Oil Spill Response Products

FOiLEX
OIL SKIMMERS & PUMPS

Twin Disc Screw Pump

FOILEX
Innovative Products

Products for Professionals

All FOILEX products are designed and developed for Simple, Flexible and Reliable operation in a wide range of application and conditions.

Twin Disc Screw (TDS) Pump

FOILEX's world-leading technology provides up to 70% higher capacity than other traditional Archimedean screw pumps.

The unique TDS Pump technology will give you operational an advantage in two different ways

1. Pumping of low-viscosity fluids at high capacity, or…

2. Efficient pumping of high-viscosity fluids at low speeds.

The patented TDS Pump design is based on traditional Archimedean screw pumps, but uses two circular sealing discs fitted to each side of the pump screw.

The discs maintain the required pressure when pumping, and operate in an alternating fashion, allowing the screw diameter to be fully utilised during 2 x 180° of each revolution, thereby facilitating maximum displacement and capacity. These characteristics, combined with the large exposed screw area of the FOILEX pump inlet, make it suitable for pumping high-viscosity oils and emulsions.

Product range

FOILEX's product range consists of Skimmer and Pump equipment, complete with Power Packs and Hose Packages, for all types of oil spills, from small harbor spills to large offshore spills.

Quality of production

All production is carried out by a few carefully selected high-quality subcontractors in Sweden.
FOILEX TDS Skimmer & Pump Systems are manufactured in accordance with the international Quality Assurance System ISO 9000 and the Environmental Management System ISO 14001.
Modern workshops using the latest production techniques guarantees that all FOILEX products are of the highest quality and delivered on time.

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Swedish Coast Guard
Gothenburg Base

References

Worldwide References

FOILEX Skimmer & Pump Systems have been delivered to more than 50 countries worldwide, to oil companies, coast guards, clean-up contractors, port authorities, fire brigades, etc. About 90% of total sales are in markets outside of Sweden. FOILEX Skimmers & Pumps are also sold directly to other manufacturers (OEM sales) for fixed installations in various types of oil-combating vessels or skimmer systems.

KOMI-NEFT Oil Spill, Russia 1995

MDPC, Japan 1997

ERIKA Oil Spill, France 1999

PDVSA, Venezuela 2000

ZAINAB Oil Spill, Dubai 2001

PRESTIGE Oil Spill, Spain 2002

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FOILEX TDS 250 Ocean Skimmer
DEEPWATER HORIZON Oil Spill, USA 2010

TDS Systems

FOILEX TDS Skimmer & Pump Systems

FOILEX TDS 150
Coast Skimmer System

FOILEX TDS Skimmers are patented high performance weir skimmers for harbor, coastal and offshore oil spills. The skimmers handle all types of oil from light diesel fuel to heavy crude oil mixed with debris.

The heart of the FOILEX Skimmer System is the hydraulically driven onboard TDS Pump fitted in a 3-pontoon floating frame, along with the original flow controlled, self-adjusting skimming ring that has proven itself since 1991.

FOILEX Power Packs are compact designed within a strong stain-less steel frame equipped with lifting eyes and forklift pockets. Screen doors provide good ventilation and easy access to service points.

FOILEX Hose Packages consist of hydraulic and discharge hoses stored on specially designed FOILEX single or double Hose Reels for easy transport and handling.

TDS 150
Coast Skimmer System

TDS 150 Skimmer/Pump
35 m³/h (155 US gpm)

DH 20 Power Pack
20 kW (27 bhp) Diesel

HP 150 Hose Package
Ø3” 10+10 m Discharge
Ø3/4” 2x20 m Hydraulic

TDS 200
Sea Skimmer System

TDS 200 Skimmer/Pump
70 m³/h (310 US gpm)

DH 32 Sea Power pack
32 kW (43 bhp) Diesel

HP 200 Hose Package
Ø4” 5+10+20 m Discharge
Ø3/4” 2x35 m Hydraulic

TDS 250
Ocean Skimmer System

TDS 250 Skimmer/Pump
140 m³/h (620 US gpm)

DH 45 Power Pack
45 kW (60 bhp) Diesel

HP 250 Hose Package
Ø6” 5+10+20 m Discharge
Ø1” 2x35 m Hydraulic

Additional Equipment

Off-loading Pump Kit
Remote Control
Storage and Transport Container
Aux Hydraulic Power Pack Outlet
Reel Hub Quick Connection
Annular Water Injection Flange
Canvas Covers
Spare Parts and Tool set

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TDS Conversion

Convert your TDS Skimmer to an efficient TDS Off-loading Pump

All FOILEX TDS Skimmers can easily be converted for heavy-duty off-loading operations by simply removing the TDS Pump from its 3-pontoon flotation frame.

