



Walk-in Conditioning Chamber for humidification of polyamides

Branches:

- Plastics industry
- Electronics industry
- Automotive suppliers

Application:

Polyamides are highly versatile thermoplastic materials that are used in many products like, for instance, couplings, gear-wheels, cable jackets as well as all sorts of housings. Polyamides have many valuable characteristics, such as:

- High abrasion resistance
- Sound and vibration absorbing
- Temperature-resistant and dimensionally stable to approx. +100°C, high weathering resistance
- Beneficial slip features
- High electrical isolation

Nearly all the above mentioned characteristics are affected by the water content. Upon injection-moulding, the pellets used for the production of polyamides are extremely dry. The moisture content of the material increases due to the warm and damp climate prevailing inside the Polyamide Conditioning Chamber, hence the optimum of characteristics is achieved.

Objective:

Polyamide Conditioning Chambers allow reproducible conditioning of components. Different sizes and numbers of parts can be conditioned due to the wide application range.

Operation mode:

Upon production, the water content of polyamide parts is lower than 0,3 percent by weight. Hence, these parts are very brittle and weak against notch impact. In order to fulfil the quality standards for polyamide parts a defined water content is required, which is between 2 and 3 percent by weight, depending on the application. Polyamide chambers are designed to increase the moisture content. With a warm and humid climate of +40°C and 92% RH (as per DIN 50015) the required water content of polyamide can be achieved within a few hours. The characteristics of humidified polyamides are hardly affected by seasonal climatic variations, dryness or low temperatures.

Design:

The entire test appliance consists of the insulated test chamber, the temperature-conditioning devices installed inside the chamber, the pre-assembled machine unit and the switch and control cabinet.

The chamber is assembled on-site. For better ventilation, the entire chamber is mounted on a wooden lath base to prevent the accumulation of condensation under extreme temperature conditions. The air conditioning system, machine unit and switch and control cabinet are pre-assembled at the factory and will be connected to the test chamber on site.

Control and programming is realised by **SIMCON/32*-NET**, which is a self-monitoring, digital 32 bit measuring and control system. **SIMCON/32*-NET** meets the requirements of process technology and facilitates data input via the colour touch panel developed by Weiss Umwelttechnik.

Technical data:

Example: Type WK 36'/RT – 80/Pa (test space 36 m³)

Dimensions: Interior: H 2800 x W 3200 x D 4000 mm
Exterior: H 3060 x W 3440 x D 4220 mm

Configuration: Test space made of steam-tight welded stainless steel plate, ceiling-mounted cooler (covering made of stainless steel plate), internal illumination, double-winged door (H2300 x W2600mm), steam humidifier, temperature-conditioning auxiliary circuit, water cooling, wall port (Ø50mm).

Temperature range: RT ... +80 °C

Temperature constancy ± 1 °C (in time)

Humidity range: RT ... 95 % RH (capacitive)

Humidity constancy ± 5 % RH

Dew point range: RT ... +78,5°C

Specimen mass: 1.080 kg polyamide (12 plastic boxes), material humidified by 1 to 1,5% by weight

Conditioning cycle

 (guideline value, measured in the air)

The system is designed for the following conditioning cycle:

Heating time RT to +80 °C → approx. 1 h

Dwell time: depending on material and wall thickness

Humidification to 95 % RH upon heating phase → appr. 1,5 h

Conditioning cycle: Duration depends on the specimen

Cooling time +80 to +40 °C → approx. 1,5 h

Year of construction: 2006

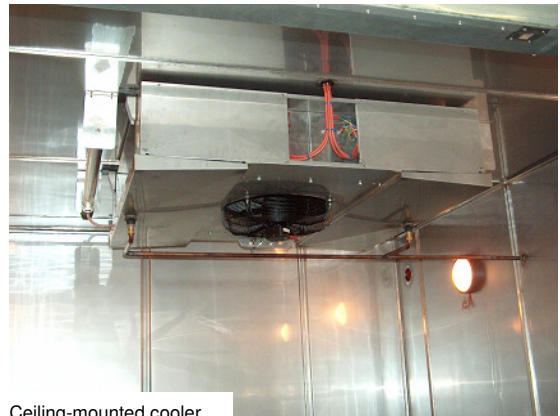
Order No.: 22605099



Polyamide chamber with ramp



Specimen in plastic boxes



Ceiling-mounted cooler



Switch cabinet with colour touch panel and connected PC



Weiss Umwelttechnik GmbH
Simulationsanlagen ■ Messtechnik

35447 Reiskirchen-Lindenstruth / Germany • Greizer Str. 41-49
Telefon (0 64 08) 84-0 • Telefax (0 64 08) 84-87 10
www.weiss.info • www.wut.com • eMail: info@wut.com