

Verification Report

REPORT NO:
150442-5



**DANISH
TECHNOLOGICAL
INSTITUTE**

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Initials: UHI
Order no.: 150442-5
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Customer: Contact: Jonas Groth
Company: Watercare
Address: Stejlebjergvej 14
Town/Country: DK-5610 Assens

Material: The grease separator from Watercare with nominal sizes NS2-NS80, type Lipo. There are integrated sludge traps in the bottom of the separators up to NS25. Above NS25 the sludge trap is in a separate chamber.

All materials are pe except the inlet and outlet.

Purpose and scope of the test: The Pipe Centre at Danish Technological Institute is a Certified Body and can conduct tests of grease separators according to the European Standard EN 1825-1:2004. The purpose of this report is to verify the design, watertightness and effectiveness of the grease separators from Watercare and to obtain CE-marking for the NS2-NS80 separators.

Sampling: The drawings were sent to the Danish Technological Institute in Taastrup by Watercare and received in October 2022.

Method: The verification was carried out according to:
1. EN 1825 - 1, 2004, clause 5.2, 5.3.2-5.3.6, 5.3.9 and 5.5.3

Period: The verification was carried out in October-November 2022.

Result: The verification shows that the NS2-NS80 grease separators, type Lipo meet all relevant requirements in EN 1825-1, clause 5.2.3, 5.3.2 and 5.5.3, see results in appendix 1. Furthermore, the grease separators conform to the design requirements in 5.3.1, 5.3.4-5.3.6. Similar principles can be followed for upscaling of grease separators larger than NS70. The design requirements can be followed for creating the separators in other pipe dimensions.

Terms: The verification has been performed according to EN 1825-1:2004. The verification is only valid for the verified specimen. The test report may only be extracted if the laboratory has approved the extract.

Place: Date: 21.02.2023, Danish Technological Institute, Taastrup, Pipe Centre

Signatur: Ulrik Hindsberger
Center Manager



Appendix 1

5.2.3

Materials

All materials are PE except the inlet and outlet. All materials in pe must be resistant to the influences to which they are exposed to according to EN 1825-1, section 5.2.4. All metal parts must be made of stainless steel AISI 304 or 316. In some countries the legal authorities recommend that manufacturers use stainless steel AISI 316L instead of AISI 304 for grease separators.

5.3.2

Watertightness according to 8.4.1

All grease separators are tested for water tightness before they leave the factory. Danish Technological has made watertightness test for different grease separators by filling up water to 100 mm above the maximum operational liquid level. There were no leaks after 20 min of testing. The tightness of the extension shaft has not been tested. If extension shafts are used, the tightness of the connections must be tested after installation.

5.3.4

Inlets and outlets

Minimum nominal diameters for inlets and outlets is OK according to table 1 in EN 1825-1.

Size	Inlet	Outlet
NS2	110 mm (OK)	110 mm (OK)
NS4	110 mm (OK)	110 mm (OK)
NS7	160 mm (OK)	160 mm (OK)
NS10	160 mm (OK)	160 mm (OK)
NS20	200 mm (OK)	200 mm (OK)
NS25	200 mm (OK)	200 mm (OK)
NS40	315 mm (OK)	315 mm (OK)
NS50	315 mm (OK)	315 mm (OK)
NS60	315 mm (OK)	315 mm (OK)
NS70	315 mm (OK)	315 mm (OK)
NS80	315 mm (OK)	315 mm (OK)

5.3.5

Internal component

All internal components in all the grease separators have a free passage for a ball of 80 mm diameter.

5.3.6

Sludge traps

There are integrated sludge traps in all grease separators in the bottom of the separators in the bottom of the separators up to NS25. Above NS25 the sludge trap is in a separate chamber, see also the volumes at the drawings in appendix 2. All the volumes are larger than 100 x NS.

5.3.9

Fall

The total fall through all the grease separators is at least 20 mm: **OK**

5.5.3

Determination of the nominal size

The grease separators have been designed according to 5.5.3 and verified according to the given values in Table 2 in EN 1825-1, see the drawings in appendix 2.



**Minimum surface of
grease separation
zone**

Size	Surface of grease separation zone from drawing (m ²)	From table 2: Minimum 0.25 x NS (m ²)
NS2	≈ 0.53 m ² (calculated)	0.5 m ² (OK)
NS4	≈ 1.69 m ² (calculated)	1.0 m ² (OK)
NS7	≈ 3.27 m ² (calculated)	1.75 m ² (OK)
NS10	≈ 2.98 m ² (calculated)	2.5 m ² (OK)
NS20	≈ 5.8 m ² (calculated)	5.0 m ² (OK)
NS25	≈ 7.7 m ² (calculated)	6.25 m ² (OK)
NS40	≈ 10.2 m ² (calculated)	10.0 m ² (OK)
NS50	≈ 12.63 m ² (calculated)	12.5 m ² (OK)
NS60	≈ 15.24 m ² (calculated)	15.0 m ² (OK)
NS70	≈ 17.64 m ² (calculated)	17.5 m ² (OK)
NS80	≈ 20.50 m ² (calculated)	20.0 m ² (OK)

