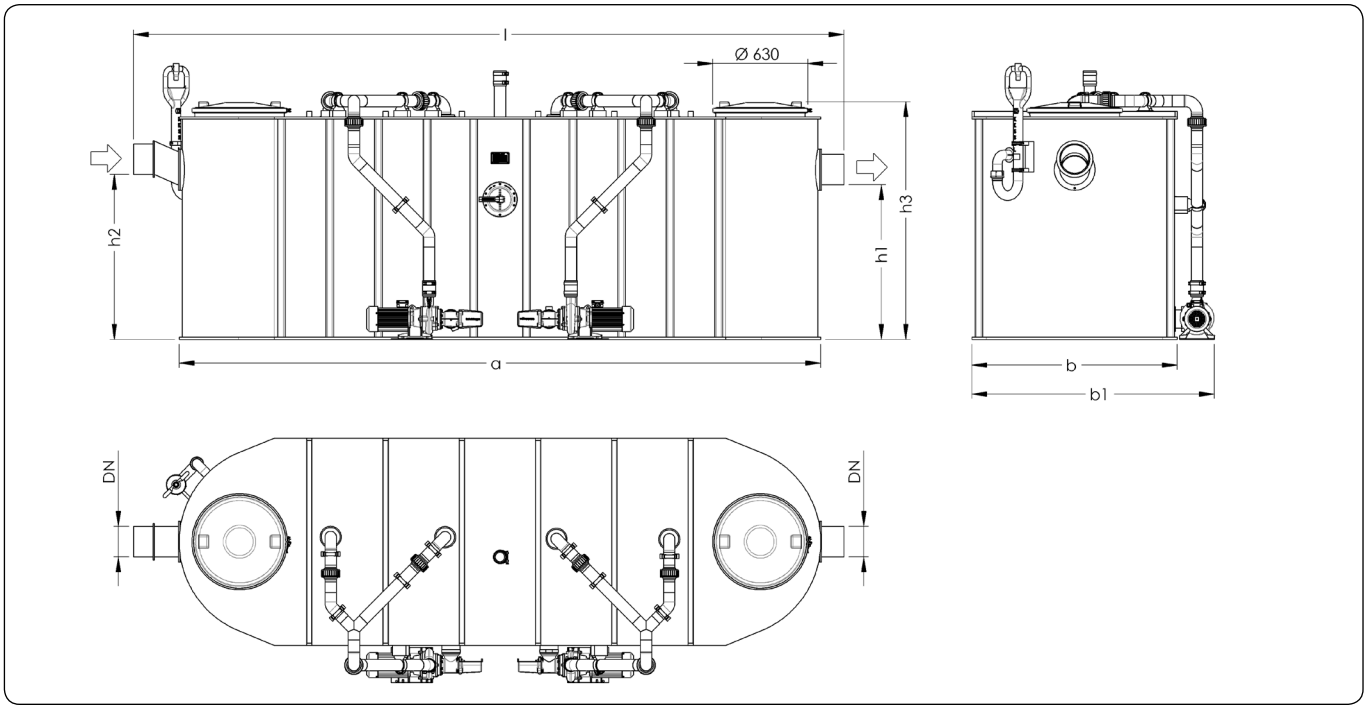

Abb. [6]

1.9.2 Illustration system types - D

C D E F

Illustrations of the “Auto Mix” system type for the nominal sizes 2, 4, 7, 10 and 15

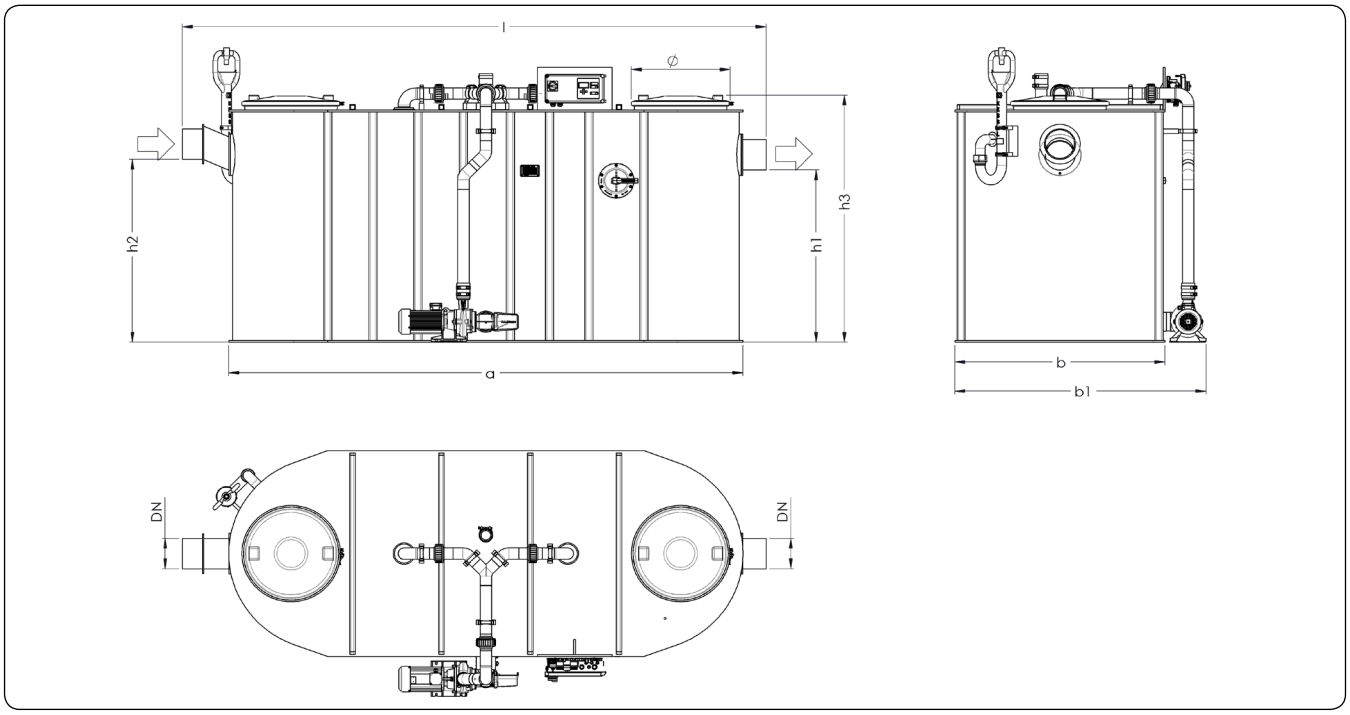

Abb. [7]

Illustrations of the “Auto Mix” system type for the nominal sizes 20, 25 and 30

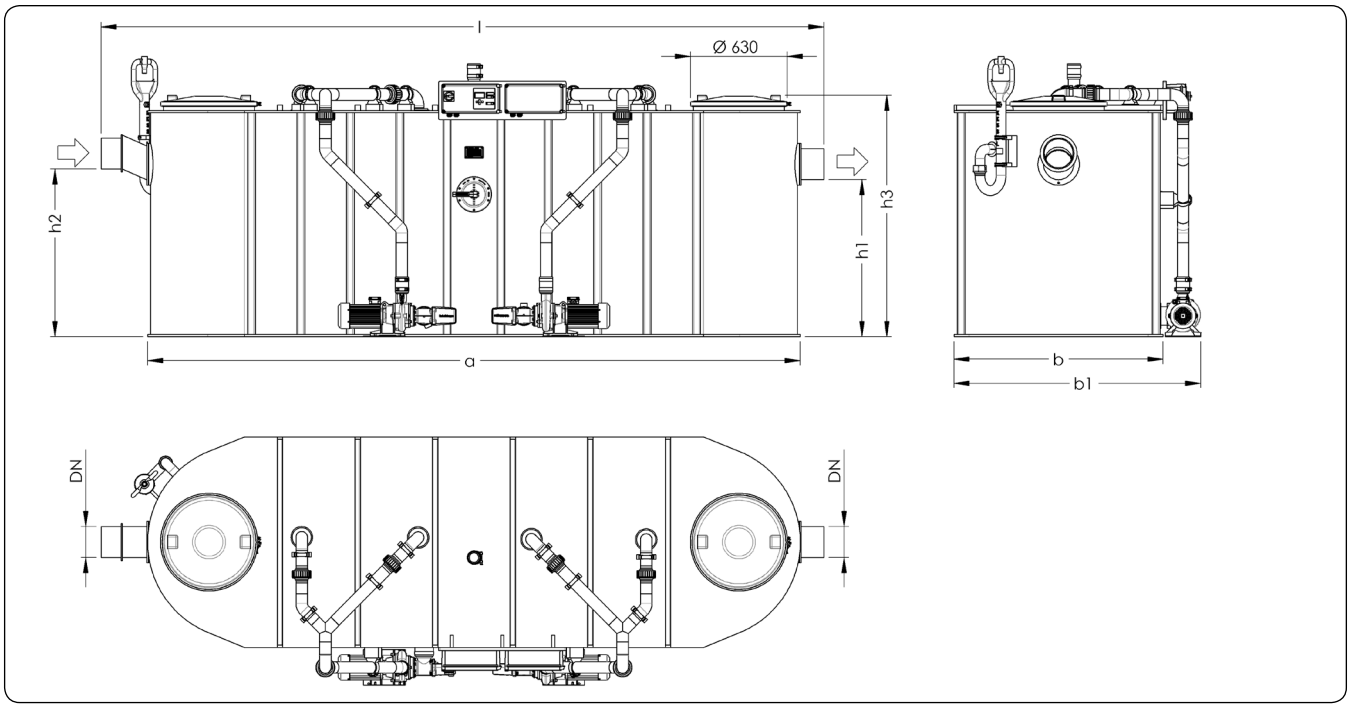

Abb. [8]

1.9.3 Illustration system types - E

C D **E** F

Illustrations of the “Mix & Pump” system type for the nominal sizes 2, 4, 7, 10 and 15

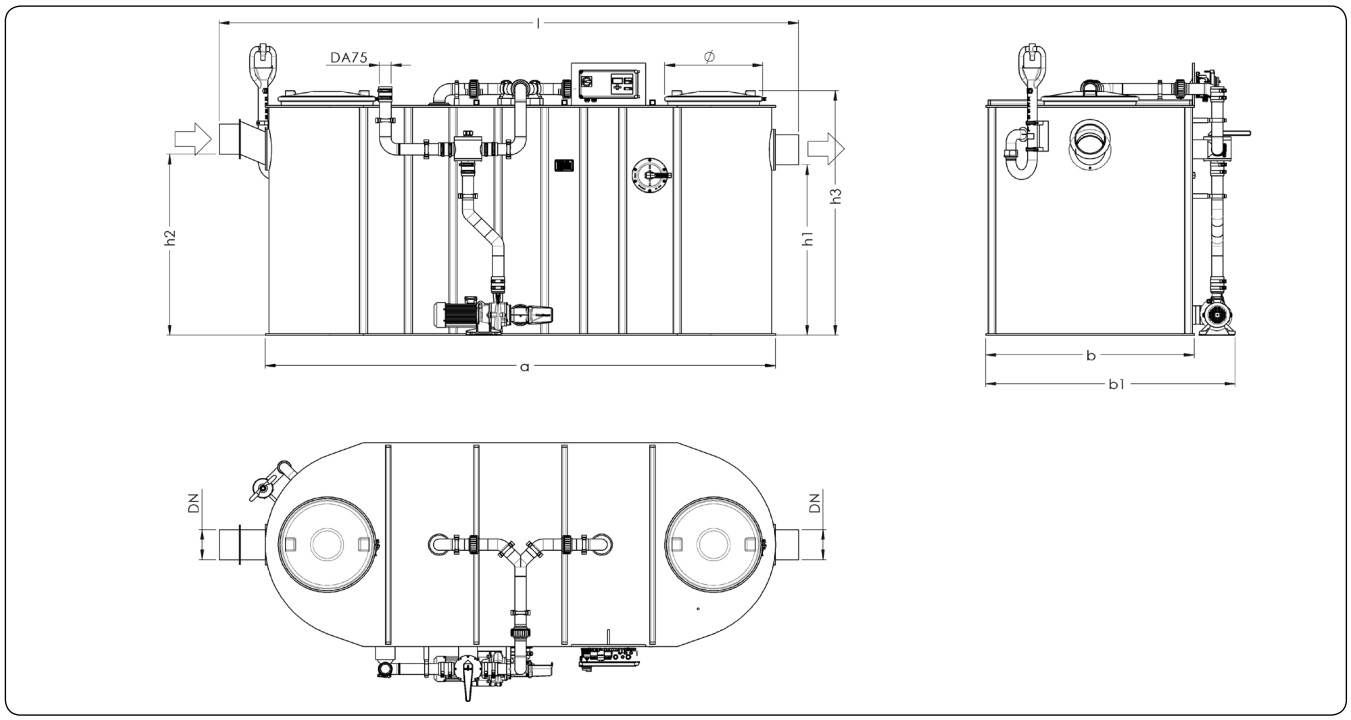

Abb. [9]

Illustrations of the “Mix & Pump” system type for the nominal sizes 20, 25 and 30

