memmert

Climate chambers

ALWAYS AN EYE ON LONG-TERM STABILITY.

CONSTANT CLIMATE CHAMBER HPP

HUMIDITY CHAMBER HCP

CLIMATE CHAMBER ICHeco/ICH

ENVIRONMENTAL TEST CHAMBER CTC/TTC

100% ATMOSAFE. MADE IN GERMANY.

www.memmert.com | www.atmosafe.net

Reliable. Precise. 100% AtmoSAFE.

Perfect simulation of reality. Reproducable, standard compliant, economic.

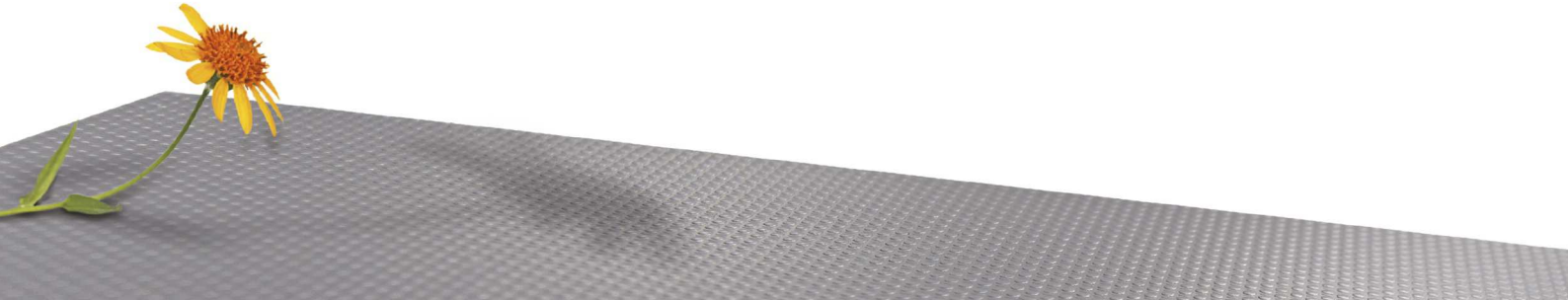
Each climate chamber creates a climate of temperature and humidity. For Memmert climate chambers, however, that is not enough. Each individual climate chamber is perfectly designed for the high requirements of stability and climate tests, conditioning or ageing. In each individual appliance, there is a homogenous and stable temperature and humidity distribution over the entire chamber. Operation, programming and documentation options feature top-notch convenience. Each individual Memmert climate chamber complies with the strict requirements of DIN 12880:2007-05 and is equipped with a maximum of safety functions. Each individual Memmert climate chamber is 100% AtmoSAFE.

Constant climate chamber HPP
with TwinDISPLAY
AtmoCONTROL software

Model sizes: 110 / 260 / 410 / 750 / 1060
0 °C to +70 °C (without humidity)
+5 °C to +70 °C (with humidity)
Humidity 10 to 90 % rh
optional with LED light module
(sizes 110, 260, 410, 750)

Model sizes: 1400 / 2200
+15 °C to +60 °C (with and without humidity)
Humidity 10 to 80 % rh

CONSTANT CLIMATE CHAMBER HPP They are simply unbeatable in energy efficiency. Furthermore, as constant climate chambers HPP have a very long, almost maintenance free service life, they are perfectly suited for stability tests, storage in controlled environment and conditioning. The high precision temperature control as well as the active humidification and dehumidification were particularly adapted to the ICH guidelines, option Q1A, for stability tests.



The best climate for samples, environment and budget

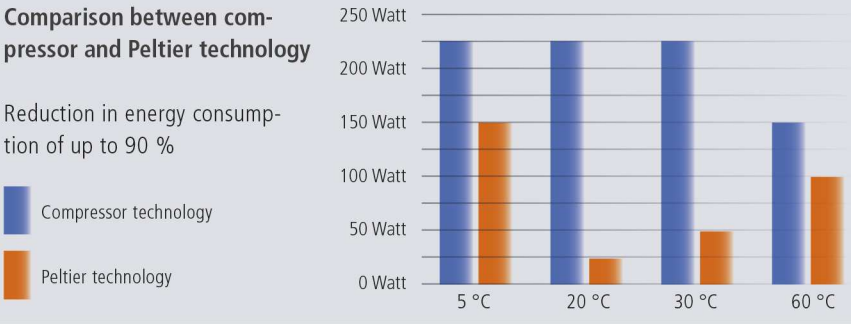
Almost without vibrations and extremely quiet, the specially adapted Peltier technology heats up and cools down seamlessly in one system. In this respect, the innovative constant climate chamber HPP not only contributes to climate protection, but it also achieves an additional decrease in operating costs of up to 90 % compared to compressor technology.

Cost effective climate protection

The main part of stability testing is performed at temperatures between +20 °C and +30 °C – close to the ambient temperature. The impressive cost effectiveness of Peltier technology can be seen here, since only small amounts of energy are required to raise or lower the temperature slightly, in comparison with compressor technology. Due to its environmentally friendly Peltier elements, the HPP has no need for coolants and requires no regular maintenance.

Comparison between compressor and Peltier technology

Reduction in energy consumption of up to 90 %



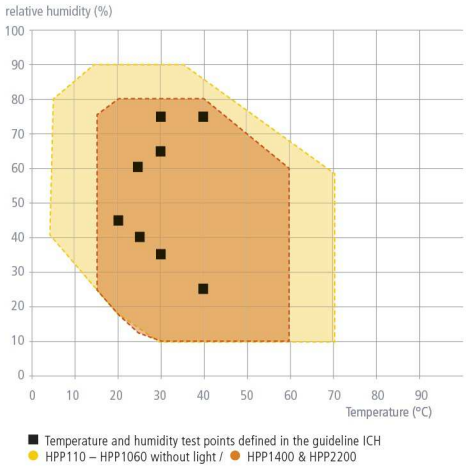
Top level optimisation

The outstanding precision of the constant climate chambers was optimised with the introduction of our new appliances. If required, the Peltier elements can be controlled individually to ensure even more homogenous temperature and humidity distribution inside the chamber.
For supporting IQ/OQ/PQ validation, temperature and humidity control can be adjusted directly on the ControlCOCKPIT with three free-selectable measuring points.

LED light modules

Dimmable LED light protects the environment, reduces energy consumption and ensures ideal conditions of growth. Available alternatives: Cold-white light (6,500 K), warm-white light (2,700 K) or cold-white plus warm-white light, dimmable in 1 % steps, for HPP110 – HPP750.

Temperature-humidity working range HPP



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.

