

HIGH PERFORMANCE  
MEMBRANE FILTRATION MODULES  
PROFESSIONAL SERVICE PROVIDER





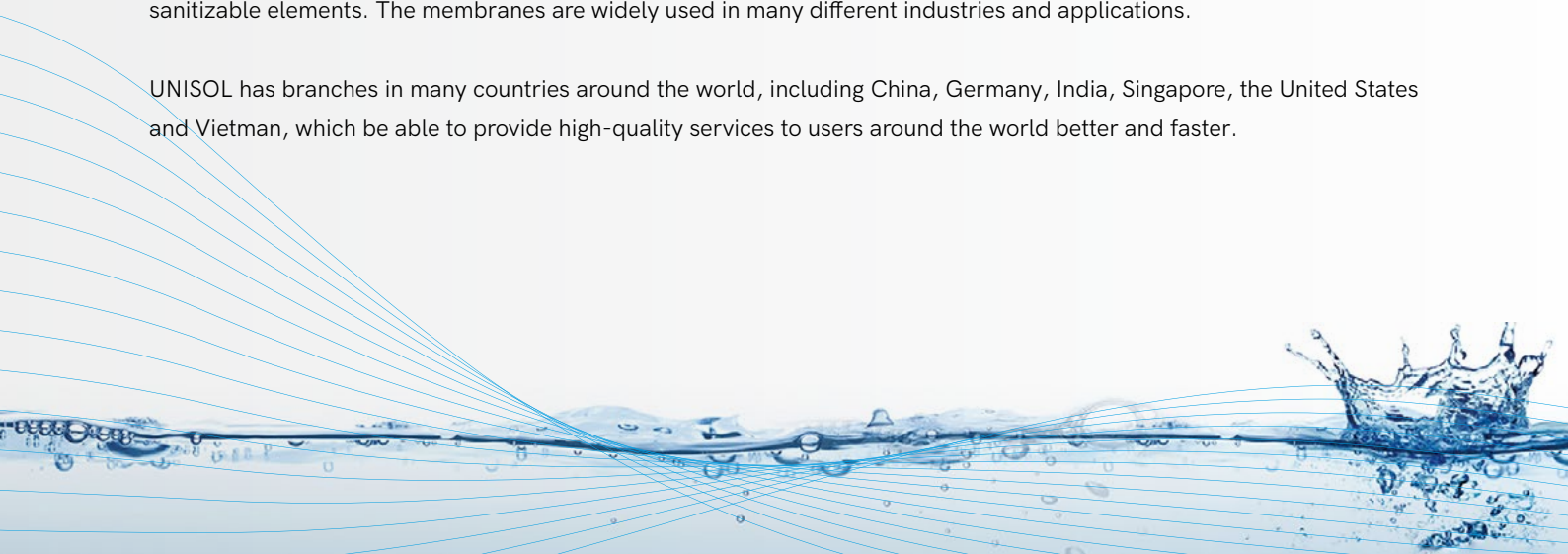
# COMPANY PROFILE

## UNISOL MEMBRANE TECHNOLOGY

UNISOL Membrane Technology is the specialty membrane manufacturer of reverse osmosis, nanofiltration, ultrafiltration and microfiltration products. With a diverse product range and unmatched flexibility, we take pride in our ability to customize our products and service offering to address customers' unique requirements.

In addition to offering standard spiral wound replacement products, UNISOL offers a wide range of specialty elements for process and sanitary applications, high and low pH, high temperature or high-pressure operations along with heat sanitizable elements. The membranes are widely used in many different industries and applications.

UNISOL has branches in many countries around the world, including China, Germany, India, Singapore, the United States and Vietnam, which be able to provide high-quality services to users around the world better and faster.



The General Manager of UNISOL MEMBRANE TECHNOLOGY, Mr. Hans Jörg Heckmann, provides a vast amount of experience in the field of separation technologies. He started his career from the basics in project engineering, assembling decades of work experience in the Western and the Asian business culture and he experienced the working environment in SMEs and MNCs.

His background assures the required knowledge to proceed according to the needs of the customer base and at the same time secures the leadership of a dedicated team within a dynamic business environment. Combining this experience with a state of the art operation, a customer oriented administration and a strong exposure to R&D is the base for the establishment of a successful component supplier in the industry of membrane separation.



