

Climate chamber ICH
with TwinDISPLAY + AtmoCONTROL software

Model sizes: 110 / 260 / 750
ICH with humidity control
ICH L with humidity control and light
ICH C with humidity and CO_2 control

Temperature range with humidity
ICH +10 °C to +60 °C
ICH L +10 °C to +60 °C
ICH C +10 °C to +50 °C
Humidity range 10 – 80 % rh

Temperature range without humidity
ICH -10 °C to +60 °C
ICH L 0 °C to +60 °C
ICH C +10 °C to +50 °C

CLIMATE CHAMBER ICH Compressor-cooled stability test chambers developed by Memmert stand out due to their unparalleled temperature and humidity homogeneity for long-term stable ambient conditions. The climate chamber ICH has been specially designed for testing pharmaceutical products according to ICH, Q1A and Q1B, option 2, and similar global standards for stability tests of cosmetics and food.





All-round protection of samples

No icing, no drying out of samples, no dehumidification of the working chamber. Cooling aggregate and heating of the ICH are situated outside the working chamber in the air jacket surrounding the entire chamber thus ensuring quick and precise temperature control. Furthermore, the motor-driven forced air circulation, adjustable in 10 % steps, ensures particularly homogenous temperature distribution.

For supporting IQ/OQ/PQ validation, the control can be adjusted directly on the appliance:
on models ICH, ICH L, ICH C of size 110/260: for three free-selectable values each, temperature/humidity/CO_2
on models ICH, ICH L, ICH C of size 750: for three free-selectable values each, temperature/humidity;
for two selectable values CO_2



ICH air jacket system

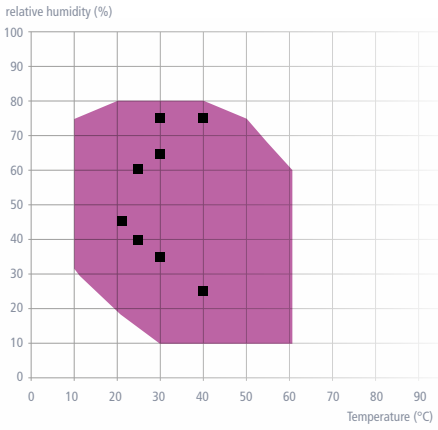
Illumination complies with ICH Q1B, option 2

For tests in accordance with ICH Q1B, option 2, an illumination unit is available for model ICH L. Fluorescent lights with cold-white light (daylight: light colour 865, 6,500 K) as well as UV radiation in the spectral range of 320 – 400 nm, serve as light source. Daylight and UV light comply with standard illuminant D65.

Model ICH C with CO_2 control

In addition to the features of the basic model ICH, the ICH C model is equipped with an electronic CO_2 control with automatic zero setting, NDIR measurement system, auto-diagnostic system, acoustic alarm and air pressure compensation.

Temperature-humidity working range



■ Temperature and humidity test points defined in the ICH guideline

Note:
Within the respective temperature-humidity range, condensation-free permanent operation is possible. To which extent condensation may occur in the threshold range depends on the humidity content of the chamber load and the ambient conditions.