Turn the TDS Pump upside down and fit your choice of vertical discharge connection of any size. To reduce pressure drop and pipe resistance, all FOILEX TDS Pumps can be equipped with Annular Injection Flanges for steam, water or other diluting liquids.

The FOILEX TDS Pump can then be set up in three different configurations.

1. Free Pump Screw

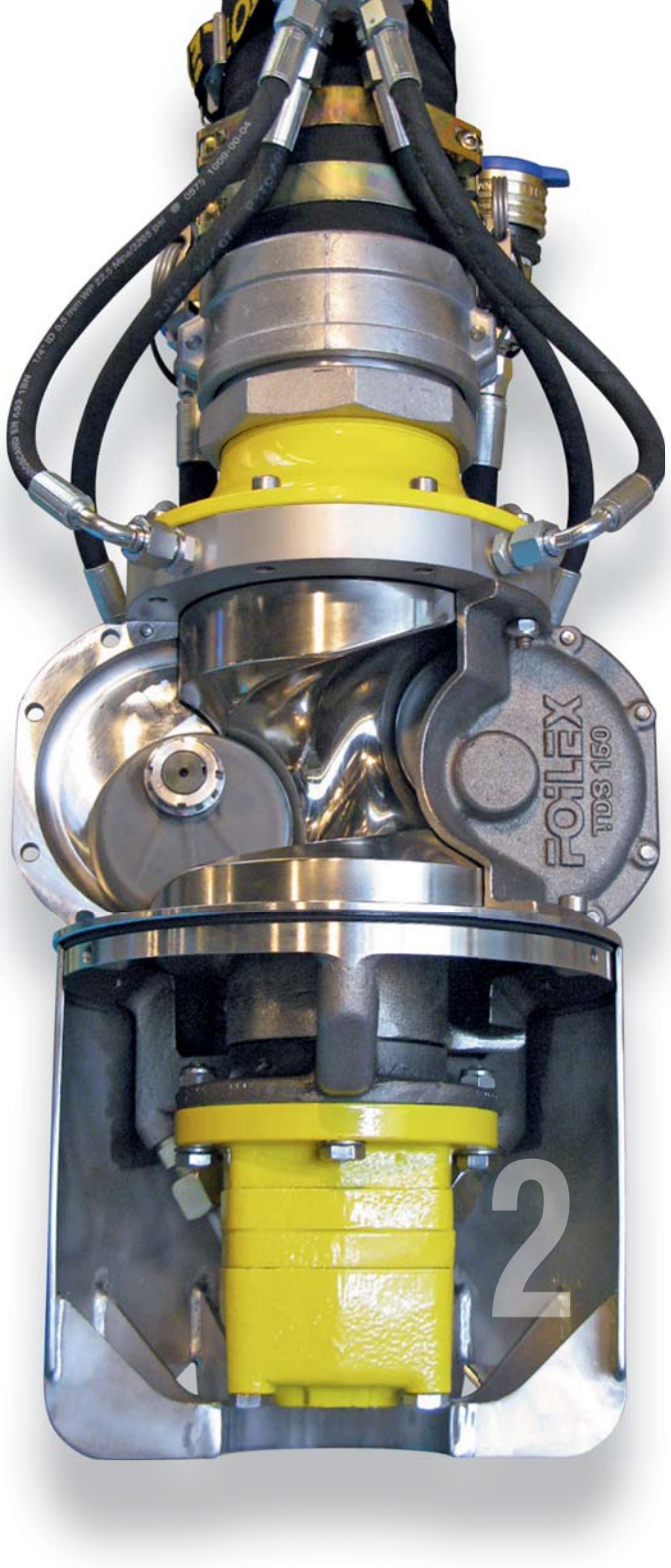
The free and fully exposed Pump Screw will mechanically catch, mix and cut debris-contaminated, high-viscosity oil, and feed it into the pump, independent of the suction capability of the pump.

2. Suction Pipe

If required, the FOILEX Suction Pipe can be fitted around the open TDS Pump inlet when off-loading low to medium-viscosity oils from tanks, completely down to tank bottom.

3. Inline Pipe

For inline and booster pump applications, the FOILEX Inline Pipe can be fitted. The FOILEX Inline Pipe suction flange can be fitted with any type and size of custom connection.