CONSTANT CLIMATE CHAMBERS HPP

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), deep-drawn

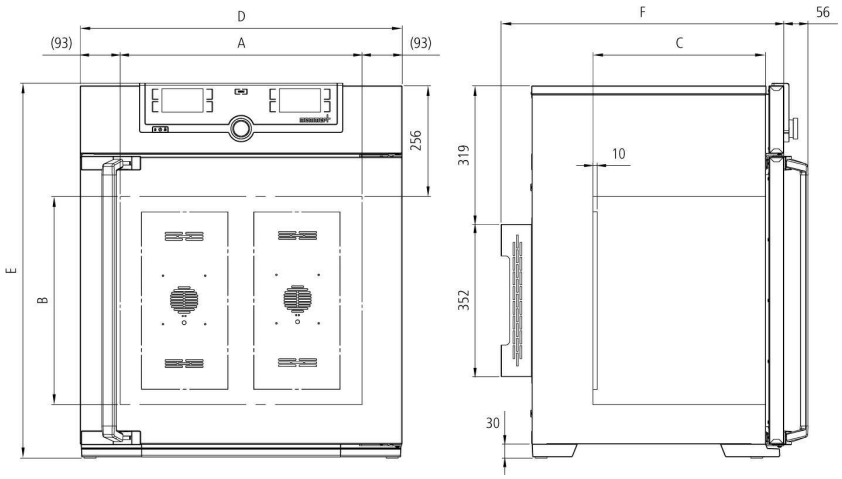
Housing: Textured stainless steel, rear zinc-plated steel, intuitively operated TwinDISPLAY (TFT colour display) with touchscreen

Double doors: Outside stainless steel, fully insulated, inside glass (size 1060/1400/2200 stainless steel doors with glass sector, fully heated inner glass panes integrated in the full-sight glass door with 2-point locking – compression door lock). Sizes 750, 1060 and 1400 two leaves, size 2200 three leaves

Connection: Mains cable with plug (German type)

Installation: 4 feet; sizes 410, 750 and 1060 mounted on lockable castors, 1400 and 2200 mounted on height-adjustable and lockable castors

Interfaces: Ethernet LAN, USB



Model sizes/Description				110	260	410	750	1060	1400	2200
Stainless steel interior	Volume		approx. l	108	256	384	749	1060	1360	2140
	Width	(A)	mm	560	640		1040		1250	1972
	Height	(B)	mm	480	800		1200		1450	
	Depth (less 10 mm for fan – Peltier)	(C)	mm	400	500		600	850	750	
	Max. number of grids/shelves		number	5	9		14		28	42
	Max. loading per grid/shelf		kg		20		30	20	30	
	Max. loading of chamber		kg	150	200				250	330
	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	824		1224		1435	2157
	Height (sizes 410, 750, 1060, 1400 and 2200 with castors)	(E)	mm	864	1183		1720		1913	
	Depth (without door handle), door handle + 56 mm	(F)	mm	656	756		856	1107	1007	
Standard equipment	Stainless steel grids, electropolished		number	2					4	6
	Water tank including connection hose (sizes 110 - 750: 2.5 litres, sizes 1060/1400/2200: 10 litres)			●						
	Standard works calibration certificate (measuring point chamber center)			+10 °C, 37 °C and 30 °C/60 % rh				+25 °C/40 % rh and +40 °C/75 % rh		
Temperature	Working temperature range without light, without humidity		°C	0 (at least 20 below ambient temperature) to +70					+15 (at least 10 below ambient temperature) to +60	
	Working temperature range without light, with humidity		°C	+5 (at least 20 below ambient temperature) to +70					+15 (at least 10 below ambient temperature) to +60	
	Working temperature range with light, without or with humidity		°C	+15 to +40					-	
	Setting temperature range without light, with humidity		°C	+5 to +70					+15 to +60	
	Setting temperature range with light, with humdity		°C	+5 to +70					-	
	Setting temperature range with light, without humditiy		°C	0 to +70					-	
	Setting temperature range without light, without humidity		°C	0 to +70					+15 to +60	
	Setting accuracy		°C	0.1						
Humidity	Setting range humidity with light		% rh	10 to 85					-	
	Setting range humidity without light		% rh	10 to 90					10 to 80	
	Setting accuracy		% rh	0.5						
Further data	Electrical load at 230 V, 50/60 Hz		approx. W	650	920	1300	1500	1600	3100	3500
	Electrical load at 115 V, 50/60 Hz		approx. W	650	920	1300	1500	1600	-	
	Peltier elements in the rear		number	2	3	4	6		10	
Packing data	Net weight		approx. kg	77	122	160	208	260	450	493
	Gross weight (packed in carton)		approx. kg	102	173	213	279	424	639	730
	Width		approx. mm	830	930		1330	1370	1560	2300
	Height		approx. mm	1050	1380	1930	1910	1970	2200	
	Depth		approx. mm	800	930		1050	1300	1190	
Order No. Constant Climate Chambers				HPP110	HPP260	HPP410	HPP750	HPP1060	HPP1400	HPP2200

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	410	750	1060	1400	2200
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 standard grids by reinforced grids			-		K1		-	
Light module cold white 6,500 K: LED light strips arranged on the side walls of the interior, 10 for model 110, 14 for model 260/400/750, programme controlled dimming from 0 to 100 % (in 1 % steps), ramp programming in combination with temperature and humidity; not in combination with F6, F7				T7			-	
Light module cold white 6,500 K + warm white 2,700 K: LED light strips - 10 stripes for model 110, 14 for model 260/400/750 - (5 resp. 7 alternating cold white light strips and 5 resp. 7 warm white light strips) on the side walls of the interior, programme-controlled dimming from 0 to 100 % (in 1 % steps), ramp programming in combination with temperature and humidity; not in combination with F6, F7				T8			-	
Light module warm white 2,700 K: light strips arranged on the side walls of the interior, 10 strips for model 110, 14 for model 260/400/750, programme-controlled dimming from 0 to 100 % (in 1 % steps), ramp programming in combination with temperature and humidity; not in combination with F6, F7				T9			-	
Interior socket, ampacity 230 V/2.2 A, can be switched off with the On/Off switch, cannot be switched individually, moisture tight IP68				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				R4			-	
Entry port, 23 mm clear diameter, for introducing connections at the side, moisture tight, can be closed by flap and silicone stopper, standard positions (F0 and F2 not for model sizes 110 and 260 with light module; F0 - F3 not for model size 110 with light module)	left centre/centre			F0			-	
	left centre/top			F1			-	
	right centre/centre			F2			-	
	right centre/top			F3			-	
Entry port, 23 mm clear diameter, moisture tight, can be closed by flap and silicone stopper, in special positions (please, state location; not in combination with T7, T8, T9)	left				F4			
	right				F5			
	rear			F6			-	
Entry port (silicone), 40 mm clear diameter, moisture tight, can be closed by silicone stopper, at the back (please, state location; not in combination with T7, T8, T9)				F7			-	
4 - 20 mA current loop interface	Temperature controller actual value (-10 to +80 °C = 4 - 20 mA)				V3			
	Temperature of a Pt100 sensor positioned flexibly in chamber for external temperature monitoring (max. 3) - price per sensor (-10 to +80 °C = 4 - 20 mA)				V6			
	Humidity controller, actual value (0 to 100 % rh = 4 - 20 mA)				V7			
Works calibration certificate for one (freely selectable) temperature and humidity value					D00105			
Compressed air dehumidification (efficient dehumidification of the interior by means of compressed air). Standard works calibration certificate (measuring point chamber centre) at +10 °C with 10 % rh					C9			
Door with lock and key (safety lock)	One lock			B6			-	
	Two locks (one each door)			-			B62	-
	Three locks (one each door)				-			B63
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	One interlocking system			D4			-	
	Two interlocking systems (one each door)			-			D42	-
	Three interlocking systems (one each door)				-			D43
Door-open-recognition	One			V5			-	
	Two (one each door)			-			V52	-
	Three (one each door)				-			V53
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			

