humiSteam

The rational choice, suitable for every application

humiSteam
range of immersed electrode humidifiers

humiSteam is the synthesis of CAREL's extensive experience in the field of steam humidification, and represents the most rational choice for a wide variety of applications: civil environments, offices and industrial plants.

- Reliability: the patented AFS system (Anti Foaming System): detects and manages foam to prevent droplets of water being carried by the steam;
- Performance: quick start-up and operation with a wide range of feedwater conductivity values;
- Safety: modulating limit probe for maximum safety in the ducts.

humiSteam operation is based on a very simple physical principle. As common drinking water contains a certain quantity of dissolved mineral salts, and is consequently slightly conductive, applying a voltage to metal electrodes immersed in the water creates an electric current that heats the water until boiling, thus producing steam (Joule effect).

Immersed electrode humidifiers, compared to immersed heater or gas-fired humidifiers:

- have a more competitive purchase **price**;
- operate on **drinking water**;
- require periodical replacement (or cleaning) of the **cylinder**;
- feature modulation suitable for **comfort or industrial applications**.

CAREL has been manufacturing immersed electrode humidifiers since the 1970s and can draw benefit from its know-how in the field of **electronic controllers**: precise control, reliable electronics and sophisticated and complete control software.

One of the strengths of these humidifiers is the possibility to use mains water, with the software able to **automatically adapt** to a very wide range of feedwater characteristics.

Easy to maintain
Cylinders with snap-on power connectors for easy, fast and risk-free maintenance.

Ease of use
Backlit LCD display for clear understanding of the unit's operating status and diagnostics.

Hygiene
The water is automatically drained if the humidifier remains inactive for a certain period of time, avoiding stagnation.

humiSteam basic

The balanced and complete choice for humidity control

All models provide the best features of CAREL humidifiers to ensure **maximum reliability** and **hygiene**.

The UEY range can be managed by external input signals or using relative humidity probes, with operation in ON/OFF or proportional mode

humiSteam x-plus

Control and maximum intuitiveness

Through extensive integration with BMS systems, the UEX range of humidifiers represents the preferred solution for all applications that require high levels of **connectivity** to ensure maximum control over operation.

Extremely intuitive graphic display with keypad for programming and controlling operation.
The availability of a large amount of information also guarantees efficient management of diagnostics and **troubleshooting**, reducing operating costs.

The limit probe reading, in addition to the temperature and relative humidity probes, guarantees greater **safety** and hygiene. Moreover, modulating operation ensures continuous and efficient control of steam production.

Comparative table

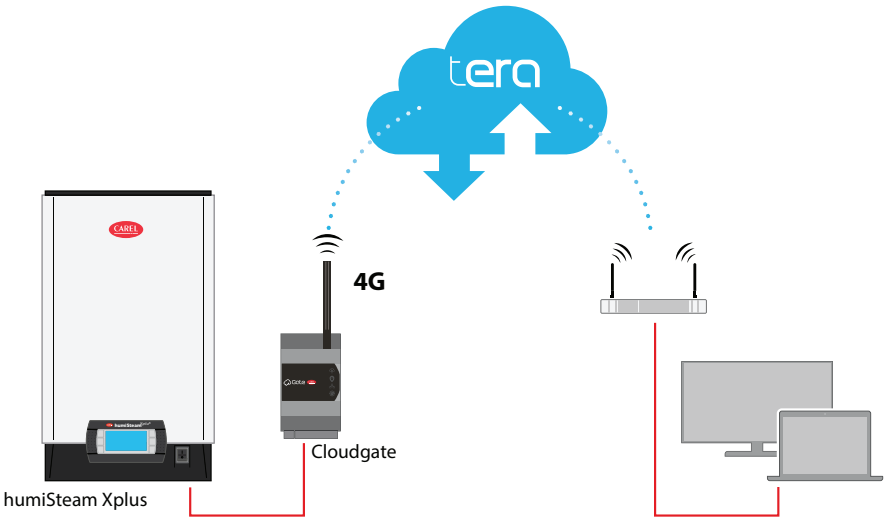
	humiSteam basic (UEY)	humiSteam x-plus (UEX)
Capacity	★★½ Maximum 65 kg/h	★★★ Maximum 130 kg/h x 20 units (main/secondary cabinet)
Interface	★★½ Icons and alphanumeric codes	★★★ Descriptive messages in the selected language
Connectivity	★★½ Embedded Carel + Modbus protocols	★★★ As for the basic version + BacNET, LON, remote supervision available
Modulation	★★½ ON/OFF, proportional (humidity probe, external signal)	★★★ As for the basic version + temperature probe, limit probe
Hygiene and reliability	★★★ Programmable and automatic cylinder draining, anti-foam algorithm	★★★ Programmable and automatic cylinder draining, anti-foam algorithm
Diagnostics and alarms	★★½ Alarm relay, remote interlock, programmable and automatic maintenance alerts	★★★ As for the basic version + alarm log + remote supervision and troubleshooting available

