

Product range

Grease separators

 **KESSEL**



Easy. Clean.

New generation
fully EN 1825 certified
grease separators



Made in Germany

Leading in drainage

Everything specialists need to know

Why you need a grease separator



Areas of application

- Kitchen operations and large-scale catering establishments, e.g. restaurants, hotels, canteens, motorway service stations
- Butchers
- Slaughterhouses / Abattoirs
- Soap and stearin factories
- Cooking oil refineries
- Canning factories
- ... and many more

Statutory provision

Grease separators are required by law for all companies generating greasy wastewater. The use of separator systems is regulated by standards.

Pipe blockages, corrosion and odour formation

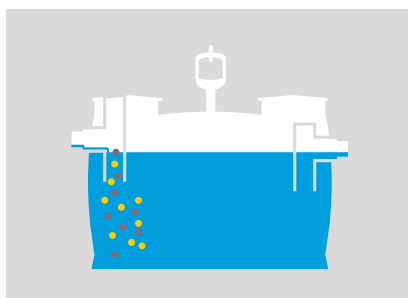
If grease, oil and food residues get into the pipe system, this causes stubborn and foul-smelling deposits that are difficult to remove. The consequences range from corrosion to complete system failure due to blockages – and this in turn means huge costs for the company.

Environmental protection

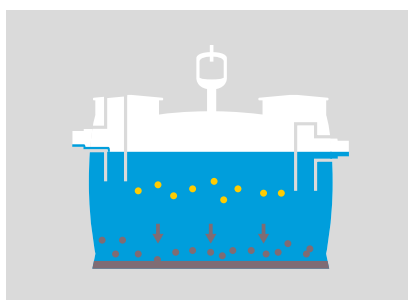
Grease separators prevent the environment from being contaminated by greasy wastewater and contribute to the trouble-free operation of sewage treatment plants.

Operation of a grease separator

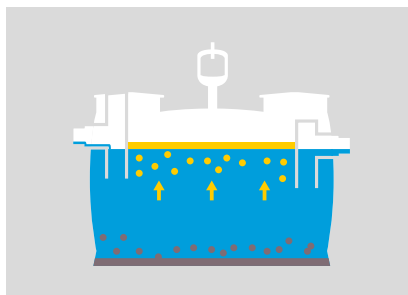
The operation of grease separators is based on the principle of gravity. Lighter than water oil and grease float to the surface of the separator, heavier than water flood sludge settle to the bottom of the separator and the clean treated water leaves the separator via a protected outlet.



The contaminated wastewater is routed into the grease separator where it is slowed down by a deflector plate.



Substances that are heavier than water sink to the bottom and settle in the sludge trap.



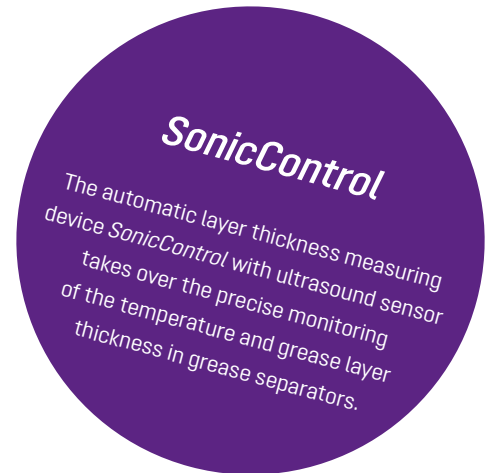
Grease and oil rise to the top and form a grease layer that is retained between the inlet and outlet.

Polymer grease separators

Polymer grease separator systems are an advantageous alternative to stainless steel solutions as they do not need to be refurbished, even after many years.

The polyethylene material used is resistant to aggressive fatty acids – and therefore particularly durable. In addition to the statutory provision, we provide a 20-year warranty with regard to the leak tightness, fitness for purpose and structural safety of tanks and upper sections.





Grease separator disposal - the right choice

Grease separators must be completely emptied on a regular basis to dispose of the retained waste materials. The options range from a basic system with manual disposal to a fully automatic disposal system.



Direct disposal

Enables the extraction of the grease separator contents through a permanently installed disposal pipe without opening the tank.



Shredder-Mix-System

Fully mixes the contents of the grease separator into a slurry to aid in the disposal process.



Control unit

Enables the convenient setting and control of the grease separator functions using a control unit mounted on the wall.








Disposal pump

Facilitates the emptying of the grease separator in the case of longer distances between the separator and the disposal truck.



Fully automatic

Controls the disposal and rinsing processes fully automatically.

Disposal options	EasyClean free Basic		EasyClean free			
	Standard	Direct	Mix	Auto Mix	Mix & Pump	Auto Mix & Pump
 Connection for direct disposal		✓	✓	✓	✓	✓
 Shredder-Mix-System			✓	✓	✓	✓
 Control unit				✓	✓	✓
 Disposal pump					✓	✓
 Fully automatic						✓

Connection to the drainage system

with a lifting station or a hybrid lifting station.



- 1 Properly sized lifting station
- 2 Two 45° curved fittings
- 3 Wastewater calming section
- 4 Connected drainage fixtures

The wastewater must flow into the grease separator system with gravity. Grease separator systems whose water level is below the backwater level (see EN 752-1) or sewer level should be connected to a properly sized lifting station.

The wastewater pipes to the separator systems must have a gradient of at least 2% (1:50) to prevent grease blockage. If this is not possible for constructional or operational reasons, and/or if longer pipes are necessary, suitable measures must be taken to prevent grease blockages and deposits. The transition from downpipes to horizontal pipes must be executed with two 45° curved fittings with a large radius. A wastewater calming section, the length of which corresponds to at least the 10-fold the inlet pipe's nominal width in millimetres, must then be provided immediately before the inlet of the separator.

Official requirements may limit the greywater temperature at the connection point to the public sewer system. Discharge points, such as floor drains, must be equipped with odour traps and, if necessary, with sludge buckets that can be removed for cleaning.



- 1 Properly sized hybrid lifting station
- 2 Two 45° curved fittings
- 3 Wastewater calming section
- 4 Connected drainage fixtures

Grease separators *EasyClean free*

The versatile solution for free-standing installation

The KESSEL grease separator *EasyClean free* combines ease of installation, cleaning performance and energy efficiency. The narrow tank shape offers two advantages: 1) the complete technology can be integrated on the base area of the separator. 2) it is easier to transport the grease separator through narrow entranceways and set it up directly against the wall, saving a great deal of space.



Improved access thanks to the curved shape

Also ideal for retrofitting and renovation work in rooms with very narrow access.

Control unit
with multilingual
(EN, DE, FR, IT, PL, NL)
digital display for
operating state and
servicing instructions
as well as connection
option for building
management system.



Improved cleaning results

Integrated sloped base for extraction at the lowest point (only 3 litres residual sludge volume).
For nominal sizes NS 2 - NS 10.



Refill unit

Hot water for cleaning and cold water for refill the separator after disposal.

Resistant to aggressive grease

The polyethylene material used is 100 % resistant to aggressive grease. This guarantees a long service life since there is no damage to the material due to corrosion.

SonicControl

for the measurement, display and control of the grease layer thickness in a grease separator.

**Planning made easy!**

Direction of flow can be changed on site by changing inlet and outlet.

Shredder-Mix-System

serves to mix and clean the tank contents without odor emission during disposal.

Polyethylene
Warranty
20 Years

Warranty

KESSEL offers a factory extended warranty of 20 years on the polyethylene grease separator tanks.

Grease separator *EasyClean* free Auto Mix & Pump NS 2 – 10
for free-standing installation



EN 1825 Z-54.1-474

Tank

Manufactured from virgin, non-recycled polyethylene, for free standing installation in frost protected areas, with integrated sludge trap, sloped interior base improves cleaning and reduces disposal time, inlet flow calming system and outlet flow regulation device, inlet and outlet interchangeable, slanted twin access covers with quick release odour tight snap closures, inspection window with interior cleaning arm, 75 mm OD PN 10 pressure disposal pipe, with integrated fork lift grips at base of separator, low weight - compact design, 100 % corrosion free polyethylene body construction (20 year warranty).

Disposal System

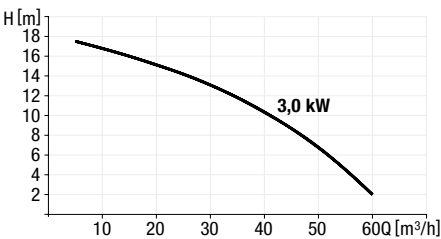
Auto Mix & Pump version fully automated odour free disposal, cleaning and refilling system at touch of button, maintenance free macerating pump (stainless steel blades) for separator cleaning and disposal, includes closure valve for easy pump removal, pump floor mount included with installation hardware and anti-vibration matt, actuator valve for automated transfer from cleaning to disposal mode, pumping capacity 3.0 kW, 5 m cable length, top mounted water jet(s) for grease layer breakup and water spray nozzles for interior wall cleaning during disposal, twin 1 inch solenoid valves for connection of cold and hot water pipes to separator, 1 inch interior threaded refill inlet with air gap.

Control Unit with LCD display control settable in English, German, French, Italian, Dutch or Polish language and mains power safety on/off switch, with BMS connections.

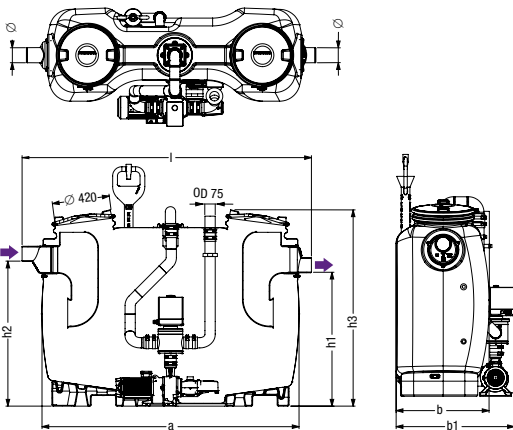
Delivery: System completely assembled.

- **Accessories:** Sampling chamber, remote control, *TeleControl* page 23 – 25
- **Technical note** page 22
- **Installation examples** page 22 – 29

Pumping capacity



	without <i>SonicControl</i>	with <i>SonicControl</i>
NS	Art. no.	Art. no.
NS 2	93 002.01/PVS	93 002.02/PVS
NS 3	93 003.01/PVS	93 003.02/PVS
NS 4	93 004.01/PVS	93 004.02/PVS
NS 7	93 007.01/PVS	93 007.02/PVS
NS 10	93 010.01/PVS	93 010.02/PVS



NS	Ø	a	Installation dimension l × b	b1	h1	h2	h3	Weight	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
2	110	1500	1735 × 680	860	985	1055	1435	160 kg	200 l	400 l	100 l	600 l
3	110	1500	1735 × 680	860	985	1055	1435	165 kg	300 l	300 l	120 l	600 l
4	110	1880	2115 × 680	860	985	1055	1435	178 kg	400 l	400 l	160 l	800 l
7	160	1910	2145 × 940	1130	1185	1255	1655	226 kg	700 l	650 l	280 l	1350 l
10	160	2590	2820 × 940	1130	1185	1255	1655	272 kg	1000 l	900 l	400 l	1900 l

EN 1825 Z-54.1-474

Ø = Outer diameter b1 = Set-up dimensions

Grease separator *EasyClean* free Auto Mix & Pump NS 15 – 30
for free-standing installation



EN 1825 Z-54.1-473

Tank

Manufactured from virgin, non-recycled polyethylene, for free-standing installation in frost-protected areas, with integrated sludge trap and sloped surfaces for fast and clean disposal, with two domed covers made of polymer, with quickrelease closures, sealed odour-tight, with suction device installed for the joint disposal of contents of sludge trap and grease separator chamber, intake pipe 75 mm OD PN 10 in accordance with DIN 2501, Storz-B coupling R 2 1/2 for connection to the disposal vehicle. Viewing window with wiper. Inlet and outlet Ø 200 / 250 mm for the connection to PE-HD pipes according to DIN 19537, HT pipes according to DIN 19560, PP or AS.

Disposal System

Auto Mix & Pump with program-controlled disposal and rinsing device and Shredder-Mix-System, KESSEL disposal system Auto Mix & Pump with switching distribution and actuator valve, mixing and rinsing device via jet and conic nozzles, external pump(s) 3.0 kW (IP55, 400 V, 50 Hz) with integrated chopping mechanism and closure valve, 5 m cable length, 2 solenoid valves 1", with refill inlet in accordance with DIN 1988.

Control Unit for actuating the pump(s) with potential-free contact.

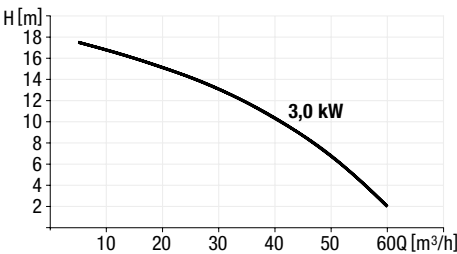
Delivery: System completely assembled.

➤ **Accessories:** Sampling chamber, remote control, *TeleControl*, *SonicControl* level sensing system page 23 – 25;

➤ **Technical note** page 22

➤ **Installation examples** page 22 – 29

Pumping capacity



Direction of flow "right"

NS	Art. no.
NS 15	93 015.01/PVS
NS 20	93 020.01/PVS
NS 25	93 025.01/PVS
NS 30	93 030.01/PVS

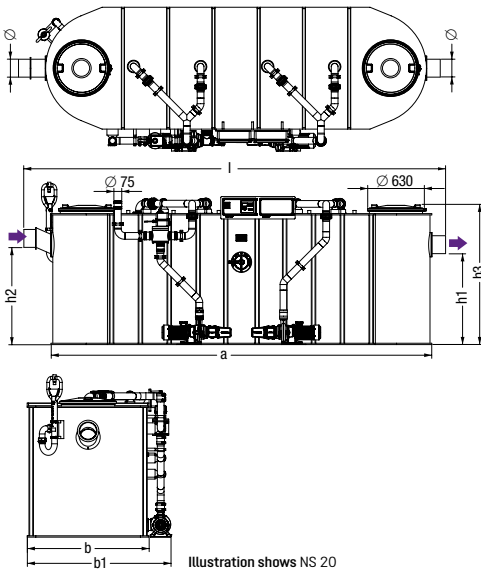


Illustration shows NS 20

NS	Ø	a	Installation dimension l × b	b1	h1	h2	h3	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
15	200	3300	3560 × 1350	1620	1130	1200	1625	1500 l	1100 l	600 l	2600 l
20	200	4250	4510 × 1350	1620	1030	1100	1525	2000 l	1370 l	800 l	3370 l
25	200	4500	4760 × 1350	1620	1030	1100	1525	2500 l	1200 l	1000 l	3700 l
30	250	4600	4860 × 1350	1620	1170	1240	1655	3000 l	1370 l	1200 l	4370 l

EN 1825 Z-54.1-473

Ø = Outer diameter b1 = Set-up dimensions

Grease separator *EasyClean* free Mix & Pump NS 2 – 10

for free-standing installation



EN 1825 Z-54.1-474

Tank

Manufactured from virgin, non-recycled polyethylene, for free standing installation in frost protected areas, with integrated sludge trap, sloped interior base improves cleaning and reduces disposal time, inlet flow calming system and outlet flow regulation device, inlet and outlet interchangeable, slanted twin access covers with quick release odour tight snap closures, inspection window with interior cleaning arm, 75 mm OD PN 10 pressure disposal pipe, with integrated fork lift grips at base of separator, low weight - compact design, 100 % corrosion free polyethylene body construction (20 year warranty).