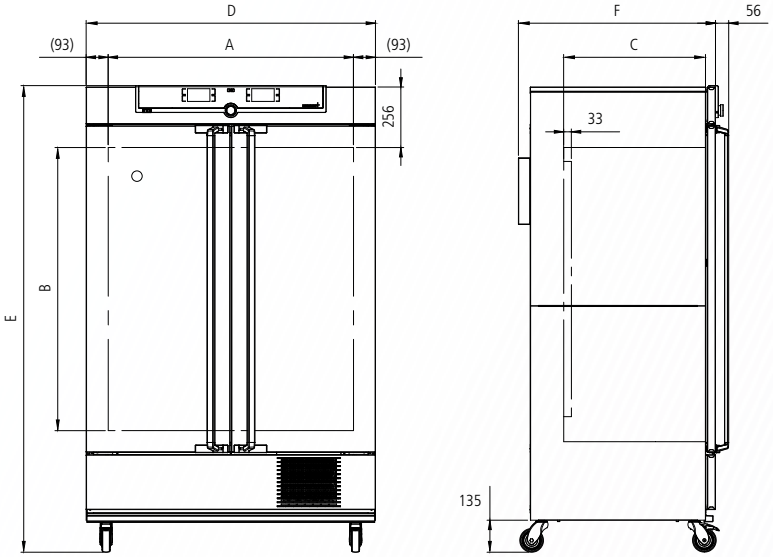
CLIMATE CHAMBERS ICH

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

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

Standard equipment

Interior:	Stainless steel, mat. 1.4301 (ASTM 304), deep-drawn
Internals:	2 stainless steel grids, electropolished
Housing:	Textured stainless steel, rear zinc-plated steel, intuitively operated TwinDISPLAY (TFT colour display) with touchscreen
Double doors:	Outside stainless steel, fully insulated, inside glass (size 750: two-leaves)
Connection:	Mains cable with plug
Installation:	Mounted on lockable castors
Interfaces:	Ethernet LAN, USB



Model sizes/Description				110	260	750
Stainless steel interior	Volume		approx. l	108	256	749
	Width	(A)	mm	560	640	1040
	Height	(B)	mm	480	800	1200
	Depth (less 33 mm for fan)	(C)	mm	400	500	600
	Stainless steel grids, electropolished (standard equipment)		number		2	
	Max. number of grids/shelves		number	5	9	14
	Max. loading per grid/shelf		kg		20	30
	Max. loading of chamber		kg	150	200	
Textured stainless steel exterior	Width	(D)	mm	745	824	1224
	Height (with castors)	(E)	mm	1233	1552	1950
	Depth (without door handle), door handle + 56 mm	(F)	mm	634	734	834
	Entry port (silicone), 40 mm clear diameter, for introducing connections, moisture tight, can be closed by a silicone stopper, standard position				□	
Further data	Electrical load at 230/115 V, 50/60 Hz ICH and ICH C		approx. W		1350	
	Electrical load at 230/115 V, 50/60 Hz ICH L		approx. W		1450	1530
	Working temperature range ICH / ICH L with humidity and/or light		°C		+10 to +60	
	Working temperature range ICH C with and without humidity		°C		+10 to +50	
	Working temperature range without humidity ICH (not suitable for long-term storing at sub-zero temperatures. During permanent operation, the glass door may ice over)		°C		-10 to +60	
	Working temperature range without humidity ICH L		°C		0 to +60	
	Setting temperature range ICH		°C		-10 to +60	
	Setting temperature range ICH L		°C		0 to +60	
	Setting temperature range ICH C		°C		+10 to +50	
	Setting accuracy		°C		0.1	
	Adjustment range humidity		% rh		10 to 80	
	Setting accuracy humidity		% rh		0.5	
	Digital electronic CO_2 control with autozero, NDIR system, with auto-diagnostic system and acoustic fault indication, barometric pressure compensation (only ICH C), adjustment range		% CO_2		0 to 20	0 to 10
	Control accuracy at 0 – 10 % CO_2 at 11 – 15 % CO_2		%		+/- 0.2 +/- 0.5	+/- 0.3 –
	Setting accuracy CO_2 (only model ICH C)		% CO_2		0,1	
	Illumination unit (only model ICH L) acc. ICH Q1B option 2; separately switchable via controller, one box Number of fluorescent lights with cold white light size 110: 3, sizes 260/750: 4 Number of fluorescent lights with UV lamps all sizes: 2				daylight: light colour 865 6,500 K UV spectral range from 320 to 400 nm (daylight and UV light comply with standard illuminant D65)	
Standard accessories	Water tank including connection hose				□	

Model sizes/Description			110	260	750
Packing data	Net weight	approx. kg	109	160	249
	Gross weight (packed in carton)	approx. kg	137	217	319
	Width	approx. cm	88	93	133
	Height	approx. cm	141	176	215
	Depth	approx. cm	81	93	105

Order No. Climate Chambers ICH = Climate chamber ICH L = Climate chamber with light ICH C = Climate chamber with CO_2 control	110	260	750
	ICH110	**ICH260**	**ICH750**
	ICH110L	**ICH260L**	**ICH750L**
	ICH110C	**ICH260C**	**ICH750C**