**Minimum volume of
grease separation
zone**

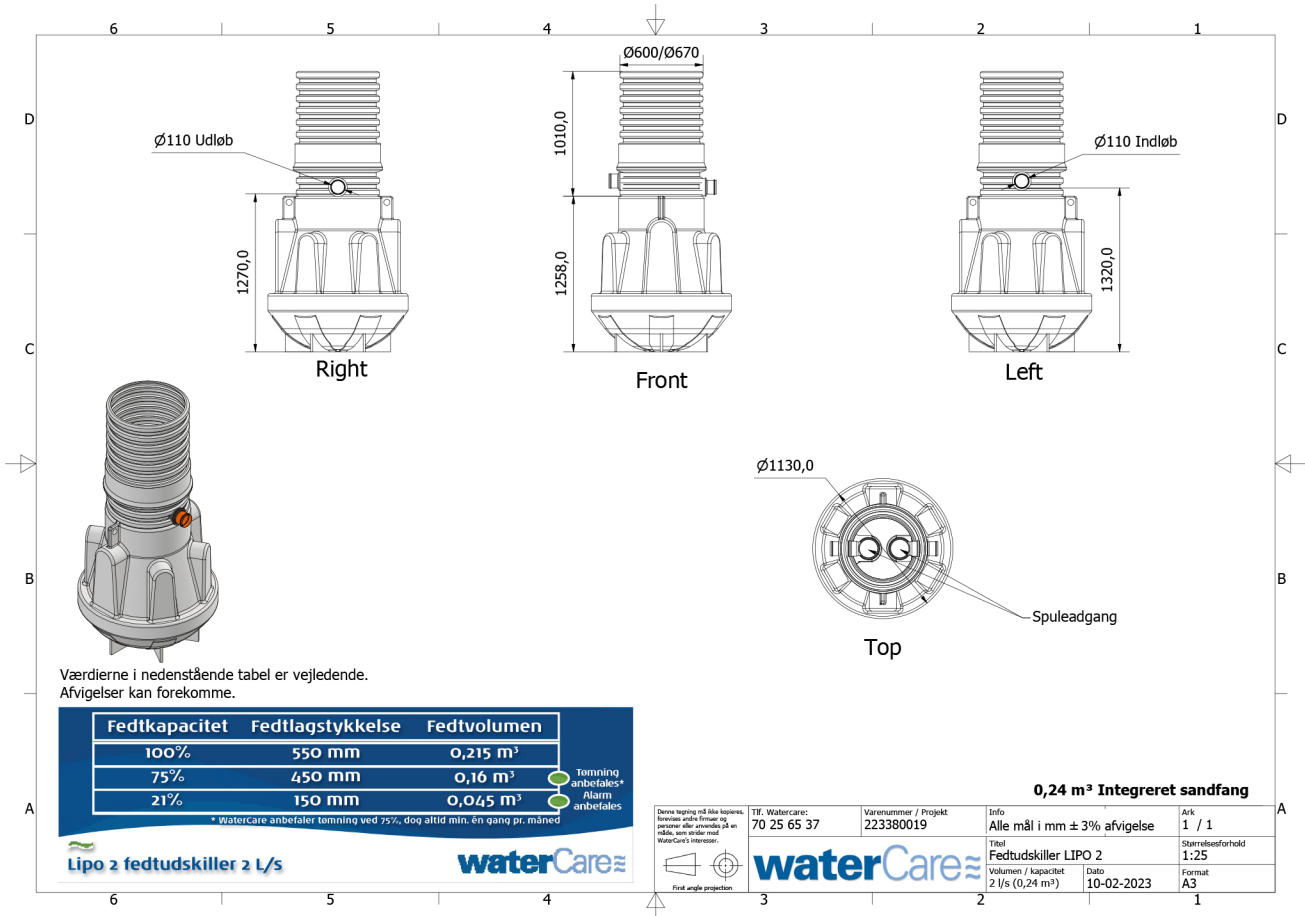
Size	Volume of grease separation zone from drawing (m ³)	From table 2: Minimum 0.24 x NS (m ³)
NS2	≈ 0.48 m ³ (calculated)	0.48 m ³ (OK)
NS4	≈ 1.16 m ³ (calculated)	0.96 m ³ (OK)
NS7	≈ 2.075 m ³ (calculated)	1.68 m ³ (OK)
NS10	≈ 2.4 m ³ (calculated)	2.4 m ³ (OK)
NS20	≈ 4.975 m ³ (calculated)	4.8 m ³ (OK)
NS25	≈ 6.4 m ³ (calculated)	6.0 m ³ (OK)
NS40	≈ 10.43 m ³ (calculated)	10.0 m ³ (OK)
NS50	≈ 13.58 m ³ (calculated)	12.0 m ³ (OK)
NS60	≈ 16.18 m ³ (calculated)	14.4 m ³ (OK)
NS70	≈ 18.54 m ³ (calculated)	16.8 m ³ (OK)
NS80	≈ 26.80 m ³ (calculated)	19.2 m ³ (OK)

**Minimum volume of
grease collection area**

Size	Volume of grease collection area from drawing (m ³)	From table 2: Minimum 0.04 x NS (m ³)
NS2	≈ 0.215 m ³ (100%)	0.08 m ³ (OK)
NS4	≈ 1.0 m ³ (100%)	0.16 m ³ (OK)
NS7	≈ 1.94 m ³ (100%)	0.28 m ³ (OK)
NS10	≈ 1.82 m ³ (100%)	0.4 m ³ (OK)
NS20	≈ 3.1 m ³ (100%)	0.8 m ³ (OK)
NS25	≈ 4.1 m ³ (100%)	1.0 m ³ (OK)
NS40	≈ 5.6 m ³ (100%)	1.6 m ³ (OK)
NS50	≈ 6.95 m ³ (100%)	2.0 m ³ (OK)
NS60	≈ 8.4 m ³ (100%)	2.4 m ³ (OK)
NS70	≈ 9.76 m ³ (100%)	2.8 m ³ (OK)
NS80	≈ 10.6 m ³ (100%)	3.2 m ³ (OK)