Disposal System

Mix & Pump version manually controlled odour free disposal, cleaning and refilling system at touch of button, maintenance free macerating pump (stainless steel blades) for separator cleaning and disposal, includes closure valve for easy pump removal, pump floor mount included with installation hardware and anti-vibration matt, manual hand valve for transfer from cleaning to disposal mode, pumping capacity 3.0 kW, 5 m cable length, top mounted water jet(s) for grease layer breakup and water spray nozzles for interior wall cleaning during disposal, 1 inch manual hand valve for water refill, 1 inch interior threaded refill inlet with air gap.

Control Unit with LCD display control settable in English, German, French, Italian, Dutch or Polish language and mains power safety on/off switch, with BMS connections.

Delivery: System completely assembled.

- **Accessories:** Sampling chamber page 23
- **Technical note** page 22
- **Installation examples** page 22 – 29

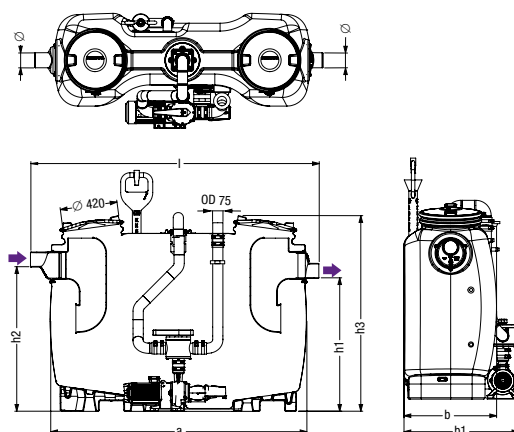
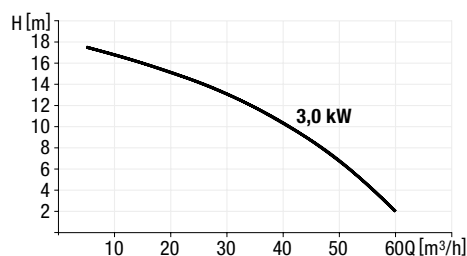


without *SonicControl*

with *SonicControl*

NS	Art. no.	Art. no.
NS 2	93 002.01/MS	93 002.02/MS
NS 3	93 003.01/MS	93 003.02/MS
NS 4	93 004.01/MS	93 004.02/MS
NS 7	93 007.01/MS	93 007.02/MS
NS 10	93 010.01/MS	93 010.02/MS

Pumping capacity



NS	Ø	a	Installation dimension l × b	b1	h1	h2	h3	Weight	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
2	110	1500	1735 × 680	860	985	1055	1435	155 kg	200 l	400 l	100 l	600 l
3	110	1500	1735 × 680	860	985	1055	1435	160 kg	300 l	300 l	120 l	600 l
4	110	1880	2115 × 680	860	985	1055	1435	173 kg	400 l	400 l	160 l	800 l
7	160	1910	2145 × 940	1130	1185	1255	1655	221 kg	700 l	650 l	280 l	1350 l
10	160	2590	2820 × 940	1130	1185	1255	1655	267 kg	1000 l	900 l	400 l	1900 l

EN 1825 Z-54.1-474

Ø = Outer diameter b1 = Set-up dimensions

Grease separator *EasyClean* free Mix & Pump NS 15 – 30

for free-standing installation



EN 1825 Z-54.1-473

Tank

Manufactured from virgin, non-recycled polyethylene, for free-standing installation in frost-protected areas, with integrated sludge trap and sloped surfaces for fast and clean disposal, with two domed covers made of polymer, with quickrelease closures, sealed odour-tight, with suction device installed for the joint disposal of contents of sludge trap and grease separator chamber, intake pipe 75 mm OD PN 10 in accordance with DIN 2501, Storz-B coupling R 2 1/2 for connection to the disposal vehicle. Viewing window with wiper. Inlet and outlet Ø 200 / 250 mm for the connection to PE-HD pipes according to DIN 19537, HT pipes according to DIN 19560, PP or AS.

Disposal System

Mix & Pump with manual disposal and rinsing device and Shredder-Mix-System, KESSEL disposal system Mix & Pump with switching distribution, mixing and rinsing device via jet and conic nozzles, external pump(s), with integrated chopping mechanism and closure valve, pumping capacity 3.0 kW, 5 m cable length, refill inlet in accordance with DIN 1988.

Control Unit for actuating the pump(s).

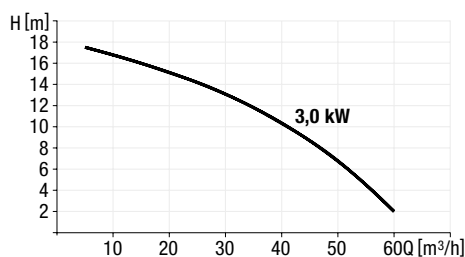
Delivery: System completely assembled.

➤ **Accessories:** Sampling chamber, *SonicControl* level sensing system page 23 – 25;

➤ **Technical note** page 22

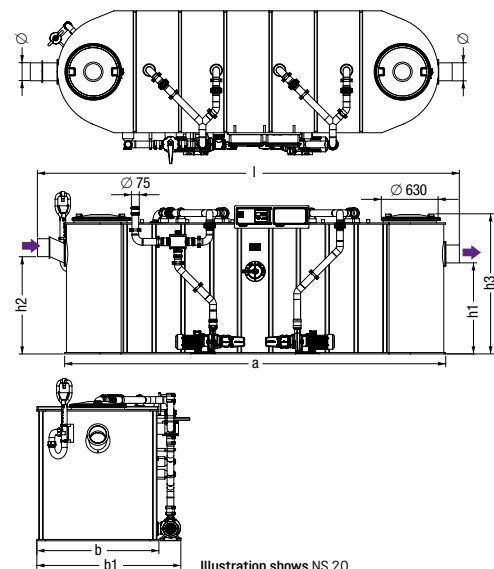
➤ **Installation examples** page 22 – 29

Pumping capacity



Direction of flow "right"

NS	Art. no.
NS 15	93 015.01/MS
NS 20	93 020.01/MS
NS 25	93 025.01/MS
NS 30	93 030.01/MS



NS	Ø	a	Installation dimension l × b	b1	h1	h2	h3	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
15	200	3300	3560 × 1350	1620	1130	1200	1625	1500 l	1100 l	600 l	2600 l
20	200	4250	4510 × 1350	1620	1030	1100	1525	2000 l	1370 l	800 l	3370 l
25	200	4500	4760 × 1350	1620	1030	1100	1525	2500 l	1200 l	1000 l	3700 l
30	250	4600	4860 × 1350	1620	1170	1240	1655	3000 l	1370 l	1200 l	4370 l

EN 1825 Z-54.1-473

Ø = Outer diameter b1 = Set-up dimensions

Grease separators *EasyClean* free Auto Mix NS 2 – 10

for free-standing installation



EN 1825 Z-54.1-474

Tank

Manufactured from virgin, non-recycled polyethylene, for free standing installation in frost protected areas, with integrated sludge trap, sloped interior base improves cleaning and reduces disposal time, inlet flow calming system and outlet flow regulation device, inlet and outlet interchangeable, slanted twin access covers with quick release odour tight snap closures, inspection window with interior cleaning arm, 75 mm OD PN 10 pressure disposal pipe, with integrated fork lift grips at base of separator, low weight - compact design, 100 % corrosion free polyethylene body construction (20 year warranty).

Disposal System

Auto Mix version with simultaneous mixing and cleaning of separator interior - requires disposal truck with vacuum system for separator disposal, disposal is completely odour free, maintenance free macerating pump (stainless steel blades) includes closure valve for easy pump removal, pump floor mount included with installation hardware and anti-vibration matt, top mounted water jet(s) for grease layer breakup and water spray nozzles for interior wall cleaning during disposal, 1 inch interior thread refill inlet with air gap, pumping capacity 3.0 kW, 5 m cable length, twin 1 inch solenoid valves for connection of cold and hot water pipes to separator, with remote control offering full separator disposal control from remote location (from disposal truck location).

Control Unit with LCD display control settable in English, German or French language and mains power safety on/off switch, with BMS connections.

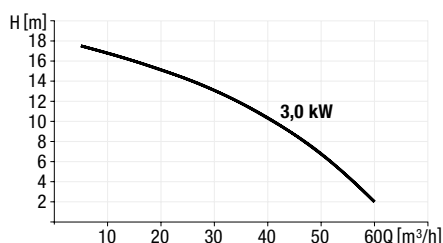
Delivery: System completely assembled.

➤ **Accessories:** Sampling chamber, remote control, *TeleControl* page 23 – 25

➤ **Technical note** page 22

➤ **Installation examples** page 22 – 29

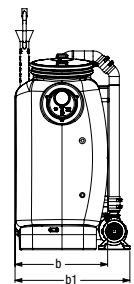
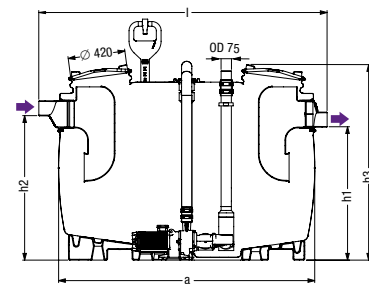
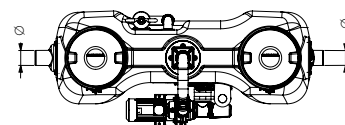
Pumping capacity



without *SonicControl*

with *SonicControl*

NS	Art. no.	Art. no.
NS 2	93 002.01/DSP	93 002.02/DSP
NS 3	93 003.01/DSP	93 003.02/DSP
NS 4	93 004.01/DSP	93 004.02/DSP
NS 7	93 007.01/DSP	93 007.02/DSP
NS 10	93 010.01/DSP	93 010.02/DSP



NS	Ø	a	Installation dimension l × b	b1	h1	h2	h3	Weight	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
2	110	1500	1735 × 680	860	985	1055	1435	150 kg	200 l	400 l	100 l	600 l
3	110	1500	1735 × 680	860	985	1055	1435	155 kg	300 l	300 l	120 l	600 l
4	110	1880	2115 × 680	860	985	1055	1435	168 kg	400 l	400 l	160 l	800 l
7	160	1910	2145 × 940	1130	1185	1255	1655	216 kg	700 l	650 l	280 l	1350 l
10	160	2590	2820 × 940	1130	1185	1255	1655	262 kg	1000 l	900 l	400 l	1900 l

EN 1825 Z-54.1-474

Ø = Outer diameter

b1 = Set-up dimensions

Grease separator *EasyClean* free Auto Mix NS 15 – 30

for free-standing installation



EN 1825 Z-54.1-473

Tank

Manufactured from virgin, non-recycled polyethylene, for free-standing installation in frost-protected areas, with integrated sludge trap and sloped surfaces for fast and clean disposal, with two domed covers made of polymer, with quick-release closures, sealed odour-tight, with suction device installed for the joint disposal of contents of sludge trap and grease separator chamber, intake pipe 75 mm OD PN 10 in accordance with DIN 2501, Storz-B coupling R 2 1/2 for connection to the disposal vehicle. 2 solenoid valves 1", viewing window with wiper, viewing window with wiper. Inlet and outlet Ø 200 / 250 mm for the connection to PE-HD pipes according to DIN 19537, HT pipes according to DIN 19560, PP or AS.

Disposal System

Auto Mix with direct disposal and Shredder-Mix-System, KESSEL Shredder-Mix-System with mixing and rinsing via jet and conic nozzles, external pump(s), with integrated chopping mechanism and closure valve, pumping capacity 3.0 kW, 5 m cable length, refill inlet in accordance with DIN 1988, R 1 connection.

Control Unit for actuating the pump(s) and the solenoid valves.

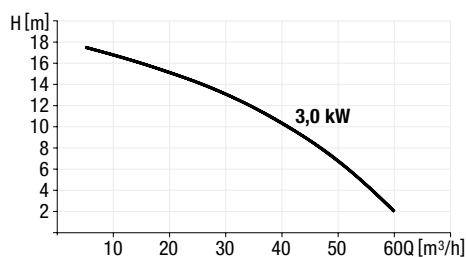
Delivery: System completely assembled.

➤ **Accessories:** Sampling chamber, remote control, *TeleControl*, *SonicControl* level sensing system page 23 – 25;

➤ **Technical note** page 22

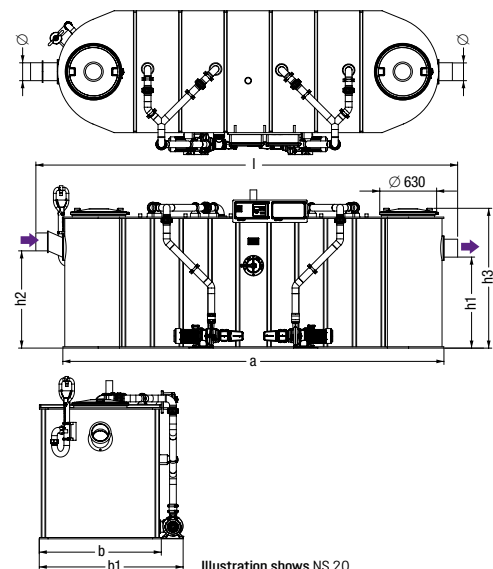
➤ **Installation examples** page 22 – 29

Pumping capacity



Direction of flow "right"

NS	Art. no.
NS 15	93 015.01/DSP
NS 20	93 020.01/DSP
NS 25	93 025.01/DSP
NS 30	93 030.01/DSP



NS	Ø	a	Installation dimension l × b	b1	h1	h2	h3	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
15	200	3300	3560 × 1350	1620	1130	1200	1625	1500 l	1100 l	600 l	2600 l
20	200	4250	4510 × 1350	1620	1030	1100	1525	2000 l	1370 l	800 l	3370 l
25	200	4500	4760 × 1350	1620	1030	1100	1525	2500 l	1200 l	1000 l	3700 l
30	250	4600	4860 × 1350	1620	1170	1240	1655	3000 l	1370 l	1200 l	4370 l

EN 1825 Z-54.1-473

Ø = Outer diameter b1 = Set-up dimensions

Grease separators *EasyClean* free Mix NS 2 – 10

for free-standing installation



EN 1825 Z-54.1-474

Tank

Manufactured from virgin, non-recycled polyethylene, for free standing installation in frost protected areas, with integrated sludge trap, sloped interior base improves cleaning and reduces disposal time, inlet flow calming system and outlet flow regulation device, inlet and outlet interchangeable, slanted twin access covers with quick release odour tight snap closures, 75 mm OD PN 10 pressure disposal pipe, with integrated fork lift grips at base of separator, low weight - compact design, 100 % corrosion free polyethylene body construction (20 year warranty).

Disposal System

Mix version with simultaneous mixing and cleaning of separator interior - requires disposal truck with vacuum system for separator disposal, disposal is completely odour free, maintenance free macerating pump (stainless steel blades) includes closure valve for easy pump removal, pump floor mount included with installation hardware and anti-vibration matt, pumping capacity 3.0 kW, 5 m cable length, top mounted water jet(s) for grease layer breakup and water spray nozzles for interior wall cleaning during disposal, 1 inch interior thread refill inlet with air gap, 1 inch manual hand valve for water refill, with hand held operation controller.

