

Vacuum oven

Model VO 500



Standard equipment

Control

- fuzzy-supported MLC (Multi-Level-Controlling) microprocessor controller adapting its performance to the volume (local temperature sensing) for each thermoshelf
- temperature measured through 4-wire Pt100 individually for each thermoshelf
- autodiagnostic system with fault indication
- digital 7-day-programme-timer with real time clock, precise minute setting, for one set value or start of ramp operation
- integrated timer for tempering and pressure (vacuum) profiles of up to 40 ramps, each segment adjustable from 1 min up to 999 hours
- multifunctional programming via menu on 8-digit alphanumeric digital display (language to be chosen via set-up)
- digital display (LED) of all set parameters, such as temperature, weekdays, time, pressure, programme status and set-up values
- separate LED symbol for each thermoshelf in operation
- actual temperature of each thermoshelf to be made visible separately on digital display
- resolution of display for set value 0,1 °C below 99,9 °C, 0,5 °C above 100 °C; for actual value 0,1 °C
- long-term logging (ring store) of all relevant data, GLP-conforming as data logger - 1024 kB
- parallel printer interface (incl. real-time clock with date function) for printing logging files, suitable all PCL3-compatible ink-jet printers (USB available via converter, see accessories)

- USB interface including MEMMERT Software "Celsius" for control and documentation of temperature and pressure
- chip card control incl. one MEMoryCard XL with 32 kB (up to 40 ramps)

Vacuum Control

- digital electronic vacuum control through solenoid valves
- adjustment range from 10 to 1100 mbar digital (LED)
- resolution 1 mbar
- digital display of actual pressure from 5 mbar up to 1100 mbar
- two programmable, digitally controlled connections for air and inert gas
- rapid air intake for door opening (door blocked under vacuum) - programme reactivation at stored values
- vacuum drying process (vacuum cycles) is being continued after power failure
- signal for Memmert pump module (ON, OFF/purging)
- works calibration certificate for +160 °C at 50 mbar pressure for each thermoshelf supplied with vacuum oven

Multiple Overtemperature Protection

- with audible and visual alarm
- digitally adjustable, electronic microprocessor overtemperature controller TWW maximum value for overtemperature, minimum value for undertemperature
- additional integral over- and undertemperature monitor "ASF" (Auto-Safety-Function) automatically following the setpoint value at a preset tolerance range; audible alarm is activated in case of over- or undertemperature, heating of the individual

shelf is switched off in case of over-temperature

- resolution of display and setting accuracy: 0,5 °C below 99,9 °C, 1 °C above 100 °C
- automatic overtemperature protection for each thermoshelf separately (MLOP-Multi-Level-Overtemperature Protection) switching the heating off at approx. 3 °C above set temperature
- mechanical temperature limiter TB protection class 1 switching the heating off at approx. 20 °C above max. oven temperature

Textured Stainless Steel Casing

- w x h x d: 710 x 760 x 550 mm
- full-sight glass door, on the inside a spring-loaded 15 mm thick glazed panel in safety glass with anti-splitter screen on the outside
- rear zinc-plated steel

Interior - Heating Concept

- w x h x d: 545 x 465 x 400 mm, 101 l
- hermetically welded stainless steel interior of extremely corrosion-resistant, electropolished stainless steel, material no. 1.4404 (ASTM 316 L)
- additional interior mountings of stainless steel material no. 1.4404 (ASTM 316 L) removable for cleaning, consisting of mounting at the sides with guide bars for thermoshelves, on top (diffusor) as well as a drip tray
- all tubings made of stainless steel material no. 1.4571 (ASTM 316 Ti)
- plug connections for thermoshelves at the rear
- 2 thermoshelves of aluminium material no. 3.3547 (ASTM B209) with integrated large-area heating

Temperature Range

- from +20 °C up to +200 °C
- temperature variation in time: < +/-0,3 °C (to DIN 12 880: 2007-05)
- temperature uniformity (surface) at 160°C / 50 mbar: < +/- 5 °C

Voltage / Power Rating

- 230 V (+/- 10%), 50/60 Hz
- ca. 2.400 W

Packing Data

- net weight:
vacuum drying oven approx. 120 kg
pump module w/wo pump app. 41/56 kg
- gross weight:
vacuum drying oven approx. 134 kg
pump module w/wo pump app. 57/69 kg
- packing dimensions:
w x h x d: 82 x 97 x 67 cm vacuum drying

oven

w x h x d: 82 x 97 x 67 cm pump module

- the appliances must be transported upright

Customs Tariff Number

- 8419 8998

Country of Origin

- Federal Republic of Germany

WEEE-Reg.-No.

- DE 66812464

Accessories

- Additional thermoshelves of aluminium material no. 3.3547 (ASTM B209) with integrated large area heating including local temperature sensing (Pt100, 4 wire circuit), Multi-Level Overtemperature Control (MLOP) for each thermoshelf and calibration certificate (if ordered at the same time as the vacuum oven) E5(x)
- Additional thermoshelves of stainless steel material no. 1.4404 (ASTM 316 L) with integrated large area heating including local temperature sensing (Pt100, 4 wire circuit), Multi-Level Overtemperature Control (MLOP) for each thermoshelf and calibration certificate (if ordered at the same time as the vacuum oven) E8(x)
- RS232 interface instead of USB W6
- Interface Ethernet instead of USB inclusive software "Celsius Ethernet-Edition" W4
- Parallel/USB converter cable with integrated power supply unit to connect PCL3-compatible HP printers with USB interface to MEMMERT units. W1
- Documentation package consisting of parallel USB converter cable including PLC3-compatible HP colour inkjet printer with USB interface (HP Deskjet 6980 or successor) for direct connection of printer to Memmert unit W2
- IQ check list with works test data for oven as support for validation by customer Q1
- OQ check list (including one free-selectable thermoshelf temperature distribution survey for 5 measuring points to DIN 12880: 2007-05) with works test data for oven as support for validation by customer Q2
- Software conforming to FDA "Celsius FDA-Edition" for up to 16 units Q3
- Oven-linked authorisation card (User- V1

ID-Card) - prevents undesired manipulation by unauthorised third parties

- Computer interface RS485 (for networking a maximum of 16 ovens) instead of interface USB

V2

- Noise absorbing vacuum pump module with integrated pump (chemically resistant vacuum pump with PTFE double diaphragm and automatic purge process through controller of vacuum oven) incl. energy-saving pump control. 230 V, 50 Hz (other voltages upon request). Pump capacity at atm. pressure of approx. 34 NI./min = 2,04 m³/h for VO 200; approx. 60 NI./min = 3.6 m³/h for VO 400 and 500. Anti-vibration metal plate to accommodate the vacuum

PMP

pump. Full-sight glass door. Socket and connecting hose to the vacuum oven. Signal cable for optimising pump performance by demand-controlled activation of purge of Memmert pump. Max. guarantee for pump: 2 years. (External dimensions same as vacuum oven)