



PRODUCT MANUAL

Electrodeionization (EDI) Modules

2025

Shanghai CM Environmental Technology Co., Ltd.

About CM EDI

Shanghai CM Environmental Technology Co., Ltd. is a technology enterprise specializing in the R&D as well as production of EDI. It has preceded in the product technology world-wide, with a senior R&D and production team who has experience of many years in the R&D and manufacturing under international well-known brand.

As an economical and practical environmental protection ultrapure water treatment solution, the continuous electrodeionization technology is applied to completely meet the requirements of energy conservation and environmental protection without the regeneration of chemicals and the discharge of acid and alkali. EDI can operate continuously for a long time, with low energy consumption and high water utilization efficiency.

CM Ion exchange membrane is acid and alkali resistant. The water quality of the produced water can be stabilized above 16MΩ·cm for a long period.

CM industrial EDI is designed for industrial applications. It can produce water of high purity with stable quality without interruption of operation due to regeneration, which is super reliable and widely used in the industry of electricity, electronics, Chemical, food and laboratories.



Features of EDI in DS Series

- ▶ Adopting double O-ring seals to ensure leak free operation
- ▶ The water quality of the produced water is better than that of the mixed bed effluent and does not require the use of chemical agents for regeneration
Continuous water production and stable water quality
- ▶ No need to use acid-base neutralization system and resin tank
- ▶ Excellent electrical insulation property
- ▶ Continuous operation at 7 bar (100psi) and 45°C (113°F)

Operation Environment for CM DS Industrial EDI

The stack shall be installed indoors without direct sunlight. The maximum indoor ambient temperature shall not exceed 45°C (113°F)

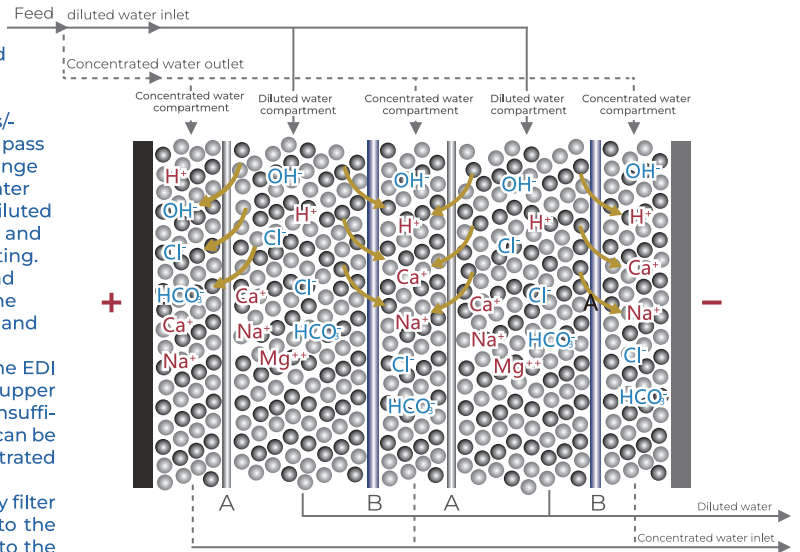
Quality Standards

EDI manufacturer with ISO 9001:2000 certification. Each EDI shall be inspected before the delivery to make it comply with strict CM standards and industry standards.