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	410	750	1060	1400	2200
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	110	260	410	750	1060	1400	2200
Stainless steel grid, electropolished	E20165	E28891		E20182	B41251	B38955	
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	B32550	-	
Perforated stainless steel shelf	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	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	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	-		
Holder for water tank (sizes 110 - 750: 2.5 litres, sizes 1060/1400/2200: 10 litres) for mounting on the rear of the appliance. Standard equipment for sizes 750, 1060, 1400 and 2200	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 with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7). Product information on demand	ZWVR7						
Guarantee extension by 1 year	GA2Q5	GA3Q5			GA4Q5		
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	B29734	B29738	B42116	B29742		-	
Flush-fit unit (stainless steel frame covering gap between oven and wall opening), without air slots	B29735	B29739	B42117	B29743		-	
Subframe, adjustable in height (height 500 mm)	B29749	B29751	-				
Subframe, on castors (height 560 mm)	B29750	-					
Subframe, adjustable in height, height 130 mm, for example for units with fresh air filter	B33661	B33664	-				
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						
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 mod. HPP1400) to DIN 12880:2007-05, PQ check list as support for validation by customer. Price for validation at customer site on demand (GER, AT, CH only)	D00136						
IQ/OQ document with device-specific works test data for one free-selectable temperature and humidity value, and measuring of light intensity, incl. temperature distribution survey at Memmert for 27 measuring points to DIN 12880:2007-05, PQ check list as support for validation by customer. Price for validation at customer site on demand (GER, AT, CH only)	D00137						
External measuring instrument with sensors for daylight and UV-light. Product information on demand	B04713				-		
External measuring instrument with additional measuring head for temperature and humidity measurement. Product information on demand	B04714						

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.

Humidity chamber HCP
with TwinDISPLAY
AtmoCONTROL software

Model sizes: 50 / 105 / 150 / 240
+18 °C to +90 °C
Humidity 20 to 95% rh

HUMIDITY CHAMBER HCP with active humidity control from 20 % to 95 % rh and unsurpassed real temperature-humidity homogeneity over the entire interior, this nearly condensation-free climate chamber offers the full range of comfort, reliability and safety. It is ideally suited for environmental tests, accelerated life tests, stress tests of drug substance according to ICH Q1A and 85/85 tests to IEC 60068-2-67 and IEC 60068-2-78. It is also used in building physics and biological research.

Optimum homogeneity of humidity and temperature

Active humidity control guarantees ideal homogeneity of temperature and humidity as well as short recovery times after opening the door. In addition, in combination with heating on all six sides, including the heated inner glass door, it minimises vaporisation in the interior and thus the risk of condensed water dripping onto the test object. An aluminium thermal conduction layer supports the optimal temperature distribution and serves as a heat accumulator if there is a temporary power failure.

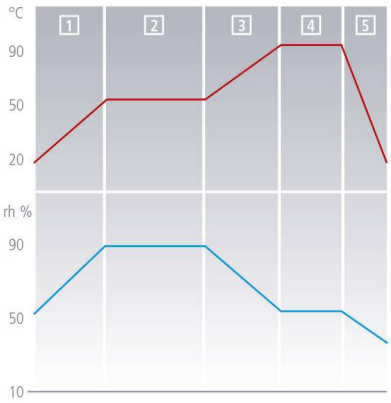
Comfortable equipment for accelerated service life tests

Service life tests such as 85/85 tests run over 1,000 hours and more. The humidity chamber HCP offers a wide range of comfort functions: Standard entry ports at the back, battery-buffered ControlCOCKPIT (option), with SetpointWAIT function process time does not start until the set temperature is reached, alarm messages can be sent via e-mail or SMS (option) and much more.

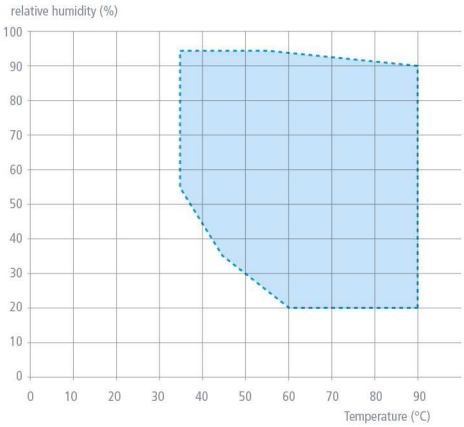
Ramp programming

Essential for the exact simulation of environmental conditions in research: intuitive and fast ramp programming. Thanks to the AtmoCONTROL software, different set values of temperature and humidity can be combined on time ramps.

Ramp programming



Temperature-humidity working range



Note: Within the respective temperature-humidity range, permanent operation is possible (at an ambient temperature of 22 °C ± 3 K; relative humidity < 50 %). Condensation may occur in the threshold range. To which extent depends on the humidity content of the chamber load and the ambient conditions.

HUMIDITY CHAMBERS HCP

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

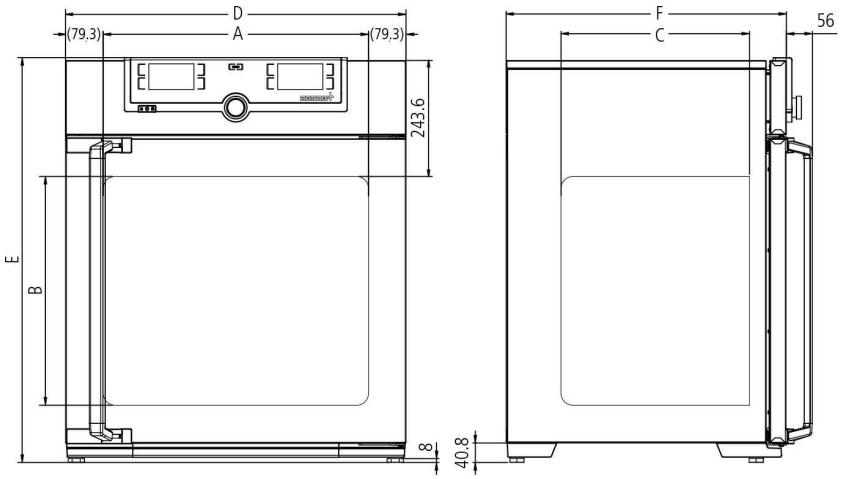
Interior: Stainless steel, material 1.4301 (ASTM 304), deep-drawn, seamlessly welded

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

Connection: Mains cable with plug (German type)

Installation: 4 adjustable feet

Interfaces: Ethernet LAN, USB



Model sizes/Description				50	105	150	240
Stainless steel interior	Volume		approx. l	56	107	156	241
	Width	(A)	mm	400	560		600
	Height	(B)	mm	425	480	700	810
	Depth (less 35 mm for fan)	(C)	mm	330	400		500
	Max. number of grids/shelves		number	5	6	10	12
	Max. loading per grid/shelf		kg	15			
	Max. loading of chamber		kg	75	90	120	140
Textured stainless steel exterior	Width	(D)	mm	559	719		759
	Height (variable through adjustable feet)	(E)	mm	795	850	1070	1180
	Depth (without door handle), door handle +56 mm	(F)	mm	521	591		691
	Fully insulated heated stainless steel door			●			
	Additional heated inner glass door			●			
Standard equipment	Stainless steel shelves, perforated		number	1	2		
	Entry port (silicone), 40 mm clear diameter, moisture tight, can be closed by silicone stopper, at the back, centre left			●			
	Door-open-recognition incl. alarm, shuts down fan			●			
	Standard works calibration certificate (measuring point chamber center)			+60 °C with 75 % rh			
Temperature	Working temperature range		°C	at least 7 above ambient temperature up to +90			
	Setting temperature range		°C	+18 to +90			
	Setting accuracy		°C	0.1			
Humidity	Capacitive humidity sensor for measuring and displaying the relative humidity			●			
	Active microprocessor control for humidifying and dehumidifying (20 – 95 % rh), incl. digital indication and auto-diagnostic system ensures even more rapid reaching of set humidity and very short recovery times. Humidity supply with water (only for demineralised water with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7; from an external tank) by a self-priming pump; integral bacteria block by generating hot steam, dehumidifying via sterile filter			●			
	Setting range active humidity control		% rh	20 to 95 and rh-Off			
	Setting accuracy		% rh	0.5			
Further data	Electrical load at 230/115 V, 50/60 Hz		approx. W	1520	1720	1800	1840
Packing data	Net weight		approx. kg	55	75	90	110
	Gross weight (packed in carton)		approx. kg	74	100	116	145
	Width		approx. mm	730	800		840
	Height		approx. mm	950	1030	1250	1360
	Depth		approx. mm	640	800		900
Order No. Humidity Chambers				HCP50	HCP105	HCP150	HCP240