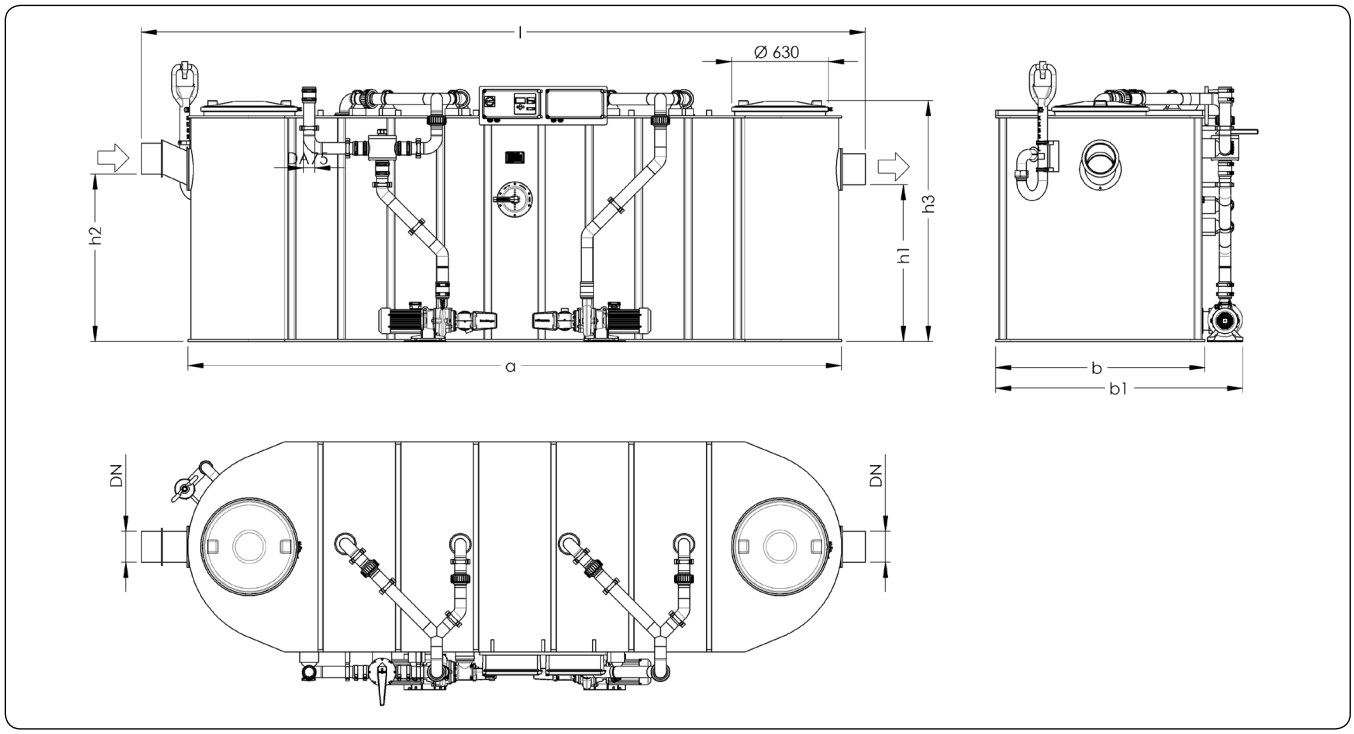

Abb. [10]

1.9.4 Illustration system types - F

Illustrations of the “Auto Mix & Pump” system type for the nominal sizes 2, 4, 7, 10 and 15

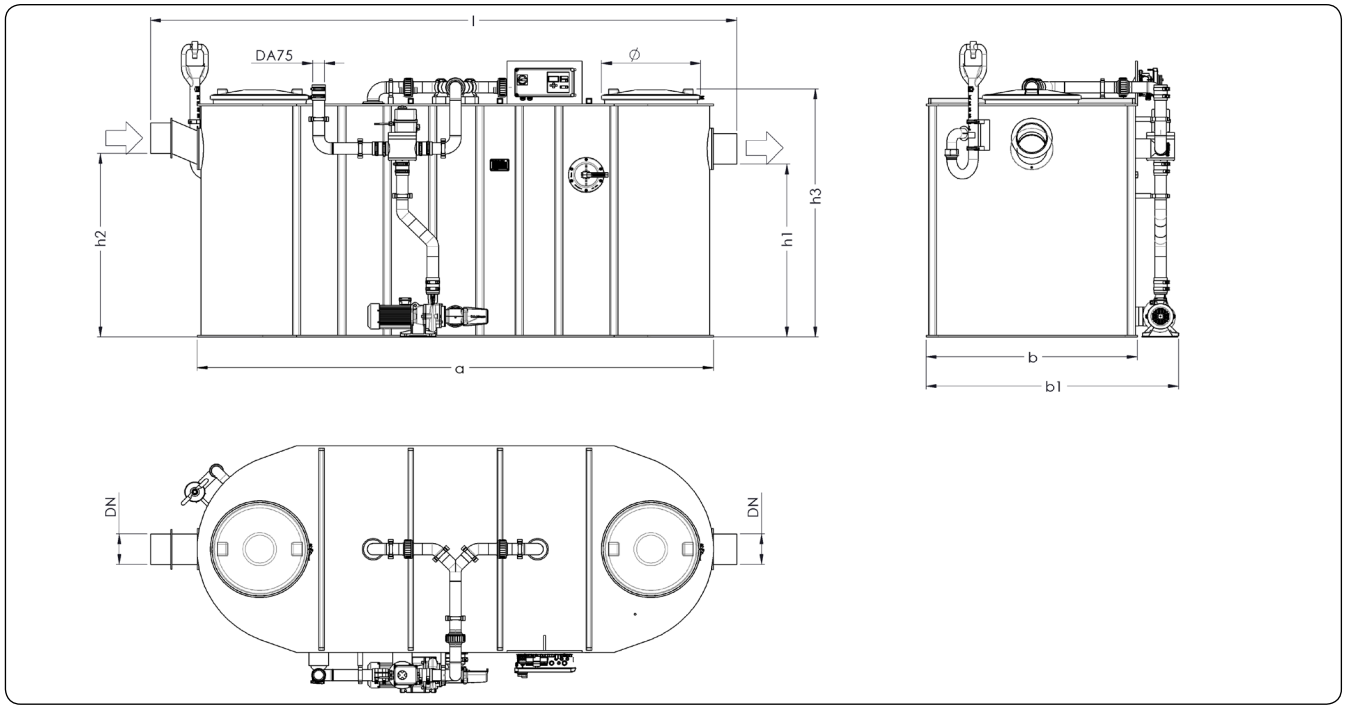

Abb. [11]

Illustrations of the “Auto Mix & Pump” system type for the nominal sizes 20, 25 and 30

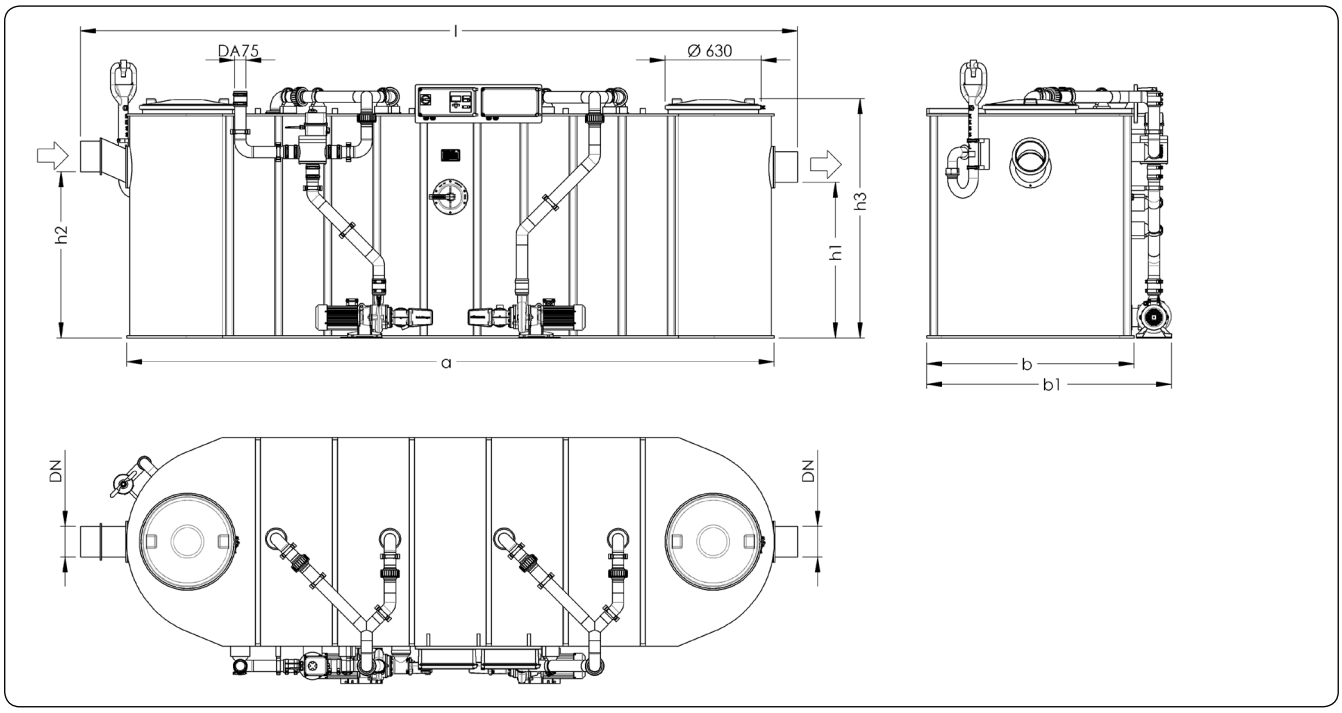

Abb. [12]

1.9.5 Control unit

1.9.5.1 “Mix & Pump” control unit for system type E

C D **E** F

64	LED	Ready for operation
69	LED	Alarm LED
70	Start / Stop	Start / stop emptying operation
71	Alarm	Acknowledge the acoustic alarm
73	LED	Pump operation LED

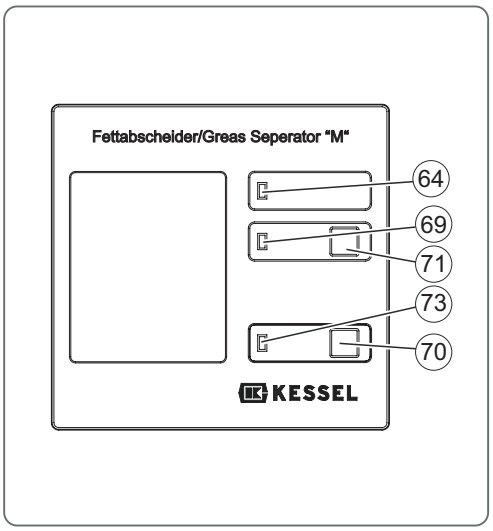

Abb. [13]

1.9.5.2 “Auto Mix & Pump” control unit for system type F

C D E **F**

General information

The menu prompting has an operating and a standby mode.

If over a period of approx. 60 seconds none of the keys are pressed, standby mode is activated automatically, the background lighting of the display is then switched off.

Operation, function keys

64	LED	Ready for operation
66	Cursor up	Scrolling in the menu
67	Cursor down	Scrolling in the menu
68	ESC	Deletion of an entry, back
69	LED	Alarm LED
70	Start / Stop	Start / stop emptying operation
71	Alarm	Acknowledge the acoustic alarm
72	OK	Confirmation of an entry, next level
73	LED	Pump operation LED

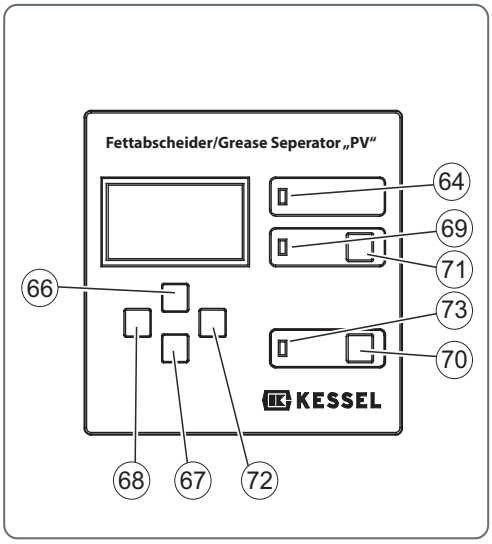

Abb. [14]

Display

74	Number of the menu
75	Name of the menu

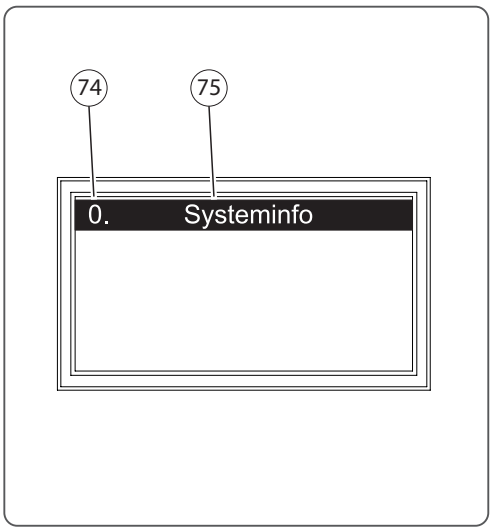

Abb. [15]

2 Safety

2.1 Intended use

The grease separator system has been exclusively designed for clearing wastewater of waste and grease.

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 by companies or persons not approved by the manufacturer

without the express and written approval of the manufacturer can lead to a loss of warranty.

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

2.2 Personnel selection and qualification

People who operate and/or fit 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 staff
- maintenance staff
- repair staff

The owner-operator must ensure that only qualified staff 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 specialist staff 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 to the grease separator system.

2.4 Hazards caused by the product

2.4.1 Risk caused by electric current and cables

All live parts are protected against unintentional contact as well as splashwater from all directions (IP 54). Before housing covers, plugs and cables are opened they must be switched voltage-free. Work on electrical components may only be carried out by specialist st2.2ee 2.2).

The electrical components of the grease separator system are not protected against flooding. VDE 0100 applies for all electrical work on the unit. The unit must be supplied through a residual-current-operated protected device (RCD) with residual current of ≤ 30mA. The control unit is live and must not be opened. Only qualified electricians may carry out work on electrical equipment. The term qualified electrician is defined in VDE 0105.

2.4.2 Risk caused by heat development at the pump(s)

If the drive motors of the pumps run over a longer period, temperatures of more than 70°C can result. Burning hazard when touched.

2.4.3 Danger 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 eliminate any liquid and/or grease that has leaked immediately, and wear suitable footwear.

2.4.4 Risk of infection when coming into 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 in the body. Any parts of the body which come into contact with wastewater should be cleaned immediately, change soiled clothing. Wear personal protective equipment.

3 Installation

3.1 Recommendations for the set-up location / operation

- Clean, horizontal set-up area
- Well vented or ventilated room and one with level set-up area capable of bearing an appropriate load.
- Room temperature at least 15°C.
- Sealed floor covering with integrated drain.
- Hot and cold water connections
- Room height at least 60 cm higher than the grease separator system so that the inspection covers can be opened during cleaning work.
- Free working space of at least 1 m in front of the grease separator system.
- Inlet with stilling section of min. 1 m (gradient 1:50). Transition from on-site drainpipe to stilling section equipped with 2x 45° bends[1].
- If the inlet pipe is longer than 10 m it must be bled separately.
- Objects (cutlery, crown corks, mustard sachets, bones etc.) interfere with or damage the 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

➡ When full, the grease separator system is heavy. Make sure it is placed on a surface with a sufficient load-bearing capac“Technical data”, page 54).

➡ **Torques for the screw connections** are listed in Ch7.3 on page 55. Make sure these are heeded accordingly.

Working sequence for installation

The individual work steps are assigned to the respective system types (C D E F) (see Chapter 1.3 on page 5).

1) Reduction of the danger of siphons and odour traps being suctioned dry. Less entry and movement of air as well as formation of odours and foam in the separator.

3.2.1 Fitting the inlet and outlet

C D E F

- The system must be set up horizontally on a level surface in a frost-free room. When full, the grease separator system is heavy. Make sure it is placed on a surface with a sufficient load-bearing capacity.
- Set up pipework connections to the domestic installation at the inlet and outlet.

