



WTS
Water Treatment System
the ideal water for humidification

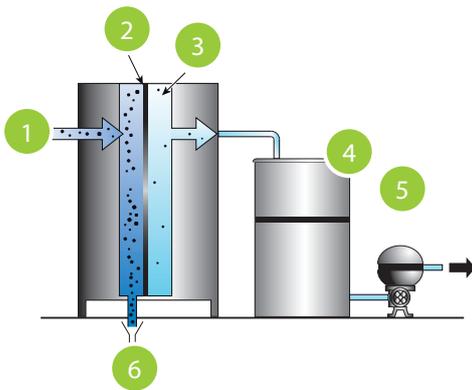
Reverse osmosis water treatment system

CAREL's offering of complete solutions continues to grow, with two new versions suitable for all types of humidifiers

What is reverse osmosis?

It is the technique by which the water to be purified is pumped at high pressure through a semipermeable membrane with pores measuring less than 0.001 μm in diameter: the majority of the dissolved ions are filtered by the membrane, thus producing extremely pure water. The removal of minerals, measured as a percentage of the original content, varies from 95% to 99% and even higher. Automatic operation and low operating costs mean the technique and its undeniable advantages can be widely applied.

Installation example



- 1 mains water inlet (water + mineral salts)
- 2 membrane
- 3 demineralised water

- 4 storage tank
- 5 points of use
- 6 drain water (concentrated mineral salts)

Why use demineralised water?

In electric heater steam humidifiers, demineralisation minimises the accumulation of mineral salts and fouling in the boilers, thus extending working life: maintenance is reduced and there is no more need to shut the unit down for periodical cleaning.

In adiabatic humidifiers, demineralised water prevents the nozzles from being blocked by dirt, the accumulation of mineral salts in air handling units (filters and droplet separators) and the dust of mineral salts from being introduced into the humidified environment. Maintenance costs are reduced and the ventilation systems are more hygienic, as desalinated water contains no bacteria or contaminants.

In the specific case of ultrasonic humidifiers, the elasticity of the transducers is not affected by possible fouling: CAREL humiSonic components, if used with demineralised water, are guaranteed for a minimum of 10,000 hours uninterrupted operation!

Limits on maximum conductivity and water hardness are also specified by standards, such as UNI8884, VDI6022, VDI3803 and L8.

Comparison against water softening

Reverse osmosis is a treatment that produces pure water, while water softening is a completely different procedure, which simply replaces the salts that cause fouling, such as calcium and magnesium, with sodium. Reverse osmosis is therefore the best solution for almost every type of application.

In addition, the use of softened water in isothermal humidifiers causes foaming - meaning entrainment of droplets of water - and premature corrosion of the heating elements, thus increasing maintenance costs. In this case too, softening is not recommended.

Supplied with drinking water, the unit produces demineralised water whose characteristics are ideal for providing humidifier feedwater: maintenance is minimised.



Easy start-up

WTS is pre-calibrated for simple and fast start-up. The automatic "flushing" procedure reduces maintenance.



Integration

The new WTS system guarantees perfect operation with CAREL humidifiers.



Maximum hygiene

WTS provides desalinated water containing no bacteria or contaminants, with the additional safety of the ultraviolet disinfection system.

WTS compact

ROC*



The compact version of the new CAREL reverse osmosis system has been designed for treating the feedwater used by humiSonic and heaterSteam humidifiers. Its strengths are:

- reliability. Safety is guaranteed by systems that shut the unit down in the event of faults;

- quality and usability. All WTS compact units are pre-calibrated and tested;
- simple maintenance. The only routine maintenance operation involves simply replacing the filters.

Sizes

WTS compact is available in five sizes, from 12 to 60 l/h.

It can also be supplied in the version without pump, if the feedwater pressure is greater than 4 bars.

System composition

- Micrometric safety pre-filtering (to remove impurities from the water);
- activated carbon dechlorination system (reduces water hardness and protects the membrane)
- electrical control panel and rotary vane

pump;

- TFC reverse osmosis membrane;
- UV disinfection system (optional)

Accessories

- Expansion vessel, able to maintain water pressure up to 3-4 bars. WTS compact is supplied with one vessel;
- UV disinfection lamp to guarantee maximum hygiene. The lamp shines UV rays on the feedwater, helping to eliminate any biological contaminants, such as bacteria, viruses, mould, spores and yeast.



expansion vessel



UV disinfection lamp

WTS large

ROL*



CAREL also offers a large version of the WTS system. WTS large is suitable for higher capacity steam humidifiers, such as gaSteam, and for the entire range of adiabatic humidifiers.