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		50	105	150	240
Voltage 115 V, 50/60 Hz		X2			
Battery-buffered ControlCOCKPIT: uninterrupted supply for the entire display unit (ControlCOCKPIT) and therefore complete documentation of all parameters even when there is a power failure		C2			
Peltier cooling unit: enables low working temperature even at higher ambient temperatures		-		K5	
Entry port, 23 mm clear diameter, at the side	left centre/top	F1			
	right centre/top	F3			
4 - 20 mA current loop interface	Temperature controller, actual value (0 to +100 °C = 4 - 20 mA)	V3			
	Humidity controller, actual value (0 to 100 % rh = 4 - 20 mA)	V7			
Works calibration certificate for one (freely selectable) temperature and humidity value according to customer specification		D00105			
Start-up of HCP and brief training (GER, AT, CH only) through Memmert service, not subject to discount		K9			
Door hinged on the left		B8			
Potential-free contact (24 V/2 A) with socket to NAMUR NE 28 for external monitoring; indicates when set points of temperature and humidity are reached		H5			
Potential-free contact for combination error message (e.g. supply failure, sensor fault, fuse)		H6			
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 humidity alarm		C4			

Accessories	50	105	150	240
Additional perforated stainless steel shelf	E35160	E37418		E35158
Additional stainless steel grid, electropolished	E20164	E20165		E43118
Subframe (622 mm high) adjustable in height (sizes 150/240: should not be used for 2 stacked units)	B33504	B33505		B33506
Subframe (130 mm high); sizes 150/240: only in combination with the corresponding stacking sets for stacked appliances	B33507	B33508		B33509
Subframe, on castors (height 120 mm; stainless steel, material 1.4301)	-			B43598
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 with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7). Product information on demand	ZWVR7			
Guarantee extension by 1 year	GA3Q5			
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			
Stacking set (4 pcs) for stacking of appliances of same size	B29744		-	
Stacking set (consisting of stacking corners, one connecting plate for the rear, two wall brackets) for stacking of two units of same size	-		B42114	-
Stacking set (consisting of stacking corners, one connecting plate for the rear, two wall brackets) for stacking of two units of same size (only in combination with subframe B33509 or B43598)	-			B48129
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 humidity 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. Price for validation at customer site on demand (GER, AT, CH only)	D00136			
External measuring instrument with additional measuring head for temperature and humidity measurement. Product information on demand	B04714			

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.

CO_2-cooled climate chamber ICHeco
with TwinDISPLAY + AtmoCONTROL software

Model sizes: 110 / 260 / 750

ICHeco / ICH	with humidity control
ICHeco L / ICH L	with humidity control and light
ICH C	with humidity and CO_2 control

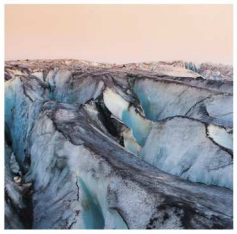
Temperature range with humidity

ICHeco / ICH	+10 °C to +60 °C
ICHeco L / ICH L	+10 °C to +60 °C
ICH C	+10 °C to +50 °C
Humidity range	10 to 80 % rh

Temperature range without humidity

ICHeco / ICH	-10 °C to +60 °C
ICHeco L / ICH L	0 °C to +60 °C
ICH C	+10 °C to +50 °C

CLIMATE CHAMBER ICHeco These environmentally-friendly stability testing chambers operate with climate-friendly CO_2 (R744) as refrigerant. Powerful and climate-friendly at the same time, they are especially designed for testing pharmaceuticals according to ICH, Q1A and Q1B (option 2) as well as for testing the stability of cosmetics and foodstuffs. Guaranteed 100% AtmoSAFE: Temperature and humidity are distributed homogeneously and stable throughout the interior.



Refrigerant CO_2 is climate-friendly

The decision for a CO_2-cooled climate chamber ICHeco makes sense. The refrigerant CO_2 (R744) is almost climate-neutral in contrast to refrigerants with fluorinated greenhouse gases (e.g. R134a). Legal restrictions for use are therefore completely excluded in the future. R744 is neither flammable nor toxic and does not cause ozone depletion in the atmosphere.

Refrigerant CO_2 ensures better cooling performance

An ICHeco is virtually maintenance-free and extremely powerful. Compared to appliances with refrigerant R134a, it scores with faster cooling-down times. The Memmert climate chambers ICH with refrigerant R134a will be available in parallel.

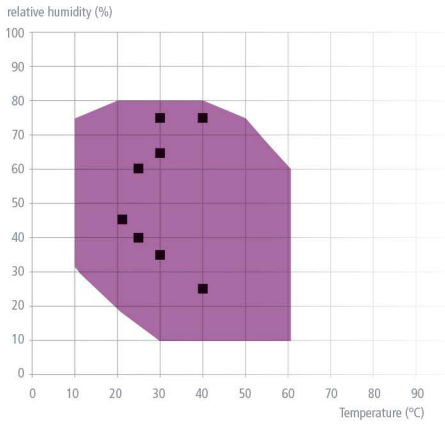
All-round protection of samples

No icing, no drying out of samples, no dehumidification of the working chamber. Cooling aggregate and heating of the ICHeco/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.

Optionally with illumination unit (ICHeco L / ICH L) or CO_2 control (ICH C)

For tests according to ICH Q1B, option 2, an illumination unit with standard light D65 is available if required. The light sources are fluorescent lamps with cold white light (daylight: light colour 865, 6,500 K) and UV lamps in the spectral range 320 - 400 nm. Especially for tests in the construction industry model ICH C is available with a digitised, electronic CO_2 control with automatic zero setting, NDIR measuring method, self-diagnosis system, acoustic error display 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 ICHeco

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), deep-drawn

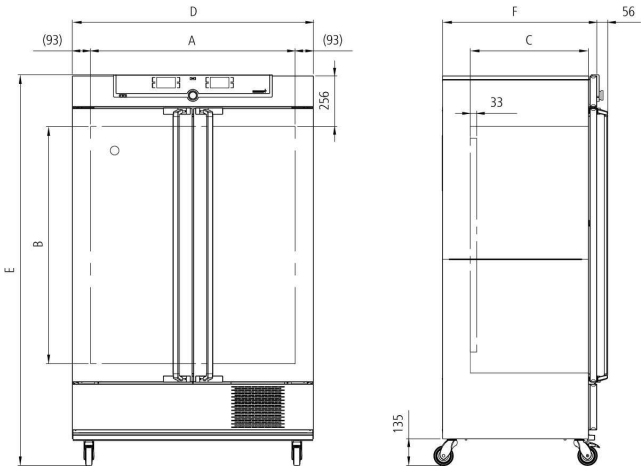
Housing: Textured stainless steel, rear zinc-plated steel, intuitively operated TwinDISPLAY (TFT colour display) with touchscreen

