

DOW™ Electrodeionization Modules

Model EDI-310

Features

DOW™ EDI modules are made using a patented spiral wound design containing membrane and ion exchange resins sealed in a high strength fibreglassed reinforced plastic (FRP) pressure vessel. The modules can be used in place of conventional mixed bed ion exchange for polishing of reverse osmosis (RO) permeate eliminating the need to store and handle hazardous chemicals. DOW™ EDI modules optimize performance, maintain continuous product quality and can produce up to 18 megohm-cm product water for high purity and ultrapure industrial water applications.

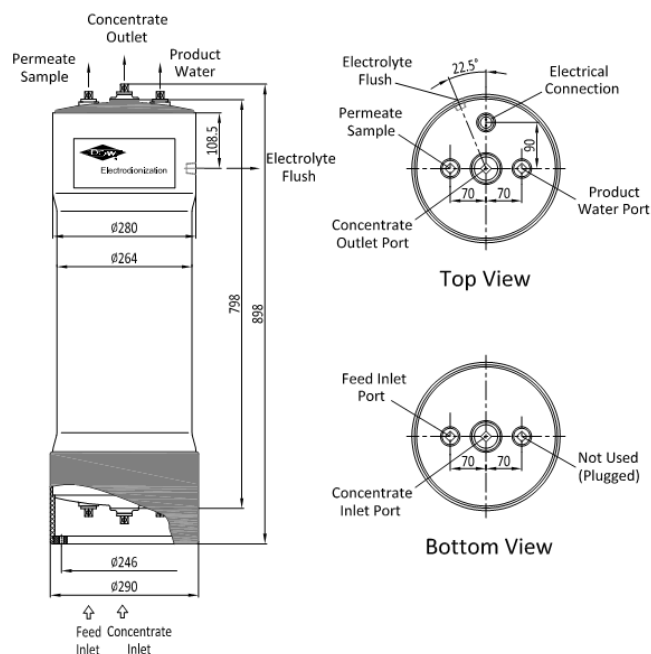
- Once through concentrate flow path eliminates brine injection and recirculation greatly simplifying system designs.
- Distinct spiral design prevents internal and external leaks common with compression style plate & frame stacks.
- Easy to clean, non-resin filled concentrate chambers.
- Lightweight modules require no special lifting equipment allowing for easy access modular designs.
- Built in sample port for dilute product water sampling.
- Cost effective-spiral wound DOW™ EDI modules allow system integrators to build systems that have both lower capital and operating costs when compared to conventional mixed bed ion-exchange.

Performance Specifications

Product Water Resistivity	$\geq 5 \text{ M}\Omega \cdot \text{cm}$	$\geq 15 \text{ M}\Omega \cdot \text{cm}$
Total Exchangeable Anions (TEA)	$\leq 25 \text{ ppm (CaCO}_3\text{)}$	$\leq 8 \text{ ppm (CaCO}_3\text{)}$

Based on standard test solution, actual module performance is based on specific feed water conditions

Figure 1



Model	Part Number	Dilute & Product Water Connections		Electrolyte Connection		Module Size		Net Module Weight	
		Size	Material	Size	Material	Length	Base Diameter	kg's	lbs
EDI-310	10406238	Dn 15	PVC-U	Rc1/4"	Nylon	35.9/898	11.6/290	43	95

Module Feed Water Requirements

Based on RO Permeate
Feed Water

Parameter	SI units	US units
Hardness	0.01 meq/l	≤ 0.5 ppm (CaCO ₃)
Dissolved Silica		≤ 0.5 ppm
TOC		≤ 0.5 ppm
pH, Operating Range		5.0 - 9.0
Free Cl ₂		≤ 0.05 ppm
Fe, Mn		≤ 0.01 ppm
Turbidity, NTU		≤ 0.1 ppm
Oxidizer, mg/L		Not detectable

Module Operating Conditions

Dilute Water Flow rate	1.5 to 2.2 m ³ /h	6.6 to 10 gpm
Recovery Rate		up to 95%
Inlet Temperature	10 to 38°C	50 to 100 °F
Max. Inlet Pressure	6.9 bar	100 psig
Max. Continuous Operating Pressure	5.5 bar	80 psig
Dilute Pressure Drop	1.5 to 2.5 bar	22 to 36 psig
Concentrate Outlet Pressure	0.5 to 0.7 bar less than dilute pressure	7 to 10 psig bar less than dilute pressure
Electrolyte Flush	40 to 60 l/h	0.18 to 0.26 gpm
Maximum Electrical Current		9A
Maximum Working Voltage		160V DC

Important Information

Proper start-up of an EDI system is essential to prepare modules for operating service and to prevent module damage. Before initiating EDI system start-up ensure that all instrument calibration and other system checks are completed and that RO permeate quality meets EDI operational requirements. Ensure break tank (if any) and all lines and manifolds leading to the EDI modules are properly flushed prior to start-up. Single Pass RO pretreatment installations must have a hardness switch/monitor prior to the EDI to avoid invalidating warranty coverage. Please refer to the DOW™ EDI product manual for more information.

Operation Guidelines

Gases (hydrogen, oxygen, chlorine) from water electrolysis are produced at the electrodes and carried away in the electrode flush and concentrate bleed. These gases must be vented to avoid buildup. EDI devices are vulnerable to particulate fouling. Plugging of resin interstices increases pressure drop across the module and immediately interferes with the desalination performance. Oxidizers such as chlorine will attack ion exchange membrane and resin beads and will cause irreversible module damage.

General Information

DOW™ EDI modules are designed to deionize RO permeate and are subject to specific feed water requirements as listed above. If operating limits and guidelines given in this bulletin are not strictly followed, the limited warranty will be null and void--refer to DOW™ EDI product warranty sheet for further details.

DOW™ Electrodeionization (EDI)

Notice: This product is not intended for use in potable water applications.

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