Working Principle for CM industrial EDI

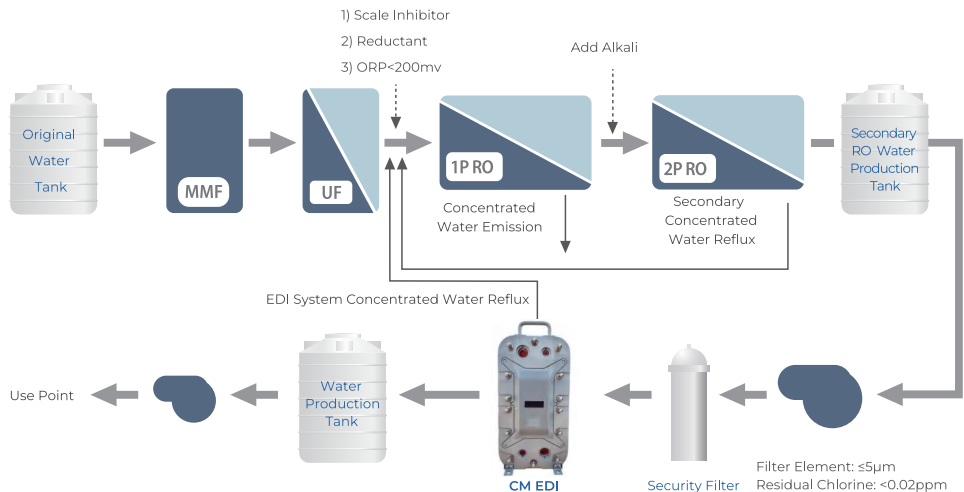
EDI works through a direct current (DC) electric field uplocated at the anode (+) and cathode (-) of the EDI module ends, which drives the ions exchange with the ions the surface of resin to move rapidly. the anions/-cations in the diluted water compartment pass selectively through the anion/cation exchange membrane and enter the concentrated water compartment. In the specific area of the diluted water compartment, a large amount of H⁺ and OH⁻ can be generated through water splitting. Under the action of DC electric field, H⁺ and OH⁻ replace the inorganic ions bound to the exhausted resin to complete regeneration and realize continuous and efficient operation. The direction of water flow in and out of the EDI is based on the principle of selecting the upper pipeline for water inflow. In the case of insufficient renovation space size, diluted water can be selected to enter from below and concentrated water from above.

The water flow shall pass through a security filter with 5μm precision before its entering into the EDI. The concentrated water flows back to the UF production tank, which can improve the overall recycling rate of water.



Note: A is an anionic selective exchange membrane, which only allows anions to pass through
B is a cation selective exchange membrane, which only allows cations to pass through

Pure Water Process of CM industrial EDI



Caution:

1. It is prohibited that RO produced water directly enters into the EDI and there must be one secondary RO produced water tank between RO and EDI for buffer
2. It is prohibited that EDI produced water directly enters the use end and there must be one EDI produced water tank between EDI and use end for buffer.

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Storage & Transportation of CM industrial EDI Product Presentation

Feed Water Specifications

Feed Water Source	2RO permeate
Feed Water Conductivity	$\leq 10\mu\text{S/cm}$
Silica (SiO ₂)	<1 ppm
Iron (as Fe, Mn, S)	<0.01 ppm
Total Chlorine (as Cl ₂)	<0.02 ppm
Total Hardness (as CaCO ₃)	<1.0 ppm
Dissolved Organics (TOC as C)	<0.5 ppm
PH	4- 11
Temperature	5- 45°C
Inlet Pressure	<100 psi (7 bar)

Module Performance

Operating Parameters	
Recovery	90 – 95%
Pressure Drop Range at Nominal Flow	20 - 36 psi (1.4 - 2.5 bar)
Production water quality	
Silica (SiO ₂) Removal	90 – 99% (depending on feed conditions)
production Water resistivity	Min. flow rate >17MΩ.cm Nominal Flow >15MΩ.cm max. flow >7MΩ.cm

*In order to ensure the long-term, stable, high-quality, and continuous operation of the EDI membrane stack, it is recommended to adopt two-stage RO production for EDI inlet water. This is currently the most reliable and mature process design for ultra pure water systems. The production of two-stage RO can maximize the functionality of EDI and is also the optimal treatment plan to extend the service life of EDI.

Flow and physical specifications

Moduel Number	Nominal Flow (m ³ /h)	Flow range (m ³ /h)	DC Voltage (V)	Dc Current (A)	Transport Weight (KG)
CM-DS05-S	0.44	0.22-0.67	0-55	0-5	55
CM-DS10-S	1.0	0.55-1.65	0-135	0-5	71
CM-DS20-S	2.0	1.0-3.1	0-240	0-5	94
CM-DS30-S	3.3	1.7-5.1	0-320	0-5	124
CM-DS50-S	5.0	2.55-7.7	0-400	0-5	170