Double doors: Outside stainless steel, fully insulated, inside glass (size 750: two leaves)

Connection: Mains cable with plug (German type)

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
	Max. number of grids/shelves	number	5	9	14
	Max. loading per grid/shelf	kg	20		30
	Max. loading of chamber	kg	150	200	
	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	824	1224
	Height (with castors)	(E) mm	1233	1552	1950
	Depth (without door handle), door handle + 56 mm	(F) mm	585	685	785
Standard equipment	Stainless steel grids, electropolished	number	2		
	Entry port (silicone), 40 mm clear diameter, moisture tight, can be closed by a silicone stopper, standard position at the back		●		
	Water tank including connection hose		●		
	Standard works calibration certificate (measuring point chamber center)		+10 °C, +37 °C and +30 °C with 60 % rh		
Temperature	Working temperature range without humidity ICHeco (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 ICHeco /ICHeco L with humidity and/or light	°C	+10 to +60		
	Working temperature range ICHeco L without humidity	°C	0 to +60		
	Setting temperature range ICHeco	°C	-10 to +60		
	Setting temperature range ICHeco L	°C	0 to +60		
	Setting accuracy	°C	0.1		
Humidity	Setting range humidity	% rh	10 to 80		
	Setting accuracy	% rh	0.5		
Light	Illumination unit (only model ICHeco L) acc. ICH Q1B, option 2; separately switchable via controller, one box; Number of fluorescent lights with cold white light (size 110: 3, size 260/750: 4), light colour 865 6,500 K; Number of fluorescent lights with UV lamps (all sizes: 2), spectral range from 320 to 400 nm; (daylight and UV light comply with standard illuminant D65)		●		
Further data	Electrical load at 230 V, 50 Hz ICHeco	approx. W	1350		
	Electrical load at 230 V, 50 Hz ICHeco L	approx. W	1450		1550
Packing data	Net weight	approx. kg	114	165	254
	Gross weight (packed in carton)	approx. kg	142	222	324
	Width	approx. mm	880	930	1330
	Height	approx. mm	1410	1760	2150
	Depth	approx. mm	810	930	1050
Order No. Climate Chambers			ICH110eco	ICH260eco	ICH750eco
ICHeco = Climate chamber ICHeco L = Climate chamber with light			ICH110Leco	ICH260Leco	ICH750Leco

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	750
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 (ICHeco/ICH and ICH C only)		-		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, acc. ICH Q1B, option 2 (daylight and UV light comply with standard illuminant D65) separately switchable via controller (only ICHeco L/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; daylight complies with standard illuminant D65) (only ICHeco L/ICH L)	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 fluorescent UV lamps: size 110: 5, sizes 260/750: 6, in the spectral range of 320 to 400 nm; UV light complies with standard illuminant D65 (only ICHeco L/ICH L)	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 ICH110Leco/ICH110L)			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			R4	
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 ICHeco L/ICH L)	left centre/centre		F0	
	left centre/top		F1	
	right centre/top	-	F3	
Entry port (silicone), 40 mm clear diameter, moisture tight, can be closed by silicone stopper, at the back (please, state location). Not for models ICHeco L/ICH L		-	F7	
4 - 20 mA current loop interface	Temperature controller actual value (-20 to +70 °C = 4 - 20 mA)		V3	
	Temperature of a Pt100 sensor positioned flexibly in chamber for external temperature monitoring (max. 3) - price per sensor (-20 to +70 °C = 4 - 20 mA)		V6	
	Humidity controller, actual value (0 to 100 % rh = 4 - 20 mA)		V7	
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			D00105	
Compressed air dehumidification (efficient dehumidification of the interior by means of compressed air - for models ICHeco/ICH and ICHeco L/ICH L) Standard works calibration certificate (measuring point chamber centre) at +10 °C with 10 % rh			C9	
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, shuts down humidity, light and CO_2 (standard with ICH C and ICHeco L/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			H4	
Flexible Pt100 temperature sensor, positioned flexibly in chamber or load, for local temperature measurement (up to 2 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	

Accessories	110	260	750
Stainless steel grid, electropolished	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
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
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		

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	110	260	750
Central water supply without filter cartridges for connection to the domestic water supply (only for demineralised water with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7). Product information on demand		ZWVR7	
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 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	
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 to DIN 12880:2007-05, PQ check list as support for validation by customer. Price for validation at customer site on demand (GER, AT, CH only)		D00136	
IQ/OQ document with device-specific works test data for one free-selectable temperature and humidity value, and measuring of light intensity, 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 ICHeco L/ICH L). Price for validation at customer site on demand (GER, AT, CH only)		D00137	
External measuring instrument with sensors for daylight and UV-light. Product information on demand (models ICHeco L/ICH L)		B04713	
External measuring instrument with additional measuring head for temperature and humidity measurement. Product information on demand		B04714	

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.

CLIMATE CHAMBERS ICH

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), deep-drawn

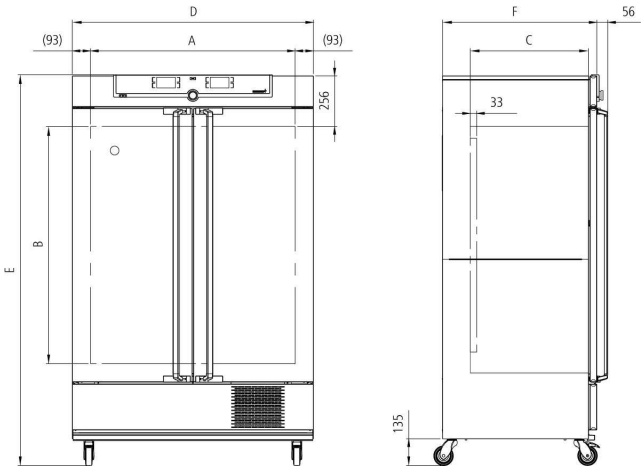
Housing: Textured stainless steel, rear zinc-plated steel, intuitively operated TwinDISPLAY (TFT colour display) with touchscreen

Double doors: Outside stainless steel, fully insulated, inside glass (size 750: two leaves)

Connection: Mains cable with plug (German type)

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
	Max. number of grids/shelves	number	5	9	14
	Max. loading per grid/shelf	kg	20		30
	Max. loading of chamber	kg	150	200	
	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	824	1224
	Height (with castors)	(E) mm	1233	1552	1950
	Depth (without door handle), door handle + 56 mm	(F) mm	585	685	785
Standard equipment	Stainless steel grids, electropolished	number	2		
	Entry port (silicone), 40 mm clear diameter, moisture tight, can be closed by a silicone stopper, standard position at the back		●		
	Water tank including connection hose		●		
	Standard works calibration certificate (measuring point chamber center)		+10 °C, +37 °C and +30 °C with 60 % rh		
Temperature	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 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 ICH L without humidity	°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		
Humidity	Setting range humidity	% rh	10 to 80		
	Setting accuracy	% rh	0.5		
CO_2 / O_2	Digital electronic CO_2 control with autozero, NDIR system, with auto-diagnostic system and acoustic fault indication, barometric pressure compensation (only ICH C), setting range	% CO_2	0 to 20		0 to 10
	Setting accuracy CO_2 (only model ICH C)	% CO_2	0.1		
	Control accuracy CO_2 at 0 – 10 % CO_2	%	+/- 0.2		+/- 0.3
	Control accuracy CO_2 at 11 – 15 % CO_2	%	+/- 0.5		-
Light	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, size 260/750: 4), light colour 865 6,500 K; Number of fluorescent lights with UV lamps (all sizes: 2), spectral range from 320 to 400 nm; (daylight and UV light comply with standard illuminant D65)		●		
Further data	Electrical load at 230/115 V, 50/60 Hz ICH L	approx. W	1450		1550
	Electrical load at 230/115 V, 50/60 Hz ICH and ICH C	approx. W	1350		
Packing data	Net weight	approx. kg	109	160	249
	Gross weight (packed in carton)	approx. kg	137	217	319
	Width	approx. mm	880	930	1330

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.

