



启瑞水处理
QIRUI WATER TREATMENT
专业·提升客户利益

南京启瑞水处理设备工程有限公司

NANJING QIRUI WATER TREATMENT EQUIPMENT & ENGINEERING CO., LTD.

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启瑞水处理
QIRUI WATER TREATMENT

- 制药(食品)用水设备
- 纯水及超纯水设备
- 废水深度处理及中水回用设备



南京启瑞水处理设备工程有限公司

NANJING QIRUI WATER TREATMENT EQUIPMENT & ENGINEERING CO., LTD.



企业简介 BRIEF INTRODUCTION TO ENTERPRISES

南京启瑞水处理设备工程有限公司是集研发设计、生产制造、安装调试、培训咨询为一体的水处理设备专业制造商。启瑞企业是中国膜工业协会会员单位，中国医疗器械行业协会会员单位，南京师范大学就业实习基地，并与江苏东南大学、南京理工大学、江苏省环科院等科研院所保持长期的技术交流与合作。

启瑞企业技术力量雄厚，拥有先进的生产设备与完善的检测手段。主要产品有：反渗透装置、多效蒸馏水机、纯蒸汽发生器、配液罐、列管式换热器、卫生级储罐、纳滤膜设备、超滤膜设备、微滤膜设备、EDI电除盐装置、电渗析器、离子交换器、过滤器、换热器、不锈钢非标制品等。

启瑞企业长期服务于国内生物制药、食品饮料、医疗卫生和精细化工等行业，为客户提供符合中国GMP、美国FDA、欧盟COS认证标准的纯化水及注射用水系统整体解决方案，产品遍布全国各地并远销澳大利亚、哈萨克斯坦、土库曼斯坦、尼日利亚、马拉维、蒙古、东南亚等国家与地区。同时承接各类纯水及超纯水制备工程，工业废水深度处理及中水回用工程，物料浓缩分离工程。

经销各类水处理配件，库存大，品种多，规格全，质量可靠。

欢迎新老用户前来考察、选型、洽谈！

Nanjing QiRui Water Treatment Equipment & Engineering Co., Ltd. is a professional manufacturer in water treatment equipments, including research & development and design, production and manufacturing, installation and debugging, training and consulting into a whole. QiRui Corporation is a member of Membrane Industry Association of China, a member of China Association for Medical Devices Industry and the obtain-employment base of Nanjing Normal University. In the meanwhile, it keeps a long-term technical communication and cooperation with Southeast University, Nanjing University of Science and Technology, scientific research institutes such as Jiangsu Provincial Academy Of Environmental Science.

QiRui Corporation has strong technical strength and owns advanced production equipments and perfect detection means. The main products are: Reverse osmosis device, Multi-efficiency distilled water machine, Pure steam generator, Liquid dosing tank, Shell and pipe type heat exchanger, Sanitary storage tank, Nano-filtering membrane equipment, Ultra-filtering membrane equipment, Micro-filtering membrane equipment, EDI electric desalting device, Electro-osmosis device, Ion exchanger, Filter, Heat exchanger, Stainless steel non-standard product, etc.

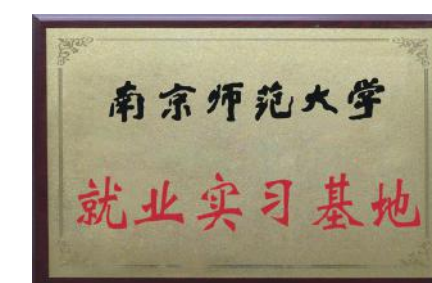
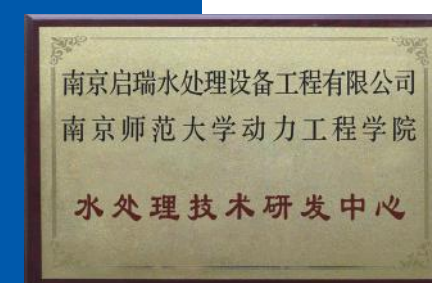
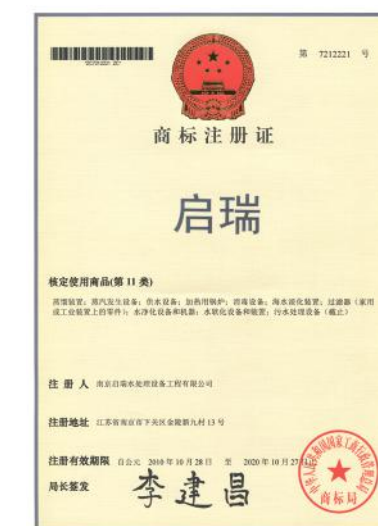
QiRui Corporation has served the national industries such as biological pharmacy, food beverage, medical sanitation, fine chemical industry and the like for a long time, and has provided the whole solutions of purified water and injection water system in accordance with the Chinese GMP, American FDA and European COS standards. In the meanwhile, it produces the products that spread all over China and are sold in the countries and areas such as Austria, Kazakstan, Turkmenistan, Nigeria, Malawi, Mongolia, Southeast Asia, and the like. QiRui Corporation simultaneously carries on various purified water and super-purified water preparation projects, deep treatment of industrial wastewaters, normal water recycling projects, and material concentration & separation projects.

