m360 – PRODUCTS AND SERVICES

Proud member of the Memmert Family

m360

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SOLUTIONS
FOR YOU

m360
SOLUTIONS FOR YOU

Welcome to m360

Fulfilling your individual requirements for your Memmert appliance is our mission! As an integral part of the Memmert Family, we have been making custom-made products for over 40 years – we are the m360 experts!

With the constant aim of inspiring our valued customers and business partners with individual solutions, we develop and produce customized products based on Memmert's industry–leading temperature control and climate technology. We attach significant importance to personal contact with our customers. By listening carefully and consulting comprehensively on the individual needs of the customer, we are able to realize the full scope of the desired tailor-made solutions.

In the past, it was not uncommon for valuable features to emerge from custom-made products, which have now become established as part of our series of products. With a focus on the needs of our customers and our professional competence and openness, we are drivers of innovations from which you can also benefit. Let's inspire the market together with innovative and revolutionary developments!

We welcome you to the brand m360 and invite you to get in touch with us. The entire m360 team looks forward to hearing from you.

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The m360 mission

m360 is a proud member of the Memmert Family.

THIS IS US

Since the 1980s, m360 has been developing and implementing customer-specific, premium solutions in the field of temperature and climate control technology based on Memmert series products. At Memmert's central production site in Schwabach, Middle Franconia (southern Germany), the m360 team of experts design and produce tailor-made solutions in close cooperation with customers and business partners in order to create the perfect atmosphere for every application.

In doing so, m360 focuses on the creative and innovative development of the established Memmert technology according to the individual wishes of the customers. This can be a simple modification of a series product from Memmert or an extensive project in the construction of special machines and systems.

WHAT WE CAN DO FOR YOU

Our brand is aimed at international customers who are looking for solutions to special challenges in the field of temperature and climate control technology. We offer an extremely high customer-first focus to create products that do not exist in the market. We collaborate closely with the customer to understand and meet the specific challenges and requirements down to the very last detail. At the same time, our experts work intensively on innovative ideas which they identify as highly topical, e.g., automatic solutions for the laboratory. With our experienced insight into the market, our team can precisely estimate trends and special solutions that will be in demand in the future.

m360 MISSION

"With a focus on individual customer needs, m360 creates innovative high-tech products in the field of temperature and climate control technology. We work hand in hand with our customers to understand challenges and implement solutions and requirements down to the last detail."
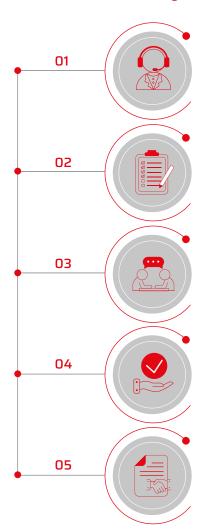
THE HOLISTIC m360 APPROACH

PROFESSIONAL ADVICE

First-class results are only achieved through attentive listening and individual advice.

01

The first contact
Do you have special requirements that you would like to solve with a custom-made m360 product? Contact our sales specialists or find out more on our website.

02

The questionnaire
With the help of a questionnaire, we gain information on your application and pay special attention to individual challenges and goals. In the case of less complex requirements, this questionnaire may already be sufficient.

03

The interview
More complex topics require an extensive interview with a high level of detail. In this discussion, our project team evaluates the questionnaire to determine the technical feasibility of the project.

04

The offer
For maximum transparency, the offer prepared by m360 is discussed in a personal meeting.

05

The order
After completion of the set-up phase and finalization of the offer, the implementation of the joint project begins.
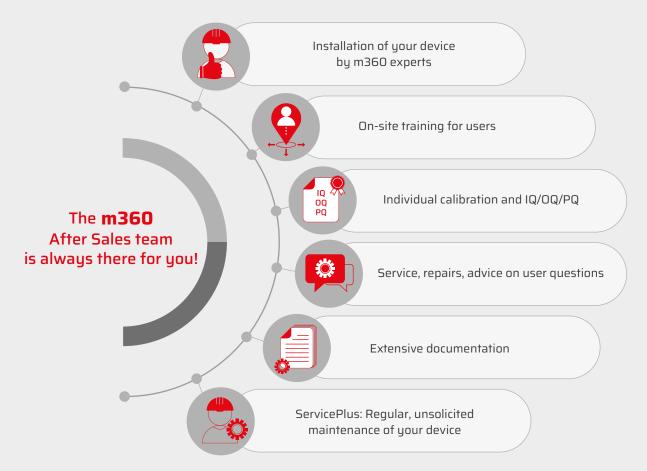
YOUR PRODUCT MADE IN GERMANY

State-of-the-art machinery and materials of the highest quality are a priority for us.

To invest the highest possible quality and attention in your individual product, all parties involved in the project must collaborate closely. Our experienced developers are, therefore, based at the same location as our extensive production team. In close cooperation, we ensure that your order is manufactured perfectly down to the last detail in our state-of-the-art machine park, which specializes in sheet metal processing.

