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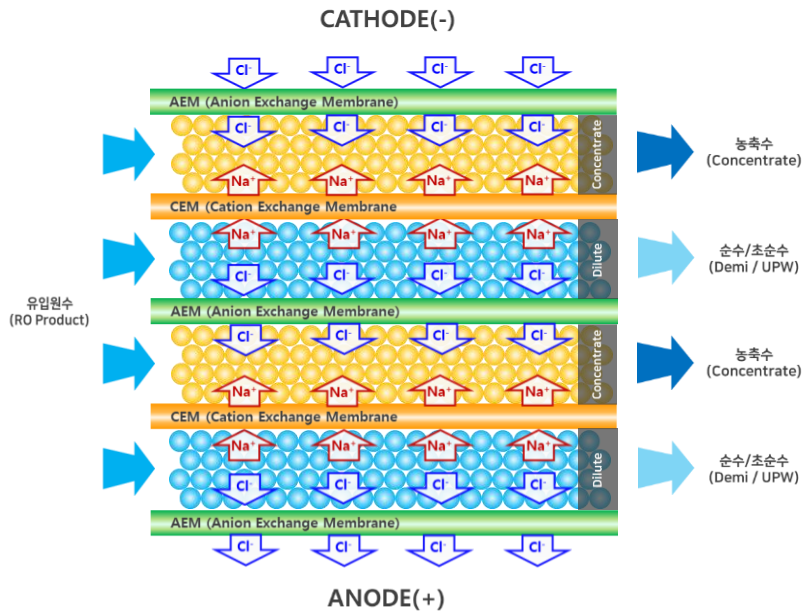
TRILITE

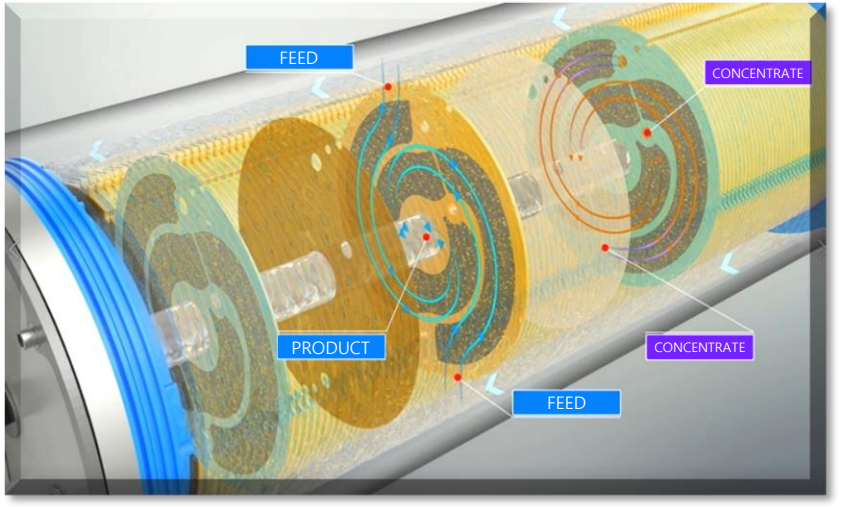
Electrodeionizer

TRILITE EDI Electro-deionizer

TRILITE 삼양 트리라이트 Electrodeionizer

Removal of Ion Mechanism





<Round Disk Plate Type>

- Ion exchange resin : Accelerating the transfer of ions contained in water from the dilution chamber to the concentration chamber
- Ion exchange membrane : The cation and anions in the dilution chamber are moved to the concentration chamber through the membrane
  - Cation Exchange Membrane (CEM) : Selectively moves cations such as Na^+
  - Anion Exchange Membrane (AEM) : Selectively moves anions such as Cl^-

