EDI装置系统
EDI Device System

一、简介
I Brief introduction

EDI是水处理技术上一项革命性技术。该技术应用电再生离子交换除盐工艺取代传统混合离子交换除盐工艺DI。通过离子交换树脂及选择性离子膜达到高脱盐效果，与反渗透结合的联合工艺使产水水质可达10–15MΩ · cm（25℃）的高纯水。

EDI采用标准组件设计可根据要求组合成任意系统，产水量可达1–450m^3/h。

EDI is a sort of technology of revolutionary significance for water treatment. It applies the electro- regeneration ion exchange desalinating technology to replace the conventional mixed ion exchange desalinating process (DI). Based on a combined process, which integrates the ion exchange resin and the selective ion membrane to achieve high desalinating effect with the reverse osmosis, this technology enables the product water quality to reach 10-15MΩ•cm（25℃）for high purity water.
EDI, adopting a standard modular design, can be grouped into varied systems as it may require, with water yield ranging from 1-450m^3 per hour. .



二、工作原理
II Operating principle

供给原水进入EDI系统，主要部分流入树脂/膜内部，而另一部分沿膜板外侧流动，以洗去透出膜外的离子。

树脂截留水中的溶存离子。

被截留的离子在电极作用下，阴离子向正极方向运动，阳离子向负极方向运动。

阳离子透过阳离子膜，排除树脂/膜之外。

阴离子透过阴离子膜，排除树脂/膜之外。

浓缩了的离子从废水流路中排出。

无离子水从树脂/膜内流出。



Most of the raw water, that feeds the EDI system, flows inside the resin and membrane, and the rest of it flows along the external sides of the membrane boards to wash away the ions which have permeated the membrane.
The resin holds back remnants of the soluble ions in water.
Of the trapped ions, the anions, under the effect of electrode, move toward the direction of positive pole, and the cations move toward the negative direction.
The cations, through the cation membrane, shall be expelled from the resin /membrane.
The anions, through the anion membrane, shall be expelled from the resin /membrane.
The concentrated ions shall be expelled from the waste fluid passage.
The deionized water flows out from the resin and membrane.

三、EDI产品优越性

III EDI advantages

电子混床（EDI）产品是21世纪革命性的新技术，用EDI工艺系统代替了传统的EDI混合树脂床来制造去离子水。能极大的提高生产力，无“三废”污染。

EDI设备制取纯化水再生不需添加任何化学酸、碱药品，极大降低了生产成本。

EDI设备再生时不需要关闭制水系统，可连续运行或间歇运行。

EDI产水质量稳定，产水电阻可达10-15兆欧（MΩ·cm）且操作简单。

EDI模块在市场上每单位流量中最小、最轻；因此EDI趋于紧凑，产水质量一致，所需能源少，资金的使用经济-节约运行费用。

EDI is a type of new technology with revolutionary significance of the 21st century, which has replaced the conventional process of mixed resin bed (DI) to produce deionized water. This new technology, without the pollution of "three wastes", has greatly raised the productivity.

No chemical acid and alkali products shall be added for the EDI regeneration of purified water, thus greatly reducing the cost.

The water preparing system, in the process of EDI regeneration, shall not be required to be closed, thus being allowed to operate continuously or run intermittently.

EDI method guarantees a stable quality of product water, and the resistance of water preparation can be up to 10 to 15 megohm (MΩ•cm), and it is simple to operate as well.

The EDI module, based on the calculation of its discharge per unit, is the smallest and the lightest one to be available in the market, which, therefore, tends to be compact, consistent in the quality of product water energy-saving, economic and less costly in operation.

四、规格

IV Specifications

型号 Model	HSEDI-6	HSEDI-11	HSEDI-23	HSEDI-34	HSEDI-45	HSEDI-68
最大水量 Maximum water yield	6m³/h	11m³/h	23m³/h	34m³/h	45m³/h	68m³/h
膜组 Membrane modulus (10NPURE) LX-X	1-2	2-4	4-8	6-12	8-16	12-24
管径 Pipe diameter	1.5"	2"	3"	4"	4"	6"
配管材料 Piping material	SCH#80 UPVC管 UPVC pipe	SCH#80 UPVC管 UPVC pipe	SCH#80 UPVC管 UPVC pipe	SCH#80 UPVC管 UPVC pipe	SCH#80 UPVC管 UPVC pipe	SCH#80 UPVC管 UPVC pipe
尺寸（公分） Dimension (cm)	198WX 107DX183H	137WX 234DX213H	315WX 151DX213H	174WX 404DX213H	183WX 251DX334H	213WX 259DX425H

注：以上型号规格为采用EDI工艺参数，表中设备尺寸为EDI本体尺寸。

Note: The above model specifications refer to EDI technological parameters only. The dimensions of equipment listed in the table refer to EDI body size.

五、产水水质

V Product water quality

电阻率 Resistivity	≧10MΩ•cm	≧15MΩ•cm	回收率 Recovery	90–95%

六、进水要求

VI Feeding water requirements

LX膜堆的进水必须是反渗透(RO)产品水，其电导率应小于40μS/cm（含CO_2和硅）。

The feeding water for LX membrane stack must be the reverse osmosis (RO) water, of which the conductivity shall be less than 40μS/cm (containing CO_2 and silicon).

电导仪率 Conductivity	2–30 μ S/cm
CO_2	≦0.05PPm
总硬度 Total hardness	≦1.0PPm 建议≦1.0PPm ≦1.0PPm to be suggested
温度 temperature	5–35℃
二氧化硅 Silica	≦0.05PPm
二氧化碳 Carbon dioxide	≦5PPm
氧化剂 Oxidizing agent	CL_2≦0.01PPm O_2≦1.0PPm 建议值为零 CL_2≦0.01PPm O_2 ≦1.0PPm The suggested value is zero
铁（Fe^{3+}） Iron（Fe^{3+}）	< 0.01PPm 建议为零 < 0.01PPm zero to be suggested
锰（Mn^{4+}） Manganese（Mn^{4+}）	< 0.01PPm 建议为零 < 0.01PPm zero to be suggested
浓水和极水的出口压力必须低于产品水的出口压力 The outlet pressure of thick water and electrode rinse must be lower than the one of product water	
PH值 PH value	6–9（最佳范围7–8） 6–9（optimal range 7–8）
总有机磷 Total organic phosphorus	≦0.05PPm 建议为零 ≦0.05PPm zero to be suggested