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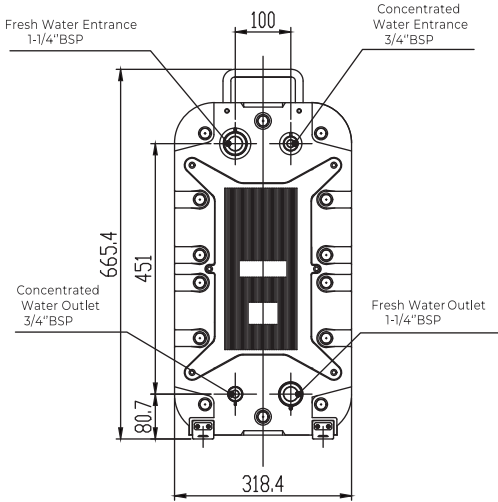
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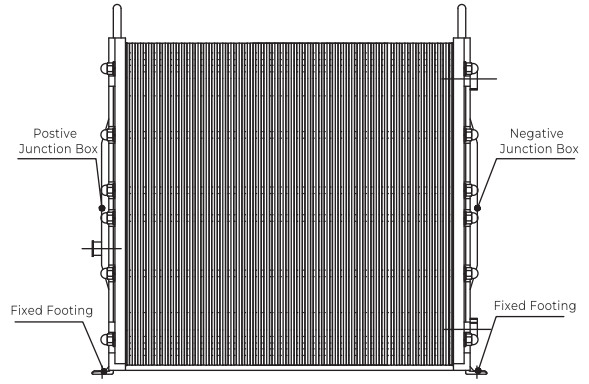
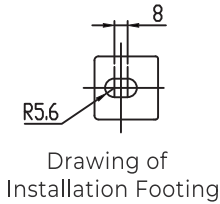
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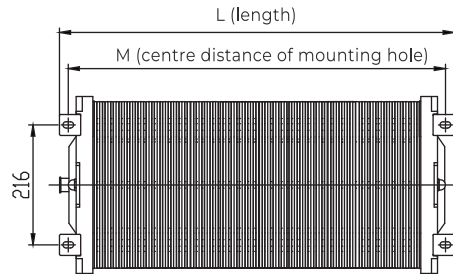
Industrial EDI installation dimensions



Right View



Front View



Bottom View

Moduel Number	CM-DS05-S	CM-DS10-S	CM-DS20-S	CM-DS30-S	CM-DS50-S
Dilution inlet/outlet	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP
Concentrated inlet/outlet	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP
L (mm)	179	268	386	559	778
M (mm)	147	236	354	529	746
H (mm)	665.4	665.4	665.4	665.4	665.4
W (mm)	318.4	318.4	318.4	318.4	318.4

