POLLET WATER GROUP

Forced Draft Decarbonators

Degasification

When do you need it?

In Ion Exchange Demineralizer Systems, Forced Draft Decarbonators are located between the Cation and Anion Units. The Decarbonator removes carbon dioxide produced by the cation exchange process.

Forced Draft Decarbonators can also be used before or after Reverse Osmosis units to remove carbon dioxide generated by adding acid before reverse osmosis for pH control.

What is it?

A Forced Draft Decarbonator is a relatively simple water treatment device. It consists of an atmospheric tank with an internal bed of plastic tower packing and a clearwell for storing the treated water.

Required ancillary equipment includes pumps to forward treated water to the next process step and blowers to remove released carbon dioxide from the tower.

How does it work?

Incoming water is sprayed over a bed of plastic tower packing material which fills the tower.

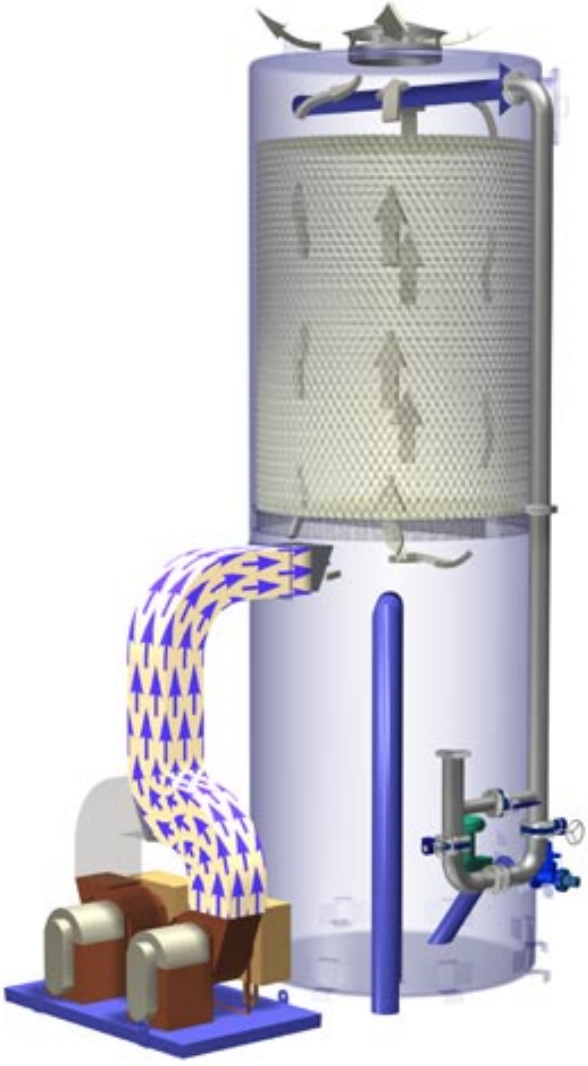
The process water is sprayed over the packing material, forming a thin film on the surface. This encourages the release of carbon dioxide.

A centrifugal fan creates an updraft of air through the tower — thus the name 'Forced Draft'. This updraft blows released carbon dioxide gas through a vent at the top of the unit.

After passing through the packing elements, decarbonated water collects in the bottom compartment, or clearwell. The clearwell supplies decarbonated water to transfer pumps downstream of the Decarbonator. The transfer pumps deliver the water to the next piece of equipment.