Delivery: System completely assembled.

➤ **Accessories:** Sampling chamber, inspection window page 23 – 25

➤ **Technical note** page 22

➤ **Installation examples** page 22 – 29

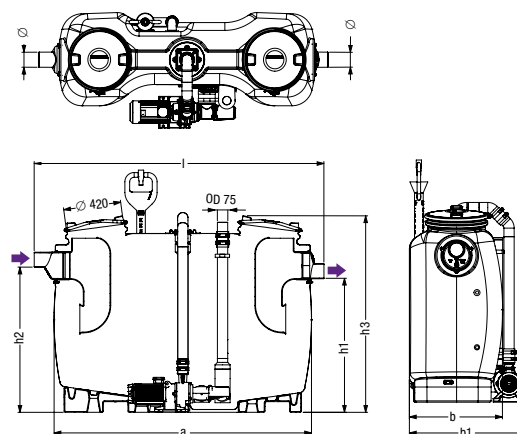
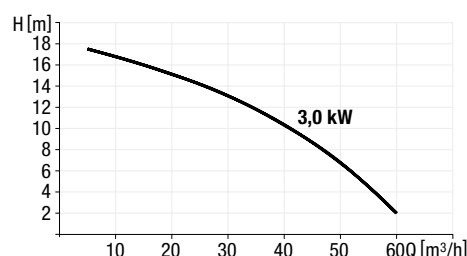


without *SonicControl*

with *SonicControl*

NS	Art. no.	Art. no.
<i>Without inspection window</i>		
NS 2	93 002.01/DS	93 002.02/DS
NS 3	93 003.01/DS	93 003.02/DS
NS 4	93 004.01/DS	93 004.02/DS
NS 7	93 007.01/DS	93 007.02/DS
NS 10	93 010.01/DS	93 010.02/DS
<i>With inspection window</i>		
NS 2	93 002.31/DS	93 002.32/DS
NS 3	93 003.31/DS	93 003.32/DS
NS 4	93 004.31/DS	93 004.32/DS
NS 7	93 007.31/DS	93 007.32/DS
NS 10	93 010.31/DS	93 010.32/DS

Pumping capacity



NS	Ø	a	Installation dimension l × b	b1	h1	h2	h3	Weight	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
2	110	1500	1735 × 680	860	985	1055	1435	145 kg	200 l	400 l	100 l	600 l
3	110	1500	1735 × 680	860	985	1055	1435	150 kg	300 l	300 l	120 l	600 l
4	110	1880	2115 × 680	860	985	1055	1435	163 kg	400 l	400 l	160 l	800 l
7	160	1910	2145 × 940	1130	1185	1255	1655	211 kg	700 l	650 l	280 l	1350 l
10	160	2590	2820 × 940	1130	1185	1255	1655	257 kg	1000 l	900 l	400 l	1900 l

EN 1825 Z-54.1-474

Ø = Outer diameter b1 = Set-up dimensions

Grease separator *EasyClean* free Mix NS 15 – 30

for free-standing installation



EN 1825 Z-54.1-473

Tank

Manufactured from virgin, non-recycled polyethylene, for free-standing installation in frost-protected areas, with integrated sludge trap and sloped surfaces for fast and clean disposal, with two domed covers made of polymer, with quick-release closures, sealed odour-tight, with suction device installed for the joint disposal of contents of sludge trap and grease separator chamber, intake pipe 75 mm OD PN 10 in accordance with DIN 2501, Storz-B coupling R 2 1/2 for connection to the disposal vehicle. Inlet and outlet Ø 200 / 250 mm for the connection to PE-HD pipes according to DIN 19537, HT pipes according to DIN 19560, PP or AS.

Disposal System

Mix with direct disposal and Shredder-Mix-System, KESSEL Shredder-Mix-System with mixing and rinsing via jet and conic nozzles, external pump(s), with integrated chopping mechanism and closure valve, pumping capacity 3.0 kW, 5 m cable length, refill inlet in accordance with DIN 1988, R 1 connection.

Switch Unit for actuating the pump.

Delivery: System completely assembled.

➤ **Accessories:** Sampling chamber, inspection window, *SonicControl* level sensing system page 23 – 25;

➤ **Technical note** page 22

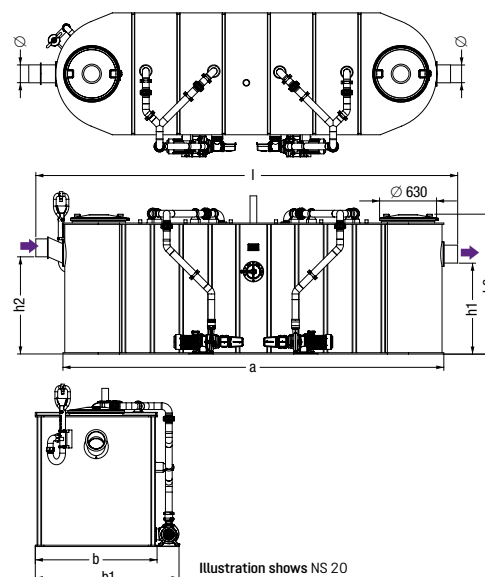
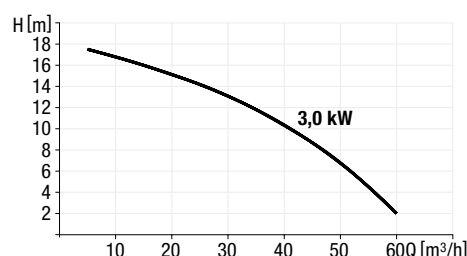
➤ **Installation examples** page 22 – 29



Direction of flow "right"

NS	Art. no.
NS 15	93 015.01/DS
NS 20	93 020.01/DS
NS 25	93 025.01/DS
NS 30	93 030.01/DS

Pumping capacity



NS	Ø	a	Installation dimension l × b	b1	h1	h2	h3	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
15	200	3300	3560 × 1350	1620	1130	1200	1625	1500 l	1100 l	600 l	2600 l
20	200	4250	4510 × 1350	1620	1030	1100	1525	2000 l	1370 l	800 l	3370 l
25	200	4500	4760 × 1350	1620	1030	1100	1525	2500 l	1200 l	1000 l	3700 l
30	250	4600	4860 × 1350	1620	1170	1240	1655	3000 l	1370 l	1200 l	4370 l

EN 1825 Z-54.1-473

Ø = Outer diameter b1 = Set-up dimensions

Grease separator *EasyClean* free Basic

The economic solution for wastewater treatment in kitchens

The *EasyClean* free Basic grease separator is the latest model in our quality separator series. It has been developed to satisfy all of the requirements of modern wastewater technology, though at the same time takes into account profitability and efficiency for the user.

The result is a separator made of durable polyethylene, which is still working reliably even decades after its installation. It is available with two disposal options. In addition to the standard version, there is a Direct version, which has a convenient direct disposal connection. With the help of this, the disposal of the separator content can be done completely odourless over a permanently installed disposal line. Both versions can be ordered with practical accessories, such as a inspection window or a refill inlet, and thus adapt perfectly to the requirements on site.

The *EasyClean* free Basic is the new standard and **economic solution** for wastewater treatment in kitchens and food processing facilities.

Made in Germany! Made by KESSEL!

Direct disposal

Enables the extraction of the grease separator contents through a permanently installed odour free disposal pipe without opening the tank (Direct version).

Quick release access covers

Slanted twin access covers with quick release odour tight snap closures for quick and easy maintenance and cleaning.

100 % corrosion free polyethylene body

The polyethylene material used is resistant to aggressive fatty acids – and therefore particularly durable. In addition to the statutory provision, we provide a 20-year warranty with regard to the leak tightness, fitness for purpose and structural safety of tanks and upper sections.

Perfect cleaning results

Integrated sloped base allows wastewater to flow with gravity directly to the suction intake – saving time and disposal costs.



Grease separators *EasyClean* free Basic Direct NS 2 – 10

for free-standing installation



EN 1825 Z-54.1-474

Service side (left/right)

Inspection window (with/without)

Refill inlet (with/without)

The separator for fat containing wastewater is suitable for free-standing installation in frost protected areas and contains no metal parts in the chamber. The collection chamber made of resistant polymer (PE) includes an integrated sludge trap. Two odour-resistant covers with quick-release closures allow easy access for cleaning and maintenance tasks.

For odour-reducing manual disposal, with factory installed pressure pipe suction outlet. After disposal, only approx. 3 L of residual sludge volume is in the tank.

Warranty for polyethylene material: 20 years

Standard: EN 1825

Connection of inlet/outlet fittings: PE-HD pipes according to DIN 19537, HT pipes according to DIN 19560 (PP or AS piping)

Disposal connection DN(OD): 65(75mm) PN10

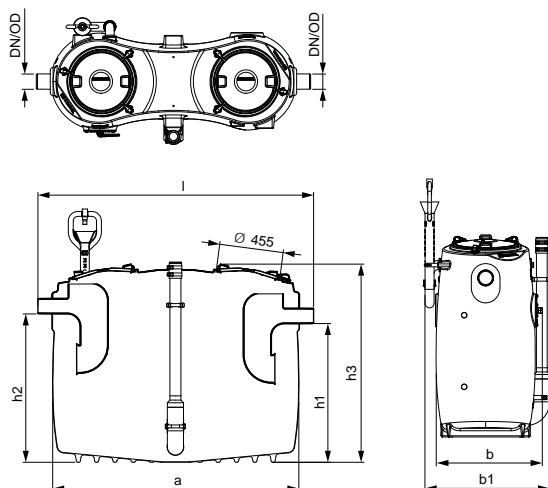
Scope of delivery: Storz B coupling R 2 1/2 " for suction hose connection

System fully assembled as supplied

➤ **Accessories:** Sampling chamber, lifting station page 23 – 25



Illustration shows Art. 94 004.32DR



Direction of flow "left"		Direction of flow "right"	
NS	Art. no.	Art. no.	
Without accessories			
NS 2	94 002.10DL	94 002.10DR	
NS 4	94 004.10DL	94 004.10DR	
NS 7	94 007.10DL	94 007.10DR	
NS 10	94 010.10DL	94 010.10DR	
With inspection window			
NS 2	94 002.21DL	94 002.21DR	
NS 4	94 004.21DL	94 004.21DR	
NS 7	94 007.21DL	94 007.21DR	
NS 10	94 010.21DL	94 010.21DR	
With refill inlet			
NS 2	94 002.12DL	94 002.12DR	
NS 4	94 004.12DL	94 004.12DR	
NS 7	94 007.12DL	94 007.12DR	
NS 10	94 010.12DL	94 010.12DR	
With inspection window and refill inlet			
NS 2	94 002.32DL	94 002.32DR	
NS 4	94 004.32DL	94 004.32DR	
NS 7	94 007.32DL	94 007.32DR	
NS 10	94 010.32DL	94 010.32DR	

NS	Outer diameter Ø (mm)	Installation dimension l × b (mm)	b1 (mm)	h1 (mm)	h2 (mm)	h3 (mm)	Weight (kg)	Sludge trap (l)	Water and sludge (l)	Grease storage (l)	Total (incl. water) (l)
2	110	1560 × 700	920	985	1055	1420	85	200	460	80	660
4	110	1960 × 700	905	985	1055	1420	105	400	420	160	820
7	160	1960 × 920	1140	1185	1255	1670	155	700	670	280	1370
10	160	2610 × 920	1120	1185	1255	1670	175	1000	880	400	1880

Ø = Outer diameter b1 = Set-up dimensions

Grease separator *EasyClean* free Direct NS 15 – 30

for free-standing installation



EN 1825 Z-54.1-473

Tank

Manufactured from virgin, non-recycled polyethylene, for free-standing installation in frost-protected areas, with integrated sludge trap and sloped surfaces for fast and clean disposal, with two domed covers made of polymer, with quickrelease closures, sealed odour-tight, with suction device installed for the joint disposal of contents of sludge trap and grease separator chamber, intake pipe 75 mm OD PN 10 in accordance with DIN 2501, Storz-B coupling R 2 1/2 for connection to the disposal vehicle. Inlet and outlet Ø 200 / 250 mm for the connection to PE-HD pipes according to DIN 19537, HT pipes according to DIN 19560, PP or AS.

Disposal System

Direct with direct disposal.

Delivery: System completely assembled.

➤ **Accessories:** Inspection window and refill inlet, sampling chamber, retrofit sets up to Auto Mix & Pump from page 23 – 25

➤ **Technical note** page 22

➤ **Installation examples** page 22 – 29



without SonicControl

NS	Art. no.
Without accessories	
NS 15	93 015.01/D
NS 20	93 020.01/D
NS 25	93 025.01/D
NS 30	93 030.01/D

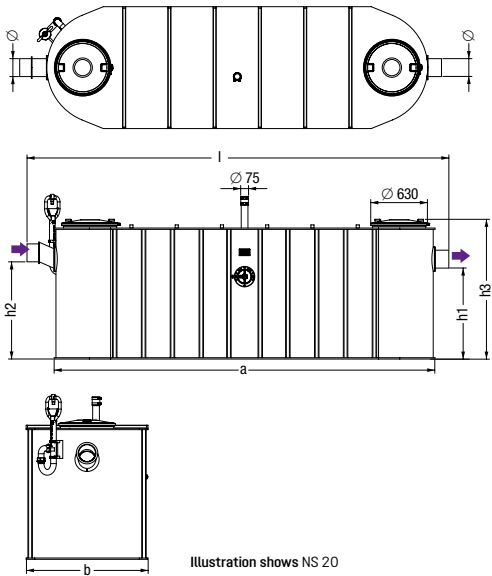


Illustration shows NS 20

NS	Ø	a	Installation dimension l × b	h1	h2	h3	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
15	200	3300	3560 × 1350	1130	1200	1625	1500 l	1100 l	600 l	2600 l
20	200	4250	4510 × 1350	1030	1100	1525	2000 l	1370 l	800 l	3370 l
25	200	4500	4760 × 1350	1030	1100	1525	2500 l	1200 l	1000 l	3700 l
30	250	4600	4860 × 1350	1170	1240	1655	3000 l	1370 l	1200 l	4370 l

EN 1825 Z-54.1-473

Ø = Outer diameter

Grease separators *EasyClean* free Basic Standard NS 2 – 10

for free-standing installation

EN 1825 Z-54.1-474

Service side (left/right)

Inspection window (with/without)

Refill inlet (with/without)

The separator for fat containing wastewater is suitable for free-standing installation in frost protected areas and contains no metal parts in the chamber. The sampling chamber made of resistant polymer (PE) includes an integrated sludge trap. Two odour-resistant covers with quick-release closures allow easy access for cleaning and maintenance tasks. Requires disposal truck with vacuum system. The tank is opened during manual disposal.