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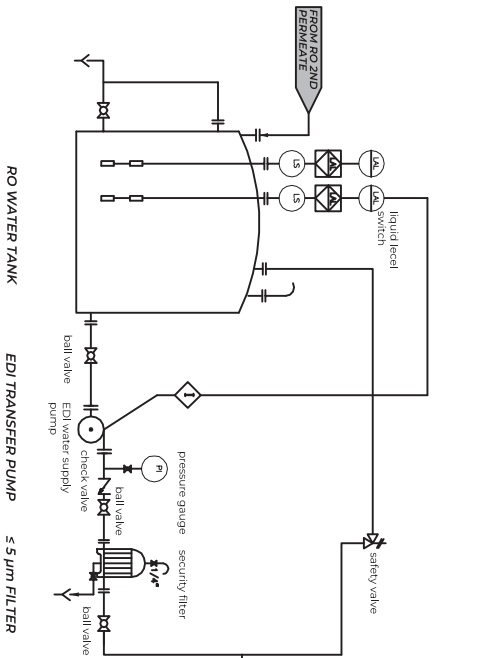
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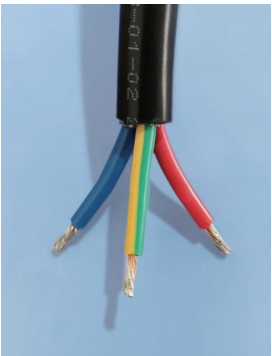
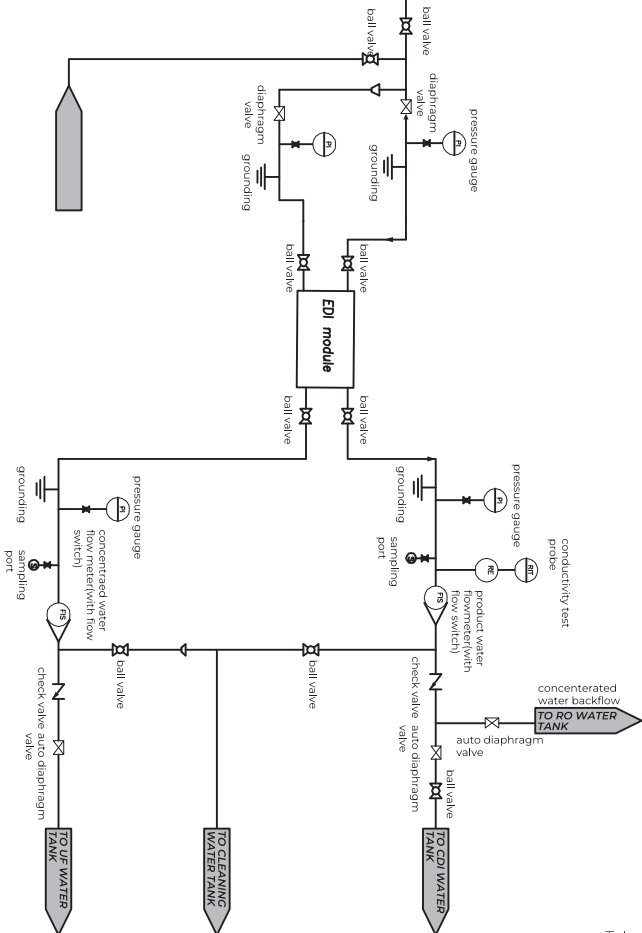
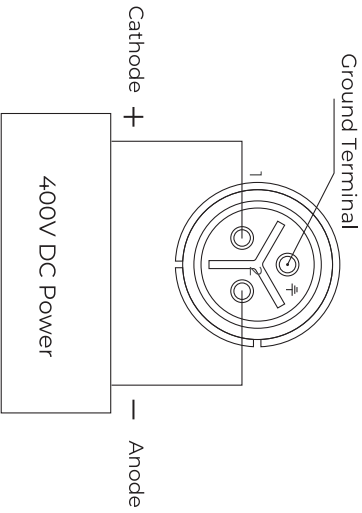
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CM industrial-type EDI PID Flow Chart



CM industrial-type EDI Power Connection



Red: Cathode
 Chartreuse: Ground Terminal
 Blue: Anode

According to different colors, connect to the polarity corresponding to the DC power supply.

Storage & Transportation of CM Industrial-type EDI

All the CM EDI shall be stored under seal with moist interior after tests. Stacks that have been stored for long period shall be rinsed to be qualified and drained, ancthen sealed with the inlet and outlet plugged completely.

Please store CM EDI as follows:

Store indoors or in a warehouse, without direct sunlight

Temperature Conditions:

For EDI in IT-DS series: Max. 32°C, Min. 5°C

Storage In Short Period:

- ▶ Close the main inlet valve of the EDI membrane stack;
- ▶ Remove the inlet & outlet valves of each EDI module and discharge the waterinside the EDI module as much as possible;
- ▶ Observe the outlet of EDI module until there is no water flows out, and install eachvalve on the inlet & outlet of the EDI module:
- ▶ Close the inlet & outlet valves of each EDI module. Do not open/close the valvesduring the shutdown and storage.

Storage In Long Period:

- ▶ Keep new EDI in their original packaging;
- ▶ Drain the water inside EDI and plug the sealing for the inlet andoutlet (no need to fill in propylene glycol);
- ▶ Valid storage period of 2 years.

Application Case



Production Flow Rate 1800 m³/H
 Produced Water Quality 216 MΩ-cm
 Operatng Voltage 100V/2.0A
 Applicaton Example Jiangsu, China



Production Flow Rate 2250 m³/H
 Produced Water Quality ≥16 MQ-cm
 Operatng Voltage 100V/2.0A
 Applicaton Example Ningxia, China

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