memmert
Experts in Thermostatics

Heating and drying ovens

COMMUNICATION. COMFORT. SIMPLY GREAT.

UNIVERSAL OVEN U

PASS-THROUGH OVEN UF TS

PARAFFIN OVEN UNpa

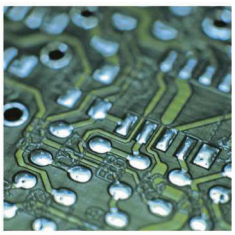
STERILISER S

VACUUM OVEN VO

BLANKET WARMER IFbw

100% ATMOSAFE. MADE IN GERMANY.

www.memmert.com | www.atmosafe.net



Simply boundless. Boundlessly simple.

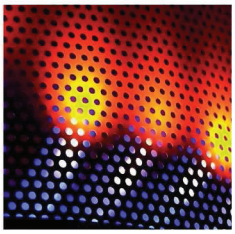
Drying, heating, ageing, testing, sterilising, burning-in, curing, storing. 100% AtmoSAFE.

From very small to very large! 32 litres or 1060 litres chamber volume? Standard applications or high demand for functionality, programming and documentation? In any case, all Memmert heating and drying ovens feature user-friendliness and state-of-the-art communication interfaces as a basic. Each individual appliance complies with the strict requirements of DIN 12880:2007-05 and is equipped with a maximum of safety functions. Each individual Memmert heating and drying oven is 100% AtmoSAFE.

Universal Oven UN/UNm and UF/UFm with SingleDISPLAY
Universal Oven UNplus/UNmplus and UFplus/UFmplus with TwinDISPLAY
Natural convection or forced ventilation
AtmoCONTROL software

Model sizes:
30 / 55 / 75 / 110 / 160 / 260 / 450 / 750 / 1060
+20 °C up to +300 °C

UNIVERSAL OVEN U The all-round genius among the heating ovens covers a multitude of applications, ideally at temperatures above +50 °C. Without compromises! Thanks to two model variants and nine sizes, optionally with natural or forced convection, industry, science and research institutes will find a heating and drying oven which combines top precision and safety with optimal operating comfort.



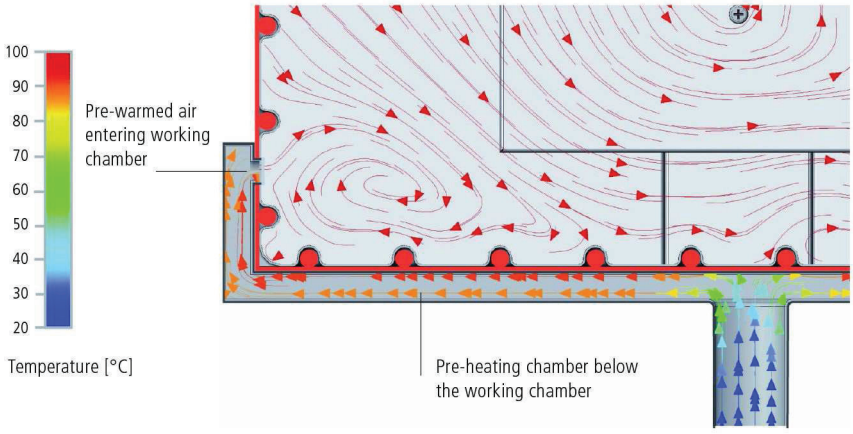
Defined and programme-controlled fan speed

Air exchange rates and air flap position can be controlled electronically at the ControlCOCKPIT. More inlet and outlet openings lead to a higher air exchange and reduced drying times. Various applications recommend or even require controlled ventilation. When drying powder, sand or corn, reducing the ventilation prevents undesired swirls.

Other applications like testing of wires or cables demand for defined air exchange rates. UFplus/UFmplus appliances feature easy programming of temperature and air exchange rates with the AtmoCONTROL software.

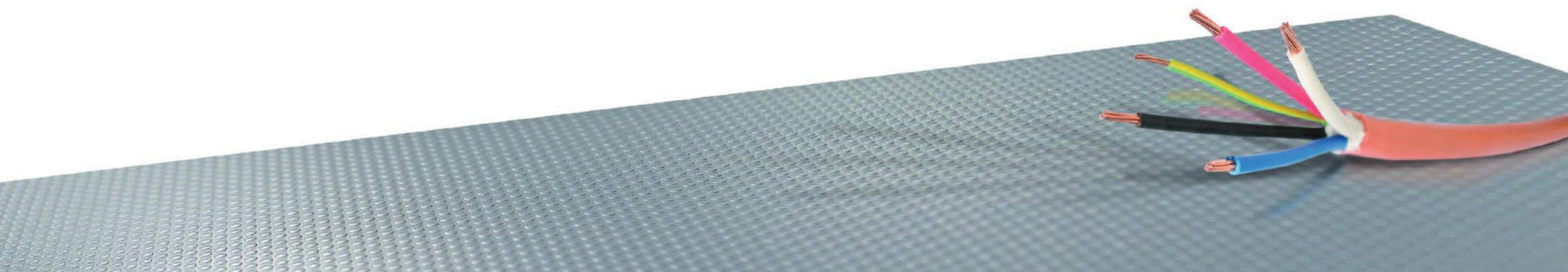
Fresh air is preheated

Temperature deviations caused by fresh air can influence sample characteristics or prolong drying. In Memmert universal ovens, the fresh air is therefore fed through a pre-heating chamber and introduced into the working chamber.



The universal oven Um is a medical device:

Memmert universal ovens Um are a Class I medical device in accordance with the EU directive 93/42/EEC. In accordance with the intended use Memmert heating oven Um or Umplus may be used for heating fango, silicate and APS packs for physical therapy and keeping them warm.



UNIVERSAL OVENS U

according to DIN 12880:2007-05, EN 61010-1 (IEC 61010-1), EN 61010-2-010

Standard units are safety-approved and bear the test marks: (EAC not valid for medical devices)

Interior: Stainless steel, material 1.4301 (ASTM 304), with all-round deep-drawn ribs to integrate the large-area heating with ceramic-metal sheath

Housing: Textured stainless steel, rear zinc-plated steel, intuitively operated SingleDISPLAY or TwinDISPLAY (TFT colour display) with touchscreen, fully insulated stainless steel door, (from size 450 two leaves)

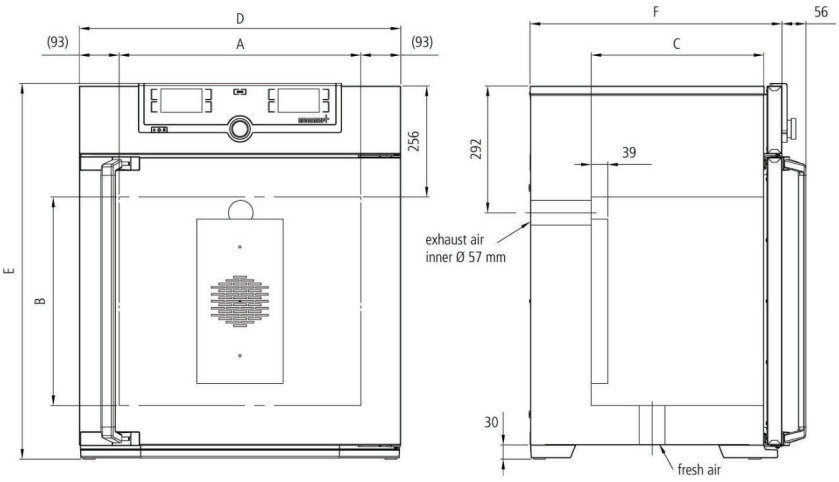
Fresh air: Admixture of pre-heated fresh air by electronically adjustable air flap

Connection: Mains cable with plug (German type) CEE plug for 400 V

Installation: 4 feet; sizes 450, 750 and 1060 mounted on lockable castors

Interfaces: Ethernet LAN, USB

USB: only TwinDISPLAY



Model sizes/Description				30	55	75	110	160	260	450	750	1060
Stainless steel interior	Volume		approx. l	32	53	74	108	161	256	449	749	1060
	Width	(A)	mm		400		560		640	1040		
	Height	(B)	mm	320	400	560	480	720	800	720	1200	
	Depth (less 39 mm for fan)	(C)	mm	250	330		400		500	600		850
	Max. number of grids/shelves		number	3	4	6	5	8	9	8	14	
	Max. loading per grid/shelf		kg				20			30		60
	Max. loading of chamber		kg	60	80	120	175	210		300		
	Max. loading per slide-in drip tray		kg		1,5		3		4	8		
	Max. loading per bottom drip tray		kg		1,5		3		4	8		
Textured stainless steel exterior	Width	(D)	mm		585		745		824	1224		
	Height (size 450, 750, 1060 with castors)	(E)	mm	704	784	944	864	1104	1183	1247	1720	
	Depth (without door handle), door handle + 56 mm	(F)	mm	434	514		584		684	784		1035
Standard equipment	Stainless steel grids, electropolished		number	1		2						1
	Standard works calibration certificate (measuring point chamber center)		°C	+160								
Temperature	Working temperature range		°C	at least 5 (UN/UNplus/UNm/UNmplus) or 10 (UF/UFplus/UFm/UFmplus) above ambient temperature to +300								
	Setting temperature range		°C	+20 to +300								
	Setting accuracy		°C	up to 99.9: 0.1 / from 100: 0.5								
Further data	Electrical load at 230 V, 50/60 Hz		approx. W	1600	2000	2500	2800	3200	3400	-		
	Electrical load at 115 V, 50/60 Hz		approx. W	1600	1700	1800				-		
	Electrical load at 400 V and 3 x 230 V w/o neutral, 50/60 Hz		approx. W	-						5800	7000	
Packing data	Net weight		approx. kg	45	57	66	74	96	110	161	217	252
	Gross weight (packed in carton)		approx. kg	61	76	85	99	122	161	227	288	416
	Width		approx. mm	660	730		830		930	1330		1370
	Height		approx. mm	890	950	1130	1050	1300	1380	1440	1910	1970
	Depth		approx. mm	650	670		800		930	1050		1300

Universal Ovens

U = Universal Oven
N = Natural convection
F = Forced air circulation
m = Medical device
plus = Model with TwinDISPLAY

UN30 UN30m	UN55 UN55m	UN75 UN75m	UN110 UN110m	UN160 UN160m	UN260 UN260m	UN450 UN450m	UN750 UN750m	-
UN30plus UN30mplus	UN55plus UN55mplus	UN75plus UN75mplus	UN110plus UN110mplus	UN160plus UN160mplus	UN260plus UN260mplus	UN450plus UN450mplus	UN750plus UN750mplus	-
UF30 UF30m	UF55 UF55m	UF75 UF75m	UF110 UF110m	UF160 UF160m	UF260 UF260m	UF450 UF450m	UF750 UF750m	UF1060 UF1060m
UF30plus UF30mplus	UF55plus UF55mplus	UF75plus UF75mplus	UF110plus UF110mplus	UF160plus UF160mplus	UF260plus UF260mplus	UF450plus UF450mplus	UF750plus UF750mplus	UF1060plus UF1060mplus