3.2.2 Fitting or removing the pump

C D E F

The intake socket <21> is mounted on the grease separator.

- Position the pump <24> on the acoustic insulating mat <33> and connect it to the intake socket <21> using the clamps <37> and the connecting piece <38>.
- Bolt the pump and the acoustic insulating mat to the floor (using the fastening material provided).

➡ The electrical connection is described with installation of the control unit.

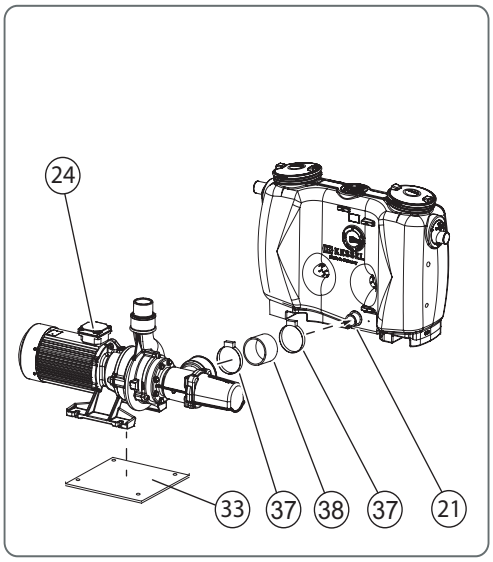

Abb. [16]

3.2.3 Mounting the refill inlet

C D E F

The refill inlet is fitted to the grease separator ready for operation.

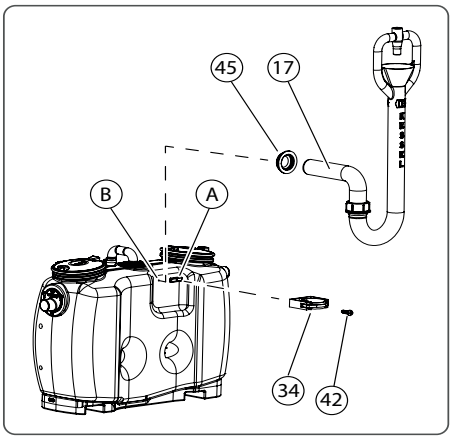

Abb. [17]

➡ Grease the seal <45> during conversion.

- Use the screw <42> to fit the attachment clamp <34> to the seat <A> on the system tank.
- Insert the all-round seal <45> into the drill hole <B>.
- Fit the refill inlet <17> into the passage seal <45> and screw tight using the fastening clamp <34>.

3.2.4 Installing the screw-type valve - E

C D E F

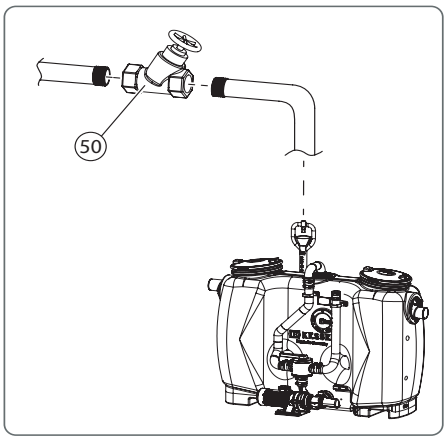

Abb. [18]

➡ The valve must be fitted horizontally.

- Install the screw-type valve(s) <50> in the water supply pipe(s).

3.2.5 Installing the solenoid valves - F

C D E F

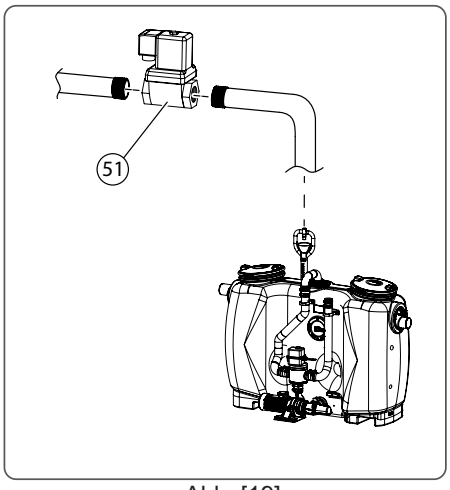

Abb. [19]

➡ The valve must be fitted horizontally.

- Install the solenoid valves <51> as shown and connect them accordingly
  to the water pipes (cold / hot[1]).
- Install the screw-type valves and connect them accordingly to the water pipes (cold / hot[2]).

➡ The electrical connection is described with installation of the control unit.

1) Hot water is recommended
2) Hot water is recommended

3.2.6 Installing the *SonicControl* sensor (option) - F

C D E F

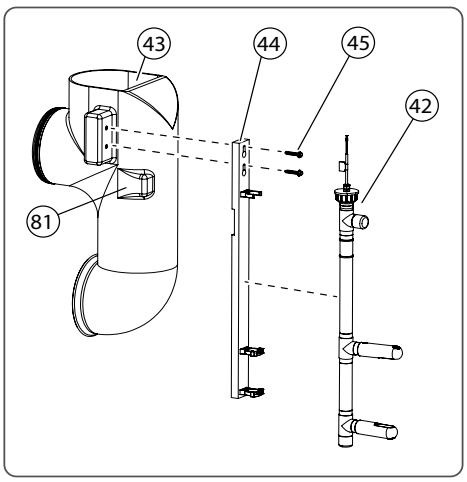

Abb. [20]

- Open the inspection cover above the outlet assembly.
- Sensor bracket <44> is already screwed <45> to the outlet assembly <43>.
- Secure the sensor <42> on the bracket and turn against the stop <81>.
- Route the sensor cable through the pre-mounted cable duct (PE-screw connection <58>). For maintenance purposes, approx. 1 m cable length must be provided so that the sensor can be lifted out of the system tank.
- Close the inspection cover.

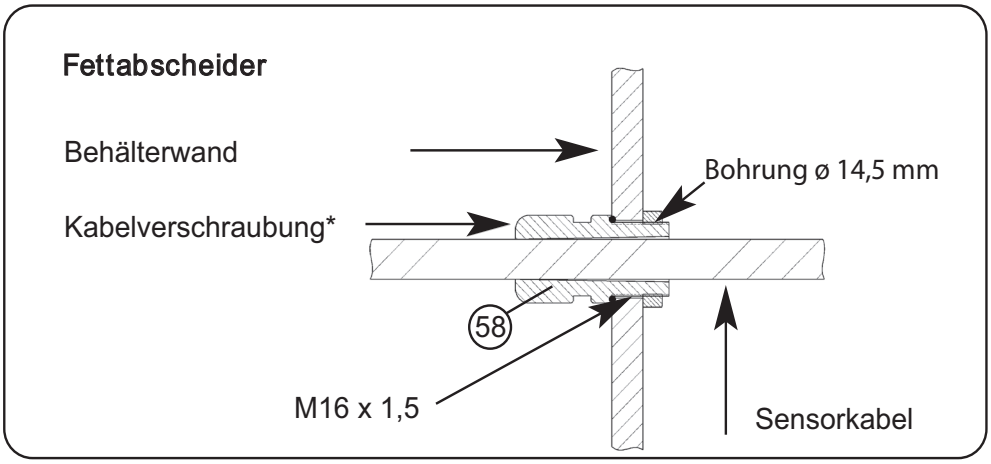

Abb. [21]

3.2.7 Mounting the remote control - F

C D E **F**

Mount the remote control console in the required position as follows.

- Install the screws <52> with dowels <53> (or suitable attachment materials) in such a way that the remote control <54> can be hooked in place. There is a drilling template included in the scope of delivery.

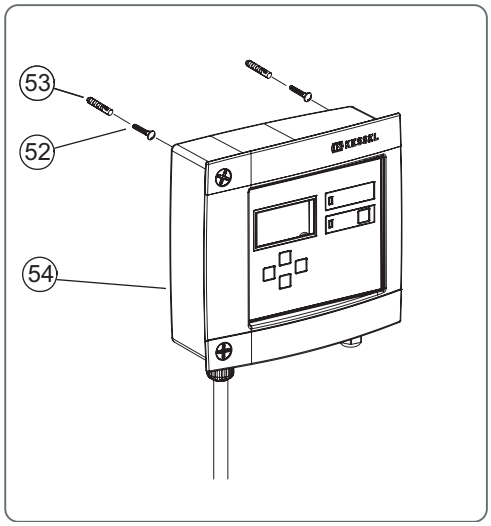

Abb. [22]

➡ The electrical connection is described with installation of the control unit.

3.3 Mounting and initialising the control unit

3.3.1 Control unit for system type D

C **D** E F

3.3.1.1 Installing the “Auto Mix” control unit

The control unit is mounted on the grease separator. To open the control unit proceed as follows:

⚠ Caution, risk caused by electric current! The control unit may only be opened when the mains power supply has been disconnected.

- Move the main switch <23> into the OFF position.
- Undo the screws <25>.
- Open the housing.

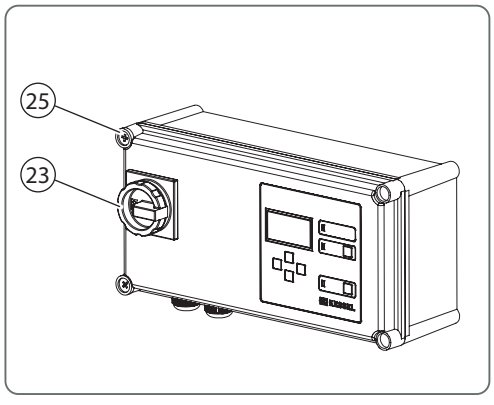

Abb. [23]

3.3.1.2 Establishing electrical connections

- Establish the connections in accordance with the connection diagram (below and in the housing cover of the control unit).

Connection diagram base[1]

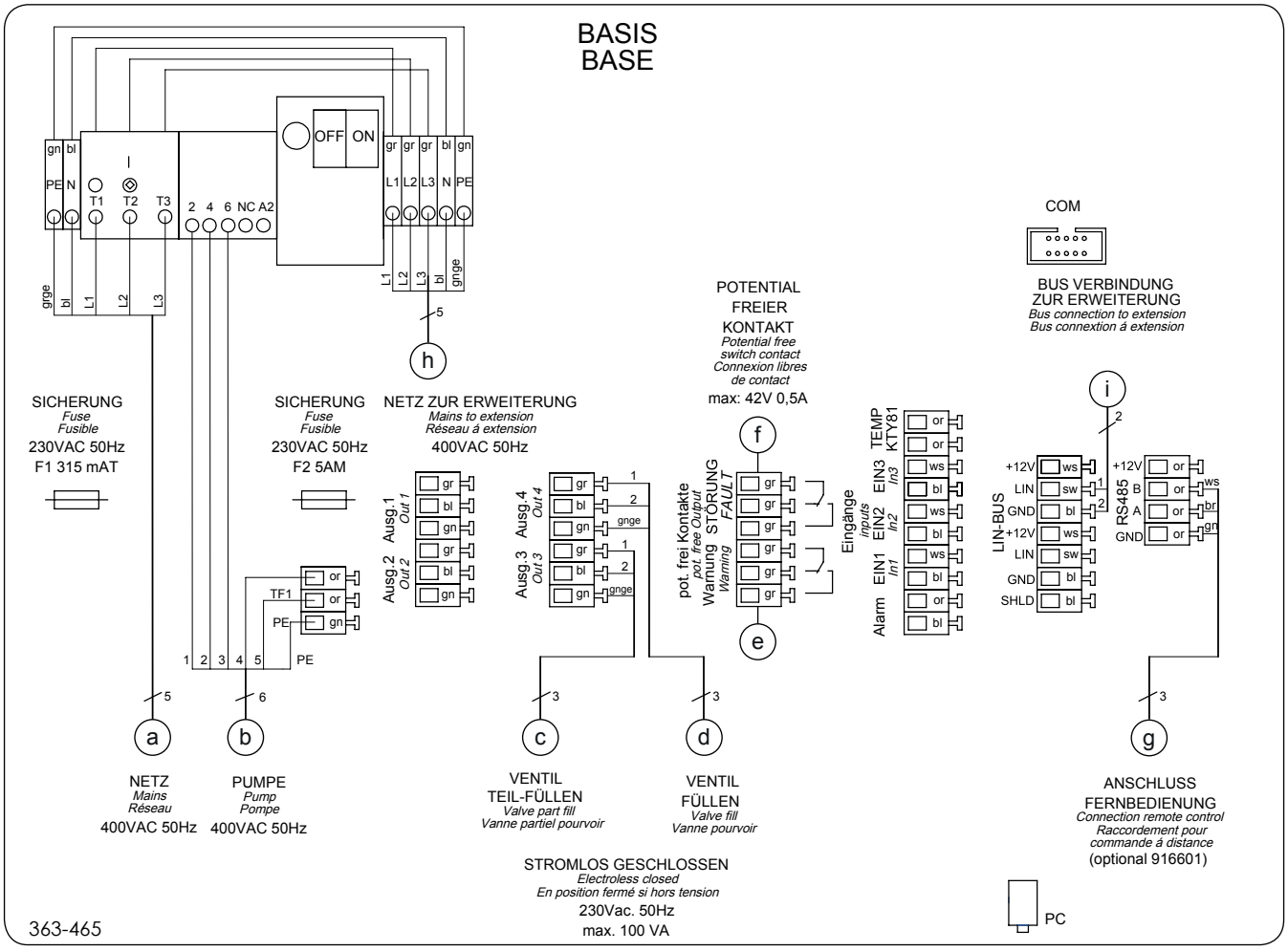

Abb. [24]

a	Mains
b	Pump
c	Hot water valve
d	Cold water valve
e	Potential-free contact warning
f	Potential-free contact alarm
g	Remote control (option)
h	Mains to extension for nominal sizes > NS15
i	Bus connection to extension for nominal sizes > NS15

1) Only the base control unit is necessary for nominal sizes 2, 4, 7, 10 and 15

Connection diagram extension package[1]