QiRui Corporation can sell various water treatment fittings which have large storage, multiple types, full specifications and reliable quality.

New and old clients are warmly welcomed for reviewing, selection and consulting.



企业荣誉 HONORS OF ENTERPRISES



反渗透纯化水系统 REVERSE OSMOSIS PURIFIED WATER SYSTEM



黑龙江摇篮乳业股份有限公司 15m³/h二级反渗透纯化水系统
15m³/h two-stage reverse osmosis purified water system of Heilongjiang Yaolan Dairy Co., Ltd.



(哈萨克斯坦)阿拉木图市ALPHARMACHIM制药厂 3m³/h二级反渗透纯化水系统
3m³/h two-stage reverse osmosis purified water system of ALPHARMACHIM Pharmaceutical Factory,Alma-Ata, Kazakhstan

反渗透纯化水系统 REVERSE OSMOSIS PURIFIED WATER SYSTEM



辽宁大石药业有限公司 (辽宁本溪北方药谷) 1m³/h二级反渗透纯化水系统
1m³/h two-stage reverse osmosis purified water system of Liaoning Dashi Pharmaceutical Co.,Ltd.
(Beifang Medicin Valley,Benxi ,Liaoning)



香港康琪壹佰有限公司 15m³/h二级反渗透纯化水系统
15m³/h two-stage reverse osmosis purified water system of Hongkong Kang Q.Y.Bai Biological Technology Co., Ltd.

二级反渗透装置 SECONDARY REVERSE OSMOSIS UNIT

反渗透是八十年代发展起来的一种膜分离技术，它主要利用半透膜的渗透原理，通过一定的方式给它施加一种压力，反于自然渗透方向的力，使浓溶液中的水向稀溶液中渗透，这种方式称为反渗透。由反渗透元件组成的装置为反渗透装置。

Reverse osmosis is a kind of membrane separation techniques which was developed in 1980s, it mainly uses the osmosis principle of the semipermeable membrane, and brings a kind of pressure that opposing to the force in natural osmosis direction in a certain way, then the water in the strong solution osmosizes into the thin solution, this is reverse osmosis. The unit which is made up of reverse osmosis components is reverse osmosis unit.

二级反渗透装置制备纯化水工艺

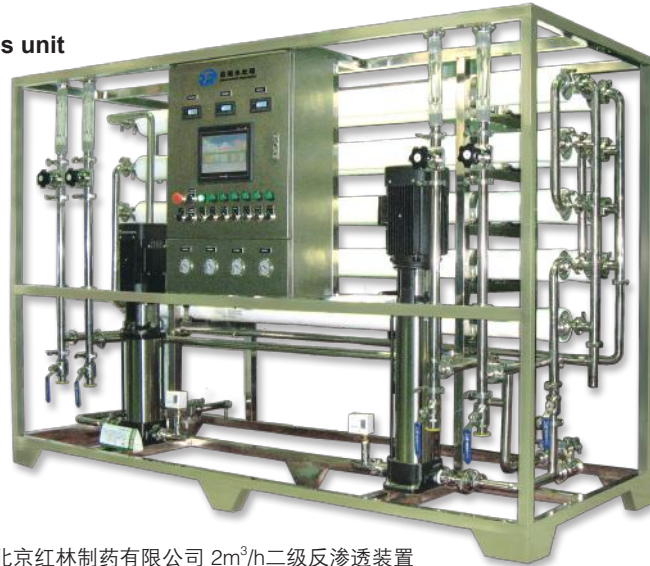
Water purification process by secondary reverse osmosis unit

