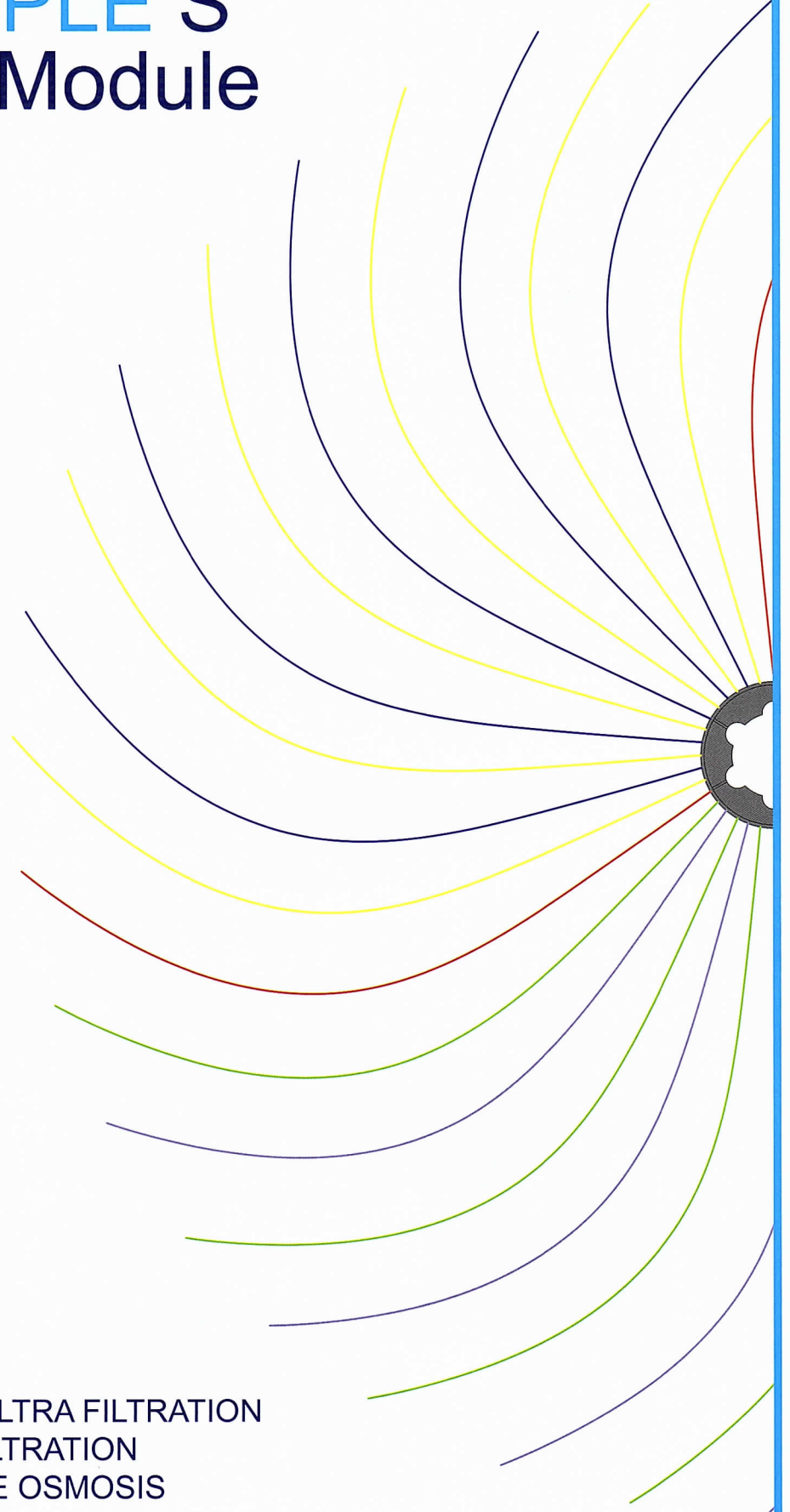
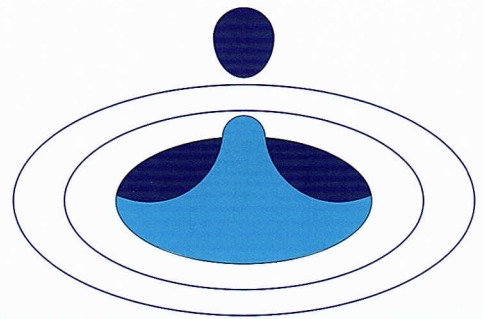