Warranty for polyethylene material: 20 years

Standard: EN 1825

Connection of inlet/outlet fittings: PE-HD pipes according to DIN 19537, HT pipe according to DIN 19560 (PP or AS piping)

System fully assembled as supplied

➤ **Accessories:** Sampling chamber, lifting station page 23 – 25

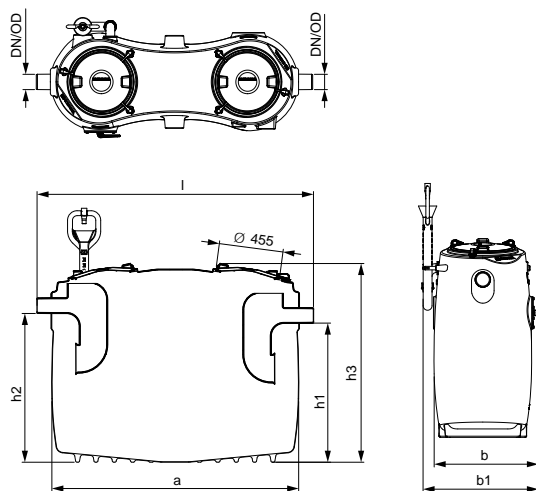


Illustration shows Art. 94 004.32R

Direction of flow "left"		Direction of flow "right"	
NS	Art. no.	Art. no.	
Without accessories			
NS 2	94 002.10	94 002.10	
NS 4	94 004.10	94 004.10	
NS 7	94 007.10	94 007.10	
NS 10	94 010.10	94 010.10	
With inspection window			
NS 2	94 002.21L	94 002.21R	
NS 4	94 004.21L	94 004.21R	
NS 7	94 007.21L	94 007.21R	
NS 10	94 010.21L	94 010.21R	
With refill inlet			
NS 2	94 002.12L	94 002.12R	
NS 4	94 004.12L	94 004.12R	
NS 7	94 007.12L	94 007.12R	
NS 10	94 010.12L	94 010.12R	
With inspection window and refill inlet			
NS 2	94 002.32L	94 002.32R	
NS 4	94 004.32L	94 004.32R	
NS 7	94 007.32L	94 007.32R	
NS 10	94 010.32L	94 010.32R	

NS	Outer diameter Ø (mm)	Installation dimension l × b (mm)	b1 (mm)	h1 (mm)	h2 (mm)	h3 (mm)	Weight (kg)	Sludge trap (l)	Water and sludge (l)	Grease storage (l)	Total (incl. water) (l)
2	110	1560 × 700	850	985	1055	1420	80	200 l	460 l	80 l	660 l
4	110	1960 × 700	850	985	1055	1420	100	400 l	420 l	160 l	820 l
7	160	1960 × 920	1080	1185	1255	1670	150	700 l	670 l	280 l	1370 l
10	160	2610 × 920	1080	1185	1255	1670	170	1000 l	880 l	400 l	1880 l

Ø = Outer diameter b1 = Set-up dimensions

EN 1825 Z-54.1-474

Grease separator *EasyClean* free Standard NS 15 – 30

for free-standing installation

EN 1825 Z-54.1-473

Tank

Manufactured from virgin, non-recycled polyethylene, for free-standing installation in frost-protected areas, with integrated sludge trap, two domed covers made of polymer, with quick-release closure, sealed odour-tight. Inlet and outlet Ø 200 / 250 mm for the connection to PE-HD pipes according to DIN 19537, HT pipes according to DIN 19560, PP or AS.

Disposal System

Standard version

Delivery: System completely assembled.

➤ **Accessories:** Inspection window and refill inlet, sampling chamber, retrofit sets up to Auto Mix & Pump from page 23 – 25

➤ **Technical note** page 22

➤ **Installation examples** page 22 – 29



without *SonicControl*

NS	Art. no.
Without accessories	
NS 15	93 015.01
NS 20	93 020.01
NS 25	93 025.01
NS 30	93 030.01

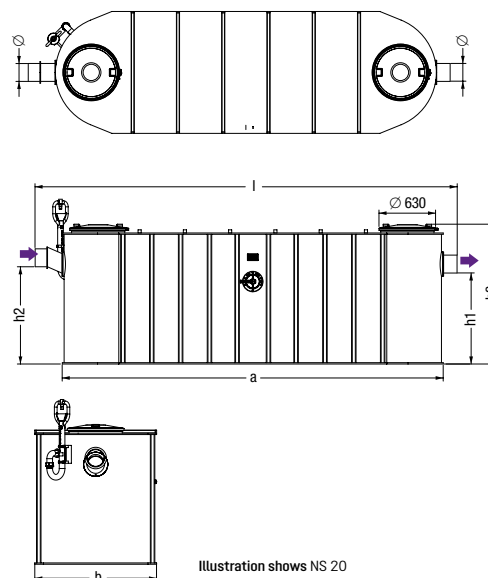


Illustration shows NS 20

NS	Ø	a	Installation dimension l × b	h1	h2	h3	Sludge trap	Water and sludge	Grease storage	Total (incl. water)
15	200	3300	3560 × 1350	1130	1200	1625	1500 l	1100 l	600 l	2600 l
20	200	4250	4510 × 1350	1030	1100	1525	2000 l	1370 l	800 l	3370 l
25	200	4500	4760 × 1350	1030	1100	1525	2500 l	1200 l	1000 l	3700 l
30	250	4600	4860 × 1350	1170	1240	1655	3000 l	1370 l	1200 l	4370 l

EN 1825 Z-54.1-473

Ø = Outer diameter

Grease separators

EasyClean Modular

The flexible solution for limited access / narrow entry.

The *EasyClean* Modular combines the advantages of the *EasyClean* free with maximum transportability. It is the ideal grease separator for extremely narrow entranceways that can make it difficult to transport a standard grease separator to the set-up location. This grease separator can be disassembled into small individual components and assembled at the set-up location.

Always the right choice: smartselect.kessel.com



1 Separator component 2 Assembled grease separator 3 Direct disposal connection

Grease separator *EasyClean Modular* Standard and Direct NS 0.25 – 4

for free-standing installation, two component version



NS 0.25/NS 0.5/NS 1: KESSEL-Norm NS 2/NS 3/NS 4: EN 1825

Made of polyethylene

Installation: In frost-protected rooms

Version: Can be disassembled

Delivery: System completely assembled
(only NS 0.25/NS 0.5/NS 1)

Note for NS 0.25/NS 0.5/NS 1: The separated grease must be skimmed off daily in the case of weekly emptying and cleaning.

***Custom made product:** Delivery time on request

➤ **Accessories for NS 2/NS 3/NS 4:** Sampling chamber, refill inlet, inspection window, *SonicControl* from page 23 – 25

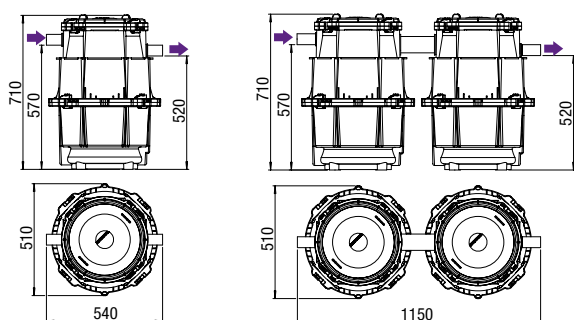


Illustration shows NS 0.25

Illustration shows NS 0.5

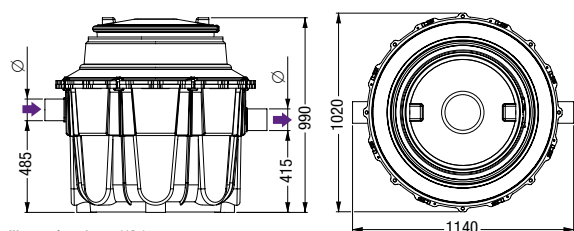


Illustration shows NS 1

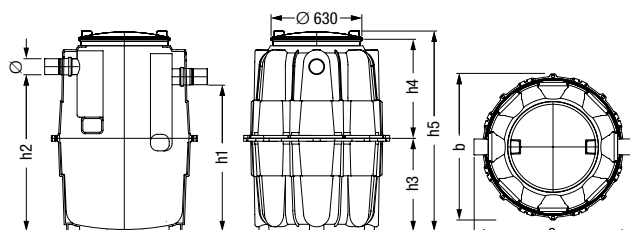


Illustration shows NS 2



Illustration shows
Art. no. 93 025

Illustration shows
Art. no. 93 050

Illustration shows
Art. no. 93 001



Illustration shows Art. no. 93 002-R

EasyClean Modular Standard

NS	Art. no.
NS 0.25	93 025
NS 0.5	93 050
NS 1	93 001
NS 2	93 002-R*
NS 3	93 003-R*
NS 4	93 004-R*

EasyClean Modular Direct with direct disposal

NS	Art. no.
NS 2	93 002.00/D1-R*
NS 3	93 003.00/D1-R*
NS 4	93 004.00/D1-R*

*Custom made

NS	Ø	a	b	h1	h2	h3	h4	h5	Weight	Sludge trap	Water and sludge	Grease storage
0.25	50	-	-	-	-	-	-	-	20 kg	25 l	28 l	15 l
0.5	50	-	-	-	-	-	-	-	45 kg	50 l	42 l	30 l
1	110	-	-	-	-	-	-	-	65 kg	100 l	100 l	40 l
2	110	1100	1020	1020	1090	650	690	1395	60 kg	200 l	400 l	100 l
3	110	1100	1020	1020	1090	650	690	1395	60 kg	300 l	300 l	120 l
4	110	1400	1300	1090	1160	765	790	1620	110 kg	400 l	560 l	160 l

NS 0.25/NS 0.5/NS 1: KESSEL-Norm NS 2/NS 3/NS 4: EN 1825

Ø = Outer diameter

Grease separator *EasyClean Modular* Standard and Direct NS 1 – 4

for free-standing installation, three component version



Following approval no. Z-54.1-473

Made of polyethylene PE-HD

Installation: In frost-protected rooms

Version: Standard or with direct disposal
(only *EasyClean Modular Direct*)

Consisting of: Integrated sludge trap,
polyethylene quick release odour tight covers

Delivery: System completely assembled.
Screw connection can be undone to minimum
installation dimensions.

Installation:

Ideal where access is extremely narrow.

Separator can be disassembled into 3 parts for
installation opening of max. 58 cm.

**Further nominal sizes, models with disposal device
and on-site welding on request:** info@kessel.com

***Custom made product:** Delivery time on request

➤ **Accessories:** Sampling chamber, *SonicControl*,
refill inlet, from page 23 – 25;



EasyClean Modular Standard

NS	Art. no.
NS 1	93 001-R2*
NS 2	93 002-R2*
NS 3	93 003-R2*
NS 4	93 004-R2*

EasyClean Modular Direct with direct disposal

NS	Art. no.
NS 1	93 001.00/D1-R2*
NS 2	93 002.00/D1-R2*
NS 3	93 003.00/D1-R2*
NS 4	93 004.00/D1-R2*

*Custom made

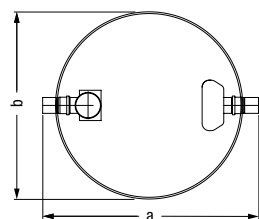
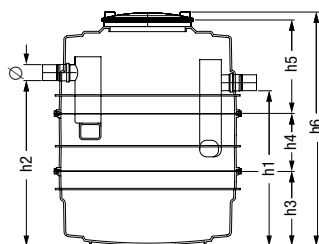


Illustration shows Standard version

Technical note

for pages 8 – 22

Production and weather related influences can lead to
deviations from our specifications in the case of free-
standing separators.

For this reason, please check the height specifications in
particular for their actual size before installation. Please
adapt the pipework to the actual inlet and outlet dimensions
before installing the grease separator. Thermal and
mechanical influences must be taken into consideration.

NS	Ø	a	b	h1	h2	h3	h4	h5	h6	Weight	Sludge trap	Water and sludge	Grease storage
1	110	1120	1020	780	850	375	250	500	1236	80 kg	100 l	230 l	80 l
2	110	1120	1020	1020	1090	485	300	550	1386	80 kg	200 l	270 l	100 l
3	110	1120	1020	1020	1090	485	300	550	1386	130 kg	300 l	300 l	120 l
4	110	1500	1300	1080	1150	520	390	580	1550	130 kg	400 l	560 l	160 l

Following approval no. Z-54.1-473

Ø = Outer diameter

Accessories

Grease separators for free-standing installation

Sampling chamber Ø 400

for separation systems

			Outer diameter Ø (mm)	Art. no.
Outlet lateral	Compatibility: For connection to outlet pipe of separator, no ponding (allows accurate samples). Inlet and outlet Ø ... available options for synthetic material pipes in: PE-HD (according to EN 1519-1); PVC-HT, PP or AS Inclusive: Cover sealed odour-tight with snap closure Drop height: 120 mm		Ø 110/Ø 160	915 871
Outlet vertical	Compatibility: For connection to outlet pipe of separator, no ponding (allows accurate samples). Inlet and outlet Ø ... available options for synthetic material pipes in: PE-HD (according to EN 1519-1); PVC-HT, PP or AS Inclusive: Cover sealed odour-tight with snap closure Drop height: 120 mm		Ø 110/Ø 160	915 870

Sampling chamber Ø 450

for separation systems

			Outer diameter Ø (mm)	Art. no.
Outlet lateral	Compatibility: For connection to outlet pipe of separator, Inlet and outlet Ø 200 mm available options for synthetic material pipes in: PE-HD (according to EN 1519-1); PVC-HT, PP or AS Inclusive: Cover sealed odour-tight with snap closure Drop height: 160 mm		Ø 200	915 863-IS

Polymer distribution box

for twin (parallel) separator systems

			Outer diameter Ø (mm)	Art. no.
	Compatibility: With inlet and outlet connection for polymer pipes made of: PE-HD (according to DIN 19537); PVC-HT, PP or AS.		Ø 110 Ø 160 Ø 200	915 700-100 915 700-150 915 700-200

Retrofit sets

		Outer diameter Ø (mm)	Art. no.
Direct	Inclusive: Direct disposal connection	-	913 101/D
Mix	Inclusive: Pump, refill inlet, 1 manual hand valve and direct disposal connection	NS 2 - 7 NS 10	913 101/DS 913 101/DS10
Auto Mix	Inclusive: Pump, refill inlet, inspection window, 2 solenoid valves, direct disposal connection and control unit	NS 2 - 7 NS 10	913 101/DSP 913 101/DSP10
Mix & Pump	Inclusive: Pump, refill inlet, inspection window, 1 manual hand valve, direct disposal connection and control unit	NS 2 - 7 NS 10	913 101/MS 913 101/MS10
Auto Mix & Pump	Inclusive: Pump, refill inlet, inspection window, 2 solenoid valves, direct disposal connection and control unit	NS 2 - 7 NS 10	913 101/PVS 913 101/PVS10

Accessories

Grease separators for free-standing installation

SonicControl level sensing system

for free-standing installation according to EN 1825

Art. no.

level sensing system

Inclusive: Ultra sonic sensor for electronic measurement, display and control of the grease layer thickness and the water temperature; power connection, battery back up, connection for remote speaker; installation set with easy assembly and maintenance; control unit with optical and audible alarm with potential free contact; electronic log book with 12 month capacity. Data transfer by telemetry.
Voltage: 230 V ~ 50 Hz
Protection type: IP 54
Plug: Schuko 1,5 m
Cable length: 10 m (extendable on-site to 60 meters)

917 821



Cable extension set for SonicControl FA

Art. no.

