



gaSteam

Gas-fired humidifier for the highest efficiency humidity control

Gas-fired humidifier for applications with high steam requirements

Reliability and very high thermal efficiency make it possible to exploit the lower cost of gas as a fuel in both indoor and outdoor installations

- Wide range of models with steam production from 45 to 450 kg/h
- Outdoor version for critical temperatures and when no equipment room or compartment is available
- Minimum installation space
- Built-in remote supervision available

The proposal

gaSteam is a humidifier running on natural gas: a clean, sustainable and economical source of energy. It produces steam from both mains water and demineralised water.

The proposal includes a wide range of production capacities (45-450 kg/h), which can be increased considerably by connecting up to 20 units in series.

Indoor and Outdoor version

gaSteam is available in the indoor and outdoor versions. The outdoor version, designed to eliminate the risk of having a gas source inside the building and allow it to be used when no equipment room is available, produces steam even in the most critical situations and without the need for outdoor cabinets or compartments.

The gaSteam outdoor version has in fact been designed to withstand both high temperatures and especially climates or environments where the temperatures are very low (-40T45°C (-49T113°F)).



up to
±2%
Accuracy around the
relative humidity set
point



Hygiene

If there is no demand for humidity for more than three consecutive days, the water is automatically drained to ensure maximum hygiene.



Fuel supply

gaSteam can be supplied with natural gas or LPG: the gas is selected directly in the pre-mix burner calibration software. No modifications to the mechanical parts of the unit are required to switch gas.



Accuracy

gaSteam is suitable for precision applications, thanks to continuous capacity modulation from 25% (12.5% for UG180 and UG300) to 100% (giving a precision of up to +/-2% around the set point).

Design that ensures easy installation and maintenance, with the smallest footprint

Installation

Its construction and design make gaSteam an easy-to-install unit, both indoors and outdoors:

- **Raised base** to avoid damage due to water stagnation and for easy handling by forklift, without the risk of damage;
- **Smallest possible footprint** for positioning the unit;
- **Pre-assembled flue gas and steam outlet fittings** for quick and safe connection.

Easy maintenance

The unit can work on mains or demineralised water:

- the **boiler can be opened and inspected both from the top, with complete and rapid removal of the cover, and from the bottom** for cleaning and removing any scale that may have built-up;
- **possibility to access the unit from all sides** thanks to the completely removable panels on the cabinet, for easy cleaning and maintenance wherever gaSteam is installed.

Reliability and safety

gaSteam is equipped with systems that ensure correct functioning, safety and service continuity:

- **flame control:** control system connected to the electrical panel that detects the flame and automatically reignites it, if necessary, or closes the safety valve with an alarm signal.
- **temperature control system:** system for controlling and managing the unit parameters, protecting the outdoor humidifier from critical temperatures and ensuring correct operation. Similarly, in the event of inactivity or critical temperatures, gaSteam is equipped with an automatic boiler drain function.

