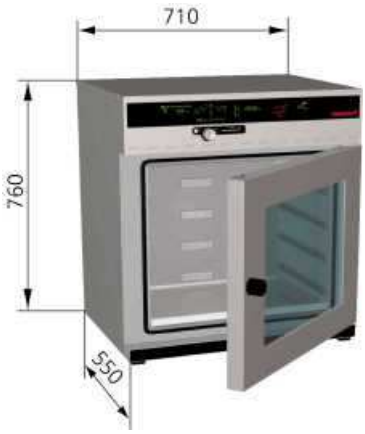
Vacuum oven

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
- 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
- one programmable, digitally controlled inlet for air
- 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
- 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)
- all tubings made of stainless steel material no. 1.4571 (ASTM 316 Ti)
- 1 thermoshelf of aluminium material no. 3.3547 (ASTM B209) with integrated large-area heating
- two connections for thermoshelves in the rear (position 1 and 3)

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

• one programmable, digitally controlled inlet for inert gas with flow rate reduction	W5
• signal for Memmert pump module (ON/OFF/purge)	W8
• Premium-module consisting of 2 additional connections for thermoshelves, one addditional thermoshelf, programmable and digitally controlled inlet for inert gas, pump control, bottom drip tray and printer interface	T5
• 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)
• Removable bottom drip tray stainless steel material 1.4404 (ASTM 316 L)	E9(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	Q2

points to DIN 12880: 2007-05) with works test data for oven as support for validation by customer		
• Software conforming to FDA "Celsius FDA-Edition" for up to 16 units	Q3	
• Oven-linked authorisation card (User-ID-Card) - prevents undesired manipulation by unauthorised third parties	V1	
• 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	PMP	approx. 34 Nl/min =2,04 m³/h for VO 200; approx. 60 Nl./min = 3.6 m³/h for VO 400 and 500. Anti-vibration metal plate to accomodate the vacuum 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)