10 m extension

917 871

20 m extension

917 872

30 m extension

917 873



Refill inlet

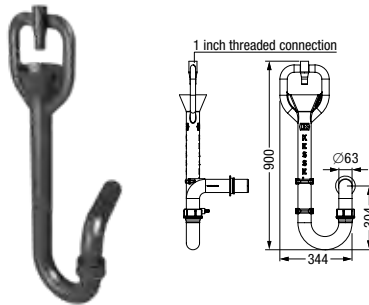
for separation systems

Art. no.

Refill inlet

Compatibility: According to DIN 1988, for connection to filling and rinsing connection of the separation systems for free-standing installation according to EN 1825
Inclusive: Two pipe clamps, element with pipe sealing gasket Ø 63

915 800



Inspection window

for separation systems EasyClean free according to EN 1825

Art. no.

Inspection window

Compatibility: For visual inspection of the thickness of the grease layer
Inclusive: High-gloss polished inspection glass, cleaning device, centimetre scale
Note: Only for installation by KESSEL certified workers

913 109



Accessories

Grease separators for free-standing installation

Remote control

for separation systems *EasyClean* free according to EN 1825

Art. no.

Remote control

Compatibility: Fits KESSEL Separation systems for free standing installation, for connection to an isolated ground socket

Version: Model Auto Mix & Pump and Auto Mix in accordance with EN 1825

Cable length: 15 m



916 601

Access panel

for separation systems

Width × Height × Depth
in mm

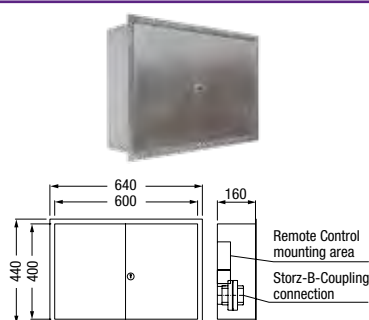
Art. no.

Recessed wall installation

Material: Stainless steel

Compatibility: For Storz-B disposal pipe hook up connection and remote control connection for use with fully automated grease separators. Remote control not included

Inclusive: 2 doors, lockable



640 × 440 × 160

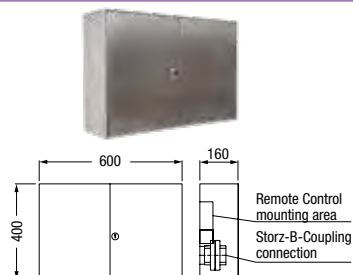
917 414

Wall installation

Material: Stainless steel

Compatibility: For Storz-B disposal pipe hook up connection and remote control connection for use with fully automated grease separators. Remote control not included

Inclusive: 2 doors, lockable



600 × 400 × 160

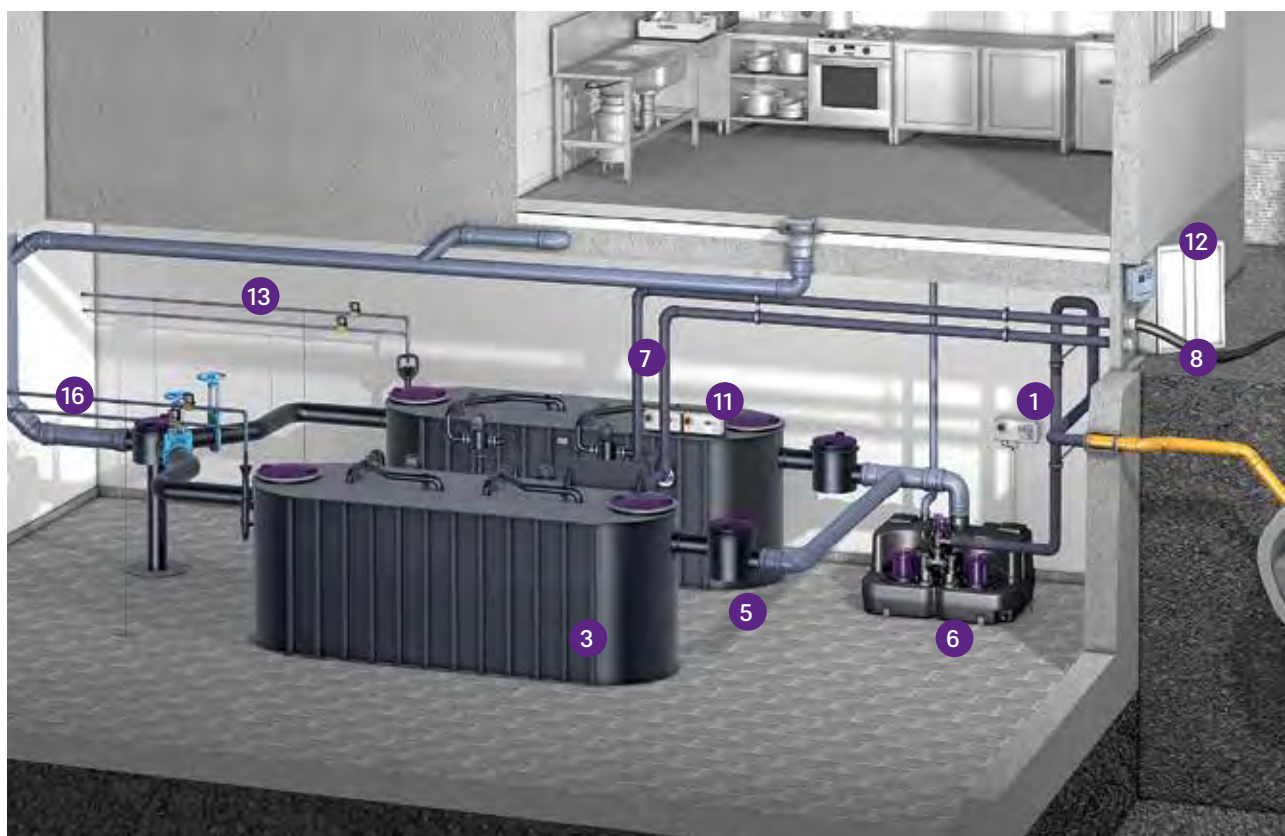
917 413

Installation examples

for free-standing installation

- | | |
|------------------------------------|---|
| 1 Control unit for lifting station | 9 <i>Shredder-Mix-System</i> |
| 2 Refill inlet | 10 Manual valve for water connection |
| 3 Grease separator | 11 Control unit for separator |
| 4 Suction hose | 12 Remote control system |
| 5 Sampling chamber | 13 Solenoid valve for cold / warm water connections |
| 6 Lifting station | 14 Manual switching between mixing / disposal |
| 7 Disposal line | 15 Actuator valve (for automatic switching between mixing / disposal) |
| 8 Connection for disposal truck | 16 Distribution box |

EasyClean free Auto Mix & Pump



EasyClean free Auto Mix & Pump

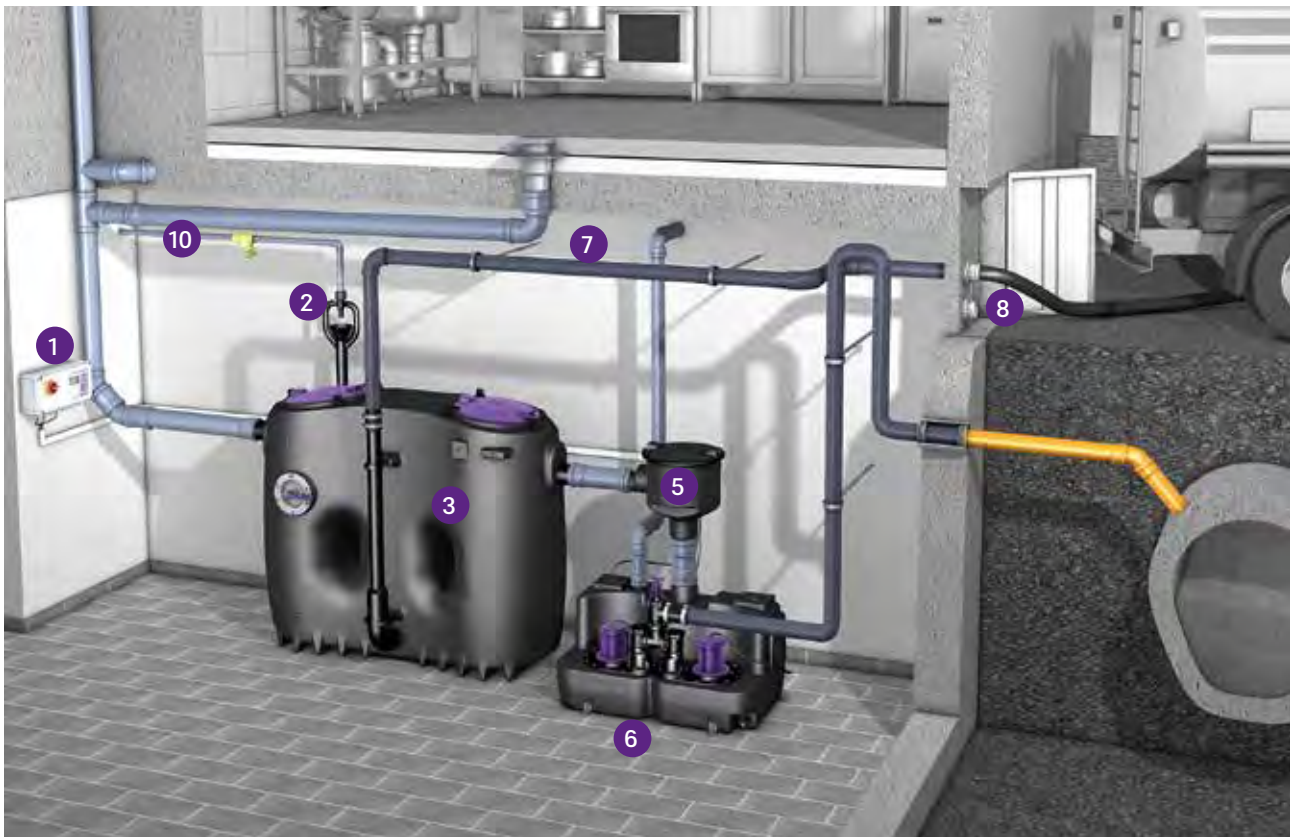


EasyClean free Mix & Pump

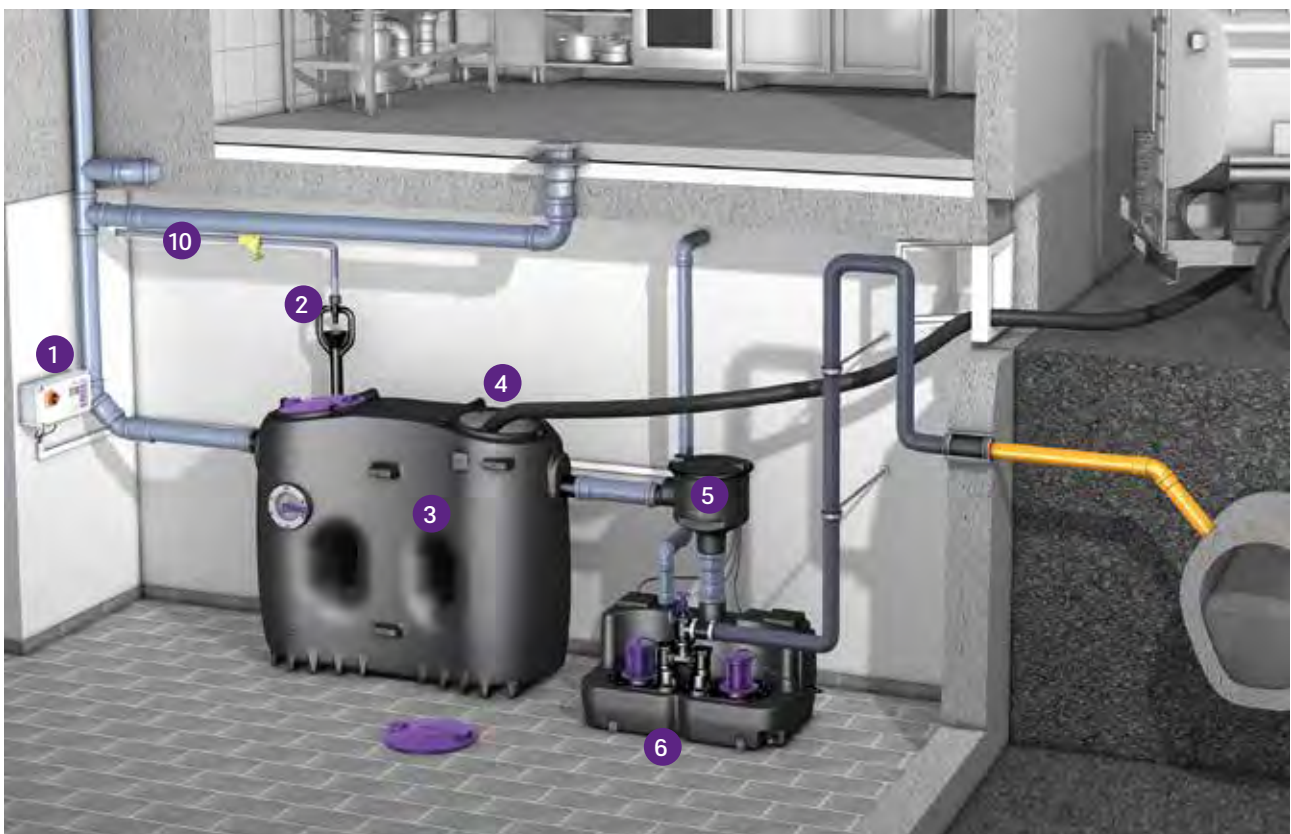


EasyClean free Auto Mix*EasyClean free Mix*

EasyClean free Basic Direct



EasyClean free Basic Standard



Grease separators *EasyClean* ground

The space-saving solution for underground installation.

Underground installation outside the building is a safe and clean alternative to free-standing set-up. Here, we offer a wide range of grease separators with the *EasyClean* ground that combines the advantages of the *EasyClean* free with more usable operating space. Individual installation depths, continuous adaptation to the ground level and compensation for the ground covering settling are possible thanks to the telescopic polymer upper sections.

Simple and fast installation

Complete chamber made in one piece and lightweight PE (polyethylene) material make it easy to place in excavation pit.

SonicControl

Layer thickness measuring device with ultrasonic sensor (optional) For the measurement, display and control of the grease layer thickness and the water temperature.



More flexible planning

Grease separator installed in the ground outside the building leaves more space in the building.

**Save and clean alternative**

Completely assembled systems installed safely and almost invisibly outside the building.

**Variable installation depths**

The telescopic upper section allows easy individual installation depths and adaptation to ground levels.

Simple disposal of wastewater

Cleaned wastewater flows via gravity into the sewage channel. No additional pump is required for this.

Polyethylene
Warranty
20 Years

Warranty

KESSEL offers a factory extended warranty of 20 years on the polyethylene grease separator tanks.