Production efficiency and optimisation

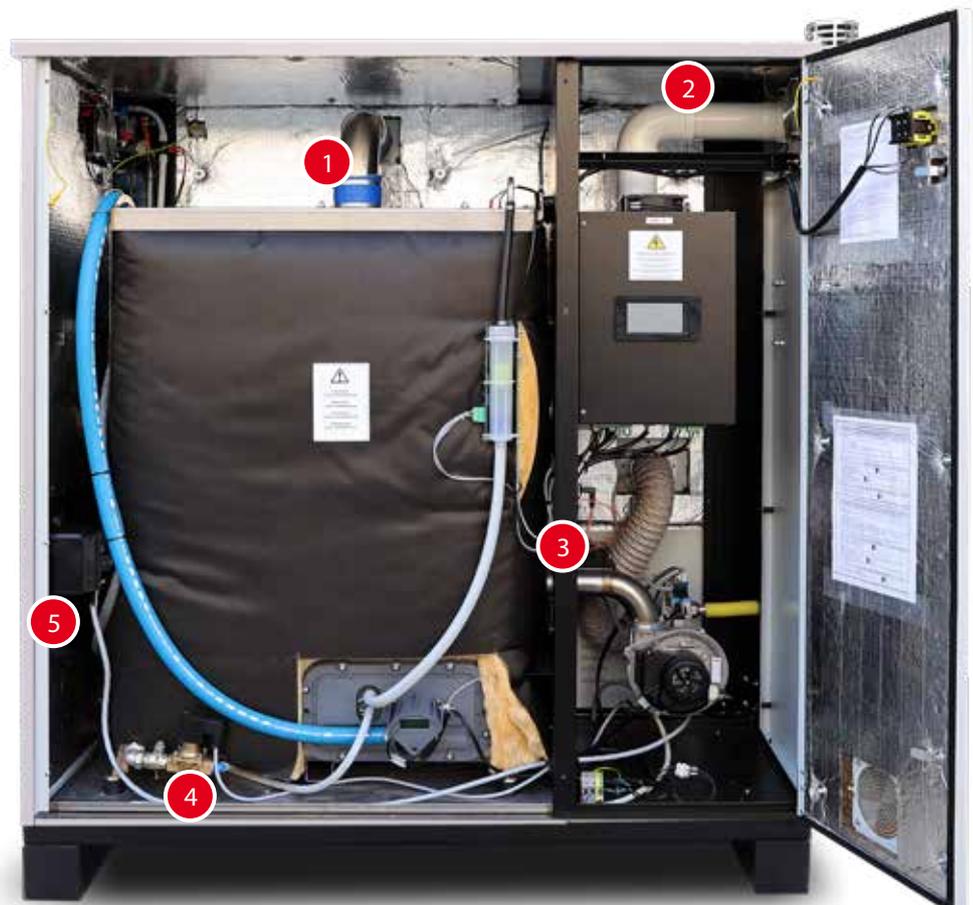
The exclusive design of the **heat exchanger** ensures high efficiency (94-96%) and easy maintenance.

Made from stainless steel to ensure a long life with any feedwater.

Pre-heating: this function keeps the water in the boiler at a temperature that can be set by the user for an immediate response when steam production is required.



EFFICIENCY
94-96
%



- 1 *pre-assembled steam outlet*
- 2 *pre-assembled flue gas outlet*
- 3 *heater*
- 4 *safety drain valve*
- 5 *heater*

Unprecedented user experience and connectivity

Wide range of functions and built-in supervision available.

Manage the site simply and effectively: keep system status under control and optimise maintenance scheduling

Touch screen display

gaSteam is fitted with an user-friendly graphic touch display for configuring the unit easily and intuitively using the readily available information.



Configuration wizard

gaSteam set-up is made easier by a simple and intuitive user interface, which guides users through the settings of the basic humidifier configuration parameters.

Advanced control

The gaSteam electronic controller has been designed and developed by CAR-EL for simple commissioning and installation, so as to quickly obtain excellent performance.

Modulating limit probe

Possibility to manage the set point by modulating steam production also based on the air flow in the duct, thus avoiding condensate formation and any water stagnation inside the duct.

Backup and rotation

Continuous steam production is ensured by exploiting the backup and rotation function, involving redundancy between two or more units (up to 20), which take over from each other or operate alternately, thus avoiding or postponing downtime due to maintenance.

The backup for preventive maintenance function activates the backup unit in advance, making it ready for production before the main unit stops.

Several units can be managed in parallel, in series or in groups, with rotation by time and advanced pre-heating on the second unit when the first reaches 90% capacity.