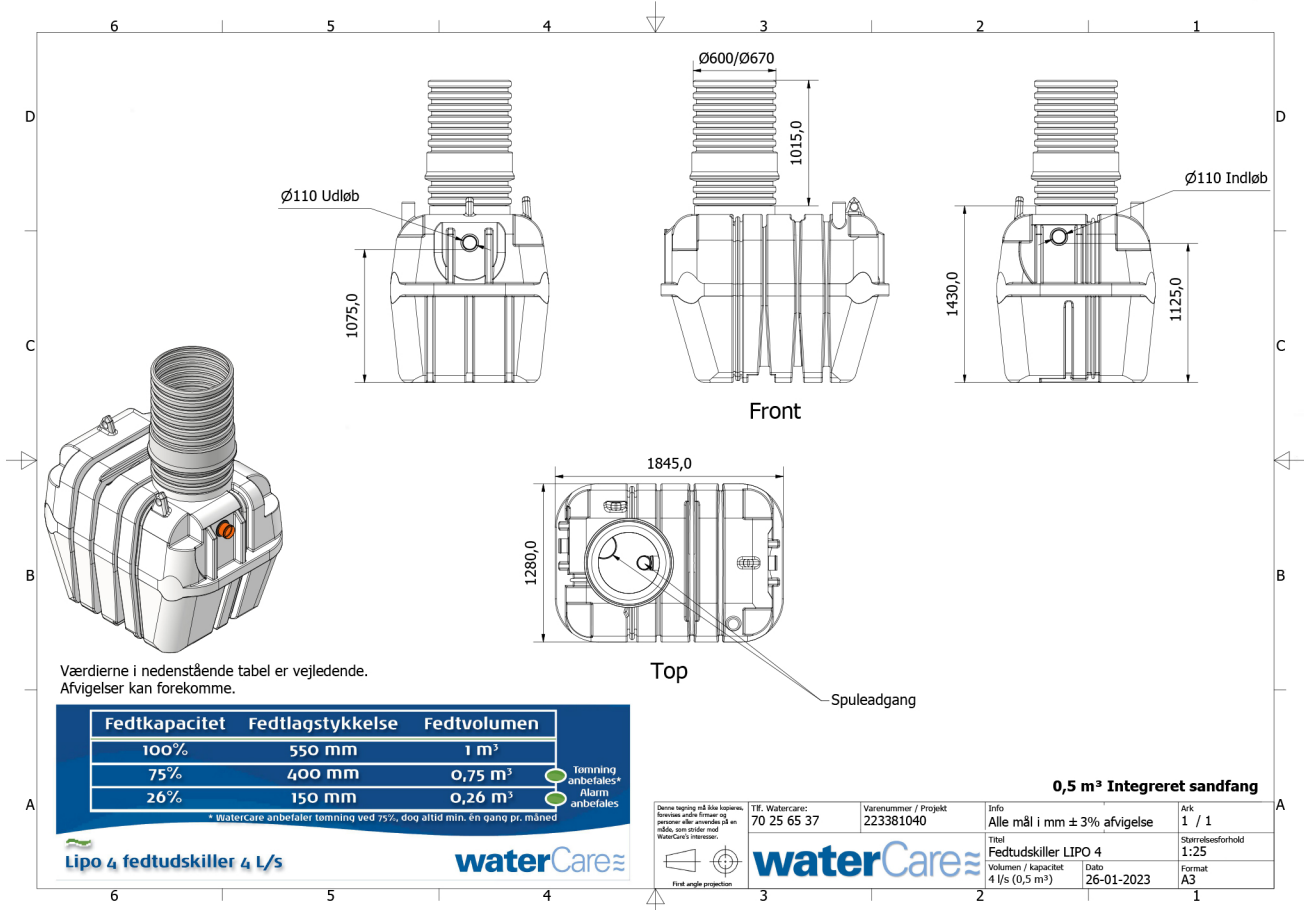


Appendix 2: Drawing of the NS2 grease separator





Appendix 2: Drawing of the NS4 grease separator



Værdierne i nedenstående tabel er vejledende.
 Afvigelser kan forekomme.

Fedtkapacitet	Fedtlagstykkelse	Fedtvolumen
100%	550 mm	1 m ³
75%	400 mm	0,75 m ³
20%	150 mm	0,26 m ³

Tømning anbefales*
 Alarm anbefales

* Watercare anbefaler tømning ved 75% dag altid min. én gang pr. måned

Lipo 4 fedtudskiller 4 L/s

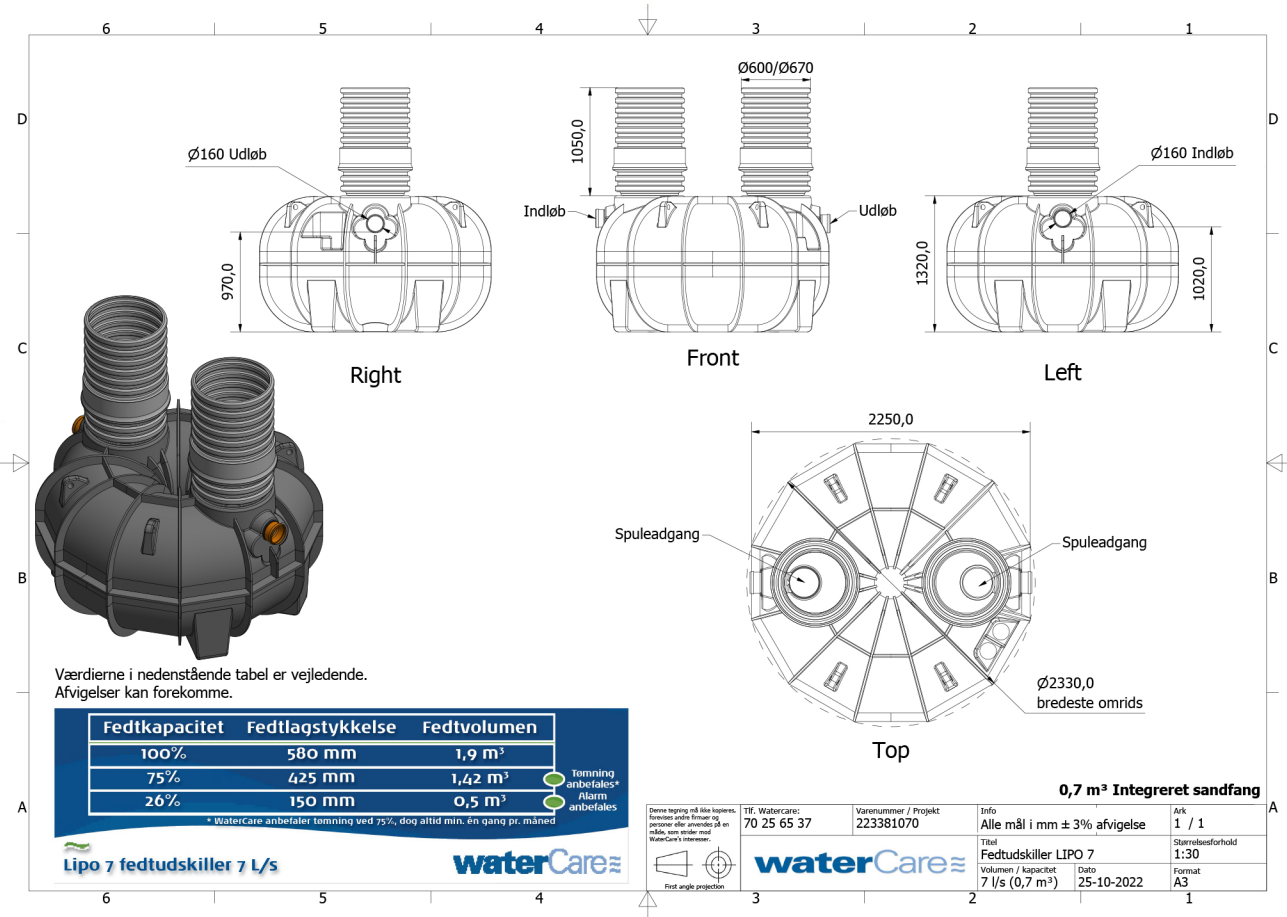
waterCare

0,5 m³ Integret sandfang

 First angle projection	Tlf. Watercare: 70 25 65 37	Varenummer / Projekt 223381040	Info Alle mål i mm ± 3% afvigelse	Ark 1 / 1
			Titel Fedtudskiller LIPO 4	Størrelsesforhold 1:25
			Volumen / kapacitet 4 l/s (0,5 m ³)	Dato 26-01-2023
				Format A3



Appendix 2: Drawing of the NS7 grease separator



Værdierne i nedenstående tabel er vejledende. Afvigelser kan forekomme.