Hans Jörg Heckmann  
General Manager

## Target Industries / Applications

### Industries

Industrial Wastewater  
Industrial Process Water  
Power Utility  
Pulp Paper  
Chemical Industry  
Metal Finishing  
Automotive  
Ink / Dye Production  
Textile  
Plating / Coating

### Process Streams

Food Processing  
Dairy  
Pharmaceutical Process Separations

### Light Industries

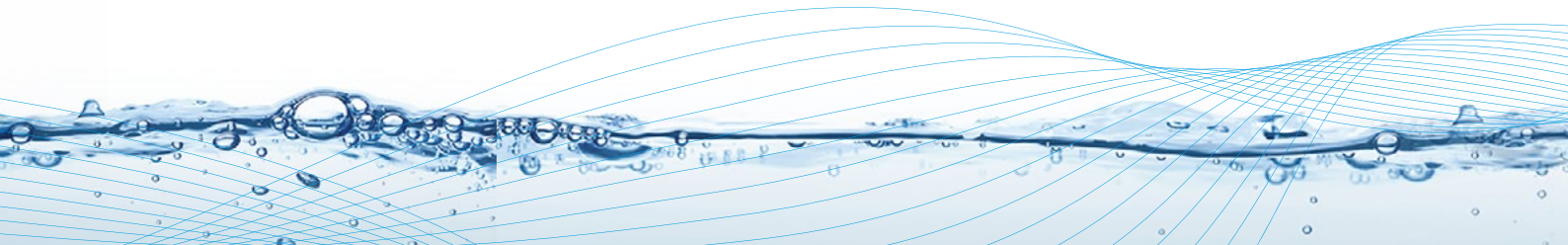
Bottled Water Plants  
Beverage Industry  
Laundry Wastewater Reuse  
Water Park Pool  
Agricultural Use  
Greenhouse

### High Purity Water

Dialysis  
Laboratory  
Pharmaceutical Water (WFI)

### Municipal

Municipal Drinking Water  
Municipal Wastewater / Water Reuse





# PRODUCTION BASE

UNISOL provides a complete production and development base. The facilities, covering operations, administration and research extend over an area of 5,600 m<sup>2</sup>.

The production lines are highly automated in order to achieve high quality standards and the future intelligent production of membrane modules.



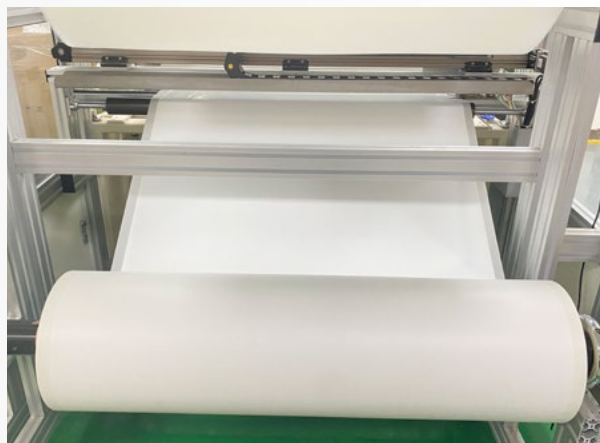
## Smart Production

Implementing robots into the processes of cutting, welding, assembling and testing allows for the improvement of efficiency, reliability and stability of our products.