Supervision with Cloudgate High End

The new solution with independent connection for remote supervision and troubleshooting of humidifiers and more...

With the new Cloudgate High End, humiSteam x-plus can be completely controlled from the home or office, using a tablet or PC. The problems found and past operation of the unit can be analysed. An email address can set for automatic notification in the event of faults or to warn that planned maintenance will soon be needed.

All of this can be done without having to connect to existing networks: Cloudgate High End comes with an independent and pre-configured data connection, making it perfect for retrofits.



For end users

- Remote supervision of the humidification system means faster response times in the event of faults and routine maintenance. Maintenance notifications mean spare parts can be ordered in advance and thus available in time. **Reduce downtime, keep humidification running and protect the process**;
- Remote control of multiple units located in distant and hard-to-access equipment rooms makes maintenance simpler and faster. **Reduce maintenance costs.**

For maintenance technicians

- Analyse unit problems before physically going to the field, reduce the number of field service operations, solve some problems directly from your PC. **Reduce travel costs and service times**.
- Improve the end customer service level, notify customers that the unit needs maintenance without them even needing to be involved. **Expand your maintenance business.**

Available versions

Available both inside an electrical panel, including the power supply and disconnect switch, or as a standard DIN module.

Ideal for both retrofit and new installations.

Cloudgate High End inside the dedicated electrical panel

Cloudgate High End as a DIN module

Steam distribution

In addition to the humidifier, CAREL can offer a complete solution including all of the accessories and systems for steam distribution, for quick and easy installation.

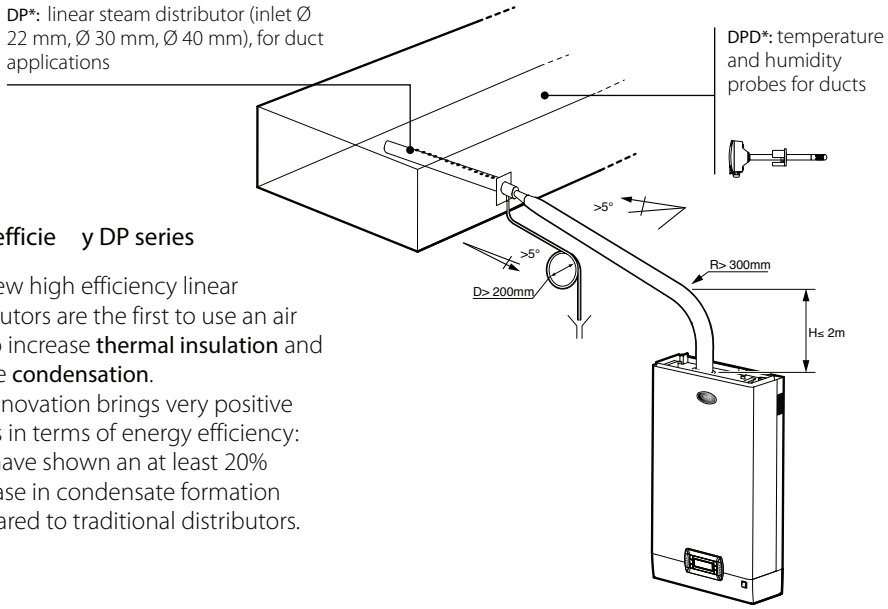
For ducts: linear steam distributors

DP series

The wide range of "DP" series **linear steam distributors** for ducts consists of perforated stainless steel pipes supported by a Ryton® fixing bracket. This material combines excellent mechanical strength with extraordinary resistance to high temperatures.