High Tech　　**Made in Germany**　　**Teamwork**　　**Stainless steel**

IN THE BEST OF HANDS WITH OUR GLOBAL AFTER SALES TEAM

m360 designs high-quality custom-made products according to your personal wishes and ensures the best results. Our optional after-sales services include among others:
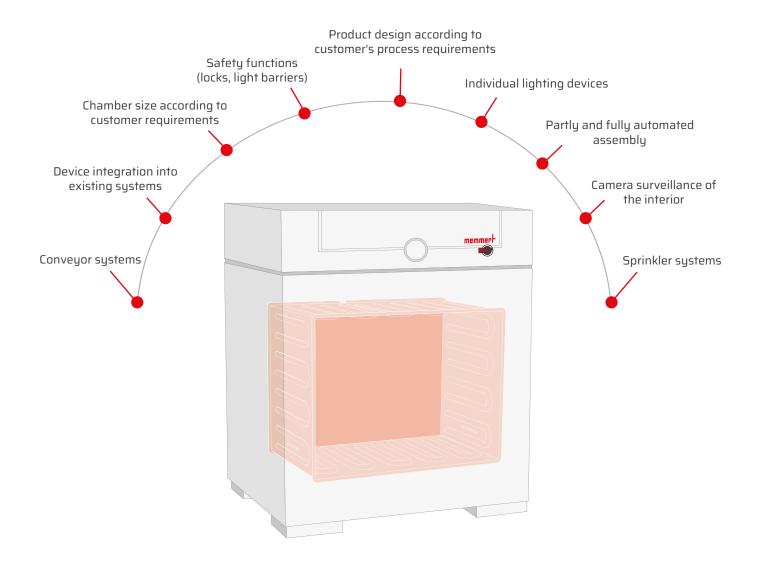
The **m360** After Sales team is always there for you!

- Installation of your device by m360 experts
- On-site training for users
- Individual calibration and IQ/OQ/PQ
- Service, repairs, advice on user questions
- Extensive documentation
- ServicePlus: Regular, unsolicited maintenance of your device

INDIVIDUAL DESIGN MEETS STRATEGIC PARTNERSHIP

The range of services of m360 includes both small modifications and complex high-tech innovations.
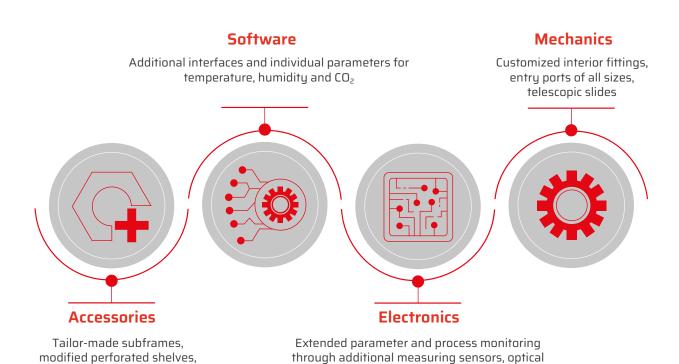
m360 Innovations

m360 is the think tank for revolutionary innovations in temperature and climate control products. Our experts already know tomorrow's trends today and are working intensively on efficient solutions for your processes. Are you facing a technical challenge or would you like to carry out a complex application? Use our know-how and our production capacity for your project!

Product design according to
customer's process requirements

Safety functions
(locks, light barriers)

Individual lighting devices

Chamber size according to
customer requirements

Partly and fully automated
assembly

Device integration into
existing systems

Camera surveillance of
the interior

Conveyor systems

Sprinkler systems

m360 Modifications

With m360 modifications and special accessories, you can unleash the full potential of your Memmert product. In our list of services, you will find a selection of frequently requested extensions of a Memmert basic device. This includes additions such as entry ports and traffic light circuits, as well as individual programming of the AtmoCONTROL software.

Software
Additional interfaces and individual parameters for temperature, humidity and CO_2

Mechanics
Customized interior fittings, entry ports of all sizes, telescopic slides

Accessories
Tailor-made subframes, modified perforated shelves, individual air filters

Electronics
Extended parameter and process monitoring through additional measuring sensors, optical and acoustic process monitoring and others

Success story: MTU AERO ENGINES

THE EFFICIENT 2-IN-1 SOLUTION

Two drying processes
with a single universal oven

The challenge

Two fundamentally different loads with limited space in production! MTU Aero Engines develops and produces patented brush seals that first must be processed in a waterbath and then dried completely. Certain distances and angles must be maintained between the large and heavy sealing rings. Small components also must be dried for a second process. Since space is scarce in many workshops, the chamber should ideally cover both applications.

The solution

MTU opted for a custom-made drying oven UF1060 from m360. A tailor-made solution was developed together with the m360 experts, which enables the brush seals to be optimally placed and dried. The stop angle of the lower door hinge was adjusted so that it can only be opened up to 95°. Furthermore, adjustable locking slides and locking bolts were added, perforated shelves with upstands were developed for more stability and a reinforced telescopic slide was designed to shelves the weight of the brush seals. An additional special feature: thanks to specially designed exchangeable supports, perforated shelves and trays can be exchanged in just a few simple steps. This enables two different applications to be shelves out with the same interior design.

"The uncomplicated and well thought out solution from m360 enables us to dry our load according to our individual requirements. Thanks to the Memmert custom-made product, we achieve perfect results - for two different processes!"

- Hermann-Josef Peters, Investment Management
- Tobias Heyer, Head of Brush Seal Production
- Anna Braunwarth, Project Manager

About MTU Aero Engines AG

With three German locations and around 5,000 employees worldwide, MTU Aero Engines AG is Germany's leading engine manufacturer and a national and international driving force in the development, manufacture and maintenance of civil and military engines.

Sector: Aviation
Location: Munich, Germany
Employees: approx. 5,000
Customer since: MTU has been regularly purchasing Memmert products since 2016 as well as orders for custom-made devices from m360.
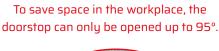
The UF1060 in detail

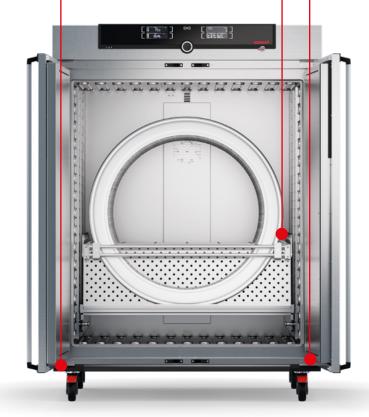The reinforced telescopic rails can be fully loaded up to 100kg.

