Shanghai CM Environmental Technology Co., Ltd.

Industrial EDI

About CM EDI

Shanghai CM Environmental Technology Co., Ltd. is a technology enterprise specializing in the R&D as well as production of EDI. 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 regenera-tion 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)

Opearation Environment for CM DS Industrial EDI

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

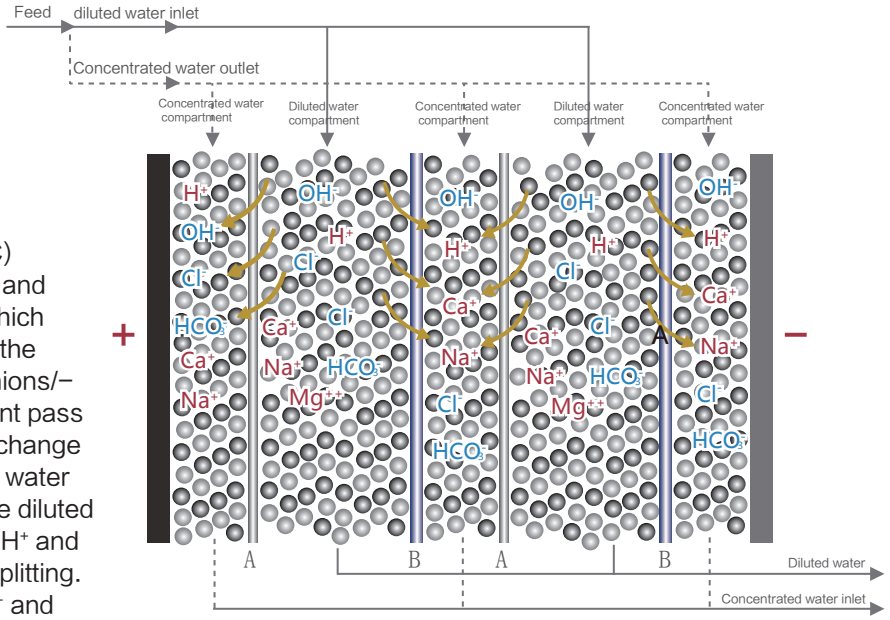
Quality Standards

EDI manufacturer with ISO 9001:2000 certification

Each EDI shall be inspected before the delivery to make it comply with strict IONTECH stan-dards and industry standards

Working Principle for CM industrial EDI

EDI works through a direct current (DC) electric field uploaded 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.

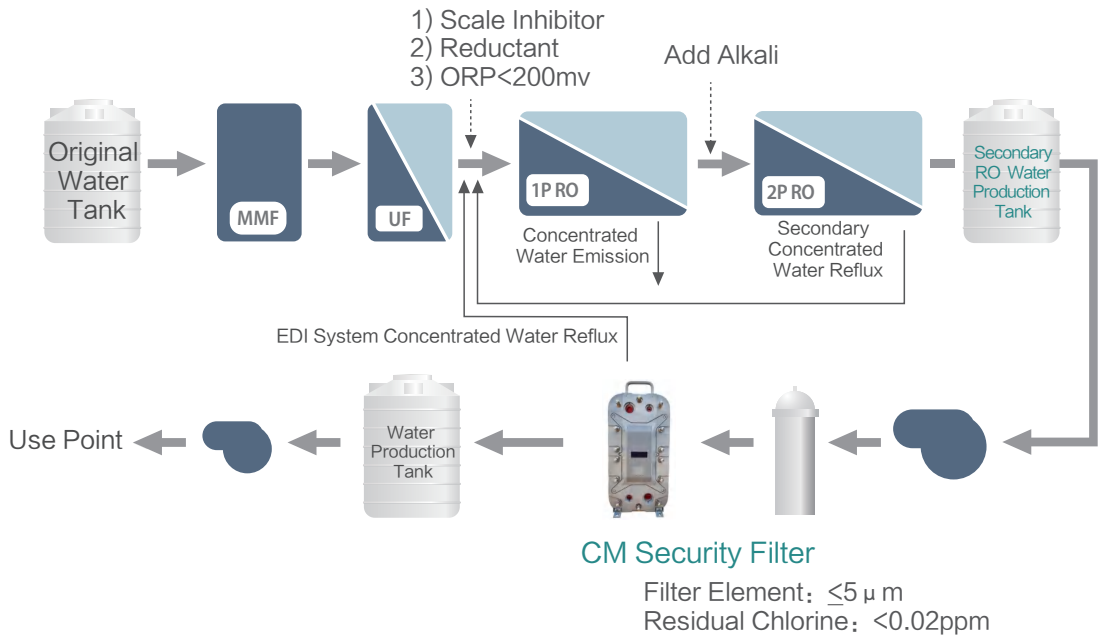


Note:A is an anionic selective exchange membrane, which only allows anions to pass through
B is a cation selective exchange membrane, which only allows cations to pass through

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 5 μ m precision before its entering into the EDI . The concen−trated water flows back to the UF production tank, which can improve the overall recycling rate of water.