Model sizes/Description			110	260	750
Packing data	Height	approx. mm	1410	1760	2150
	Depth	approx. mm	810	930	1050
Order No. Climate Chambers			ICH110	ICH260	ICH750
ICH = Climate chamber			ICH110L	ICH260L	ICH750L
ICH L = Climate chamber with light					
ICH C = Climate chamber with CO_2 control			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 standard grids by reinforced grids (ICHeco/ICH and ICH C only)		-		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, acc. ICH Q1B, option 2 (daylight and UV light comply with standard illuminant D65) separately switchable via controller (only ICHeco L/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; daylight complies with standard illuminant D65) (only ICHeco L/ICH L)	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 fluorescent UV lamps: size 110: 5, sizes 260/750: 6, in the spectral range of 320 to 400 nm; UV light complies with standard illuminant D65 (only ICHeco L/ICH L)	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 ICH110Leco/ICH110L)			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			R4	
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 ICHeco L/ICH L)	left centre/centre		F0	
	left centre/top		F1	
	right centre/top	-	F3	
Entry port (silicone), 40 mm clear diameter, moisture tight, can be closed by silicone stopper, at the back (please, state location). Not for models ICHeco L/ICH L		-	F7	
4 - 20 mA current loop interface	Temperature controller actual value (-20 to +70 °C = 4 - 20 mA)		V3	
	Temperature of a Pt100 sensor positioned flexibly in chamber for external temperature monitoring (max. 3) - price per sensor (-20 to +70 °C = 4 - 20 mA)		V6	
	Humidity controller, actual value (0 to 100 % rh = 4 - 20 mA)		V7	
	CO_2 controller, actual value (0 to 25 % CO_2 = 4 - 20 mA) (only ICH C)		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			D00105	
Works calibration certificate for one (freely selectable) temperature, humidity and CO_2 value according to customer specification (ICH C)			D00131	
Compressed air dehumidification (efficient dehumidification of the interior by means of compressed air - for models ICHeco/ICH and ICHeco L/ICH L) Standard works calibration certificate (measuring point chamber centre) at +10 °C with 10 % rh			C9	
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, shuts down humidity, light and CO_2 (standard with ICH C and ICHeco L/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			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	

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	110	260	750
Stainless steel grid, electropolished	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
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
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 with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7). Product information on demand	ZWVR7		
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 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		
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 to DIN 12880:2007-05, PQ check list as support for validation by customer. Price for validation at customer site on demand (GER, AT, CH only)	D00136		
IQ/OQ document with device-specific works test data for one free-selectable temperature and humidity value, and measuring of light intensity, 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 ICHeco L/ICH L). Price for validation at customer site on demand (GER, AT, CH only)	D00137		
IQ/OQ document with device-specific works test data for one free-selectable CO_2, humidity 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 (models ICH C). Price for validation at customer site on demand (GER, AT, CH only)	D38897		
External measuring instrument with sensors for daylight and UV-light. Product information on demand (models ICHeco L/ICH L)	B04713		
External measuring instrument with additional measuring head for temperature and humidity measurement. Product information on demand	B04714		

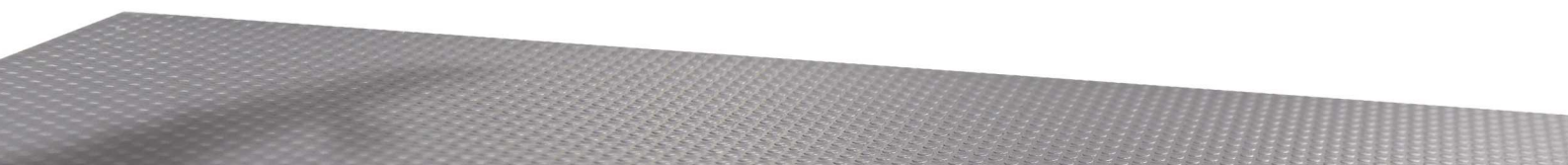
Prices for options are only valid when ordering new appliances.
Not all options/accessories are combinable with each other. Please contact us for individual combination requests.

Climatic test chamber CTC
with humidity control
Temperature test chamber TTC
"Celsius" standard software

Model size: 256
- 42 °C to +190 °C (without humidity)
+10 °C to +95 °C (CTC with humidity)
Humidity 10 to 98 % rh (CTC)

CLIMATIC TEST CHAMBER CTC / TEMPERATURE TEST CHAMBER TTC

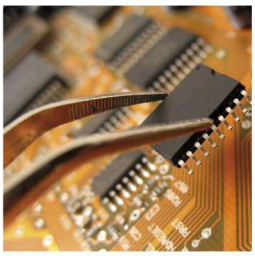
100% AtmoSAFE: In Memmert environmental test chambers CTC and TTC, the perfect atmosphere for climate and temperature tests, specifically in accordance with IEC 60068 are simulated. Ramp operation, active humidification and dehumidification of 10 to 98 % rh and precise temperature control from -42 °C to +190 °C (without humidity) with humidity control from +10 °C to +95 °C provide unlimited flexibility for controlled material and function tests as well as ageing tests.



Reliable and efficient climate technology

The components of the climate system interact perfectly for quick, precise and energy-saving temperature changes. The 3-layer insulation system for the chamber, derived from aerospace engineering applications, impresses with an excellent K-value and prevents moisture penetration of the insulation material. The electronically controlled injection of refrigerants guarantees an optimal cooling performance and thanks to the automatic defrosting system, the TTC and CTC test chambers run in continuous operation without interruption.

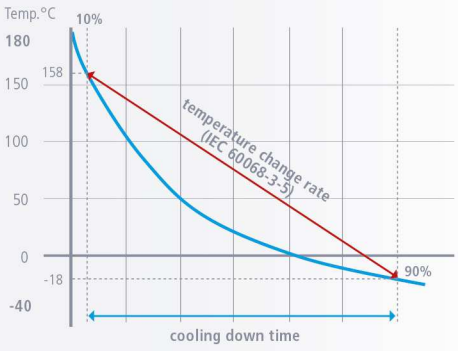
The stainless steel evaporator stands out with a long and corrosion-free life and the twin-compressor, regulated according to the output, saves valuable energy. The temperature-dependent speed-controlled condenser fan ensures low noise level in partial load operation.



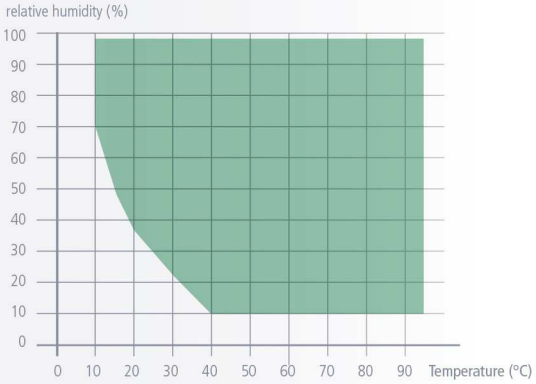
Economical at high performance

The high level of standardisation and the highly efficient principle of equal parts in production at Memmert allow an extensive range of standard features, along with constantly excellent quality at an outstanding cost/benefit ratio. However, this high-performance duo proves to be extremely cost-efficient not only in their procurement costs, but also in their operating costs. Thanks to the steam generator and the twin compressor, which is regulated according to the output, the CTC consumes only about half of what standard environmental simulation chambers do in climate control operation.