Lockable slides and bolts for optimal fixing and positioning of the brush seals.

To save space in the workplace, the doorstop can only be opened up to 95°.

An interchangeable carrier for trays and pans enables two different applications in one device.

The sky is the limit

DRYING OVEN
WITH SPECIAL HEIGHT

The challenge

A Mason Technology customer was looking for a way to professionally dry a large number of approximately 10 mm catheter connectors. Such small loads require special storage areas. In addition, to use the space in the laboratory efficiently, the height of the interior of the device should be at least 1600 mm.

The solution

To meet the specific needs of Mason Technology customers, m360 designed an UF600plus - a drying oven at a very specific height. m360 developed this device according to customer requirements because the specific dimensions also result in completely new conditions in the drying oven. The heating conductors were laid individually and a 27-point measurement was carried out in the interior to ensure optimal temperature distribution according to the high Memmert standard. The device software AtmoCONTROL was then specially reprogrammed for this device to guarantee Mason Technology customers the desired functions and results. m360 also developed a special shelf with telescopic rails so that the load is inserted ergonomically. Due to the enormous height of the device, the handlebar has been reinforced so that the door can be opened easily.

About Mason Technology

Mason Technology is a leading provider of high quality scientific instruments, technical services and solutions for laboratory, production and maintenance environments across Ireland.

Sector: Laboratory equipment, industry
Location: Dublin, Ireland
Employees: 120
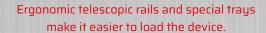Customer since: Mason Technology has been a Memmert customer since 2011 and places orders for custom-made devices from m360.

"The advice from the m360 experts was impeccable and very professional. In just a few weeks, we had a device specially designed and programmed for our purposes in our laboratory."

- Conor Sweeney, Technical Sales Consultant

The UF600plus in detail

Ergonomic telescopic rails and special trays make it easier to load the device.

The reinforced handle enables the particularly tall door to be opened easily.

Width = 824 mm
Height = 2150 mm
Depth = 684 mm + 56 mm
door handle

⚙ MECHANICS

ENTRY PORTS

Entry ports have many different applications including routing of customer parts such as devices, cables, sensors or measuring instruments from the outside to the inside of the appliance. m360 designs entry ports of all sizes and shapes according to customer requirements.

! Insertion options for perforated shelves and grids can be eliminated by introducing a lateral entry port.

ø14 - 38 mm:	one shelf level is omitted
ø57 - 80 mm:	two shelf levels are omitted
ø100 - 120 mm:	three shelf levels are omitted

ROUND ENTRY PORTS

Round entry ports are mainly used for inserting measuring sensors. The Memmert standard portfolio offers entry ports with a diameter of up to 23 mm. m360 manufactures special entry ports with wider diameters that can also be placed individually. Depending on the design, round entry ports can be closed with an ear cover or slider.

Product series	‹ U ‹ IPPeco ‹ I
Product information	‹ Flap ø14 - 57 mm
	‹ Slider ø80 - 120 mm
	‹ Material made of stainless steel 1.4301 (ASTM 304)
	‹ Entry port is not moisture tight
Ordering information	‹ Stopper optionally available
	‹ From 60 mm, further special entry ports are available on request

Position		ø14	ø23	ø38	ø57	ø80	ø100	ø120
	Side	●	●	●	●	●	●	●
	Rear	●	●	●	●	●	●	●

WELDED MOISTURE TIGHT ENTRY PORTS

Moisture tight entry ports are mainly used, for example, to insert measuring sensors into the appliance. This entry port is specially welded to ensure no moisture escapes from the chamber and the climate remains constant.

Product series	‹ HPPeco ‹ ICP ‹ ICH
Product information	‹ Includes stopper
	‹ Entry port welded and thus moisture tight
Ordering information	‹ Door entry port on request only for HPPeco appliance class
	‹ For appliances with option K2 or K3 (chamber nearly gas tight), a welded entry port is required

Position		ø14	ø23	ø38	ø57	ø80	ø100	ø120
	Side	●	●	●	●	●	●	●
	Rear	●	●	●	●	●	●	●

MOISTURE TIGHT SILICONE ENTRY PORTS

In addition to moisture tight entry ports, which are welded into the appliance, m360 offers plugged silicone entry ports in a moisture tight design.

Product series	‹ HPPeco ‹ IPPeco
Product information	‹ Silicone entry port in moisture tight design
	‹ Includes stopper
Ordering information	‹ Also available on the side on request

		ø14	ø23	ø38	ø40	ø57	ø80	ø100	ø120
Position	Rear	—	—	—	●	—	●	—	●

SMALL FLANGE KF ENTRY PORTS

These entry ports were specially designed for vacuum ovens. The entry ports are welded vacuum-tight. This means that measuring sensors can be inserted into the appliance without pressure loss during vacuum operation.

Product series	‹ VO
Product information	‹ ISO-KF connection
	‹ ISO-CF connection available on request
	‹ Position on the rear side
Ordering information	‹ Further vacuum-tight connections available on request, e.g. power and voltage supply or interface connections via entry ports
	‹ KF connections for other product models are available on request

		DN16	DN25	DN40	DN50	Other diameters
Position	Rear	●	●	●	●	On request

MAGNETIC DOOR LOCK

Certain processes require the door of the appliance to be opened very frequently. A magnetic closure is available to make handling more ergonomic. Thanks to the magnet, the door closes automatically and withstands a constant load of opening and closing. The latch is available for single leaf doors and is only recommended for processes up to 200 °C.