Fedtkapacitet	Fedtlagstykkelse	Fedtvolumen
100%	580 mm	1,9 m ³
75%	425 mm	1,42 m ³
26%	150 mm	0,5 m ³

* Tomning anbefales*
 Alarm anbefales
 * WaterCare anbefaler tomning ved 75%, dog altid min. én gang pr. måned

Lipo 7 fedtudskiller 7 L/s

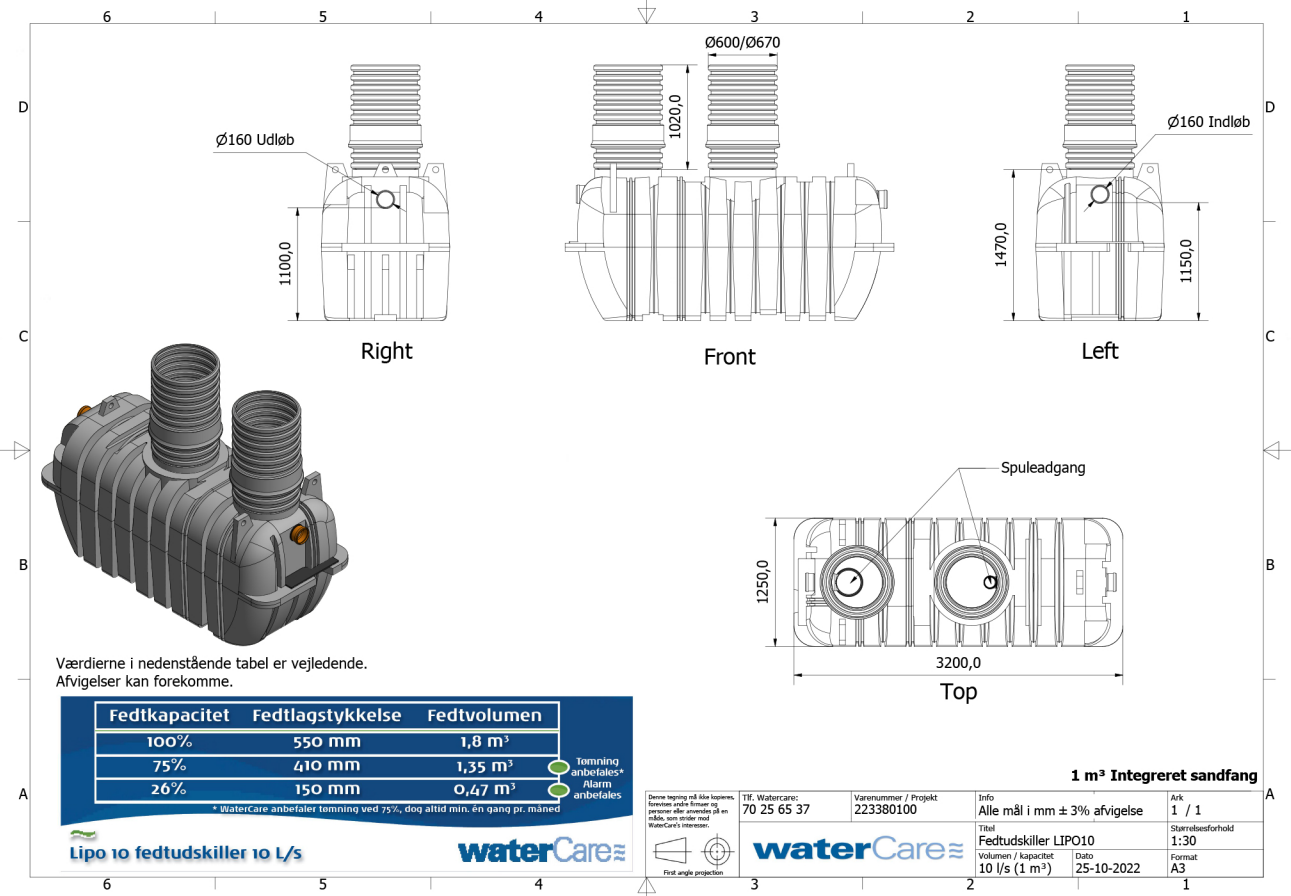
waterCare



Denne tegning er ikke kopieret. Forbeholdt alle rettigheder. Ingen del af denne tegning må reprod. eller anvendes til andre formål, end det er WaterCare's intentioner.	Tlf. WaterCare: 70 25 65 37	Varemnummer / Projekt 223381070	Info Alle mål i mm ± 3% afvigelse	Ark 1 / 1
			Titel Fedtudskiller LIPO 7	Skæleforhold 1:30
			Volumen / kapacitet 7 l/s (0,7 m ³)	Dato 25-10-2022
				Format A3