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Options	30	55	75	110	160	260	450	750	1060
Voltage 115 V, 50/60 Hz	X2						-		
Extended overtemperature protection by additionally integrated Pt100 sensor for independent temperature monitoring for models with SingleDISPLAY	A6								
Full-sight glass door (4-layer insulating glass) Temperature-range up to max. 250 °C	B0								
Full-sight glass door (4-layer insulating glass borsilicat) Temperature-range up to max. 300 °C	B1								
Chamber modification for the application of reinforced perforated stainless steel shelves or stainless steel grids (bearing rails mounted in the working chamber) - includes replacement of standard grids by reinforced grids	-						K1		-
Fresh-air filter (filtration efficiency 80 %) mounted at the appliance bottom (for UF/UFplus/UFm/UFmplus). For sizes 30 - 260 castor frame R9 or subframe necessary	R8								
Interior lighting for observing the load	R0								
Interior socket (can only be ordered with limited temperature range - max. +70 °C), ampacity 230 V, 2.2 A, can be switched off with the On/Off switch, cannot be switched individually, moisture tight IP68 (option A8 necessary)	R3								
Interior socket (can only be ordered with limited temperature range - max. +70 °C), ampacity 230 V/2.2 A, can be switched on/off via tumbler switch in control panel, moisture tight IP68 (requires option A8)	R4								
Interior nearly gastight	K2								
Interior nearly gastight with possibility for gas inlet/outlet through 2 tubes with ball valves	K3								
Entry port, 23 mm clear diameter, for introducing connections at the side, can be closed by flap, standard positions — left centre/centre	F0								
Entry port, 23 mm clear diameter, for introducing connections at the side, can be closed by flap, standard positions — left centre/top	F1								
Entry port, 23 mm clear diameter, for introducing connections at the side, can be closed by flap, standard positions — right centre/centre	F2								
Entry port, 23 mm clear diameter, for introducing connections at the side, can be closed by flap, standard positions — right centre/top	F3								
Entry port, 23 mm clear diameter, can be closed by flap, in special positions (please state location) — left	F4								
Entry port, 23 mm clear diameter, can be closed by flap, in special positions (please state location) — right	F5								
Entry port, 23 mm clear diameter, can be closed by flap, in special positions (please state location) — rear	F6								
Entry port, 14 mm clear diameter, can be closed by flap, in special positions in the back wall (please, state location)	D6								
Entry port, 38 mm clear diameter, can be closed by flap, in special positions in the back wall (please, state location)	F7								
Entry port, 57 mm clear diameter, can be closed by flap, in special positions in the back wall (please, state location; not possible for UF/UFplus/UFm/UFmplus size 30-75)	F8								
Entry port, 100 mm clear diameter, can be closed by flap, in special positions in the back wall (please, state location; not possible for UF/UFplus/UFm/UFmplus size 75)	-		F9						
4 - 20 mA current loop interface (0 to +310 °C = 4 - 20 mA) — Temperature controller, actual value	V3								
4 - 20 mA current loop interface (0 to +310 °C = 4 - 20 mA) — Temperature of a Pt100 sensor positioned flexibly in chamber for external temperature monitoring (max. 1 SingleDISPLAY, max. 3 TwinDISPLAY) - price per sensor	V6								
Fan speed monitoring with switching off the heating and with alarm in case of failure - optional for UFplus/UFmplus only	V4								
Works calibration certificate for 3 temperatures: +100, +160, +220 °C	D00128								
Works calibration certificate for one (freely selectable) temperature value according to customer specification	D00109								
Door with lock and key (safety lock)	B6								
Door hinged on the left	B8						-		
Potential-free contact (24 V/2 A) with socket, according to NAMUR NE 28 for external monitoring (indicates when setpoint is reached)	H5								
Potential-free contact for combination error message (e.g. supply failure, sensor fault, fuse)	H6								
Potential-free contact (24 V/2 A) with socket to NAMUR NE 28, for signal generation, controlled by programme segment, for free-selectable functions to be activated (e.g. activation of audible and visual signals, exhaust motors, fans, stirrers, etc.). Only for units with TwinDISPLAY; max. 2 contacts on 1-phase appliances; max. 4 contacts on 3-phase appliances — 2 contacts	H72								
Potential-free contact (24 V/2 A) with socket to NAMUR NE 28, for signal generation, controlled by programme segment, for free-selectable functions to be activated (e.g. activation of audible and visual signals, exhaust motors, fans, stirrers, etc.). Only for units with TwinDISPLAY; max. 2 contacts on 1-phase appliances; max. 4 contacts on 3-phase appliances — 4 contacts	-						H74		
Process-dependent programmable door lock (only for units with TwinDISPLAY)	D4								
Door-open-recognition (only for units with TwinDISPLAY)	V5								

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Options	30	55	75	110	160	260	450	750	1060
Flexible Pt100 for positioning in chamber or in load with socket, 4-pin, according to NAMUR NE 28, for external temperature recording (load temperature) max. 3 sensors	H4								
Flexible Pt100 temperature sensor, positioned flexibly in chamber or load, for local temperature measurement (up to 3 additional sensors are possible). The measured temperature can, if required, be indicated on the display, recorded in the integral data store, and can be documented via the AtmoCONTROL software	H8								
MobileALERT, notification by SMS in case of any error or alarm of the device. Requires option H6	C3								
Temperature restriction; Temperatures: +60, +70, +80, +95, +100, +120, +160, +180, +200 or +250°C (Please, indicate upon ordering)	A8								
Castor frame (2-part), height 140 mm	R9						-		

Accessories	30	55	75	110	160	260	450	750	1060
Stainless steel grid, electropolished	E28884	E20164		E20165		E28891	E20182		B41251
Additional reinforced stainless steel grid, electropolished, max. loading 60 kg; from size 450 with guide bars and fixing screws (only in connection with option K1). Please consider max. loading of chamber	-			E29767		E29766	B32190		B32550
Perforated stainless steel shelf	B29727	B03916		B00325		B29725	B00328		B32549
Additional reinforced stainless steel shelf, max. loading 60 kg; with guide bars and fixing screws (only in connection with option K1). Please consider max. loading of chamber	-						B32191		-
Stainless steel slide-in drip tray, 15 mm rim (may affect the temperature distribution) - cannot be used in connection with option K1	E02070	E02072		E02073		E29726	E02075		B32599
Stainless steel slide-in drip tray, 15 mm rim, with guide bars and fixing screws (may affect the temperature distribution) - can be used only in connection with option K1	-						B32763		-
Stainless steel bottom drip tray, 15 mm rim (may affect the temperature distribution) - cannot be used in connection with option K1	B04356	B04358		B04359		B29722	B04362		B29769
Stainless steel bottom drip tray, 15 mm rim (may affect the temperature distribution) - can be used only in connection with option K1	-						B34055		-
Wall bracket for wall mounting	B29755	B29756	B29757	B29758	B29759	-			
Guarantee extension by 1 year	GA1Q5					GA2Q5			
USB-Ethernet adapter	E06192								
Ethernet connection cable 5 m for computer interface	E06189								
USB User-ID stick (with User-ID licence): Oven-linked authorisation licence (User-ID-programme) on Memory-stick, prevents undesired manipulation by unauthorised third parties. When reordering please specify serial number (only for units with TwinDISPLAY)	B33170								
USB stick with documentation software AtmoCONTROL and operation manual for products with SingleDISPLAY (the standard equipment of appliances with TwinDISPLAY includes one USB stick with AtmoCONTROL). When reordering please specify serial number	B33172								
Set of height adjustable feet (4 pcs)	B29768						-		
Stacking set (4 pcs) for stacking of appliances of same size	B29744					-			
Plug-in tube extension (outer diam. 60.3 mm, inner 57 mm), straight, for exhaust air ducting (if necessary for connection by hose)	B29718								
Plug-in tube extension (outer diam. 60.3 mm, inner 57 mm), angled, for exhaust air ducting (if necessary for connection by hose)	B29719								
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), with air slots	B29728	B29730	B29732	B29734	B29736	B29738	B29740	B29742	
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), without air slots	B29729	B29731	B29733	B29735	B29737	B29739	B29741	B29743	
Subframe, adjustable in height (size 30 to 75: height 600 mm, size 110 to 450: height 500 mm)	B29745	B29747		B29749		B29751	B29753	-	
Subframe, on castors (size 30 to 75: height 660 mm, size 110 to 160: height 560 mm)	B29746	B29748		B29750		-			
Subframe, adjustable in height, height 130 mm, for example for units with fresh air filter	B33657	B33659		B33661		B33664	-		
Software conforming to FDA AtmoCONTROL. Meets the requirements for the use of electronically stored data sets and electronic signatures as laid down in Regulation 21 CFR Part 11 of the US Food and Drug Administration (FDA). Base licence for the control of one unit (only for units with TwinDISPLAY). Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1								
Integration of one additional unit (up to max. 15 units) into an already existent FDA-software licence (only for units with TwinDISPLAY)	FDAQ2								
IQ document with device-specific works test data, OQ/PQ check list as support for validation by customer	D00124								
IQ/OQ document with device-specific works test data for one free-selectable temperature value, incl. temperature distribution survey at Memmert for 9 measuring points (size 30), 27 measuring points (sizes 55 - 1060) to DIN 12880:2007-05. PQ check list as support for validation by customer. 305 € for further temperature values and validation at customer site on demand (GER, AT, CH only)	D00125	D00127							

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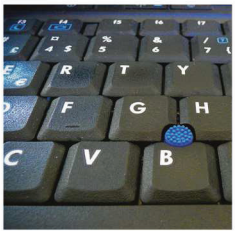
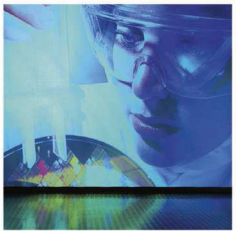
Pass-through oven UF TS
TwinDISPLAY
Forced convection
AtmoCONTROL standard software

Model sizes:
160 / 260 / 450 / 750
+20 °C to +250 °C

PASS-THROUGH OVEN UF TS Pass-through ovens UF TS are based on a standard heating oven and feature all technological highlights like product specific heating and perfectly adjusted control technology. Thanks to an additional side feed-through, curing of lead frames and adhesive bonds or tempering of components can be controlled automatically within a running production process.





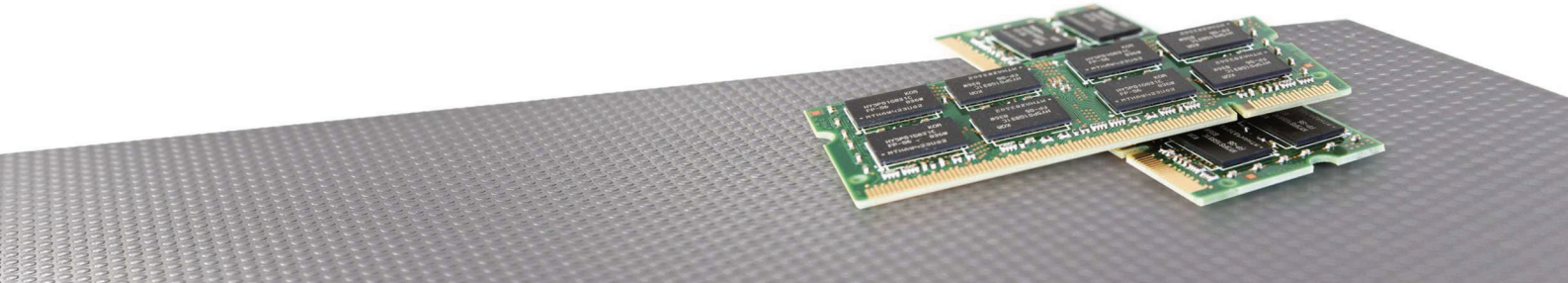
High feed-through thanks to in-line capability

Temperature control processes in a Memmert pass-through oven can be controlled fully electronically. The synchronised loading of parts is done by means of belt input and output at the side. To increase the feed-through for endless loading, turn pulleys can be installed in the chamber on request. Windows at the front and rear enable simple loading by hand, and also allow the temperature control process to be permanently observed. Another advantage not to be missed out: constant temperatures inside the temperature-control chamber as it does not have to be opened for loading.

In-line capable pass-through oven (belt input and output at the side)

Customer-specific solutions myAtmoSAFE

In the position of an expansion of the R&D departments of customers, the customisation department at Memmert provides support for complex applications and finds tailor-made solutions. Many customers are supported from development to production.