Product series	‹ U ‹ I
Product information	‹ Magnetic door lock
	‹ Easy handling and suitable for continuous use
Ordering information	‹ Temperature limitation A8 to 200 °C required for models of the product series U
	‹ Available for double-leaf appliances on request
	‹ Retrofit possible after technical clarification

	30	55	75	110	260	Other sizes
Magnetic closure	●	●	●	●	●	On request

MODIFIED DOOR HANDLE BAR

Particularly for XXL appliances, but also for smaller Memmert appliances that are opened and closed very frequently, it makes sense to replace the aluminium door handle bar with a reinforced handle bar made of stainless steel.

Product series	‹ HPPeco ‹ IPPeco ‹ ICH ‹ ICP ‹ U ‹ I
Product information	‹ Reinforced door handle bar with increased rigidity for frequent opening and closing of the door
	‹ Designed for appliances from size 410
Ordering information	‹ Possible for smaller appliances on request
	‹ Retrofit possible after technical clarification

	410	750	1060	1400	2200	Other sizes
Reinforced door handle bar	●	●	●	●	●	On request

SWAP DOOR HINGES

For ergonomic reasons or to save space on-site, it is advantageous to mount on the door hinges on the left-hand side so that the door handle is on the right-hand side. m360 attaches the door handle to your desired side at the factory.

Product series	‹ HPPeco ‹ ICH ‹ IPPeco ‹ IPP ‹ ICP
Product information	‹ Stainless steel and inner glass door are hung on the left side of the appliance
Ordering information	‹ Only for appliances with a single-leaf door

	30	55	110	260	410
Swap door hinges	●	●	●	●	●

DOOR HINGE LIMITER

This equipment version makes efficient use of space possible thanks to customisable opening angles of 95° or 120°, allowing the working range to be more flexible and functional.

Product series	‹ HPPeco ‹ IPPeco ‹ IPP ‹ ICH ‹ ICP ‹ U ‹ I
Product information	‹ Opening angle of the door max. 95° or 120 °C
Ordering information	‹ For appliances with double doors, any combination of hinges can be used
	‹ Retrofitting possible
	‹ Other opening angles on request

	all appliance sizes
Door hinge opening angle 95°	●
Door hinge opening angle 120°	●

FULL-SIGHT GLASS DOOR

The full-sight glass door provides a direct view of the interior without having to open the oven. It is ideal for laboratories and industry and provides outstanding transparency when monitoring work processes.

Product series	‹ HPPeco ‹ IPPeco ‹ ICH ‹ ICP
Product information	‹ Reduces condensation on the door glass panel due to heated glass panel
Ordering information	‹ Inner glass door omitted

	110	260	410	750	1060
Full-sight glass door			●		
Heated full-sight glass door		—		●	

MAINTENANCE HATCH FOR ELECTRONICS BOX

To save space or for certain applications in clean rooms, appliances are often recessed in a wall. As a result, the cover of the electronics box can no longer be opened. With the maintenance hatch modification, the conventional appliance cover is replaced by a two-part cover.

Product series	‹ U ‹ I ‹ HPPeco ‹ IPPeco
Product information	‹ Maintenance hatch for electronics box
	‹ No need to dismantle installed appliances in the clean room
	‹ Easy access to electronic components from grey room side
Ordering information	‹ Retrofitting possible

	110	160	260	410
Maintenance hatch	●	●	●	●

SEALING

For specific applications it may be necessary to replace the standard seal of a Memmert appliance with low-silicone seals. In this case, a low-silicone Viton seal is recommended, which is heat-resistant up to 250 °C in long-term processes.

ESD seals are conductive and therefore provide greater protection against electrostatic discharge. For applications where the chamber load is comprised of electronic parts, an ESD seal is recommended. The ESD seal is heat-resistant up to 180 °C in long-term processes. The m360 team will be happy to advise you on your individual requirements.

Product series	‹ U ‹ I ‹ HPPeco ‹ IPPeco ‹ ICH ‹ ICP
Product information	‹ Replacement of the standard seal with a Viton seal
	‹ Replacement of the standard seal with an ESD seal
Ordering information	‹ Bear in mind the temperature range of the appliance when ordering
	‹ Temperature limit A8 for ESD seal to 180 °C additionally required
	‹ Temperature limit A8 for Viton seal to 250 °C additionally required

		HPPeco	IPPeco	U	I	ICH	ICP
Required option	Temperature limitation (option A8)	—		●		—	
	ESD seal and Viton seal	available for all sizes					

HEAVY-DUTY INTERIOR FRAME

Heavy components can exceed the maximum load of the appliance. A heavy-duty interior frame is therefore recommended for particularly heavy loads. Since the feet of the shelf unit stand directly on the foundation at the installation location, there is no load on the appliance.

Product series	‹ U ‹ I ‹ HPPeco ‹ IPPeco
Product information	‹ Consisting of a frame, which rests on the floor by means of entry ports in the base of the appliance
	‹ Shelves are screwed to the frame and can be flexibly positioned
Ordering information	‹ Additional shelves are to be calculated separately
	‹ K1 option not available with heavy-duty frame

			260	450	750	1060
Further data	Max. number of heavy-duty grids	Number	3	3	6	6
	Max. loading per level	kg		200		
	Max. loading per frame	kg		800		
Installation	Heavy-duty floor frame (incl. floor entry ports)			●		
	Heavy-duty interior frame (incl. floor entry ports and a grid)			●		
	Additional heavy-duty grid			●		

WRAPPED INSULATION

Memmert appliances are often used in the clean room. In order to reduce the particle load in the interior of the appliance, the rock wool insulation can also be packed in aluminium foil.

Product series	‹ U ‹ I ‹ VO
Product information	‹ Insulation wrapped in aluminium foil
	‹ Reduction of particle pollution
Ordering information	‹ No improvement in the ISO clean room class
	‹ The heat output of the appliances deviates from the standard

	all appliance sizes
Wrapped insulation	●

ESD APPLIANCE MODIFICATION

m360 offers an ESD appliance modification as an accessory. In addition to replacing the standard seal with an ESD seal, the ESD modification package offers additional safety precautions against a build-up of electrostatic charge in the appliance, such as ESD-capable castors and earthing bolts. This modification is basically available for all appliances, but is mainly requested for UF appliances for industrial applications.