Grease separator *EasyClean* ground Auto Mix & Pump NS 1 – 10

for underground installation



EN 1825 DIN 4040-100 Z-54.1-440 (NS 7, NS 10), (NS 1/2/4 designed acc. to certification)

Made of polyethylene

Installation

In combination with engineering system chamber

- Grease Separator NS 1 – 4: Resistant when installed in the groundwater up to 500 mm
- Grease Separator NS 7, 10: Resistant when installed in the groundwater up to the upper edge of the tank (UET)
- A load distribution plate must be planned for class D

Consisting of: With program-controlled disposal system and Shredder-Mix system, upper section made of polymer material, continuous height and level compensation, with cover, class A/B, D according to EN 124 made of cast iron (can be driven over by cars and trucks), sealed odour-tight, incl. removal mechanism, integrated sampling chamber *Type NBG*, control unit and remote control, mains water supply rinse function, refill inlet, pump

Pumping capacity: 2.6 kW

Cable length: 5 m

Delivery: System completely assembled

Note: Further nominal sizes on request

➤ **Accessories:** Jointing / connection set, disposal chamber Ø 400, sampling chamber, intermediate section, *SonicControl* page 36 – 39

➤ **Technical note** page 35

➤ **Installation examples** page 40 – 41



Underground installation frost-free depth 800 mm

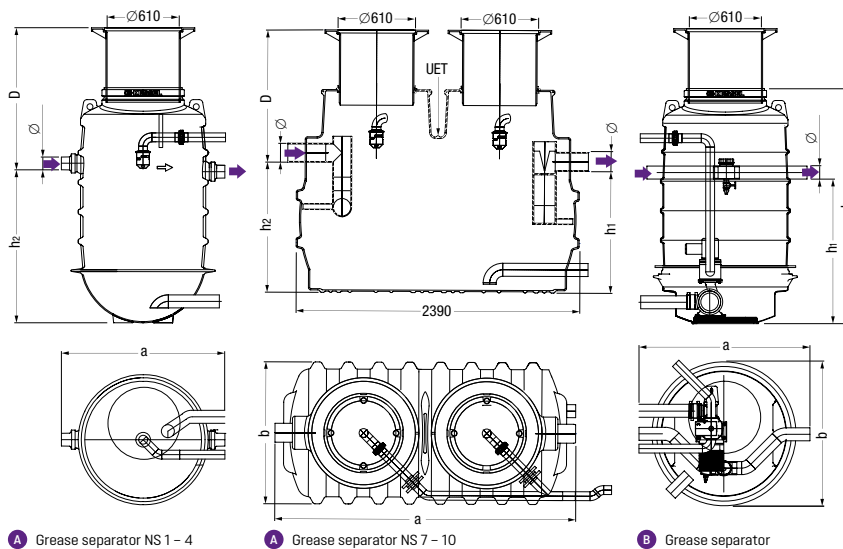
NS	Installation depth D in mm	Art. no.
Cover class A/B		
NS 1	550 – 950	93 001/80B-K-P1
NS 2	550 – 950	93 002/80B-K-P1
NS 4	550 – 950	93 004/80B-K-P1

Cover class D		
NS 1	550 – 950	93 001/80D-K-P1
NS 2	550 – 950	93 002/80D-K-P1
NS 4	550 – 950	93 004/80D-K-P1

Underground installation frost-free depth 1200 mm

NS	Installation depth D in mm	Art. no.
Cover class A/B		
NS 1	800 – 1200	93 001/120B-K-P1
NS 2	800 – 1200	93 002/120B-K-P1
NS 4	800 – 1200	93 004/120B-K-P1
NS 7	715 – 1165	93 007/120B-K-P1
NS 10	715 – 1165	93 010/120B-K-P1

Cover class D		
NS 1	800 – 1200	93 001/120D-K-P1
NS 2	800 – 1200	93 002/120D-K-P1
NS 4	800 – 1200	93 004/120D-K-P1
NS 7	715 – 1165	93 007/120D-K-P1
NS 10	715 – 1165	93 010/120D-K-P1



A Grease separator NS 1 – 4

A Grease separator NS 7 – 10

B Grease separator

NS	Ø	a	b	h	h1	h2	Weight	Sludge trap	Water and sludge	Grease storage
1	110	1380	1220	1500	690	795	270 kg	140 l	230 l	70 l
2	110	1380	1220	1750	940	1045	300 kg	200 l	370 l	120 l
4	110	1380	1220	2000	1210	1295	325 kg	400 l	370 l	160 l
7	160	2539	1200	1715	1030	1100	525 kg	700 l	1100 l	280 l
10	160	3062	1200	1715	1030	1100	550 kg	1000 l	1600 l	400 l

EN 1825 DIN 4040-100 Z-54.1-440 (NS 7, NS 10), (NS 1/2/4 designed acc. to certification)

Ø = Outer diameter

D = Installation depth

Grease separator *EasyClean* ground Standard NS 1 – 4

for underground installation

EN 1825 DIN 4040-100 Z-54.1-440

Made of polyethylene

Installation

- Resistant when installed in the groundwater up to 500 mm
- A load distribution plate must be provided for class D

Consisting of:

Upper section made of polymer, infinite height and level adjustment, with cover class A/B, D in accordance with EN 124 made of cast iron, sealed odour-tight, incl. lift-out key

Delivery: System completely assembled

Note: Further nominal sizes on request

➤ **Accessories:** Sampling chamber, extension section, direct disposal, *SonicControl* (NS 2 and NS 4) page 36 – 39

➤ **Technical note** page 35

➤ **Installation examples** page 40 – 41

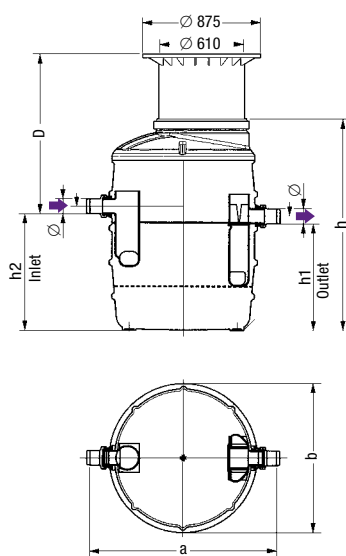


Underground installation frost-free depth 800 mm

NS	Installation depth D in mm	Art. no.
Cover class A/B		
NS 1	550 – 950	93 001/80B
NS 2	550 – 950	93 002/80B
NS 4	550 – 950	93 004/80B
Cover class D		
NS 1	550 – 950	93 001/80D
NS 2	550 – 950	93 002/80D
NS 4	550 – 950	93 004/80D

Underground installation frost-free depth 1200 mm

NS	Installation depth D in mm	Art. no.
Cover class A/B		
NS 1	800 – 1200	93 001/120B
NS 2	800 – 1200	93 002/120B
NS 4	800 – 1200	93 004/120B
Cover class D		
NS 1	800 – 1200	93 001/120D
NS 2	800 – 1200	93 002/120D
NS 4	800 – 1200	93 004/120D



NS	Ø	a	b	h ¹⁾	h1	h2	Weight	Sludge trap	Water and sludge	Grease storage
1	110	1380	1106	1050	540	610	111 kg	140 l	230 l	70 l
2	110	1380	1106	1300	790	860	120 kg	200 l	370 l	120 l
4	110	1380	1106	1550	1040	1110	130 kg	400 l	370 l	160 l

¹⁾ Specifications apply for type 80. For type 120, h* = h + 250 mm.

Ø = Outer diameter D = Installation depth

Grease separator *EasyClean* ground Standard NS 7 – 35 for underground installation

EN 1825 DIN 4040-100 *Z-54.1-440 (NS 7 – NS 20)

Made of polyethylene

Installation

in frost-free depth

- Installation is possible with groundwater up to the upper edge of the tank (UET)
- A load distribution plate must be provided for class D
- Class D = 700 mm ≤ DEC ≤ 1500 mm
Class A/B = 700 mm ≤ DEC ≤ 1800 mm
- Minimum installation depth achieved by sawing the upper section as required

Consisting of:

Upper section made of polymer, height and level adjustment, with cover class A/B, D in accordance with EN 124, made of cast iron (can be driven over by cars and trucks), sealed odour-tight, incl. lift-out key

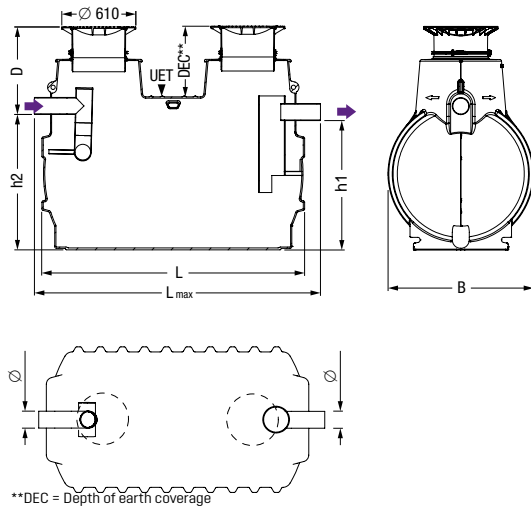
Delivery: System completely assembled

Note: Further nominal sizes on request

➤ **Accessories:** Sampling chamber, extension section, direct disposal, *SonicControl* page 36 – 39

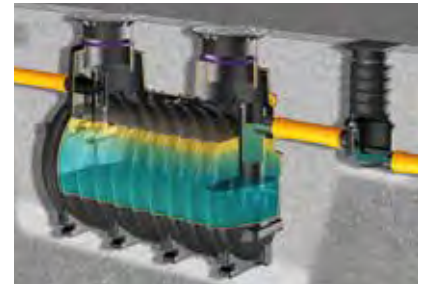
➤ **Technical note** page 35

➤ **Installation examples** page 40 – 41



NS	Ø	L	B	h1	h2	Sludge trap	Water and sludge	Grease storage	D-DEC	Lmax
7	160	2390	1200	1030	1100	700 l	1100 l	280 l	220	2540
10	160	2910	1200	1030	1100	1000 l	1600 l	400 l	220	3060
15	200	2590	1760	1550	1620	1500 l	2800 l	600 l	185	2780
20	200	3110	1760	1550	1620	2000 l	3800 l	800 l	185	3300
25	200	3470	2010	1550	1650	2500 l	5300 l	2000 l	480	3760
30	250	3470	2010	1550	1650	3000 l	4800 l	2000 l	480	3760
35	250	3470	2010	1700	1800	3500 l	4800 l	2000 l	330	3760

Ø = Outer diameter D = Installation depth



NS	Installation depth D in mm	Weight in kg	Art. no.
Cover class A/B			
NS 7*	740 – 1175	315	93 007/120B
NS 10*	740 – 1175	340	93 010/120B
NS 15*	765 – 1200	435	93 015/120B
NS 20*	765 – 1200	490	93 020/120B
NS 25	800 – 1235	665	93 925/120B
NS 30	800 – 1235	665	93 930/120B
NS 35	650 – 1085	665	93 935/120B

Cover class D

NS 7*	740 – 1175	450	93 007/120D
NS 10*	740 – 1175	480	93 010/120D
NS 15*	765 – 1200	630	93 015/120D
NS 20*	765 – 1200	670	93 020/120D
NS 25	800 – 1235	765	93 925/120D
NS 30	800 – 1235	765	93 930/120D
NS 35	650 – 1085	765	93 935/120D

Extended version for deeper installation with extension section Ø 800 mm

NS	Installation depth D in mm	Weight in kg	Art. no.
Cover class A/B			
NS 7*	1120 – 1740	345	93 007/170B
NS 10*	1120 – 1740	370	93 010/170B
NS 15*	1130 – 1755	465	93 015/170B
NS 20*	1130 – 1755	520	93 020/170B
NS 25	1155 – 1775	695	93 925/170B
NS 30	1155 – 1775	695	93 930/170B
NS 35	1005 – 1625	695	93 935/170B

Cover class D

NS 7*	1120 – 1740	480	93 007/170D
NS 10*	1120 – 1740	510	93 010/170D
NS 15*	1130 – 1755	660	93 015/170D
NS 20*	1130 – 1755	700	93 020/170D
NS 25	1155 – 1775	795	93 925/170D
NS 30	1155 – 1775	795	93 930/170D
NS 35	1005 – 1625	795	93 935/170D

EN 1825 DIN 4040-100 *Z-54.1-440 (NS 7 – NS 20)

Grease separator *EasyClean* ground Standard NS 1 – 4

for underground installation in frost-free depth

DIN 4040-100

Made of polyethylene

Installation

in frost-free depth

- Resistant when installed in the groundwater up to 500 mm
- A load distribution plate must be provided for class D

Consisting of:

Upper section made of polymer, height and level adjustment, with cover class A/B, D in accordance with EN 124, made of cast iron (can be driven over by cars and trucks), sealed odour-tight, incl. lift-out key

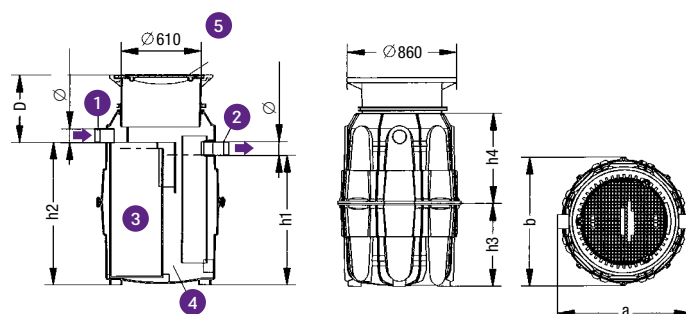
Delivery: System completely assembled

➤ **Accessories:** Sampling chamber, extension section, direct disposal, *SonicControl* (NS 2 and NS 4) page 36 – 39

➤ **Installation examples** page 40 – 41



NS	Installation depth D in mm	Art. no.
Cover class A/B		
NS 1	330 – 480	98 201/00B
NS 2	330 – 480	98 202/00B
NS 4	330 – 480	98 204/00B
Cover class D		
NS 1	330 – 480	98 201/00D
NS 2	330 – 480	98 202/00D
NS 4	330 – 480	98 204/00D



- 1 Inlet
- 2 Outlet
- 3 Sludge trap
- 4 Separation chamber
- 5 Upper section with cover class A/B, D

Technical note for pages 32 – 35

Weather-related influences or cooling of the tanks during the installation phase (caused by filling with cold water) can lead to deviations in dimensions from the catalogue specifications in the case of cisterns and separators installed in the ground.

