

# CSTST-90



网管式反渗透膜(CSTST)是目前最新型的反渗透技术，特别适用于高浓度、高盐分废水的浓缩、回收和达标排放，它对进水水源的适应范围极广，在抗污染性能上有着传统RO无法比拟的优势。

CSTST is the latest technology in reverse osmosis, especially applied to the concentration, reuse or up-to-standard discharge of high salinity waste water. CSTST has incomparable advantages in anti-pollution performance compared with traditional RO, and it has a wide range of applicability to water source.

## 膜组件结构说明

膜片安装在8英寸的压力容器中，并且利用不锈钢拉杆和端面法兰固定起来。每二片膜片与产水隔网通过激光焊接形成膜垫，每张膜垫通过进水隔网与附近的膜垫分开，多片的膜垫和进水隔网依次螺旋卷制形成膜元件。进水由一端的密封板分布，均匀送到膜元件端面的各个位置。进水水流沿着水流通道流过膜组件，纯水渗透液透过膜垫通过中心收集装置外溢到拉杆内，随后从渗透液出口流出。浓缩液由另外一端的密封板引流到连接件的底端随后流出组件。

## STRUCTURE

CSTST membrane is mounted in an 8-inch pressure vessel and fixed with stainless steel central rod and end flanges. Every two membranes and permeate grid are welded by laser to form a membrane cushion. Membrane cushions are separated by the feed water grid, multi cushions and feed water grid rolled spirally to a membrane element. Feed flow is distributed to the membrane element of all parts through the top sealing plate. Pure water penetrates from the membrane cushions, collect into the central rod and then flows out from the permeate outlet. The concentrated flow is drained out of the membrane unit from the collector on the bottom sealing plate.

## CONSEPTEC CSTST 膜组件的核心技术

### 1. 给水流道的优化设计

ST膜元件结合了开放式流道和卷式元件设计上的优势，获得了一种具有狭窄且敞开的流道结构的膜元件。这个设计极大地优化了进水流道和膜的有效面积，很大程度上缓解了传统卷式膜的隔网很容易污堵和结垢的缺点。

### 2. 膜卷制方式的优化设计

CSTST膜在卷制方式上进行了改进：叶片缩短，增加叶片数目。缩短了淡水通道长度，减少淡水通道压力损失，尽量保持膜面不同地方水通量大小相等，降低浓差极化程度。

## CONSEPTEC CSTST Core Technology

### 1. Optimum Design of Feed Channels

ST membrane element combines the advantages on design of open channels and spiral wound membrane, narrow and open feed channels greatly optimize the hydrodynamic performance and membrane effective filtration area, to a large extent solve the fouling and scaling problems in traditional spiral wound membranes.

### 2. Optimum Design of Membrane Rolling Technology

CSTST has been improved in rolling technology, increased membrane plies but narrow area to short pure water channels, reduce pressure loss, and try to keep equal water flux at different parts of membrane, reduce concentration polarization.

## 技术优势

- 预处理简单，进水COD可高达3000 mg/l，氨氮可高达2000 mg/l
- 抗污染、耐高压，膜使用寿命长
- 膜的堆积密度高，占地更小
- CSTST膜组件压降更小，能耗更低
- 膜组件特殊的开放式流道设计，改善污堵和结垢趋势，易于清洗且性能恢复更好
- 密封件更少，安装维护更容易
- 系统灵活，标准模块化配置

## Advantages

- Simple pretreatment, feed COD increased to 3000mg/l, feed ammonia nitrogen can be up to 2000mg/l.
- Anti-pollution, high pressure resistance, long service life of membrane.
- High stacking density of membrane, smaller occupation.
- Less pressure loss and lower power consumption of CSTST membrane module.
- Open channels design of membrane module, improves fouling and scaling process, easy cleaning and better performance recovery.
- Less seals, easier installation and maintenance.
- Flexible system and standard modular configuration.

## CSTST-90 技术参数表/ CSTST-90 Technical parameters

膜元件结构*	膜片材质	有效膜面积	标准脱盐率**	进水流量	产水流量	最大压差
Membrane structure	Membrane material	Effective filtration area	Standard desalination rate	Feed flowrate	Permeate flowrate	Max. differential pressure
卷式膜组件 耐高压玻璃钢外壳 Spacer tube, high pressure FRP cylinder	聚酰胺复合 抗污染膜 Fouling resistant polyamide composite film	27m <sup>2</sup> (290ft <sup>2</sup> )	≥99%	6-12m <sup>3</sup> /h	≤1m <sup>3</sup> /h	1.2bar
最高操作压力	最高连续运行温度	最佳运行PH范围	化学清洗PH范围 @40°C	耐受余氯	进出水接口尺寸	产水接口尺寸
Max. operating pressure	Max. continuous operating temperature	Optimum operation range of PH	The pH range for CIP is @40°C	Residual chlorine	Inlet&outlet size	Permeate outlet size
90bar	40°C	6-9	2-12	≤0.1ppm	1 "拷贝林 1 "Coupling 33.7 mm	11.6*9mm 软管接头 (2个) Hose fitting (x2)

\* 盐水密封圈安装在流向高压侧/膜元件进口侧

Install the saltwater seal on the high-pressure side/membrane inlet side.

\*\* 所示的脱盐率为标准脱盐率，测试条件为在797psi ( 5.5MPa ) 条件下，NaCl浓度32000mg/l，回收率为8%，温度为25°C

The indicated desalination rate is the standard desalination rate, tested under the conditions of 797psi (5.5MPa) pressure, NaCl concentration of 32000mg/l, recovery rate of 8%, and temperature of 25°C.

单支产水量可能在±15%的范围变化，实际产水量根据进水水质的不同会有所差异

The single water production of each unit may vary within a range of ±15%, and the actual water production may vary depending on the different inlet water quality.