PASS-THROUGH OVENS UF TS

according to DIN 12880:2007-05, EN 61010-1 (IEC 61010-1), EN 61010-2-010

Standard units are safety-approved and bear the test marks: CE EAC

Interior: Stainless steel, mat. 1.4301 (ASTM 304), with all-round deep-drawn ribs to integrate the large-area heating with ceramic-metal sheath

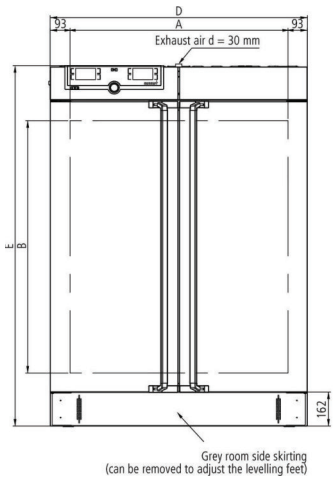
Housing: Textured stainless steel, intuitively operated TwinDISPLAY (TFT colour displays) with touchscreen, fully insulated stainless steel door on both sides (from model size 450 two leaves), pass-through version

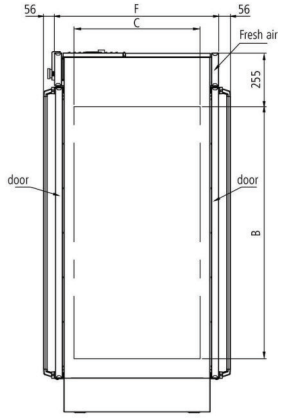
Fresh air: Admixture of pre-heated fresh air by electronically adjustable air flap

Connection: Mains cable with plug (German type) (CEE plug for 400 V)

Installation: 4 feet

Interfaces: Ethernet LAN, USB





Model sizes/Description			160	260	450	750
Stainless steel interior	Volume	approx. l	161	256	449	749
	Width	(A) mm	560	640	1040	
	Height	(B) mm	720	800	720	1200
	Depth	(C) mm	400	500	600	
	Max. number of grids/shelves	number	8	9	8	14
	Max. loading per grid/shelf	kg	20		30	
	Max. loading of chamber	kg	210		300	
	Max. loading per slide-in drip tray	kg	3	4	8	
	Max. loading per bottom drip tray	kg	3	4	8	
Textured stainless steel exterior	Width	(D) mm	745	825	1224	
	Height	(E) mm	1233	1314	1233	1714
	Depth (without door handle, depth of handle 2 x 56 mm)	(F) mm	582	682	782	
Standard equipment	Stainless steel grids, electropolished	number	2			
	Standard works calibration certificate (measuring point chamber center)	°C	+160			
Temperature	Working temperature range	°C	at least 10 above ambient temperature to +250			
	Setting temperature range	°C	+20 to +250			
	Setting accuracy	°C	up to 99.9: 0.1 / from 100: 0.5			
Further data	Electrical load at 230 V, 50/60 Hz	approx. W	3200	3400	-	
	Electrical load at 115 V, 50/60 Hz	approx. W	1800		-	
	Electrical load at 400 V and 3 x 230 V w/o neutral, 50/60 Hz	approx. W	-		4800	5000
Packing data	Net weight	approx. kg	120	138	213	260
	Gross weight (packed in carton)	approx. kg	146	189	279	331
	Width	approx. mm	830	930	1330	
	Height	approx. mm	1300	1380	1450	1920
	Depth	approx. mm	800	930	1050	
Order No. Pass-Through Ovens			UF160TS	UF260TS	UF450TS	UF750TS

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Options	160	260	450	750
Voltage 115 V, 50/60 Hz	X2		-	
Full-sight glass door (4 layer insulating glass) - extra cost per side - Temperature-range up to max. 250 °C	B0			
Chamber modification for the application of reinforced perforated stainless steel shelves or stainless steel grids (bearing rails mounted in the working chamber) - includes replacement of standard grids by reinforced grids	-		K1	
Entry port, 23 mm clear diameter, for introducing connections at the side, can be closed by flap, standard positions – left centre/centre	F0			
– left centre/top	F1			
– right centre/centre	F2			
– right centre/top	F3			
Entry port, 23 mm clear diameter for introducing connections at the side, can be closed by flap, in special positions (please, state location) – left	F4			
– right	F5			
Locking mechanism to prevent simultaneous opening of doors for contamination protection in case of wall installation	D5			
4 - 20 mA current loop interface (0 to +260 °C = 4 - 20 mA) – Temperature controller, actual value	V3			
– Temperature of a Pt100 sensor positioned flexibly in chamber for external temperature monitoring (max. 3) - price per sensor	V6			
Fan speed monitoring with switching off the heating and with alarm in case of failure	V4			
Works calibration certificate for 3 temperatures: +100, +160, +220 °C	D00128			
Works calibration certificate for one (freely selectable) temperature value according to customer specification	D00109			
Door with lock (safety lock); per side	B6			
Door hinged on the left; price per side	B8		-	
Potential-free contact (24 V/2 A) with socket, according to NAMUR NE 28 for external monitoring (indicates when setpoint is reached)	H5			
Potential-free contact for combination error message (e.g. supply failure, sensor fault, fuse)	H6			
Potential-free contact (24 V/2 A) with socket to NAMUR NE 28, for signal generation, controlled by programme segment, for free-selectable functions to be activated (e.g. activation of audible and visual signals, exhaust motors, fans, stirrers, etc.); max. 2 contacts on 1-phase appliances; max. 4 contacts on 3-phase appliances – 2 contacts	H72			
– 4 contacts	-		H74	
Process-dependent electromagnetic door lock (both sides)	D4			
Door-open-recognition; per side	V5			
Flexible Pt100 for positioning in chamber or in load with socket, 4-pin, according to NAMUR NE 28, for external temperature recording (load temperature) max. 3 sensors	H4			
Flexible Pt100 temperature sensor, positioned flexibly in chamber or load, for local temperature measurement (up to 3 additional sensors are possible). The measured temperature can, if required, be indicated on the display, recorded in the integral data store, and can be documented via the AtmoCONTROL software	H8			
MobileALERT, notification by SMS in case of any error or alarm of the device. Requires option H6	C3			
Temperature restriction; Temperatures: +60, +70, +80, +95, +100, +120, +160, +180 or +200°C (Please, indicate upon ordering)	A8			

Accessories	160	260	450	750
Stainless steel grid, electropolished	E20165	E28891	E20182	
Additional reinforced stainless steel grid, electropolished, max. loading 60 kg; with guide bars and fixing screws (only in connection with option K1). Please consider max. loading of chamber	-		B32190	
Perforated stainless steel shelf	B00325	B29725	B00328	
Additional reinforced stainless steel shelf, max. loading 60 kg; with guide bars and fixing screws (only in connection with option K1). Please consider max. loading of chamber	-		B32191	
Stainless steel slide-in drip tray, 15 mm rim (may affect the temperature distribution) - cannot be used in connection with option K1	E02073	E29726	E02075	
Stainless steel slide-in drip tray, 15 mm rim, with guide bars and fixing screws (may affect the temperature distribution) - can be used only in connection with option K1	-		B32763	
Stainless steel bottom drip tray, 15 mm rim (may affect the temperature distribution) - cannot be used in connection with option K1	B04359	B29722	B04362	
Stainless steel bottom drip tray, 15 mm rim (may affect the temperature distribution) - can be used only in connection with option K1	-		B34055	
Flush-fit unit set (stainless steel frame covering gap between oven and wall opening), without air slots - technical clarification required	B33204	B33205	B33206	B33207
Guarantee extension by 1 year	GA1Q5	GA2Q5		
USB-Ethernet adapter	E06192			
Ethernet connection cable 5 m for computer interface	E06189			
USB User-ID stick (with User-ID licence): Oven-linked authorisation licence (User-ID-programme) on Memory-stick, prevents undesired manipulation by unauthorised third parties. When reordering please specify serial number	B33170			
Set of height adjustable feet (4 pcs)	B29768		-	
FDA confroming software AtmoCONTROL (FDA edition). Meets the requirements for the use of electronically stored data sets and electronic signatures as laid down in Regulation 21 CFR Part 11 of the US Food and Drug Administration (FDA). Base licence for the control of one unit. Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1			
Integration of additional units (up to max. 15 units) into an already existent FDA-software licence	FDAQ2			
IQ document with device-specific works test data, OQ/PQ check list as support for validation by customer	D00124			
IQ/OQ document with device-specific works test data for one free-selectable temperature value, incl. temperature distribution survey at Memmert for 27 measuring points to DIN 12880:2007-05. PQ check list as support for validation by customer. 305 € for further temperature values and validation at customer site on demand (GER, AT, CH only)	D00127			

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

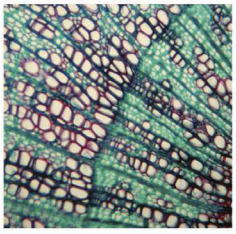
Paraffin oven UNpa with TwinDISPLAY
AtmoCONTROL software

Model sizes:
30 / 55 / 75 / 110 / 160
+20 °C to +80 °C

PARAFFIN OVEN UNpa Five model sizes, five times high-precision temperature control of the embedding medium paraffin in science and research. The range of functions and thermal safety of paraffin ovens UNpa are designed specifically for absolutely reliable sample preparation in the laboratory. The benefits for the user: an optimal cost/benefit ratio for an appliance that guarantees, for many years, precise and even temperature control for embedding media without any loss in quality whatsoever.

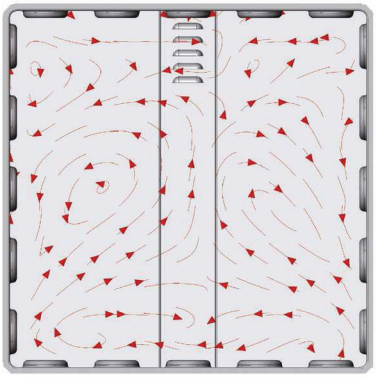
Safe warming of paraffin

Thanks to its high capillarity, liquid paraffin is an ideal embedding medium. This property, however, may lead to oily residue in tiny cavities. For this reason, the interior chamber of paraffin ovens UNpa is designed almost gas tight. There is definitely no danger of ignition of residue or damage to mechanical and electronic components.

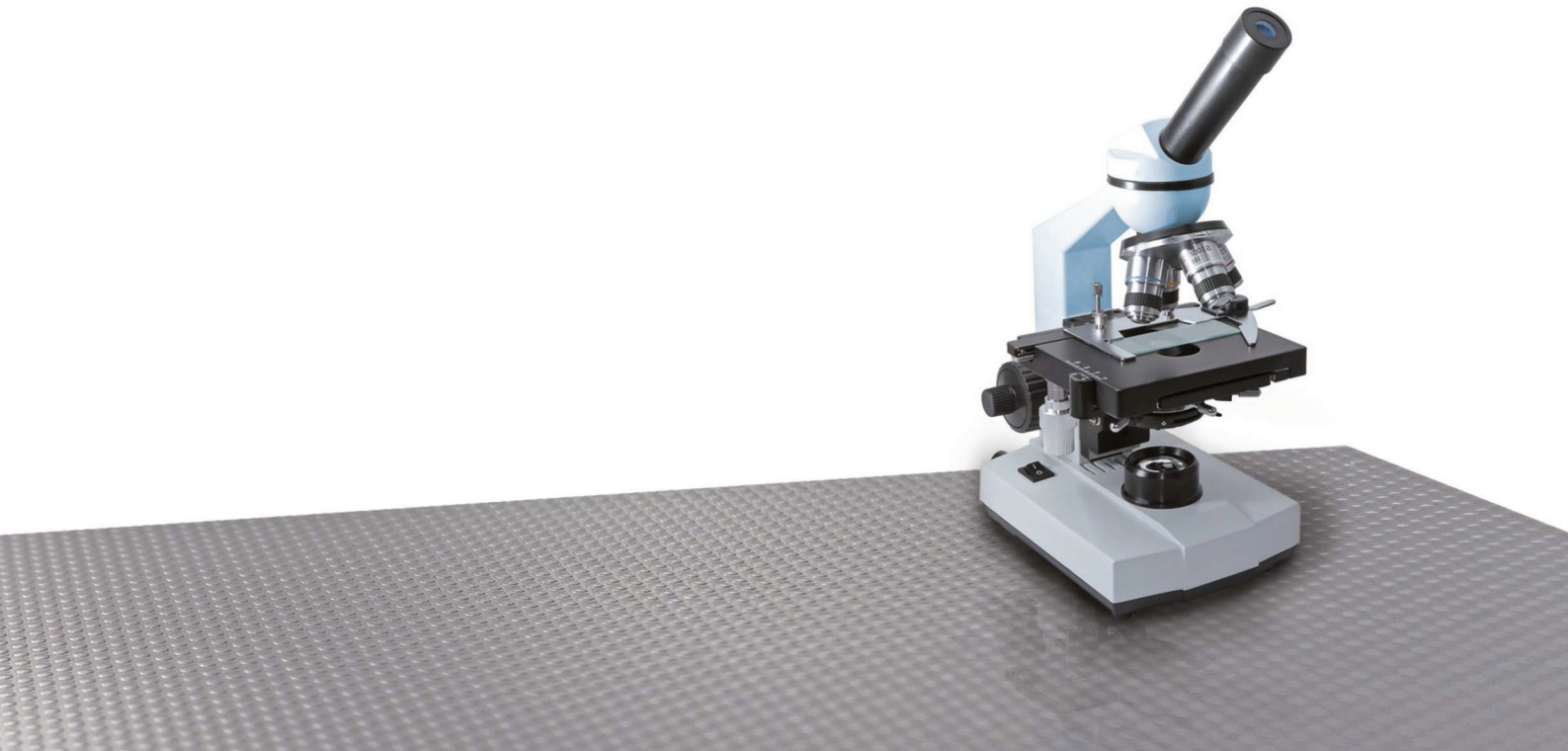


Absolutely uniform temperature distribution

Due to the almost gas tight chamber, no outside air is exchanged. Therefore, the advantages of the uniform temperature distribution by the large surface all-round heating system applied in Memmert heating ovens come fully into play. Also without forced convection, the perfect interaction of the control system and heating unit ensures unparalleled temperature homogeneity and stability.