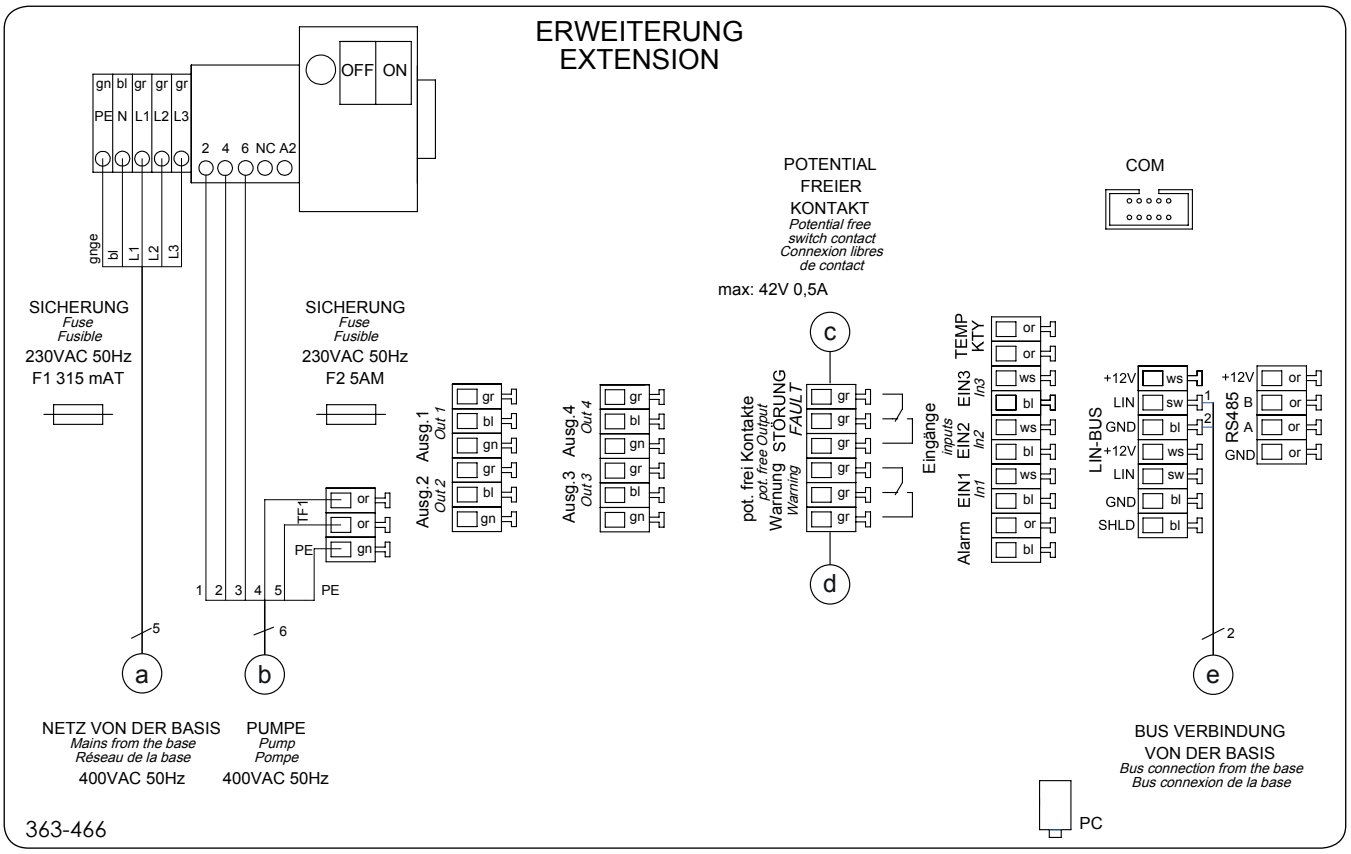

Abb. [25]

a	Mains from base control unit
b	Pump
c	Potential-free contact warning
d	Potential-free contact alarm
e	Bus connection to the base control unit

- Close the housing and
- tighten the screws <25>.

1) For the nominal sizes 20, 25 and 30 the extension control unit is required in addition to the base control unit

3.3.1.3 Initialising the control unit

➡ Dry running of the pump(s) must be avoided at all costs. Do not press the *Start / Stop* key!

- Switch the power supply on and move the main switch to the ON position, the menu “3.8.1”, page 48 appears on the display.

➡ If the display does not offer menu 3.8.1 (initialisation), the control unit has already been initialised. In this case, the parameters set (in accordance with the list below) must be checked via the operating menu (for operation of the control unit and the operating menu page 47).

During initialisation, the following input is expected:

– Language
– Date / Time
– Nominal size
– Number and power of the pumps

Language

- Press OK.
- Use the cursor keys to select the language and apply by pressing OK, the menu *Date/Time* appears.

Date / Time

- Set the respective flashing figure in date and time and apply by pressing OK. Following the last entry, the menu *Nominal size*appears. The date for emptying also appears and is automatically saved (to change see „6.1 System type D“, menu 2).

Nominal size

- Select the nominal size in accordance with the type plate specifications and apply by pressing OK, the menu *Number of pumps* appears.

Number of pumps

- Select the number of pumps / capacity (see pump type plate(s)) and confirm by pressing OK, initialisation is completed and the menu *System info* with the settings just made appears.
- There is only one pump installed with nominal sizes 2, 4, 7, 10 and 15.
- There are two pumps installed with nominal sizes 20, 25 and 30.

3.3.2 Control unit for system type E

C D **E** F

3.3.2.1 Installing the “Mix & Pump” control unit

The control unit is mounted on the grease separator. To open the control unit proceed as follows:

Caution, risk caused by electric current! The control unit may only be opened when the mains power supply has been disconnected.

- Move the main switch <23> into the OFF position.
- Undo the screws <25>.
- Open the housing.

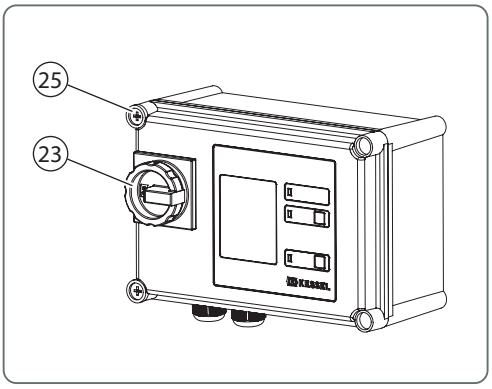

Abb. [26]

3.3.2.2 Establishing electrical connections

- Establish the connections in accordance with the connection diagram (below and in the housing cover of the control unit).

Connection diagram[1]

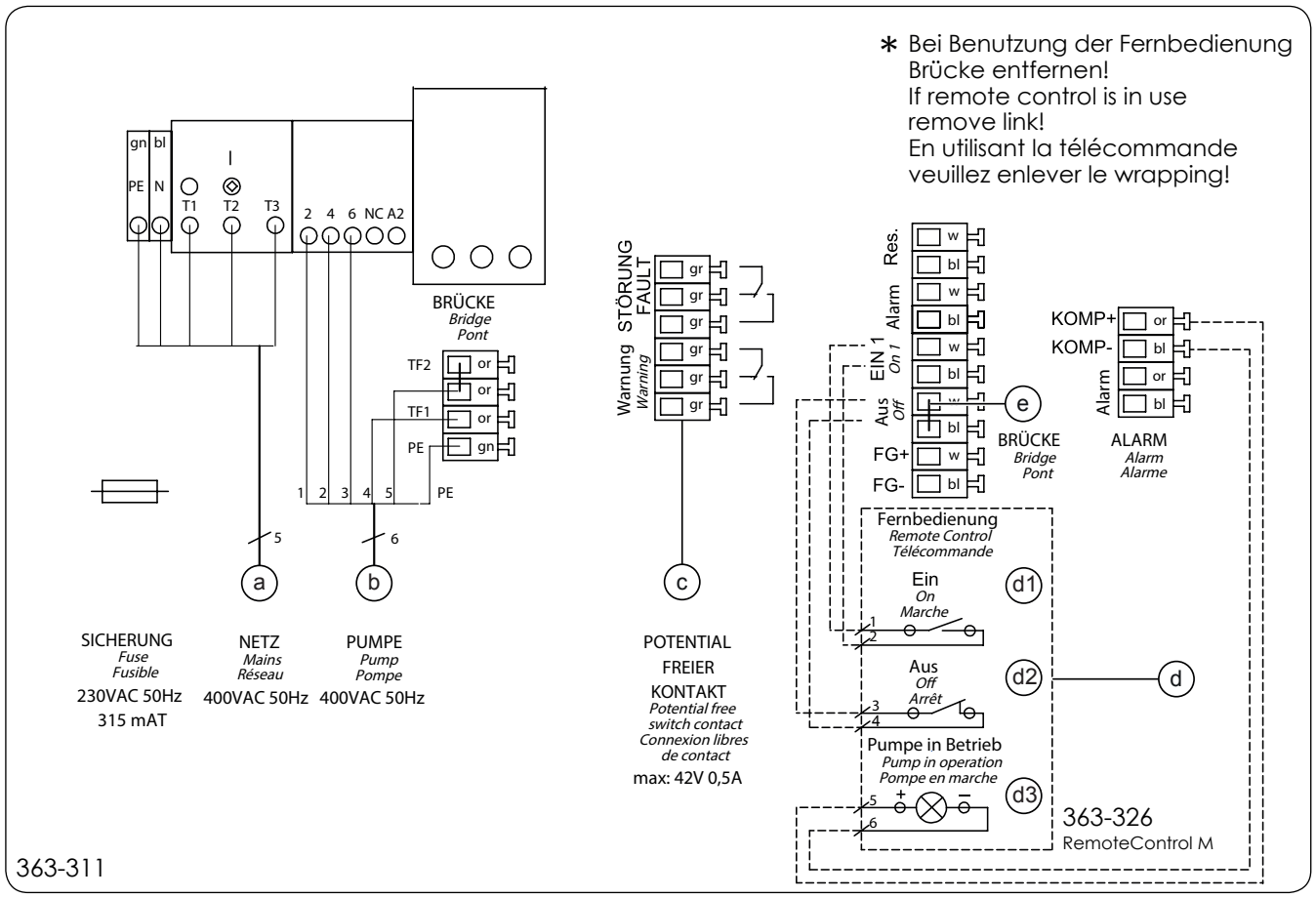

Abb. [27]

a	Mains
b	Pump
c	Potential-free contact warning / alarm
d	Remote control (when the remote control is connected, remove the bridge point <e>) (option)
d1	ON
d2	OFF
d3	Control lamp for pump in operation
e	Temporary bridge point

- Close the housing.
- Tighten the screws <25>.

1) These are two identical pumps with two separate control units.

3.3.2.3 Initialising the control unit

The control unit has already been initialised ready for operation. You should still check the presets, however.

➡ Dry running of the pump(s) must be avoided at all costs. Do not press the *Start / Stop* key!

- Set the nominal size (NS) in accordance with the specification on the type plate, to do this set the DIP switch (at the top right on the board) as follows:

- Close the housing.
- Tighten the screws <25>.

3.3.3 Control unit for system type F

C D E F

3.3.3.1 Installing the “Auto Mix & Pump” control unit

The control unit is mounted on the grease separator. To open the control unit proceed as follows:

Caution, risk caused by electric current! The control unit may only be opened when the mains power supply has been disconnected.

- Move the main switch <23> into the OFF position.
- Undo the screws <25>.
- Open the housing.

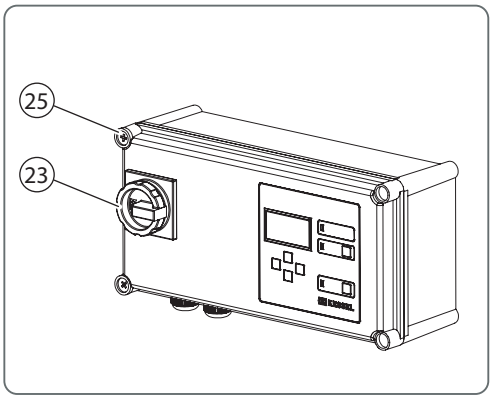

Abb. [28]

3.3.3.2 Establishing electrical connections

- Establish the connections in accordance with the connection diagram (below and in the housing cover of the control unit).

Connection diagram base[1]

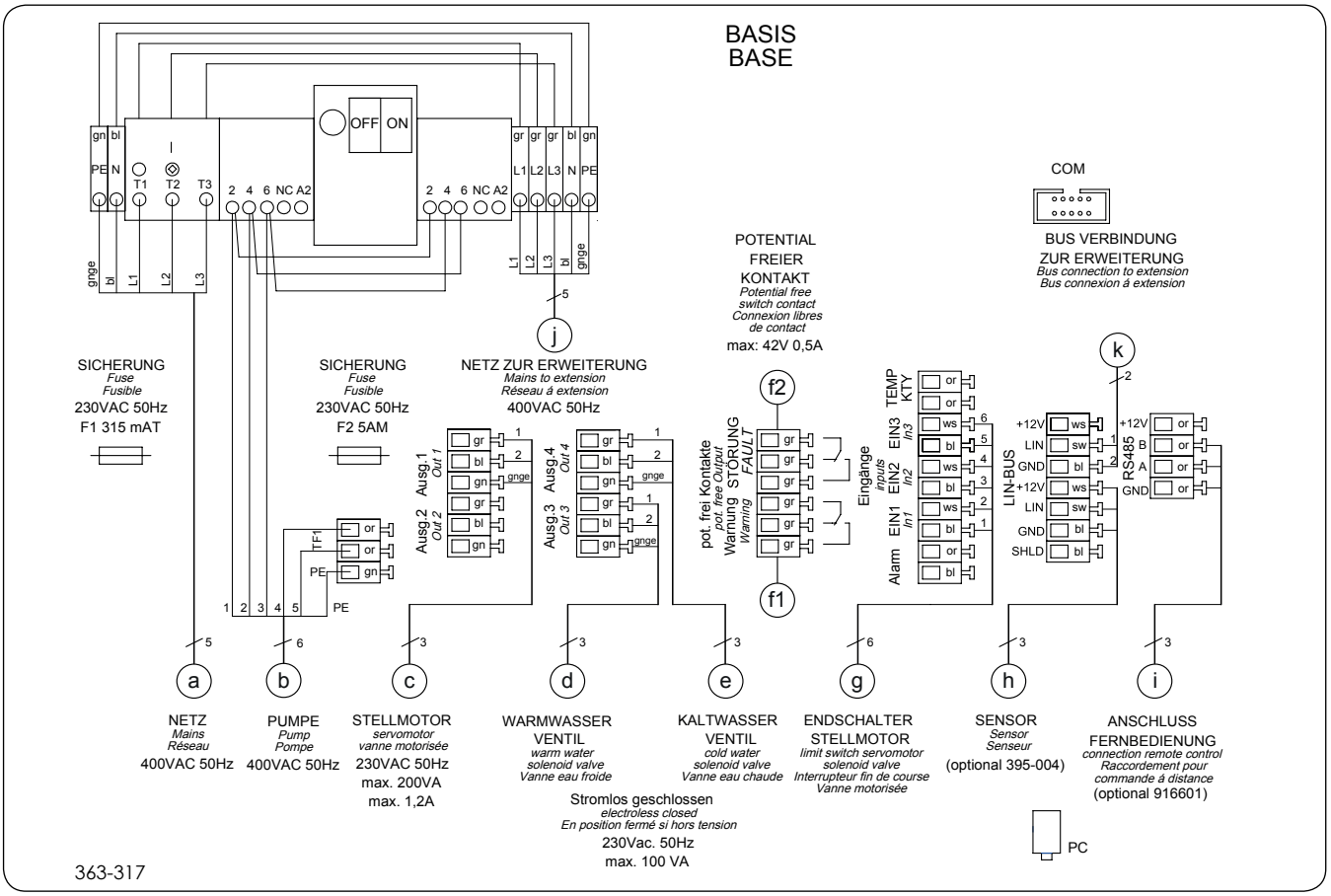

Abb. [29]

a	Mains
b	Pump
c	Actuator valve
d	Hot water valve
e	Cold water valve
f1	Potential-free contact warning
f2	Potential-free contact alarm
g	Limit switch actuator valve
h	*SonicControl* sensor (option)
i	Connection for remote control (option)
j	Mains to extension for nominal sizes > NS15
k	Bus connection to extension for nominal sizes > NS15