## Big Data Management

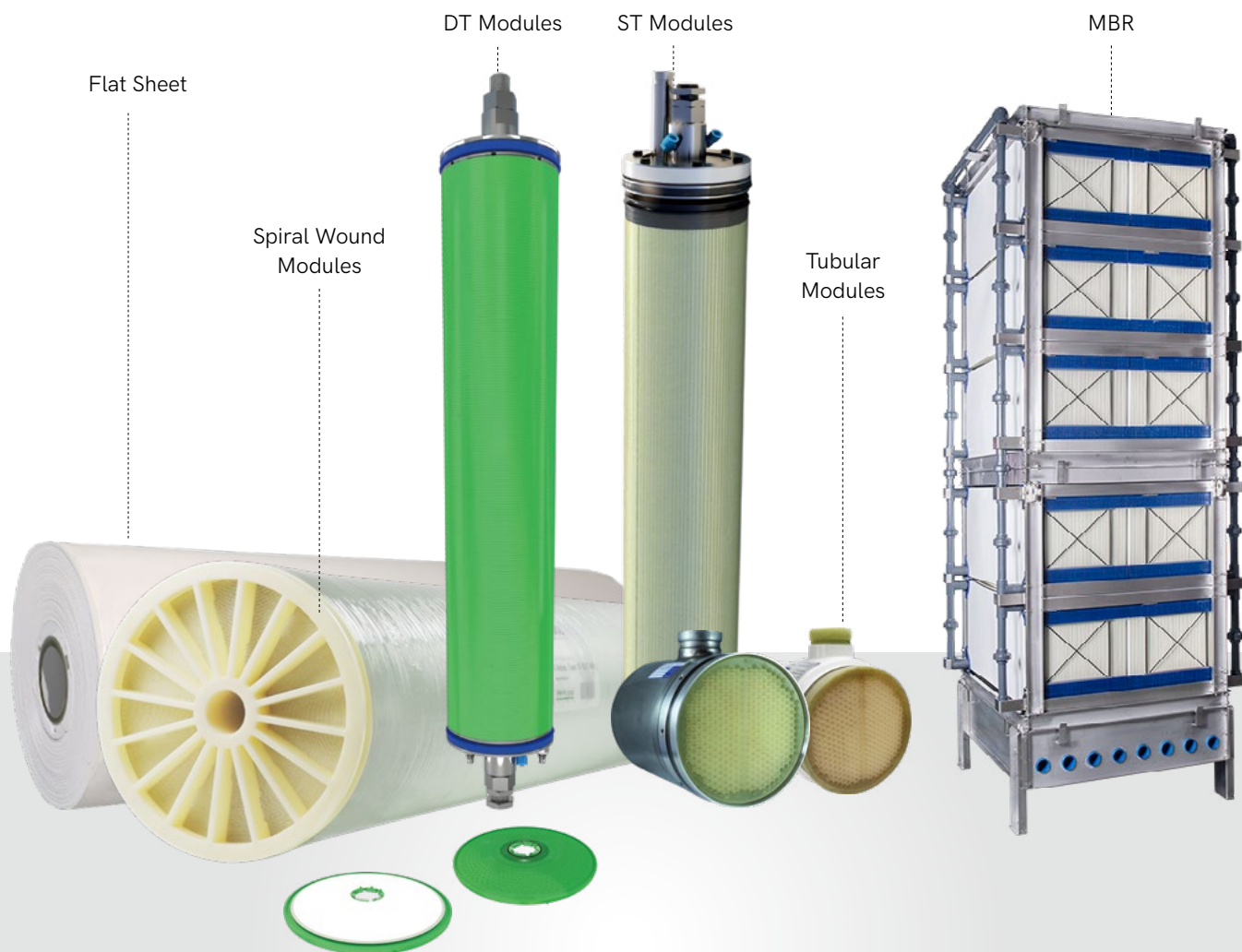
The real-time data collection on all links of the production line allows for the traceability of the production process. Big data management then assures the control of the product quality at highest possible level.



# PRODUCTS

Our product portfolio extends from standardized filtration modules to customized filtration modules, they cover microfiltration, ultrafiltration, nanofiltration and reverse osmosis.

Our offering includes flat sheet, spiral wound modules, tubular modules, DTRO modules and a hybrid MBR.





## AMS MEMBRANE

AMS membrane is a special membrane series of UNISOL. It supports thermal and chemical stability, can withstand high temperature and pressure in strong acids, alkalis and solvents media. This membrane can selectively penetrate acids, bases and solvents to achieve the goal of purifying acids, bases and solvents.