Pure Water Process of CM industrial EDI



CM Security Filter

Filter Element：≤5 μ m
Residual Chlorine：<0.02ppm

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.

Storage & Transportation of CM industrial EDIProd uct Presentation

Feed Water Specifications

Feed Water Source	2RO permeate
Feed Water Conductivity	⩽ 10μS/cm
Silica (SiO2)	<1 ppm
Iron (as Fe, Mn, S)	<0.01 ppm
Total Chlorine (as Cl2)	<0.02 ppm
Total Hardness (as CaCO3)	<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	
production Water resistivity	Minimum flow rate >17MΩ.cm Nominal Flow >15MΩ.cm maximum flow >7MΩ.cm
Silica (SiO2) Removal	90 – 99% (depending on feed conditions)

*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.

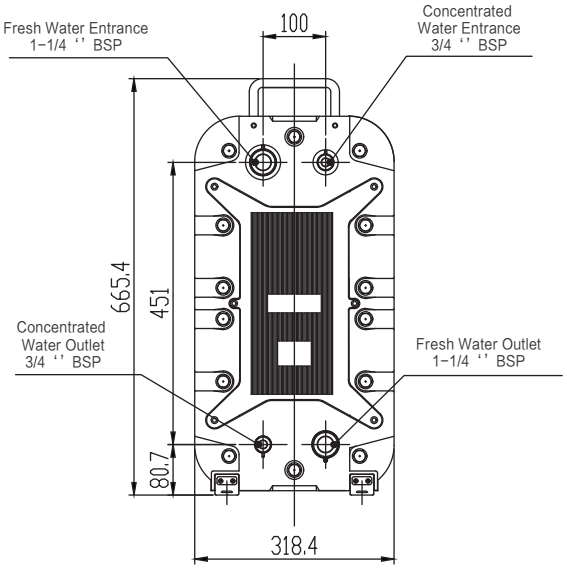
Equipment Standard Configuration

Equipped with metric and English conversion joints and 3–meter cable