Air flow with
natural convection



PARAFFIN OVENS UNpa

according to DIN 12880:2007-05, EN 61010-1 (IEC 61010-1), EN 61010-2-010

Standard units are safety-approved and bear the test marks:

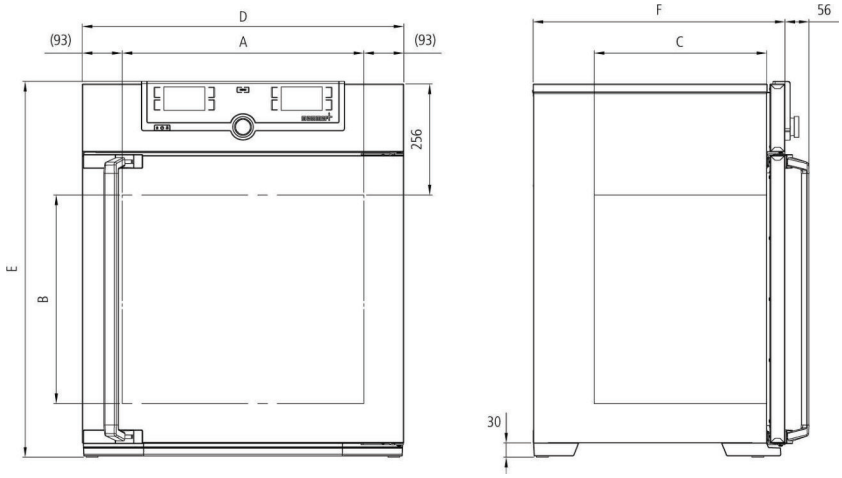
Interior: Stainless steel, material 1.4301 (ASTM 304), with all-round deep-drawn ribs to integrate the large-area heating with ceramic-metal sheath, nearly gastight

Housing: Textured stainless steel, rear zinc-plated steel, intuitively operated TwinDISPLAY (TFT colour display) with touchscreen, fully insulated stainless steel door

Connection: Mains cable with plug (German type)

Installation: 4 feet

Interfaces: Ethernet LAN, USB



Model sizes/Description			30	55	75	110	160
Stainless steel interior	Volume	approx. l	32	53	74	108	161
	Width	(A) mm	400			560	
	Height	(B) mm	320	400	560	480	720
	Depth	(C) mm	250	330		400	
	Max. number of grids/shelves	number	3	4	6	5	8
	Max. loading per grid/shelf	kg	20				
	Max. loading of chamber	kg	60	80	120	175	210
	Max. loading per slide-in drip tray	kg	1,5			3	
	Max. loading per bottom drip tray	kg	1,5			3	
Textured stainless steel exterior	Width	(D) mm	585			745	
	Height	(E) mm	704	784	944	864	1104
	Depth (without door handle), door handle + 56 mm	(F) mm	434	514		584	
Standard equipment	Stainless steel grids, electropolished	number	1		2		
	Standard works calibration certificate (measuring point chamber center)	°C	+80				
Temperature	Working temperature range	°C	at least 5 above ambient temperature to +80				
	Setting temperature range	°C	+20 to +80				
	Setting accuracy	°C	0.1				
Further data	Electrical load at 230 V, 50/60 Hz	approx. W	1600	2000	2500	2800	3200
	Electrical load at 115 V, 50/60 Hz	approx. W	1600	1700		1800	
Packing data	Net weight	approx. kg	45	55	66	75	96
	Gross weight (packed in carton)	approx. kg	61	74	85	100	122
	Width	approx. mm	660	730		830	
	Height	approx. mm	890	950	1130	1050	1300
	Depth	approx. mm	650	670		800	
Order No. Paraffin Ovens			UN30pa	UN55pa	UN75pa	UN110pa	UN160pa

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Options		30	55	75	110	160
Voltage 115 V, 50/60 Hz				X2		
Full-sight glass door (4-layer insulating glass)				B0		
Entry port, 23 mm clear diameter, for introducing connections at the side, gastight, can be closed by flap and silicone stopper, standard positions - technical clarification required	left centre/centre			F0		
	left centre/top			F1		
	right centre/centre			F2		
	right centre/top			F3		
Entry port, 23 mm clear diameter, gas tight, can be closed by flap and silicone stopper, in special positions (please, state location) - technical clarification required	left			F4		
	right			F5		
	rear			F6		
Entry port (silicone), 40 mm clear diameter, gas tight, can be closed by flap and silicone stopper, in special positions at the back (please, state location) - technical clarification required				F7		
4 - 20 mA current loop interface (0 to +90 °C = 4 - 20 mA)	Temperature controller, actual value			V3		
	Temperature of a Pt100 sensor positioned flexibly in chamber for external temperature monitoring (max. 3) - price per sensor			V6		
Gas inlet/outlet through 2 tubes with ball valves				K3		
Works calibration certificate for 3 temperatures: +37 °C, +52 °C, +70 °C				D00126		
Works calibration certificate for one (freely selectable) temperature value according to customer specification				D00109		
Door with lock and key (safety lock)				B6		
Door hinged on the left				B8		
Potential-free contact (24 V/2 A) with socket, according to NAMUR NE 28 for external monitoring (indicates when setpoint is reached)				H5		
Potential-free contact for combination error message (e.g. supply failure, sensor fault, fuse)				H6		
Potential-free contact (24 V/2 A) with socket to NAMUR NE 28, for signal generation, controlled by programme segment, for free-selectable functions to be activated (e.g. activation of audible and visual signals, exhaust motors, fans, stirrers, etc.)	2 contacts			H72		
Process-dependent programmable door lock				D4		
Door-open-recognition				V5		
Flexible Pt100 for positioning in chamber or in load with socket, 4-pin, according to NAMUR NE 28, for external temperature recording (load temperature) max. 3 sensors				H4		
Flexible Pt100 temperature sensor, positioned flexibly in chamber or load, for local temperature measurement (up to 3 additional sensors are possible). The measured temperature can, if required, be indicated on the display, recorded in the integral data store, and can be documented via the AtmoCONTROL software				H8		
MobileALERT, notification by SMS in case of any error or alarm of the device. Requires option H6				C3		
Castor frame (2-part), height 140 mm				R9		
Temperature restriction; Temperatures: +60, +70, +80, +95, +100, +120, +160, +180 or +200°C (Please, indicate upon ordering)				A8		

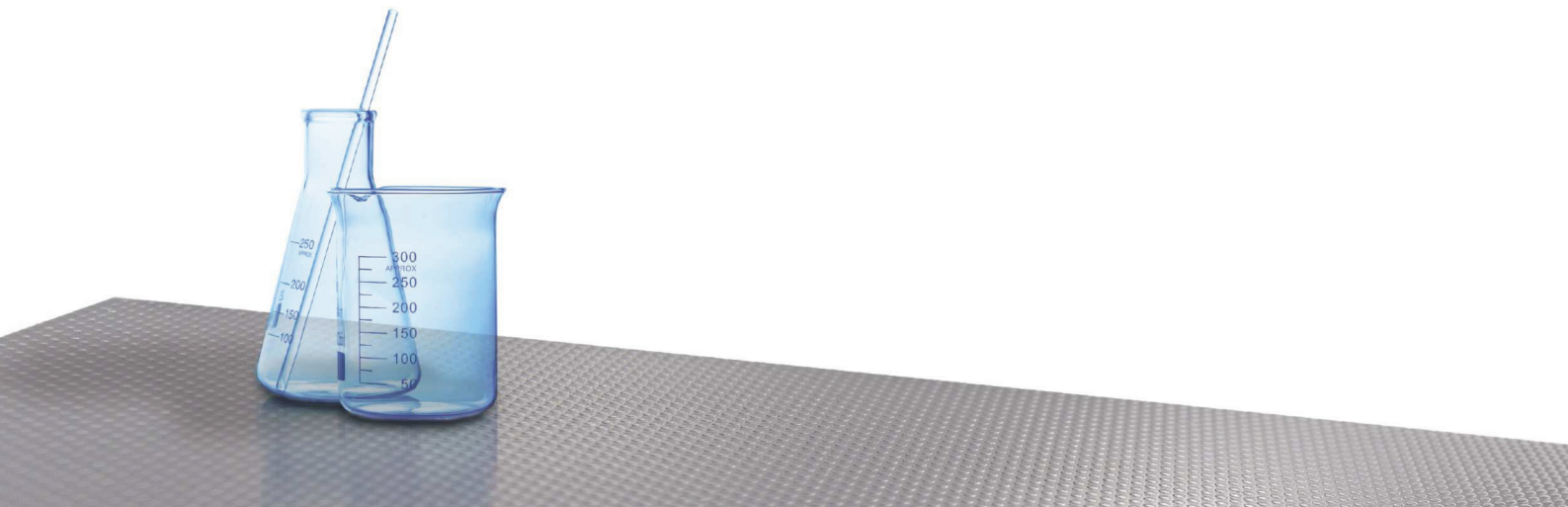
Accessories	30	55	75	110	160
Stainless steel grid, electropolished	E28884	E20164		E20165	
Perforated stainless steel shelf	B29727	B03916		B00325	
Stainless steel slide-in drip tray, 15 mm rim (may affect the temperature distribution)	E02070	E02072		E02073	
Stainless steel bottom drip tray, 15 mm rim (may affect the temperature distribution)	B04356	B04358		B04359	
Wall bracket for wall mounting	B29755	B29756	B29757	B29758	B29759
Guarantee extension by 1 year	GA1Q5				
USB-Ethernet adapter	E06192				
Ethernet connection cable 5 m for computer interface	E06189				
USB User-ID stick (with User-ID licence): Oven-linked authorisation licence (User-ID-programme) on Memory-stick, prevents undesired manipulation by unauthorised third parties. When reordering please specify serial number	B33170				
Set of height adjustable feet (4 pcs)	B29768				
Stacking set (4 pcs) for stacking of appliances of same size	B29744				-
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), with air slots	B29728	B29730	B29732	B29734	B29736
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), without air slots	B29729	B29731	B29733	B29735	B29737
Subframe, adjustable in height (size 30 to 75: height 600 mm, size 110 to 160: height 500 mm)	B29745	B29747		B29749	
Subframe, on castors (size 30 to 75: height 660 mm, size 110 to 160: height 560 mm)	B29746	B29748		B29750	
Subframe, adjustable in height, height 130 mm, for example for units with fresh air filter	B33657	B33659		B33661	
FDA confroming software AtmoCONTROL (FDA edition). Meets the requirements for the use of electronically stored data sets and electronic signatures as laid down in Regulation 21 CFR Part 11 of the US Food and Drug Administration (FDA). Base licence for the control of one unit. Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1				
Integration of additional units (up to max. 15 units) into an already existent FDA-software licence	FDAQ2				
IQ document with device-specific works test data, OQ/PQ check list as support for validation by customer	D00124				
IQ/OQ document with device-specific works test data for one free-selectable temperature value, incl. temperature distribution survey at Memmert for 9 measuring points (size 30), 27 measuring points (sizes 55 - 1060) to DIN 12880:2007-05. PQ check list as support for validation by customer. 305 € for further temperature values and validation at customer site on demand (GER, AT, CH only)	D00125	D00127			

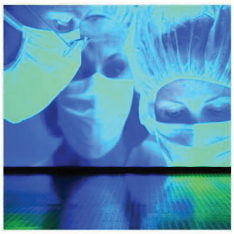
Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Steriliser SN and SF with SingleDISPLAY
Steriliser SNplus and SFplus with TwinDISPLAY
Natural convection or forced ventilation
AtmoCONTROL software

Model sizes:
30 / 55 / 75 / 110 / 160 / 260 / 450 / 750
+20 °C to +250 °C

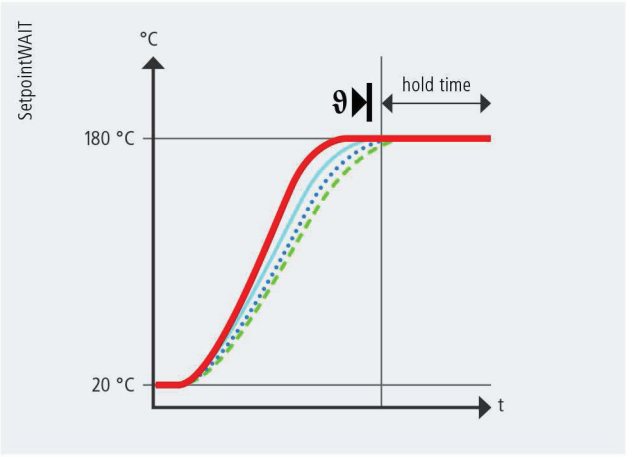
STERILISER S Medicine has the goal of protecting and saving lives. Therefore, disinfection of receptacles and instruments is not enough. The setpoint-dependent programme resume function SetpointWAIT of Memmert hot air sterilisers guarantees precise sterilisation times and the complete killing off of even the most resistant microorganisms. All Memmert sterilisers are classified as class IIb medical device.