### Acid-stable, Alkali-stable, Solvent-stable

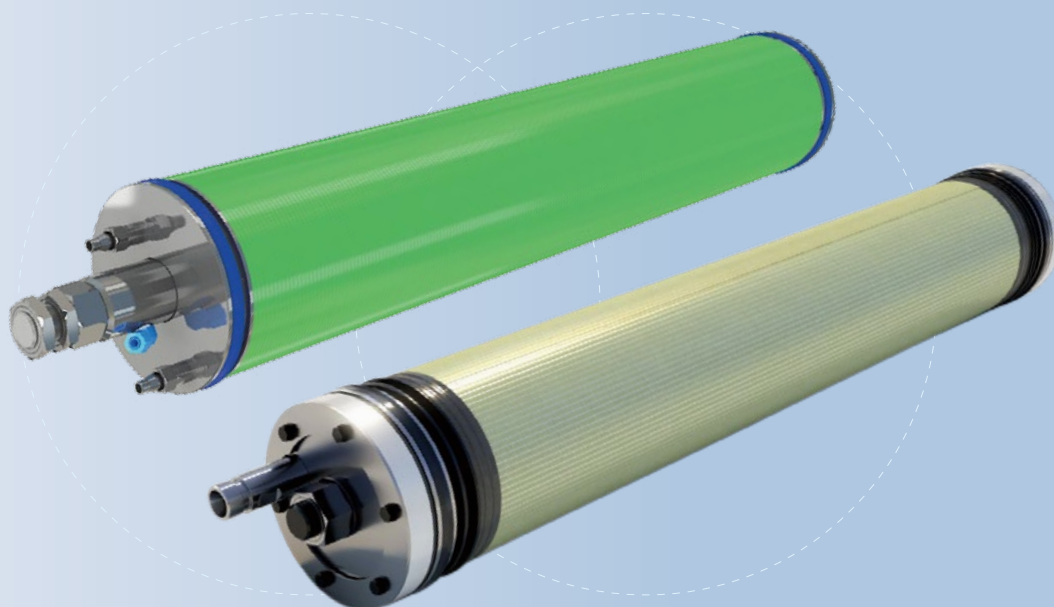
- Application media: Acid, Alkali, Solvent
- Filter level: UF, NF
- Standard size: 1812, 2540, 4040, 8040

### Advantages

- Resistant to strong acid, alkali & solvent
- Acid/alkali/solvent separation & purification
- Diverse specifications
- Able to handle viscous liquids

### Applications

Mining. Metal industry. Pulp & Paper. Artificial silk industry. Food & Beverage.  
Chemical industry. Pharmaceutical. Electrophoretic coating.



DT/ST MODULES

The DT/ST modules of UNISOL are cost effective solutions for the desalination or purifications of liquids. Our DT/ST module design can handle feed streams at high TDS and certainly can provide various separation characteristics.

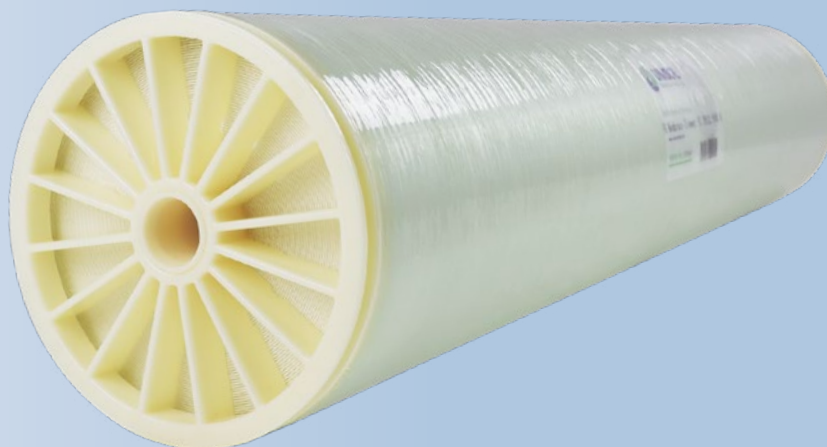
## A new enhanced generation of DT/ST modules

### Advantages

- High quality membrane: stable performance at high flux and rejection.
- A new generation of deflector: improved robustness, higher operating pressure and turbulence leading to higher yields and flux.
- Long membrane life: reduced cost of operation.
- High packing density: the spiral wound design allows for a maximum membrane area in the module.

### Applications

- Landfill leachate treatment
- Concentration
- Chemical wastewater
- Zero liquid discharge / Reduction of industrial wastewater
- Wastewater desulfurization
- High solids applications
- Offshore seawater desalination



## SPIRAL WOUND MODULES

For the different applications of spiral wound modules, UNISOL provides a portfolio of spiral wound modules that stretches from standard modules to products that are designed precisely to the customer needs. The complete spectrum of UF, MF, NF and RO membranes is available within our spiral wound products, which are provided at high quality.

