

## **modula S-TP**

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*modula S-TP – detail view*

The twin-pass **modula S-TP** has been designed for use with poor feed water quality or when higher levels of permeate chemical purity are required.

All components and material used continue the highest tradition of proven DWA reliability.

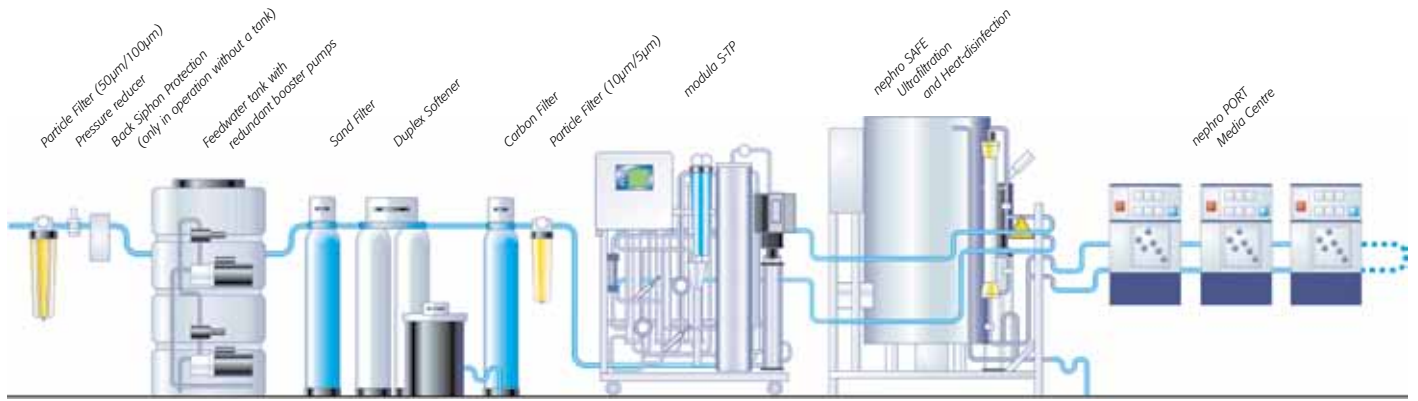
The **modula S-TP** provides for total operation security through two independent stages. With one stage out of service the other can take over the complete duty to provide continuation of treatment.

The **modula S-TP** can provide the required purification to meet the highest standards for the production of ultrapure permeate.

In areas with high feed water TDS-levels (Total Dissolved Solids) the **modula S-TP** will significantly improve the permeate conductivity. Low operational costs are achieved by the integral intelligent water consumption control to optimize water usage.

**modula S-TP** – the new twin-pass reverse osmosis for the cost effective production of ultrapure water.

## THE OVERALL CONCEPT



## TECHNICAL DATA

	Designation	Specification
<b>Performance data</b>	Permeate capacity at 12 °C modula S-TP 1 ... modula S-TP 5	350 / 700 / 1050 / 1400 / 1750 l/h
	Retention of organic substances	> 99 %
	Permeate pressure	2 - 5 bar
	Electrical power consumption	6,5 kW
	<b>Water connections</b>	Raw water inlet
	Permeate outlet	TriClamp DN 20
	Permeate backflow	
<b>Electrical data</b>	Mains plug	CEE 32 A
	Mains voltage	400 V 3-(N) / 50 Hz / 60 Hz
	Fuse protection	25 A / FI Δi 30 mA
<b>Electrical protection</b>	Type of protection against electrical shock	1
	Surge category	II
	Contamination level	2
	Level of protection against the penetration of liquids	IP X4
<b>Dimensions &amp; weight</b>	B x H x T max.	1350 x 1725 x 690 mm 500 kg
<b>Recovery rate</b>		to 85%
<b>Required raw water quality</b>	Quality	Drinking water (softened)
	Fouling index	< 3
	Conductivity	< 1400 µs/cm
	Fe	< 0,05 ppm
	Cl	< 0,10 ppm
	Temperature	5 - 30 °C
	pH	6,5 - 8,5
	Water hardness	< 0,1° dH (0,018 mmol/l)
<b>Environmental conditions</b>	Transport / storage	+1 to +45 °C
	Operation	+1 to +35 °C
<b>Installation requirements at customer's premises</b>	Raw water supply, max. 6 bar static, fully equipped 3 m <sup>3</sup> /h at 3-6 bar dynamic	if necessary with pressure-reducing valve or booster pump lockable
	Drain max. 10 cm above the floor	HT DN 50 pipe, for 6m <sup>3</sup> /h unpressurised
<b>Material of constructions</b>	Frame	V2A (304)
	Tubing	V4A (316L)
	Membrane	XLE-4040 Extra Low Energy
	Pump	1 x Grundfos SP 5A 33 1 x Grundfos CRNE 3-36