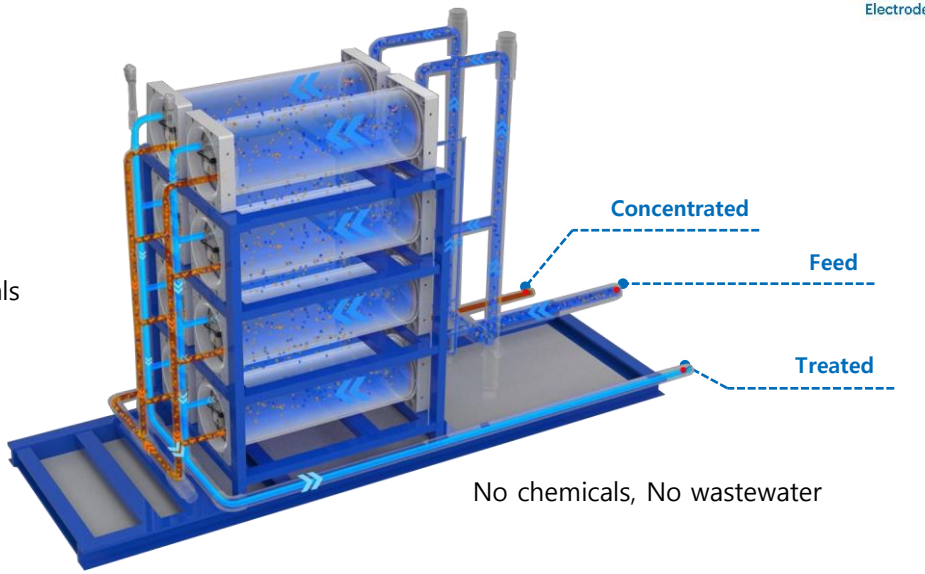
TRILITE EDI Advantage

TRILITE 삼양 트리라이트 Electrodeionizer

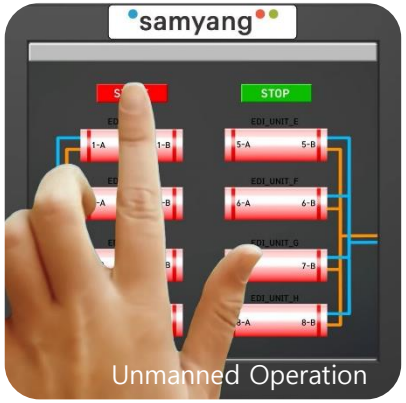
EDI Advantage

Continuous operation without separated regeneration process

- Eco-friendly facilities that do not discharge wastewater by chemicals
- Operation cost reduction and automatic operation system
- Easy operation and unmanned operation
- Securing stable water quality without regeneration process



No chemicals, No wastewater



Unmanned Operation

Pure and ultrapure water production by module

- Simple structure for expansion of processing capacity (5~18 ㎥/hr)
- Convenient replacement and simple maintenance
- Wide range of uses (power generation, electronics, semiconductor, medicine, food, etc.)

TRILITE EDI Specification

TRILITE EDI Key Feature

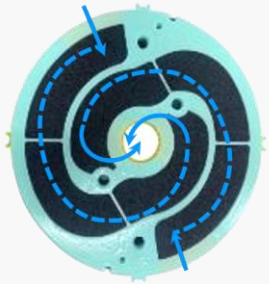
- Rectangular Plate and Frame Type
- Capable for **Small Capacity** ($8m^3/hr \downarrow$)
- Compact structure, Easy to handle and install
- A variety of product models can be selected.
- For Demi. Water → TNS Series (TNS-03, TNS-04, TNS-05, TNS-06, TNS-07)
- For UPW → TUS Series (TUS-01, TUS-02 , TUS-03 , TUS-04 , TUS-05)

- Round Disk Plate Type
- Capable for **Large Capacity** ($10m^3/hr \uparrow$)
- Easy to design skid, Simple Facilities
- A wide range of flow rate
- For Demi. Water → TN Series (TN-10, TN-12, TN-15)
- For UPW → TU Series (TU-04, TU-10, TU-14)