SetpointWAIT function

Exactly timed temperature control helps to save lives when it comes to sterilisation of instruments and laboratory equipment. Therefore, the SetpointWAIT function guarantees that the sterilisation time does not start before the compensation time is reached. When measuring with additional freely positionable Pt100 sensors (optional), reaching the set temperature at all measuring points on the chamber load is decisive for the continuation of the programme. Up to three measurements can be displayed directly on the ControlCOCKPIT or one measurement on an external measuring device or a 4 – 20 mA interface.



When the SetpointWAIT function is activated, the hold time does not start until the temperature within a very narrow tolerance range is reached at all measuring points

Temperature of the Pt100 sensor inside the chamber

Temperature of the flexible Pt100 sensors inside the chamber

Validation without problems

Particularly thanks to the SetpointWAIT function, Memmert hot air sterilisers comply with all strict requirements on quality assurance and can therefore be validated without problems. Besides the possibility to measure the temperature directly at the load inside the chamber (optional), the appliances completely document the entire process. In combination with the User-ID-Key for TwinDISPLAY appliances, the process-controlled door locking mechanism (optional) is the icing on the cake in terms of safety.

The steriliser S is a medical device:

All Memmert sterilisers are classified as class IIb medical device. The appliances may be used for sterilising medical material through dry heat at atmospheric pressure. They are also suited without restriction for the special application of depyrogenisation with hot air.

STERILISERS S

according to DIN 12880:2007-05, EN 61010-1 (IEC 61010-1), EN 61010-2-010 and EN 61010-2-40

Standard units are safety-approved and bear the test marks:

Interior: Stainless steel, material 1.4301 (ASTM 304), with all-round deep-drawn ribs to integrate the large-area heating with ceramic-metal sheath

Housing: Textured stainless steel, rear zinc-plated steel, intuitively operated SingleDISPLAY or TwinDISPLAY (TFT colour display) with touchscreen, fully insulated stainless steel door (from size 450 two leaves)

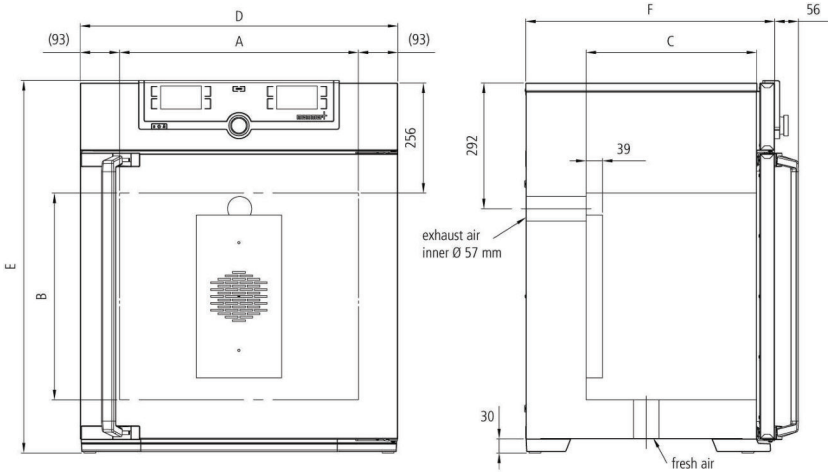
Fresh air: Admixture of pre-heated fresh air by electronically adjustable air flap

Connection: Mains cable with plug (German type) CEE plug for 400 V

Installation: 4 feet; sizes 450/750 mounted on lockable castors

Interfaces: Ethernet LAN, USB

USB: only TwinDISPLAY



Model sizes/Description				30	55	75	110	160	260	450	750
Stainless steel interior	Volume		approx. l	32	53	74	108	161	256	449	749
	Width	(A)	mm		400		560		640	1040	
	Height	(B)	mm	320	400	560	480	720	800	720	1200
	Depth (less max. 39 mm for fan)	(C)	mm	250	330		400		500	600	
	Max. number of grids/shelves		number	3	4	6	5	8	9	8	14
	Max. loading per grid/shelf		kg			20				30	
	Max. loading of chamber		kg	60	80	120	175	210		300	
	Max. loading per slide-in drip tray		kg		1,5		3		4	8	
	Max. loading per bottom drip tray		kg		1,5		3		4	8	
Textured stainless steel exterior	Width	(D)	mm		585		745		824	1224	
	Height (size 450, 750 with castors)	(E)	mm	704	784	944	864	1104	1183	1247	1720
	Depth (without door handle), door handle +56 mm	(F)	mm	434	514		584		684	784	
Standard equipment	Stainless steel grids, electropolished		number	1		2					
	Standard works calibration certificate (measuring point chamber center)		°C			+160					
Temperature	Working temperature range		°C	at least 5 (SN/SNplus) 10 (SF/SFplus) above ambient temperature to +250							
	Setting temperature range		°C	+20 to +250							
	Setting accuracy		°C	up to 99.9: 0.1 / from 100: 0.5							
Further data	Electrical load at 230 V, 50/60 Hz		approx. W	1600	2000	2500	2800	3200	3400	-	
	Electrical load at 115 V, 50/60 Hz		approx. W	1600	1700	1800				-	
	Electrical load at 400 V and 3 x 230 V w/o neutral, 50/60 Hz		approx. W	-						5800	7000
Packing data	Net weight		approx. kg	46	57	66	74	96	110	161	217
	Gross weight (packed in carton)		approx. kg	62	76	85	99	122	161	227	288
	Width		approx. mm	660	730		830		930	1330	
	Height		approx. mm	890	950	1130	1050	1300	1380	1440	1910
	Depth		approx. mm	650	670		800		930	1050	
Order No. Sterilisers				SN30	SN55	SN75	SN110	SN160	SN260	SN450	SN750
				SN30plus	SN55plus	SN75plus	SN110plus	SN160plus	SN260plus	SN450plus	SN750plus
				SF30	SF55	SF75	SF110	SF160	SF260	SF450	SF750
				SF30plus	SF55plus	SF75plus	SF110plus	SF160plus	SF260plus	SF450plus	SF750plus

S = Steriliser
N = Natural convection
F = Forced air circulation
plus = Model with TwinDISPLAY

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Options	30	55	75	110	160	260	450	750
Voltage 115 V, 50/60 Hz	X2						-	
Extended overtemperature protection by additionally integrated Pt100 sensor for independent temperature monitoring for models with SingleDISPLAY	A6							
Full-sight glass door (4-layer insulating glass)	B0							
Interior lighting for observing the load	R0							
Chamber modification for the application of reinforced perforated stainless steel shelves or stainless steel grids (bearing rails mounted in the working chamber) - includes replacement of standard grids by reinforced grids	-						K1	
Fresh-air filter (filtration efficiency 80 %) mounted at the appliance bottom (for SF/SFplus). For sizes 30 - 260 castor frame or subframe necessary	R8							
Entry port, 23 mm clear diameter, for introducing connections at the side, can be closed by flap, standard positions – left centre/centre	F0							
Entry port, 23 mm clear diameter, for introducing connections at the side, can be closed by flap, standard positions – left centre/top	F1							
Entry port, 23 mm clear diameter, for introducing connections at the side, can be closed by flap, standard positions – right centre/centre	F2							
Entry port, 23 mm clear diameter, for introducing connections at the side, can be closed by flap, standard positions – right centre/top	F3							
Entry port, 23 mm clear diameter, can be closed by flap, in special positions (please state location) – left	F4							
Entry port, 23 mm clear diameter, can be closed by flap, in special positions (please state location) – right	F5							
Entry port, 23 mm clear diameter, can be closed by flap, in special positions (please state location) – rear	F6							
Entry port, 14 mm clear diameter, can be closed by flap, in special positions in the back wall (please, state location)	D6							
Entry port, 38 mm clear diameter, can be closed by flap, in special positions in the back wall (please, state location)	F7							
4 - 20 mA current loop interface (0 to +260 °C = 4 - 20 mA) – Temperature controller, actual value	V3							
4 - 20 mA current loop interface (0 to +260 °C = 4 - 20 mA) – Temperature of a Pt100 sensor positioned flexibly in chamber for external temperature monitoring (max. 1 SingleDISPLAY, max. 3 TwinDISPLAY) - price per sensor	V6							
Fan speed monitoring with switching off the heating and with alarm in case of failure - optional for SFplus only	V4							
Works calibration certificate for 3 temperatures: +160, +180, +250 °C	D00132							
Works calibration certificate for one (freely selectable) temperature value according to customer specification	D00109							
Door with lock and key (safety lock); standard with 450 and 750	B6							
Door hinged on the left	B8						-	
Potential-free contact (24 V/2 A) with socket, according to NAMUR NE 28 for external monitoring (indicates when setpoint is reached)	H5							
Potential-free contact for combination error message (e.g. supply failure, sensor fault, fuse)	H6							
Potential-free contact (24 V/2 A) with socket to NAMUR NE 28, for signal generation, controlled by programme segment, for free-selectable functions to be activated (e.g. activation of audible and visual signals, exhaust motors, fans, stirrers, etc.). Only for units with TwinDISPLAY; max. 2 contacts on 1-phase appliances; max. 4 contacts on 3-phase appliances – 2 contacts	H72							
Potential-free contact (24 V/2 A) with socket to NAMUR NE 28, for signal generation, controlled by programme segment, for free-selectable functions to be activated (e.g. activation of audible and visual signals, exhaust motors, fans, stirrers, etc.). Only for units with TwinDISPLAY; max. 2 contacts on 1-phase appliances; max. 4 contacts on 3-phase appliances – 4 contacts	-						H74	
Process-dependent programmable door lock (only for units with TwinDISPLAY)	D4							
Door-open-recognition (only for units with TwinDISPLAY)	V5							
Flexible Pt100 for positioning in chamber or in load with socket, 4-pin, according to NAMUR NE 28, for external temperature recording (load temperature) max. 3 sensors	H4							
Flexible Pt100 temperature sensor, positioned flexibly in chamber or load, for local temperature measurement (up to 3 additional sensors are possible). The measured temperature can, if required, be indicated on the display, recorded in the integral data store, and can be documented via the AtmoCONTROL software	H8							
MobileALERT, notification by SMS in case of any error or alarm of the device. Requires option H6	C3							
Castor frame (2-part), height 140 mm	R9						-	

Accessories	30	55	75	110	160	260	450	750
Stainless steel grid, electropolished	E28884	E20164		E20165		E28891	E20182	
Additional reinforced stainless steel grid, electropolished, max. loading 60 kg; from size 450 with guide bars and fixing screws (only in connection with option K1). Please consider max. loading of chamber	-			E29767		E29766	B32190	
Perforated stainless steel shelf	B29727	B03916		B00325		B29725	B00328	
Additional reinforced stainless steel shelf, max. loading 60 kg; with guide bars and fixing screws (only in connection with option K1). Please consider max. loading of chamber	-						B32191	
Stainless steel slide-in drip tray, 15 mm rim (may affect the temperature distribution) - cannot be used in connection with option K1	E02070	E02072		E02073		E29726	E02075	