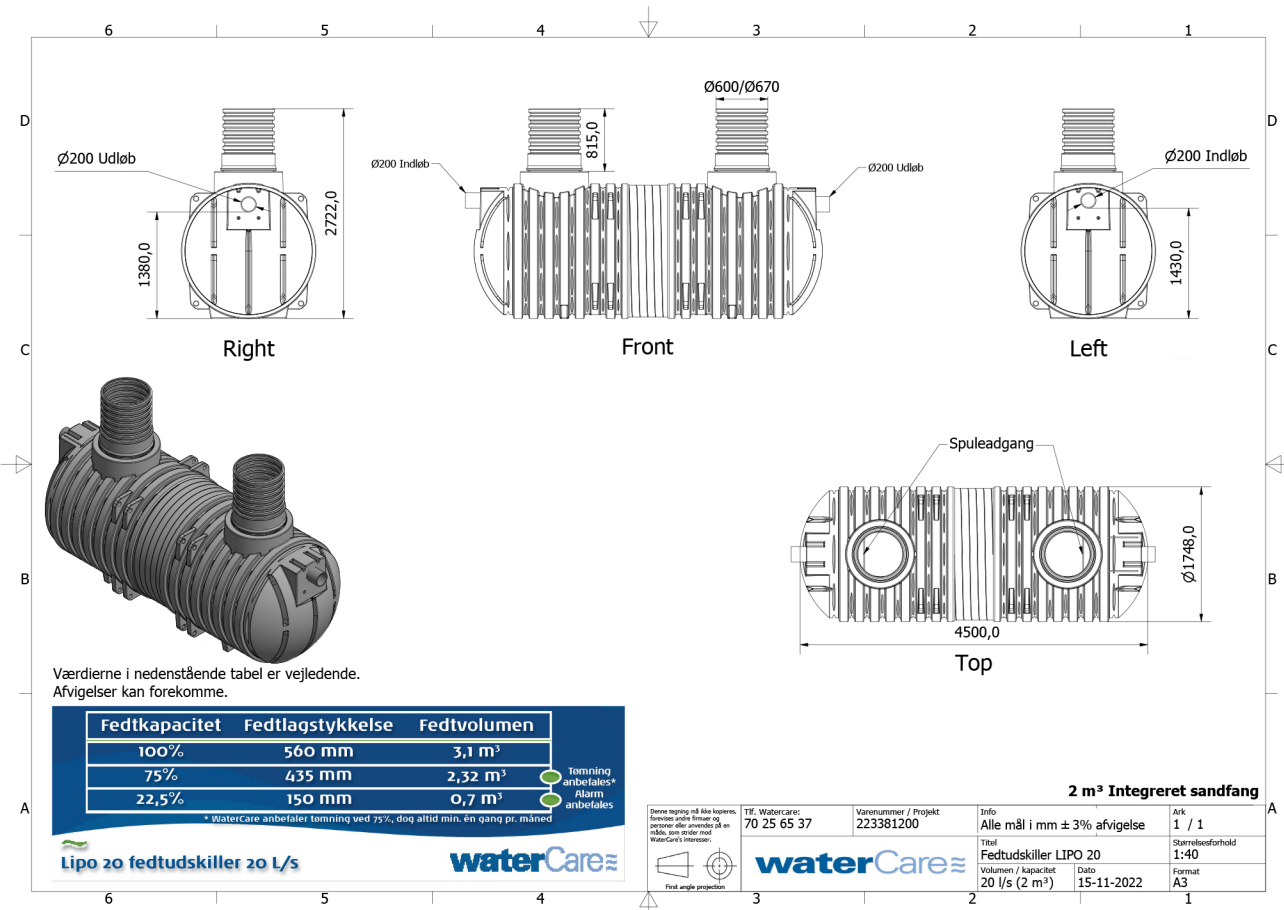


Appendix 2: Drawing of the NS10 grease separator



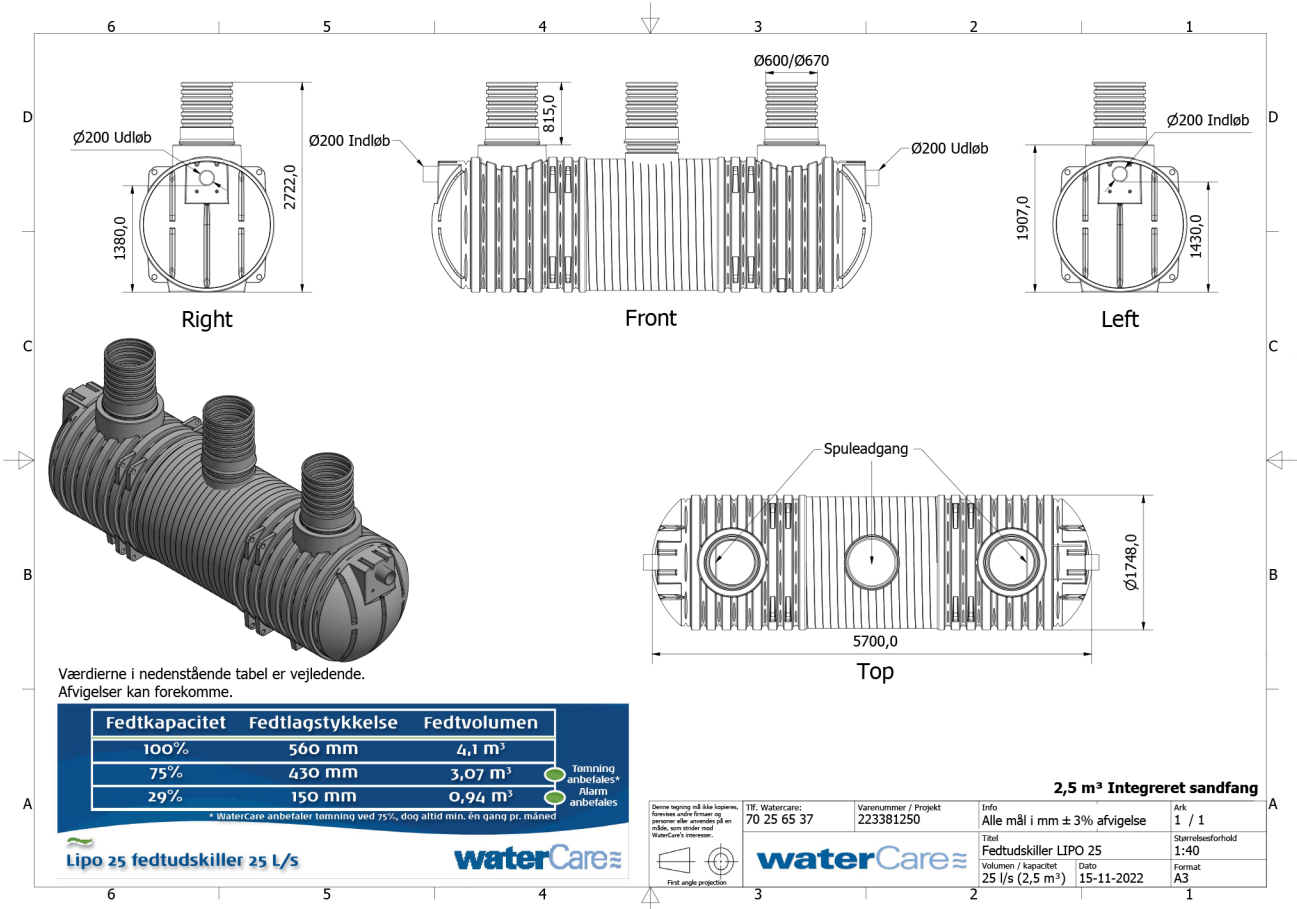


Appendix 2: Drawing of the NS20 grease separator





Appendix 2: Drawing of the NS25 grease separator



Værdierne i nedenstående tabel er vejledende.
 Afvigelser kan forekomme.