TRILITE EDI Specification

TRILITE EDI Key Feature

EDI Spacer



Dilute

Tornado Flow

Concentrate

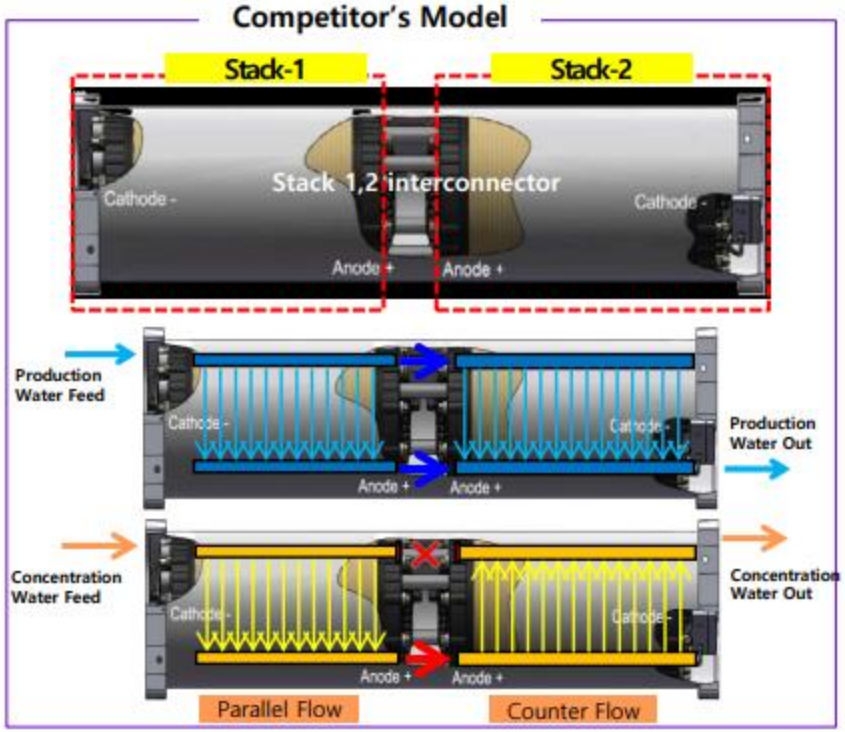
Competitor's Spacer

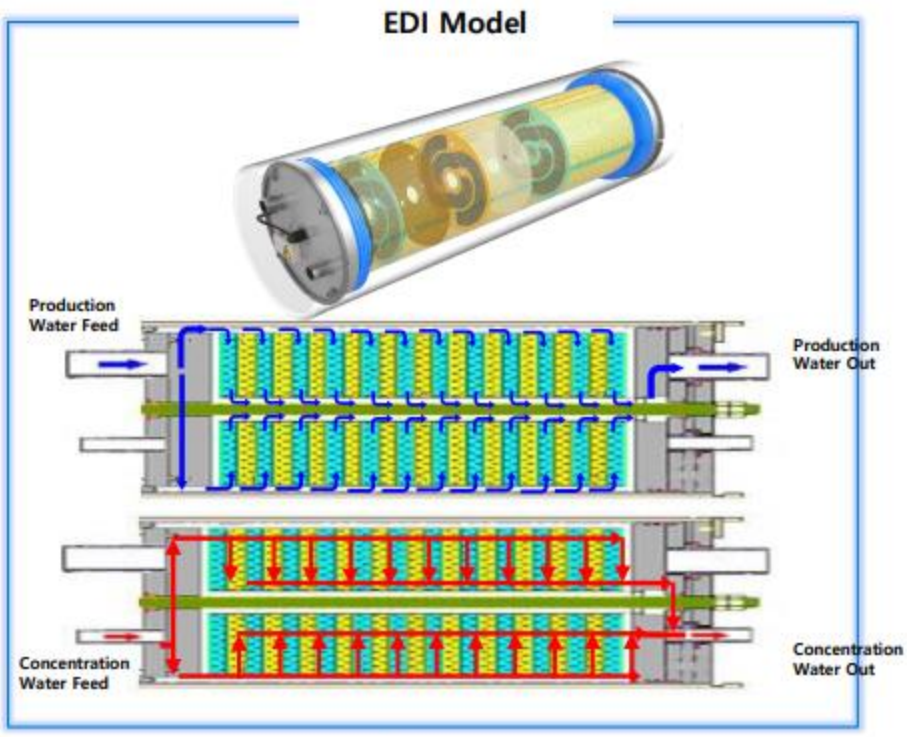
Straight Flow

Category	EDI Model	Competitor's Model	Feature
Flow Passage	Tornado Type	Straight Type	• **Increased contact distance with ion exchange resin by improving the shape of the internal flow path of the cell** → Improving the ion removal rate • **Production water cell: Increase ion exchange volume** → Improving the ion removal rate, differential pressure, and lifespan
Flow Length (㎜)	647 (▲2.8fold)	231	
Flow Width (㎜)	63	61.8	
Ion Exchange Volume (㎤/cell)	1,080 (▲2.1fold)	514	

TRILITE
삼양 트리라이트
Electrodeionizer

❖ Technology Comparison (Modular Structure)





Category	Competitor's Model	EDI Model	Feature
Module Internal Structure	• Separate the inside into 2 stacks and connect the interconnector • Installation of 2 pairs of electrodes in the separation space (reduced electric supply distance - resistance↓) • Internal connection space available - reduced processing volume • 30㎜ small diameter flow path FEED : differential pressure rise • Low operating voltage(80~120V, 10A)	• Electrode installation at both ends of the stack (increase the distance to supply electricity - resistance↑) • No internal connection space - increased processing volume • Vessel internal flow FEED : Reduced differential pressure • High operating voltage (200~250V, 4A)	• 2 stacks → single stack Utilization of Intermediate interconnector space • Increase in cell installation volume: increase in production flow • Expanding FEED flow: reducing differential pressure

TRILITE EDI Specification

TRILITE 삼양 트리라이트 Electrodeionizer

For Demi. Water (**Large** Capacity - TN Series)

