

ACO Haustechnik

Focus:
Complete Disposal Grease Separator & Partial Disposal Grease Separator

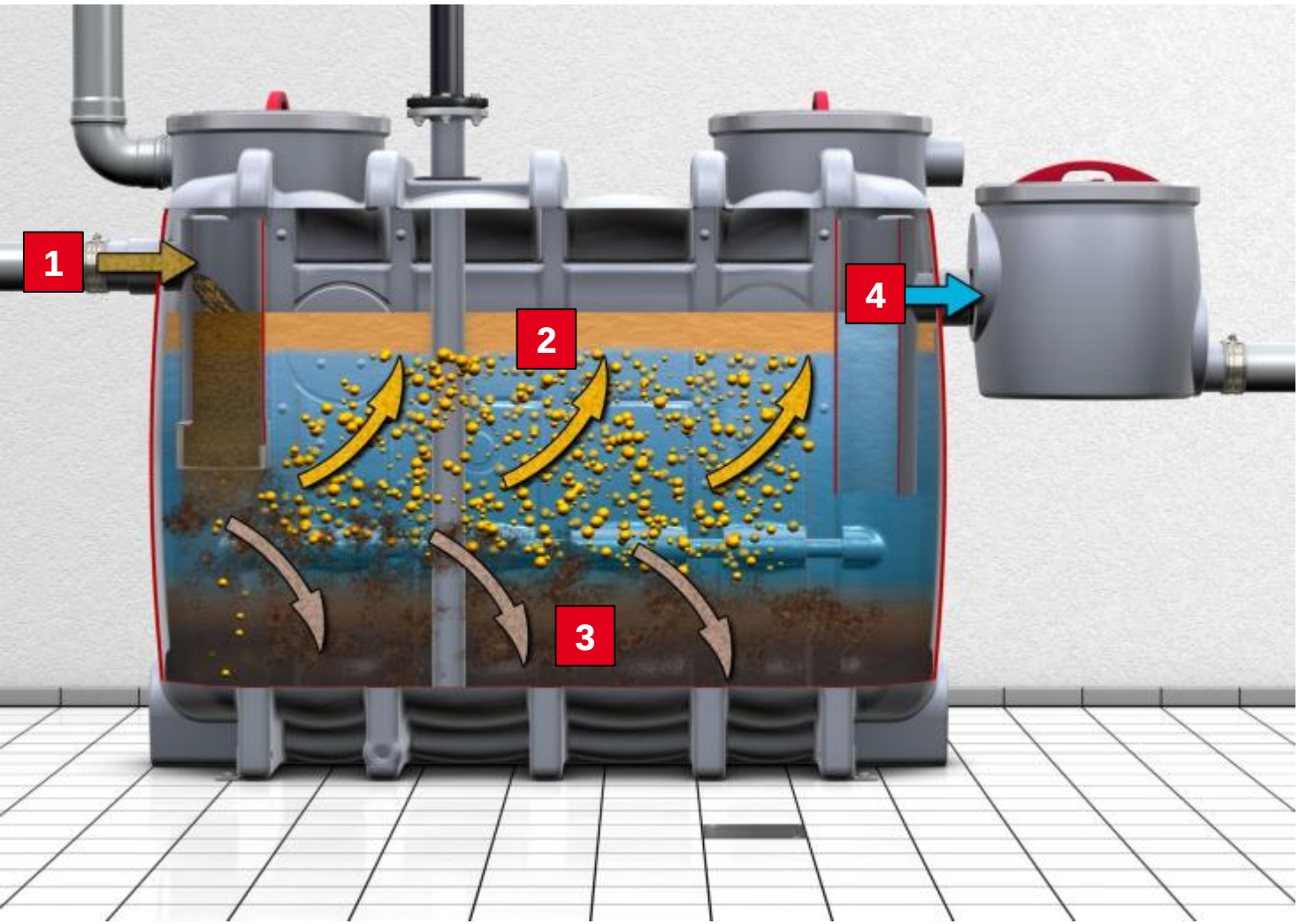
Content

1. Gravity Separation (EN1825 Parts 1 & 2)

2. Complete Disposal Grease Separators
   - General Function – Application – Disposal
   - Two Stage Separation

3. Partial Disposal Grease Separators
   - General Function – Application - Disposal
   - Features Product „Lipator“

Grease Separators: Gravity Separation



1. Influent with fats, oils and grease

2. Fats, oil and grease float up to the surface