Fedtkapacitet	Fedtlagstykkelse	Fedtvolumen
100%	560 mm	4,1 m ³
75%	430 mm	3,07 m ³
29%	150 mm	0,94 m ³

Tømnings anbefales*
 Alarm anbefales

* WaterCare anbefaler tømnings ved 75%, dog altid min. én gang pr. måned

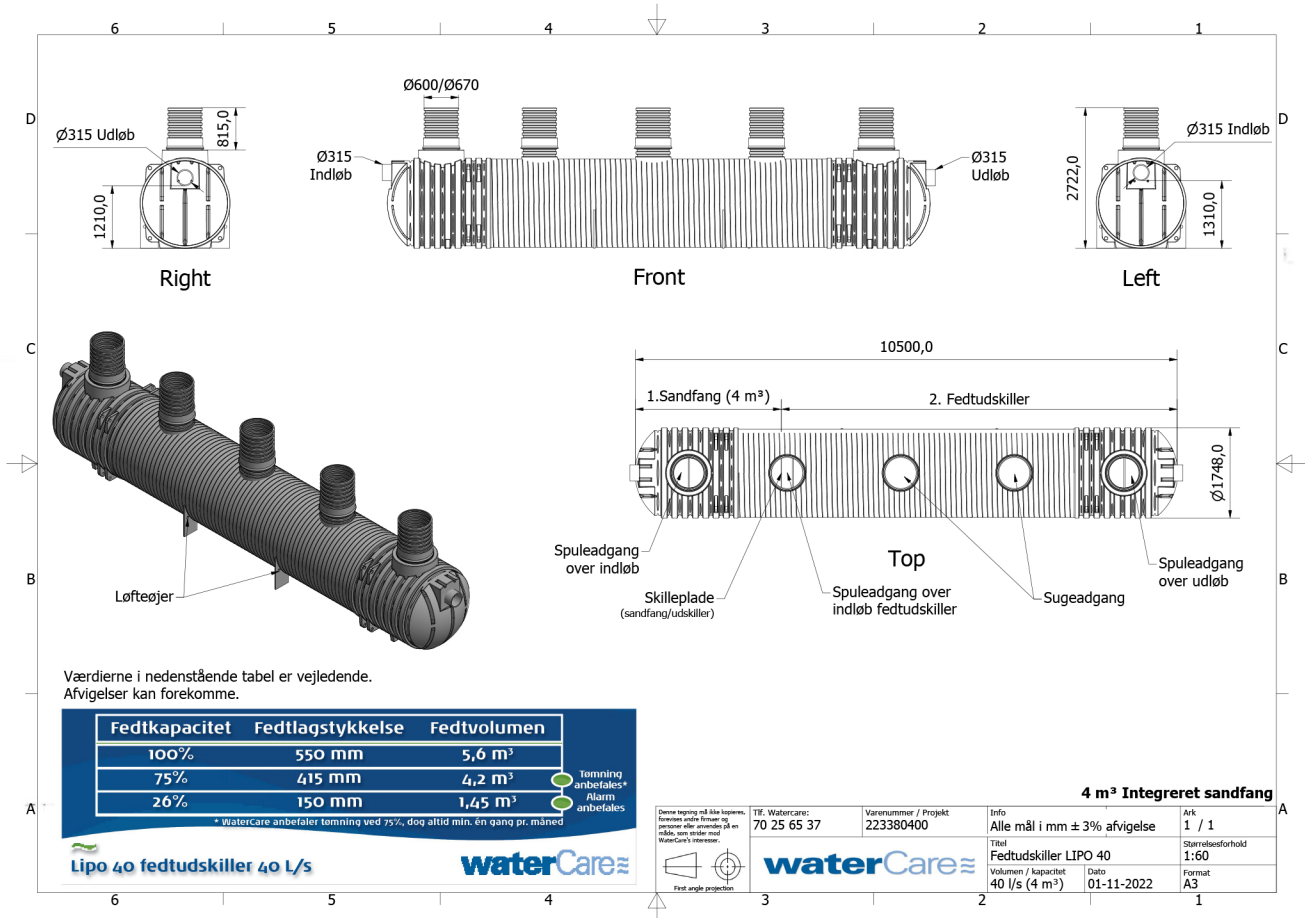
Lipo 25 fedtudskiller 25 L/s **waterCare**

2,5 m³ Integretet sandfang

<small>Denne tegning er ikke licenseret. Eventuelle ændringer og projekter eller ændringer skal indgå, som ændrer med WaterCare's tilladelse.</small>		Tlf. WaterCare: 70 25 65 37	Værtnummer / Projekt: 223381250	Info: Alle mål i mm ± 3% afvigelse	Ark: 1 / 1
	waterCare	Titel: Fedtudskiller LIPO 25	Volumen / kapacitet: 25 l/s (2,5 m ³)	Dato: 15-11-2022	Skala: 1:40 Format: A3