Model	TN-10	TN-12	TN-15
Maximum Feed Water Specifications			
Feed Water Conductivity Equivalent including CO_2 and Silica	< 40μs/㎝ (CO_2 < 5 ppm, Silica < 0.5 ppm)		
Inlet Pressure	Max. 10.0kgf/㎠		
Inlet Temperature / pH	5~45℃ (Nor. 25℃) / 4 ~ 11		
Typical Module Performance			
Recovery	90 ~ 95%		
Capacity	10~12㎥/hr	12~15㎥/hr	15~18㎥/hr
Pressure Drop	< 2.5kgf/㎠		
DC Voltage / Amperage	0~600V / 0~6A		
Product Resistivity	> 16MΩ·㎝		
Silica / Boron Removal	≥ 95%		
Sodium / Chloride Removal	≥ 99.8%		
Maximum Feed Water Specifications			
Size (㎜ID x ㎜L)	470 × 1,964	470 × 2,110	470 × 2,310
Weight	Empty : 430kg / Oper. : 530kg	Empty : 450kg / Oper. : 590kg	Empty : 470kg / Oper. : 650kg
Material	Body : Glass Reinforced Plastic (GRP)		

TRILITE EDI Specification

TRILITE 삼양 트리라이트 Electrodeionizer

For Demi. Water (**Small** Capacity - TNS Series)

Model	TNS-03	TNS-04	TNS-05	TNS-06	TNS-07
Maximum Feed Water Specifications					
Feed Water Conductivity Equivalent including CO_2 and Silica	< 40μs/㎝ (CO_2 < 5 ppm, Silica < 0.5 ppm)				
Inlet Pressure	Max. 7.0kgf/㎠				
Inlet Temperature / pH	5~45℃ (Nor. 25℃) / 4 ~ 11				
Typical Module Performance					
Recovery	90 ~ 95%				
Capacity	1.5~3.3㎥/hr	2.0~4.4㎥/hr	2.5~5.5㎥/hr	3.0~6.6㎥/hr	3.5~8.0㎥/hr
Pressure Drop	< 3.0kgf/㎠				
DC Voltage / Amperage	0~400V / 0~5A				
Product Resistivity	≥ 16.0 MΩ·㎝				
Silica / Boron Removal	≥ 98.0% / ≥ 95.0%				
Sodium / Chloride Removal	≥ 99.0%				
Physical Specifications					
Size (㎜L x ㎜W x ㎜H)	570 x 315 x 608	730 x 315 x 608	810 x 315 x 608	865 x 315 x 608	915 x 315 x 608
Weight	Oper. : 90kg	Oper. : 121kg	Oper. : 136kg	Oper. : 147kg	Oper. : 156kg
Material	Dilute & Concentrate Chamber : CPVC / Anode Electrode : Titanium plated Platinum / Cathode Electrode : SS316L				

