

Group standard

VW 50554

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Standard Atmospheres and Room Temperatures

Requirements on Standard Atmospheres

Preface

Volkswagen decided to determine standard atmospheres and room temperatures in an in-house standard in order to achieve greater constancy in implementing the corresponding external common standard.

1 Scope

This standard describes the requirements on standard atmospheres allowing for achieving and maintaining a defined state of objects sensitive to temperature and humidity. Since these atmospheres are equivalent to the average climatic conditions in laboratories and can be achieved in climate cabinets, climate chambers, and climate rooms, they are called "standard atmospheres". Beyond that, requirements for room temperatures are defined.

2 Definitions

Relative humidity	Ratio in percent of the actual pressure of the water vapor in the atmosphere and the equilibrium vapor pressure with equal air temperature and pressure.
Room temperature (RT)	Range in which the air temperature is specified without taking into account the relative humidity and the air pressure.
Standard atmosphere	Area with controlled relative humidity and air temperature, in which specimen and/or components are conditioned and tested.

Always use the latest version of this standard.

This electronically generated standard is authentic and valid without signature.

The English translation is believed to be accurate. In case of discrepancies, the German version is alone authoritative and controlling.

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3 Designation

Designation example for standard atmosphere:

A standard atmosphere with an air temperature of (23 ± 2) °C, a relative humidity of (50 ± 6) %, an air pressure of 86 kPa to 106 kPa, and the limit deviation 2 is designated as:

Standard atmosphere VW 50554 – 23/50-2

Designation example of room temperature:

An atmosphere with an air temperature of 18 °C to 28 °C, without taking the relative humidity and the air pressure into consideration, is designated as:

Room temperature VW 50554 – 2

RT VW 50554 – 2

4 Requirements

4.1 Standard atmosphere

See [table 1](#) and [table 2](#).

Table 1 – Standard Atmospheres

Short form	Air temperature in °C	Relative humidity in %	Air pressure in kPa	Note:
23/50	23	50	86 to 106	Recommended atmosphere
27/65	27	65		For tropical countries
20/65	20	65		For particular applications

Table 2 – Tolerance ranges

Short form	Limit deviation of the air temperature in °C	Limit deviation of the relative humidity in %
0.5	± 0.5	± 1.5
1	± 1	± 3
2	± 2	± 6

The standard atmosphere VW 50554 – 23/50-2 must be given preference.

4.1.1 Acclimatization to the standard atmosphere

It must be taken into account that, depending on the state of the object (initial temperature, dimensions, physical and chemical properties), a sufficient aging duration in standard atmosphere is required to reach an equilibrium state.

Hysteresis processes must also be taken into account.

4.2 Room temperature

See [table 3](#).

Table 3 – Room temperatures

Short form	Air temperature in °C
1	15 to 35
2	18 to 28