SELECTIVE SUBSTANCE SEPARATION

TRIPLE S TS Module



- MICRO-ULTRA FILTRATION
- NANO FILTRATION
- REVERSE OSMOSIS



TRIPLE S/ TS MODULE

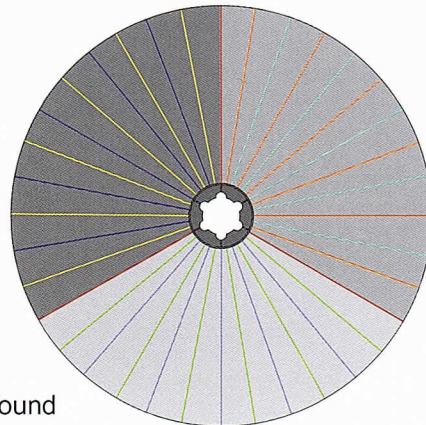
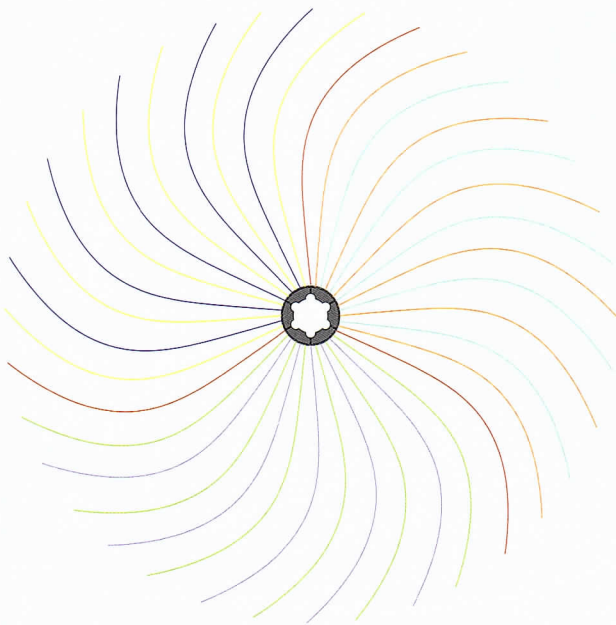
SELECTIVE SUBSTANCE SEPARATION

The significant difference to conventional spiral wound modules is that RocheM Technical Services combines different feed channels, permeate carriers and membranes in one module element.

THIS IS NEW, developed by RocheM Technical Services

Rochem Technical Services is able to create a module especially for your requirements.

