proUmid

Humidity Generator

MHG – Modular Humidity Generator

MHG
Modular Humidit

Humidity Control

To provide reliable and reproducible results, an increasing number of analytical test methods require controlled environmental conditions.

Controlling relative humidity in particular has become an important issue. To meet the requirements of state-of-the-art analytics, we have developed Modular Humidity Generators.

Fast and Accurate Humidity Regulation
Closed loop regulation with very short response times and virtually no delay.

Fits a Wide Eange of Applications and Test Environments
Dynamic flow rates and variable control parameters for perfect adaptability to your target system.

Wide Temperature and Humidity Range
Customized setup allows operation in extreme temperature conditions.

Maintenance Free Operation
No regular service needed.

Fields of Application

Humidity generators are used in a wide range of analytical equipment and measurement tasks that require an atmosphere of controlled humidity.

- Thermogravimetric Analysis (TGA)
- Dynamic Mechanical Analysis (DMA)
- X-ray Diffraction (XRD)
- Atomic Force Microscopy (AFM)
- Nanomechanical testing
- Rheology
- Material testing: electronics
- Powder testing: flowability, stickiness, caking

- Near Infrared spectroscopy (NIR)
- Equilibration of samples
- Raman Microscopy
- Thermomechanical Analysis (TMA)
- Small-Angle X-ray Scattering (SAXS)
- Neutron & Synchrotron Science
- Glove Boxes
- Heavy water (deuterium oxide) humidification

Modular Humidity Generator MHG

- Fast and precise humidity control directly at the sample in the humidity-controlled measuring chamber.
- Precise control of the relative humidity for small volumes in analytical devices.
- Powerful for humidifying larger systems.
- Large temperature and humidity range.
- Modular design for easy adaptation to a wide variety of applications.

The MHG32 Humidity Generator

The patented design of the MHG32 is different from standard instruments for controlled humidity. It provides analytical equipment with precise humidity regulation especially at small flow rates.
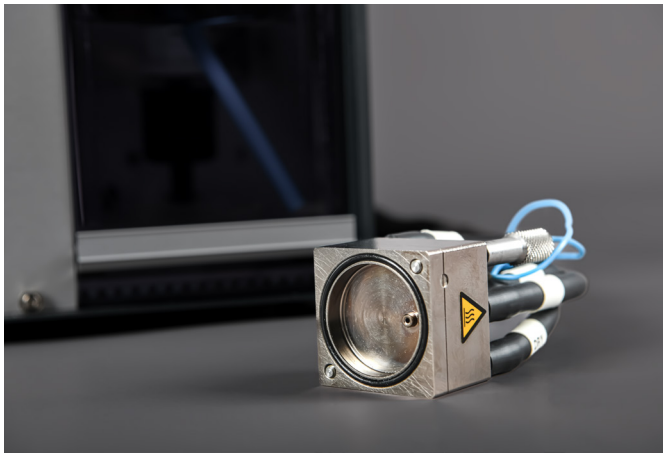
Fast Humidity Control Response
An external humidifier and mixing unit, directly connected to the target system, controls humidity precisely at the spot where it is needed.

Closed Control Loop
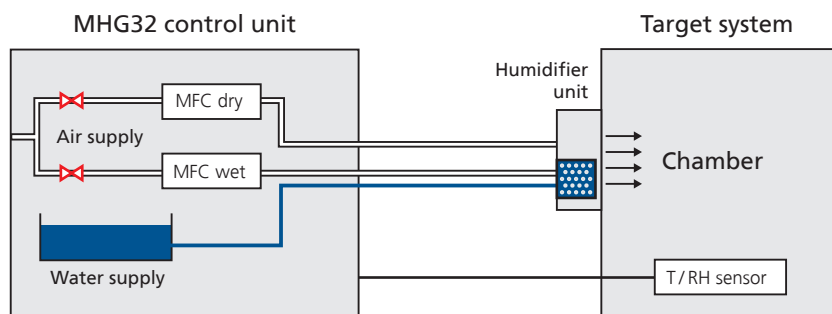With the temperature/humidity sensor placed inside, the target system is part of the closed humidity control loop.

External humidifier and mixing unit.

Humidifier unit connected to the target system.

Technical data	MHG32
Gases	Air, N_2, CO_2, Helium, Argon
Flow rates	5 … 500 ml/min (optional: 1000 ml/min)
Temperature range	with option TC: temperature control from ambient to 80 °C without option TC: no active temperature control*
Relative humidity	2 % RH … 98 % RH
Accuracy	± 0.8 % RH (0 … 98 % RH) at 10 … 30 °C

* External heating/cooling can be adapted by the customer. Temperature range: Min. 2 °C to Max. 95 °C.

Fast humidity control and minimized dead volume: water and dry air are supplied separately to the mixer unit, in which the air is humidified.

The MHG100 Humidity Generator

The powerful MHG100 is designed for large volume systems that require high gas flow rates.