1) Only the base control unit is necessary for nominal sizes 2, 4, 7, 10 and 15

Connection diagram extension package[1]

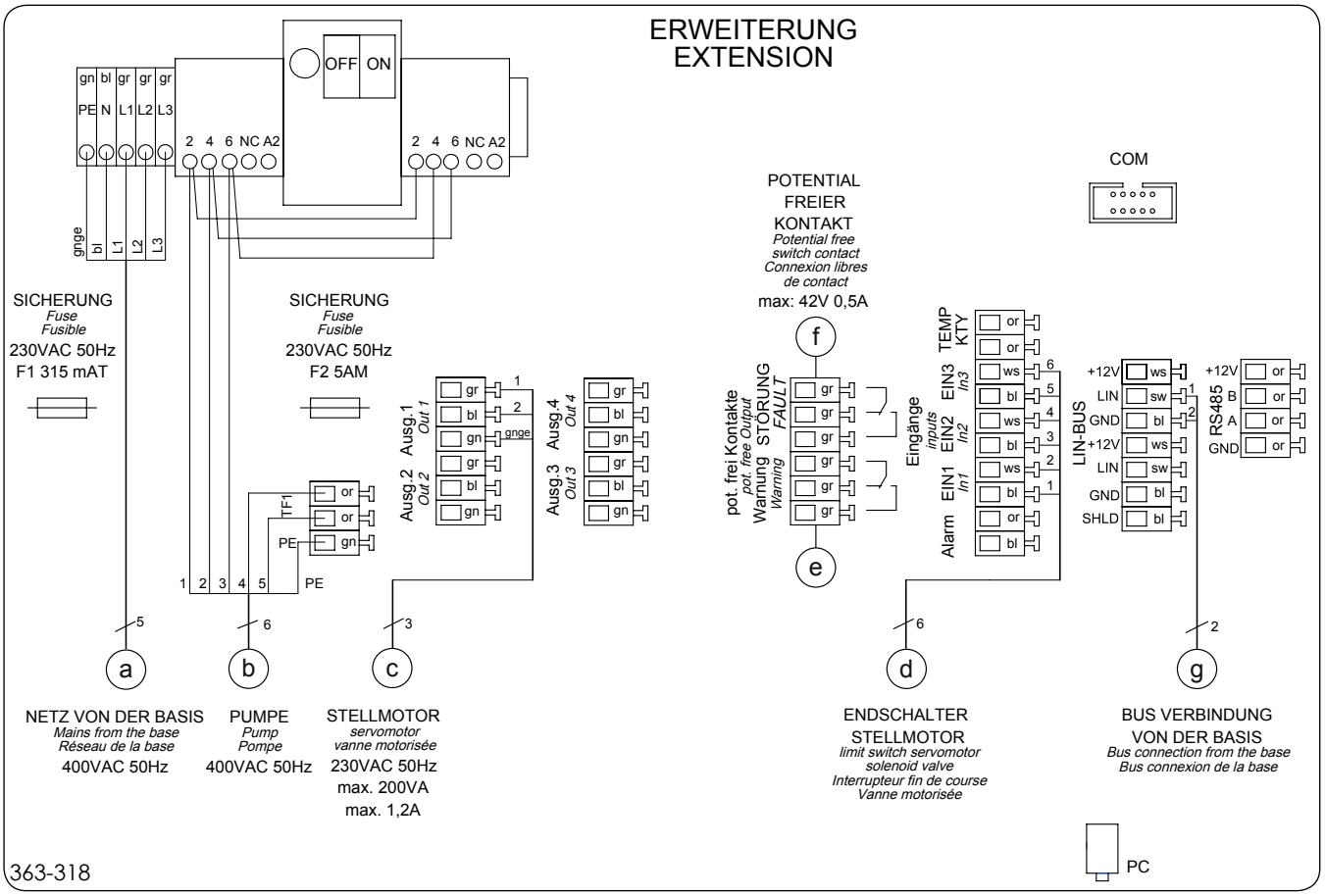

Abb. [30]

a	Mains from base control unit
b	Pump
c	Actuator valve
d	Limit switch actuator valve
e	Potential-free contact warning
f	Potential-free contact alarm
g4	Bus connection to the base control unit

- Close the housing and
- tighten the screws <25>.

1) For the nominal sizes 20, 25 and 30 the extension control unit is required in addition to the base control unit

3.3.3.3 Initialising the control unit

➡ Dry running of the pump(s) must be avoided at all costs. Do not press the *Start / Stop* key!

- Switch the power supply on and move the main switch to the ON position, the menu “3.8.1”, page 53 appears on the display.

➡ If the display does not offer initialisation (menu 3.8.1), the control unit has already been initialised. In this case, the parameters set (in accordance with the list below) must be checked via the operating menu (for operation of the control unit and the operating menu see page 49).

During initialisation, the following input is expected:

– Language
– Date / Time
– *SonicControl*
– Standard
– Nominal size
– Number and power of the pumps

Language

- Press OK.
- Use the cursor keys to select the language and apply by pressing OK, the menu *Date/Time* appears.

Date / Time

- Set the respective flashing figure in date and time and apply by pressing OK. Following the last entry, if a *SonicControl* sensor is connected, the menu *SonicControlappears,* if not, the menu *Standard*appears. The date for emptying also appears and is automatically saved (to change see (see 6.3 System type F on page 49), menu “2.4”, page 51).

***SonicControl* sensor**

If there is a SonicControl (option) connected, answer the question with “yes”, otherwise continue with “no”, the menu *Standard appears.*

If “yes”:

- enter password (must be obtained from KESSEL).
- Select the system type from the selection displayed and apply by pressing OK, the menu *Standard*appears.

Standard

- Select Euro Standard 1825 and apply by pressing OK, the menu Nominal sizeappears.

Nominal size

- Select the nominal size in accordance with the type plate specifications and apply by pressing OK, the menu *Number of pumps* appears.

Number of pumps

- Select the number of pumps / capacity (see pump type plate(s)) and confirm by pressing OK. Initialisation is completed and the menu *System info* with the settings just made appears.
- There is only one pump installed with nominal sizes 2, 4, 7, 10 and 15.
- There are two pumps installed with nominal sizes 20, 25 and 30.
- Calibration of *SonicControl*
  - Calibration of the *SonicControl* sensor.
  - Fill the separator with fresh water right up to the lower edge of the drain outlet.
  - Carry out calibration when the separator is not in operation.

3.4 Initial filling and pressure test

- Make sure that there are no external materials or soiling in the grease separator.
- Fill the complete grease separator system completely with water[1] (up to system overflow on the outlet <35>).
- Carry out pressure test, to do this
  - Open both inspection covers.
  - Seal outlet and inlet using suitable means.
  - Fill the grease separator system completely[2] with water and make sure there are no leaks (e.g. bubble).
  - Make the inlet and outlet functional again.

3.4.1 Function check system type C

C D E F

- Switch the pump(s) on.
- Carry out a visual inspection through the viewing glass to ensure that water is pumped into theAbb. [31]gh the pressure pipe <22> (see Abb. [31]).
- Switch the pump(s) off.
- Make sure that fresh water can be supplied.

System type C is now ready to use.

1) BY hand or in the case of system type F via control unit, manual operation, function *Fill*
2) Fill up to 2 cm below the service access cover.

3.4.2 Function check system type D

C D E F

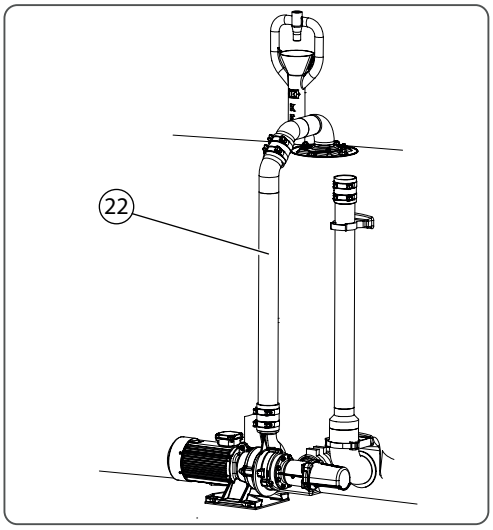

Abb. [31]

Check the function of the pump(s)

- Switch the “Auto Mix” control unit on, menu 0, System info, is displayed.
- Press the OK key, menu *1* appears.
- Select *Maintenance* => *Manual operation* => *Cleaning+shredding* the pump(s) is/are switched on.
- Carry out a visual inspection through the viewing glass to ensure that water is being pumped into the system tank through the pressure pipe <22>.
- Press the ESC key, the pump(s) is/are switched off.

Check the function of the solenoid valve for hot water[1]

Set in the maintenance menu as follows:

- Select *Manual operation* => *Valve part fill* the solenoid valve is actuated. Make sure that the water runs into the system tank via the refill inlet.

Check the function of the solenoid valve for cold water

Carry out the following settings in the Maintenance menu:

- *Maintenance* => *Manual operation* => *Valve fill*the solenoid valve is actuated. Make sure that the water runs into the system tank via the refill inlet.

Check the function of the remote control (option)

- Carry out initialisation and functional check on the *SonicControl* in accordance with the operating instructions provided (optional).

System type D is now ready to use.

1) Hot water is recommended

3.4.3 Function check system type E

C D **E** F

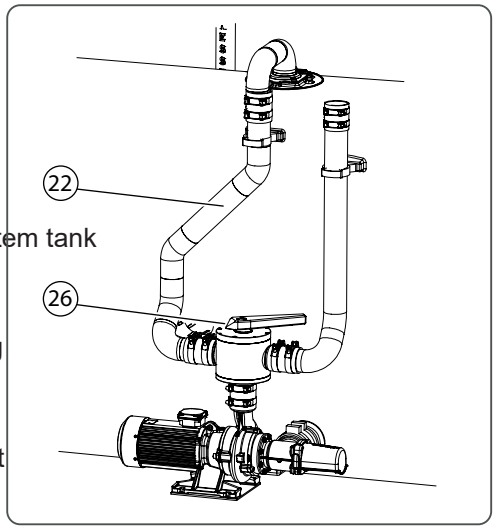

Abb. [32]

- Switch the “Mix & Pump” control unit on.

  ➡ Make sure that the switchover valve is not in the “disposal” position, since otherwise the contents of the system tank would be pumped off.

- Set the switchover valve <26> to the position cleaning and shredding (handle to the right).
- Press the *Start / Stop* key, the pump(s) start(s) to run.
- Carry out a visual inspection through the viewing glass to ensure that water is being pumped into the system tank through the pressure pipe <22>.
- Press the *Start / Stop* key, the pump(s) is/are switched off.

Check the water supply function

- Open the cold water and hot water supplies[1] alternately and make sure that water is running into the system tank via the refill inlet.
- Carry out initialisation and functional check on the *SonicControl* in accordance with the operating instructions provided (optional).

System type E is now ready to use.

3.4.4 Function check system type F

C D E **F**

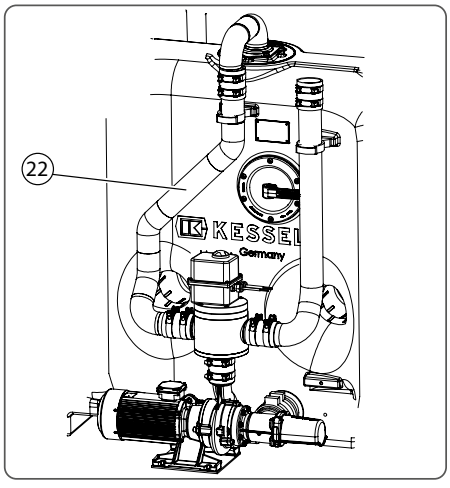

Abb. [33]

Check the function pump(s) / cleaning and shredding

- Switch the “Auto Mix & Pump” control unit on.
- Press the key *Start / Stop* , the menu *Maintenance* appears.
- Select *automatic operation* and press OK, the menu *Automatic operation* appears.
- Press OK, automatic operation starts, after the delay has expired (shown on the display) the pump(s) will start.
- Carry out a visual inspection through the viewing glass to ensure that water is being pumped into the system tank through the pressure pipe <22>.
- Press the ESC key twice and confirm *Cancel emptying?* by pressing OK, the pump(s) is/are switched off and ready for operation.

1) Hot water is recommended

Check the function of the actuator valve switchover valve

Carry out the following settings in the *Maintenance* menu:

- *Manual operation* => *Part empty*, the actuator valve moves the valve into the correct position, then the pump(s) start(s). If the pump(s) start(s) immediately, the valve was already in the designated position.
- ESC, the pump(s) is/are switched off => *Mix*, the actuator valve moves the valve into the opposite position, then the pump(s) start(s).
- ESC, the pump(s) is/are switched off => *Part empty*, the actuator valve moves the valve into the opposite position, then the pump(s) start(s).
- ESC, the pump(s) is/are switched off, the actuator valve is ready for operation.

Check the function of the solenoid valve for hot water[1]

Carry out the following settings in the *Maintenance* menu:

- *Manual operation* => *Flush*the solenoid valve is actuated. Make sure that the water runs into the system tank via the refill inlet.

Check the function of the solenoid valve for cold water

Carry out the following settings in the System control menu:

- *Maintenance* => *Manual operation* => *Fill*the solenoid valve is actuated. Make sure that the water runs into the system tank via the refill inlet.

Check the function of the *SonicControl* Sensor (option)

Carry out the following settings in the System control menu:

- *Maintenance* => *Manual operation* => *SonicControl* => *Start measurement?* => OK - measurement is carried out and the result displayed. If not fault message appears, the *SonicControl* sensor is ready for operation.