特点

- ◆适用于原水含盐量较低的地区
- ◆产水总碳量(有机物)较低
- ◆无污染排放
- ◆结构较为简单

Features

- ◆Applied in the areas where the raw water contains little salt
- ◆Total quantity of carbon (organism) is low
- ◆Non-contamination emission
- ◆Its structure is simple

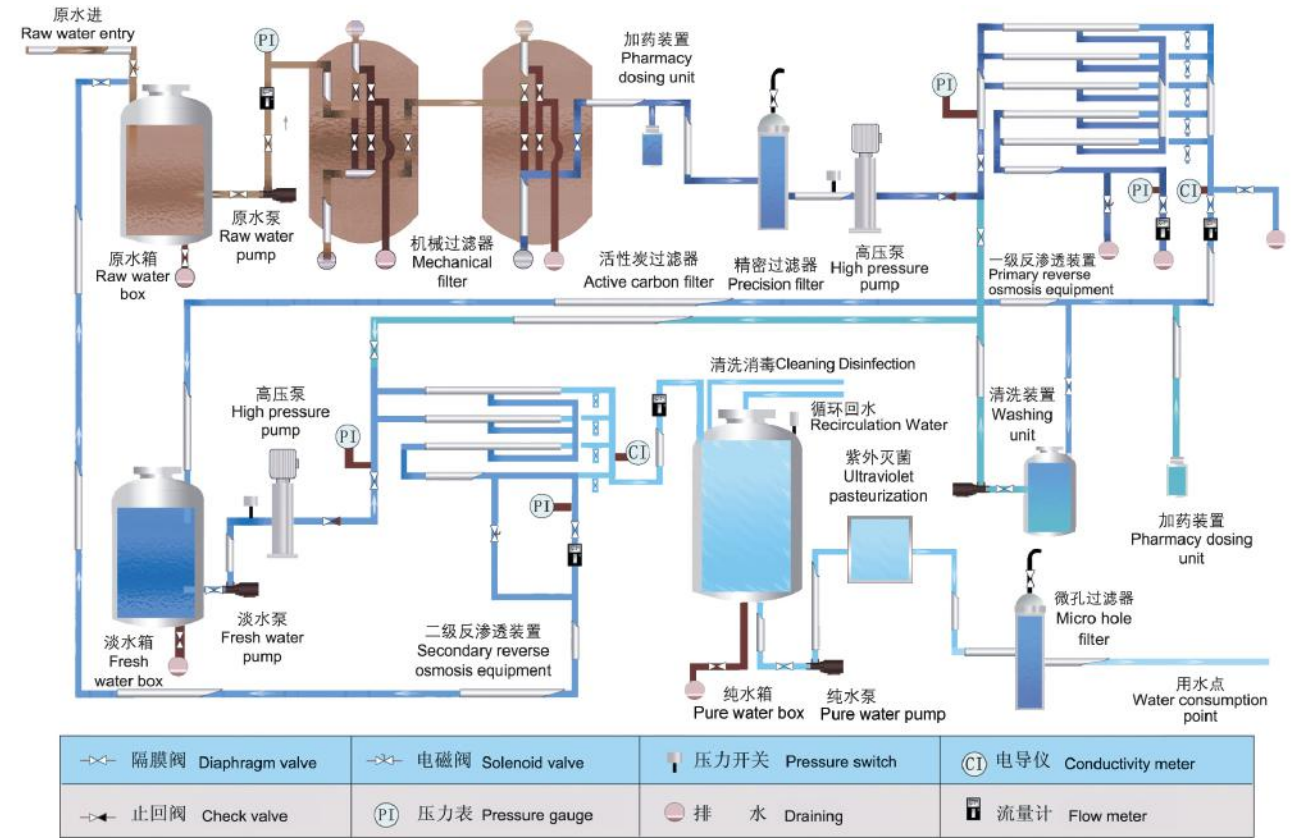


北京红林制药有限公司 2m³/h二级反渗透装置
2m³/h two-stage reverse osmosis device of Beijing Honglin Pharmaceutical, Inc.



上海安久生物科技有限公司 10m³/h二级反渗透装置
10m³/h two-stage reverse osmosis device of Shanghai Anju Biotechnology Co., Ltd.