3. Solids will sediment on the bottom

4. Cleaned effluent can be discharged into the sewage system

Both activities happen synchronistic, i.e. simultaneosly

Grease separators pursuant to EN 1825

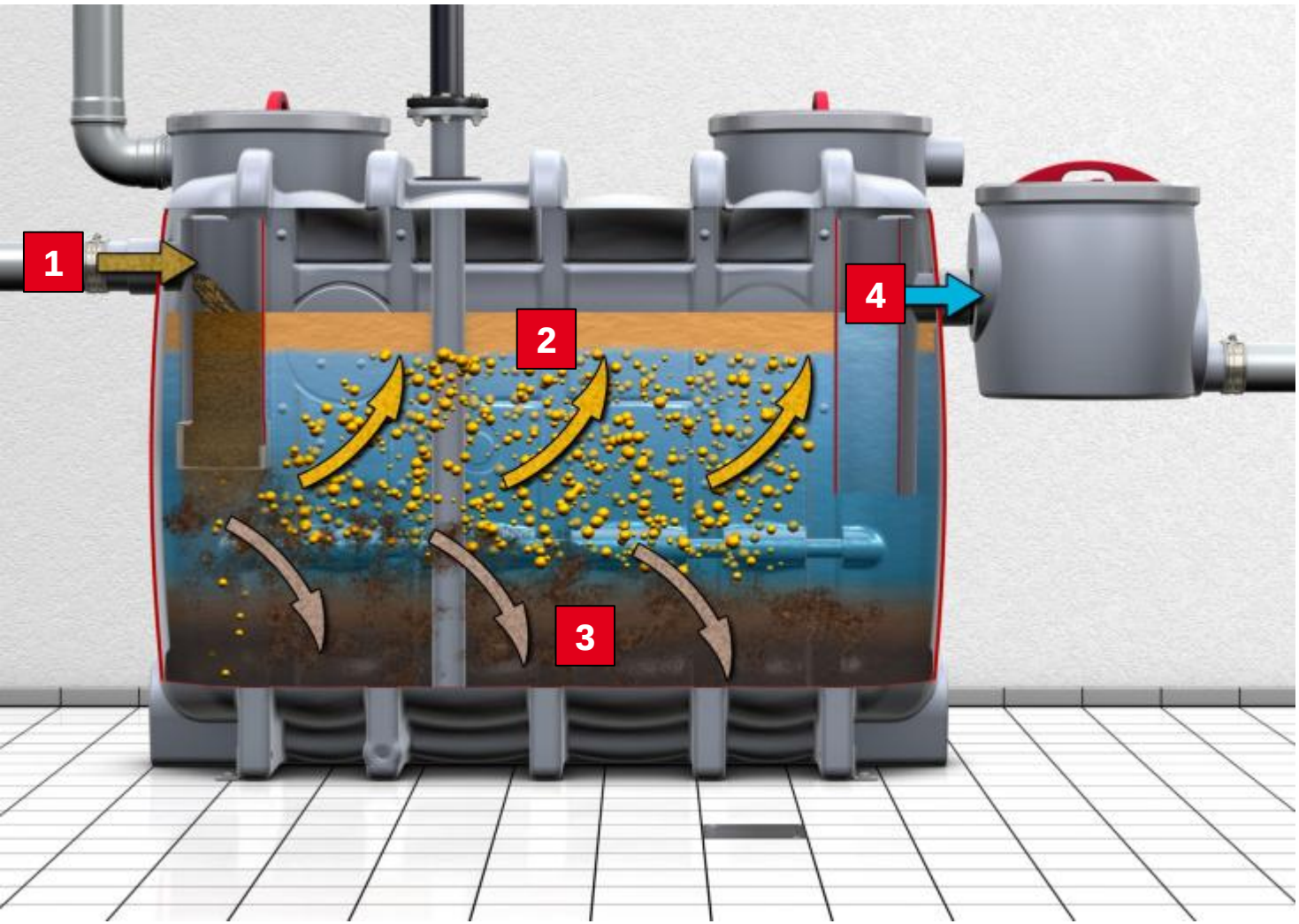
EN 1825 – Part 1

Manufacturing principles and testing of grease separators

EN 1825 – Part 2

Dimensioning and installation of grease separators

Grease Separators: Gravity Separation



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Calculation methods as described in EN 1825