NS	Ø	a	b	h1	h2	h3	h4	Weight	Sludge trap	Water and sludge	Grease storage
1	110	1055	1020	1020	1120	650	720	140 kg	105 l	415 l	40 l
2	110	1355	1300	1136	1236	750	750	190 kg	200 l	945 l	80 l
4*	110	2635	1300	1136	1236	750	750	330 kg	600 l	1150 l	160 l

*NS 4 separator consist of two chambers

Ø = Outer diameter D = Installation depth

Accessories

Grease separators for underground installation

Direct disposal, without disposal chamber


for grease separators according to EN 1825

Disposal connection right or left		Disposal connection	Art. no.
	Compatibility: Installed in the ground with direct disposal connection Inclusive: Flange connection Ø 65, PN 10 (welded collar and loose flange) for the suction pipe on site, with Storz-B coupling R 2 1/2" for disposal vehicle, for nominal sizes NS 1 - NS 35 Delivery: Installed suction device for the joint disposal from sludge trap and separating chamber, tank and direct connection completely assembled, disposal pipe and Storz-B connection on site. Note: Further installation depths, sizes and connections on request	right	917 419.00
		left	917 419.50



Disposal chamber Ø 400

for grease separators for underground installation

Disposal chamber		Cover	Art. no.
Material: Polyethylene, watertight Compatibility: For separator systems Auto Mix & Pump, Auto Mix and Mix for installation in the ground Installation depth: 630 - 980 mm Inclusive: With telescopic, height-adjustable upper section made of polymer with clamping ring, cover class A/B, D in accordance with EN 124 made of cast iron, sealed odour-tight, incl. lift-out key, with Storz-B coupling R 2 1/2" for disposal vehicle		Class A/B	917 422B
		Class D	917 422D


Joint and connection set

for grease separators for underground installation

Joint and connection set		Art. no.
Material: Polyethylene Compatibility: For connection of the grease separator (NS 1 - NS 4) to the technical chamber for the versions grease separators Auto Mix & Pump, Auto Mix and Mix in ground installation Inclusive: Storz-B coupling, pipe clamps		917 421

Direct disposal, including disposal chamber Ø 400

for grease separators according to EN 1825

Disposal connection right or left		Disposal connection	Art. no.
Compatibility: Installed in the ground with direct disposal connection for nominal sizes NS 1 - NS 35 Installation depth: 630 - 980 mm Inclusive: Flange connection Ø 65, PN 10 (welded collar and loose flange) for the suction pipe on site, with Storz-B coupling R 2 1/2" for disposal vehicle, with chamber system Ø = 400 mm, incl. cover class A/B/D, sealed Delivery: Installed suction device for the joint disposal from sludge trap and separating chamber, tank and direct connection completely assembled, disposal pipe on site. Note: Further installation depths, sizes and connections on request		right	917 420.00
		left	917 420.50



Accessories

Grease separators for underground installation

SonicControl level sensing system

for underground installation

Art. no.

Level sensing system

Inclusive: Ultra sonic sensor for electronic measurement, display and control of the grease layer thickness and the water temperature; power connection, battery back up, connection for remote speaker; installation set with easy assembly and maintenance; control unit with optical and audible alarm with potential free contact; electronic log book with 12 month capacity. Data transfer by telemetry.

Voltage: 230 V ~ 50 Hz

Protection type: IP 54

Plug: Schuko 1,5 m

Cable length: 10 m (extendable on-site to 60 meters)

917 821



Cable extension set for SonicControl FA

Art. no.

10 m extension

917 871

20 m extension

917 872

30 m extension

917 873



Sampling chamber Ø 1000

for underground installation

Cover class A/B

Compatibility: For separation systems NS 1 – NS 20 and special models

Installation depth (D): 1180 – 1630 mm
(Other installation depths available on request)

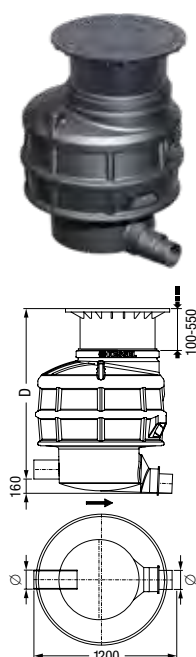
Drop height: 160 mm

Cover class D

Inclusive: Inlet and outlet Ø ... for synthetic material pipes in: PE-HD (according to EN 12666-1); PVC-KG (according to EN 1401-1); PP or AS.

With integrated access steps, with vertically height-adjustable upper section made of polymer, with cover class A/B, D according to EN 124 in cast iron sealed odour-tight, incl. removal mechanism.

Outer dia-meter Ø (mm)	Suitable for separator	Art. no.
Ø 110	NS 1, NS 2, NS 4	915 10 10B
Ø 160	NS 7, NS 10	915 10 15B
Ø 200	NS 15, NS 20*	915 10 20B
Ø 110	NS 1, NS 2, NS 4	915 10 10D
Ø 160	NS 7, NS 10	915 10 15D
Ø 200	NS 15, NS 20*	915 10 20D



*Suitable for individual solutions

Accessories

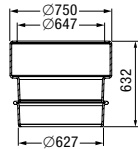
Grease separators for underground installation

Extension section

for underground installation

Art. no.

Extension section
Compatibility: For underground grease separators with 600 mm access cover
Height increase: 500 mm



917 460

Sampling chamber Ø 400

for underground installation

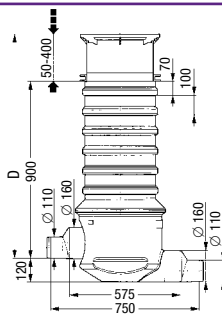
In-/Outlet

Art. no.

Cover class A
Compatibility: For connection to outlet pipe of separator
Installation depth (D): 400 - 1300 mm
(minimum installation depth can be achieved by cutting off)
Drop height: 120 mm (160 mm on request)
Inclusive: Telescopic upper section with clamping ring, cover class A/B/D, sealed odour-tight
Extension: 600 mm with extension section Art. no. 915 402

Cover class B

Cover class D



Ø 110/160 915 880A
Ø 200 915 880A-200

Ø 110/160 915 880B
Ø 200 915 880B-200

Ø 110/160 915 880D
Ø 200 915 880D-200

Sampling chamber Ø 450

for underground installation

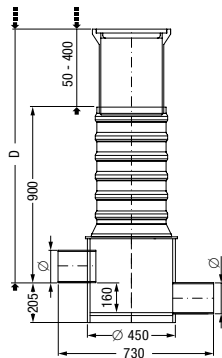
In-/Outlet

Art. no.

Cover class A
Compatibility: For connection to outlet pipe of separator
Installation depth (D): 950 - 1300 mm
Drop height: 160 mm
Inclusive: Telescopic upper section with clamping ring, cover class A/B/D, sealed odour-tight
Extension: 600 mm with extension section Art. no. 915 402

Cover class B

Cover class D



Ø 110 915 881A
Ø 160 915 882A
Ø 200 915 883A

Ø 110 915 881B
Ø 160 915 882B
Ø 200 915 883B

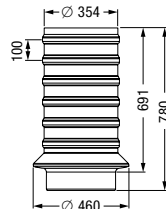
Ø 110 915 881D
Ø 160 915 882D
Ø 200 915 883D

Extension section

for underground installation

Art. no.

Extension section
Compatibility: For sampling chamber Ø 400 and Ø 450
Extension height: max. 600 mm (can be shortened on-site)
Check maintenance accessibility!



915 402

Accessories

Grease separators for underground installation

Cable access conduit

for underground installation

Art. no.

Cable access conduit

Compatibility: For grease separators according to EN 1825 and DIN 4040; for watertight connection of *SonicControl* cable into separator chamber
Inclusive: Gasket, cable connection
Note: Conduit pipe with chase wire should be planned; requires 50 mm OD conduit pipe (PE-HD) -sourced on-site. Max. distance between separator and control unit 30 m

917 822



Access panel

for separation systems

Width×Height×Depth
in mm

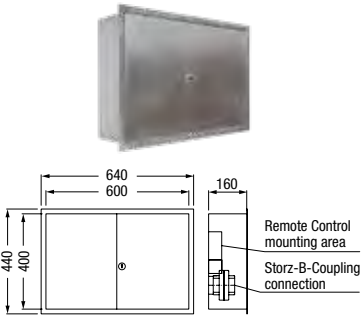
Art. no.

Recessed wall
installation

Material: Stainless steel
Compatibility: For Storz-B disposal pipe hook up connection and remote control connection for use with fully automated grease separators. Remote control not included
Inclusive: 2 doors, lockable

640×440×160

917 414

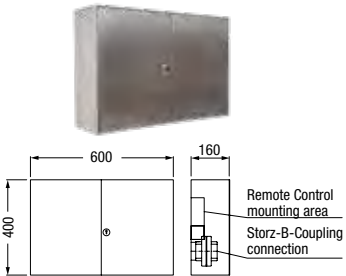


Wall installation

Material: Stainless steel
Compatibility: For Storz-B disposal pipe hook up connection and remote control connection for use with fully automated grease separators. Remote control not included
Inclusive: 2 doors, lockable

600×400×160

917 413

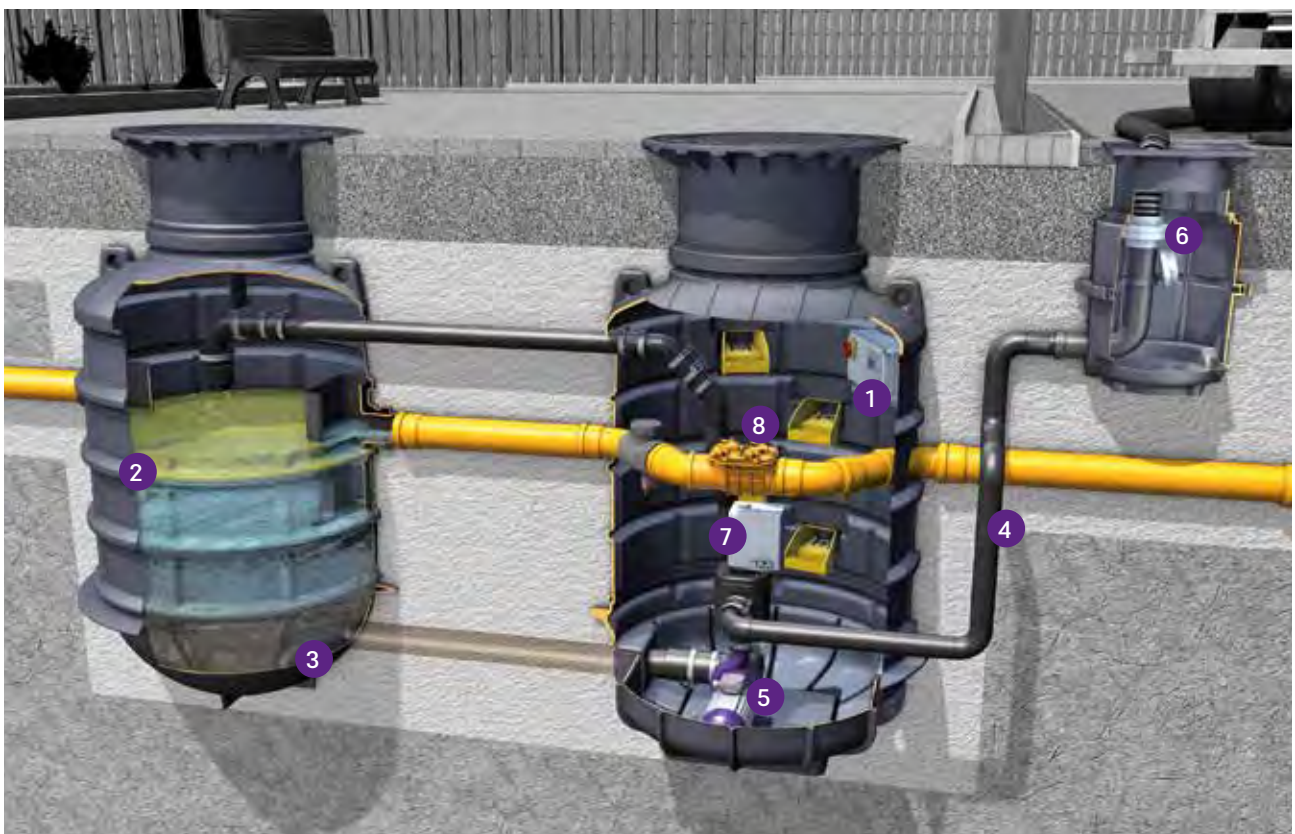


Installation examples

for underground installation

- 1 Control unit for grease separator
- 2 Grease separator
- 3 Suction hose
- 4 Disposal line
- 5 *Shredder-Mix-System*
- 6 Connection for disposal truck
- 7 Actuator valve (for automatic switching between mixing / disposal)
- 8 Sampling chamber

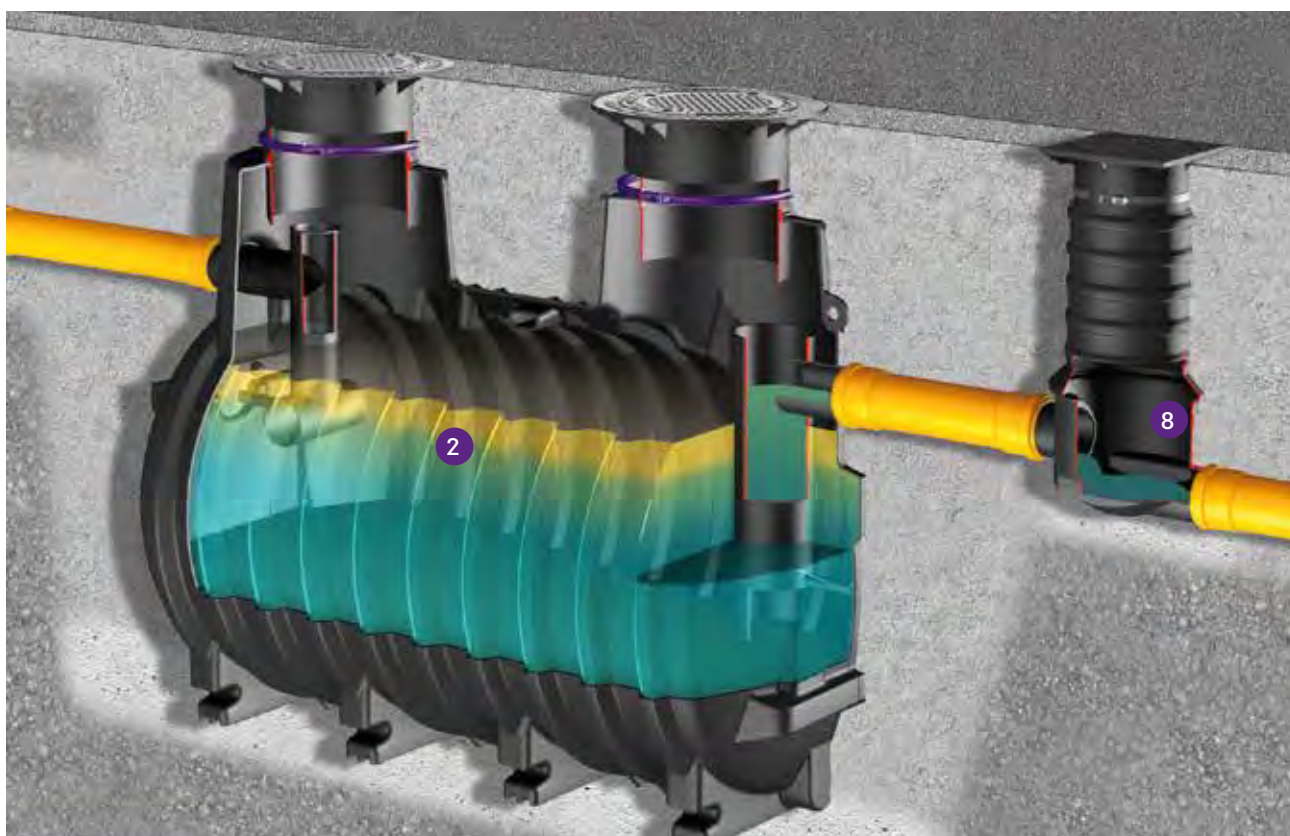
EasyClean ground Auto Mix & Pump



EasyClean ground Standard NS 1 – 4



EasyClean ground Standard NS 7 – 35



Custom lifting stations for pumping kitchen wastewater into grease separators for free-standing installation

Material: Polyethylene PE-HD

Version:

upstream from the grease separator

Custom made product:

e-Mail: info@kessel.com

In the case where the grease separator is located higher than the collected wastewater from the kitchen, the EN 1825 norm requires the use of special lifting stations.