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

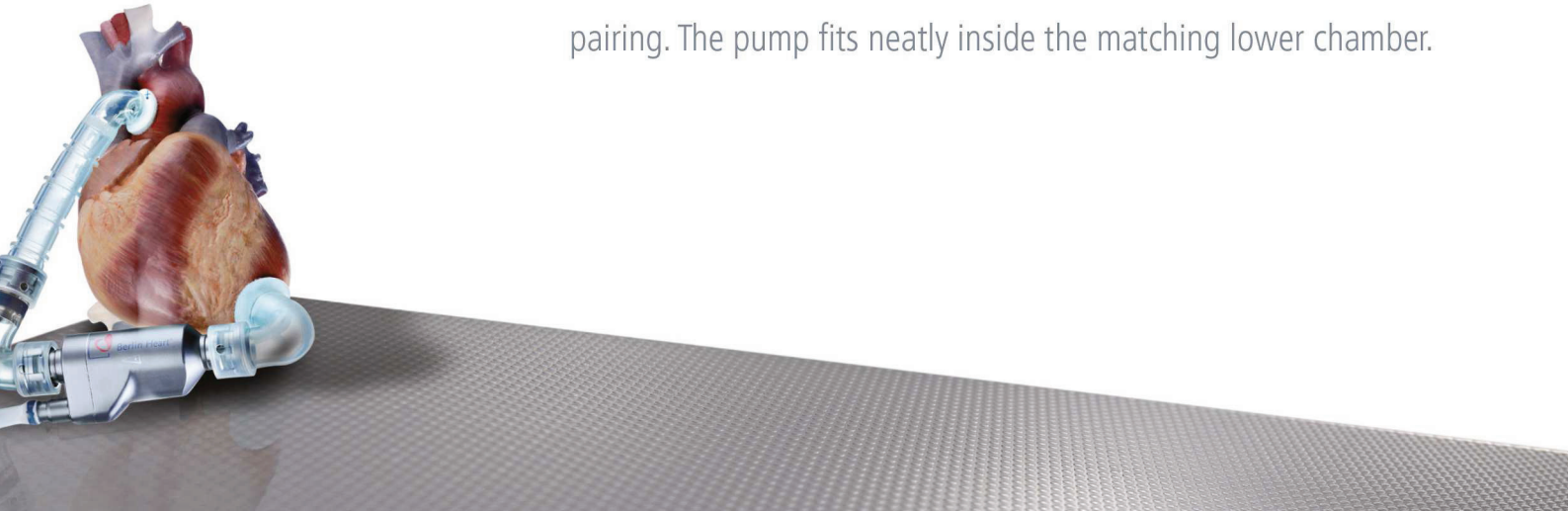
Accessories	30	55	75	110	160	260	450	750
Stainless steel slide-in drip tray, 15 mm rim, with guide bars and fixing screws (may affect the temperature distribution) - can be used only in connection with option K1	-						B32763	
Stainless steel bottom drip tray, 15 mm rim (may affect the temperature distribution) - cannot be used in connection with option K1	B04356	B04358		B04359		B29722	B04362	
Stainless steel bottom drip tray, 15 mm rim (may affect the temperature distribution) - can be used only in connection with option K1	-						B34055	
Wall bracket for wall mounting	B29755	B29756	B29757	B29758	B29759	-		
Guarantee extension by 1 year	GA1Q5					GA2Q5		
USB-Ethernet adapter	E06192							
Ethernet connection cable 5 m for computer interface	E06189							
USB User-ID stick (with User-ID licence): Oven-linked authorisation licence (User-ID-programme) on Memory-stick, prevents undesired manipulation by unauthorised third parties. When reordering please specify serial number (only for units with TwinDISPLAY)	B33170							
USB stick with documentation software AtmoCONTROL and operation manual for products with SingleDISPLAY (the standard equipment of appliances with TwinDISPLAY includes one USB stick with AtmoCONTROL). When reordering please specify serial number	B33172							
Set of height adjustable feet (4 pcs)	B29768						-	
Stacking set (4 pcs) for stacking of appliances of same size	B29744				-			
Plug-in tube extension (outer diam. 60.3 mm, inner 57 mm), straight, for exhaust air ducting (if necessary for connection by hose)	B29718							
Plug-in tube extension (outer diam. 60.3 mm, inner 57 mm), angled, for exhaust air ducting (if necessary for connection by hose)	B29719							
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), with air slots	B29728	B29730	B29732	B29734	B29736	B29738	B29740	B29742
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), without air slots	B29729	B29731	B29733	B29735	B29737	B29739	B29741	B29743
Subframe, adjustable in height (size 30 to 75: height 600 mm, size 110 to 450: height 500 mm)	B29745	B29747		B29749		B29751	B29753	-
Subframe, on castors (size 30 to 75: height 660 mm, size 110 to 160: height 560 mm)	B29746	B29748		B29750		-		
Subframe, adjustable in height, height 130 mm, for example for units with fresh air filter	B33657	B33659		B33661		B33664	-	
Software conforming to FDA AtmoCONTROL. Meets the requirements for the use of electronically stored data sets and electronic signatures as laid down in Regulation 21 CFR Part 11 of the US Food and Drug Administration (FDA). Base licence for the control of one unit (only for units with TwinDISPLAY). Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1							
Integration of one additional unit (up to max. 15 units) into an already existent FDA-software licence (only for units with TwinDISPLAY)	FDAQ2							
IQ document with device-specific works test data, OQ/PQ check list as support for validation by customer	D00124							
IQ/OQ document with device-specific works test data for one free-selectable temperature value, incl. temperature distribution survey at Memmert for 9 measuring points (size 30), 27 measuring points (sizes 55 - 1060) to DIN 12880:2007-05. PQ check list as support for validation by customer. 305 € for further temperature values and validation at customer site on demand (GER, AT, CH only)	D00125	D00127						

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Vacuum oven VO with TwinDISPLAY
AtmoCONTROL software

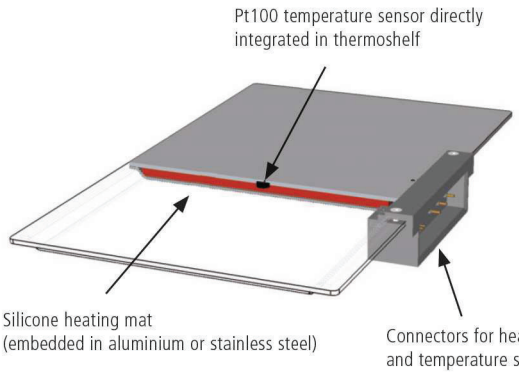
Model sizes:
29 / 49 / 101
+20 °C to +200 °C
5 mbar to 1100 mbar
Accessories: lower pump chamber and energy-efficient vacuum pump

VACUUM OVEN VO The high-performance turbo dryer impresses with its many intelligent Memmert features for gentle drying and precise, rapid temperature control: digital pressure control, directly heated and individually controllable thermoshelves, and simple programming via ControlCOCKPIT or AtmoCONTROL software. Combined together, the speed-controlled vacuum pump and the vacuum oven VO are an unbeatable energy-efficient pairing. The pump fits neatly inside the matching lower chamber.



Unique precision: Memmert VO direct heating

Available only from Memmert: multi-level sensing and heating. For really short heating-up and processing times, heating is provided via individually positionable thermoshelves with integrated shelf heating and sensors. The separate control circuits react precisely to different loads or humidity levels and ensure the setpoint temperature is consistently maintained. Due to the direct contact between the heating and the chamber load, there is practically no loss of heat. Each thermoshelf can be calibrated individually.

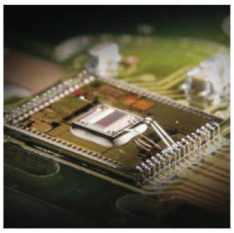


Removable thermoshelf with direct heating system and sensor

Multi-level sensing and heating

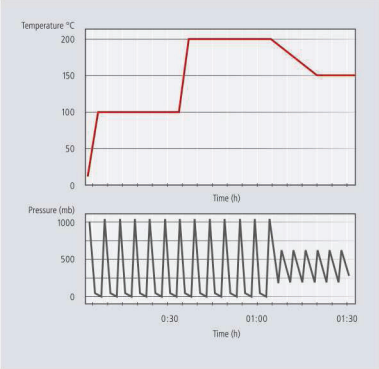
Optional vacuum pump saves around 70 % energy

The speed-controlled chemically resistant Memmert vacuum pump is automatically detected by each vacuum oven VO. Thanks to intelligent speed control, it controls the setpoint with great precision. The energy efficiency is also obvious, with measurements showing energy savings of around 70 % in ramp mode compared with vacuum pumps that are not controlled; it is even possible to achieve higher savings at constant vacuum levels. The final vacuum level of up to 2 mbar favours a wide range of applications, while pump control (based on individual requirements) significantly extends the service life of membranes. If another vacuum pump or a central vacuum supply is connected, vacuum control is achieved via solenoid valves.



Turbo drying thanks to vacuum cycles

Digitally controlled vacuum cycles, during which the working chamber is intermittently vented at short intervals, can achieve further significant reductions in drying times. The AtmoCONTROL software makes it quick and easy to program ramps with different temperature and vacuum setpoints.



Example of ramp programming

Convenience in a package: the Premium Module

The basic version of the vacuum oven VO features a thermoshelf and two thermoshelf connectors (VO29: 1 thermoshelf connector). The Premium Module includes the option for switching to inert gas, a programmable, digitally controlled gas inlet with flow reduction; there is also the MobileALERT option with separate error messages for temperature and pressure as well as (depending on the appliance size) additional thermoshelves and thermoshelf connectors (see the technical data for details).

VACUUM OVENS VO

according to DIN 12880:2007-05, EN 61010-1 (IEC 61010-1)

Standard units are safety-approved and bear the test marks:

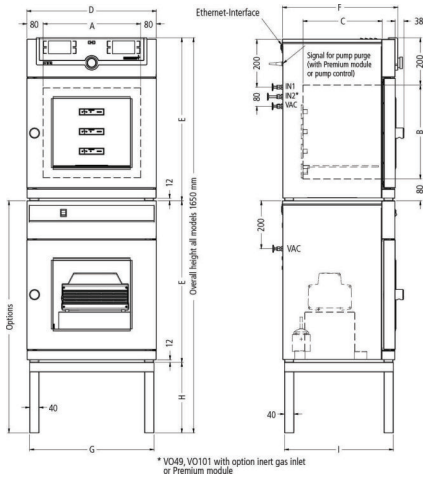
Interior: Stainless steel interior, material 1.4404 (ASTM 316 L), hermetically welded, with removable mountings at the sides for cleaning, including thermoshelf guide bars, as well as mounting on top to avoid turbulences

Housing: Textured stainless steel, rear zinc-plated steel, intuitively operated TwinDISPLAY (TFT colour displays) with touchscreen, safety glass door with inner bullet-proof glass and external anti-splinter screen

Connection: Mains cable with plug (German type)

Installation: 4 feet

Interfaces: USB, Ethernet LAN



Model sizes/Description			29	49	101
Stainless steel interior	Volume	approx. l	29	49	101
	Width	(A) mm	385		545
	Height	(B) mm	305	385	465
	Depth	(C) mm	250	330	400
	Distance between thermoshelves	mm	75		95
	Maximum load per oven	approx. kg	40	60	
	Max. number of thermoshelves	number	1	2	
	Max. number of thermoshelves (with premium module)	number	2	4	
	Max. loading per thermoshelf	kg	20		
Textured stainless steel exterior	Width	(D) mm	550		710
	Height	(E) mm	607	687	767
	Depth (without door handle, depth of handle 38 mm)	(F) mm	400	480	550
	Safety glass door: Textured stainless steel frame with spring-loaded safety glass on inside and anti-splinter screen ESG on outside of door		●		
	Door Seal: Endless silicone profile seal		●		
Standard equipment	Thermoshelves – aluminium eloxadised , mat. 3.3547 (ASTM B209) – with integrated large-area heating including local temperature sensing (Pt100, 4-wire-circuit); individual overtemp. protection for each shelf. Further data see stainless steel number inner working chamber	number	1		
	Works calibration certificate (measuring point in the middle of the individual shelf for +160 °C at 20 mbar pressure): a separate certificate is prepared for each thermoshelf ordered and shipped together with the vacuum oven	°C	●		
Temperature	Temperature sensors Pt100 Class A in 4-wire circuit individually for each thermoshelf		●		
	Working temperature range	°C	at least 5 above ambient temperature to +200		
	Setting temperature range	°C	+20 to +200		
	Setting accuracy	°C	up to 99.9: 0.1 / from 100: 0.5		
	Temperature variation in time (to DIN 12880:2007-05) (aluminium thermoshelf)	K	≤ ± 0.3		
	Temperature uniformity (surface) at +160 °C/20 mbar (aluminium thermoshelf)	K	≤ ± 2,5		
Pressure (vacuum)	Vacuum connection with small flange DN16, and gas inlet with small flange DN 16		●		
	Digital electronic pressure control for a speed-controlled vacuum pump. Tubing for vacuum, air and inert gas are made of material 1.4571 (ASTM 316 Ti). Adjustable from 5 mbar up to 1100 mbar. Programmable, digitally controlled inlet for air		●		
	Pump control: optimised rinsing procedures for the pump membranes as well as signal output for pump ON/OFF		●		
	Rapid air intake for door opening without alteration of selected vacuum setpoint		●		
	Permitted final vacuum	mbar	0.01		
	Maximum leakage rate	bar/h	0.01		
Control technology	Digital over- and undertemperature monitor		●		
	Temperature monitoring band automatically linked to the setpoint (ASF)		●		
	Monitor relay for reliable heating cut-off in case of fault		●		
	Mechanical temperature limiter (TB)		●		
	Multi-Level-Overtemperature-Protection (MLOP) for each thermoshelf		●		
Further data	Subframe tubular steel (extra cost), black enamelled (for stacking unit consisting of vacuum oven and pump module, total height: 1650 mm, see sketch of oven dimensions G/H/I) Width/Height/Depth	mm	529/450/383	529/290/463	689/130/533