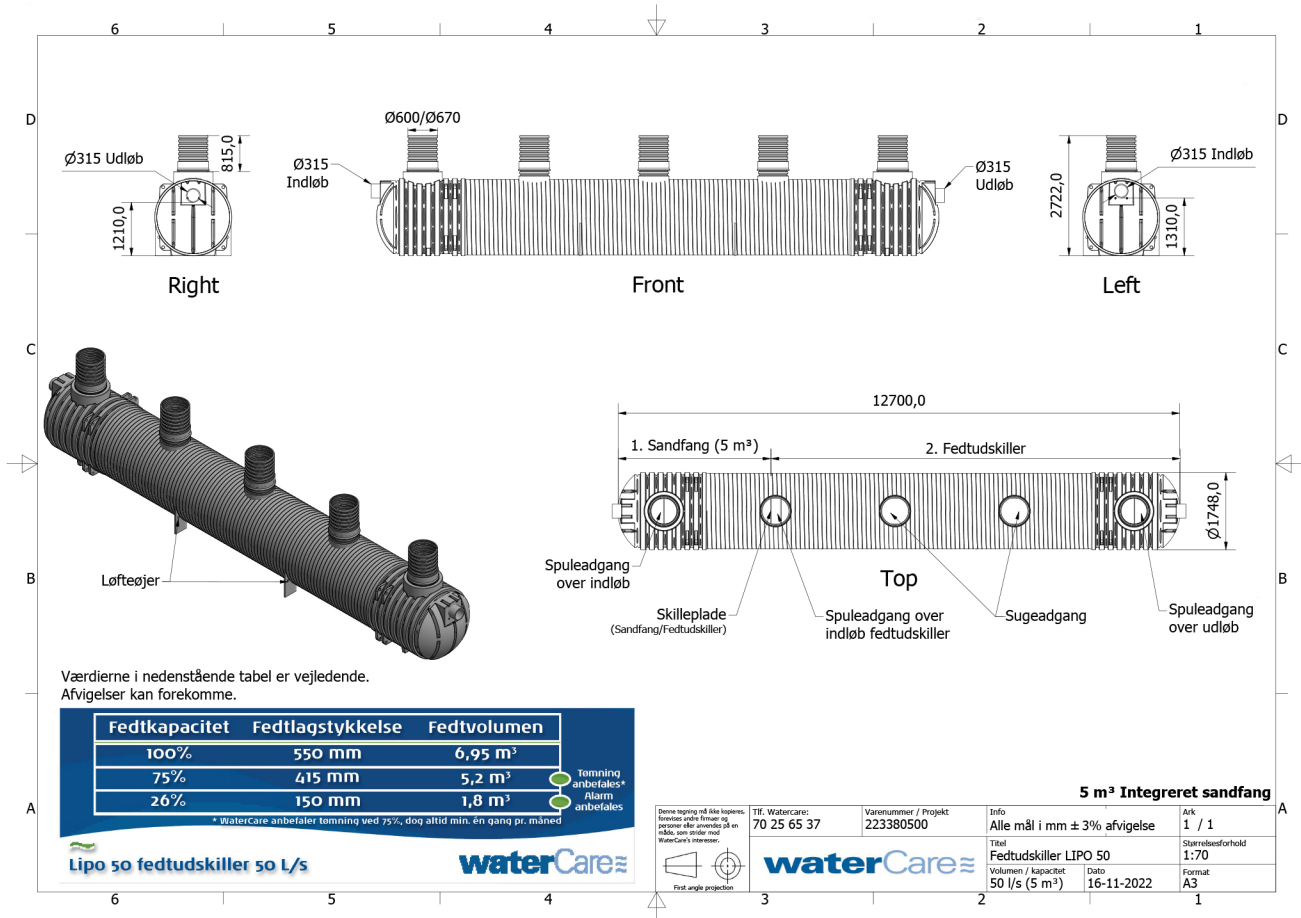


Appendix 2: Drawing of the NS40 grease separator





Appendix 2: Drawing of the NS50 grease separator



Værdierne i nedenstående tabel er vejledende. Afvigelse kan forekomme.

Fedtkapacitet	Fedtlagstykkelse	Fedtvolumen
100%	550 mm	6,95 m ³
75%	415 mm	5,2 m ³
26%	150 mm	1,8 m ³

* watercare anbefaler tømnings ved 75%, dog altid min. én gang pr. måned
 Tømnings anbefales*
 Alarm anbefales

