

# CAREL



air humidification systems

isothermal and adiabatic humidification



Humidity matters!  
CAREL solutions for your humidification needs

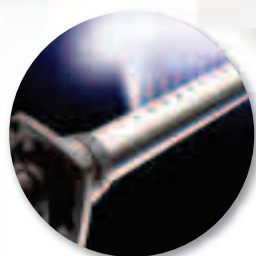
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I n t e g r a t e d   C o n t r o l   S o l u t i o n s   &   E n e r g y   S a v i n g s

# heaterSteam: electric heater steam humidifier

The avant-garde solution. Produces aseptic steam from any type of demineralised or mains water.

Ideal for humidifying technological or medical environments, where the maximum purity of steam and extended maintenance-free operation are required.



*steam distributor*

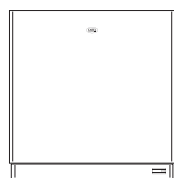
- capacity 2 to 60 kg/h;
- electric heaters embedded in Niflon-coated aluminium castings with a high heat exchange surface;
- embedded temperature sensors prevent damage due to overheating

The temperature sensors inserted into the heaters prevent any overheating, even without maintenance. In the top version, the heaters have a Niflon non-stick coating that protects them against corrosion and prevents adhesion of lime scale, making cleaning simpler.

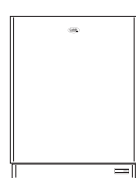
Available in the **ON/OFF and modulating versions**. In the latter version, heaterSteam, connected to a control probe and to an optional limit probe, can operate with modulation from 10% to 100% with precision of  $\pm 2\%$  RH.

The appliance can also be managed by a proportional external controller. A special version is available with temperature control, designed for steam baths.

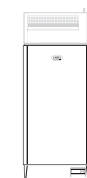
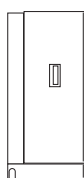
The **pre-heating function** ensures the humidifier starts operating immediately. The range of heaterSteam models runs from 2 to 60 kg of steam per hour.



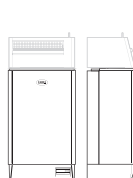
60 kg/h



20-27-40 kg/h



6-10 kg/h



2-4 kg/h



*heater*



## Precision

Suitable for applications that require precision of  $\pm 2\%$ .



## Reliability

The embedded temperature sensors protect the heaters against overheating



## Easy maintenance

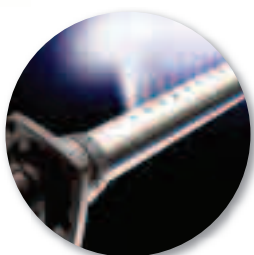
The large heaters with Niflon coating are easy to clean from lime scale.

# gaSteam: gas-fired steam humidifier

Humidify and save!

Works on potable mains water and demineralised water from reverse osmosis.

The gas-fired humidifier that is installed like an ordinary heating system.



steam distributor



heat exch.



burner

- LPG or natural gas;
- energy efficiency 92-96%;
- class C rating;
- pre-mix burner operating at negative pressure;
- modulation 25 to 100%

gaSteam ensures **energy efficiency that matches the best on the market** (from 92% to 96%) thanks to avant-garde technological solutions, such as the light alloy heat exchanger with Niflon non-stick coating.

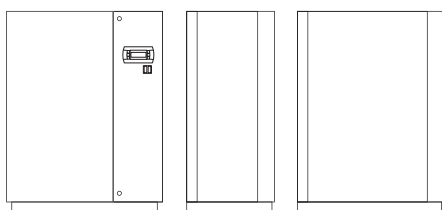
Safety is guaranteed by a system of redundant devices controlled by complete and **user friendly** software.

Steam production can be modulated continuously from 25% (12.5% for UG180) to maximum output.

The gaSteam control system offers integrated control with humidity probes, or production modulated by an external controller.

gaSteam **can be connected to a network** via Modbus® (standard) or other optional protocols.

gaSteam is approved by the main international safety organisations and is available in safety producing 45, 90 and 180 kg/h of steam.



45 kg/h (100 lb/h) / 90 kg/h (200 lb/h)  
180 kg/h (400 lb/h)



## Savings and the environment

gaSteam works by burning natural gas or LPG, a clean and economical energy source.