High efficie y DP series

The new high efficiency linear distributors are the first to use an air gap to increase **thermal insulation** and reduce **condensation**.
This innovation brings very positive effects in terms of energy efficiency: tests have shown an at least 20% decrease in condensate formation compared to traditional distributors.

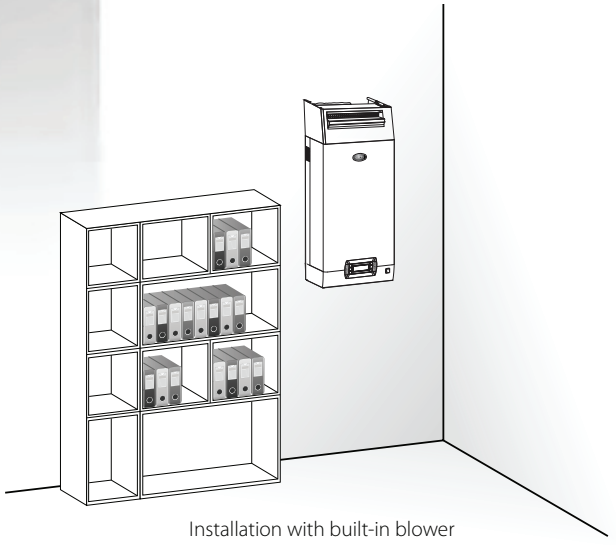


For rooms: blowers

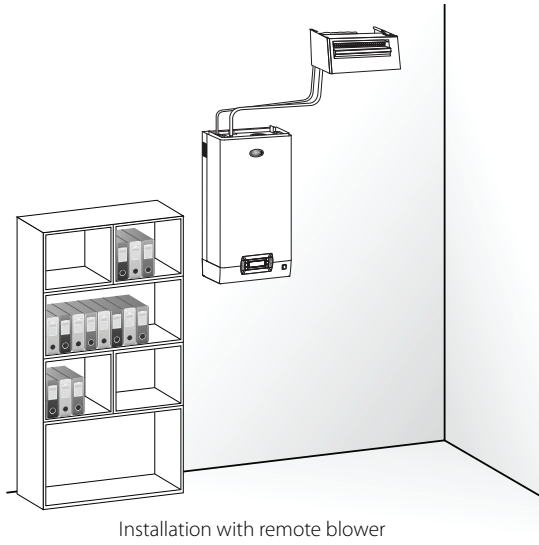
The **blowers** can be **installed directly on the humidifier, or separately**. In the latter case, a support and a steam hose are provided to connect the blower to the humidifier.
The blower works in ON/OFF mode and is managed by a temperature-controlled device that activates it when steam is produced.

The new generation of blowers guarantees:

- a steam absorption distance of around one metre, allowing the unit to be positioned in complete safety;
- a range of steam production modulation from 0 to 100%;
- backward compatibility with existing installations.



Installation with built-in blower



Installation with remote blower

Cylinders

Feedwater characteristics are typically a critical factor for immersed electrode humidifiers, as they significantly affect performance and are often out of the customer's control. CAREL cylinders are designed to overcome this variability.

- Wide range of feedwater conductivity;
- Disposable or openable models available;
- Algorithm for optimal management based on conductivity.

CAREL has developed three models of cylinders which, by exploiting different positioning and dimensions of the electrodes, can guarantee the same **optimal performance** with a **wide range of feedwater characteristics**, especially as regards the salt content.

The **advanced management logic of the dilution cycles based on the conductivity reading and the foam elimination protocols**, significantly extend the humiSteam cylinder working life.

The humiSteam cylinders are also available in the "disposable" version or in the openable version.

Available options

Feedwater conductivity range:

- 75-350 µS/cm: cylinders for low conductivity;
- 350-750 µS/cm: cylinders for medium conductivity;
- 750-1250 µS/cm: cylinders for high conductivity.