TRILITE EDI Specification

TRILITE 삼양 트리라이트 Electrodeionizer

For Ultra Pure Water (**Large** Capacity - TU Series)

Model	TU-04	TU-10	TU-14
Maximum Feed Water Specifications			
Feed Water Conductivity Equivalent including CO_2 and Silica	< 10μs/㎝ (CO_2 < 1.25 ppm, Silica < 0.2 ppm)		
Inlet Pressure	Max. 10.0kgf/㎠		
Inlet Temperature / pH	20~45℃ (Nor. 25℃) / 4 ~ 11		
Typical Module Performance			
Recovery	≥ 95%		
Capacity	4~6㎥/hr	10~13㎥/hr	14~16㎥/hr
Pressure Drop	< 2.5kgf/㎠		
DC Voltage / Amperage	0~500V / 0~6A		
Product Resistivity	> 17.5MΩ·㎝ (< 5μs/㎝ : 2-Pass RO) , > 18MΩ·㎝ (< 1μs/㎝ : DI Water)		
Silica / Boron Removal	≥ 99.0%		
Sodium / Chloride Removal	≥ 99.9%		
Physical Specifications			
Size (㎜ID x ㎜L)	470 × 1,095	470 × 2,110	470 × 2,510
Weight	Empty : 180kg / Oper. : 250kg	Empty : 360kg / Oper. : 500kg	Empty : 380kg / Oper. : 560kg
Material	Body : Glass Reinforced Plastic (GRP)		

TRILITE EDI Specification

For Ultra Pure Water (**Small** Capacity - TUS Series)

Model	TUS-01	TUS-02	TUS-03	TUS-04	TUS-05
Maximum Feed Water Specifications					
Feed Water Conductivity Equivalent including CO_2 and Silica	< 10μs/㎝ (CO_2 < 1.25 ppm, Silica < 0.2 ppm)				
Inlet Pressure	Max. 7.0kgf/㎠				
Inlet Temperature / pH	20~45℃ (Nor. 25℃) / 4 ~ 11				
Typical Module Performance					
Recovery	≥ 95%				
Capacity	0.4~1.2㎥/hr	1.2~2.2㎥/hr	1.6~3.3㎥/hr	2.0~4.4㎥/hr	2.4~5.5㎥/hr
Pressure Drop	< 3.0kgf/㎠				
DC Voltage / Amperage	0~400V / 0~5A				
Product Resistivity	≥ 17.0 MΩ·㎝				
Silica / Boron Removal	≥ 99.0% / ≥ 98.0%				
Sodium / Chloride Removal	≥ 99.9%				
Physical Specifications					
Size (㎜L x ㎜W x ㎜H)	363 x 315 x 608	497 x 315 x 608	630 x 315 x 608	710 x 315 x 608	830 x 315 x 608
Weight	Oper. : 52kg	Oper. : 78kg	Oper. : 104kg	Oper. : 119kg	Oper. : 142kg
Material	Dilute & Concentrate Chamber : CPVC / Anode Electrode : Titanium plated Platinum / Cathode Electrode : SS316L				

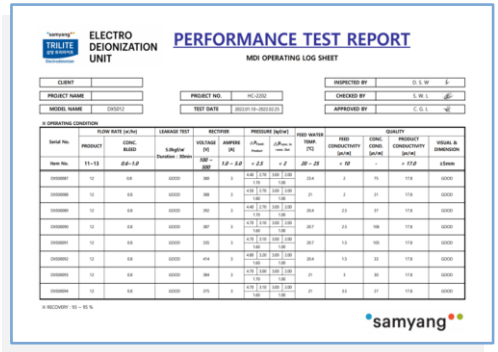
TRILITE EDI (Quality Control)

