

DI-CO₂

Compact System to Deliver Dissolved Carbon Dioxide Ultrapure Water



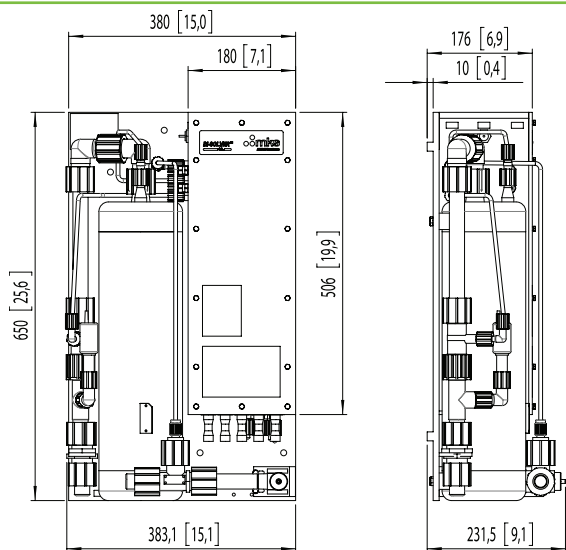
The DI-CO₂ is used in single substrate cleaning tools for rinsing steps to prevent ESD effects and/or corrosion by creating UPW with precisely defined conductivity. It is a compact system for tool integration, providing conductive DI-CO₂ water (dissolved carbon dioxide ultrapure water) with closed loop controlled conductivity. The conductivity is kept at a constant value under changing flow conditions by control of the CO₂ concentration in the DI-CO₂ water.

Several process steps in the semiconductor industry require de-ionized (DI) water with precisely defined conductivity. The DI-CO₂ meets this demand.

Product Features

- Maximum conductivity at physical limits
- Highest accuracy
- Flow is allowed to change between 0.5 – 90 L/min to keep conductivity stable (up to $\pm 3\%$)
- Maintenance-free contactor

Dimensional Drawing



Key Benefits

- Closed-loop conductivity control
- Small, compact module for integration
- Low cost of ownership, no CO₂ and no UPW consumption at process pauses

Specifications

Conductivity/Resistivity Range for System Pressure ≥ 2 bar_g	Min. conductivity 5 $\mu\text{S}/\text{cm}$, max. resistivity 200 $\text{k}\Omega\cdot\text{cm}$ Max. conductivity 50 $\mu\text{S}/\text{cm}$, min resistivity 20 $\text{k}\Omega\cdot\text{cm}$
DI-CO₂ Flow Rate	Min. total flow: 0.5 L/min (0.1 gpm) Max. total flow: 90 L/min (15.8 gpm)
Control Accuracy for Conductivity	Typical maximum deviation from setpoint: Steady state flow: $\pm 3\%$ Fluctuating flow: $\pm 10\%$ for flow changes < 4 L/min per sec
DI-CO₂ Outlet Pressure	1.0 - 3.0 bar _g (0.1 - 0.3 MPag, 14.5 - 43.5 psig), depending on UPW supply pressure
UPW Temperature Range	20 - 50 °C
Plumbing Materials	Liquid contacted surfaces: PFA, PVDF
Communication	Binary in/out (dry contacts), RS232, analog out, USB
Cabinet Material, Dimensions	PVDF or C-PVC or FRPP, approx. 386 mm x 650 mm x 232 mm (WxHxD)
Weight	Approx. 17.3 kg (empty) / 23.3 kg (filled with water)
Electrical Supply	24 VDC/ 60 W

Ordering Information

Ordering Code Example: 16-001A-BCDEF	Code	Configuration
DI-CO ₂	16-001	16-001
Conductivity Range (A-)		
Conductivity Range 5 - 40 $\mu\text{S}/\text{cm}$ (200 - 25 $\text{k}\Omega\cdot\text{cm}$)	0-	0-
Conductivity Measurement (B)		
Integrated Sensor 220 VAC, 50 Hz External Sensor	0 1	0
Connection (C)		
Super 300 Type Pillar Fitting Flaretek®	0 1	0
Housing Material (D)		
PVDF C-PVC FRPP	0 1 2	2
Currently Not Defined (E)		
Standard	0	0
Customer Specific Features (F)		
Standard	0	0