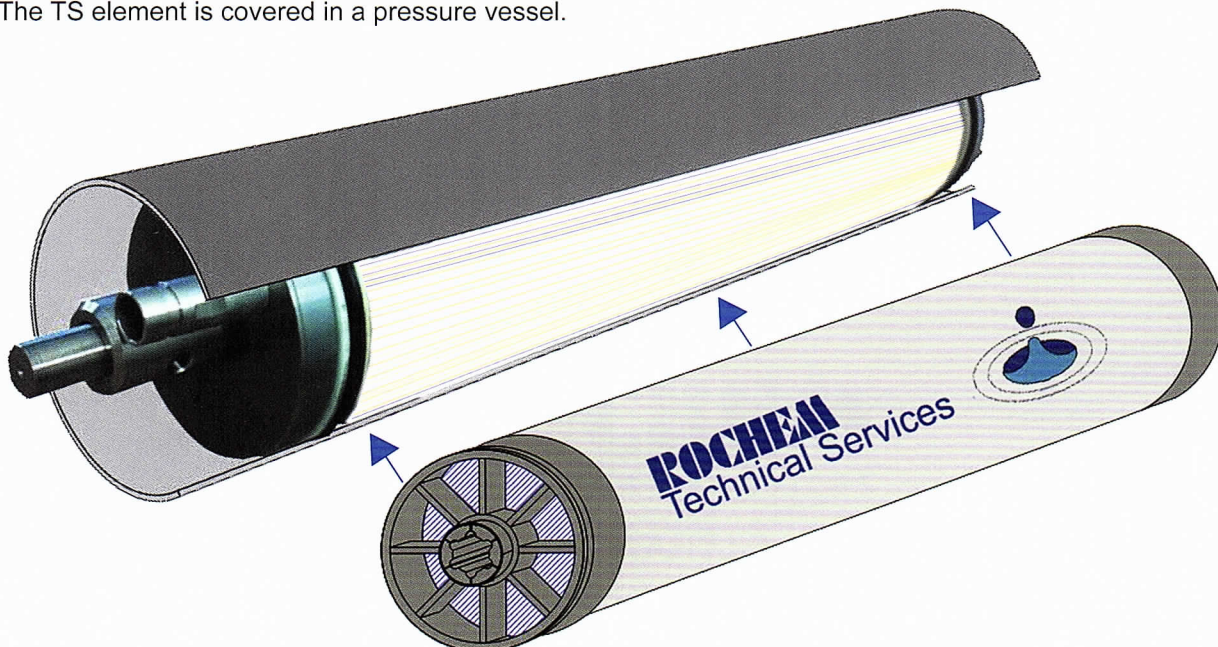
The module element can be split in parts. Each part includes different feed spacers and membranes; also the membrane cushion carriers can be different. R.T.S. RocheM Technical Services has a lot of possibilities to find the ideal composition for your particular objectives.



Spiral Wound

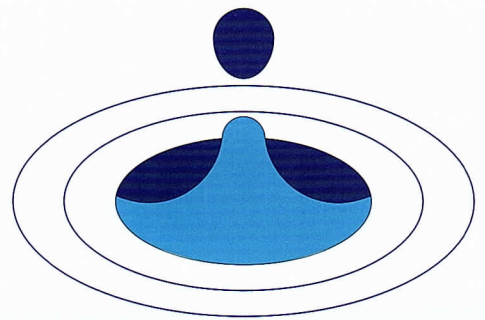
MEMBRANE - PERMEATE CARRIER - MEMBRANE / FEED SPACER

The heart of the TS module is the membrane element. This consists of membrane cushions and spacers wrapped in a tube element. The completed membrane element is then pushed on the rod-shaped permeate outlet and collecting device. The membrane element is provided with end flanges on both sides. The end flanges consist of at least one input for the feed medium to be separated and one output for the retentate. The border elements are kept sealed to the tube element. The TS element is covered in a pressure vessel.



ROCHEM[®]

Technical Services

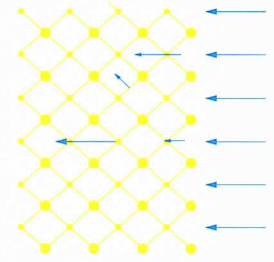
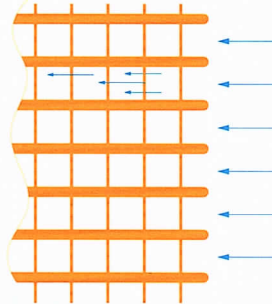
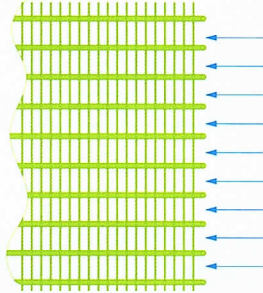
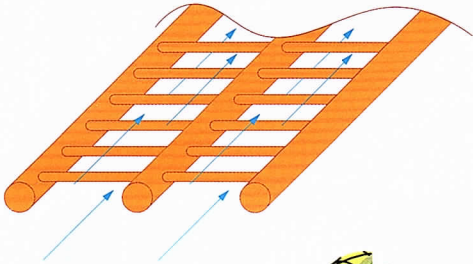