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FOILEX TDS Pump Features

LARGE DISPLACEMENT

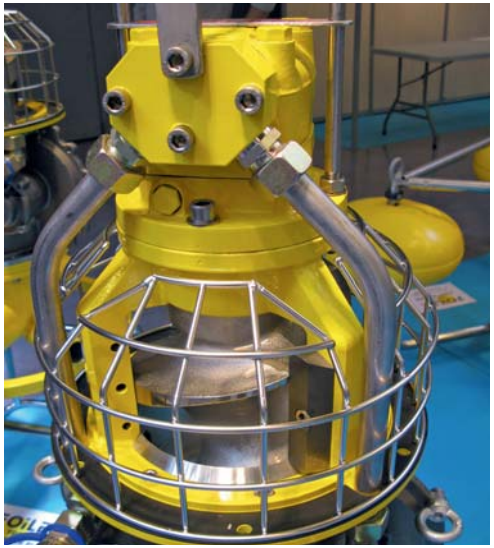
The **FOILEX TDS Design** has a **PDI = of 1.7** which is **70% higher when** compared to traditional Archimedian screw pumps.

Positive Displacement Index (PDI):

PDI = 7 x D / d3

D = Displacement **d** = Screw diameter

The large displacement provides high output capacity in low to medium-viscosity oils, or efficient operation at low rpm in high-viscosity oils, with a minimum of emulsification.



LARGE EXPOSED PUMP SCREW AREA

The 3 x 120° pump inlet sections, combined with the long feeding screw, provide a large exposed rotating screw area.

The TDS Pump will therefore mechanically catch, mix and cut debris-contaminated high-viscosity oil, and feed it into the pump section, independent of the suction capability of the pump.

This feature is very important, especially when pumping high-viscosity oil with low or non-fluid characteristics.

SMALL OUTER DIMENSIONS

The FOILEX TDS 150 Pump is the **World's First** Archimedian Screw Pump that fits into the oil tankers standard 12" Butterworth hatch.

FOILEX TDS Pumps are very useful as off-loading pumps in emergency situations where only narrow tank inlets are available.

Minimum Manhole Diameter

- **TDS 150** 300 mm / 12"
- **TDS 200** 420 mm / 17"
- **TDS 250** 550 mm / 22"

FULLY MACHINE MADE PUMP SCREW

All TDS Pump Screws are fully machine made so that the pressure build-up zone of each is identical. Each Sealing Disc therefore fits snugly and provides a tight and safe seal.

To provide an abrasion-resistant surface, the Pump Screw is coated with a hardened chemical nickel coating for minimum wear of both Sealing Discs and Pump Screw.

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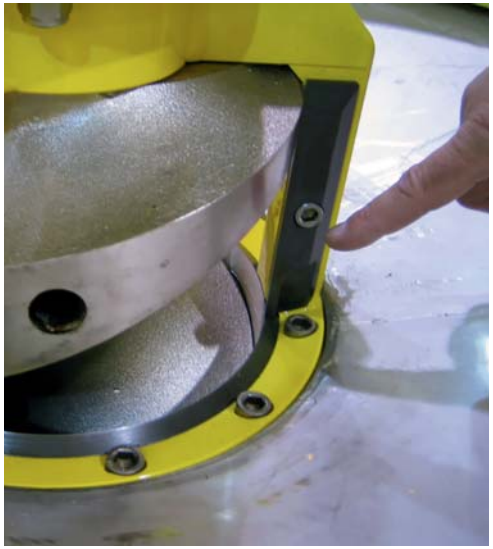

CUTTING KNIVES AT INLET AND OUTLET

The pump inlet is equipped with three cutting tools and one circular cutting knife in hardened stainless-steel for efficient debris handling.

The high-torque motor will enable all types of debris to be cut, such as wood, seaweed, plastics, rope, etc.

The outlets of the larger TDS 200 and 250 Pumps are also equipped with four hardened stainless-steel cutting knives to prevent clogging, etc. All cutting devices can easily be sharpened when worn.

REPLACEABLE SEALING DISCS

The replaceable Sealing Discs are available in Polyurethane or Nitril Rubber, depending on the application.

- **Polyurethane:** Extremely resistant to abrasive wear, such as sandy oil, etc.
- **Nitrile rubber:** Suitable for operations in aggressive oils, high temperature and steamy environments.

The Split Pump Casing provides easy and direct access for servicing, and inspecting of the sealing discs.