TRILITE
삼양 트리라이트
Electrodeionizer

Performance Test

- Leakage Test
- Rectifier
- Pressure
- Conductivity
- Visual & Dimension

COA


ELECTRO DEIONIZATION UNIT

PERFORMANCE TEST REPORT

MDI OPERATING LOG SHEET

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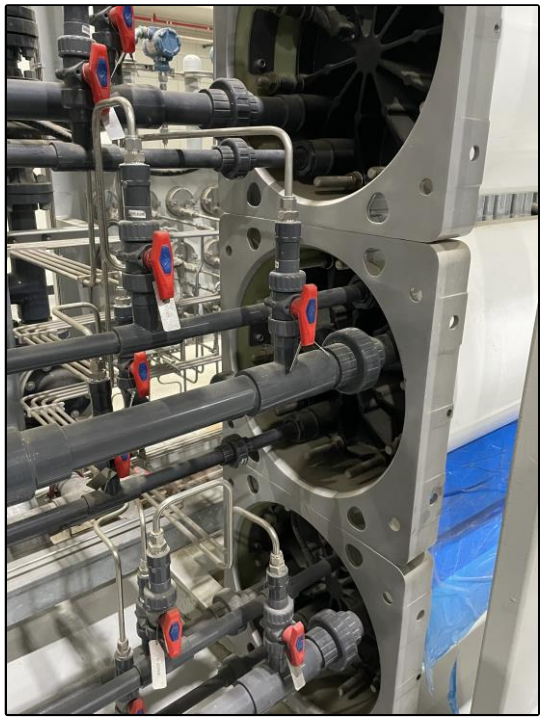
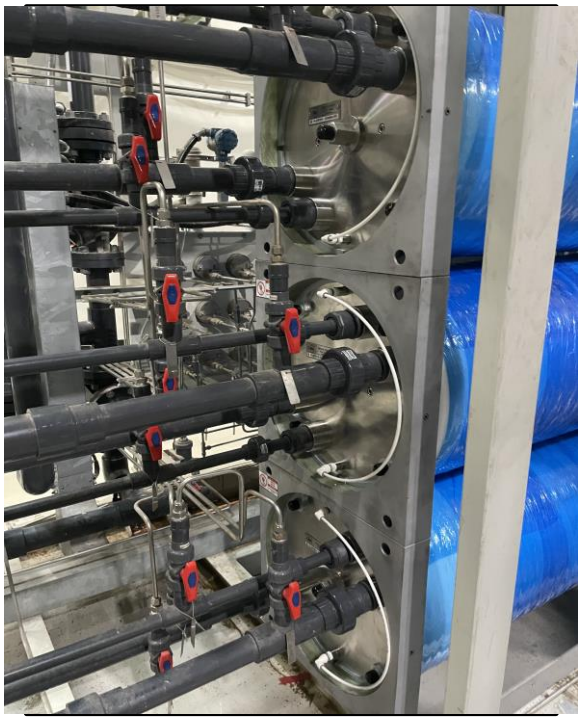
Packaging

Shipment

APPENDIX Replacement (for reference)