Based on kitchen equipment

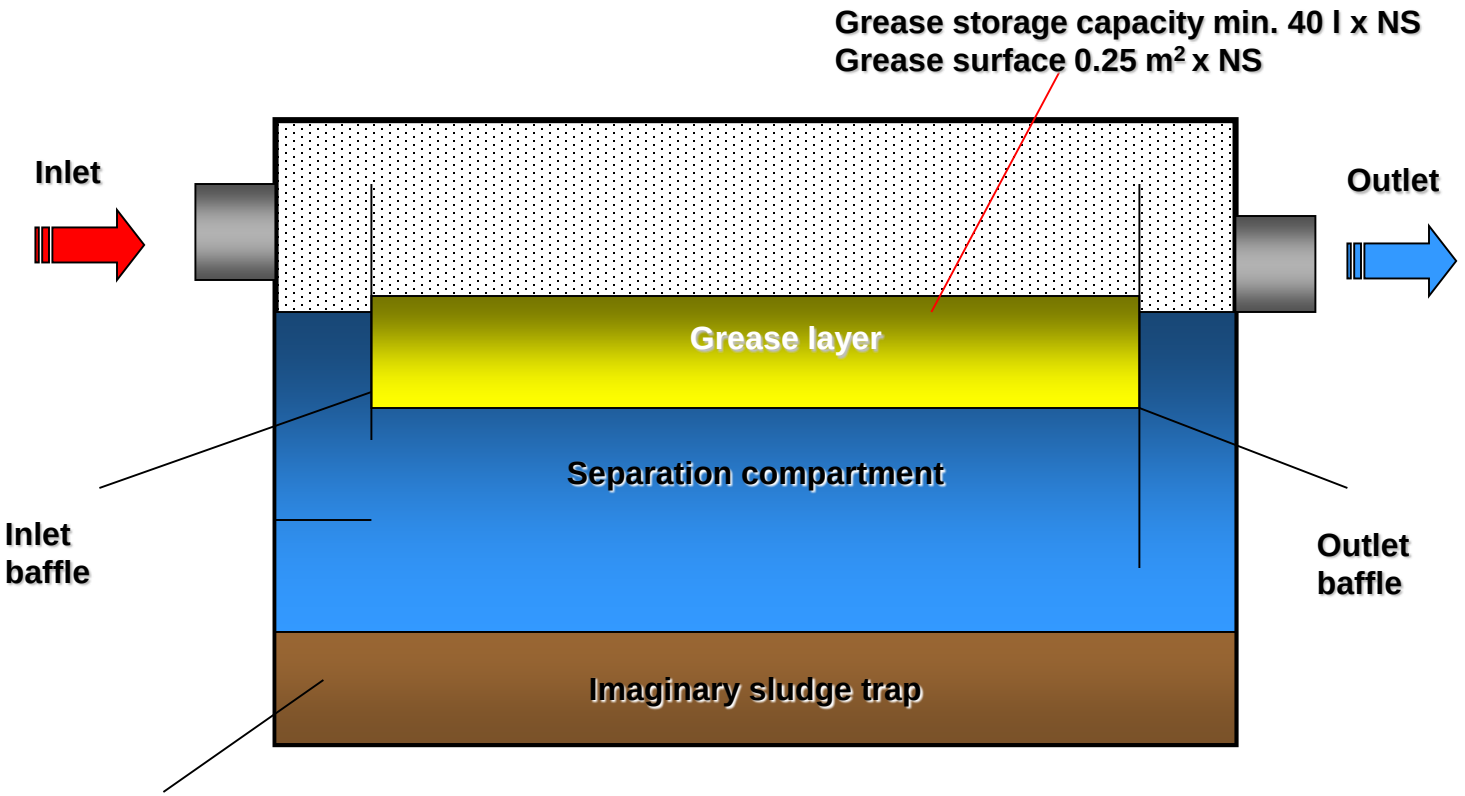


Based on meals per day



Based on number of slaughtered animals





Capacity = 100 l x NS

In the case of meat processing plants
Capacity = 200 l x NS

Capacity of separation compartment is dependent on hydraulic test.
Maximum permissible hydrocarbons in the outlet: „less than 25 mg/l“