## High efficiency

The advanced design of the large aluminium alloy heat exchanger ensures maximum efficiency, up to 96%



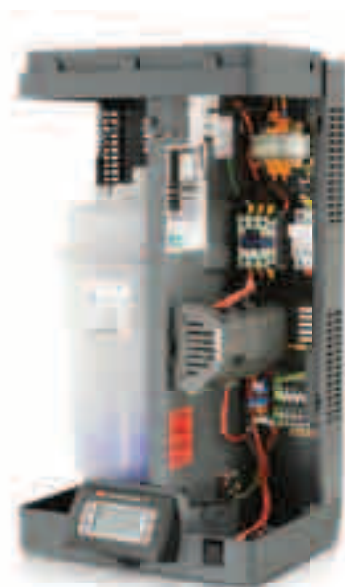
## Safety

Guaranteed by a system of redundant sensors.

# humiSteam: immersed electrode steam humidifier

The rational choice!

This is the result of CAREL's thirty-year experience in the field of steam humidification, and is the most rational choice for a wide variety of applications: civil environments, offices, industrial facilities and steam baths.



- three versions available;
- capacity 1 to 130 kg/h;
- control with 1 or 2 probes;
- disposable or openable cylinders

humiSteam operates on mains water with conductivity between 75 and 1250  $\mu\text{S}/\text{cm}$  and its control software automatically adapts to the characteristics of the water, optimising operating life without maintenance.

The humiSteam range comes in three versions:

- **humiSteam Basic** (or "Y"), controlled by external controller or BMS, with range from 1 to 65 kg/h;
- **humiSteam X-plus** (or "X"), with integrated control, limit probe and range from 1 to 130 kg/h

- **humiSteam "Wellness"** dedicated to steam baths, available up to 65 kg/h.

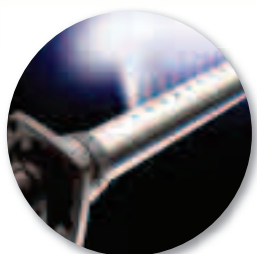
All the units come with drain pump. The **quick start** function makes it ideal for a wide variety of applications.

All humiSteam models offer Modbus® connection.

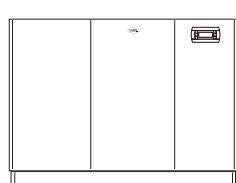
The X-plus and Wellness models also feature **automatic time band operation** and the option of other communication protocols.



*cylinder with electrodes*



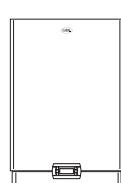
*steam distributor*



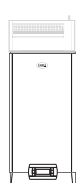
90-130 kg/h



65 kg/h



25-35-45 kg/h



1 to 18 kg/h



## Easy to use

Backlit LCD for clear understanding of operating status and diagnostics, in 5 languages



## Fast maintenance

Cylinders with quick coupling power connectors for easy, fast and risk-free maintenance



## Performance

Quick to start, modulation from 20% to 100 %

# humiFog multizone: high pressure atomising humidifier

Energy saving and hygienic safety!

The pressurised water humidification system with very high efficiency for air handling units in industrial and commercial environments and public buildings, as well as all large scale evaporative cooling applications.



- continuous modulation over a wide range;
- up to 600 kg/h;
- up to 6 independent zones;
- silicone-free versions

humiFog multizone can be used for precision applications ( $\pm 2\%$  rH) or to manage a maximum of 6 zones independently, using zone controllers served by a single pumping station, allowing significant savings.

It also has the dual function of **indirect evaporative cooling in summer** (without adding humidity, via heat recovery on exhaust air) and **humidification in the duct in winter**; also available for **direct humidification in rooms**.

Atomising water at high pressure (70 bars) using special nozzles, humiFog multizone produces a very fine and uniform aerosol, which is easily absorbed in the air even over short distances. The stainless steel rack with atomising nozzles, made to measure for the AHU, simplifies installation. Combined use of an inverter and solenoid valves to control the number of nozzles ensures considerable operating economy (4 W/(l/h) of atomised water) and high precision (continuous control from 14% to full capacity).

humiFog multizone is hygienically safe and is VDI6022 certified for use in AHUs/ducts.



## Very low power consumption

Just 4 W of power consumed for each litre/hour of capacity, less than 1% of any steam humidifier



## Summer/winter operation

Cools the air in summer without increasing the humidity, exploiting indirect evaporative cooling



## Very low power consumption

Just 4 W of power consumed for each litre/hour of capacity, less than 1% of any steam humidifier



# mc multizone: compressed air atomising humidifier

The mc multizone adiabatic humidification system is ideal for humidifying medium/ large industrial environments and large volumes of air, in ducts, air handling units or rooms (e.g. cold rooms, textiles industries...).



nozzles

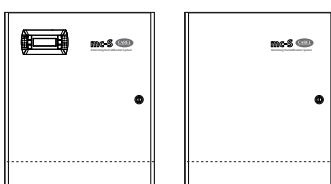
- up to 6 zones, with independent set points.
- easy to install:  
automatically balances the compressed air lines;
- periodical nozzle self-cleaning.