Temperature change rate in cooling operation



Temperature-humidity working range



According to Newton's law of cooling, the rate of temperature change follows an exponential curve. The rate of temperature change calculated according to IEC 60068-3-5 applies to cooling from 90 % to 10 %. In the upper temperature range, the rate of temperature change is significantly higher, in the lower temperature range it is significantly lower.

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.

ENVIRONMENTAL TEST CHAMBERS CTC / TTC

according to DIN 12880:2007-05, EN 61010-1 (IEC 61010-1), EN 61010-2-010, IEC 60068

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

Interior: Stainless steel, material 1.4301 (ASTM 304)

Housing: Textured stainless steel, rear zinc-plated steel, aesthetic functional glass-stainless steel operating panel with multifunction display and input module

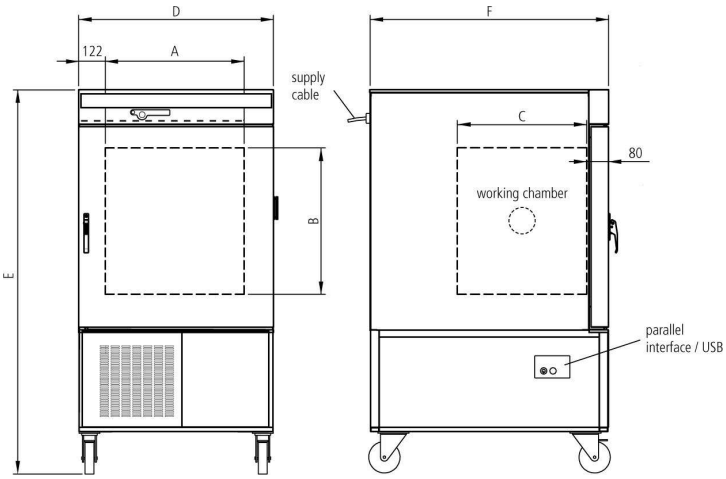
Door: Stainless steel, fully insulated, heated

Connection: Mains cable with plug (CEE)

Installation: Mounted on lockable castors

Interfaces: USB, Druckerschnittstelle, Ethernet (LAN)

Ethernet interface is optional (extra cost)



Model sizes/Description			CTC256	TTC256
Stainless steel interior	Volume	approx. l	256	
	Width	(A) mm	640	
	Height	(B) mm	670	
	Depth	(C) mm	597	
	Support ribs for stainless steel grids	number	6	
	Max. loading per grid	kg	25	
	Max. loading of chamber	kg	100	
Textured stainless steel exterior	Width (plus 20 mm for silicone plug and 5 mm for interfaces)	(D) mm	898	
	Height	(E) mm	1730	
	Depth (without door handle), depth of door handle 50 mm	(F) mm	1100	
	Fully insulated heated stainless steel door		●	
	Lockable castors for ease of transport		●	
Standard equipment	Stainless steel grids, electropolished	number	1	
	Entry port right, 80 mm, with stopper		●	
	High-performance air fan, speed adjustable in 10 % steps with monitoring function of fan speed and automatic speed adjustment		●	
	Works calibration certificate (measuring point chamber centre)	°C	-20 and +160	
	Works calibration certificate (measuring point chamber centre)		+30 °C and 60 % rh	-
Temperature	Electronic microprocessor temperature controller with Pt100 and auto-diagnostic system		●	
	Temperature sensors Pt100 Class A in 4-wire circuit for uninterrupted operation on failure of one Pt100 with warning indication		double	
	Temperature range with humidity control	°C	+10 to +95	-
	Temperature range without humidity control	°C	-42 to +190	
	Setting accuracy	°C	-42 to 99,9: 0.1 / 100 to 190: 0.5	
	Temperature change rate in heating operation (acc. to IEC 60068-3-5) -40 °C to +180 °C measured at an ambient temperature of 22 °C	°C	10 K / minute	
	Temperature change rate in cooling operation (acc. to IEC 60068-3-5) +180 °C to -40 °C measured at an ambient temperature of 22 °C	°C	3 K / minute	
	Temperature variation in time acc. to DIN 12880:2007-05 (setpoint dependent of min. temperature up to +150 °C and humidity > 20 %)	K	± 0.2 ... 0.5	
	Temperature uniformity in chamber (setpoint dependent)	K	± 0.5 ... 2	
Humidity	Capacitive humidity sensor		●	-
	Active microprocessor control for humidifying and dehumidifying (10 - 98 % rh) incl. digital indication and auto-diagnostic system ensures rapid reaching of set humidity and very short recovery times; humidity supply with water (only for demineralised water with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7; from an external tank) by self-priming pump		●	-
	Humidity stability in time	% rh	± 1 ... 3	-
	Telescopic slide for each 2 x 10 l tanks for water (only for demineralised water with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7) as well as 2 x 10 l tanks as condensate collector		●	-
	Automatic water tank change-over with alarm for continuous operation		●	-

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.

Model sizes/Description			CTC256	TTC256
Control technology	Timer with residual running time: max. 40 ramps (each 1 min. up to 999 h) programmable through controller or MEMoryCard XL; programming via PC and free-of-charge software: unlimited number of ramps		●	
	Real-time/weekly programmer with group function (e.g. Monday – Friday)		●	
	Calibration (no separate PC required), Temperature: 3-point calibration on controller		●	
	Calibration (no separate PC required), humidity: 2-point calibration at 20 % and 90 % rh		●	-
	Setting of language for dialogue and display DE / EN / ES / FR / IT		●	
	Microprocessor temperature monitor acting as over- and undertemperature protection (protection class 3.3), with Pt100 incorporating fault diagnostics with visual and acoustic alarm		●	
	Temperature monitoring band automatically linked to the setpoint (ASF)		●	
	Monitor relay for reliable heating cut-off in case of fault		●	
	Mechanical temperature limiter (TB)		●	
Communication	Internal log memory 1024 kB as ring memory for all setpoints, actual values, errors, settings with real-time and date; capacity approx. 3 months (CTC) resp. 6 months (TTC) at 1 min. intervals		●	
	Parallel printer interface for printing logging files, suitable for all PCL3- compatible ink jet printers (USB available via converter, see accessories)		●	
	"Celsius" software for control and documentation of temperature and relative humidity (CTC)		●	
Refrigeration	High-performance twin compressor (refrigerant R449A) with adjustable speed condenser fan and electronically controlled refrigerant injection		●	
	Large-area stainless steel evaporator		●	
Light	Halogen interior lighting 2 x 25 W		●	
Further data	Acoustic and optical alarm: Door-open		●	
	Acoustic and optical alarm: Empty water tank		●	-
	Acoustic and optical alarm: Over- and undertemperature		●	
	Acoustic and optical alarm: Underhumidity		●	-
	Electrical load at 400 V, 3 ph N, 50 Hz	approx. W	7000	
Packing data	Net weight	approx. kg	337	
	Gross weight	approx. kg	463	
	Width	approx. mm	1020	
	Height	approx. mm	1910	
	Depth	approx. mm	1310	
Order No. Climatic Test Chamber – Temperature Test Chamber			CTC256	TTC256