纯化水制备系统工艺流程图/二级反渗透装置 Process flow chart of purified water preparation system /Secondary reverse osmosis unit



主要技术数据表 Primary technical data sheet

型号Type	项目Item	产水量(m³/h) Water output	最小进水(m³/h) Minimum water intake	脱盐率(%) Desalination rate	工作水温(°C) Temperature of the working water
FSJ41X-0.3XB-2		0.3	1.6	98	5-35
FSJ41X-0.5XB-2		0.5	2.2	98	5-35
FSJ42X-1XB-2		1	2.8	98	5-35
FSJ42R-2XB-2		2	4.1	97	5-35
FSJ43R-3XB-2		3	6.5	97	5-35
FSJ43R-4XB-2		4	7.8	97	5-35
FSJ82R-6XB-2		6	12.5	97	5-35
FSJ82R-8XB-2		8	15	97	5-35
FSJ83R-10XB-2		10	15	97	5-35
FSJ83R-15GB-2		15	31	97	5-35
FSJ84R-20GB-2		20	38	97	5-35
FSJ85R-25GB-2		25	41.25	97	5-35
FSJ86R-30G-2		30	47.5	97	5-35
FSJ86R-50G-2		50	79.5	97	5-35
FSJ86R-100G-2		100	155	97	5-35

一级反渗透装置+混床 PRIMARY REVERSE OSMOSIS UNIT+MIXED BED

一级反渗透装置+混床制备纯化水工艺 Water purification process by first-grade reverse osmosis device+mixed bed equipment

特点

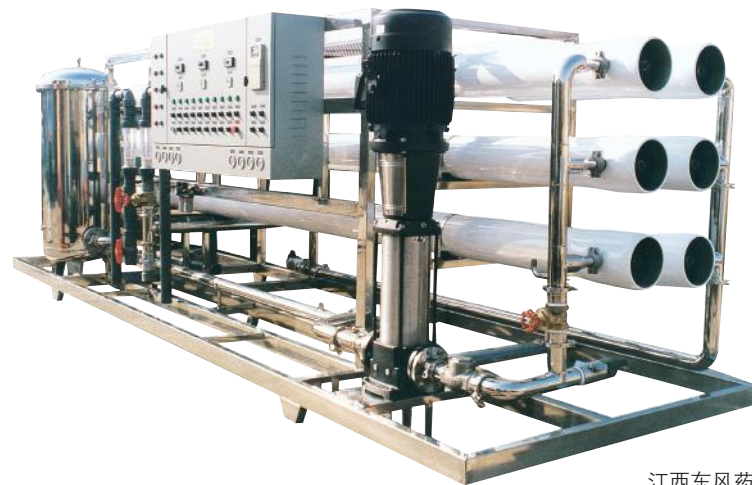
- ◆适用于原水含盐量较高的地区
- ◆产水电导率较好
- ◆一次性投资较低
- ◆运行成本较低
- ◆稳定性较好

Features

- ◆Applied in the areas where the salinity of the raw water is high
- ◆The electric conductivity of the water output is good
- ◆Low expendable investment
- ◆Low operating cost
- ◆Good stability



江西金桥药业有限公司 6m³/h一级反渗透装置
6m³/h one-stage reverse osmosis device of Jiangxi Jinqiao Pharmaceutical, Inc.