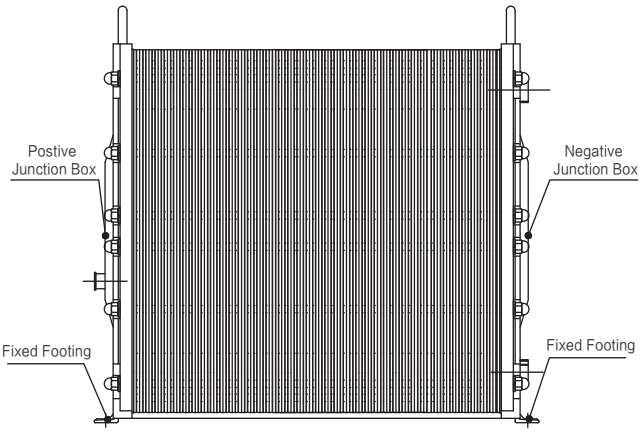
Flow and physical specifications

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

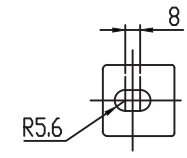
Industrial EDI installation dimensions



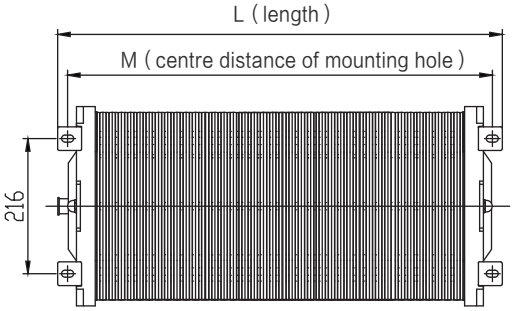
Right View



Front View



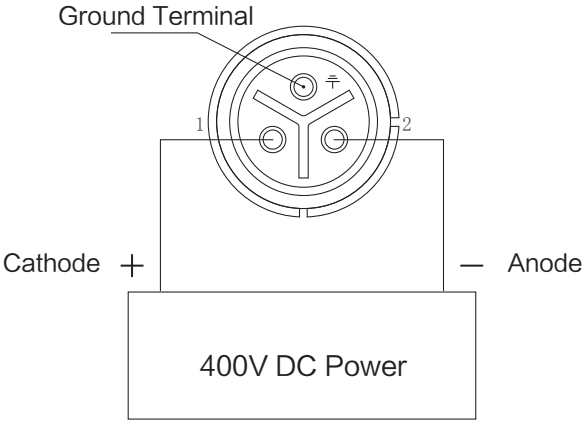
Drawing of
Installation Footing

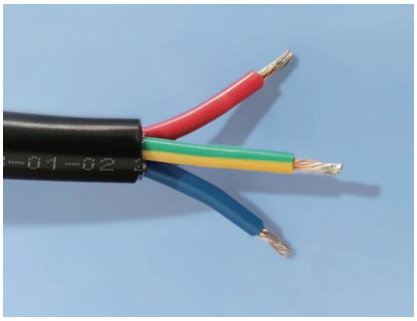


Bottom View

Moduel Number	IT-DS05-S	IT-DS10-S	IT-DS20-S	IT-DS30-S	IT-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

CM **industrial-type EDI Power Connection**

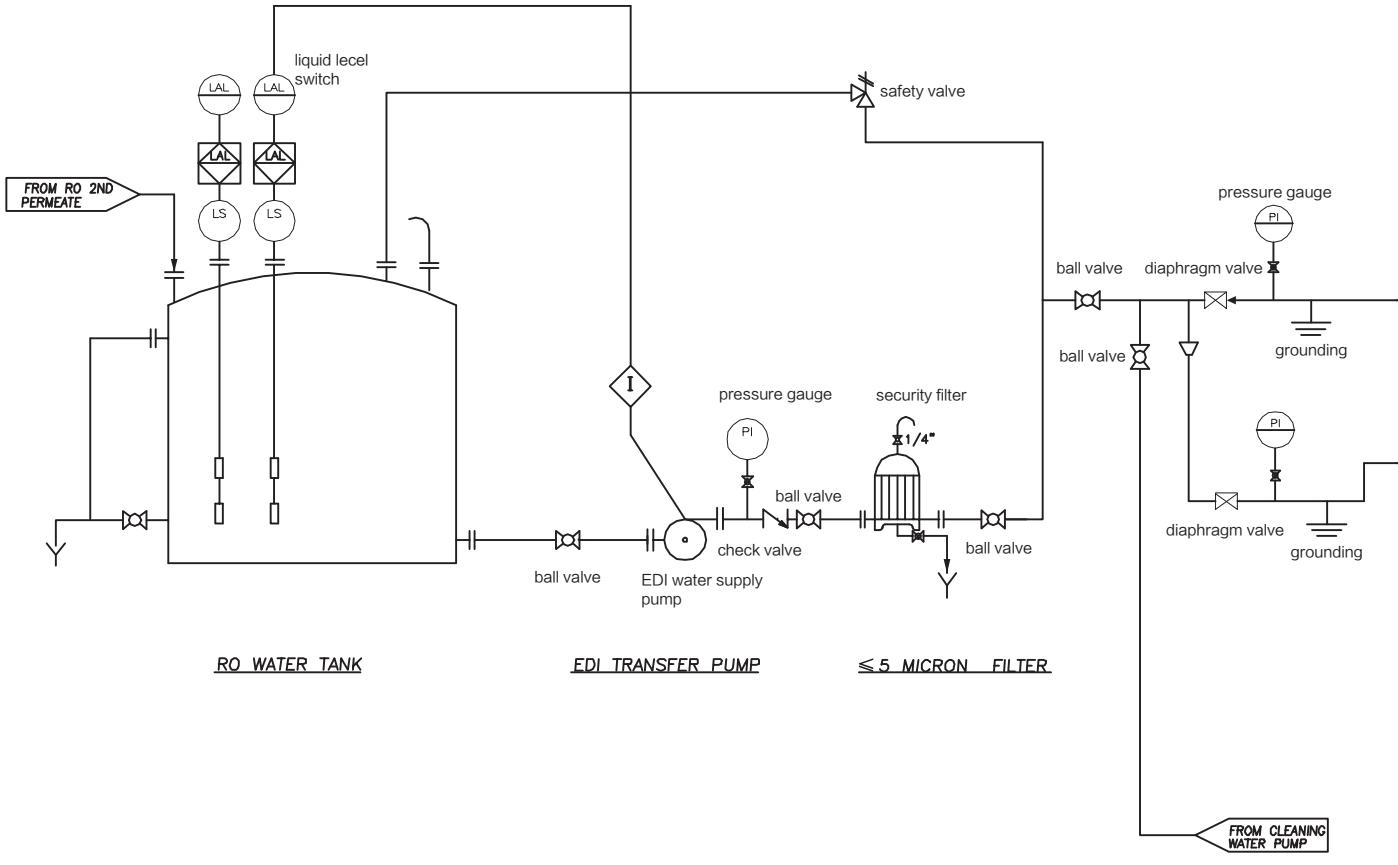




Red: Cathode
Chartreuse: Ground Terminal
Blue: Anode

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

CM **industrial-type EDI PID Flow Chart**



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, and then 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:

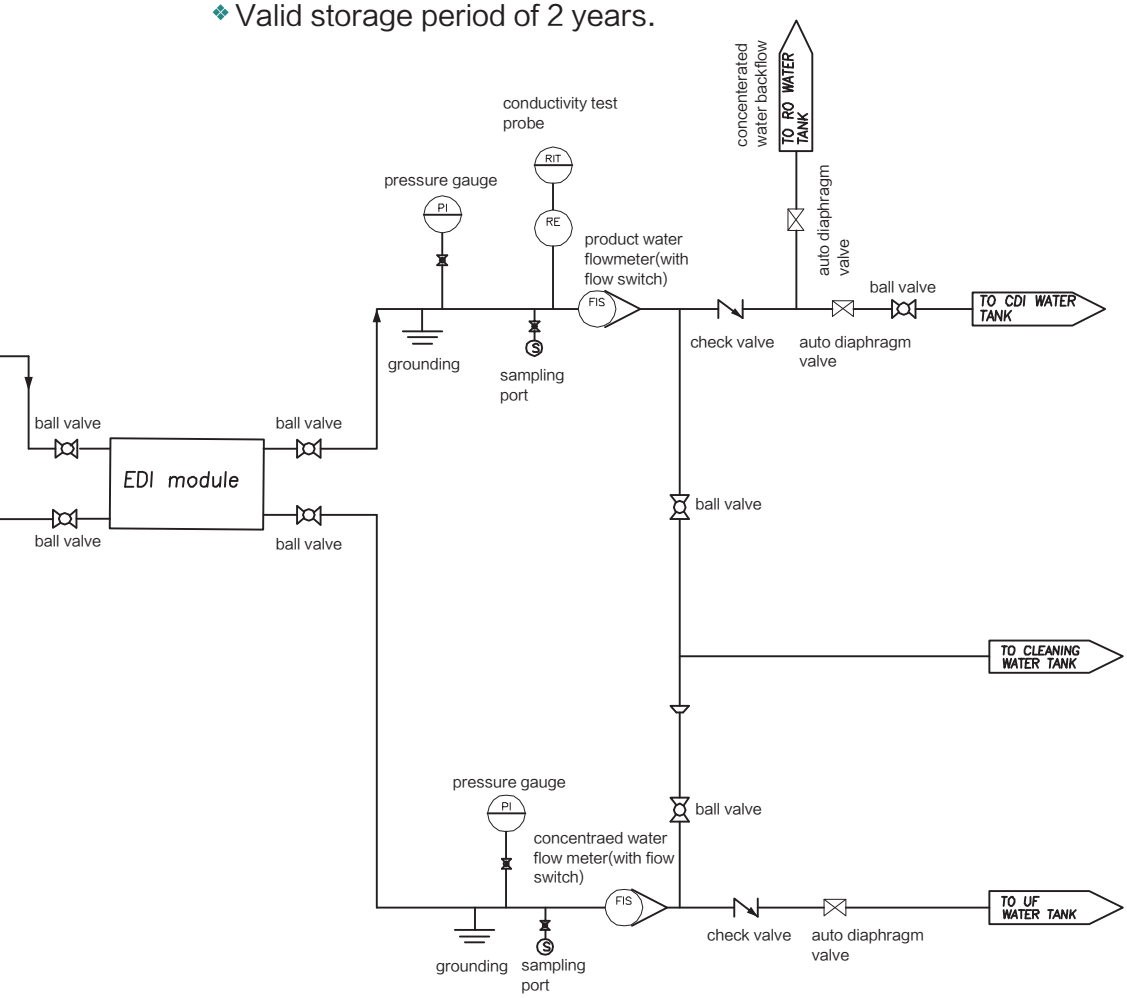
For EDI in IT-DS series: Max. 32° C, Min. 5° C

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 water inside the EDI module as much as possible;
- Observe the outlet of EDI module until there is no water flows out, and install each valve on the inlet & outlet of the EDI module;
- Close the inlet & outlet valves of each EDI module. Do not open/close the valves during 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 and outlet (no need to fill in propylene glycol);
- Valid storage period of 2 years.



CM Industrial EDI Application Cases

Production Flow Rate	2250 m^3/H
Produced Water Quality	≥16 MΩ•cm
Operating Voltage	100V/2.0A
Application Example	ningxia XX Energy (Chemical)

Production Flow Rate	1800 m^3/H
Produced Water Quality	≥16 MΩ•cm
Operating Voltage	100V/2.0A
Application Example	Lianyungang XX Energy(CH and PG)

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