Features

| | |
|--|---|
| Integrated control with continuous modulation | Active room and duct probes: 0-1 V, 0-10 V; 2-10 V; 0-20 mA; 4-20 mA |
| Maximum hygiene and the possibility to avoid stagnation in the ducts | Modulating limit probe with 0-1 V; 0-10 V; 2-10 V; 0-20 mA; 4-20 mA signals |
| Immediate start of steam production | Pre-heating with NTC probe |
| Proportional to external signal | Signals: 0-1 V, 0-10 V; 2-10 V; 0-20 mA; 4-20 mA and ON/OFF |
| Use of probes in places where wiring is not possible | Wireless probes |
| Maximum connectivity for built-in supervision | The default communication protocols on the units are: BACnet, Modbus and CAREL on the BMS port, BACnet and Modbus also on the Ethernet port |
| Alarm signals | Alarm relay for lights/audible signals |
| Event and alarm logging | Built-in USB port |
| Software updates directly in the field | |

Steam distribution

gaSteam can be used for humidification in ducts, together with stainless steel linear steam distributors, or directly in rooms, combined with CAREL steam blowers.

In the most critical applications, for maximum performance, the ideal partner for gaSteam is ultimateSAM, a high-efficiency ducted steam distributor: this guarantees complete absorption of the steam in just a few centimetres, while also minimising condensation.

A special wall nozzle is also available for gaSteam, for operation in steam baths.



ultimateSAM



Linear steam distributors



Blower



Water treatment systems

CAREL has developed reverse osmosis water treatment systems specifically designed for use with its own humidifiers. The WTS is ideal for maximising the performance of gaSteam in any application: it is available in the compact versions, in sizes from 25 to 140 l/h, and large versions, treating up to 1200 l/h of water.

Why use demineralised water?

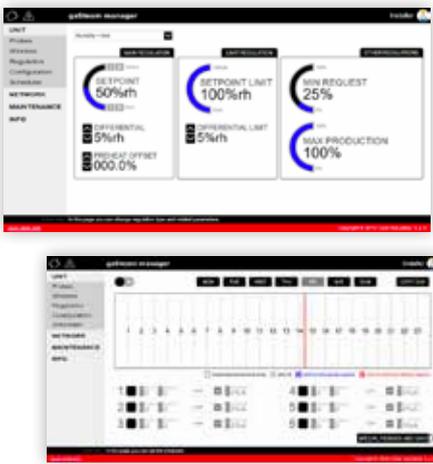
- minimised maintenance, as there is no scale build-up inside the humidifier;
- maximum hygiene guaranteed, also thanks to the UV disinfecting lamp;
- compact and easy-to-install solution.

Built-in local and remote supervision

System monitoring and interaction with the units, with solutions suitable for every need.

Built-in webserver

The built-in webserver allows a simple internet browser to configure and monitor the entire humidification system from a PC or tablet, connected to the local network.



The built-in webserver can manage: sensors, control signals, maintenance notifications, main/secondary system display. The humidifier on/off times can be set in the programming menu. Intuitive graphs and charts show real-time operation and historical statistics.

Cloud-based remote supervision

Remote monitoring and interaction with the unit are available via the new DIGITALHUM cloud portal, the plug&play solution for the remote management of humidifiers.

The humidifier operating data are available at all times on the cloud, as support for maintenance and to manage and reduce operating costs.

By connecting the unit to the "Cloudgate" gateway, available in the Ethernet and 4G versions, and associating the humidifier to the gaSteam template available in DIGITALHUM, monitoring is immediately available.



Local supervision

Local supervision system managed via remote for integrating monitoring of the single gaSteam unit into the overall air conditioning system.

Several humidifiers can thus be managed at the same time, balancing their operating hours.

The data analysis functions improve service activities and optimise system operation.

Graphs, parameters, alerts and statistics are all available to users.