TRILITE
삼양 트리라이트
Electrodeionizer

BEFORE	AFTER
	

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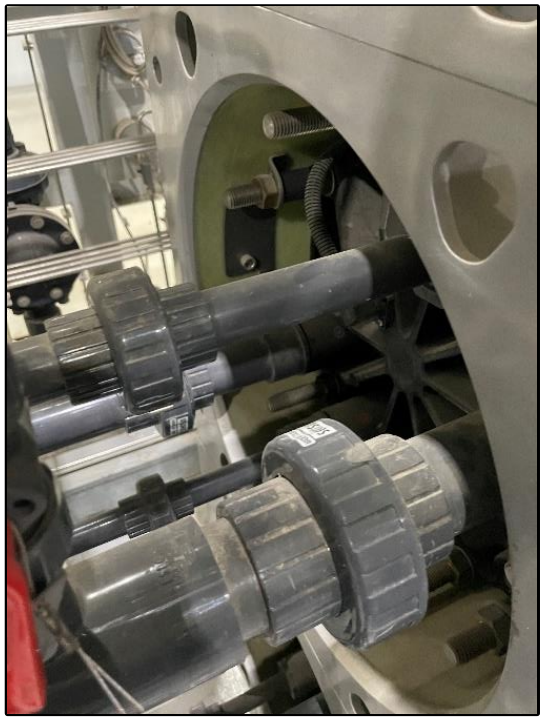	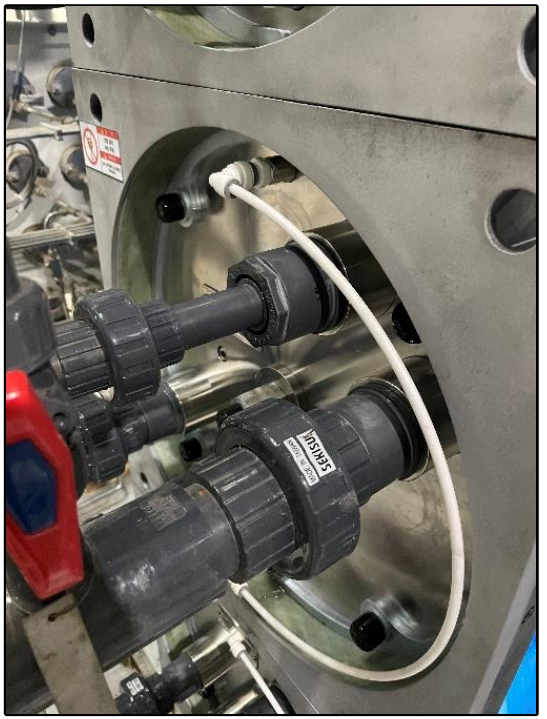

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TRILITE 삼양 트리라이트 Electrodeionizer

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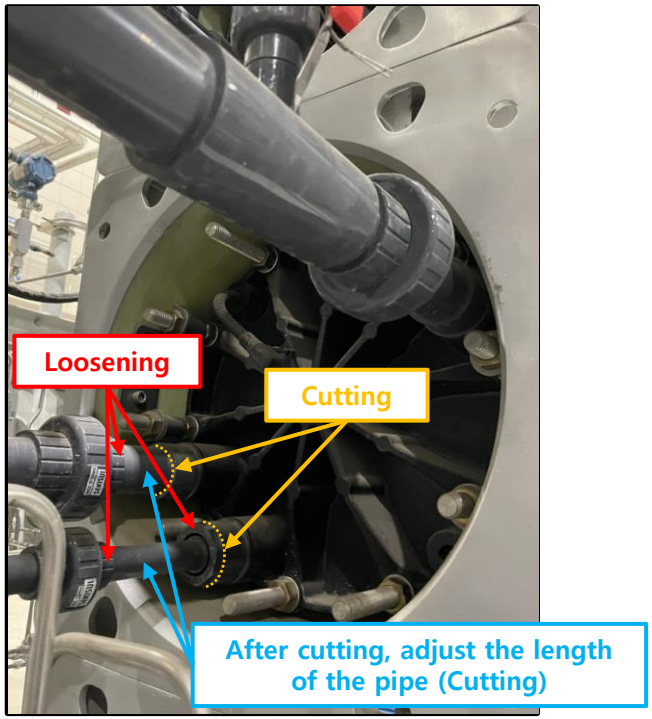	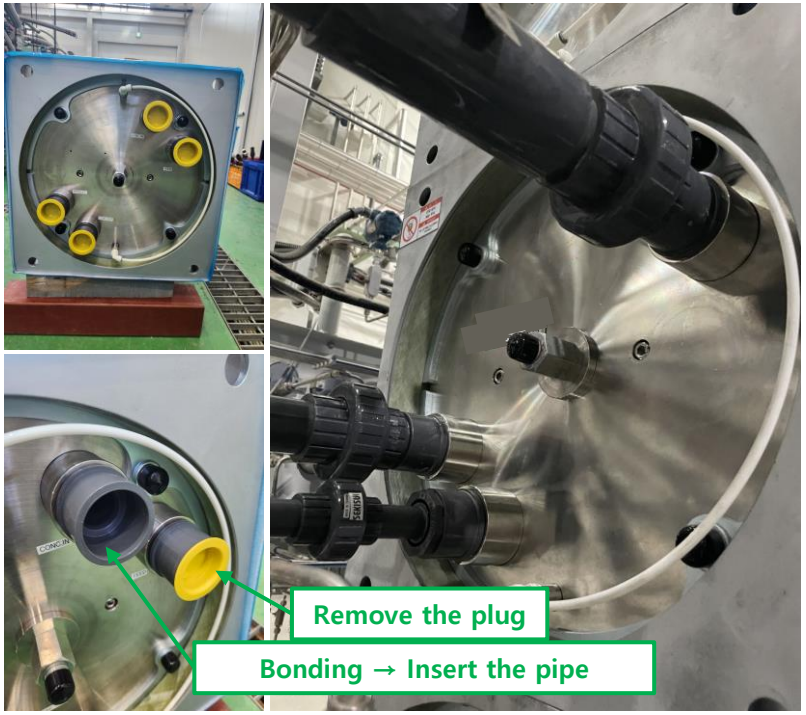