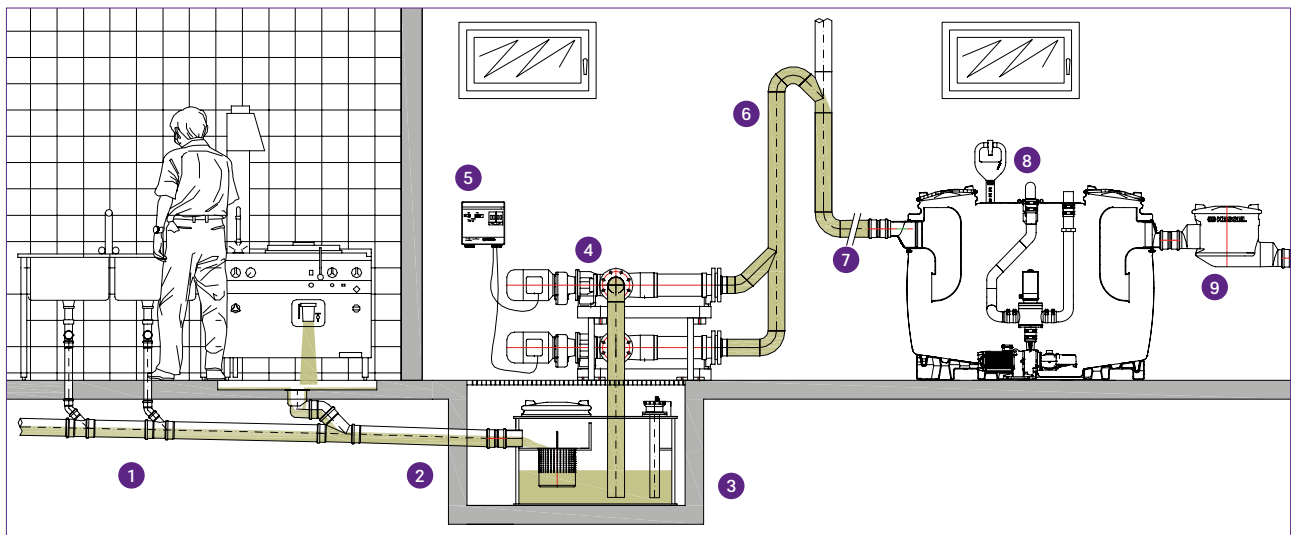
Standard lifting stations with vortex or macerating pumps 'mix' the wastewater as it is pumped. This causes the food waste and grease from the kitchen to fully mix with the wastewater which can negatively effect the efficiency of an EN 1825 grease separator. For this reason, positive displacement pumps (also known as 'screw' pumps) are required for use in these cases. A screw pump 'pushes' the wastewater into the grease separator, without any mixing taking place, allowing for proper grease separator operation.

For additional information concerning Kessel positive displacement pumps, please contact KESSEL directly.



Illustration shows screw pump double system

- 1 Drains in the kitchen
- 2 Inlet pipe
- 3 Collecting tank
- 4 Screw pump double system
- 5 Control unit
- 6 Pressure pipe
- 7 Calmed inlet
- 8 Grease separator
- 9 Sampling chamber



KESSEL-Calculator

For grease separators

The KESSEL calculations sheets listed below serve to properly size the separator to its facility and also to help choose the proper model.

1. General Information

1.1. Project / Location

Project / Site Location: _____

Planner: _____

Builder: _____

Version: _____

1.2. Facility

- | | | |
|--|---|--|
| <input type="checkbox"/> Care facility (retirement home) | <input type="checkbox"/> Slaughter / Meat processing plants | <input type="checkbox"/> Oil / grease processing plants |
| <input type="checkbox"/> Hotel kitchen | <input type="checkbox"/> Meat processing plant (with slaughtering) | <input type="checkbox"/> Butter / margarine manufacturer |
| <input type="checkbox"/> Fine cuisine kitchen | <input type="checkbox"/> Meat processing plant (without slaughtering) | <input type="checkbox"/> Cooking oil refinery |
| <input type="checkbox"/> Business kitchen / cafeteria | <input type="checkbox"/> Butcher with slaughtering | <input type="checkbox"/> Oil manufacturer |
| <input type="checkbox"/> Hospital / University kitchen | <input type="checkbox"/> Butcher without slaughtering | <input type="checkbox"/> Prepared meal manufacturer |
| <input type="checkbox"/> All day service kitchen | <input type="checkbox"/> Supermarket with meat processing | <input type="checkbox"/> Fish processing plant |
| <input type="checkbox"/> Standard restaurant | <input type="checkbox"/> Poultry slaughterhouse | <input type="checkbox"/> |

1.3. Times of operation

Daily operation:

☐ _____ hours / day

Weekly operation:

☐ _____ days / week

Wastewater discharge:

☐ continuous

☐ discontinuous

1.4. Legal limits for wastewater entering public / private sewage systems

(Consult local statutes or local water authority for legal limits / concentrations)

Values to be identified at the wastewater's point of entry into the (public) sewage system

Wastewater temperature: _____ °C

Allowable pH-value: _____ pH-value

Saponifiable oils and greases (lipophilic substance): max. _____ mg/l

2. Sizing the grease separator (NS - liters / second)

2.1. Calculating the maximum wastewater flow Q_s

Method 1: Q_s -Calculation based on maximum wastewater flow during peak kitchen operation measured with a flow metering device

Measured flow Q_s : _____

l/s: _____

$Q_s =$ _____ l/s

Method 2: Q_s -Calculation based on types of kitchens

The maximum wastewater flow is calculated for either a) commercial kitchens or b) meat processing plants based on volume and type of wastewater.

a) Commercial kitchen → calculating maximum wastewater flow Q_s

$Q_s =$ _____ l/s

Equation

$$Q_s = \frac{V_M \times F \times M_M}{t \times 3600}$$

V_M : wastewater volume per warm meal in liters (l) (See Table 1)

F: Surge factor relevant to operational conditions (See Table 1)

M_M : Monthly average of the daily prepared warm meals (avg. meals per day)

Inputs

$$Q_s = \frac{\quad \times \quad}{\quad \times 3600}$$

t: Average hours of operation when the separator will be receiving fat laden wastewater

Table 1 (Types of facilities)

Types of commercial kitchens	V_M (liters)	F	M_M (kg)	t (hours)
Hotel restaurant kitchen	100	5		
Fine cuisine restaurant kitchen	50	8.5		
Fast food restaurant kitchen	5	20		
Hospital / Retirement facility kitchen	20	13		
Military base barracks kitchen	10	22		
Standard restaurant kitchen	15	10		

b) Meat processing plants → calculating maximum wastewater flow Q_s

$Q_s =$ _____ l/s

Equation

$$Q_s = \frac{V_p \times F \times M_p}{t \times 3600}$$

V_p : facility specific wastewater volume per kilogram meat / sausage production in liters (l) (See Table 2)

F: Surge factor relevant to operational conditions (See Table 2)

M_p : Daily average of meat / sausage production (kg)

Inputs

$$Q_s = \frac{\quad \times \quad}{\quad \times 3600}$$

t: Average hours of operation when the separator will be receiving fat laden wastewater

Table 2 (Meat processing facilities)

Meat processing facilities	V_p (liters)	F	M_p (kg)	t (hours)
Small (up to 5 large livestock*)	20	30		
Medium (up to 10 large livestock*)	15	35		
Large (up to 40 large livestock*)	10	40		

*1 large livestock = 1 cow (cattle) = 2.5 pigs

Method 3: Q_s -Calculation based on actual fixtures installed in kitchen

This calculation is based on summing the maximum output (flow) of each fixture (kettles, rinse downs, dishwashing machines, etc.)

→ calculating maximum wastewater flow $Q_{S(K)}$ from kitchen fixtures

$Q_{S(K)} =$ _____ l/s

Table 3 (Wastewater flow ($Q_{S(K)}$ in liters / second) from kitchen fixtures

Total number (n)	cooking kettle (outlet)		tiltable cooking kettle (outlet)		sinks with odor trap		sinks without odor trap		dishwashing machine	tiltable frying pans	frying pans	high pressure floor washer	peeling machine *	vegetable washing machine
	Ø 45	Ø 50	Ø 75	Ø 110	Ø 40	Ø 50	Ø 40	Ø 50						
1	0.45	0.9	0.45	1.35	0.36	0.68	1.13	1.8	1.2	0.45	0.05	0.9	0.68	0.9
2	0.62	1.24	0.62	1.86	0.5	0.93	1.55	2.48	2	0.62	0.06	1.24	0.93	1.24
3	0.75	1.5	0.75	2.25	0.6	1.13	1.88	3	2.4	0.75	0.07	1.5	1.13	1.5
4	0.84	1.68	0.84	2.52	0.67	1.26	2.1	3.36	3.83	0.95	0.09	1.68	1.26	1.68
5	1	2	1	3	0.8	1.5	2.5	4	3	1	0.1	2	1.5	2
6	1.2	2.4	1.2	3.6	0.96	1.8	3	4.8	3.6	1.2	0.12	2.4	1.8	2.4
7	1.4	2.8	1.4	4.2	1.12	2.1	3.5	5.6	4.2	1.4	0.14	2.8	2.1	2.8
8	1.6	3.2	1.6	4.8	1.28	2.4	4	6.4	4.8	1.6	0.16	3.2	2.4	3.2
9	1.8	3.6	1.8	5.4	1.44	2.7	4.5	7.2	5.4	1.8	0.18	3.6	2.7	3.6
10	2	4	2	6	1.6	3	5	8	6	2	0.2	4	3	4
n > 10	n x 0.2	n x 0.4	n x 0.2	n x 0.6	n x 0.16	n x 0.3	n x 0.5	n x 0.8	n x 0.6	n x 0.2	n x 0.02	n x 0.4	n x 0.3	n x 0.4
Total														

*Potato peeling machines are to be connected to an independent starch separator

The calculation below is based on summing the maximum output (flow) of each kitchen faucet. Please note that if a fixture in the above table has already been included for calculation (for example a sink) that the faucet connected to this sink should not be counted. This would result in double counting certain values. Please count one or the other.

→ calculating maximum wastewater flow $Q_{S(A)}$ from kitchen faucets

$Q_{S(A)} =$ _____ l/s

Table 4 (Wastewater flow ($Q_{S(A)}$ in liters / second) from kitchen faucets

Total number (n)	Outlet size (inches)		
	DN 15 R ½	DN 20 R ¾	DN25 R 1
1	0.23	0.45	0.77
2	0.31	0.62	1.05
3	0.38	0.75	1.28
4	0.42	0.84	1.43
5	0.5	1	1.7
6	0.6	1.2	2.04
7	0.7	1.4	2.38
8	0.8	1.6	2.72
9	0.9	1.8	3.06
10	1	2	3.4
n > 10	n > 0.1	n > 0.2	n > 0.34
Total			

Q_S -Calculation based on actual fixtures installed in kitchen.

Total maximum output from all kitchen faucets and fixtures

in liters per second $Q_S = Q_{S(K)} + Q_{S(A)}$

$Q_S =$ _____ l/s

2.2. Calculation of influential factors

The following three factors (f_d , f_t , f_r) are required to properly size a grease separator.

2.2.1. Calculation of density factor f_d

 $f_d =$ _____

Density of oils and fats at 20°C	Density factor f_d
up to 0.94 g/cm ³	1.0
over to 0.94 g/cm ³	1.5*

*for substances such as castor oil, wool fat, resin / rosin oil, beef drippings.

For wastewater from kitchens, restaurants, hospitals, slaughter/meat processing plants as well as fish processing plants a density factor (f_d) value of 1 is generally applicable.

2.2.2. Wastewater temperature factor f_t

 $f_t =$ _____

Incoming wastewater temperature	Temperature factor f_t
up to 60°C	1.0
over to 60°C	1.3

2.2.3. Cleaner (detergent) solution factor f_r

 $f_r =$ _____

Are standard cleaners used in the kitchen?	Cleaner solution factor f_r
No	1.0
Yes	1.3

In special circumstances (Hospital for example) a cleaner solution factor of $f_r \geq 1.5$ could be required.

2.3. Calculating the separator size (NS) (liters / second) according to DIN V 4040-2, date 02/1999

$$NS = Q_s \times f_d \times f_t \times f_r$$

$$NS = \text{_____} \times \text{_____} \times \text{_____} \times \text{_____}$$

Appropriate authority:

Applicant:

location, date _____

location, date _____

signature _____

signature _____

3. Choosing the type of grease separator

3.1. Calculating the sludge trap volume

☐ Restaurants, hotels: cafeterias, meat processing plants without slaughter, etc.

NS _____ x 100 liter = _____ liter

☐ Slaughter houses: meat processing plants with slaughter

NS _____ x 200 liter = _____ liter

3.2. Type of grease separator

Installation location

☐ free standing in frost free area

Delivery to installation site

☐ Smallest passage through which separator must pass:

L x W = _____ mm x _____ mm

Make and type of free standing grease separator

☐ Grease separator version Auto Mix & Pump
(program-controlled disposal, rinsing device and Shredder-Mix-System)

☐ Grease separator version Mix & Pump
(manual disposal, rinsing device and Shredder-Mix-System)

☐ Grease separator version Auto Mix
(automatic direct disposal with program-controlled Shredder-Mix-System)

☐ Grease separator version Mix
(direct disposal with Shredder-Mix-System)

☐ Grease separator version Direct, direct disposal*
(disposal via disposal pressure pipe, manual cleaning of the separator with open covers)

☐ Grease separator version Standard
(manual disposal and cleaning of separator with open covers)

*Desired position of accessories (in direction of flow): Manhole covers

Inspection window

☐ left

☐ right

Disposal hook-up

☐ left

☐ right

Refill pumps

☐ left

☐ right

Accessories

☐ Inspection window in direction of flow

☐ Refill equipment in direction of flow

☐ Sampling chamber with lateral / vertical outlet

☐ Pump / lifting station

☐ Automatic level sensing system *SonicControl*

Installation location

☐ Underground installation in frost free areas

☐ Outdoor underground installation

☐ Groundwater susceptible area

Make and type of underground grease separator

☐ Grease separator version Auto Mix & Pump
(program-controlled disposal, rinsing device and Shredder-Mix-System)

☐ Grease separator version Auto Mix
(automatic direct disposal with program-controlled Shredder-Mix-System)

☐ Grease separator version Mix
(direct disposal with Shredder-Mix-System)

☐ Grease separator version Direct
(disposal via disposal pressure pipe)

☐ Grease separator version Standard
(manual disposal and cleaning of separator with open covers)

Installation D

The local frost free depth must be considered. D is measured from ground level to the bottom of the inlet of the grease separator. D = _____ mm

** Please note that with Direct version separators, the disposal suction height and length must be considered

Manhole covers

☐ Class A (1.5 ton)

☐ Class B (12.5 ton) passenger car

☐ Class D (40 ton) tractor trailer

Accessories

☐ Sampling chamber

☐ Pump in collection chamber

☐ Automatic level sensing system *SonicControl*

3.3. Chosen grease separator

Grease separator / Accessories

Article Number

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