Wide Humidity and Temperature Range

The MHG100 provides a precisely humidity-controlled gas flow over a wide temperature range, even at high flow rates.
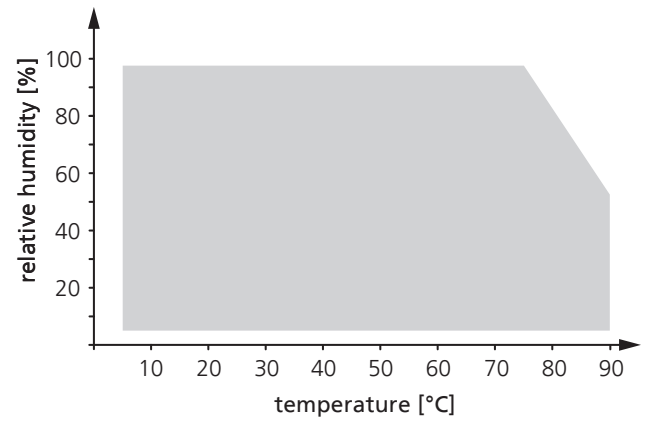
Closed Control Loop

With the temperature/humidity sensor placed inside, the target system is part of the closed humidity control loop.
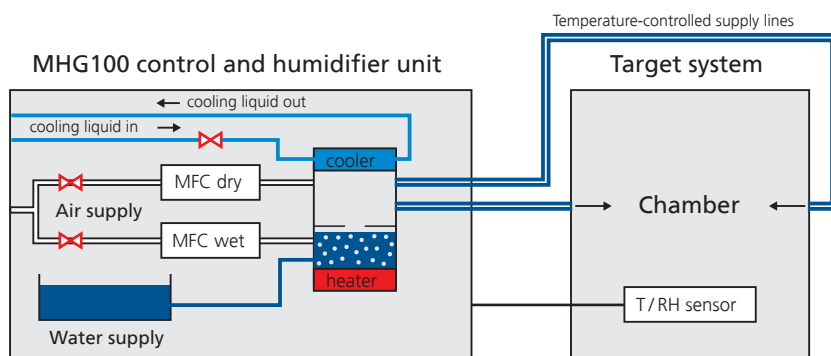
MHG100 supply lines

Technical data	MHG100
Gases	Air, N_2, CO_2, Helium, Argon
Flow rates	0 … 15 l/min
Temperature range	+5 °C … +90 °C
Relative humidity	2 % RH … 95 % RH
Accuracy	±0.8 % RH (0 … 98 % RH) at 10 … 30 °C

Dry and saturated gas are mixed and fed to the target system via temperature-controlled supply lines.

Operating the MHG

Local & Remote Operation
The MHG is operated directly via the front display or by remote control via RS232 or Ethernet interface.

Software Package
Including method editor for programming humidity profiles and data logger. Data export into Excel and LIMS compatible data formats.

MHG remote control software

Customization and OEM Systems

High Degree of Customization
The modular design of the MHGs enables the adaption to any application and complete integration into instrument solutions as an OEM product.
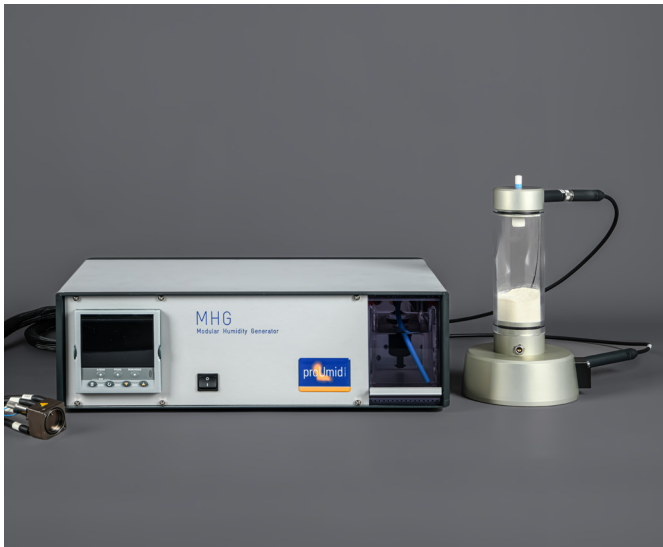
Sensor Interface
Any customer-specific temperature/humidity sensor with an analogue signal output can be connected.

Software Interface
The software interface is fully configurable and enables complete integration into the control software of the target system.

Hardware Accessories

Powder Conditioner
Moisture equilibration of powders, granules or pellets at controlled relative humidity. The powder conditioner is connected to a MHG32 humidity generator that provides a humidity controlled gas flow. Perfect for pre-treatment of powders for analysis of bulk properties such as rheometric properties, flowability, compactibility or caking behavior. The Powder Conditioner is specialized for powder samples, has flexibility in temperature and humidity, prevents clumping and as an add-on has water content determination.

Membrane Dryer
The highly efficient membrane dryer ensures optimal analysis conditions through precise air preparation. As a link between instrument and the compressed air network, it supplies filtered, dried air for up to two devices.

ProUmid GmbH & Co. KG
August-Nagel-Straße 23
89079 Ulm, Germany
+49 (0)7305 2030 440
info@proUmid.com
www.proUmid.com

Follow us on