Feed Flow

Different types and configurations/ open channel

Parallel open channel

Diamond open channel

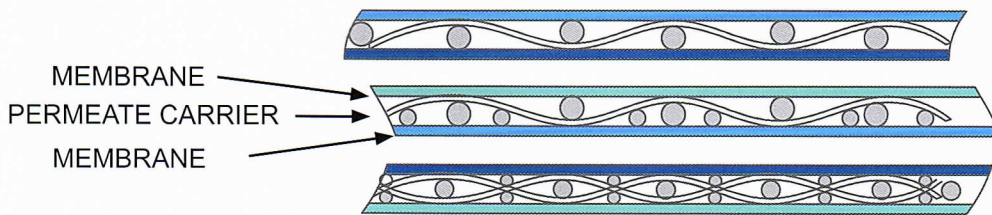


THE SELECTION PROCESS FOR THE OPTIMAL BUILD UP DEPENDS ON DEMAND

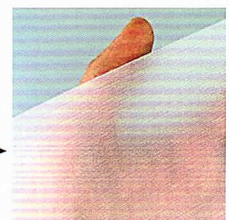
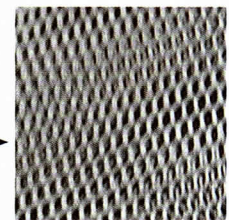
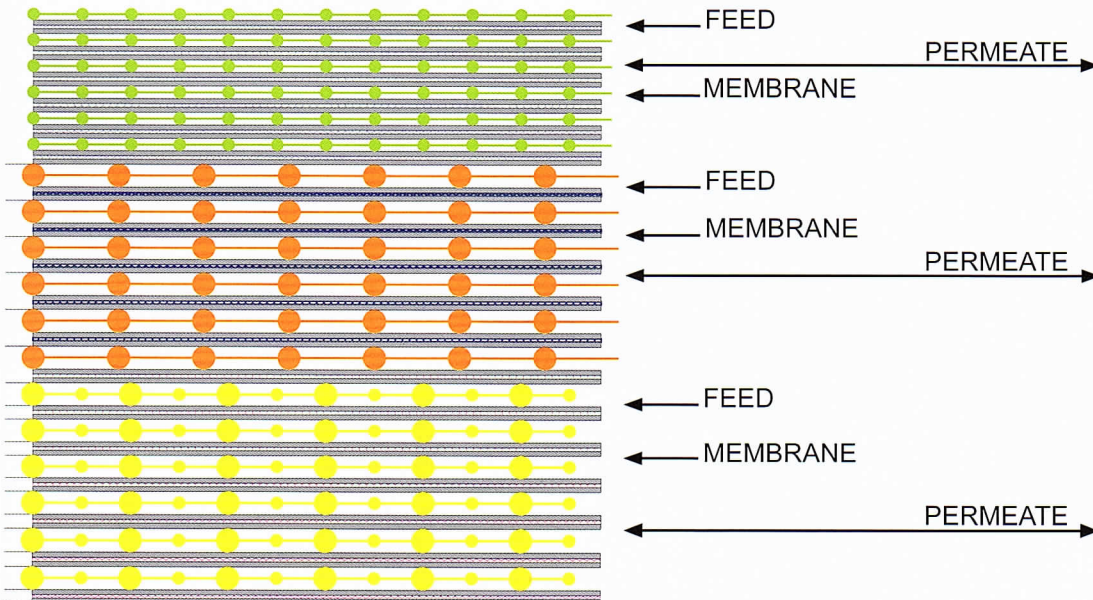
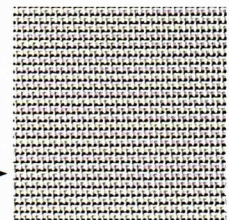