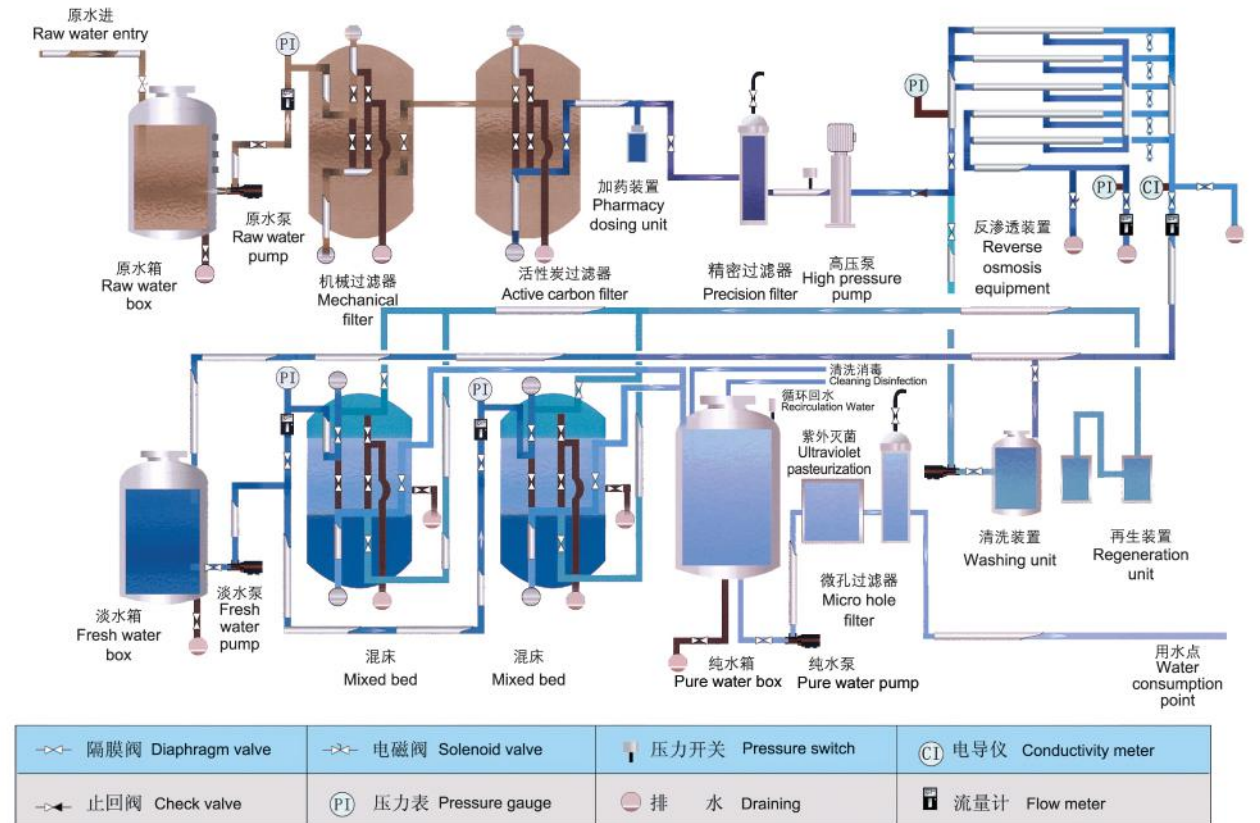


江西东风药业股份有限公司 30m³/h一级反渗透装置
30m³/h one-stage reverse osmosis device of Jiangxi Dongfeng Pharmaceutical Co., Ltd.



泛太克(中国)有限公司 50m³/h一级反渗透装置
50m³/h one-stage reverse osmosis device of FANTAC Co.,Ltd.(China)

纯化水制备系统工艺流程图 / 一级反渗透装置 Process flow chart of purified water preparation system / Primary reverse osmosis unit



主要技术数据表 Primary technical data sheet

型号Type	项目Item	产水量(m³/h) Water output	最小进水(m³/h) Minimum water intake	脱盐率(%) Desalination rate	工作水温(°C) Temperature of the working water
FSJ41X-0.3XB		0.3	1.2	98	5-35
FSJ41X-0.5XB		0.5	2.0	98	5-35
FSJ42X-1XB		1	2.5	98	5-35
FSJ42R-2XB		2	3.6	97	5-35
FSJ42R-3XB		3	5.0	97	5-35
FSJ42R-4XB		4	5.3	97	5-35
FSJ82R-6XB		6	11	97	5-35
FSJ82R-8XB		8	13	97	5-35
FSJ83R-10XB		10	15	97	5-35
FSJ83R-15GB		15	20	97	5-35
FSJ84R-20GB		20	26	97	5-35
FSJ85R-25GB		25	35	97	5-35
FSJ86R-30G		30	40	97	5-35
FSJ86R-50G		50	67	97	5-35
FSJ86R-100G		100	135	97	5-35

二级反渗透装置+EDI(CDI) SECONDARY REVERSE OSMOSIS UNIT+EDI(CDI)

CDI概述 Introduction of CDI

CDI是CEDI (Continuous electroedionization) 的简称, 意为“连续电去离子”, 是一种新型的超纯水制备技术, 放在反渗透系统后深度除盐, 可制取15-18MΩ·cm超纯水。

CDI is an abbreviation of CEDI (Continuous electroedionization), which is a novel super-purified water preparing technology. After the CDI device is arranged in the reverse osmosis system and the deep desalting is carried out, the super-purified water of 15-18MΩ·cm can be prepared.

