



UNISOL
Membrane Technology



DT/ST MODULE

High Pressure Modules

Fouling Resistant • Easy to Maintain • Customized

DT Membrane Modules

DT Module



DT (Disk-Tube) membrane module has excellent anti fouling performance and is specifically designed for treating high concentration polluted wastewater. The open flow channel design can effectively avoid physical blockage. The hydraulic disc with convex points forms a turbulent state during filtration, minimizing the formation of fouling, pollution, and concentration polarization on the membrane surface. All DT membrane modules adopt standardized design, which is easy to disassemble, maintain, clean and replace.

DT module is a low-cost solution for liquid desalination and purification, with high desalination rate, high water flux, high COD retention rate and strong pollution resistance. The product has been used in over 1000 projects worldwide.

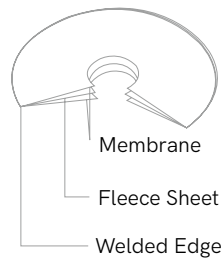
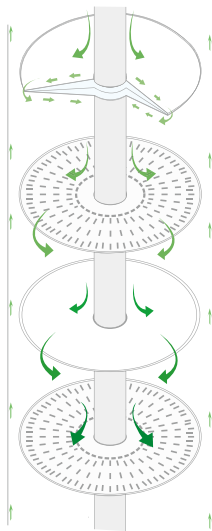
Advantages

- Outstanding anti-fouling properties, optimized packing density, no dead zones.
- Different pressure levels available, up to 160bar.
- High specific performance, up to 2 times of normal (SWRO) spiral wound sea water element.
- Fully automated production. High availability. 100% quality control (Salt solution).
- Root 42's unique stack design:
 - Simplifies membrane replacement.
 - Reduces operational risks.

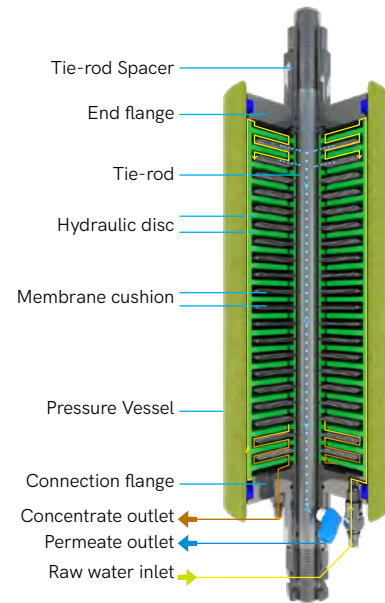
Applications

- Landfill leachate treatment
- High concentration
- Chemical wastewater
- Desulfurization wastewater
- Food and pharmaceuticals
- Seawater desalination
- Industrial wastewater zero discharge

DT Module Construction



Pre-assembled Stack



DT Operating Data

Model	Max. Operating Pressure	Membrane Area	Max. °C	pH Range	Rejection	Flux	Wet Weight
DT_RO_MP9.0	90bar	9.405 m ²	45°C	3-11 (Run), 2-12 (CIP)	98.5%	250L/h	70kg
DT_RO_HP12.0	120bar	9.405 m ²	45°C	3-11 (Run), 2-12 (CIP)	98%	200L/h	100kg
DT_RO_SP16.0	160bar	9.405 m ²	45°C	3-11 (Run), 2-12 (CIP)	98%	200L/h	100kg

ST Membrane Modules

ST Module



ST (Space-Tube) membrane technology is a new type of membrane module developed specifically for the leachate treatment and high salinity wastewater. It adopts a spiral wound membrane structure with industrial anti fouling RO/NF membranes. Different than a standard spiral wound membrane, the ST membrane module is designed with a special grid channel, that allows for long-term stable operation in areas where ordinary spiral wound membranes would not apply.

ST membrane modules have the characteristics of high pressure resistance, open flow channels, large membrane area, and long service life.

Advantages

- High desalination rate, stable desalination rate of 99% under standard testing conditions
- Spiral wound structure achieves higher membrane area
- Open flow channels reduce flow resistance and concentration polarization
- High packing density, leads to lower footprint
- High quality and high standard production, can be customized according to user requirements

Applications

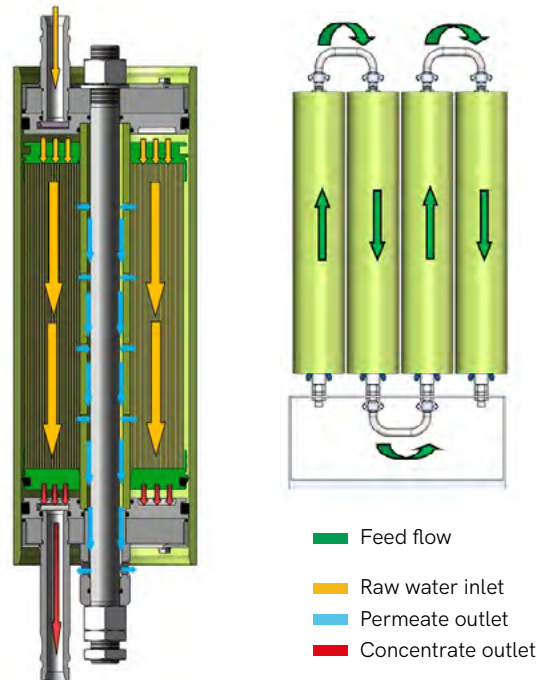
- Landfill leachate treatment
- Wastewater concentration
- Concentrated brine treatment
- Seawater desalination
- Desulfurization of wastewater

ST Module Construction

A standard ST membrane module includes:

- ST membrane element (RO, NF, etc.)
- Connection & end flanges + pipelines (for inlet & outlet)
- Tie-rod
- Pressure vessel (shell)

The wastewater enters directly from the end, then evenly distributed to the feed end of the membrane module. Under pressure, the permeate flows into the center tie-rod and the remaining wastewater flows through the concentrate outlet. Membrane modules are connected in series to improve water recovery and reduce energy consumption.



- Feed flow
- Raw water inlet
- Permeate outlet
- Concentrate outlet

ST Operating Data

Model	Max. Operating Pressure	Membrane Area	Max. °C	pH Range	Rejection	Flux	Wet Weight
ST_RO_MP9.0	90bar	25m ²	45°C	3-11 (Run), 2-12 (CIP)	> 98.50%	500L/h	60kg
ST_RO_MP9.0-Plus	90bar	30m ²	45°C	3-11 (Run), 2-12 (CIP)	> 98.50%	600L/h	70kg
ST_RO_HP12.0	120bar	25m ²	45°C	3-11 (Run), 2-12 (CIP)	> 98.50%	500L/h	90kg
ST_RO_HP12.0-Plus	120bar	30m ²	45°C	3-11 (Run), 2-12 (CIP)	> 98.50%	500L/h	100kg

WE SUPPORT YOU - WORLDWIDE!



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