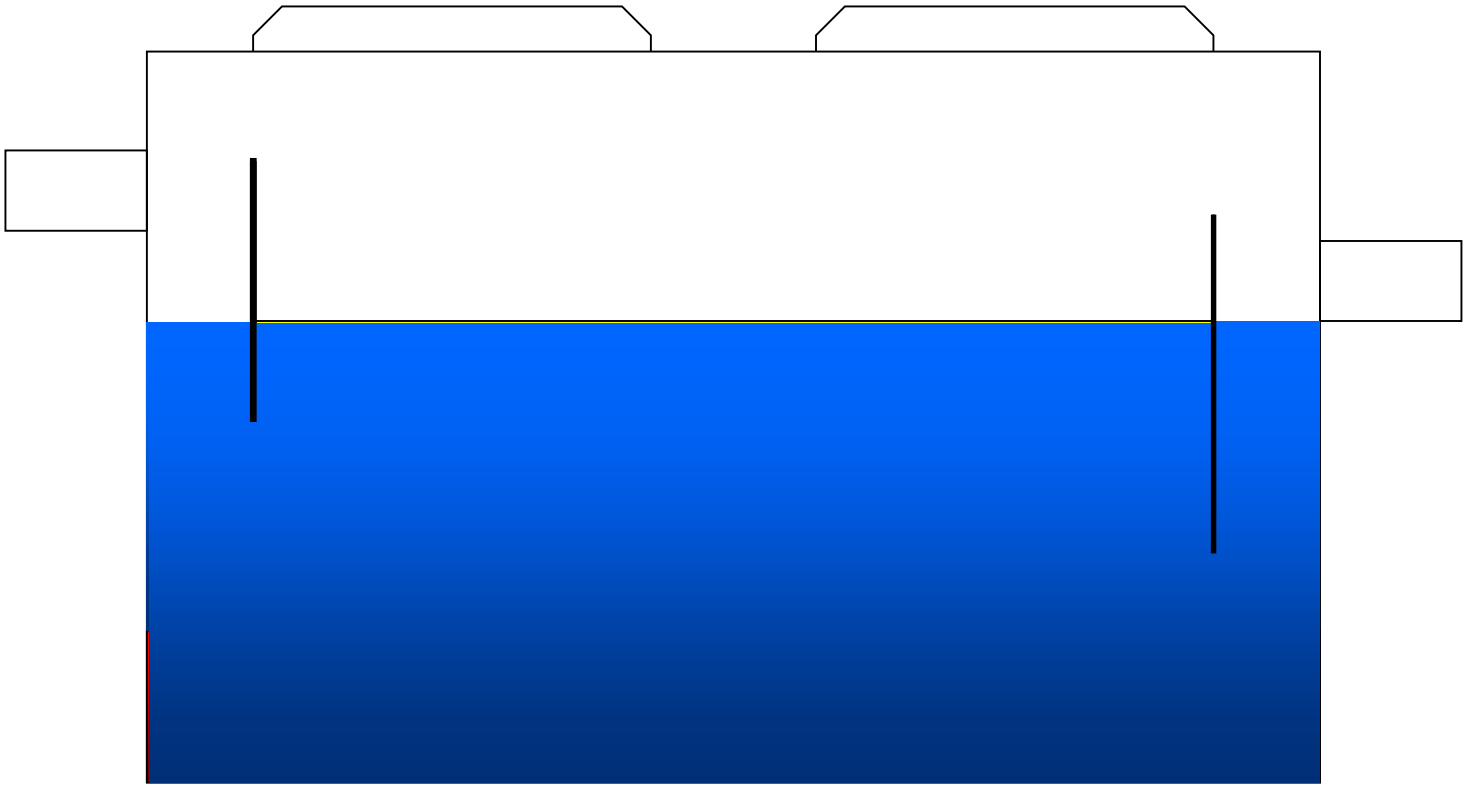
Nominal Size – Determination of main dimensions

Nominal Size	Sludge trap volume (volume in litres)	Separation compartment (minimum surface area in m^2)	Separation compartment (minimum volume in m^3)	Grease storage volume (minimum volume in m^3)
NS	NS x 100	0,25 x NS	0,24 x NS	0,04 x NS

1. Complete Disposal Grease Separators

Complete Disposal - Function

Drainage operation must be stopped!



Grease separators for full disposal have to be discharged every two weeks – at least one time in month (EN 1825):

1. The separator has to be completely discharged via a suction truck.

2. After the discharge the separator has to be cleaned and refilled with clear water.

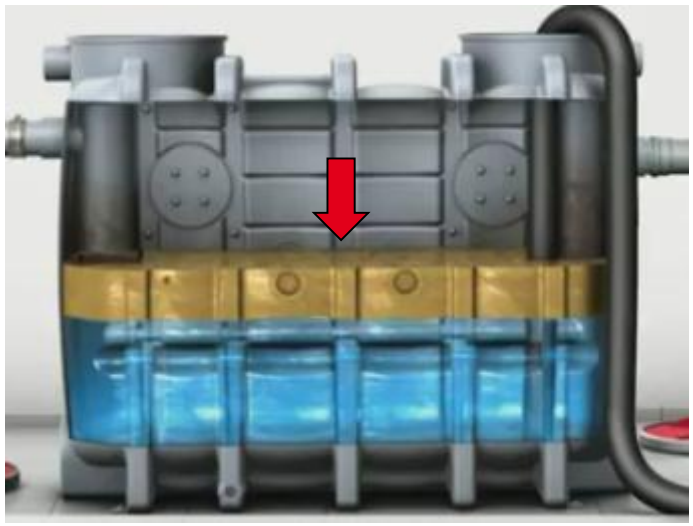
Complete Disposal - Application

- Disposal process to be accomplished during non-required time
- Recycling truck with vacuum pump needed
- Correct sized grease separators have to be emptied and cleaned **at least every four weeks**
- In accordance with local codes, the appliance of grease level sensors may be allowed to enable “disposal on requirement”



