



TANK CLEANING SERVICES

Advanced Tank Cleaning Technology using the Blabo[®] System (Crude Oil Washing)



SHORT CLEANING TIME

NO PERSONNEL EXPOSURE

MINIMIZATION OF SLUDGE

REDUCED OVERALL CLEANING COST



The Blabo[®] System used by STS S.A

The Blabo[®] process system was developed and patented by ORECO A/S (Denmark), which is specifically geared to the cleaning of large crude and fuel oil tanks. The process system – called BLABO[®] System – is unique in combining automated tank cleaning with simultaneous sludge separation. The process does not require the involvement of manual labour inside the tank and it delivers the cleaned out sludge in its two main components:

- ✓ **Hydrocarbons.**
- ✓ **Solids (inorganic components).**

By means of energy (electricity/steam) only and using light crude oil and the treated sludge itself as the primary cleaning media, the process is capable of removing and separating 100-150 m³ of sludge/day. The Blabo[®] System adopted by STS consists of two parts and a third one as an optional stage.



The Blabo unit at tank side



Inside recirculation module (Blabo I)



Inside separation module (Blabo II)

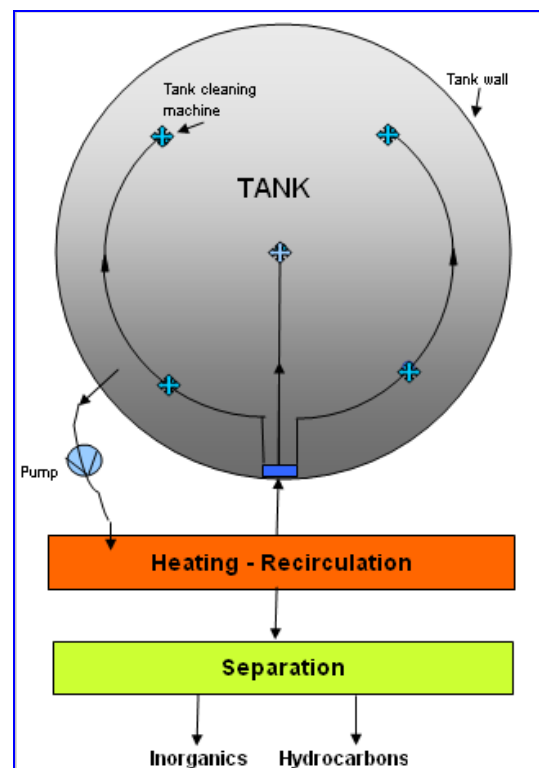
The first part, which is placed inside the tank to be cleaned, consists of a number of specially designed Toftejorg tank cleaning machines (SNS).

They are positioned inside the tank through tank openings (manways, bleeder vents etc.) in such a way that all parts of the tank can be reached by jets of treated oil sludge. The SNSs are connected to the second part which is placed outside the tank to be cleaned.

The second part Blabo I, the recirculation module, consists of pumps, filters, heat exchangers and hydrocyclons. This part treats and heats the “sludge” so that it can be recirculated back into the tank through the jets.

