



-Technical Specifications Climate Chamber Vötsch VCS³ 7060-5-

Summary



The climate chamber Vötsch VCS3 7060-5 for testing batteries will be purchased in 2013 (currently under procurement, the winning offer for Lot1 of C111682). The system is equipped for providing climate control i.e. controlling temperature and humidity inside the chamber.

The climate chamber contains a door with window and an 8" color touch panel.

Test volume

The dimensions of the test space are 800 mm (width) x 800 mm (depth) x 950 mm (height) which corresponds to ca. 600 l. Three entry ports are available (with the diameter of 125 mm, 80 mm and 50 mm).

Temperature range

The temperature range is -55 °C to 155 °C (reduced temperature range caused by pressure release flap). The temperature deviation in the centre of working space is ± 0.5 K or below.

The temperature homogeneity in space relative to the set value is ± 2.0 K or better.

The temperature rate according to IEC 60068-3-5 is 6.0 K/min for heating and cooling.

Temperature is measured using a Pt 100 sensor.

Heat compensation ranges from 3 kW at -40 °C to 5 kW at temperatures above -20°C.

Climatic testing (with humidity control)

The temperature range for climatic testing is 10 °C to 95 °C. For climatic testing, the temperature deviation in the centre of working space is ± 0.3 K or below. Further, the temperature homogeneity in space relative to the set value is ± 1.0 K or better (for relative humidity above 20 %).

The humidity range is 10 % to 98 % relative humidity. The humidity deviation in the centre of working space is ± 3 %RH or below.

The dew point range is -3 °C to 94 °C (intermittent operation required for the range of -3 °C to 4 °C).

Humidity is measured using a continuously wetted, self-cleaning wet-bulb sensor.

Input/output

The climate chamber provide 4 digital outputs (load max 24V DC, 0.5 A), 4 digital inputs (load max. 24 V DC, 30 mA), USP port and 100/10 megabit Ethernet connection.

Safety features

The chamber is equipped with optic and acoustic alarm (also one of the 4 digital outputs mentioned above can be used to signal an alarm) and a CO sensor. Further a pressure release flap with a diameter of 125 mm is connected to the air exhaust system.

A safe temperature limiter (STB) protects the climate chamber against overheating.

The chamber is also equipped with an inert gas purging system, which activates by an external digital signal. The system is suitable for flushing the test volume with 10 m³ of gas nitrogen per hour, allowing a quick and efficient removal of atmospheric oxygen from the test volume if necessary. Furthermore, a connection to a water-based extinguishing system is foreseen. Both water inlet and outlet are equipped with standard DN50 connectors, used by fire brigades in The Netherlands, and ball valves.

Required services

The nominal electrical power required is ca. 13 kW (with a consumption of ca. 3.6 kW at 40 °C and 93 % relative humidity).

The maximum amount of heat dissipated into the installation space is 2.0 kW.

Cooling water is required with a maximum of 16 kW of heat dissipated to the cooling water. The cooling water pressure shall be 2.5 to 6 bar and the water temperature shall be 12 °C to 28 °C.

The water consumption of the humidification system is on the order of several l per day (e.g. ca. 2 l/24 h at 40 °C and 92 % relative humidity).

Inert gas purging system requires a connection to a nitrogen gas line with constant pressure between 7 and 17 bar; maximum nitrogen consumption rate is 10 m³/hr; purity of nitrogen should be adjusted depending on the desired final level of oxygen in the chamber.