Options	CTC256	TTC256
Works calibration certificate for one (freely selectable) temperature value according to customer specification	-	D00109
Works calibration certificate for one (freely selectable) temperature and humidity value according to customer specification	D00105	-
Door hinged on the left	B8	
Full-sight glass door (5-layer insulating glazing), heated	B0	
Entry port, left, 80 mm, with stopper	F0	
Start-up of CTC and TTC chambers and brief training (GER, AT, CH only) through Memmert service not subject to discount	K9	
Interface Ethernet instead of USB including software	W4	
RS232 interface instead of USB	W6	
Computer interface RS485 (for networking a max. of 16 ovens) instead of RS232	V2	
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 for external monitoring (indicates when setpoint is reached)	H5	
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	
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 3 freely selected functions 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	

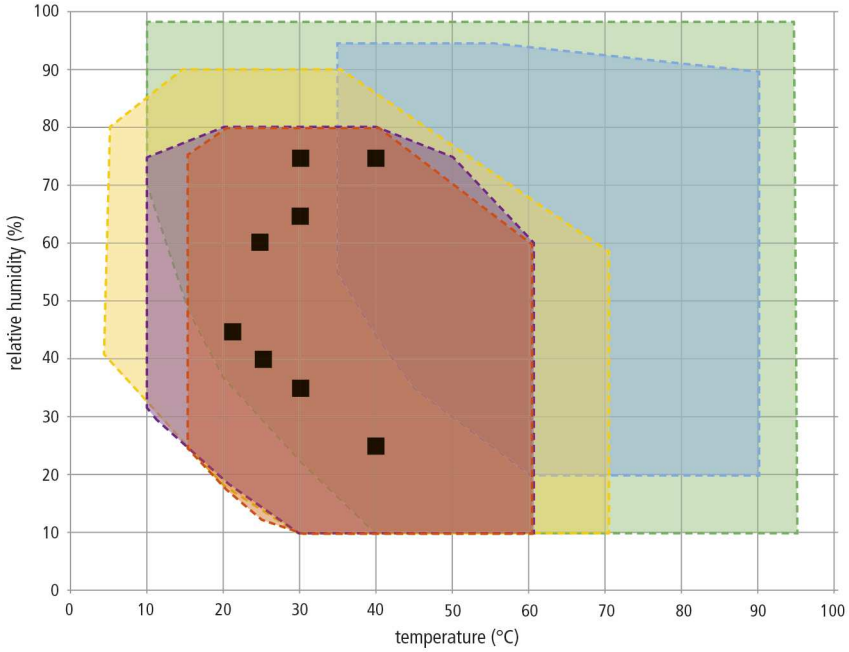
Accessories	CTC256	TTC256
Additional stainless steel grid, electropolished		E20591
External control and logging package consisting of mini-Notebook and software "Celsius", pre-configurated, and lateral swivel arm		B04410
USB connection cable for computer interface		E03643
Temperature profile write/read unit for programming via PC, for writing to and reading from the chip card, up to 40 ramps		E05284
Additional chip card, blank, formatted (32 kB MEMoryCard XL for a maximum of 40 ramps)		E04004
Oven-linked authorisation card (User-ID-Card) prevents undesired manipulation by unauthorised third parties. When reordering please specify serial number		E04159
Software conforming to FDA "Celsius 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		E05019
Integration of additional units (up to max.15 units) into an already existent FDA-software licence (E05019)		FDAQ4
IQ check list with device-specific works test data as support for validation by customer		D00103
OQ check list 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 as support for validation by customer. Price for validation at customer site on demand (GER, AT, CH only)		D00104

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	CTC256	TTC256
OQ check list with device-specific works test data for one free-selectable humidity and temperature value, incl. temperature distribution survey at Memmert for 27 measuring points to DIN 12880:2007-05 as support for validation by customer. Price for validation at customer site on demand (GER, AT, CH only)	D00144	-
External measuring instrument with sensors for daylight and UV-light, with additional measuring head for temperature and humidity. Product information on demand	B04714	-

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.

DECISION AID FOR PRODUCTS WITH HUMIDITY CONTROL



Explanation of diagram:

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.

ICHeco/ICH
HPP110-HPP1060
HPP1400/2200
HCP
CTC

■ Climate testing points according to ICH guidelines

Model selection

Model size in litres (= dm³)	ICHeco/ICH	HPP		HCP	CTC
56				HCP50	
107				HCP105	
108	ICH110eco/ICH110	HPP110			
156				HCP150	
241				HCP240	
256	ICH260eco/ICH260	HPP260			CTC256
384		HPP410			
749	ICH750eco/ICH750	HPP750			
1060		HPP1060			
1360			HPP1400		
2140			HPP2200		
Temp. with hum.	+10 to +60 °C	5[2] to +70 °C	15[3] to +60 °C	7[1] to +90 °C	+10 to +95 °C
Temp. w/o hum.	-10 to +60 °C	0[2] to +70 °C	15[3] to +60 °C	7[1] to +90 °C	-42 to +190 °C
Humidity range	10 to 80 % rh	10 to 90 % rh	10 to 80 % rh	20 to 95 % rh	10 to 98 % rh
Ambient conditions	+19 to +25 °C, max 50 % rh according to Memmert works standard				

[1] above ambient temperature
[2] at least 20 °C below ambient temperature
[3] at least 10 °C below ambient temperature

Important notes concerning working ranges

If the temperature-humidity values exceed the specific limits (working range), the superheated steam introduced will immediately condense at the coldest point in the appliance, due to the dew point.

If the temperature-humidity values fall below the specific limits (working range), the effective range is heavily dependent on the humidity content of the chamber load.

The higher the humidity content of the chamber load, the more steam is generated inside the chamber. This may influence the maintenance of the constant humidity. 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!

To support you in choosing the right appliance, the Memmert TechLab MPTC is always available for tests under realistic conditions. Your customer service representative will gladly establish contact.

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	

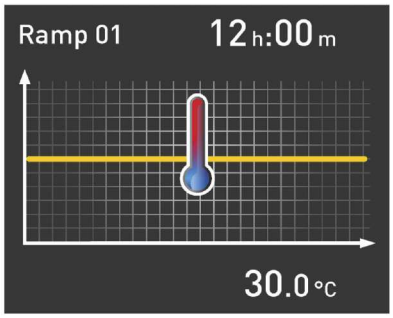
SOFTWARE AtmoCONTROL

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.

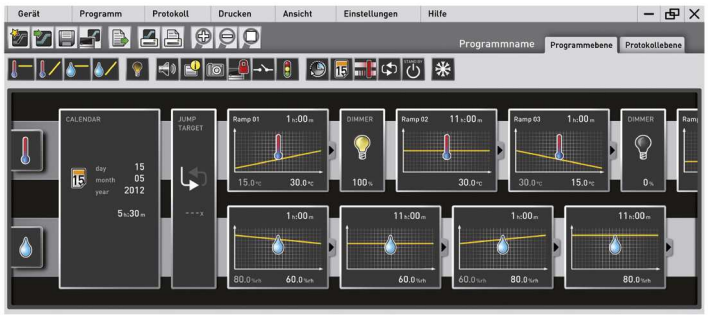


Programme functions for appliances with SingleDISPLAY and TwinDISPLAY

- 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

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

Memmert GmbH + Co. KG
P.O. Box 1720 | D-91107 Schwabach
Tel. +49 9122 925-0 | Fax +49 9122 14585
E-Mail: sales@memmert.com
facebook.com/memmert.family
instagram.com/memmert.family
The platform for experts: www.atmosafe.net

Order No. D13643 · Printed in Germany · Climate 1911 e 2.0