Product series	‹ HPPeco ‹ IPPeco ‹ U ‹ I
Product information	‹ Connection of individual appliance components for equipotential bonding on the appliance
	‹ Earthing options for connection to sub frame and customer grounding systems
	‹ Modification of the door hinges
Ordering information	‹ Bear in mind the temperature range of the appliance when ordering
	‹ For size 30 - 260 castor frame (option R9) or sub frame additionally required
	‹ Temperature limit A8 for ESD seal to 180 ºC included with universal ovens

TELESCOPIC RAILS | SIZE 55-160

Telescopic rails enable a Memmert appliance to be loaded more ergonomically. The pull-outs can be combined with grids and perforated shelves and each pull-out can carry a load of 60 kg. As a rule, three to four telescopic rails can be installed per appliance, but more pull-outs are also possible after technical clarification.

Product series	‹ HPPeco ‹ IPPeco ‹ U ‹ I
Product information	‹ Installation of telescopic rails
	‹ Pull-outs with grid or perforated shelf
Ordering information	‹ The levels must be specified when ordering and cannot be changed later
	‹ Pull-out length depends on appliance size
	‹ Maximum number of pull-outs can be expanded after technical clarification

		55	75	110	160
Max. pull-outs	Number	Number and position only after technical clarification			
Max. loading per level	kg	60			
Max. loading per appliance (U, I)	kg	80	120	175	210
Max. loading per appliance (HPPeco, IPPeco)	kg	—		150	—

LEVELLING CASTORS

On request, the castors on Memmert appliances can be replaced with heavy-duty levelling castors. This allows the appliance to be moved to any desired installation location. On uneven surfaces, the levelling castors can be adjusted to suit the floor. Levelling castors are available for all sizes and models and can be retrofitted at any time.

Product series	‹ HPPeco ‹ IPPeco ‹ IPP ‹ ICP ‹ ICH ‹ U ‹ I
Product information	‹ Available for all sizes
	‹ Compensation for unevenness at the installation site
	‹ Levelling castor height approx. 91 mm
Ordering information	‹ Retrofitting possible
	‹ Can be used in clean room environments subject to technical clarification
	‹ For appliance sizes up to 260, option R9 (castor frame) is also required

LEVELLING FEET

If desired, the castors on Memmert appliances can be replaced with levelling feet. This ensures that users cannot move the appliance. The levelling feet can be adjusted to compensate for unevenness in the floor. Levelling feet are available for all sizes and models and can be retrofitted at any time. Special sizes are also available from m360 on request.

Product series	‹ HPPeco ‹ IPPeco ‹ ICP ‹ ICH ‹ U ‹ I
Product information	‹ Available for all appliance sizes
	‹ Compensation for unevenness at the installation site
	‹ Levelling foot height approx. 140 mm
Ordering information	‹ Retrofitting possible
	‹ Can be used in clean room environments subject to technical clarification
	‹ For appliance sizes up to 260, option R9 (castor frame) is also required

ELECTRONICS

PROCESS MONITORING - TRAFFIC LIGHT SWITCHING

With a traffic light switch, the user can see the current status of the ongoing process in the Memmert appliance (for example, program running: green, standby: yellow, error message: red). This is particularly useful when a large number of appliances are in use at the same time. The colours and functions of each light can be configured according to requirements and up to five lights can be installed. Traffic light switching is very often used for industrial applications.

Product series	‹ U ‹ IPPeco ‹ I ‹ HPPeco ‹ VO ‹ ICP ‹ ICH
Product information	‹ Visual monitoring of ongoing processes using signal lights on the shutter box or on the cover
	‹ Acoustic monitoring and signalling in the event of a error message. Volume of alarm sound: 85 dB (other volume levels possible on request)
	‹ Combination of optical and acoustic error message
	‹ For the VO appliance series, only sizes 49 and 101 are possible
Ordering information	‹ One potential-free contact (option H6 and/or H72) is required for each signal light
	‹ For ICHC and HPPCeco appliance series, door-open detection (option V5) is required
	‹ Retrofitting possible
	‹ Other lights and product models available upon request
	‹ Only available for models with a TwinDISPLAY.

Shutter box	H6	H72
Three coloured signal lights (red, yellow and green) + alarm sound device	●	●
One coloured signal light (red) + alarm sound device	●	—
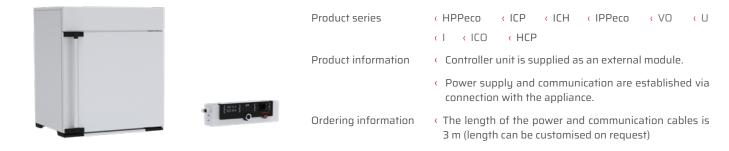
Lid	H6	H72
Three coloured signal lights (red, yellow and green) + alarm sound device	●	●
One coloured signal light (red) + alarm sound device	●	—

EXTERNAL CONTROLLER UNIT

By equipping the Memmert oven with an external controller unit, the oven can be conveniently controlled from a different position in the room. This ensures flexible and efficient operation.

Product series	‹ HPPeco ‹ ICP ‹ ICH ‹ IPPeco ‹ VO ‹ U ‹ I ‹ ICO ‹ HCP
Product information	‹ Controller unit is supplied as an external module.
	‹ Power supply and communication are established via connection with the appliance.
Ordering information	‹ The length of the power and communication cables is 3 m (length can be customised on request)

POTENTIAL-FREE CONTACT H5, H7, H72, H73, H74

Potential-free contacts are available for all UF/IF appliances in the Memmert standard portfolio. The m360 team of experts has developed a special configuration for the other product models. Using the AtmoCONTROL appliance software, a dependency can be programmed for options H7 / H72 / H74 and an additional signal is sent to the potential-free contact, e.g. the command to activate ventilation when 300 ºC is reached. With the H5 option, an interface is mounted on the rear panel of the appliance where external devices, e.g. for humidity monitoring, can be connected.