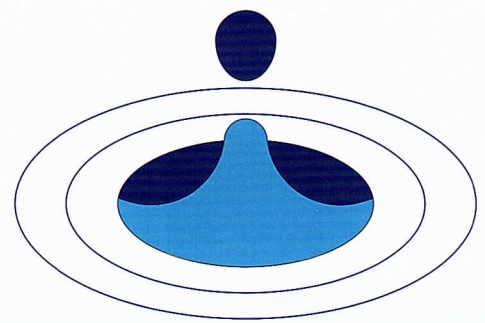
MEMBRANE CUSHION - open channel

For different applications from different materials. The membrane cushion is made up with a sheet known as the permeate carrier. This permeate carrier is sandwiched between two membranes. The outer diameter is sealed by ultrasonic welding of the three or more sheets together.

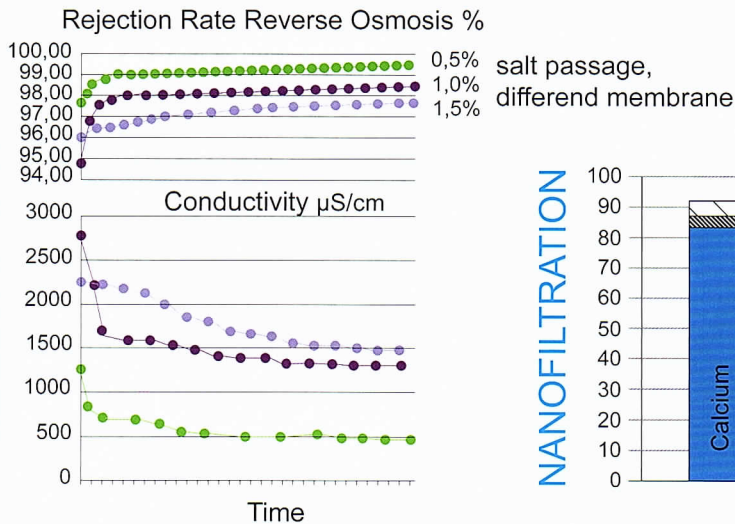


Permeate Carrier
Different Types

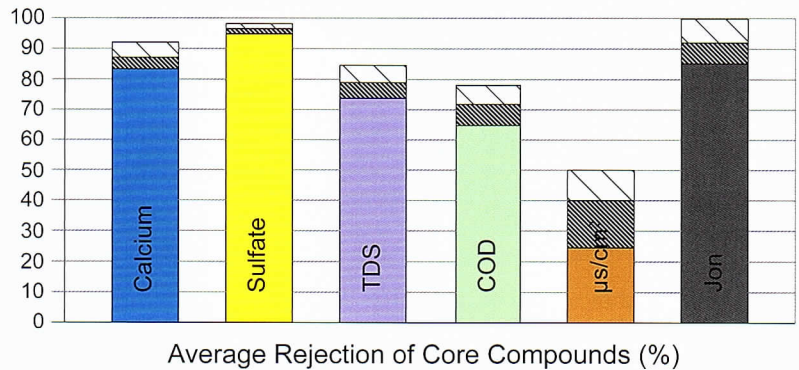




REVERSE OSMOSIS



NANOFILTRATION



Rochem advanced reverse osmosis and nanofiltration processes significantly increase the permeate recovery rate and reduces the volume of concentrate. Depending on the chemistry of the untreated feed water, the volume of concentrate produced can be reduced by at least 50% from the volume of a single pass RO treatment, improving waste water management and reducing operating costs. Reverse osmosis and nanofiltration technology applied to waste water treatment is part of an environmentally friendly and sustainable treatment system.

The R.T.S. reverse osmosis and nanofiltration membranes and the TS-elements provide a process that:

- Is a careful and effective use of assets and resources
 - Minimizes the burden on the environment
 - Is commercially feasible and affordable.

