



Oreco SNS[®] Top Entry

Top Entry - Single Nozzle Sweeper[®] for efficient tank cleaning

The Top Entry - Single Nozzle Sweeper[®]
The core of automated crude oil tank cleaning
Main robotic tool used by Oreco's unique BLABO[®] and
MoClean[®] ATS non-man entry tank cleaning systems

introduction

The BLABO® and MoClean® ATS system

Oreco A/S develops, manufactures and globally markets solutions for automated, non-man entry cleaning of aboveground oil storage tanks and systems for recovery of waste oil within the oil and petrochemical industries. The BLABO® and MoClean® ATS system cleans aboveground oil storage tanks containing crude oil, heavy fuel oil and other “black oils”, and refined (white oil) product types.

Top Entry - Single Nozzle Sweepers® ensure safe and efficient non-man entry tank cleaning

An essential part of the BLABO® and MoClean® ATS system are the tank cleaning nozzles known as the Top Entry - Single Nozzle Sweeper (TE - SNS®) and are available only with the BLABO® and MoClean® ATS technology. The nozzles are the components that replace people inside the tank, enable the BLABO® and MoClean® ATS system to ensure non-man entry and thus maximum safety during cleaning operations. Operating inside the tank, the nozzles ensure that the entire inner surface of the tank is cleaned thoroughly and efficiently. This reduces tank downtime, helping tank owners obtain even greater cost-efficiency.

Versatile application and unique performance

The hydraulically operated nozzles can be installed in fixed roof or floating roof tanks, single or double deck.

Although there are some similar products in the market, those are used as stand-alone cleaning systems, lacking a proven process system to

back-up the complete tank cleaning operation. The TE - SNS® coupled either to a BLABO® or a MoClean® ATS System, secure that the entire tank cleaning process involved at each stage will be performed with the highest process efficiency and highest safety.

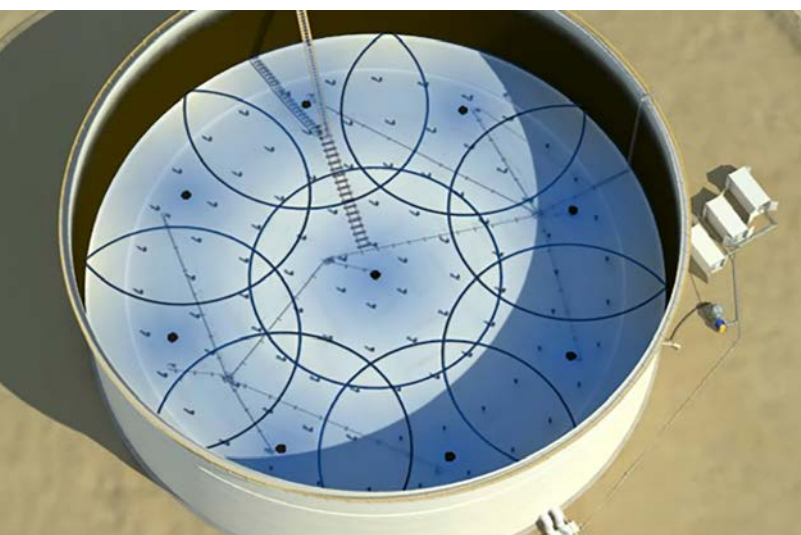
The strong design is developed for heavy-duty operation and is patented by Oreco. The TE - SNS® is fully approved for operation in potentially hazardous atmospheres, as demonstrated by its ATEX-certification.

The unique washing pattern of the nozzles ensures that the entire inner surface of the tank is cleaned – and becomes completely clean, ready for maintenance and hot-work. The nozzles work in an indexed pattern, both vertically and horizontally, and two nozzles can be in operation simultaneously, thereby reducing tank downtime.

The nozzles are remote controlled from the BLABO® tank cleaning system by PLC. The PLC allows operators to programme the nozzles to match each tank cleaning job; e.g. by concentrating special attention on specific areas.

Top Entry - Single Nozzle Sweepers® installation

The nozzles can be installed via existing openings in the tank roof or via cold-tapped holes, securely made with the certified SafeTap® tool from Oreco. Each Top Entry - Single Nozzle Sweeper® has a throw length of up to 32 m. The total number of nozzles required depends on the tank size.



benefits

Operational excellence in tank cleaning

The Top Entry - Single Nozzle Sweepers® are a vital part of achieving operational excellence in your BLABO® or MoClean® ATS tank cleaning process. The design and operation of the nozzles give tank owners distinctive benefit regarding cost-efficiency and increased safety as further explained in the below list:

Interchangeable Drive Unit with all Oreco's SNS® types

Increased personal and operational safety

- Non-man entry: The nozzles eliminate the need for human entry into tanks, increasing human health and safety
- ATEX-certified: The TE - SNS® are approved for operation in potentially hazardous atmospheres category 1G/2G (Zone 0/1)

Unique cleaning result

- Can handle heavy-duty cleaning tasks thanks to their powerful, durable design
- All inner surface of the tank is cleaned
- Customised programming of nozzles to suit specific cleaning needs
- Far-reaching, low pressure high impact jets

Reduction of tank downtime and cost

- Easier and faster preparation of hot-work
- Use recirculated oil as their primary cleaning media