Options		110	260	750
Voltage 115 V, 50/60 HZ			X2	
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 2 standard grids by 2 reinforced grids (only ICH and ICH C)			–	K1
Illumination unit (has to be ordered together with the chamber) consisting of 4 fluorescent lights with cold white light (daylight: light colour 865, 6,500 K) and 2 UV lamps in the spectral range of 320 to 400 nm, in accordance with ICH Q1B, option 2 (daylight and UV light comply with standard illuminant D65); separately switchable via controller (only ICH L)	second box	–	T72	
Alternative light boxes (replace the standard lighting; have to be ordered together with the chamber); number of fluorescent lamps: size 110: 5, sizes 260/750: 6, with cold white light (daylight: light colour 865, 6.500 K) (only ICH L) (daylight complies with standard illuminant D65)	one box		T81	
	second box (cannot be switched on separately)	–	T82	
Alternative light boxes (replace the standard lighting; have to be ordered together with the chamber); number of UV lamps: size 110: 5, sizes 260/750: 6 in the spectral range of 320 to 400 nm (only ICH L) (UV light complies with standard illuminant D65)	one box		T01	
	second box (cannot be switched on separately)	–	T02	
Interior socket, ampacity 230 V/2.2 A, can be switched off with the On/Off switch, cannot be switched individually, moisture tight IP68 (not for ICH110L)			R3	
Entry port, 23 mm clear diameter, for introducing connections at the side, moisture tight, can be closed by flap and silicone stopper, standard positions (F1 and F3 not for models ICH L)	left centre/centre		F0	
	left centre top		F1	
	right centre top	–	F3	
Entry port (silicone), 40 mm clear diameter, for introducing connections, moisture tight, can be closed by silicone stopper, at the back (please, state location). Not for models ICH L		–	F7	
4 – 20 mA current loop interface (-20 to +70 °C ≙ 4 to 20 mA) (Models ICH C max. 2 interfaces – only combination V3 + V7 or V3 + V9 possible)	Temperature controller, actual value		V3	
	Temperature of a Pt100 sensor positioned flexibly in chamber for external temperature monitoring (max. 3 TwinDISPLAY)		V6	
	Humidity controller, actual value (0 – 100 % rh ≙ 4 – 20 mA)		V7	
	CO_2 controller, actual value (0 – 25 % CO_2 ≙ 4 – 20 mA)		V9	
Fan speed monitoring with switching off the heating and with alarm in case of failure			V4	
Works calibration certificate for one (freely selectable) temperature and humidity value Standard works calibration certificate (measuring point chamber centre) at +10°C, +37 °C and +30 °C with 60 % rh			D00121	
Compressed air dehumidification (efficient dehumidification of the interior by means of compressed air – for models ICH and ICH L) Standard works calibration certificate (measuring point chamber centre) at +10 °C with 10 % rh			C9	

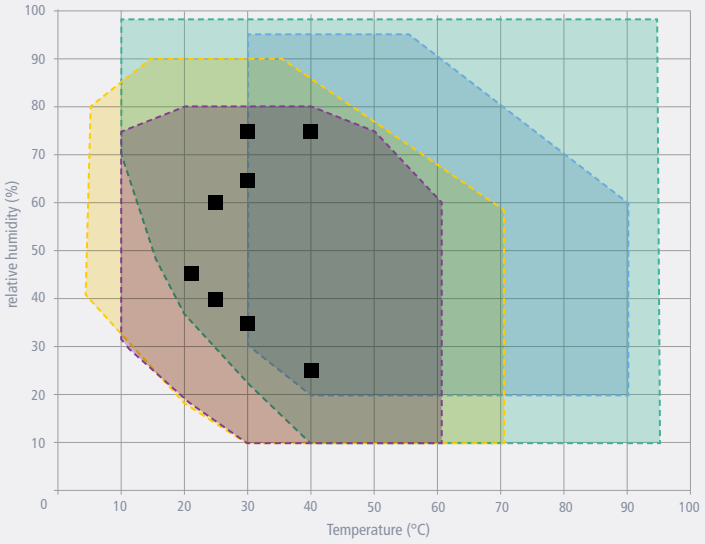
Accessories	110	260	750
Stainless steel grid, electropolished (standard equipment)	E20165	E28891	E20182
Additional reinforced stainless steel grid, electropolished, max. loading 60 kg; size 750 with guide bars and fixing screws (only in connection with option K1). Please consider max. loading of chamber	E29767	E29766	B32190
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
Max. loading per slide-in drip tray (kg)	3	4	8
Stainless steel slide-in drip tray, 15 mm rim, with guide bars and fixing screws (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
Max. loading per bottom drip tray (kg)	3	4	8
Stainless steel bottom drip tray, 15 mm rim (can be used only in connection with option K1)		–	B34055
Holder for water tank (2,5 litres) for mounting on the rear of the appliance. Standard equipment for size 750		E32172	–
Central water supply with filter cartridges for connection to the domestic water supply. Product information on demand		ZWVR6	
Central water supply without filter cartridges for connection to the domestic water supply (only for demineralised water in accordance with VDE 0510/DIN EN 50272). Product information on demand		ZWVR7	