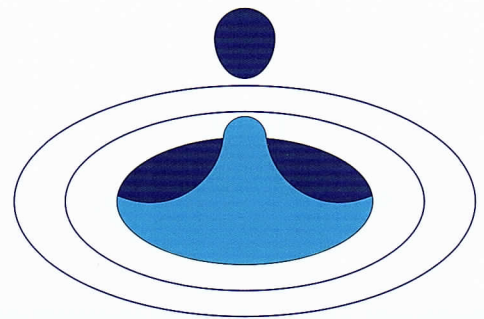
The R.T.S. "TS Triple S Modules" and the R.T.S. "PF Plate and Frame" modules are manufactured from the best and most sophisticated materials, for the customer's application. The pressure housing is made out of glass fiber up to 90 bar operating pressure and out of stainless steel up to 120 bar (316-316A). End flanges are made out of ABS, Ultem or stainless steel.

Membranes

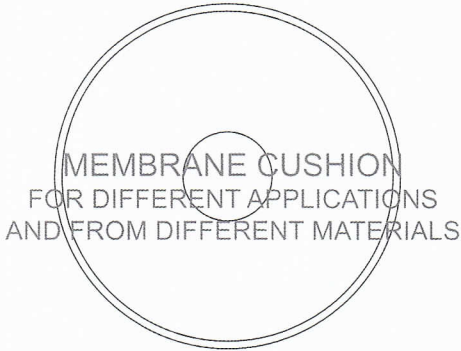
- R.T.S. uses DOW Filmtec/GE/Osmonics/Hydranautics for
- Micro-Ultrafiltration
 - Nanofiltration
 - Reverse Osmosis

ROCHEM®

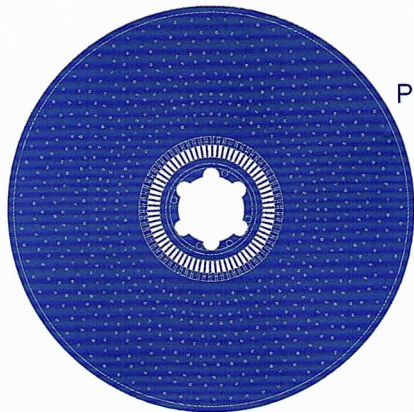
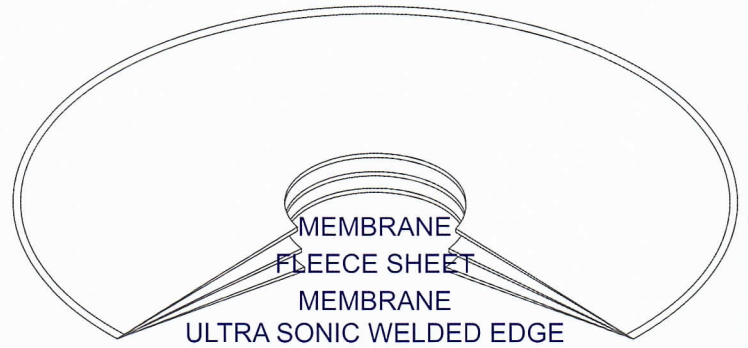
Technical Services



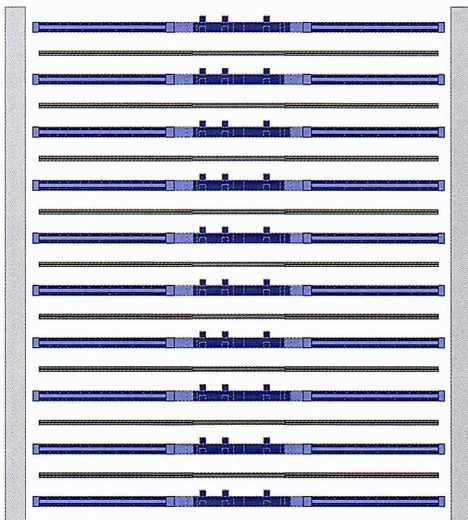
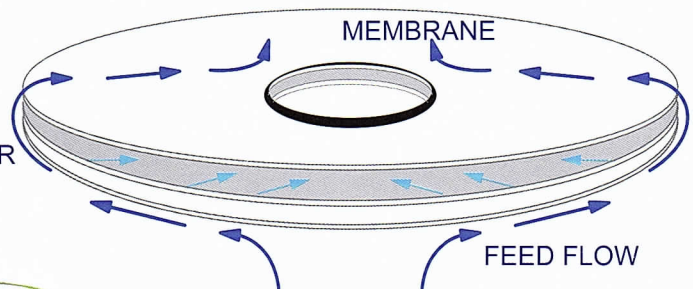
R.T.S. PF/ PLATE AND FRAME MODULE open channel