The system uses compressed air to atomise the water into very fine droplets that evaporate spontaneously in the air, humidifying and cooling it. The new electronic controller manages the water and compressed air supply to the nozzles, plus all the automatic cycles, such as nozzle cleaning and washing.

In addition, the unit can control the humidity independently (up to 6 zones) using a Master-Slave layout. It comes with a **large LCD** and a 6 button keypad for immediate and user-friendly access to information and parameters.

mc multizone ensures a **very high level of hygiene** thanks to automatic emptying of the water line whenever the unit stops and **automatic periodical washing** when the unit is not operating. In addition, a UV sanitising lamp is also available.

There are various models, differing in maximum capacity, type of control - ON/OFF or modulating, type of supply water, and Master or Slave.



master  
slave  
60-230 kg/h



## Guaranteed hygiene

Automatic procedure to avoid stagnated water. UV sanitising system



## Multizone

Multiple cabinets can be connected in a master-slave layout for multizone applications.

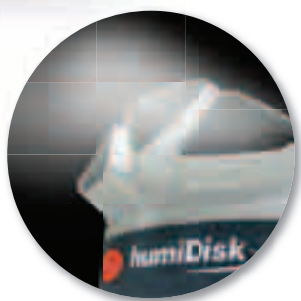


## Self-cleaning

The nozzles, made from AISI316 stainless steel, are available with different capacities, and feature a patented automatic cleaning system so as to minimise maintenance.

# humiDisk: centrifugal humidifier

The practical and flexible solution: a small, sturdy and easy to install humidifier; ideal for cold rooms and small spaces, paper and printing industries, textile industries.



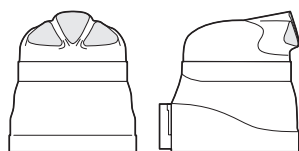
- feasy to install;
- minimum maintenance;
- automatic emptying cycles;
- adjustable capacity.

**Simple and effective**, works on mains or demineralised water. A spinning disk atomises the water into very fine droplets that can be easily absorbed by the surrounding air, humidifying and cooling at the same time.

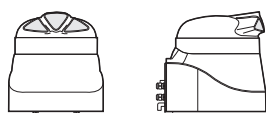
CAREL supplies electrical panels fitted with electronic humidity controller or simple low cost mechanical humidistats, allowing one or more humiDisk units to be operated in parallel. The electrical panels also ensure a **wash cycle whenever the humidifier starts**.

Automatic draining of the water tank after each operating cycle guarantees hygiene and makes the appliance ideal for the storage of foodstuffs, cold rooms or other small industrial environments and stores. The humidifier can be fitted with an optional antifreeze heater that is activated at temperatures around 0 °C, allowing operation down to -2 °C.

humiDisk is supplied with assembly brackets for easy wall mounting, or can be hung from the ceiling using metal chains.



6.5 kg/h



1 kg/h



## Hygienically safe

Very small water tank, frequent refill cycles, washing procedure at the start of each cycle.



## Every type of water

Works on potable mains and demineralised water.



## Low energy consumption

around 34 W per kg/h of capacity.

# Applications



## Office buildings

Humidification and/or cooling for optimum comfort.



## Food industry

Humidification for the production of biscuits, pasta and all hygroscopic materials and ingredients.



## Libraries and museums

Humidification for storing books, paintings and works of art in ideal temperature-humidity conditions.



## Cleanrooms

Maintenance of the humidity level required by the process and efficient evaporative cooling.



## Painting systems/booths

Maintenance of the humidity level to ensure quality and uniformity of the painted product.



## Tobacco industry

For processing, seasoning and storage of tobacco at the right humidity.



## Direct/indirect evaporative cooling

An efficient way to cool the air with extremely low power consumption.



## Hotels and call centers

Humidification and/or cooling for optimum comfort and to prevent illnesses caused by dry air.



## Textiles industry

Humidification to limit dust production and breakage of fibres, plus evaporative cooling to "absorb" the heat generated by the units.



## Outdoor cooling

Evaporative cooling outdoors.



## Printing and paper industries

To ensure productivity and final product quality.



## Timber industry

For processing and storing wood and timber.

## Headquarters ITALY

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