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Nov-2019

Model sizes/Description			29	49	101
Further data	Electrical load (maximally equipped) at 230 V, 50/60 Hz	approx. W	820	2020	2420
Packing data	Net weight vacuum oven	approx. kg	55	83	110
	Gross weight vacuum oven (packed in carton)	approx. kg	76	104	135
	Packed dimensions Vacuum oven (Width, Height, Depth)	approx. mm	660/870/590		830/1050/800
	Net weight pump module without/with pump	approx. kg	25/41	30/46	41/57
	Gross weight pump module without/with pump (packed in carton)	approx. kg	46/62	51/67	66/82
	Packed dimensions pump module (Width, Height, Depth)	approx. mm	660/870/590		830/1050/800
Order No. Vacuum Ovens			VO29	VO49	VO101

Options		29	49	101
Premium module: comprises the inert gas inlet (only size 49 and 101), extra connectors for thermoshelves, 1 (size 29), 2 (sizes 49/101), an additional thermoshelf (sizes 49/101)		T5		
4 - 20 mA current loop interface (only with option T5)	Temperature actual value (0 to 210 °C = 4 - 20 mA)	-	V3	
	Vacuum actual value (0 bis 1200 mbar = 4 - 20 mA)	-	W2	
	Temperature of a Pt100 sensor positioned flexibly in chamber for external temperature monitoring - price per sensor	V6		
Freely positioned control sensor, MIN and MAX alarm adjustable at ControlCOCKPIT, alarm values captured in internal data logger. Requires option T5		-	H9	
Potential-free contact (24 V/2 A) with socket, according to NAMUR NE 28 for combination error message (e.g. supply failure, sensor fault, fuse)		H6		
Flexible Pt100 for positioning in chamber or in load with socket, 4-pin, according to NAMUR NE 28, for external temperature recording (load temperature) max. 3 sensors		H4		
Potential-free contact (24 V/2 A) with socket, according to NAMUR NE 28, triple, for signal generation, controlled by programme segment for a total of one freely selected function to be activated (e.g. acoustic and visual signals, exhaust motors, fans, stirrers etc.)		H7		
MobileALERT, notification by SMS in case of any error or alarm of the device. Requires option H6		C3		
MobileALERT for 2 alarm notifications; temperature and vacuum alarm (only with option T5)		-	C4	
Temperature restriction; Temperatures: +60, +70, +80, +95, +100, +120, +160 or +180°C (Please, indicate upon ordering)		A8		
Works calibration certificate for one (freely selectable) temperature and pressure value (per thermoshelf) according to customer specification		D00116		

Accessories	29	49	101
Additional thermoshelf - aluminium eloxadised material W.-St. 3.3547 (ASTM B209) with integrated large-area heating including local temperature sensing (Pt100, 4-wire-circuit); individual overtemp. protection for each shelf MLOP (Multi-Level-Overtemperature-Control) and calibration certificate	B00741	B00743	B00744
Additional thermoshelf - stainless steel material 1.4404 (ASTM 316 L) for especially corrosive material with integrated large-area heating including local temperature sensing (Pt100, 4-wire-circuit); individual overtemp. protection for each shelf MLOP (Multi-Level-Overtemperature-Control) and calibration certificate	B00733	B00734	B00735
Subframe, tubular steel, black enamelled (for stacking unit consisting of vacuum oven and pump module, total height: 1650 mm, see "further data" and sketch of oven dimensions)	E02030	E02031	E02037
Works calibration certificate for 3 temperatures: +50 °C, +100 °C, +160 °C at 20 mbar pressure. Price per thermoshelf	D00115		
Guarantee extension by 1 year	GA2Q5		
Noise-insulated vacuum pump module without pump (exterior dimensions and -material No. s. vacuum oven) with antivibration metal plate at the bottom to accommodate the vacuum pump, incl. full-sight glass door. Socket, signal cable and connecting hose to the vacuum oven	PM29	PM49	PM101
Noise-insulated vacuum pump module, as above, however with built-in pump, 230 V, 50/60 Hz	PMP29	PMP49	PMP101
Signal cable (3 m) for control of rotation speed and optimising pump performance by demand-controlled activation of purge of Memmert pump (not required with pump module)	B39410		
Vacuum connecting hose (3 m) from oven to Memmert pump incl. optimised connection accessories (partially stainless steel), (not required with pump module)	B04026		
Vacuum pump with chemically resistant 4x diaphragm, pump capacity at atm. pressures: approx. 50 Nl./min = 3,0 m^3/h and autom. purge control. Order No. B39410 and B04026 necessary. 230 V, 50 Hz. Max. guarantee period 2 years	E07509		
USB-Ethernet adapter	E06192		
Ethernet connection cable 5 m for computer interface	E06189		
USB User-ID stick (with User-ID licence): Oven-linked authorisation licence (User-ID-programme) on Memory-stick, prevents undesired manipulation by unauthorised third parties. When reordering please specify serial number	B33170		
FDA confroming software AtmoCONTROL (FDA edition). Meets the requirements for the use of electronically stored data sets and electronic signatures as laid down in Regulation 21 CFR Part 11 of the US Food and Drug Administration (FDA). Base licence for the control of one unit. Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1		
Integration of additional units (up to max. 15 units) into an already existent FDA-software licence	FDAQ2		
IQ document with device-specific works test data, OQ/PQ check list as support for validation by customer	D00124		
IQ/OQ document with device-specific works test data for one free-selectable temperature and vacuum value, incl. temperature distribution survey at Memmert for 5 measuring points per thermoshelf to DIN 12880:2007-05. PQ check list as support for validation by customer valid for one thermoshelf; dito further thermoshelves, price on demand. Price for validation at customer site on demand (GER, AT, CH only)	D00117		

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Blanket warmer IFbw with SingleDISPLAY
Forced ventilation
AtmoCONTROL software

Model sizes:
110 / 260 / 450 / 750
+20 °C to +80 °C

BLANKET WARMER IFbw In this special blanket warmer IFbw, blankets and cloths preheated to a precise temperature to keep patients warm are always close at hand. This minimises the risk of complications such as wound infections, cardiovascular disorders, cardiac arrhythmia or vascular disorders. The blanket warmer IFbw is a Class I medical device in accordance with EU Directive 93/42/EEC. Thanks to its stainless steel inside and outside surfaces, it is easy to clean.

Elaborate safety functions

The Memmert blanket warmer IFbw has an impressive range of built-in safety features:

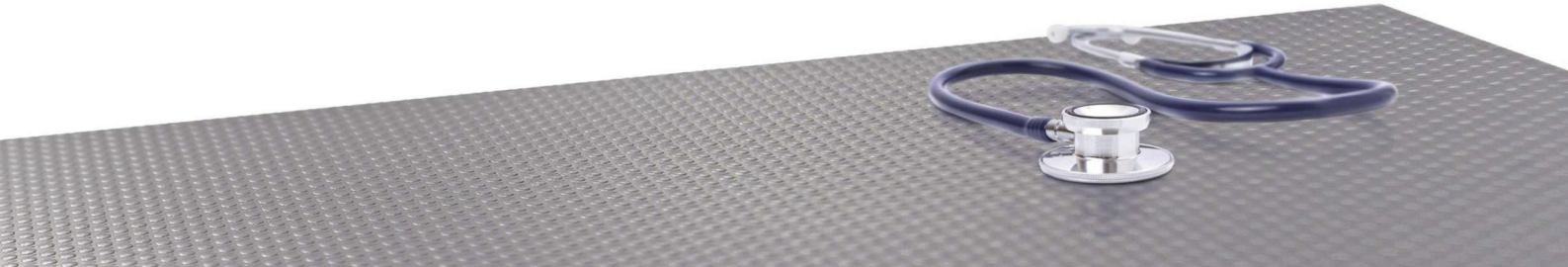
- The heating power is limited to 80 °C to prevent overheating the cotton fabrics if the chamber is overloaded
- Hermetically sealed interior
- Permanent air circulation
- Constant surface temperature monitoring with two additional Pt100 sensors
- Automatic door-open-recognition ensures that the heating and fan are turned off when the door is opened
- The power supply is cut by mechanical temperature limiters as soon as the temperature reaches 85 °C

Temperature monitoring inside the chamber

Three Pt100 sensors monitor and limit the temperature in the chamber. The two surface sensors have been built into the appliance in such way that they retain full functionality even if the chamber is fully loaded.

The blanket warmer IFbw is a medical device:

Memmert blanket warmers IFbw are a Class I medical device in accordance with the EU Directive 93/42/EEC. According to the intended purpose, Memmert blanket warmers are suitable for warming non-sterile blankets and cloths.



BLANKET WARMERS IFbw

according to DIN 12880:2007-05, EN 61010-1 (IEC 61010-1), EN 61010-2-010

Standard units are safety-approved and bear the test marks:

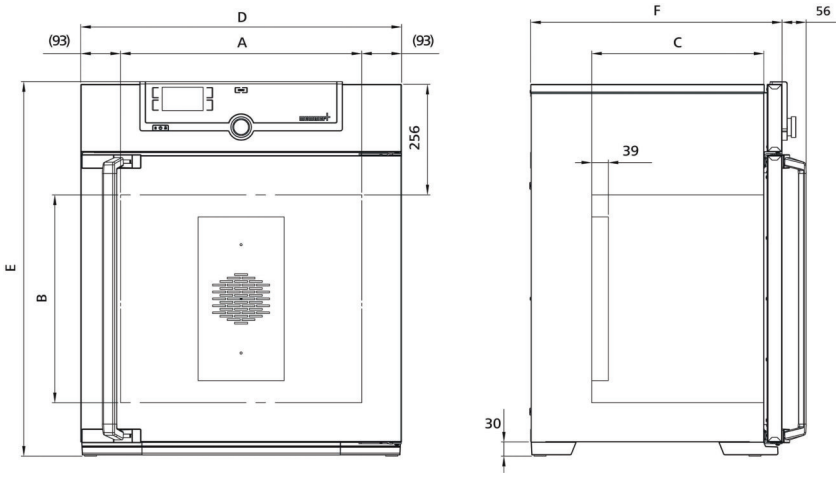
Interior: Stainless steel, material 1.4301 (ASTM 304) with all-round deep-drawn ribs to integrate the large-area heating with ceramic-metal sheath

Housing: Textured stainless steel, rear zinc-plated steel, intuitively operated SingleDISPLAY (TFT colour display) with touchscreen; outside fully insulated stainless steel door (from size 450 two leaves)

Connection: Mains cable with plug (German type)