The membrane cushion is made up with a permeate carrier, this permeate carrier is sandwiched between two membrane sheets. The outer diameter is sealed by ultrasonic welding of the three or more permeate carriers together. The centre hole allows the permeate to flow into the permeate flow channels.

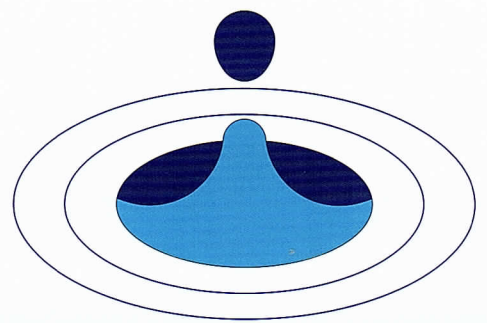


PERMEATE CARRIER
PERMEATE FLOW



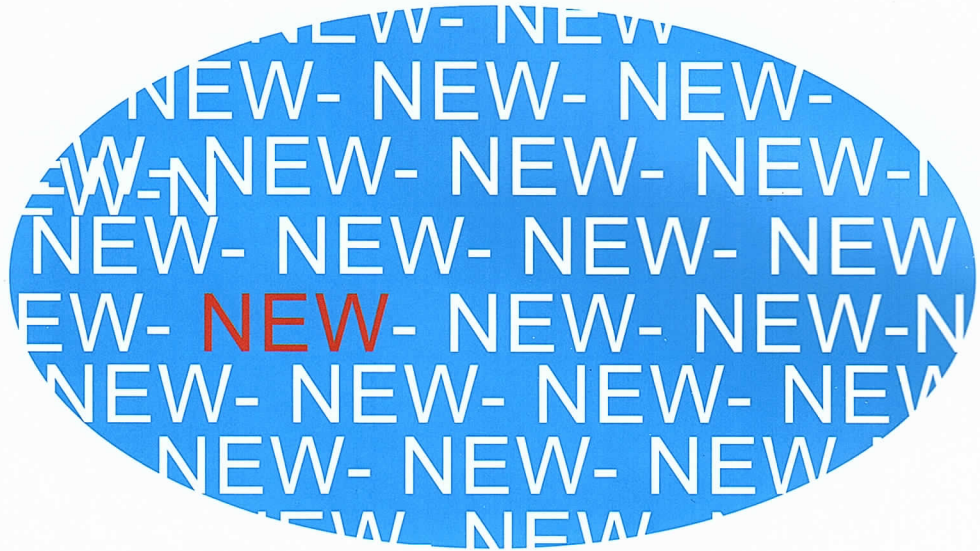
Depending on the type of membrane, the selective separation of certain individual substances or substance mixtures is possible. Important technical applications include the production of drinking water by reverse osmosis and in waste water treatment. With the help of UF and MF (Ultra/Microfiltration) it is possible to remove particles, colloids and macromolecules, so that waste-water can be disinfected in this way. This is needed if waste-water is discharged into sensitive waters.

PF/ PLATE AND FRAME MODULE



TRIPLE S - TS MODULE

OPEN CHANNEL-MEMBRANE-MODULES
ADVANCED TECHNOLOGY



SELECTIVE
SUBSTANCE
SEPARATION

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