Production of demineralized water for industrial battery maintenance

Our demineralizers are designed to provide high-purity demineralized water, essential for the correct operation and long service life of industrial batteries. Thanks to ion-exchange technology, they remove salts and impurities from mains water, ensuring conductivity values below 30 µS/cm.
Available in different models, the units stand out for:

- **Ease of use**
- **Low operating costs**
- **Compact and robust structure**
- Fixed and mobile versions for every operational requirement

MG/3000B DEMINERALIZER

The MG/3000B demineralizer is a resin-based system for treating drinking water intended for battery use. It is a practical, easy-to-install and compact unit designed to provide, over time, the daily quantity of water required for battery topping-up.

It contains ion-exchange resin that demineralizes tap water. The unit simply needs to be fixed to the wall and connected to the mains water supply using a flexible hose. As the mains water passes through the resins, it is demineralized and ready for use.

When the resin contained in the cartridge turns orange, it must be replaced.
The quantity of resin contained in the MG/3000 demineralizer column can produce approximately 2,800/3,000 litres of water at 15°f.

The demineralizer is supplied complete with resin and ready for installation.

☞ **Warning!**	***The system must be used only and exclusively to filter mains water. It must not be used to purify polluted water or process wastewater.***

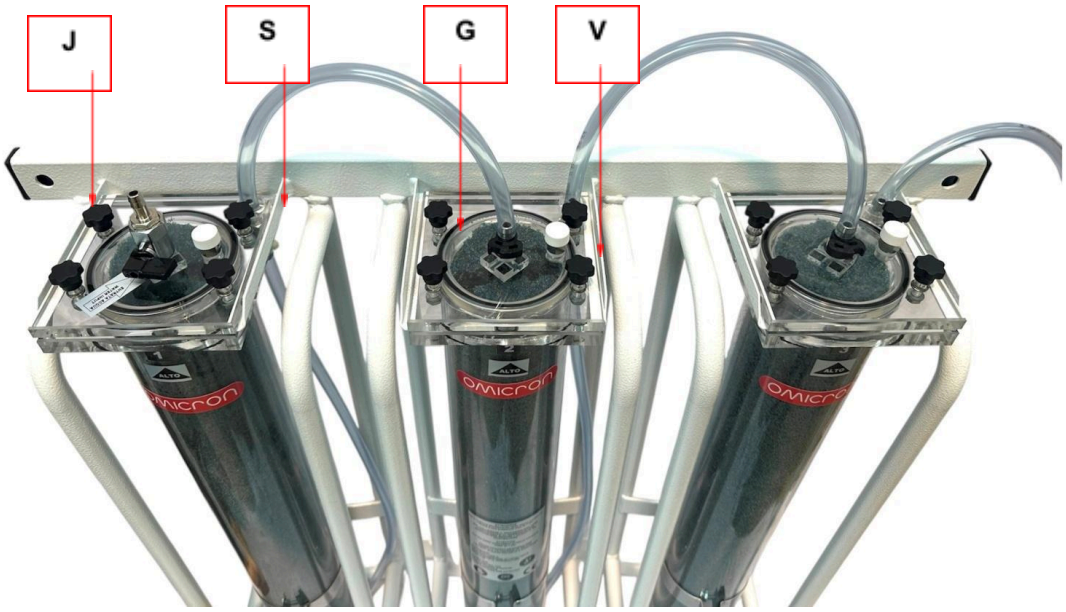
EQUIPMENT DESCRIPTION

The equipment essentially consists of:

- Three transparent Plexiglas columns mounted on a painted steel support
- A tap located at the top of the column to receive water from the mains supply
- A Vipla hose for the demineralized water outlet.
- Mixed-bed anionic and cationic ion-exchange resin.