Lipo 50 fedtudskiller 50 L/s

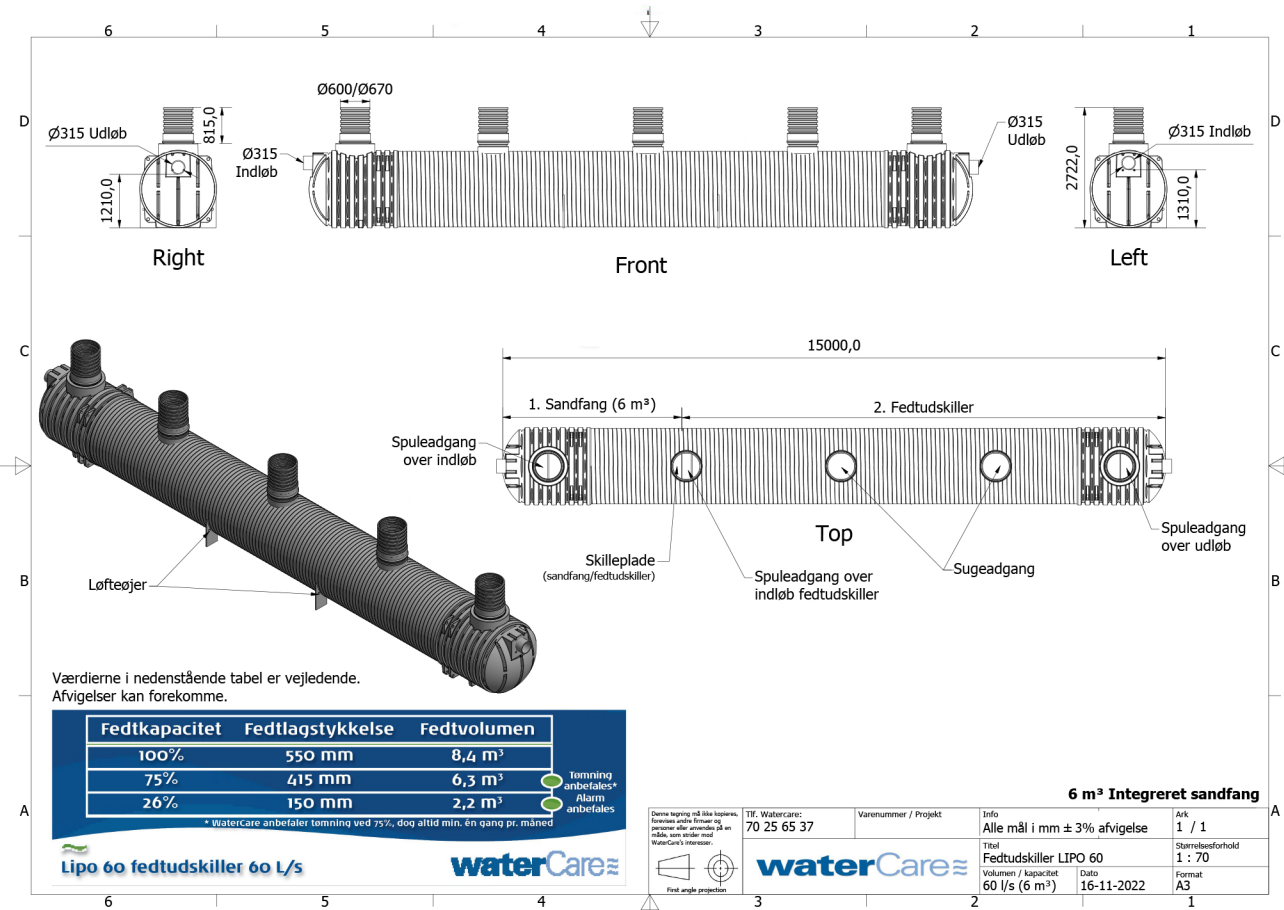
waterCare

5 m³ Integreret sandfang

<small> Denne tegning må ikke kopieres, forveksles eller finføres og må ikke ændres eller anvendes på en måde, som strider mod waterCare's interesser. </small>	Tlf. WaterCare: 70 25 65 37	Varenummer / Projekt: 223380500	Info: Alle mål i mm ± 3% afvigelse	Ark: 1 / 1
			Titel: Fedtudskiller LIPO 50 Volumen / kapacitet: 50 l/s (5 m ³)	Skarreløstforhold: 1:70 Format: A3
			Dato: 16-11-2022	



Appendix 2: Drawing of the NS60 grease separator



Værdierne i nedenstående tabel er vejledende.
 Afvigelser kan forekomme.

Fedtkapacitet	Fedtlagstykkelse	Fedtvolumen
100%	550 mm	8,4 m ³
75%	415 mm	6,3 m ³
26%	150 mm	2,2 m ³

Tomning anbefales*
 Alarm anbefales

* Watercare anbefaler tomning ved 75%, dog altid min. én gang pr. måned

Lipo 60 fedtudskiller 60 l/s

waterCare



Tlf. Watercare:
70 25 65 37

Varenummer / Projekt

Info

Ark

Alle mål i mm ± 3% afvigelse

1 / 1

Titel

Størrelsesforhold

Fedtudskiller LIPO 60

1 : 70

Volumen / kapacitet

Dato

Format

60 l/s (6 m³)

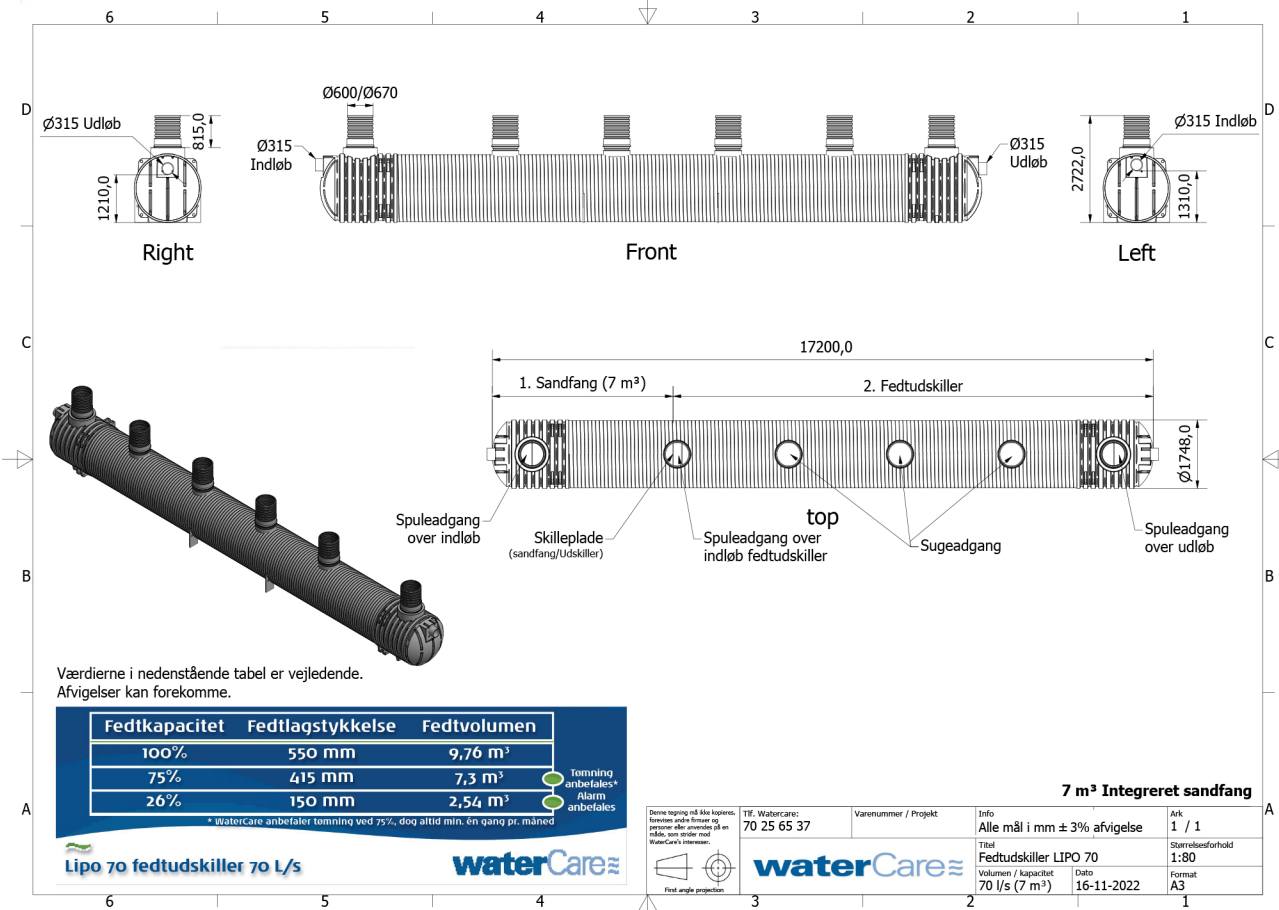
16-11-2022

A3

6 m³ Integreret sandfang



Appendix 2: Drawing of the NS70 grease separator





Appendix 2: Drawing of the NS80 grease separator (example of upscaling using other pipe dimensions)