Complete Disposal – Disposal of Contents

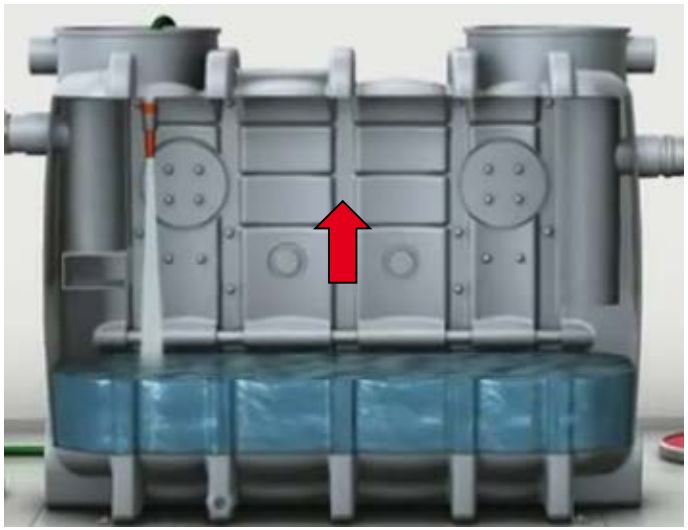
Process steps during disposal:



1 **Removal of entire content**

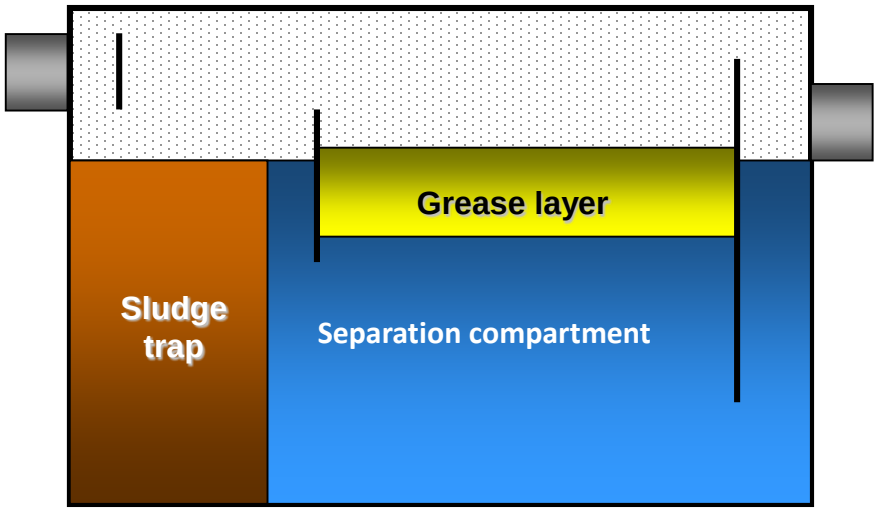


2 **Automated cleaning of tank walls (Hydrojet OA)**

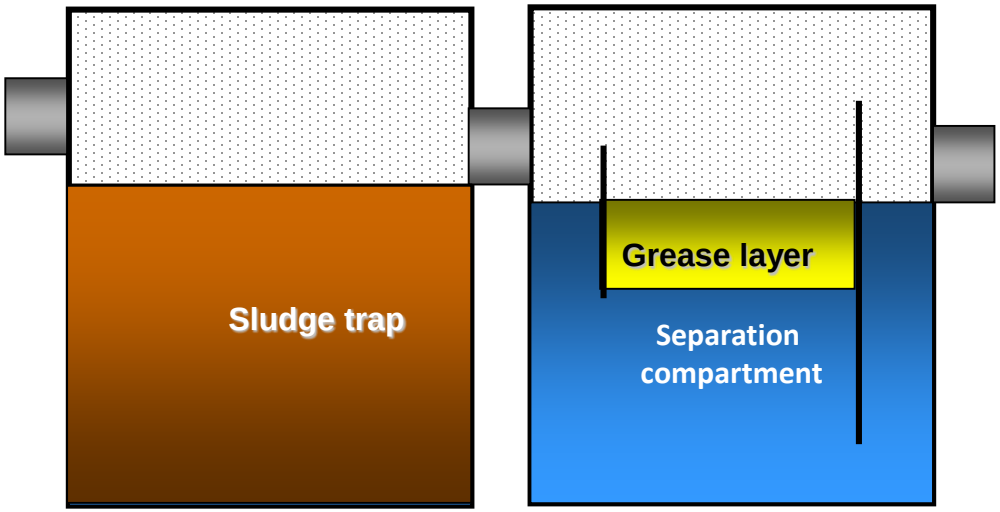


3 **Re-filling with operating water**

Two Stage Separation



One tank design



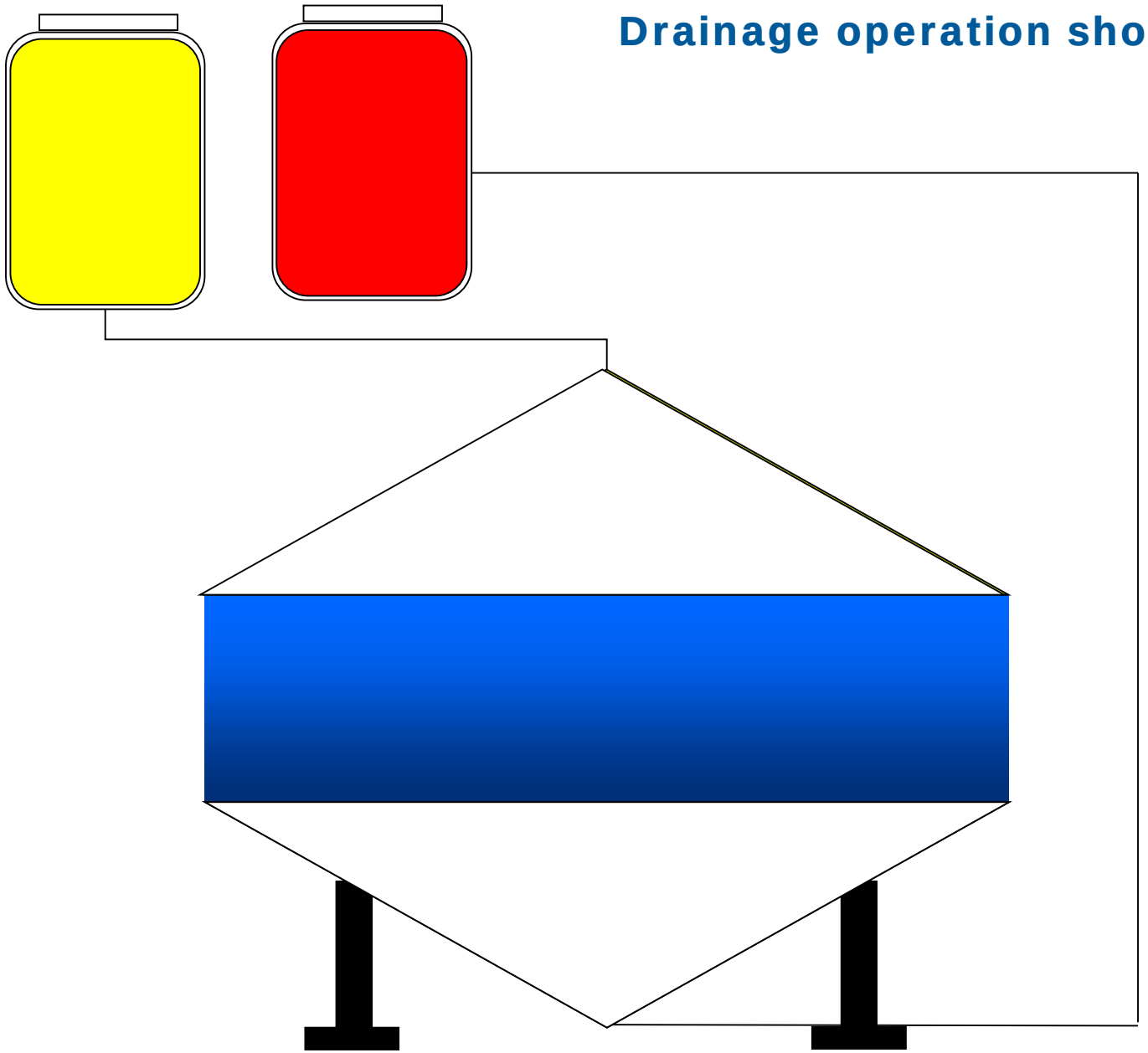
Two tank design

- Grease separator & sludge trap in separate tanks
- Old design almost not used in Europe anymore, grease retention already starts in the sludge trap since FOG‘s are lighter than water and sludge retention will also occur in the grease trap
- Tanks have to be emptied & cleaned seprately In general, more space required since sludge traps is always a component installed upstream to the grease separator
  - Limited opportunity for intorduction of automated cleaning systems
- How to ensure that the sludge that has sedimented in the grease trap is removed

2. Partial Disposal Grease Separators

Complete Disposal - Function

Drainage operation should go on.



Grease separators for partial disposal have to be discharged according to amount of retained grease and sludge. No reycling truck needed

Only the grease and the sludge are discharged.

The rest of the waste water remains inside the separator.