Type of cylinder:

- "disposable" cylinder - estimated working life: 2500 h;
- openable cylinder - estimated working life: 10000 h;

New snap-on connectors

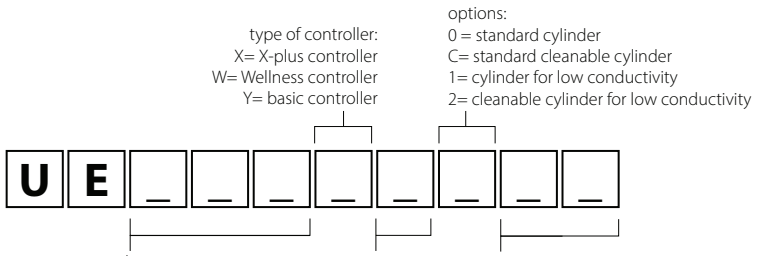
There are no screws for fixing the power connection, but rather snap-on connectors, for better safety and reliability. Cylinder replacement is faster, no tools are required.

Adapters for backward compatibility: old versions of humiSteam can be equipped with adapters to make them compatible with the new type of cylinders.

Technical specifications table

Specifications	UE001*	UE003*	UE005*	UE008	UE009*	UE010*	UE015*	UE018*	UE025*	UE035*	UE045*	UE065*	UE090*	UE130*
General														
Rated steam production (kg/h)	1.5	3	5	8	9	10	15	18	25	35	45	65	90	130
Power consumption (kW)	1.12	2.25	3.75	6.00	6.75	7.50	11.25	13.5	18.75	26.25	33.75	48.75	67.5	97.5
Power supply (other voltages on request) • 200, 208-230 Vac -15/10%, 50/60 Hz single-phase • 200, 208, 230 Vac -15/10%, 50/60 Hz three-phase • 400, 460, 575 Vac -15/10%, 50/60 Hz, three-phase	•	• • •	• • •	• •	•	• •	• •	•	• •	• •	• •	•	•	•
Steam connection (mm)	Ø 22/30		Ø 30						Ø 40			Ø 2x40		Ø 4x40
Outlet pressure limits (Pa)	-600 to 1500		-600 to 1300		-600 to 1350				-600 to 2000					
Number of cylinders	1												2	
Operating conditions	-1T40°C, 10-90% rH non-condensing													
Storage conditions	-10T70°C, 5-95% rH non-condensing													
Ingress protection	IP20													
Water fil														
Connection	3/4"G male													
Temperature limits (°C)	1T40													
Water pressure limits (MPa - bars)	0.1 to 0.8 - 1 to 8													
Instant flow rate (l/m)	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.1	5.85	5.85	5.85	7	14	14
Total hardness (°fH)	10 to 40													
Conductivity limits (µS/cm)	75 to 1250													
Water drain														
Connection	Ø 40													
Temperature (°C)	≤100													
Instant flow rate (l/m)	9								22				44	
Blower														
Number	1											2		
Type	VSDU0A*								VRDXL*					
Power supply (Vac)	24								230					
Nominal power (W)	37								35					
Nominal air flow-rate (m3/h)	192								650					
Network														
Built-in network connections	UEX*, UEY* and UEW*: Modbus®, CAREL													
Optional network connection (with Gateway or card)	UEX*, UEY* and UEW*: BACnet™, LON®, Ethernet®, RS232 + GSM (optional)													
Controller	UEY* / UEX* / UEW*												UEX*	

Part number



NB: • not all combinations of part numbers are available;
• UEW: 230 V single-phase and three-phase, 400 V three-phase.

Applications

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In its 50-year history, we at Carel have aimed to become experts in our customers' applications, in order to best identify their needs and design our products so as to provide them with exactly what they need.

Comfort

Control of indoor air quality is a fundamental, albeit often overlooked, factor in many commercial and residential environments, as it affects the well-being, productivity and health of building occupants. In particular, keeping relative humidity values in a middle range (40% -60%) is one of the most important aspects. Carel's extensive experience in humidifying hospitals, offices, schools, supermarkets, theatres, residential units and retirement homes helps our customers to minimise the transmission of airborne diseases, reduce absenteeism, improve work performance and people's comfort and health in general.

Industry

Many industrial processes require specific air conditions in order to function properly and achieve the desired product quality level.
Textiles, tobacco, wood, paper, wine, electronics, printing and many other industries use hygroscopic materials in their processes, which can change shape and properties and thus bend or break if a specific and at times tight range of ambient relative humidity values is not constantly maintained.

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