There is no need to dismount the inlet weir or other skimmer parts for the purpose of inspection.

EXCHANGEABLE DISCHARGE CONNECTIONS

To reduce pressure drop and pipe resistance to a minimum, especially when pumping high-viscosity oil, it is extremely important to keep the discharge hose/pipe diameter as large as possible.

Pipe resistance will drop significantly when going from Ø3” to Ø6”.

Outlet Diam. vs. Pressure Drop:

- **Ø3”** 100%
- **Ø4”** 32%
- **Ø6”** 6%

FOILEX TDS Pumps have exchangeable Discharge Cones from Ø3” to Ø6”.

ANNULAR INJECTION FLANGES

To reduce pressure drop and pipe resistance, all FOILEX TDS Pumps can be equipped with Annular Injection Flanges for steam, water or other diluting liquids.

Annular Injection Flanges can reduce pressure drop by up to 90 % in certain conditions.

However, the first step in reducing pressure drop and pipe resistance to a minimum when pumping high-viscosity oil is to keep the Discharge Connection and Hose diameter as large as possible.

SWS Systems

FOILEX Suction Weir Skimmer Systems

FOILEX MICRO
Skimmer System

FOILEX MICRO, MINI and MIDI Skimmers are portable suction skimmers without an onboard pump and each is available in two different versions.

Free Floating

The free floating 3-pontoon skimmers are suitable for small to medium-sizes oil spills in harbors, rivers and lakes, where there is a need for small, portable recovery units.

Fixed Installed

The fixed installed Well Skimmers with vertical discharge are mainly used in oil collectors, ships and industrial separation tanks.

All FOILEX SWS Systems are suitable for low to medium-viscosity oil spills.

MICRO Skimmer System

MICRO Skimmer
15 m^3/h (65 US gpm)

Elro T300 Pump
3.5 kW (5 hp) Diesel or Petrol

MICRO Hose Package
Ø2” 10 m Spiral Suction
Ø2” 10+10 m Flat Discharge

MINI Skimmer System

MINI Skimmer
30 m^3/h (130 US gpm)

Spate PD75 Pump
6 kW (9 hp) Diesel or Petrol

MINI Hose Package
Ø3” 10 m Spiral Suction
Ø3” 10+10 m Flat Discharge

MIDI Skimmer System

MIDI Skimmer
70 m^3/h (310 US gpm)

Spate PD100 Pump
10 kW (14 hp) Diesel

MIDI Hose Package
Ø4” 10 m Spiral Suction
Ø4” 10+10 m Flat Discharge

Additional Equipment

Stone Catcher
Chalwyn Valve
Spark Arrestor
Canvas Covers
Spare Parts and Tool set

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FOILEX MINI Skimmer
Danube Oil Spill, Romania

Aux. equipment

Auxiliary Equipment & Other Products

FOILEX Remote Controls

Provide remote-controlled operation from a Power Pack or Ship's Hydraulics.

FOILEX Injection Flanges

Annular Injection Flanges for reducing pressure drop when pumping high-viscosity oils.

FOILEX Oil Booms

Multipurpose solid flotation PVC Oil Boom equipped with quick connectors and lifting handles.

FASTANK Flexible Tanks

Provide a flexible solution for the permanent or temporary containment of polluting liquids.

FOILEX Containers

Storage & Transport Container for one complete TDS Skimmer & Pump System.

FOILEX Suction Pipe Kit

Suitable for off-loading operations down to tank bottom.

FOILEX Quick Connection Hub

For quick and smooth hydraulic hose handling.

SELLWOOD Pumps

Handle dirty water, slurries and spill oils, suitable for FOILEX Suction Weir Skimmers.

FOILEX Canvas Covers

PVC Canvas Cover to protect against rain and UV sunlight.

FOILEX Inline Pipe Kit

Suitable for inline and booster pump applications.

FOILEX Hydraulic Aux. Outlet

For operating additional hydraulic equipment connected to FOILEX Power Packs.

ECOSORB Absorbents

Polypropylene Absorbents products in various formats and sizes for oil and chemical spills.

FOILEX
OIL SKIMMERS & PUMPS

FOILEX TDS 150 Coast Skimmer System
OSRL/EARL, Singapore

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FOILEX
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FOILEX Engineering AB is a Swedish engineering company founded in 1991.
The head office and production facilities are located in Gothenburg on the west coast of Sweden. Our strength is engineering and sales of various innovative Oil Spill Response Products including the patented TDS Oil Skimmers & Pump Systems.

Terafon