Partial Disposal - Application

- Inlet/Outlet is always higher than the top section of the separator body, i.e. no static water level
- Through a system of communicating pipes easy extraction of grease & sludge without removing the rest of the wastewater
- Extraction of grease and sludge in separate barrels (60ltr) - No pump truck required
- Filled barrels have to be replaced with empty ones; **this may be necessary every 1 – 2 weeks** according to the fill levels
- The grease barrels can be provided for Biodiesel with minimum pre-treatment
- Filled barrels can be disposed with conventional lorries through certified waste disposal contractors



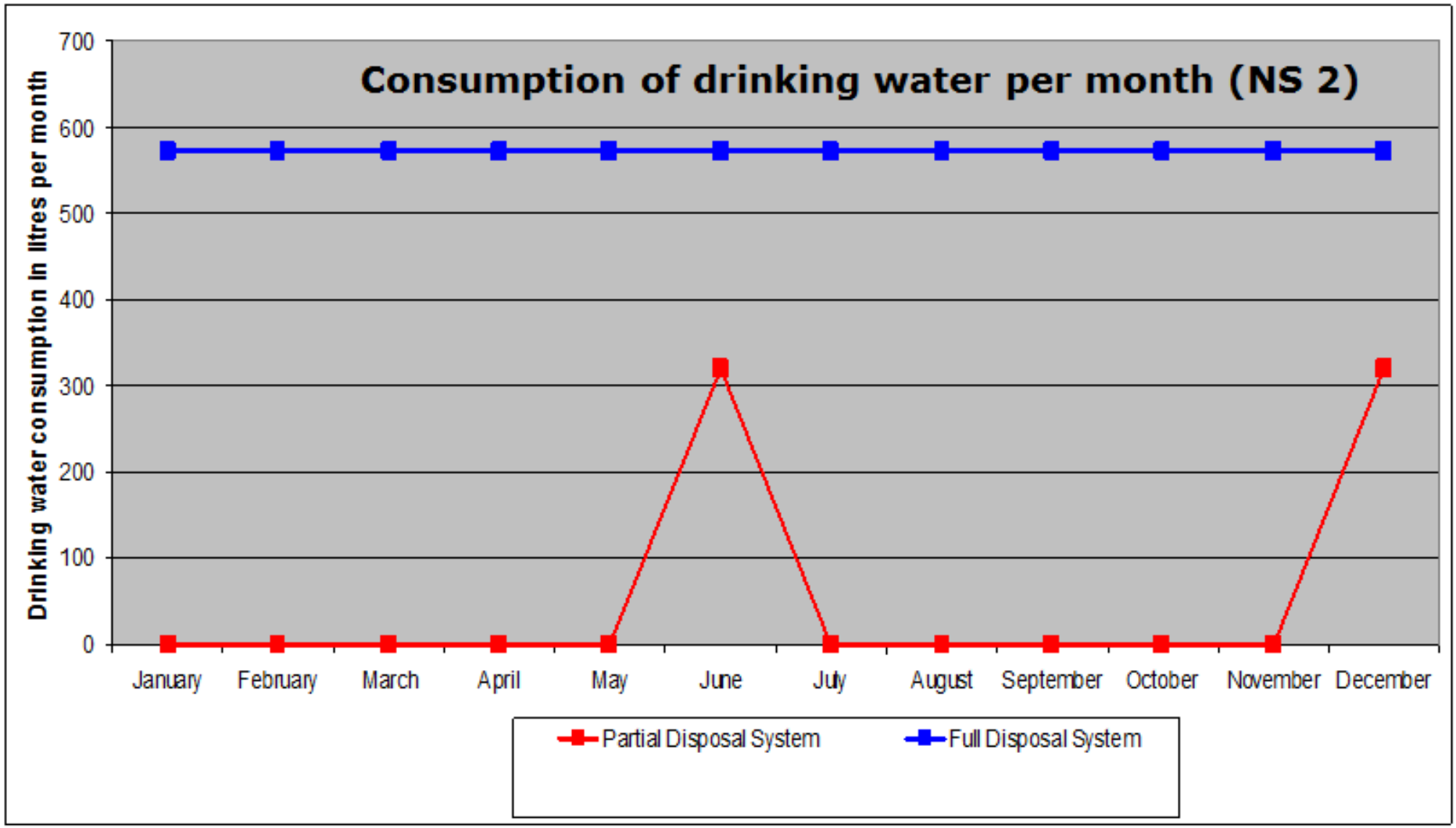


Partial Disposal V's Complete Disposal

- **Conventional separators have to be completely emptied and cleaned at least once a month**
  - Separator needs approx. 10-30% additional drinking water in comparison to the total capacity
  - Can take anywhere 2-10hrs to empty, clean & refill
  - Cleaning water emptied and tank refilled
    - 8,000-10,000 Litres per year depending on NS