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	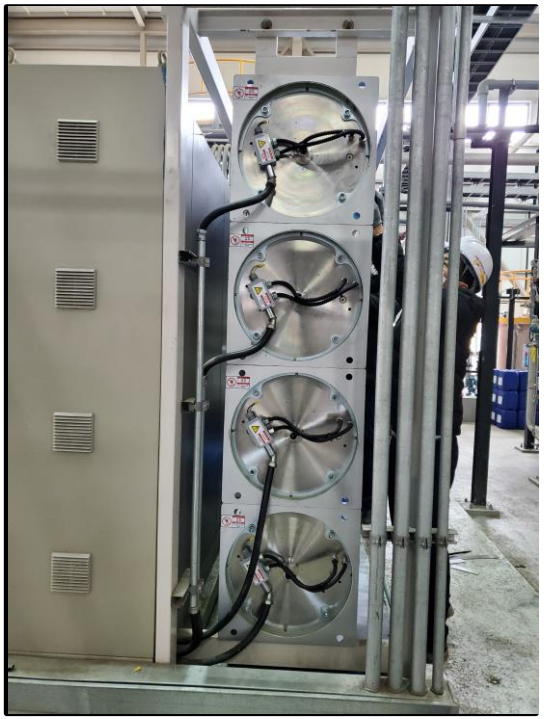

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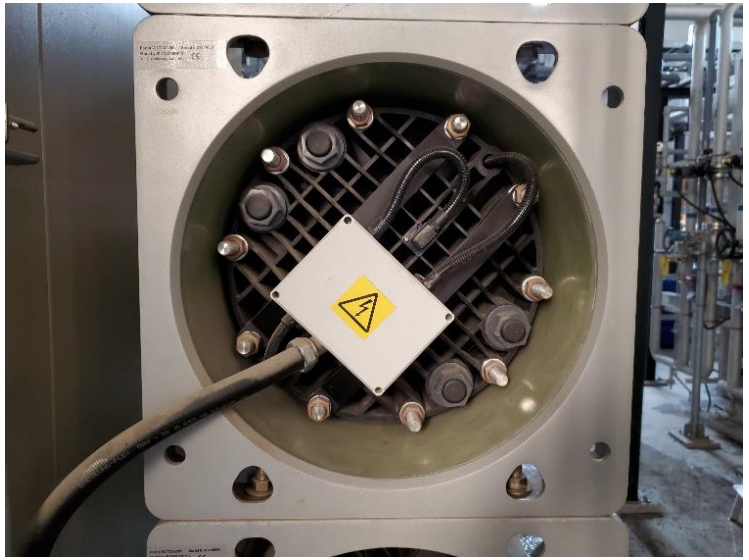	


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