On-site services and benefits

| Benefits of CAREL services | Commissioning | Warranty extension | One-off service and repairs | DigitalHUM | Maintenance contract |
|--|---------------|--------------------|-----------------------------|------------|----------------------|
| Work performed by qualified personnel | ✓ | ✓ | ✓ | | ✓ |
| CAREL original spare parts | | ✓ | ✓ | | ✓ |
| Guaranteed performance | ✓ | | | | ✓ |
| Guaranteed correct operation over time and extended product life | | | | | ✓ |
| Faster resumption of operation | | | | ✓ | ✓ |
| Lower management costs for unexpected events | | | ✓ | ✓ | ✓ |
| Remote control of the unit, alarm notifications; | | | | ✓ | |
| Guaranteed service times | | | | | ✓ |

Main applications

gaSteam is perfectly suited to industrial and commercial applications with medium humidification loads.

gaSteam is the best choice for applications such as:

- precision industrial processes;
- healthcare facilities;
- clean rooms;
- paint spray booths;
- production plants with constant steam demand.

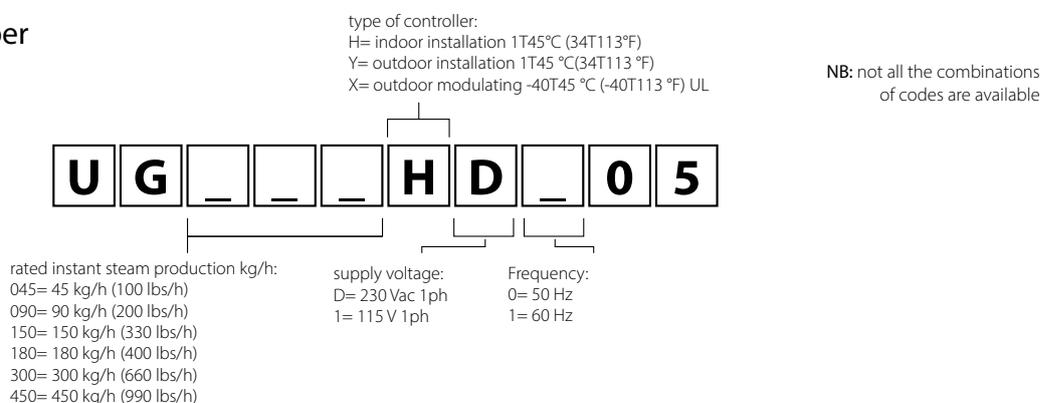


gaSteam Indoor and Outdoor versions table

| Specifications | UG045* | UG090* | UG150* | UG180* | UG300* | UG450* |
|---|---|----------|-----------|-----------|-----------|--------------|
| General | | | | | | |
| Rated steam production (kg/h (lbs/h)) | 45 (100) | 90 (200) | 150 (330) | 180 (400) | 300 (660) | 450 (990) |
| Power supply | 230 Vac 50 Hz (ver. UG****D005)/ 115V 60 Hz (ver. UG****1105) | | | | | |
| Max power consumption of unit alone (W) | 248 | 312 | 368 | 509 | 619 | 927 |
| Steam outlet pressure limits (Pa) | 0 to 2000 | | | | | |
| Steam connection (Ø mm) | 1x80 | 1x80 | 1x80 | 2x80 | 2x80 | 3x80 |
| Gas connection | 1x1"G | 1x1"G | 1x1"G | 1x1" 1/4G | 1x1" 1/4G | 1x1" 1/4G |
| Operating conditions | Indoor: +1T45°C(34T113°F); 10-90% rH non-cond. Outdoor: -40T45°C (-40T113°F); 10-90% rH non-cond. | | | | | |
| Certification | CE, ETL (UL998), TÜV and AGA. In addition for the outdoor version: ETL in accordance with IAS standard (no. 12-94) for outdoor installations | | | | | |
| Water fill pipe | 1x3/4"G male | | | | | 2x3/4"G male |
| Water drain connection (Ø mm (inch)) | 50 (1.97") | | | | | |

(*) gaSteam can be supplied with completely demineralised water (0°FH). If supplied with softened water, observe the minimum hardness value and follow the instructions shown in the manual.

Part number



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