### All designs available

Standard classification:

1. Sanitary Design: 3838, 6338, 8038, 8338
2. Industrial Design: 2540, 4040, 8040
3. Temperature, Caustic and Acid, Solvent Resistant

### Advantages

- High packing density
- Sharp cut-offs
- Great mechanical strength

### Applications

- Industrial component separation
- Seawater desalination
- Whey Protein Concentration, Fermentation broth concentration, Sweeteners, Clarification
- E-Coat, Hemicellulose separation, Desalination







## FLAT SHEET MEMBRANE

UNISOL flat sheet membranes cover the whole range from MF(microfiltration), UF(ultrafiltration), NF(nanofiltration) and RO(reverse osmosis), and are available in a broad range of polymers that include PES, PS, PAN and PVDF at various MWCOs.

## Customized chemistry

### Advantages

- High flux
- High selectivity
- Chemically enhanced membrane properties
- Low fouling & cleaning efforts

### Applications

- WPC Gelatin
- Decolorisation
- Color removal
- E-Coat
- Caustic brine regeneration
- Produced water





## MBR

Within the application of MBR the membrane serves as a physical barrier to separate the liquid phase from the biomass. A clarifier is no more required to achieve the intended effluent quality. In that way MBR allows to operate at a higher MLSS and increases the efficiency of the biological treatment, decreases the required foot print and improves the stability of the waste water treatment process.

## High packing density & Reliable performance

### Advantages

- High effluent quality
- Improved process stability
- Smart design (Reduced braiding and sludge deposition)
- Modular design (Size can be adapted to the existing space)
- High packing density
- Optimized oxygen transfer (Fine bubble aeration)
- Lower pretreatment requirements

### Applications

Municipal wastewater·Industrial wastewater·Water treatment leisure industry



## TUBULAR MEMBRANE

MEMOS tubular ultrafiltration membranes have superior performance and are widely used in various wastewater treatment processes, food and pharmaceutical.

## Innovative replaceable membrane module design

### Advantages

- Made in Germany, reliable quality, more than 1000 references
- Good anti-fouling performance, easy to clean
- A variety of sizes and specifications are available, the membrane core can be replaced
- Long membrane life (5-8 years)
- High throughput,  $50-100 \text{ L} / \text{m}^2 \cdot \text{h}$

### Applications

- Landfill leachate and industrial wastewater treatment (external TUF / MBR)
- Fruit juice, beverage clarification and separation
- Wastewater softening and hardening
- Treatment of oily wastewater and oily emulsions

Metal, Mining

# MARKET APPLICATIONS

## Food & Beverage, Dairy

Whey & protein concentration  
Whey desalting  
Whey fat removal  
Juice & wine clarification and filtration  
Gelatin  
Caustic soda recovery and recycling

## Automotive

E-coat filtration  
Paint recycling  
Lifetime extension for degreasing bathes  
Solvent recovery

## Water & Wastewater

Municipal sewage  
Industrial wastewater concentration  
Industrial wastewater zero discharge





Hydrometallurgy  
Mining wastewater filtration  
Acid recovery  
Heavy metal separation from wastewater



## Chemical Industry

Preparation of process water  
Dye desalting  
Organic solvent nanofiltration (OSN)  
End products concentration  
Acid/caustic/solvent recycling

## Pharma & Biotech

End products clarification & concentration  
Ultrapure water production  
Water purification and sterilization  
Solvent recovery



Landfill leachate treatment  
Coal chemical wastewater  
Desulfurization wastewater

Mining wastewater  
Chemical fiber textile wastewater  
Dyeing wastewater



# REFERENCES



Singapore  
Industrial Wastewater  
150t/d



Guangdong  
Desulfurization Wastewater  
48t/h



Sichuan  
Pesticide Wastewater  
7500t/d



Mexico  
E-coat Application



China  
E-coat Application



China  
Sugar Concentration



USA  
Municipal Wastewater  
Treatment



Turkey  
Waster Water Treatment

# COMPANY MISSION

TO SUPPORT OUR CUSTOMERS  
BY SUPPLYING A SUPERIOR PRODUCT  
WHILE SUSTAINING THE ENVIRONMENT



## WE SUPPORT YOU - WORLDWIDE!



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UNISOL MEMBRANE TECHNOLOGY reserves the right to change specifications without prior notification. For the latest version, please refer to the internet. [info@unisol-global.com](mailto:info@unisol-global.com)  
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