Product series	‹ HPPeco ‹ ICP ‹ ICH ‹ IPPeco ‹ VO ‹ U ‹ I ‹ ICO ‹ HCP
Product information	‹ H7, H72, H73, H74: Potential-free contact (24V / 2A) with built-in socket for controlling external devices (e.g. activation of acoustic and optical signals, from suction motors, fans, stirrers, etc.)
	‹ H5: For external monitoring (e.g. display of setpoint value reached)
Ordering information:	‹ Only for appliances with TwinDISPLAY
	‹ Maximum 2 pieces possible for 1-ph. appliances.

	VO	U	I	HPPeco	IPPeco	ICH	ICP	ICO	HCP
H5 (one contact)	—				●				
H7 (one contact)	●					—			
H72 (two contacts)		—			●				—
H73 (three contacts)	●					—			
H74 (four contacts)		—		●				—	

4-20 MA INTERFACE ACTUAL VALUE PARAMETER

To log the relative humidity in the appliance via an external system, a 4-20mA interface can be installed to output the actual value.

Product series	‹ HPPeco ‹ IPPeco ‹ IPP ‹ U ‹ I ‹ ICP ‹ ICH
Product information	‹ Output of the actual value for relative humidity in the chamber
Ordering information	‹ 4-20 mA current interface on the rear of the appliance at the height of the electronics box
	‹ 3-pin connector included
	‹ Humidity sensor required for 4-20 mA interface

	HPPeco
Humidity controller actual value (0 to 100% rh = 4 - 20 mA)	●

FAST COOLING FAN

A fast cooling fan has two functions: Firstly, it cools down the appliance many times faster after a temperature control process, without having to open the door. On the other hand, the fan increases the air exchange rate of the appliance. Depending on the exhaust air flap, the fast cooling fan can be regulated in 10% increments and controlled via a regulator on the exhaust air flap, but also via the AtmoCONTROL software.

Product series	‹ U ‹ I ‹ UFTS
Product information	‹ Exhaust fan for rapid cooling
	‹ Adjustable in 10% increments via exhaust air flap
	‹ Pipe connection for hose connection of the exhaust air ø60.3 mm
	‹ When using the fast cooling fan, performance data such as the temperature distribution differ from standard appliances.
Ordering information	‹ Retrofitting possible after technical clarification

ADDITIONAL INTERIOR SOCKET

Many users connect additional devices to their Memmert oven, e.g. shaking devices or scales. Anyone who cannot have an entry port installed for this and also wants more than one interior socket for their device can contact m360.

Product series	‹ U ‹ I ‹ HPPeco ‹ IPPeco ‹ ICP ‹ ICH
Product information	‹ Interior socket for power supply to electrical devices used by the customer
	‹ Ampacity 230V; 2.2 A
	‹ Moisture tight IP68: R3 and R4
	‹ Moisture tight IP66: R3 UK and R4 UK
Ordering information	‹ Not available for IFplus / INplus
	‹ Technical clarification required for more than three interior sockets
	‹ Temperature limit to max. +40 ºC or. + 60 ºC required

		R3	R3-UK	R4	R4-UK
Installation	Can be switched off via the main switch, cannot be switched separately	●	—		—
	Can be switched on/off via toggle switch on the control panel	—			●
Required options	Temperature limitation (option A8) to +60 ºC	●			—
	Temperature limitation (option A8) to +40 ºC	—			●
	Moisture tight IP66	—	●	—	●
	Moisture tight IP68	●	—	●	—

LED INTERIOR LIGHTING

For some applications, such as plant or mushroom cultivation, top lighting of the load is very important. The m360 LED grid offers this possibility. The light can be dimmed in 1% increments and is available in warm white, cold white or a combination. Certain processes can be programmed via AtmoCONTROL, e.g. a day-night simulation.

Product series	‹ HPPeco ‹ IPPeco
Product information	‹ Cold white 6500K, warm white 2700K or mixed
	‹ Dimmable from 0-100% in 1% increments
	‹ Moisture tight IP44
	‹ Documentation and programmable via AtmoCONTROL software
	‹ Installation of LED light strips on the grid
Ordering information	‹ Only in combination with TwinDISPLAY
	‹ LED light strips on the grid is not possible in combination with K1 option

LED light strips on grids		110	260	410	750	1060	1400	2200
Max. load per grid	kg		20		30	60	30	
Working temperature with light	ºC				+15 up to +40			
Max. number of grids	Number				4			6

LED light strips on K1 extension		410	750	1060	1400	2200
Max. number of LED light strips	Number		14		28	42
Working temperature with light	ºC			+15 up to +40		

INTERIOR LIGHTING RO

To see the load in the interior of the appliance chamber better, m360 offers special lighting for monitoring the load in appliances from the ICH, ICP and VO series. The lights can be switched manually or operate continuously.

Product series	‹ VO
Product information	‹ Interior lighting for monitoring the load
	‹ Lighting can be programmed using AtmoControl
Ordering information	‹ The interior lighting reduces the number of slots for thermoshelves (the number of free slots is reduced by two levels)

Interior lighting for VO	29	49	101
One light	●	●	●

Product series	‹ ICH ‹ ICP
Product information	‹ Interior lighting for monitoring the load
	‹ Up to and including size 260, one interior light is installed.
	‹ From size 450, two interior lights are installed

Interior lighting for ICH, ICP	110	260	450	750
One light	●	●	—	—
Two lights	—	—	●	●

PARAMETER MONITORING

In special applications, it is necessary to monitor a parameter such as relative humidity, although the appliance cannot actively adjust the parameter. In this case, m360 can, for example, install a humidity sensor in a UF appliance, which displays and logs the relative humidity. However, it is still not possible to adjust the humidity parameter. The m360 team of experts will be happy to advise you.