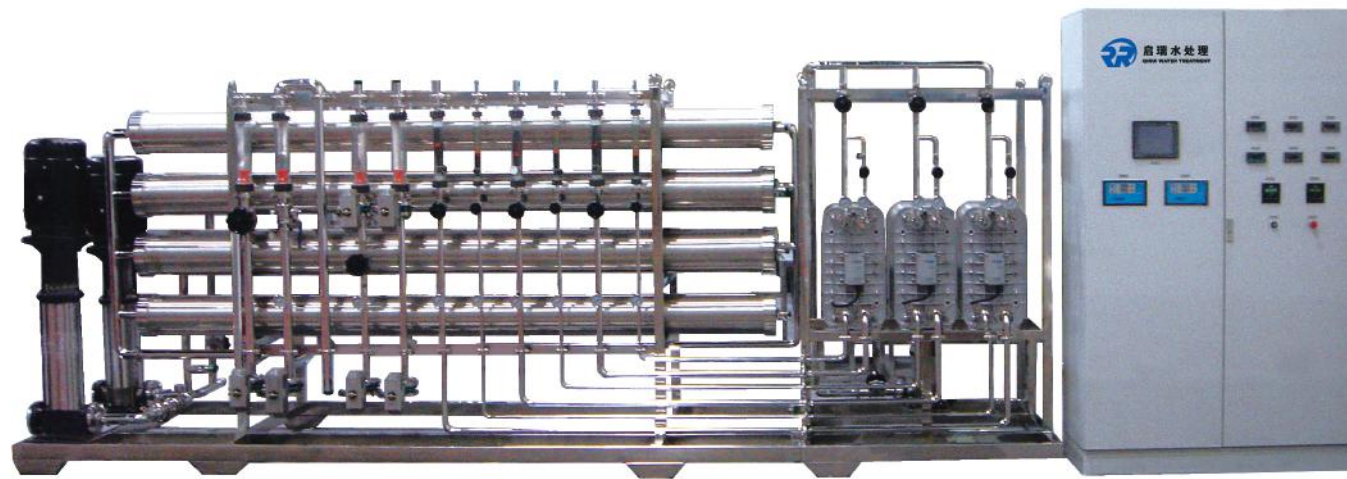
CDI原理 Principle of CDI

CDI装置是将离子交换树脂充夹在阴/阳离子交换膜之间形成CDI单元, 利用树脂制备高纯水, 利用水电解产生H⁺、OH⁻离子在膜堆内再生失效的树脂。

CDI device is characterized in that the ion exchanging resin is filled between anion exchanging membrane and the cation exchanging membrane so as to form a CDI unit, the highly purified water is prepared by the resin, the ions H⁺ and OH⁻ generated by water electrolysis are utilized so as to re-generate failed resins in membrane stacks.

CDI与EDI的区别 Difference between CDI and EDI

CDI	EDI
无需注入盐水循环 Brine does not need to be filled for recycling	需要注入盐水循环 Brine needs to be filled for recycling
用专利树脂技术来降低膜组电阻值 The patent resin technology is used for reducing the resistance value of the membrane stack.	用精盐来降低膜组电阻值 The resistance value of the membrane stack can be reduced by refined salts.
浓水可直接回用 Concentrated water can be directly recycled.	浓水必须先去除氯离子才能回用 Concentrated water can be recycled only after the chlorine ions are removed firstly.
无极水排放 No discharge of polar water	有极水排放 Polar water is discharged.
有高温专用模块可供选用 Special high-temperature module can be selected.	无高温专用模块设计 No special high-temperature module is designed.



重庆三峡云海药业有限责任公司 10m³/h二级反渗透 + EDI
10m³/h two-stage reverse osmosis and EDI of Chongqing Three-gorges
Yunhai Pharmaceutical Co.,Ltd.