Main features

WTS large has been designed and developed based on the needs of the market and users:

- design. No bulky cabinet means access is simplified for all type of work;
- recirculation setting. Keeping a high

water recovery value prevents costly excess water bills;

- NSF certified descaler. Along with the standard descaler, an NSF certified version is also available for applications that require food safety certification.

Sizes

WTS large is available in six sizes, from 160 to 1,200 l/h.

Accessories

- Expansion vessel, able to maintain water pressure up to 3-4 bars. Simple and effective.
- Storage vessel with, able to pressurise the water to a height of 30 metres. Ideal for applications with complex layouts.
- Antiscalant descaler liquid, to prevent scale build-up on the membrane.

WTS CAREL has been specially developed for use with humidifiers:

- maximum hygiene guaranteed, with the added safety of UV disinfection
- compact and easy to install, available in sizes from 12 to 1,200 l/h



expansion vessel



storage vessel with pump

WTS compact datasheet

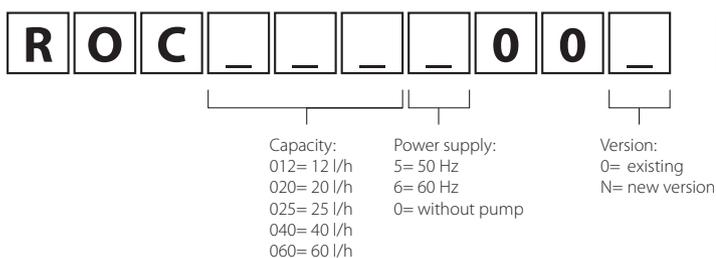
Model	ROC0120000	ROC0200000	ROC025*00N	ROC040*00N	ROC060*000
Feedwater pressure	3.5-8 bars	3.5-8 bars	1.5-4 bars	1.5-4 bars	1.5-4 bars
Room temperature	5-40°C	5-40°C	5-40°C	5-40°C	5-40°C
Demineralised water production	12 l/h	20 l/h	25 l/h	40 l/h	60 l/h
Installed power	-	-	245 W	245 W	245 W
Connections					
Power supply	-	-	230 V, 50 Hz or 60 Hz single-phase		
Supply water	G ½" F	G ½" F	G ½" F	G ½" F	G ½" F
Demineralised water outlet	Ø 10 mm	Ø 10 mm	Ø 10 mm	Ø 10 mm	Ø 10 mm
Concentrated water drain	Ø 8 mm	Ø 8 mm	Ø 8 mm	Ø 8 mm	Ø 8 mm

WTS large datasheet

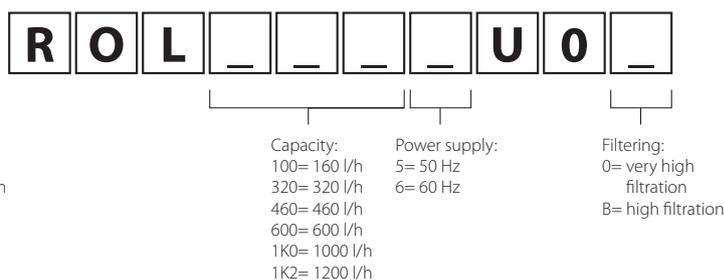
Model	ROL100*U0*	ROL320*U0*	ROL460*U0*	ROL600*U0*	ROL1K0*U0*	ROL1K2*U0*
Feedwater pressure	1.5-4 bars	1.5-4 bars	1.5-4 bars	1.5-4 bars	1.5-4 bars	1.5-4 bars
Room temperature	5-40°C	5-40°C	5-40°C	5-40°C	5-40°C	5-40°C
Demineralised water production*	160 l/h	320 l/h	460 l/h	600 l/h	1000 l/h	1200 l/h
Drain*	70 l/h	150 l/h	460 l/h	600 l/h	470 l/h	570 l/h
Recirculation*	70 l/h	150 l/h	460 l/h	650 l/h	450 l/h	450 l/h
Installed power	600 W	600 W	1600 W	1600 W	1600 W	1600 W
Connections						
Power supply	2230 V, 50 Hz single-phase or 230 V, 60 Hz single-phase					
Supply water	G ¾" F	G ¾" F	G 1" F	G 1" F	G 1" F	G 1" F
Demineralised water outlet	G ½" F	G ½" F	G ¾" F	G ¾" F	G ¾" F	G ¾" F
Concentrated water drain	G ½" F	G ½" F	G ¾" F	G ¾" F	G ¾" F	G ¾" F

*Suggested value. The parameter can be set by the user.

Compact version part numbers



Large version part numbers



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