- Check the function of the remote control (option)
  The remote control provides the same operating features as the control unit.

- Carry out initialisation and functional check on the *SonicControl* in accordance with the operating instructions provided (optional).

System type F is now ready to use.

1) Hot water is recommended

4 Operation

The grease separator separates greases, oils and sludge out of the wastewater. Different methods and / or control units are used for emptying the separated substances (see 1.3).

4.1 Switching on system type C

C D E F

Following a successful function check (see 3.4.1 on page 32) the grease separator is ready for operation.

4.2 Switching on system type D

C D E F

Following a successful function check (see 3.4.2 Function check system type D on page 33) the grease separator system can be switched on. To do this:

- Switch the main switch on*. Following a successful system test, the display <65> shows the menu *0 System info* and the green LED <64> lights up, the grease separator system is ready for operation.

* The main switch only needs to be switched on for emptying.

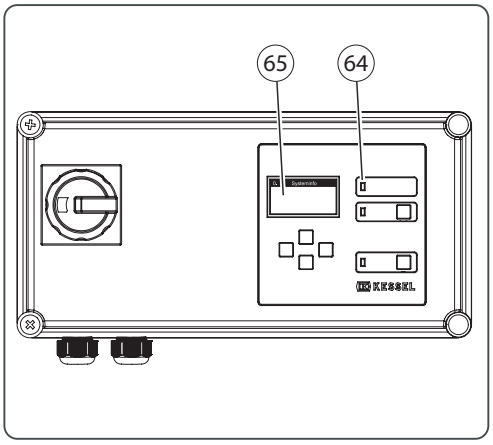

Abb. [34]

➡ If after switch-on the menu (see 3.8.1 on page 48) Language is displayed, carry out initialisation(see 3.3.2.3 Initialising the control unit on page 28).

4.3 Switching on system type E

C D **E** F

Following a successful function check (see 3.4.3 Function check system type E on page 34) the grease separator system can be switched on.
To do this:

- Switch the main switch on*. Following a successful system test, the green LED <64> lights up, the grease separator system is ready for operation.

* The main switch only needs to be switched on for emptying.

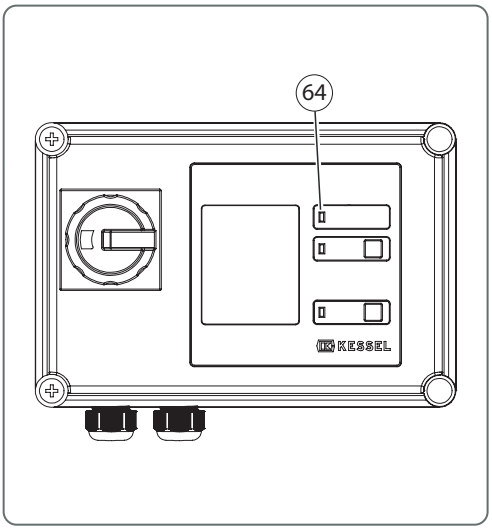

Abb. [35]

4.4 Switching on system type F

C D E **F**

Following a successful function check (see 3.4.4 Function check system type F on page 34) the grease separator system can be switched on.
To do this:

- Switch the main switch on*. Following a successful system test, the display <65> shows the menu *0 System info* and the green LED <64> lights up, the grease separator system is ready for operation.

* The main switch only needs to be switched on for emptying.
Exception: A *SonicControl* sensor (see 3.2.6 Installing the SonicControl sensor (option) - F on page 21) is installed.

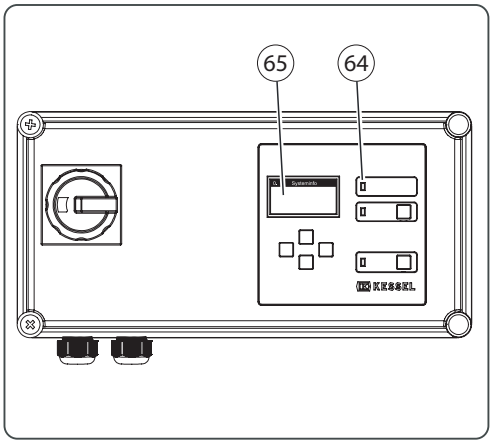

Abb. [36]

➡ If after switch-on the menu (see 3.8.1 on page 53) Language is displayed, carry out initialisation(see 3.3.3.3 Initialising the control unit on page 31).

5 Carrying out emptying

General information

The emptying cycles of the various system types are adapted to achieving complete emptying of the system tank coupled with best possible cleaning for medium degree of soiling of the wastewater. The pump(s) cannot run dry on account of their design (exception: initial operation or putting back into operation).

System type D and F

C D E F

The operating times of the pumps (pumping off + *cleaning and shredding*) as well as the hot water quantities supplied[1] are based on empirical values. If the cleaning result should not be satisfactory, the operating times can be changed in the menu control of the control units (see „3.1“ Settings => Parameters).

1) Basis for calculation: Water supply 1l/s for DN25 or 3.6 m3/h, times in accordance with Euro standard 1825.

5.1 Emptying system type C

C D E F

Workflow diagram for emptying cycle (Euro standard 1825)

A Emptying period
B Emptying vehicle is pumping off
1 Pump(s) in operation (cleaning and shredding)
2 Hot water* supply
3 Cold water supply
4 Time required for the level to drop approx. 10 cm
* recommended

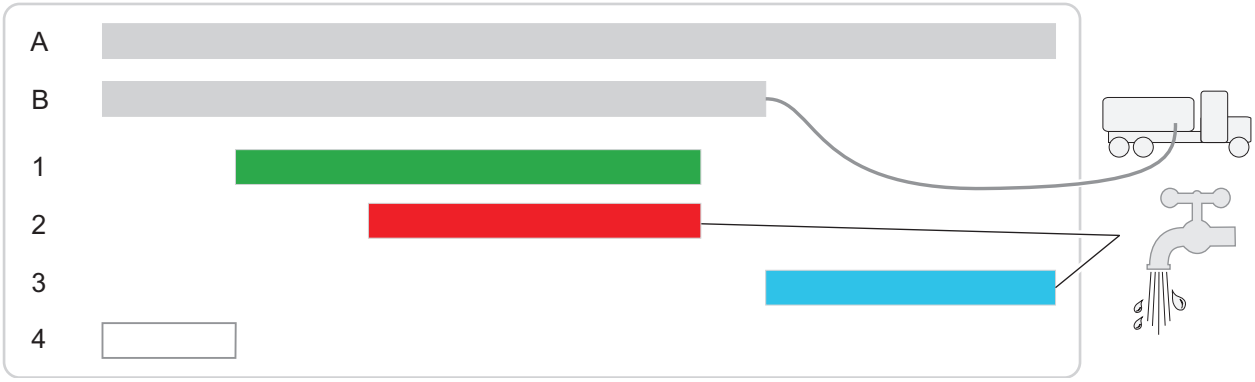

Abb. [37]

Carrying out emptying

- Connect the extraction hose of the emptying vehicle to the direct disposal pipe and start pumping off.
- When the level has dropped by approx. 10 cm, switch the pump(s) on (cleaning and shredding).
- When the system tank is about 1 third empty, open the hot water supply.
- When the system tank is almost empty, stop the pump(s) and the hot water supply.

➡ If the system tank is not filled with water again after emptying (upper edge outlet assembly lower section), greases and suspended matter can flow freely into the sewage system.

- When the system tank is completely empty, remove the extraction hose from the emptying vehicle and fill the system tank completely with cold water.
- Close the shut-off valve of the refill inlet once the system has been filled.

5.2 Emptying system type D

C D E F

Workflow diagram for emptying cycle (Euro standard 1825)

		Setting in the menu
A	Emptying period	
	A1 Automatic operation (cleaning and shredding, part filling)	
	A2 Filling of the system tank (started by the user)	
B	Emptying vehicle is pumping off	
1	Pump in operation (cleaning and shredding)	3.1.1
2	Valve part fill (hot water supply*)	3.1.2
3	Valve fill (cold water supply, started by the user)	3.1.3
4	Time delay before pump(s) (1) start(s), so that the level drops by approx. 10 cm	3.1.4
	* recommended	

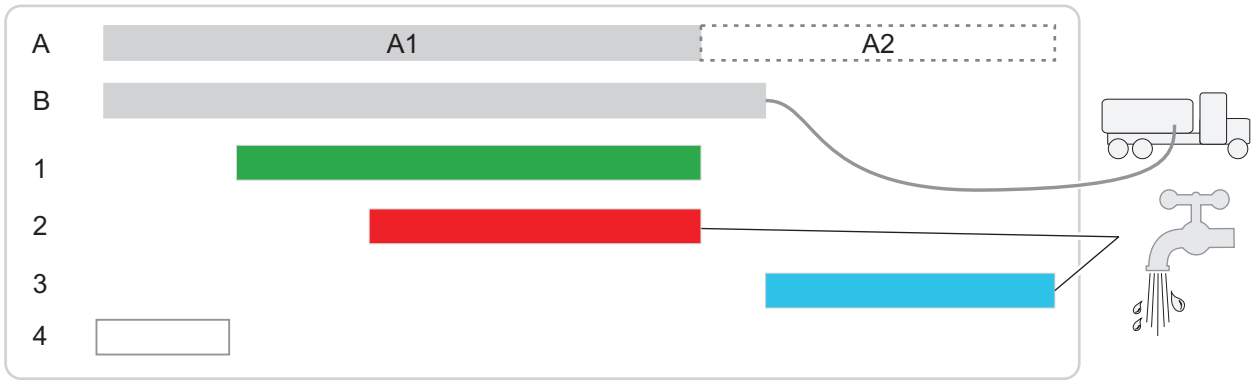

Abb. [38]

Carrying out emptying

- Switch the control unit on.
- Connect the extraction hose of the emptying vehicle to the direct disposal pipe.
- Start *automatic operation,* after the time delay has expired[1] see above<4>, the pump is switched on automatically for the time corresponding tot eh nominal size[1].
- Then the function part fill[1] is activated.

➡ If the system tank is not filled with water again after emptying (upper edge outlet assembly lower section), greases and suspended matter can flow freely into the sewage system.

- When the system tank is completely empty, remove the extraction hose from the emptying vehicle.
- Activate the function *Start filling?* by pressing OK, the system tank is filled completely with cold water.
- Then acknowledge the message *Filling successfully completed!* by pressing OK, and switch the control unit off.

1) Period can be set in the menu (see table above Abb. [38])

5.3 Emptying system type E

C D **E** F

Workflow diagram for emptying cycle (Euro standard 1825)

A Emptying period
A1 Manual operation (pump operating times)
A2 Filling of the system tank (by the user)
B Emptying vehicle connected
C Pump in operation
C1 *Pump on* (pumping off, to the emptying vehicle)
C2 *Pump on* (cleaning and shredding)
D Valve switchover by user
D1 Switching position *Pump off*
D2 Switching position *Cleaning and shredding*
E Hot water* supply (part fill, Eswitched on and off by the user)
F Cold water supply (fill, Eswitched on and off by the user)
G Emptying times (from page 45)
* recommended

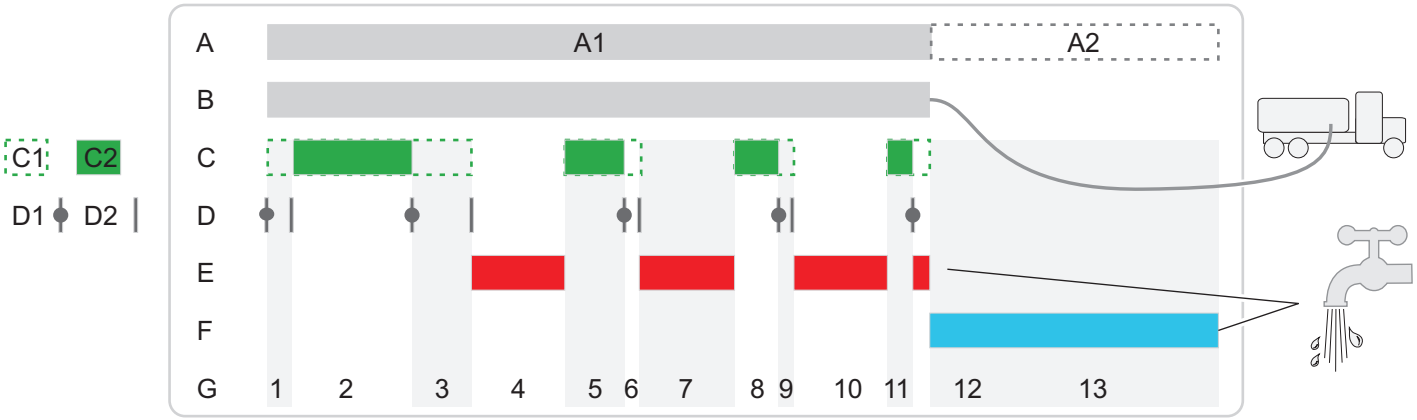

Abb. [39]

Carrying out emptying

- Switch the control unit on.
- Connect the extraction hose of the emptying vehicle to the direct disposal pipe.
- Set the hand lever to emptying. Before actuating the hand lever, make sure that (both) pump(s) is/are out of operation.
- Press the Start/Stop key on pump 1 (disposal pump), the emptying workflow <A1> is activated.
- When the level has dropped by approx. 10 cm, switch pump 1 off, set the hand lever to flushing (cleaning + shredding), switch on pump 1 and 2 (cleaning + shredding).
- The pump(s) is/are switched on and off manually. Depending on requirements of the emptying cycle (see Abb. [39]) the switchover valve must be actuated and the hot water supply turned on and off at the respective switching points.

➡ If there is only one valve for water supply, the valve is connected in parallel.

➡ **Recommendation**: Position the illustration (Abb. [39]) and the table near the grease separator system. Thus all the times when operation has to be carried out (valve switching points) can always be read off.

- When the end of section A1 has been reached, remove the hose connection to the emptying vehicle.
- Switch the control unit off.

➡ If the system tank is not filled with water again after emptying (lower edge outlet assembly), greases and suspended matter can flow freely into the sewage system.

- Fill the system tank completely with cold water.
- Close the shut-off valve of the refill inlet once the system has been filled.