二级反渗透装置+EDI(CDI) SECONDARY REVERSE OSMOSIS UNIT+EDI(CDI)

CDI热水消毒模块 CDI hot-water sterilizing module

CDI瞬间升降温热水消毒模块通常使用于反渗透系统之后, 去除RO水中微量的二氧化碳、残余盐、二氧化矽、硼及总有机碳等离子。广泛应用于生物科技、制药和其它通常必须遵守并符合USP、EP和JP规定的行业。在这些应用行业当中, 要求用热水进行快速的消毒, 而不使用化学药剂。其优异性能表现为:

- ◆在85℃时进行热水消毒
- ◆无需缓升/缓降温度
- ◆消毒压力提高到了2.0bar/30psi.
- ◆采用双O型密封圈进行密封, 确保膜堆在运行中不发生泄漏。
- ◆在7bar、45℃条件下, 可连续运行。
- ◆制造材料符合美国食品及药物管理局 (FDA) 的要求。

The CDI instantaneous temperature increasing/decreasing sterilizing module is generally used after the reverse osmosis system and can remove the carbon dioxide, remaining salt, silicon dioxide, boron, organic carbon and other ions of slight quantity in reverse osmosis water. The CDI instantaneous temperature increasing/decreasing sterilizing module can be widely applied to the industries such as biotechnology, pharmacy and other industries which must comply with the USP, EP and JP. In the above industries, the hot water is needed for quick disinfection, and the chemical agent is not used. The CDI instantaneous temperature increasing/decreasing sterilizing module has the following excellent performances:

- ◆Hot water disinfection is carried out under the temperature of 85 °C.
- ◆The temperature does not need to be increased or decreased slowly.
- ◆The disinfection pressure is improved to 2.0bar/30psi.
- ◆Dual O-shaped sealing rings are used for sealing, thus ensuring no leakage occurs during the running process of the membrane stack.
- ◆The module can run continuously under the conditions of 7bar and 45 °C.
- ◆The manufacturing material complies with the requirements of Food and Drug Administration (FDA).

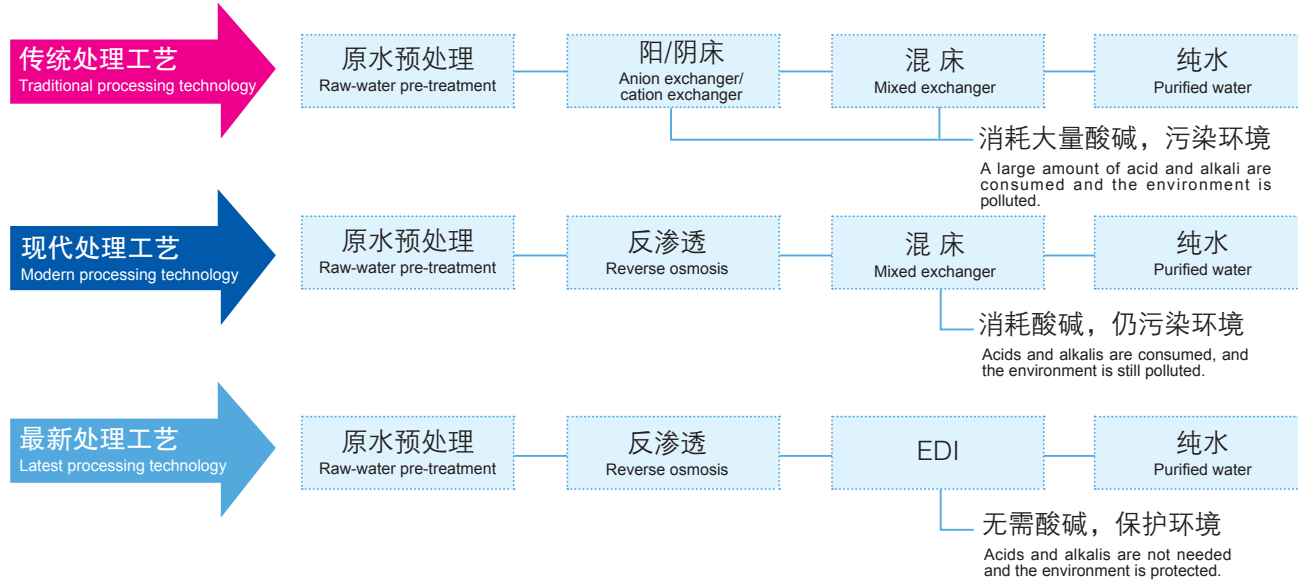
*在USP24标准的注射用水中, 应用RO-EDI-RO工艺, 将第二级RO安装在EDI之后作为最后的膜分离应用。

* In water used for injection and complying with the USP24 standard, the RO-EDI-RO technology is used so that the second stage of RO (reverse osmosis) system is installed after the EDI to be used as the final membrane separation application.