Further options/accessories see pages 20 - 22.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

DECISION-MAKING-AID

Temperature/humidity combinations of Memmert climate chamber*

100% AtmoSAFE: Made by Memmert. As decision-making-aid for the right climate chamber, this graph shows all temperature/humidity combinations of the Memmert climate chambers.



- HPP constant climate chamber (page 4 to 7)
- HCP humidity chamber (page 8 to 11)
- ICH climate chamber (page 12 to 15)
- CTC environmental test chamber (page 16 to 19)
- Temperature and humidity test points defined in the guideline ICH

Relying on perfectly controlled processes

Active humidification and dehumidification are essential to exactly reach the desired set temperatures and set humidity values, also in areas with high ambient temperature and extremely high or low air humidity.

Furthermore, to guarantee long term homogeneity, interaction between humidity and temperature control has been perfectly adjusted in all Memmert climate chambers.

*Note: Within the respective temperature-humidity range, condensation-free permanent operation is possible. To which extent condensation may occur in the threshold range depends on the humidity content of the chamber load and the ambient conditions.

The higher the humidity content of the chamber load, the more water evaporates inside the chamber. This may influence the maintenance of the constant humidity considerably. If you need constant stable operation at the edges or the chamber load is very humid, we recommend dehumidifying with compressed air. We also have other technical solutions for special needs that guarantee stable operation. Send us your inquiry!

SPECIAL EQUIPMENT FOR MODELS U, UF TS, UNpa, S, I, ICP, IPP, IPS, HPP, ICH

ICOmed

Options for models U, UF TS, UNpa, S, I, ICP, IPP, IPS, HPP, ICH	30	55	75	110	160	260	400	450	750	1060	1400	50 / 105 / 150 / 240
Door with lock (safety lock); for models UF TS per side; standard with SN/SF and SNplus/SFplus 450 and 750 (not for models ICOmed)	B6											–
Door hinged on the left; for models UF TS per side	B8						–					B8
Potential-free contact (24 V/2 A) with socket to NAMUR NE 28 for external monitoring (indicates when setpoint is reached); models ICOmed: when set points of temperature and CO_2 are 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 (not for models ICOmed) 2 contacts	H72											–
4 contacts	–							H74				–
Process-dependent door lock (only for units with TwinDISPLAY); for models UF TS see page 11 of oven brochure; not for models ICOmed	D4											–
Door-open-recognition, incl. alarm, shuts down fan and after 30 sec. also heating (only for units with TwinDISPLAY); for models UF TS per side; standard with ICOmed, ICH C, ICH L	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; not for models ICOmed	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. Not for models ICOmed	H8											–
MobileALERT, notification by SMS in case of any error or alarm of the device. Requires option H6 "floating contact for alarm"	C3											
MobileALERT for up to 4 alarm notifications; standard: temperature and CO_2 alarm, additionally humidity alarm (when equipped with option K7) and O_2 alarm (when equipped with option T6)	–											C4
Temperature restriction (for UN/UF/UNplus/UFplus/UNm/UFm/UNmplus/ UFmplus and models UF TS); Temperatures: +60, +70, +80, +95, +100, +120, +160, +180, +200, +220 or +250 °C (Please, indicate upon ordering)	A8						–	A8				–
Castor frame (2-part), height 140 mm (not for models UF TS, ICP, ICH, ICH L, ICH C, ICOmed)	R9						–					

Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

SPECIAL EQUIPMENT FOR MODELS U, UF TS, UNpa, S, I, ICP, IPP, IPS, HPP, ICH — ICOmed

Accessories for models U, UF TS, UNpa, S, I, ICP, IPP, IPS, HPP, ICH	30	55	75	110	160	260	400	450	750	1060	1400	50 / 105 / 150 / 240
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)	B33171											
Set of height adjustable feet (4 pcs) not available for ICP, ICH, ICH L, ICH C – standard on models ICOmed	B29768						–					
Stacking set (4 pcs) for stacking of appliances of same size (not for models 160, 260, 450, 750, 1060, 1400, ICH110, ICH110L, ICH110C, ICP55, ICP110)	B29744				–							B29744 / –
Stacking set (consisting of stacking corners, one connecting plate for the rear, two wall brackets) for stacking two units ICO150med or ICO240med	–											B42114 (150) B42115 (240)
Plug-in tube extension (outer diam. 60.3 mm, inner 57 mm), straight, for exhaust air ducting (if necessary for connection by hose), only models U, I, S not for models UF TS	B29718										–	
Plug-in tube extension (outer diam. 60.3 mm, inner 57 mm), angled, for exhaust air ducting (if necessary for connection by hose), only models U, I, S not for models UF TS	B29719										–	
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), with air slots	B29728	B29730	B29732	B29734	B29736	B29738	B42116	B29740	B29742	B42118	–	
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), without air slots for models UF TS see page 11 of oven brochure; not for models ICOmed	B29729	B29731	B29733	B29735	B29737	B29739	B42117	B29741	B29743	B42119	–	
Subframe, adjustable in height (size 30 to 75: height 600 mm, size 110 to 450: height 500 mm); not for models ICOmed, UF TS and HPP400	B29745	B29747		B29749		B29751	–	B29753		–		
Subframe, on castors (size 30 to 75: height 660 mm, size 110 to 160: height 560 mm); not for models ICOmed and UF TS	B29746	B29748		B29750						–		
Subframe, adjustable in height, height 130 mm, for example for units with fresh air filter; not for models ICOmed and UF TS	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)	FDAQ1											
Integration of additional units (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. Further temperature values and validation at customer site on demand	D00125					D00127					–	
IQ/OQ document with device-specific works test data for one free-selectable temperature and humidity value, incl. temperature distribution survey at Memmert for 27 measuring points (26 measuring points on model HPP1400) to DIN 12880:2007-05, PQ check list as support for validation by customer (models HPP and ICH). Validation at customer site on demand	–			D00136	–	D00136	–		D00136			–
IQ/OQ document with device-specific works test data for one free-selectable temperature, humidity and light 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 (models HPP with light and ICH L). Validation at customer site on demand	–			D00137	–	D00137	–	D00137				–
IQ/OQ document with device-specific works test data for one free-selectable CO_2, humidity and temp. value, incl. temp. distribution survey at Memmert for 27 measuring points to DIN 12880:2007-05, PQ check list as support for validation by customer (models ICH C and ICOmed, on models ICOmed a free-selectable humidity value is only possible with option K7). Validation at customer site on demand	–			D38897	–	D38897	–		D38897	–		D38897
IQ/OQ document with device-specific works test data for one free-selectable CO_2 and 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 (model ICOmed). Validation at customer site on demand	–											D38898
External measuring instrument with sensors for daylight and UV-light. Product information on demand (models HPP, ICH L, IPPplus)	B04713									–	B04713	–
Ditto with additional measuring head for temperature and humidity measurement. Product information on demand (models HPP, ICH L, IPPplus)	B04714									–	B04714	–

Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

MODEL VARIANTS

SingleDISPLAY ControlCOCKPIT with one TFT display	TwinDISPLAY ControlCOCKPIT with two TFT displays
AVAILABLE APPLIANCES **UN/UNm / UF/UFm / IN/INm / IF/IFm / SN / SF / IPP / IPS**	**AVAILABLE APPLIANCES** **UNplus/UNmplus / UFplus/UFmplus / UF TS / UNpa** **INplus/INmplus / IFplus/IFmplus / SNplus / SFplus** **ICOmed / IPPplus / ICP / HPP / ICH**
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 alarm 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