Feed pressure	Max 1 bar	
Feed temperature	Min 5°C – Max 60°C	
Treated water production	*Hardness*	*Approx. litres*
	10° f	3000
	20° f	2760
	30° f	2100
	40° f	1800

TECHNICAL FEATURES



Ref.	*Description*	Code
T	Support frame	MG/3000-T
K	Plexiglas column	MG/3000-K
J	Water inlet to the demineralizer	MG/3000-J
S	Sliding support	MG/3000-S
F	Clamp	MG/3000–F
V	Air vent handwheel	MG/3000–G
G	Cover locking wing nuts	MG/3000-V
E	Demineralized water outlet	MG/3000-E
R	Replacement resin	3000.34

BASIC REQUIREMENTS SHEET

REQUIREMENTS AND SPECIFICATIONS	*NOTES*
Weight	30 kg
Dimensions	800 x 750 x 170 mm
Column	3 Plexiglas
Portability (manual, cart)	Wall-mounted support
Feed water	Mains water supply
Inlet	8x12
Outlet	8x12
Operating pressure	Max 1 bar
Operating environment	Battery charging room
Resin specification	Mixed-bed ion-exchange resin
Outlet water conductivity	0.1 µS/cm
Replacement resin code	Code 3000.34

USE

Installation and operation of the demineralizer are very simple: fix the demineralizer to the wall and connect it to the mains water supply using a flexible hose. As the mains water passes through the resins, it is demineralized and ready for use. On average, at a pressure of 1 bar, the demineralizer produces approximately 3 litres of demineralized water per minute.
At this point, simply collect the demineralized water in the containers of the topping-up systems. It is important not to connect the demineralizer directly to the battery to be topped up. Numerous topping-up systems are available to meet the most varied application requirements.

When the demineralizer is used, the resin contained in the column gradually loses its exchange capacity and becomes exhausted. A slow and progressive change in resin colour can be observed from top to bottom, until the complete colour change indicates the corresponding exhaustion of the demineralizing capacity. When the resin colour has turned orange-brown, it must be replaced. Resin replacement is extremely easy: the simple design of the unit allows the column to be removed easily and the new resin to be installed quickly.

The standard configuration provides for column mounting on wall-mounted supports; on request, the frame can also be supplied with wheels.
Demineralizers are static units, not subject to deterioration and designed to last over time without any maintenance, provided they are not exposed to temperatures below 0°C.

The resin is exhausted when it has changed colour along the entire length of the column and has turned orange.

ION-EXCHANGE RESIN CHARACTERISTICS

Cationic resin: styrene/divinylbenzene copolymer with quaternary ammonium groups.
Anionic resin: sulfonated styrene/divinylbenzene copolymer.

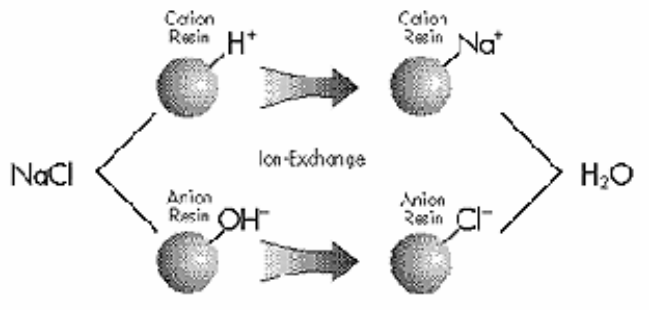
The product contained inside the demineralizers and their replacement cartridges is a mixed-bed ion-exchange resin, consisting of a cationic resin with strong-acid functionalization in hydrogen ion form and an anionic resin with strong-base functionalization in hydroxide ion form.

The resin appears as very small blue-green beads.

In the ion-exchange process, water passing through a mixed bed of ion-exchange resin exchanges the ions in the water with other ions fixed on the resins. Deionization is the most common ion-exchange method. A mixed-bed cartridge makes it possible to obtain the highest achievable ionic purity, with a conductivity of 0.1 µS/cm.

Conductivity	0.1 µS/cm (µS/cm 1 > 1 < 1)
Hardness	Absent
Foreign minerals	Absent

Mixed-bed ion-exchange technology



Deionization resins exchange both hydrogen ions with cations and hydroxyl ions with anions. Cation-exchange resins, made from styrene and divinylbenzene containing sulfonic groups, exchange one hydrogen ion with any cation they come into contact with, such as Na+, Ca++, Al+++ and charged soluble organics. Similarly, anion-exchange resins, made from styrene and divinylbenzene containing quaternary amine groups, exchange one hydroxyl ion with any anion, such as Cl-. Hydrogen ions from the cation resins and hydroxyl ions from the anion resins combine to form water. These resins are used in mixed-bed exchangers, where anionic and cationic resins are mixed together. Once the resins have exchanged all their hydrogen and/or hydroxyl ions with the ionic contaminants present in the water, they must be replaced.