5.4 Emptying system type F

C D E F

Workflow diagram for emptying cycle (Euro standard 1825)

		Setting in the menu
A	Emptying period	
	A1 Automatic operation	
	A2 Filling of the system tank (started by the user)	
B	Emptying vehicle connected	
C	Pump starts running automatically	
	C1 *Pump on* (pumping off, to the emptying vehicle)	1.6.1. / -3 / -6 / -9 / -12
	C2 *Pump on* (cleaning and shredding)	1.6.2 / -5 / -8 / -11
D	Valve switchover	
	D1 Switching position pumping off	
	D2 Switching position cleaning and shredding	
E	Hot water* supply (*part fill*), automatic	1.6.4 / -7 / -10
G	Emptying steps (from page 45)	1.6.13
	* recommended	

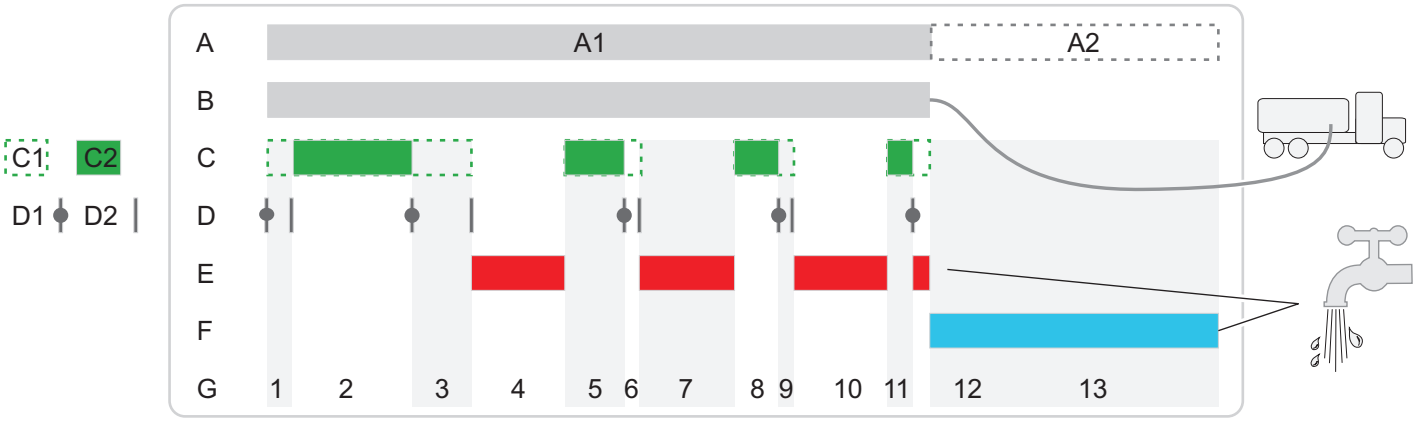

Abb. [40]

Carrying out emptying in automatic operation

(The steps carried out in automatic operation can be actuated individually via manual operation)

- Switch the control unit on.
- Set up the hose connection between the emptying vehicle and the direct disposal pipe.
- Press the key *Start / Stop* , the menu *Maintenance* appears.
- Select *Automatic operation* and press OK, the menu *Automatic operation* appears.
- Select *Start automatic operation* the emptying workflow <A1> is activated. The functions pump operating times, hot water supply and the valve switchover are carried out automatically Abb. [40].

Every program step can be skipped by setting the reference time to 0.

The times must be optimised according to pumping height, temperature and water pressure. Flow through solenoid valve DN 25 at 1 l/sec., in the case of deviated inflow rates the filling times must be adapted in the control unit. (see Operating menu on page 50) =>menu 3.1.1 to 3.1.13 can be set)

- Remove the hose connection to the emptying vehicle.

➡ If the system tank is not filled with water again after emptying (upper edge outlet assembly lower section), greases and suspended matter can flow freely into the sewage system.

- Switch the control unit off if appropriate.

Carrying out emptying

You will find the individual program steps with recommendations for operating time in the table below. Basis for calculation: Disposal times in accordance with Euro standard 1825 with water supply flow solenoid valve 1l/s for DN25 or 3.6 m³/h.

Program section	Function	NS 2	NS 4	NS 7	NS 10	NS 15	Pump	Hand lever	Information about water supply	General information
1	Part empty	4 s	6 s	8 s	14 s	25 s	on	Empty	off	Lower water level by 10 cm
2	Mix	70 s	130 s	215 s	305 s	585 s	on	Flush	off	
3	Empty	30 s	50 s	86 s	143 s	262 s	on	Empty	off	Until the pump runs empty
4	Fill	124 s	210 s	289 s	483 s	883 s	off	Flush	Hot water valve on	approx. 25 cm filling height
5	Mix	35 s	65 s	110 s	150 s	290 s	on	Flush	off	
6	Empty	9 s	15 s	21 s	35 s	64 s	on	Empty	off	Until the pump runs empty
7	Fill	124 s	210 s	289 s	483 s	883 s	off	Flush	Hot water valve on	approx. 25 cm filling height
8	Flush	25 s	45 s	75 s	100 s	195 s	on	Flush	off	
9	Empty	9 s	15 s	21 s	35 s	64 s	on	Empty	off	Until the pump runs empty
10	Fill	124 s	210 s	289 s	483 s	883 s	off	Flush	Hot water valve on	approx. 25 cm filling height
11	Flush	15 s	25 s	40 s	50 s	100 s	on	Flush	off	
12	Empty	9 s	15 s	21 s	35 s	64 s	on	Empty	off	Until the pump runs empty
13	Fill	462 s	782 s	1308 s	2182 s	3990 s	off	Empty	Cold water valve on	Up to lower edge outlet assembly

Carrying out emptying

Program section	Function	NS 20	NS 25	NS 30	Pump 1 empty	Pump 2 flush	Hand lever	Information about water supply	General information
1	Part empty	35 s	36 s	37 s	on	off	Empty	off	Lower water level by 10 cm
2	Mix	770 s	945 s	1135 s	on	on	Flush	off	
3	Empty	325 s	336 s	396 s	on	off	Empty	off	Until the pump runs empty
4	Fill	1215 s	1255 s	1285 s	off	off	Flush	Hot water valve on	approx. 25 cm filling height
5	Mix	385 s	470 s	565 s	on	on	Flush	off	
6	Empty	87 s	90 s	93 s	on	off	Empty	off	Until the pump runs empty
7	Fill	1215 s	1255 s	1285 s	off	off	Flush	Hot water valve on	approx. 25 cm filling height
8	Flush	255 s	315 s	375 s	on	on	Flush	off	
9	Empty	87 s	90 s	93 s	on	off	Empty	off	Until the pump runs empty
10	Fill	1215 s	1255 s	1285 s	off	off	Flush	Hot water valve on	approx. 25 cm filling height
11	Flush	130 s	160 s	190 s	on	on	Flush	off	
12	Empty	87 s	90 s	93 s	on	off	Empty	off	Until the pump runs empty
13	Fill	5006 s	5170 s	6013 s	off	off	Empty	Cold water valve on	Up to lower edge outlet assembly

6 Settings, operating menu

6.1 System type D

C D E F

“Auto Mix” control unit

For general information and “Activating operating mode” see 6.3

Operating menu

0	System info				
1	Information	1.1	Hours of operation	1.1.1	Total running time
				1.1.2	Run time pump
				1.1.3	Pump starts
				1.1.4	Power outage
		1.2	Log book	1.2.1	most recent E&F*
				1.2.2	E&F previous to that
				1.2.3	E&F previous to that
				1.2.4	…
		1.3	Control type	Alternating display for *SonicControl* option (4s)	
		1.4	Maintenance due	1.4.1	Last maint. separator
				1.4.2	Next maint. separator
		1.5	Current measured values	1.5.1	Rotary field
		1.6	Parameters	1.6.1	Cleaning+shredding
				1.6.2	Valve part fill
				1.6.3	Valve fill
				1.6.4	On delay
				1.6.5	Legionella flushing interval
				1.6.6	Legionella flushing, cold
				1.6.7	Legionella flushing, hot
				1.6.30	Access remote control
2	Maintenance	2.1	Manual operation	2.1.1	Cleaning+shredding
				2.1.2	Valve part fill
				2.1.3	Valve fill
		2.2	Automatic operation		
		2.3	SDS	2.3.1	Test pump 1
				2.3.2	Test valve part fill
				2.3.3	Test valve fill
				2.3.4	Test pump 2
		2.4	Maintenance due	2.4.1	Last maint. separator
				2.4.2	Next maint. separator
		2.5	Clearance remote control	2.5.1	Clearance duration
				2.5.2	Deactivate

3	Settings	3.1	Parameters	3.1.1	Cleaning+shredding
				3.1.2	Valve part fill
Carry out setting in agreement with Factory Customer Service				3.1.3	Valve fill
				3.1.4	On delay
				3.1.5	Legionella flushing interval
				3.1.6	Legionella flushing, cold
				3.1.7	Legionella flushing, hot
				3.1.30	Access remote control
		3.2	Profile memory	3.2.1	Save parameters
				3.2.2	Load parameters
		3.3	Date/time*		
		3.4	Number of pumps*	3.4.1	1 pump 4-6.4A
				3.4.2	2 pumps 4-6.4A
				3.4.3	1 pump 6.5-8A
				3.4.4	2 pumps 6.5-8A
		3.6	Nominal size*	3.6.1	NS2
				3.6.2	NS3
				3.6.3	NS4
				3.6.4	NS7
				3.6.5	NS10
		3.7	Communication	3.7.1	Station name
				3.7.2	Own number
				3.7.3	Modem type
				3.7.4	PIN
				3.7.5	Text message-Headquarters
				3.7.6	Text message-Destination 1
				3.7.7	Text message-Destination 2
				3.7.8	Text message-Destination 3
				3.7.9	Status
		3.8	Language*	3.8.1	Deutsch
				3.8.2	English
				3.8.3	Français
				3.8.4	Italiano
				3.8.5	Nederlands
				3.8.6	Polski
		3.9	Expert mode	3.9.1	On delay
				3.9.2	Limit running time
		3.10	Reset		

* These parameters are expected for entry during initialisation and after “resetting” the control unit.

*E&F = Event and Fault

6.2 System type E

C D **E** F

“Mix & Pump” control unit

Settings

Set the nominal sizes using the dip switche(see 3.3.2.3 Initialising the control unit on page 28).

6.3 System type F

C D E **F**

“Auto Mix & Pump” control unit

General information

The menu prompting has an operating and a standby mode. In operating mode the system settings made through the operating menu can be displayed and adjusted on the display. If over a period of approx. 60 seconds none of the keys are pressed, standby mode is activated automatically, the background lighting of the display is then switched off.

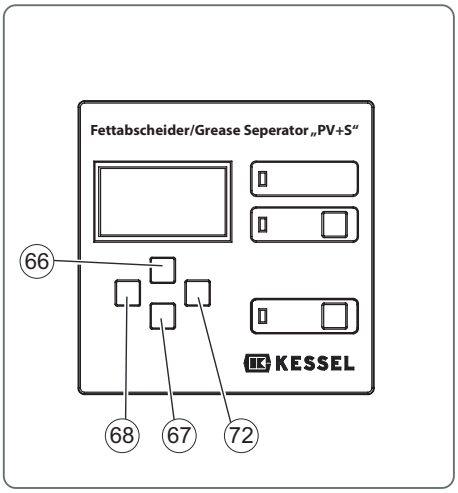

Abb. [41]

Navigation keys for the menu		
66	Cursor up	Scrolling in the menu
67	Cursor down	Scrolling in the menu
68	ESC	Deletion of an entry, back
72	OK	Confirmation of an entry, next level

Activating operating mode

- Press the OK <72> key on the control panel, the background lighting of the display lights up and the start window (*System info*) appears.
- Press OK <72>, level 1 of the operating menu is activated.

Note: The display can vary depending on the configuration

The number of the respective menu level <63> is shown as a figure in the top line on the display.

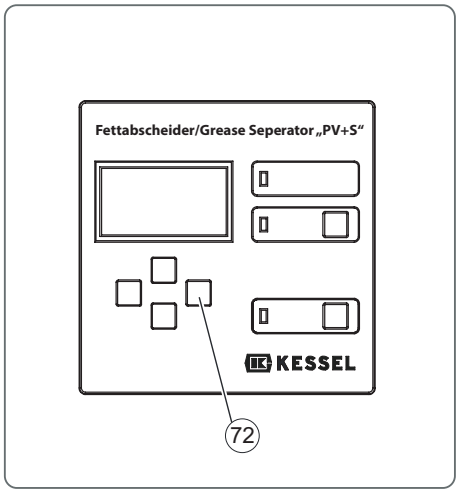

Abb. [42]

Operating menu

0	System info				
1	Information	1.1	Hours of operation	1.1.1	Total running time
				1.1.2	Run time pump
				1.1.3	Pump starts
				1.1.4	Power outage
				1.1.5	Runtime *SonicControl*
				1.1.6	Op. above alarm level
				1.1.7	Op. above alarm temp.
				1.1.8	Number of emptying cycles
		1.2	Log book	1.2.1	most recent I&F
				1.2.2	E&F previous to that
				1.2.3	E&F previous to that
				1.2.4	…
		1.3	Control type alternating display for *SonicControl* option (5s)		
		1.4	Maintenance due	1.4.1	Last maint. separator
				1.4.2	Next maint. separator
				1.4.3	Last maint. *SonicControl*
				1.4.4	Next maint. *SonicControl*
		1.5	Current Measured values	1.5.1	Rotary field
				1.5.3	Layer thickness
				1.5.4	Temperature
				1.5.5	Battery voltage
		1.6	Parameters	1.6.1	Part empty
				1.6.2	Mix
				1.6.3	Empty
				1.6.4	Fill
				1.6.5	Mix
				1.6.6	Empty
				1.6.7	Fill
				1.6.8	Flush
				1.6.9	Empty
				1.6.10	Fill
				1.6.11	Flush
				1.6.12	Empty
				1.6.13	Fill
				1.6.14	Cleaning program
				1.6.15	Legionella flushing interval
				1.6.16	Legionella flushing, cold
				1.6.17	Legionella flushing, hot
				1.6.18	Alarm layer thickness
				1.6.19	Pre-alarm layer thickness
				1.6.20	Alarm temperature
				1.6.21	Start of measuring range
				1.6.22	End of measuring range
				1.6.23	Measuring interval