Installation: 4 feet; size 450 and 750 mounted on lockable castors

Interfaces: Ethernet LAN



Model sizes/Description			110	260	450	750
Stainless steel interior	Volume	approx. l	108	256	449	749
	Width	(A) mm	560	640	1040	
	Height	(B) mm	480	800	720	1200
	Depth (less 39 mm for fan)	(C) mm	400	500	600	
	Max. number of grids/shelves	number	5	9	8	14
	Max. loading per grid/shelf	kg	20		30	
	Max. loading of chamber	kg	175		300	
Textured stainless steel exterior	Width	(D) mm	745	824	1224	
	Height (size 450, 750 with castors)	(E) mm	864	1183	1247	1720
	Depth (without door handle), door handle + 56mm	(F) mm	584	684	784	
Standard equipment	Stainless steel grids, electropolished	number	2			
	Forced convection fix at 100%		●			
	Door-open-recognition		●			
	Works calibration certificate (measuring point chamber centre)	°C	+37			
Temperature	Working temperature range	°C	at least 10 above ambient temperature up to +80			
	Setting temperature range	°C	+20 to +80			
	Setting accuracy	°C	0.1			
Further data	Electrical load at 230 V, 50/60 Hz	approx. W	1400	1700	1800	2000
	Electrical load at 115 V, 50/60 Hz	approx. W	900		1500	1800
Packing data	Net weight	approx. kg	74	110	161	217
	Gross weight (packed in carton)	approx. kg	99	161	227	288
	Width	approx. mm	830	930	1330	
	Height	approx. mm	1050	1380	1440	1910
	Depth	approx. mm	800	930	1050	
Order No. Blanket warmers I = Incubator F = Forced convection bw = Blanket warmer			IF110bw	IF260bw	IF450bw	IF750bw

Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Options	110	260	450	750
Voltage 115 V, 50/60 Hz	X2			
Full-sight glass door (4-layer insulating glass)	B0			
4 - 20 mA current loop interface (0 to +90 °C = 4 - 20 mA) Temperature controller, actual value	V3			
Works calibration certificate for one (freely selectable) temperature value according to customer specification	D00109			
Door with lock and key (safety lock)	B6			
Door hinged on the left	B8		-	
Potential-free contact (24 V/2 A) with socket, according to NAMUR NE 28 for external monitoring (indicates when setpoint is reached)	H5			
Potential-free contact for combination error message (e.g. supply failure, sensor fault, fuse)	H6			
Flexible Pt100 for positioning in chamber or in load with socket, 4-pin, according to NAMUR NE 28, for external temperature recording (load temperature) max. 3 sensors	H4			
MobileALERT, notification by SMS in case of any error or alarm of the device. Requires option H6	C3			
Castor frame (2-part), height 140 mm	R9		-	

Accessories	110	260	450	750
Stainless steel grid, electropolished	E20165	E28891	E20182	
Perforated stainless steel shelf	B00325	B29725	B00328	
Wall bracket for wall mounting	B29758	-		
Guarantee extension by 1 year	GA1Q5	GA2Q5		
USB-Ethernet adapter	E06192			
Ethernet connection cable 5 m for computer interface	E06189			
USB stick with documentation software AtmoCONTROL and operation manual. When reordering please specify serial number	B33172			
Stacking set (4 pcs) for stacking of appliances of same size	B29744	-		
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), with air slots	B29734	B29738	B29740	B29742
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), without air slots	B29735	B29739	B29741	B29743
Subframe, adjustable in height (height 500 mm)	B29749	B29751	B29753	-
Subframe, on castors (height 560 mm)	B29750	-		
Subframe, adjustable in height, height 130 mm, for example for units with fresh air filter	B33661	B33664	-	
IQ document with device-specific works test data, OQ/PQ check list as support for validation by customer	D00124			
IQ/OQ document with device-specific works test data for one free-selectable temperature value, incl. temperature distribution survey at Memmert for 27 measuring points to DIN 12880:2007-05. PQ check list as support for validation by customer. 305 € for further temperature values and validation at customer site on demand (GER, AT, CH only)	D00127			

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MODEL VARIANTS

SingleDISPLAY ControlCOCKPIT with one TFT display	TwinDISPLAY ControlCOCKPIT with two TFT displays
AVAILABLE APPLIANCES	**AVAILABLE APPLIANCES**
UN/UNm / UF/UFm / IN/INm / IF/IFm / IFbw / SN / SF / IPP / IPS	**UNplus/UNmplus / UFplus/UFmplus / UF TS / UNpa INplus/INmplus / IFplus/IFmplus / SNplus / SFplus / VO ICOmed / IPPplus / ICPeco / ICP / HPP / ICHeco / ICH / HCP**
One high-resolution TFT colour display with touch-sensitive buttons for selection of functions	Two high-resolution TFT colour displays with touch-sensitive buttons for selection of functions
Available parameters on the ControlCOCKPIT: Temperature (Celsius or Fahrenheit), fan speed, exhaust air flap position, programme time	Available parameters on the ControlCOCKPIT: Temperature (Celsius or Fahrenheit), fan speed, exhaust air flap position, programme time, relative humidity, illumination, CO_2
One temperature sensor Pt100 DIN class A in a 4-wire circuit	Two Pt100 sensors DIN class A in a 4-wire circuit for mutual monitoring, taking over functions in case of an error
	HeatBALANCE function for application specific adjustment of heat output distribution (balance) between the upper and lower heating groups in an adjustment range between -50 % and +50 % (not valid for models 30, HPP110, IPP110plus, ICP, ICH)
AtmoCONTROL software for reading out, managing and organising the data logger via Ethernet interface (temporary trial version can be downloaded). USB stick with AtmoCONTROL software available as accessory (on demand)	AtmoCONTROL software on a USB stick for programming, managing and transferring programmes via Ethernet interface or USB port
	ControlCOCKPIT with USB port for uploading programmes, reading out protocol logs, activating the User-ID function
	Displaying of already logged protocol data on the ControlCOCKPIT (max 10,000 values correspond to approx. 1 week)
Ethernet interface on the rear of the appliance for reading out the protocol log and for online logging	Ethernet interface on the rear of the appliance for reading out the protocol log and for uploading programmes and for online logging
Double overtemperature protection: Electronic temperature monitoring with freely adjustable monitoring temperature, for models U, I, S with option A6 TWW/TWB (protection class 3.1 or 2), mechanical temperature limiter TB acc. to DIN 12880	Multiple overtemperature protection: Electronic temperature monitoring TWW/TWB (protection class 3.1 or 2 resp. 3.3 for units with active cooling) and mechanical temperature limiter TB (protection class 1) acc. to DIN 12880, AutoSAFETY automatically adjusts to the set value within a freely adjustable tolerance range. Setting individual MIN / MAX values for over/undertemperature and also for all other parameters such as relative humidity, CO_2
PID microprocessor control with integrated auto-diagnostic system	
Structured stainless steel housing, scratch-resistant, robust and durable; rear of zinc-plated steel	
High-temperature connectors on the rear of the appliance for single-phase power connection according to country specific systems and IEC standards	
Internal data logger with a storage capacity of at least 10 years	
German, English, French, Spanish, Polish, Czech, Hungarian language settings available on the ControlCOCKPIT	
Digital backwards counter with target time setting, adjustable from 1 minute to 99 days	
The SetpointWAIT function guarantees that the process time does not start until the set temperature is reached at all measuring points – optional for temperature values recorded by the freely positionable Pt100 sensors inside the chamber	
Adjustment of three calibration values for temperature and additional appliance specific parameters directly at the ControlCOCKPIT	

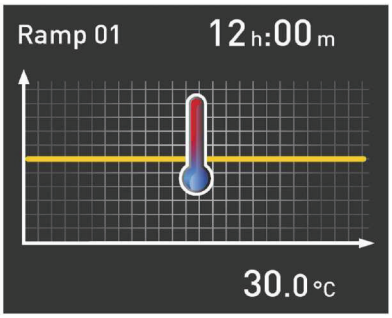
SOFTWARE AtmoCONTROL

AtmoCONTROL
The innovative control and logging software

Parameters such as temperature and humidity as well as the process time can be set directly at the ControlCOCKPIT. Ramp programming is done via the control and logging software AtmoCONTROL, which features a completely new software design.

Drag, drop & go!

Numerical and graphic programming of complex processes is a thing of the past. Today, programming is done via AtmoCONTROL by means of the mouse or touchpad on your notebook. Even the most complex ramp programmes are created within minutes. Simply drag & drop the graphical symbols for the desired parameters to the input field and change the values according to your wishes with a mouse click.

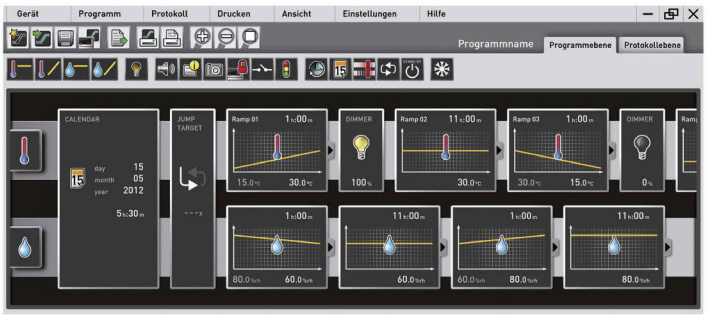


Programme functions for appliances with SingleDISPLAY and TwinDISPLAY

- Reading out, managing and organising the data logger
- Saving the log memory in various formats
- Online monitoring of up to 32 connected appliances
- Optical alarms when the alarm limits individually set at the ControlCOCKPIT are exceeded
- Automatic alarm to one or several e-mail addresses

Additional functions for appliances with TwinDISPLAY

- Intuitive programming and archiving of ramps and programme sequences
- Synchronous visualisation of the created programme sequence during programming
- Application-specific repeat functions (loops) can be inserted within a temperature control programme in any place
- Simple creation of repeating weekly programmes
- Programming, managing and transferring programmes via Ethernet interface or USB port



Customisation department as a "development assistant"

Customisation department

Memmert myAtmoSAFE meets any specific customer demand.

The customisation department adapts standard appliances to special needs. Their solutions are economic as well as technologically advanced and customers profit from the full guarantee period. Some customer-specific development projects, such as special model sizes 400, 1400 and 2200 of the HPP even made their way into the standard product range.

If users want to make sure they chose the right appliance offering the right suit of parameters and functions, they can have their application tested in advance in the Memmert MPTC Test Centre.

Customer-specific adjustment of standard models:

- Feed-throughs and ducts
- Special fittings for special applications (e.g. weighing equipment)
- Limiting temperatures in the heating and cooling range
- Air exchange rates
- Relative humidity
- (Wall) Frames
- Telescopic trays
- Heavy duty appliances, heavy duty bottom grids
- Special bases, stacking frames
- Central or integrated water supply
- Special model sizes
- Appliances for integration in the production lines

24 HOURS AT YOUR SERVICE

www.memmert.com

Here you can find the latest news concerning our company and products, as well as detailed descriptions of every single product. Additional information on the technologies used will support your sales arguments. In addition to this, data sheets, certificates, operating instructions and brochures are available for download. Service notifications can be submitted to our service team using the corresponding form.

Dedicated login area for our trading partners

- Technical information:
  Service instructions, software download, wiring diagrams, maintenance schedules etc.
- Marketing/sales information:
  Press releases, product photos, image photos, videos, order form for advertising material etc.
- Download of price list and spare parts price list
- Dates and registration form for sales and service trainings

www.atmosafe.net

The Memmert expert platform AtmoSAFE.net contains application examples for our temperature control appliances in the fields of life science, medicine, automotive, electronics, pharmaceutics, food, material testing and industry. In addition to this, general topics concerning research and industry are dealt with.

Applications: Incubating and breeding, drying under vacuum, heat drying, degassing under vacuum, determination of water and dry content, material testing, sample storage, conditioning, sterilisation, climate testing, stability and storage tests.

Our tip:

Please consider the Memmert customer information, which we regularly send exclusively to our trading partners. We inform you about campaigns, upcoming product launches, service offers and new application reports!

PERSONAL NOTES

memmert

Experts in Thermostatics

HEATING AND DRYING OVENS

- UNIVERSAL OVEN U
- PASS-THROUGH OVEN UF TS
- PARAFFIN OVEN UNpa
- STERILISER S
- VACUUM OVEN VO
- BLANKET WARMER IFbw

INCUBATORS

- INCUBATOR I
- CO_2 INCUBATOR ICOmed
- COMPRESSOR-COOLED INCUBATOR ICPeco/ICP
- PELTIER-COOLED INCUBATOR IPP
- COOLED STORAGE INCUBATOR IPS

CLIMATE CHAMBERS

- CONSTANT CLIMATE CHAMBER HPP
- HUMIDITY CHAMBER HCP
- CLIMATE CHAMBER ICHeco/ICH
- ENVIRONMENTAL TEST CHAMBER CTC/TTC

WATERBATHS / OILBATHS

- WATERBATH W
- OILBATH O

YOUR MEMMERT PARTNER

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