- **Partial disposal systems**
  - Separated materials are drained off daily into collecting barrels
  - Barrels are replaceable
  - Only the grease and sludge portions are removed
  - The remaining water is retained (90% of total volume)
  - Time taken is minimal

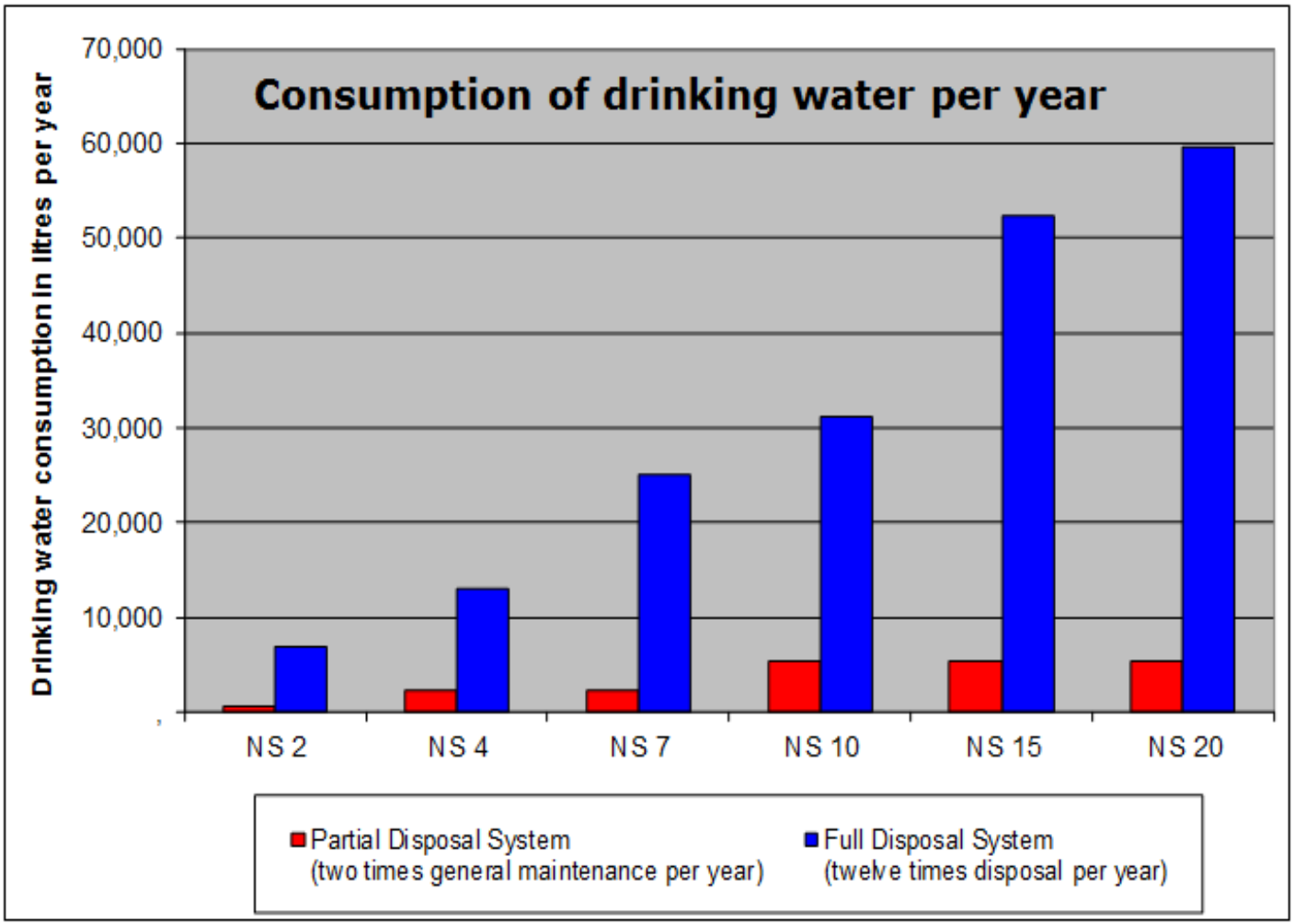
Comparison - Consumption of drinking water



Comparison - Consumption of drinking water

Total capacity of grease separators increases dependent on nominal size (NS).

The larger the plant the larger the differential



Summary:
Complete Disposal (Hydrojet OA)
Partial Disposal (Lipator)

	Hydrojet OA 	Lipator 
Pump truck for disposal of grease and sludge needed?	**Yes**	**No**
Emptying during kitchen operation recommended?	**No**	**Yes**
Tank cleaning intervals	**4 weeks**	**6 months**
Operating personell (daily) needed?	**No**	**Yes**