Manufactured according to MDD (Medical Device Directive)  
We reserve the right to make technical changes

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**modula S-TP**  
TWIN-PASS REVERSE OSMOSIS SYSTEM  
For optimal safety and quality

**DWA**  
The Dialysis Water Specialists



*Since 1984, DWA has specialised in innovative solutions for the supply of high purity water to dialysis centres – worldwide. DWA develops systems for the production of ultrapure permeate and its distribution*

*right to the dialysis machine. Our expertise in water treatment covers all aspects from the pre-treatment stages, through reverse osmosis, ultrafiltration and heat-disinfection systems, right up to the supply connection through to the dialysis machine. In addition, DWA offers systems for the production and distribution of acid and bicarbonate concentrates.*

*Since its inception, DWA has been setting standards in dialysis water treatment and is the only company producing ultra-clean permeate by the combination of reverse osmosis and central ultrafiltration, including integrated simultaneous heat-disinfection of the ringmains to the dialysis machines.*

*DWA is your global partner for the design, planning, installation, extension or conversion of dialysis centres and offers project management, installation as well as service and maintenance.*



**DWA**  
The Dialysis Water Specialists

**SUCCESSFUL ON ALL CONTINENTS**



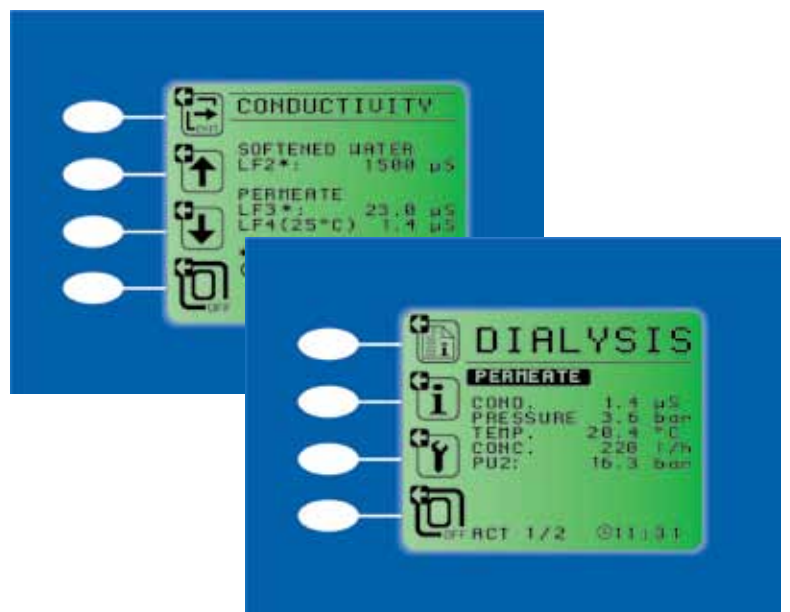
## OPTIMAL PERMEATE QUALITY AND OPERATIONAL SAFETY

- Compact modular design for flows from 350 – 1750 l/h
- Increased chemical and microbiological quality of permeate through twin-pass operation
- Twin-pass operation ensures higher operational safety and can provide for continuation of treatment
- Capability to select individual RO membrane stages if required
- Optimum permeate production through intelligent control ensured at any time
- Integrated emergency mode allows for continued secure operation during emergency main circuit board replacement
- Programmable pre-flushing mode permeate to drain to ensure output quality
- Integrated pre-filter 5 µm
- Semi-automatic programmable disinfection cycles



modula S-TP – front view

- Continuous monitoring of conductivity, pressure, temperature and permeate flow
- Simplicity of operation, with integrated self-test at power-up and secure status-dependent user guide
- Automatic restart in case of power interruption, of up to five minutes duration
- Secure menu for service technicians
- 64 status messages memory capability
- Optional modem for data transfer, including status enquiry for remote cost effective servicing



## ECONOMICAL OPERATION WITH MAXIMUM RELIABILITY

- Submersed, frequency controlled pump minimises operational noise levels
- Auto feed-back control of second stage provides optimum real-time permeate production
- Water consumption per hour displayed for the monitoring of operation expenses
- Water-saving technology through intelligent combined conductivity and temperature control
- Easy and quick access to all components to ease service and reduce maintenance costs
- Energy-saving polyamide membranes for maximum permeate yield at low pressure ensures maximum membrane life



*modula S-TP  
detail view*



*modula S-TP  
frequency controlled pump*

- Permeate pressure sustaining valve for system pressure settings
- Internal surface of passivated stainless steel piping with clamp connectors make the modula S-TP hygienic and optimizes serviceability
- Dead leg free stainless steel module pressure vessel for maximum hygiene and efficiency
- Hygienic permeate pressure sensor mounting minimises bacterial contamination
- Stainless steel V4A fittings as specified for pharmaceutical validated designs
- Hygienic stainless steel permeate sampling point



*modula S-TP  
rear view*