Product series	‹ HPPeco ‹ IPPeco ‹ ICP ‹ U ‹ I
Product information	‹ Installation of humidity sensors for monitoring and display on the ControlCOCKPIT
	‹ Installation of CO_2 sensors for monitoring and display on the ControlCOCKPIT
	‹ Installation of O_2 sensors for monitoring and display on the ControlCOCKPIT
	‹ Parameter cannot be adjusted
Ordering information	‹ Retrofit only by Memmert

		U	I	HPPeco	IPPeco	ICP
Humidity sensor	Additional sensor - humidity	●	●	—	●	●
	Temperature limitation (option A8)	180 °C		—		
CO_2 sensor	Additional sensor - CO_2	●	●	—	—	—
	Temperature limitation (option A8)	80 °C		—		
O_2 sensor	Additional sensor - O_2	●	●	—	●	●
	Temperature limitation (option A8)	200 °C		—		

FREELY POSITIONABLE PT100 SENSOR

With additional, freely positionable temperature sensors, users not only have the option of measuring the air temperature, but also the temperature of the load, or water in a bowl for example.

Product series	‹ U ‹ IPPeco ‹ I ‹ HPPeco ‹ ICP ‹ ICH ‹ CTC ‹ VO ‹ UFTS
Product information	‹ PT100 that can be flexibly positioned in the chamber
	‹ H4: 4-pin built-in socket for external temperature logging (load temperature recording)
	‹ H8: Up to three temperature values can be displayed, temperatures can be documented via AtmoCONTROL for "on-site" temperature measurement
Ordering information	‹ H8: A maximum of three sensors can be installed (max. one sensor for VO)

	HPPeco	IPPeco	U	I	ICH	ICP	CTC	VO
Option H4 (max. number of sensors after technical clarification)				●				—
Option H8 (max. 3 sensors, with VO max. 1 sensor possible)				●				

⬡+ ACCESSORY

AIR FILTER

A G3 filter (option R8) with 80% filtration efficiency can be configured for Memmert appliances from series production. This filter prevents coarse particles from entering the interior of the appliance. For users who want to work with as few particles as possible but do not have a clean room, m360 offers the HEPA filter H13 (filtration efficiency of 99.95%). Other filter types, such as an F7 ultra-fine filter, are also available on request and after technical consultation.

Product series	‹ U ‹ I
Product information	‹ Installation of filters of different filter classes at the supply air opening on the base of the appliance
	‹ Filters particles directly out of the supply air before it flows into the chamber (a new clean room class is not achieved due to the upstream air filter)
Ordering information	‹ For size 30 - 260 castor frame (option R9) or sub frame also required
	‹ Further filter classes on request

	30	55	75	110	260	450	750	1060
Sub frame required	●	●	●	●	●	—	—	—
Supply air filter cartridge (without filter)				B38621				
Double filter cartridge (without filter)				B42512				
Pre-filter F7				E07438				
Fresh air filter H13				E07439				

EXHAUST AIR CONDENSATE TRAP

The drying process in a Memmert appliance can produce moist air that has to be removed. Moisture in the exhaust air may condense and drip down. A special valve with a hose nozzle allows the water to systematically drain off. The exhaust air condensate trap is made of stainless steel and is easy to install - even retroactively and without a technician.

Product series	‹ U ‹ I
Product information	‹ Condensate that forms during processes with high humidity is collected in the exhaust air pipe and removed
	‹ Exhaust air pipe ø60.3 mm
	‹ Condensate drain ø14 mm
Ordering information	‹ Retrofitting possible
	‹ Not in combination with K2/ K3 option

Exhaust air condensate trap	B37684

HEAVY-DUTY FLOOR GRID

In some applications, the load exceeds the permissible maximum weight of 25 kg - 30 kg per shelf level. The usual perforated shelves and grids must then no longer be loaded. In this case, a heavy-duty floor grid is recommended that can carry a load up to 300 kg. The heavy-duty floor grid is made of stainless steel and can be combined with all options. On request, the floor grid can also be adapted so that special interior fittings can be attached.

Product series	‹ HPPeco ‹ IPPeco ‹ CTC ‹ TTC ‹ ICP ‹ ICH ‹ U ‹ I
Product information	‹ Floor grid for storing products on the base of the appliance
	‹ Floor grid can carry a load of up to at least 60 kg
	‹ Optional fixation possible
Ordering information	‹ Max. permissible appliance load must not be exceeded

		30	55	75	110	160	256	260	400/410	450	750	1060
Max. load (ICP, ICH, IPPeco, HPPeco)	kg	—	—	—	150	—	—	200	200	200	200	200
Max. load (U, I, TTC, CTC)	kg	60	80	120	175	210	100	300	300	300	300	300
Heavy-duty floor grid		E50944	E46407		E36692		E41309	E36704		B31972		E40438

TELESCOPIC RAILS | SIZE 260-1060

Telescopic rails enable a Memmert appliance to be loaded more ergonomically. The pull-outs can be combined with grids and perforated shelves and each pull-out can carry a load of 60 kg. As a rule, three to four telescopic rails can be installed per appliance, but more pull-outs are also possible after technical clarification.