Easy to operate

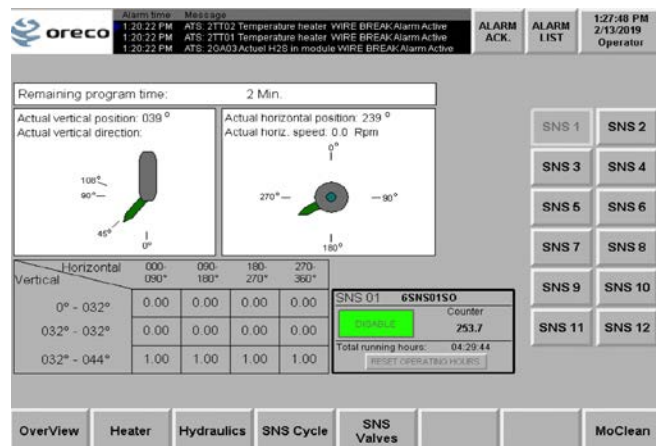
- Hydraulically driven
- PLC-operated and -controlled
- Operation of the nozzles by user-friendly touch screen
- User-friendly SCADA software facilitates programming, reporting and external communication

Proven technology

- Tested by customers worldwide in a variety of tanks
- ATEX-approved by independent notified body

technical specifications

Materials	Stainless steel 304/316, NBR, bronze
Weight	TE - SNS® without drive unit: 65,0 kg (143,3lbs) Drive unit: 11,8 kg (26 lbs)
Lubricant	Grease lubricated
Working pressure	3 - 15 bar (43,5 – 217 psi)
Max working temperature	82°C (179°F)
Tank roof types	Fixed roof or floating roof (single or double deck)
Roof deck flange	EU: DN250 PN10 Flange USA: 10" ANSI Class 150 Flange
Installation, flanges	Victaulic 3" (standard) DN80 PN16 Flange (option) 3" ANSI Class 150 Flange (option)
SCADA system	HMI: Explosion proof touch screen PLC: Allan Bradley PLC
Approvals	ATEX-certified for operation in 1G/2G Category 1G (Zone 0) = Inside the tank Category 2G (Zone 1) = On the tank roof EC - Type Examination Certificate Number: Baseefa06ATEX0079X
Other	The Oreco TE - SNS® are exclusively available with the BLABO® and MoClean® ATS systems

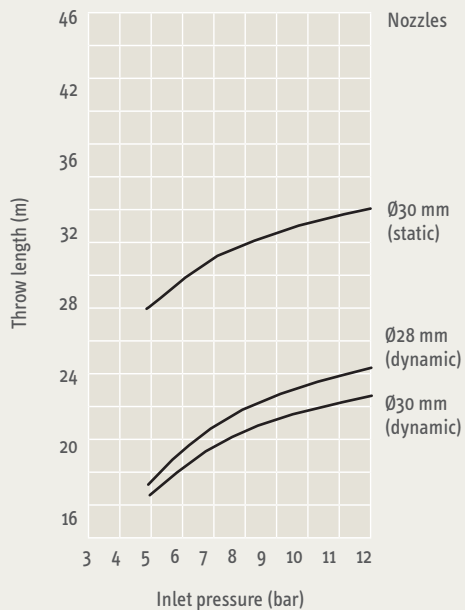


The user-friendly SCADA system facilitates programming, reporting and external communication for the BLABO® system and the TE - SNS®. The touch screen allows you to follow the progress of each TE - SNS®, e.g. its speed, direction, and position. Operators can pre-program up to 10 successive TE - SNS® sequences with separate cleaning patterns. Two nozzles can be in operation simultaneously.

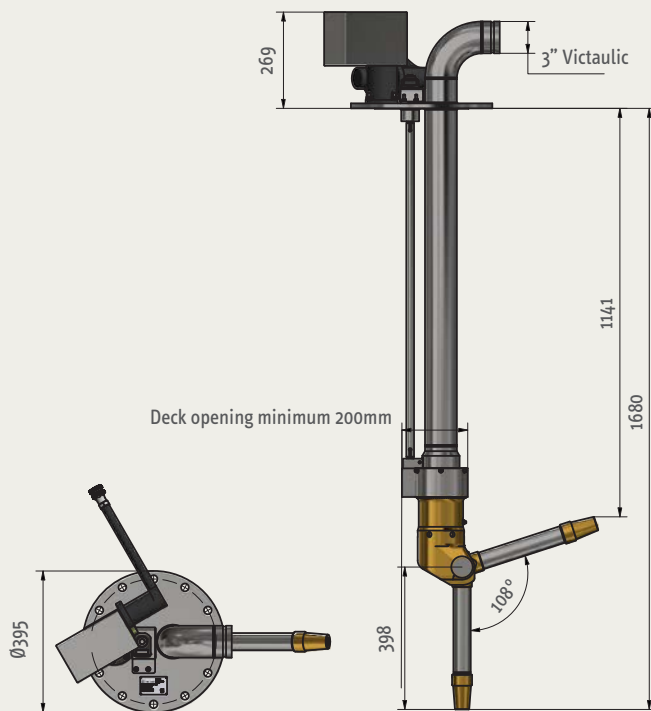
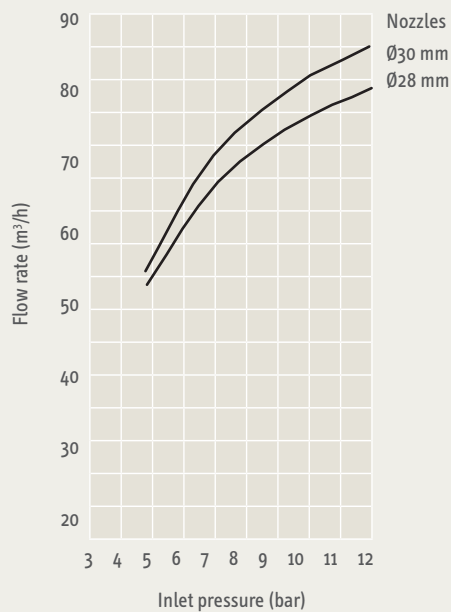
performance

Dimensions (mm)

Horizontal throw length



Flow rate



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