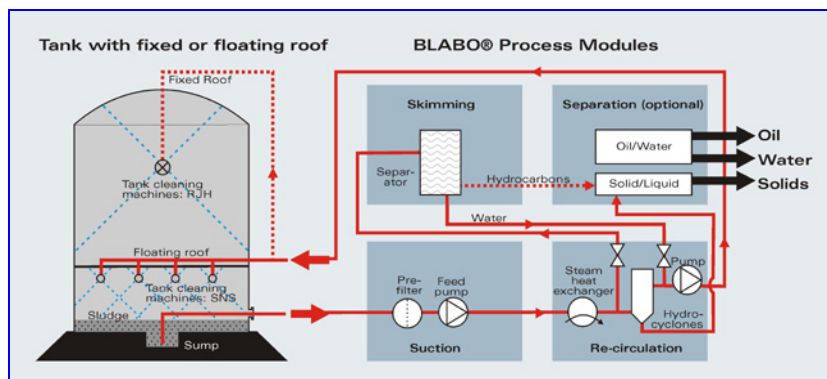
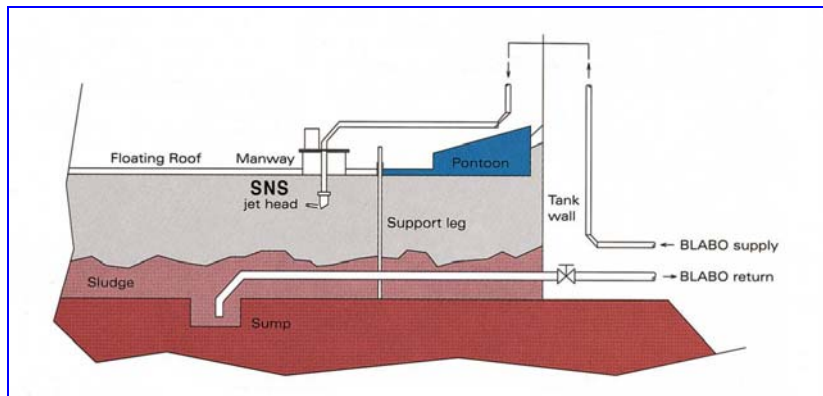
In this way, more sludge is fluidized and can be pumped out for separation in the third optional part.

The third optional part Blabo II, or separation module (heat exchangers, settling tanks and decanter) carry on with the final separation of the different components of the heavy solids sludge. Finally and before the opening of the tank, a very in detail cleaning can be carried out by hot water and biodegradable detergent.



The Blabo® System Applied to a Floating or Fixed roof Tank

The tank cleaning machines are hydraulically driven and the liquid jets fluidize the bottom sludge layer, enabling recirculation and processing.



Some of the main features offered by the BLABO® System adopted by STS are:

- ▶ No personnel is required inside tanks during cleaning.
- ▶ Maximum recovery of hydrocarbons (more than 95%).
- ▶ Environmental-friendly process minimizing waste disposal.
- ▶ Overall tank cleaning costs reduced.



SNS. Single Nozzle Sweeper



Temporary pipe lines on the floating roof



Inorganic solids (separation)

Applications of the BLABO[®] System Cleaning:

- ▶ Black oil tanks (crude, fuel heavy vacuum gas oil).
- ▶ Slops oil.
- ▶ Ballast tanks and other difficult-to-clean tanks.

Preparation of a crude oil storage tank for inspection/hot work with the BLABO[®] System

Main advantages:

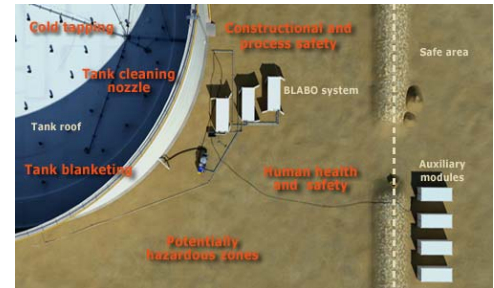
- ▶ Minimizes hydrocarbon emission to the air.
- ▶ Tank cleaning is performed much faster than the conventional/manual way.
- ▶ Significantly reducing the down-time of the tanks (up to 70%).
- ▶ Minimizes usage of water, air and gas oil for cleaning.
- ▶ Non-man entry system (minimal health and safety risks to staff).



Easy to transport



Containerised modules



Suitable for a large number of tanks

The Agaleus Group

is a total waste management group comprising of a variety of different operations, providing a wide range of services.

Agaleus provides consultancy, transportation, segregation, recovery, recycling and management for hazardous waste.

S.T.S. Tank Cleaning Services, S.A.

is a member of the Agaleus Group.

S.T.S. is active as specialist contractors for automatic cleaning & recovery of crude and fuel oil tanks in Spain and South Europe using the ORECO BLABO[®] System.



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