重庆还少堂生物技术有限公司 6m³/h二级反渗透+EDI
6m³/h two-stage reverse osmosis and EDI of Chongqing
Huanshaotang Bio-Tech Co., Ltd.

一级反渗透装置+EDI (CDI) PRIMARY REVERSE OSMOSIS UNIT+EDI(CDI)



CDI与混床的区别 Difference between CDI and mixed exchanger

CDI	混床 Mixed exchanger
无需酸碱再生 Regeneration of acid and alkali is not needed.	需要酸碱再生 Regeneration of acid and alkali is needed.
零排放, 无废水排放 Zero discharge; no discharge of wastewater	需清洗, 有废水排放 The cleaning is needed, and wastewater is discharged.
连续运行, 水质稳定 The running is continuous and the water quality is stable.	需要停机再生, 交换终端离子容易泄露 Shut-down is needed for regeneration and the exchanging terminal ions are easy to leak.
采用模块化设计, 容易扩展 Modularization design is adopted so as to facilitate extension.	不能满足用户未来的扩展要求 Future extension requirement of the user is not met.
占用空间小 Less space is occupied.	占用空间大 Large space is occupied.



南京南大药业有限责任公司3m³/h一级反渗透 + EDI
3m³/h one-stage reverse osmosis and EDI
of Nanjing NTU Pharmaceutical Co.,Ltd.

一级反渗透装置+EDI (CDI) PRIMARY REVERSE OSMOSIS UNIT+EDI(CDI)

预处理工艺特点 Characteristics of pre-processing technology

CDI技术替代混床技术, 对进水要求非常严格。预处理工艺复杂, 原水进入CDI系统之前为了防止污染树脂和膜, 以及膜面结垢, 保护膜性能, 应先经过过滤、吸附、软化、脱气等处理。

The mixed exchanging technology is replaced by CDI technology which has strict requirements on the feed water. The pre-processing technology is complex. Before the raw water enters the CDI system, in order to prevent the resin and membrane from being polluted, prevent the membrane surface from scaling and protect the membrane performance, the treatments of filtering, adsorbing, softening, degassing and the like should be carried out sequentially.

◆软化 Softening

在RO-CDI系统中使用阻垢剂会使透过RO膜的硬度增加, 从而进入CDI系统中, 为了使CDI清洗频率最小, CDI进水硬度应该最小。

The scale inhibitor can be used in the RO-CDI system to increase the hardness of the RO membrane and lead the RO membrane to enter the CDI system. In order to make the cleaning frequency of the CDI minimum, the water feeding hardness of the CDI should be minimum.

◆脱气 Degassing

为了得到高电阻率的高质量的纯水, 进水中的气体也要除去, 其中最主要的是除去CO₂。低含量的CO₂可以使CDI模块更有效的去除SiO₂。脱气单元最好置于RO之后。

In order to obtain purified water with high resistivity and high quality, the gas in the feed water should be removed, wherein most of the CO₂ should be removed. The CO₂ with low content can lead the CDI module to remove the SiO₂ more effectively. The degassing unit may as well be arranged behind the RO.



土库曼斯坦 IRON ROSE LIMITED 1m³/h一级反渗透 + EDI
1m³/h one-stage reverse osmosis and EDI of IRON ROSE LIMITED, Turkmenistan

主要配件 Main accessories



膜(FILMTEC,美国)
Membrane (FILMTEC, US)



聚丙烯膜 (PP)折叠筒式滤芯
Polypropylene film (PP) foldable bowl filter element



丹麦格兰富高性能多级泵
Denmark high performance multi stage pump



液位控制器
Liquid level controller



液位控制器
Liquid level controller



树脂
Resin



计量泵
Metering pump



玻璃钢桶
Glass steel barrel



RO膜专用药剂
RO membrane agent



电磁阀
Electromagnetic valve



压力(差)开关
Pressure switch



50GPD家用 / 商用纯水机
50GPD water purifier for domestic & commercial use



电导成套仪表
Electric conductance outfit



压力表(SKON 台湾)
Pressure gauge(SKON Taiwan)



流量成套仪表(+GF+SIGNET)
Flow outfit (+GF+SIGNET)



流量计
Flow meter



SOZ-5G, 10G, 16G 臭氧发生器
SOZ-5G, 10G, 16G Ozonator



紫外线灭菌器
Ultraviolet rays sterilizer



卫生级不锈钢管阀件
Sanitation-graded stainless pipe valves