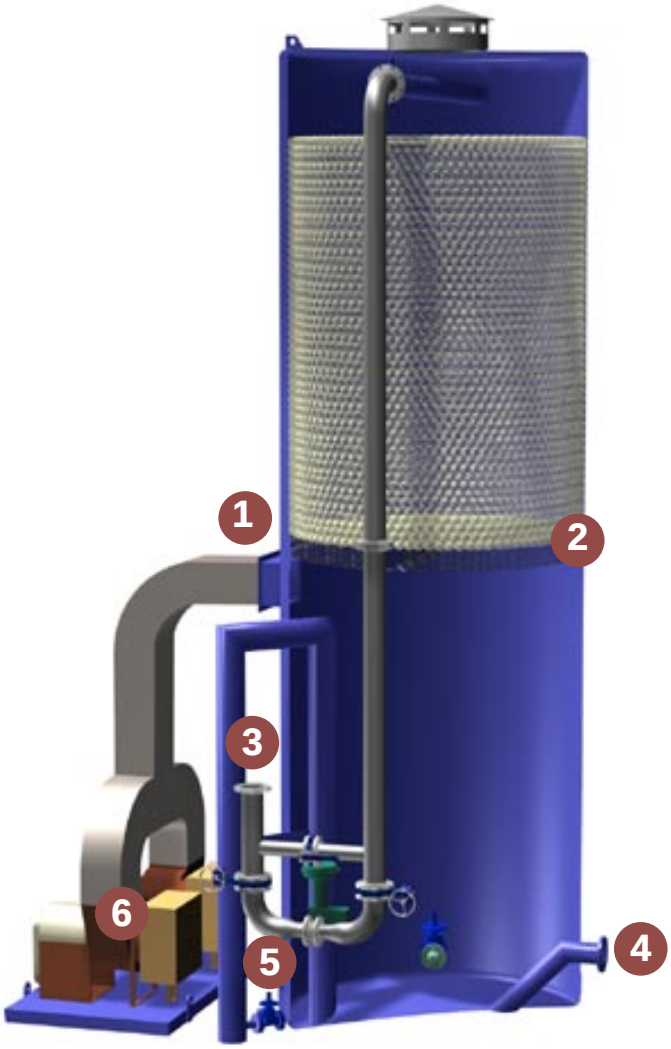
Water Flow

Air with CO^2 Out

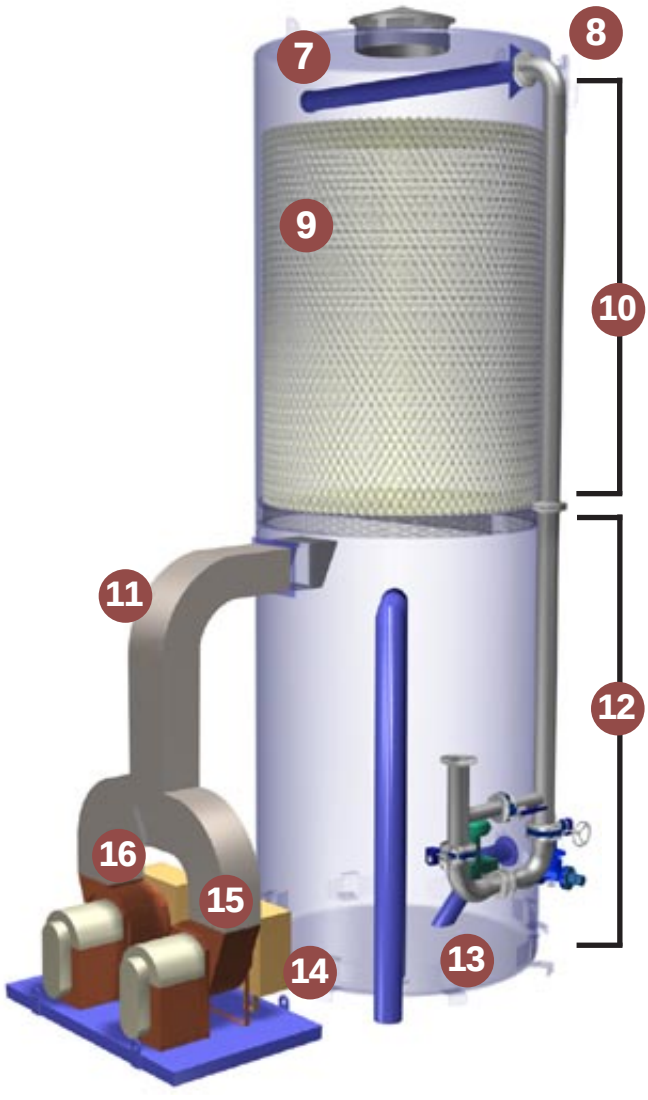


Air Flow

Key Components



1. *INTEGRAL FRP PACKING SUPPORT GRID*
2. *TOWER & CLEARWELL MADE FROM FRP TO MEET ASTM STANDARDS WITH BUILT-IN UV LIGHT*
3. *SERVICE WATER INLET*
4. *SERVICE WATER OUTLET*
5. *MODULATING LEVER CONTROL VALVE*
6. *DISPOSABLE INTAKE FILTERS PROVIDED*



7. *INLET DISTRIBUTOR WITH SPRAY NOZZLES*
8. *TOWER MANWAY*
9. *POLYPROPYLENE PACKING*
10. *TOWER*
11. *ALL DUCTING PROVIDED*
12. *CLEARWELL*
13. *VORTEX BREAKER AT SERVICE OUTLET*
14. *REDUNDANT FAN*
15. *MOTORS*
16. *FANS ARE SKID MOUNTED*

Forced Draft Decarbonator

Components	Features	Benefits
Tank	FRP tank meets ASTM standards. Includes UV light inhibitor for outdoor applications. Wetted surfaces have a resin-rich layer reinforced with a commercial grade chemical-resistant surface mat.	Industry standard tank. Superior durability.
	Option: Demister added ahead of the vent.	Prevents corrosive water droplets from entering through the vent.
	Option: Rain cap/pest screen.	Prevents rain and pests from entering the Decarbonator.
	Tower packing of polypropylene spheres held in place by an integral FRP support grid.	Provides a large surface area to promote additional release of entrained carbon dioxide.
	Manways are provided at the top of the tower and the clearwell bottom.	Unrestricted access to each compartment.
	An integral vortex breaker is added to the service outlet connection in the clearwell.	Reduces possibility of pump cavitation.
Internals	The inlet distributor is equipped with spring loaded spray nozzles to accommodate variable flow rates. The nozzles atomize the water before it reaches the packing materials.	Allows the unit to operate over a range of flow rates. Maintains quality when only one train of equipment is running or when the plant is operating at reduced flow due to low demand.
Fan Assembly	Fans are skid-mounted and located at ground level.	Easy installation and maintenance.
	Option: Duplex fans are available mounted on a single skid.	Fan redundancy ensures continuous operation.
	The ducting from the fan outlet to the tower air inlet has disposable intake filters.	98% efficiency at a 10-micron nominal rating to remove airborne contaminants.
	Option: Disposable activated carbon filters.	
Instruments	Level switch in the clearwell.	Protects downstream transfer pumps from cavitation and/or running dry.
	Includes a level transmitter and modulating valve on ion exchange systems.	Controls incoming water flow and clearwell level. Provides data to control system.