				1.6.24	Level comparison
				1.6.30	Access remote control
			1.7	Measuring data	1.7.1 Last layer thickness and temperature determined
					1.7.2 Layer thickness and temperature determined before that
					1.7.3 Layer thickness and temperature determined before that
					1.7.4 …
			1.8	Emptying	1.8.1 Last emptying
2	Maintenance		2.1	Manual operation	2.1.1 Part empty
					2.1.2 Mix
					2.1.3 Empty
					2.1.4 Fill
					2.1.5 Mix
					2.1.6 Empty
					2.1.7 Fill
					2.1.8 Flush
					2.1.9 Empty
					2.1.10 Fill
					2.1.11 Flush
					2.1.12 Empty
					2.1.13 Fill
					2.1.14 Counterclockwise
					2.1.15 *SonicControl*
			2.2	Automatic operation	
			2.3	SDS	2.3.1 Test pump 1
					2.3.2 Test actuator valve 1
					2.3.3 Test pump 2
					2.3.4 Test actuator valve 2
					2.3.5 Test pump 3
			2.4	Maintenance due	2.4.1 Last maint. separator
					2.4.2 Next maint. separator
					2.4.3 Last maint. *SonicControl*
					2.4.4 Next maint. *SonicControl*
			2.5	Clearance remote control	2.5.1 Clearance duration
					2.5.2 Deactivate
3	Settings		3.1	Parameters	3.1.1 Part empty
					3.1.2 Mix
Carry out setting in agreement with Factory Customer Service					3.1.3 Empty
					3.1.4 Fill
					3.1.5 Mix
					3.1.6 Empty
					3.1.7 Fill
					3.1.8 Flush

		3.1.9	Empty
		3.1.10	Fill
		3.1.11	Flush
		3.1.12	Empty
		3.1.13	Fill
		3.1.14	Cleaning program
		3.1.15	Legionella flushing interval
		3.1.16	Legionella flushing, cold
		3.1.17	Legionella flushing, hot
		3.1.18	Alarm layer thickness
		3.1.19	Pre-alarm layer thickness
		3.1.20	Alarm temperature
		3.1.21	Start of measuring range
		3.1.22	End of measuring range
		3.1.23	Measuring interval
		3.1.24	Level comparison
		3.1.30	Access remote control
	3.2 Profile memory	3.2.1	Save parameters
		3.2.2	Load parameters
	3.3 Date/time*		
	3.4 Number of pumps*	3.4.1	1 pump 4-6.4A
		3.4.2	2 pumps 4-6.4A
		3.4.4	1 pump 6.5-8A
		3.4.5	2 pumps 6.5-8A
	3.5 Standard*	3.5.1	DIN 4040
		3.5.2	DIN underground installation
		3.5.3	Euro standard 1825
		3.5.4	Euro standard underground installation
	3.6 Nominal size*	3.6.1	NS2
		3.6.2	NS4
		3.6.3	NS7
		3.6.4	NS10
		3.6.5	NS15
		3.6.6	NS20
		3.6.7	NS25
		3.6.8	NS30
		3.6.9	NS35
		3.6.10	NS S
	3.7 Communication	3.7.1	Station name
		3.7.2	Own number
		3.7.3	Modem type
		3.7.4	PIN
		3.7.5	Text message-Headquarters
		3.7.6	Text message-Destination 1

		3.7.7	Text message-Destination 2
		3.7.8	Text message-Destination 3
		3.7.9	Status
3.8	Language*	3.8.1	Deutsch
		3.8.2	English
		3.8.3	Français
		3.8.4	Italiano
		3.8.5	Nederlands
		3.8.6	Polski
3.9	Expert mode	3.9.1	On delay
		3.9.2	Limit running time
		3.9.3	Conductivity
		3.9.4	Density
		3.9.5	Trigger
		3.9.6	SNR
		3.9.7	Noise
		3.9.8	Alarm sensor dry
3.10	Reset		
3.11	*SonicControl**		
3.12	Calibration of *SonicControl*	3.12.1	Calibr. with filled tank
		3.12.2	No calibration
		3.12.3	Calibr. in expert mode

* These parameters are expected for entry during initialisation and after “resetting” the control unit.

7 Technical data

7.1 Pre-conditions / basis for calculation

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

– Pumping quantity (extraction capacity) of the emptying vehicle 10 l/s = 36m³/h.

– Cold / hot water supply 1l/s with DN25

– Room temperature at least +15° C.

	Hot water requirements in litres	Total wastewater contents in litres	Total disposal volume (wastewater + hot water supply)	Cold water requirements (inlet edge outlet assembly)
NS 2	375	600	975	505
NS 4	500	800	1300	645
NS 7	844	1350	2794	1225
NS 10	1188	1900	3088	1660
NS 15	1620	3520	5140	2230
NS 20	2110	4230	6340	2895
NS 25	2310	4450	6760	3180
NS 30	2720	5250	7970	3755

➡ 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.

7.2 General technical data / connected values

Operating voltage	400 V AC 50 Hz
Pump, connected value	400 V AC 50 Hz
Pump, weight	approx. 27 kg
Pump capacity	3.0 kW
Stand-by power (control unit)	approx. 5 W
Protective rating (complete system)	IP 54
Required fuse protection	C 16A
On site acc. to VDE 0100	Fault-current circuit breaker 30 mA

7.3 Torques

Description / use	Torque Nm	Spanner size
Door hinge screw A2 bright 6x40	4.5 ±0.5	T30
PT-screw 100x30 A2	7	T50
PT-screw KB60x30 WN 1411	4.5 ±0.5	T30
Metal clamp / on system tank	3	ISK 10 mm
Hexagon safety screw M8x30	10	Spanner socket 13 mm
Pipe clamp D=120	8-10	Spanner socket 13 mm
Pipe clamp D=84	8-10	Spanner socket 13 mm
PT-hexagon screw K80x40 WN 1447	5.5 ±0.5	Spanner socket 13 mm
Hexagon socket screws for shredder mix pump	35 Nm	ISK 8 mm

7.4 Connections

	Cable type	Shielding	Plug connection	Cable length in m	Maximum length	Extension
Remote control	LIYCY 3x0.34 mm²	Yes	Clamped connection	15	100 m	Do not extend - exchange
Remote control	H05VV-F 3x1.0mm²	no	Schuko earthing pin plug	1.25	100 m	Do not extend - replace by NYM 3x1.5mm² or Ölflex Classic 110
CU* “Auto Mix & Pump”	No cable fitted			-	40 m	Fitted with NYM 5x2.5mm² at max. length (depending on overall system nominal power)
CU* “Mix & Pump”				-	40 m	
CU* “Auto Mix”				-	40 m	
Refill inlet			1“			
Solenoid valve			1“			
Pressure pipe connection			DN 70 E socket welded fitting Plasson socket PN 10 fabric hose with 2 hose clamps			
Storz-B connection			2 1/2“			

* Control unit

8 Maintenance

Before housing covers, plugs and cables are opened they must be switched voltage-free. Work on electrical components may only be carried out by specialist st2.2 on page 16).

8.1 Maintenance intervals

The maintenance date for the grease separator system can be set in the menu *2. Maintenance => 2.4 Maintenance date* . In the factory, a period of 12 months is set automatically, calculated from the initialisation time. This can be changed in the menu at any time.

The grease separator system must be serviced once a year by a qualified person*. In addition to emptying, the following jobs must be carried out:

The term “qualified” is used to describe employees at the owner-operators or from third parties who, on account of their training, knowledge and practical experience, can guarantee that they carry out evaluations or tests in a professional way in the respective field.

– Check the inner wall areas of the grease separator system.
– Functional check on the electrical devices and installations, as appropriate.
– Records of the findings and work carried out must be kept in the operating log and evaluated.
– The mechanical or electromechanical assemblies such as pumps, valves, viewing glass, closure devices etc. must be serviced.

8.2 Carrying out the maintenance of *SonicControl* (optional)

Annual cleaning of the sensor fingers(see 3.2.6 Installing the SonicControl sensor (option) - F on page 21)).

- Open inspection cover.
- Loosen the cable duct for the sensor cable and pull the cable approx. one metre inside the system tank.
- Remove the sensor from its bracket (clip) and clean (degrease) it.
- Install the sensor in the reverse order and carry out a functional check.
  (Page “Function check system type F”, page 34).

8.3 Repairs if the pump is faulty

The pump (Fig. 46) can be removed for maintenance/ troubleshooting. Radial impeller and cutting plate are wearing parts and can be exchanged.

- Undo both screws <73>.
- Take the pump housing off.
- Loosen the cutting plate <81>.
- Loosen the radial impeller <82>.
- Remove any objects jammed in the moving parts.
- Check the parts for smooth running and damage, replace if necessary.
- Assemble the pump again in reverse order.

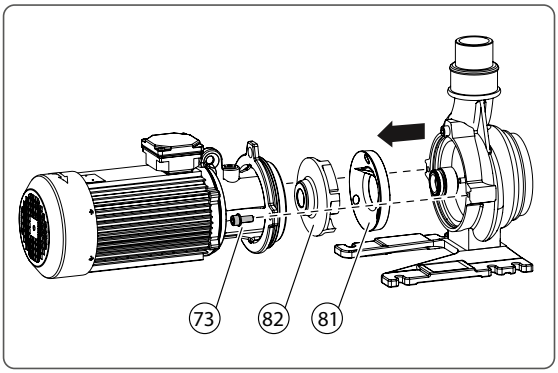

Abb. [43]

8.4 Troubleshooting

Fault	Possible cause	Action(s)
Pumping capacity too low during emptying	Pumping height too large for the pump capacity	Use the pump on the emptying vehicle (suction) to support the grease separator system pump
No or too little grease is flowing out	Room temperature under 15°C	Heat longer, increase room temperature
	Slow build-up of a solid grease layer	Heat regularly even where cold-flowing oils are used
	Coarse materials are blocking the grease extraction valve	Avoid feeding coarse materials (coarse materials screen)
Pumps do not start Capacity too lower	Motor protection switch has triggered	If appr. see display message on the control unit
	Motor is blocked	Remove blockage / service the pump (heed the safety instructions)
	Motor turns sluggishly	Check the white mains connection for phase failure
	Fault in the power supply: One or two phases are missing or there are heavy fluctuations in current	
	Pump capacity reduced	Remove blockage / service the pump (heed the safety instructions)
	Wrong direction of pump rotation	Connect rotary field correctly. Make sure that the counterclockwise function is not activated (only on systems with corresponding control unit)
Loud and unusual noises	Motor / pump components are blocked	Remove blockage / service the pump (heed the safety instructions)
No display on the control unit	Power outage	Make sure of the power supply
	Control unit fuse faulty	Replace fuse (specialist staff)

Messages on the “Auto Mix” control unit, system type D

Display	Cause	Action(s)
Rotary field fault	Wrong rotary field for mains connection	Connect rotary field correctly.
Motor protection	Motor protection switch has triggered	
	Current value for pump not set correctly	Set current value correctly
	Motor current too high due to faulty or blocked pump.	Remove blockage (heed the safety instructions)
	Increased current due to phase failure	Check the mains connection for phase failure
Phase fault	One of the phases is no longer available	Check mains connection on the control unit Check fault-current circuit breaker
Relay switching cycles	Power contactor has carried out more than 100,000 switching cycles	Message can be acknowledged. Message appears again after a further 1,000 operating cycles. Have the power contactor replaced by Customer Services

Temperature fault	Winding temperature switch has triggered	Self-resetting when motor has cooled down, acknowledge fault message with alarm key, please contact Customer Services if further temperature fault messages are issued
Undercurrent	The minimum current of the pump is not being reached. (The cable from the control unit to the motor could be interrupted or damaged)	Check cable and repair if necessary Replace pump if faulty
Overcurrent	The maximum current of the pump has been exceeded. (e.g. blockage)	Remove blockage (heed the safety instructions) Replace pump if faulty
Relay error	Power contactor is no longer switching	Switch the voltage supply for the control unit off and have the power contactor replaced by Customer Services

Messages on the “Auto Mix & Pump” control unit, system type F

Display	Cause	Action(s)
Rotary field fault	Wrong rotary field for mains connection	Connect rotary field correctly.
Actuator valve fault	Actuator valve limit switches are not being reached	Check limit switch connections Check valve for blockages
Motor protection	Motor protection switch has triggered.	
	Current value for pump not set correctly	Set current value correctly
	Motor current too high due to faulty or blocked pump.	Remove blockage (heed the safety instructions)
	Increased current due to phase failure	Check the mains connection for phase failure
Phase fault	One of the phases is no longer available	Check mains connection on the control unit
		Check fault-current circuit breaker
Relay switching cycles	Power contactor has carried out more than 100,000 switching cycles	Message can be acknowledged. Message appears again after a further 1,000 operating cycles. Have the power contactor replaced by Customer Services
Temperature fault	Winding temperature switch has triggered	Self-resetting when motor has cooled down, acknowledge fault message with alarm key, please contact Customer Services if further temperature fault messages are issued
Undercurrent	The minimum current of the pump is not being reached. (The cable from the control unit to the motor could be interrupted or damaged)	Check cable and repair if necessary
		Operate the pump counterclockwise briefly (“Maintenance” --> “Manual operation” --> “Counterclockwise”)
		Replace pump if faulty
Overcurrent	The maximum current of the pump has been exceeded. (e.g. blockage)	Remove blockage (heed the safety instructions)
		Operate the pump counterclockwise briefly (“Maintenance” --> “Manual operation” --> “Counterclockwise”)
		Replace pump if faulty
Relay error	Power contactor is no longer switching	Switch the voltage supply for the control unit off and have the power contactor replaced by Customer Services

Permanent odour development

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

8.5 Clean the grease separator

- Make sure that no more wastewater can be fed into it.
- Empty the system tank as described under “Emptying” (Chap5 on page 38).
- Disconnect the power supply.
- Take both inspection covers off the system tank.

➡ Do not clean the grease separator system using a 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 residue, as otherwise it could lead to functional problems.

- Clean all components with hot water.
- If present, clean the *SonicControl* sensor.
- Fit both inspection covers on the system tank.
- Carry out the pressure test and subsequent functional check (see 3.4 Initial filling and pressure test on page 32)).

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

Functions with *EasyClean* “Auto Mix & Pump“

Cleaning program:

You can adapt the separator cleaning (flushing with hot water) to the general local conditions using menu *Cleaning program* (see 1.6.14 on page 50).

Legionella flushing:

The drinking water pipes can be flushed automatically using the menu *Legionella flushing interval* (see 1.6.15 on page 50).

9 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.

Name of the tester

Date

10 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 watertightness test before commissioning and repeated every 5 years. This test may only be carried out by a technical specialist. 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 pre-condition for warranty conditions.
If you have the maintenance carried out by the manufacturer of the system, we guarantee you continued updating and care for your system.

……

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. +49 (0)8456/27-173

If you have any questions please do not hesitate to contact our Service department under the no. +49 (0)8456/27-462

Quotation for general inspection or a maintenance contract for separator systems

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

Sender

Name:_____

Street: _____

Postcode/City:_____

Contact:_____

Tel. no.:_____

Person receiving quotation

Name:_____

Street: _____

Postcode/City:_____

Contact:_____

Tel. no.:_____

Building

Name:_____

Street: _____

Postcode/City:_____

Contact:_____

Tel. no.:_____

Type plate data:

KESSEL

Bahnhofstraße 31
D-85101 Lenting

Made in Germany CE