Product series	‹ HPPeco ‹ IPPeco ‹ U ‹ I
Product information	‹ Installation of telescopic rails
	‹ Pull-outs with grid or perforated shelf
Ordering information	‹ The levels can be flexibly installed, depending on the interior fittings
	‹ Pull-out length depends on appliance size
	‹ The maximum number of pull-outs can be increased after technical clarification
	‹ Higher weight load per level available on request

			250	260	410	450	750	1060
Chamber modification (option K1)			●	●	●	●	●	●
Further data	Max. pull-outs	Number	3	3	4	3	4	4
	Max. loading per level	kg				60		
	Max. loading per appliance	kg				300		
Telescopic rail pull-out with grid		1 level	B51282		B43102		B43093	B43100
Telescopic rail pull-out with perforated shelf		1 level	B51625		B51618		B44476	B56888

STACKING FRAME

To save space in the laboratory or workshop, Memmert appliances can be stacked. The m360 stacking frame enables appliances of different sizes to be safely stacked, e.g. a UF55 on an IF160. For safety reasons, only two appliances can be stacked on top of each other, with the larger of the two appliances at the bottom.

Product series	‹ HPPeco ‹ IPPeco ‹ U ‹ I
Product information	‹ Universal stacking frame made of 1.4301 stainless steel (powder coated on request)
	‹ Devices of different sizes can be stacked. The larger appliance must be at the bottom.
Ordering information	‹ When retrofitting a stacking frame, a cover for the lower appliance is included
	‹ Further stacking combinations are available on request
	‹ Retrofitting possible

	75	110	160	260
Stacking frame (U, I)	B50598	B50599		B50600
Stacking frame (HPPeco, IPPeco)	—	B57998		B58000

STOPPER

In order to keep the climatic conditions of an appliance with an entry port constant during operation, the use of a stopper is recommended. The silicone sponge stopper is heat-resistant up to 180 °C and made of soft material, which makes it very suitable for pressing into entry ports. The silicone stopper is available in two temperature-resistant versions up to 200 °C and 300 °C and is made of a harder material than the silicone sponge stopper.

Product series	‹ VO ‹ U ‹ I ‹ ICP ‹ ICH ‹ HCP ‹ TTC ‹ HPPeco ‹ IPPeco ‹ CTC ‹ ICO
Product information	‹ Depending on the version, the silicone stopper is temperature-resistant up to 200 °C or 300 °C
	‹ Silicone sponge stopper temperature resistant up to 180 °C
Ordering information	‹ When reordering individual stoppers, bear in mind the temperature range of the appliance.
	‹ Stopper 300 °C only for product series U

	ø14	ø23	ø37-40	ø57	ø80	ø100	ø120
Silicone sponge stopper 180 °C	E05790	E05361	E05362	E07865	E05625	E07866	E05920
Silicone stopper 200 °C	—	E05387	E07479	E05389	—	E05386	—
Silicone stopper 300 °C	—	E07698	E07699	E07700	E07701	E07702	

REINFORCED PERFORATED SHELF

The reinforced perforated shelves are supplied with additional reinforcement and are designed for higher loads. The load capacity increases to 80 kg for appliances without interior fittings (K1) and to 100 kg for appliances with interior fittings (K1). Here it is essential to ensure that the maximum load limit of the appliance is not exceeded.

Product series	‹ HPPeco ‹ IPPeco ‹ ICP ‹ ICH ‹ U ‹ I
Product information	‹ Perforated shelf for the storage of loads in the chamber
	‹ Perforated shelves can be loaded with up to 100 kg depending on the design
Ordering information	‹ Max. permissible appliance load must not be exceeded
	‹ Perforated shelf for max. weight of 100 kg requires option K1

	250	260	410	450	750	1060
Perforated shelf max. load 80 kg	B57100	B57086		B52092		—
Perforated shelf max. load 100 kg (option K1 required)	B57094	B57081		B57076		B34130

CONNECTION CABLE 5 METRES

With a generous length of 5 metres, the power connection cable for Memmert ovens (230 V) ensures a convenient connection and that power can still be supplied to the appliance even if it is not in the immediate vicinity of a socket outlet.

Product series	‹ HPPeco ‹ ICP ‹ ICH ‹ IPPeco ‹ VO ‹ U ‹ I ‹ ICO ‹ HCP
Product information	‹ Extended power connection cable (length 5 metres)
	‹ For appliances with 230 V connection
Ordering information	‹ Reordering possible, specify serial number
	‹ Connector: 230 V Schuko plug

SPECIAL APPLIANCES

UNIVERSAL OVENS U | SPECIAL SIZES

Chamber	‹ Stainless steel W.-St. 1.4301 (ASTM 304) with all-round deep-drawn ribbing for the integration of the ceramic-metal encased large area heating
Housing	‹ Patterned stainless steel, back panel made of galvanized steel plate, intuitively operated TwinDISPLAY (colour graphic display) with touchscreen; fully insulated stainless steel door (double-leaf door for sizes 250, 1550 and 2500, single-leaf door for size 400)
Fresh air	‹ Admixture of preheated fresh air through electronically adjustable exhaust air flap
Connection	‹ Connection cable with Schuko plug 230 V or CEE plug 400 V
Interfaces	Ethernet / LAN USB
Ordering information	‹ Only available with TwinDISPLAY

Item description			250	400	1550	2500
Stainless steel interior	Volume	L	256	384	1550	2554
	Width	mm	800	640	1040	1680
	Height	mm	640	1200	1520	1520
	Depth (minus 39 mm for fan)	mm	500	500	1000	1000
	Max. number of grids	Number	7	14	18	18
	Max. loading per level	kg	20	20	30	30
	Max. loading per appliance	kg	300	300	300	300
Patterned stainless steel housing	Width	mm	984	824	1224	1861
	Height	mm	1023	1720	1982	1983
	Depth (without door handle, door handle +56 mm)	mm	684	684	1186	1186
Basic configuration	Stainless steel grid	Number	2			
	Standard works calibration certificate	°C	+160			
Temperature	Operating temperature range	°C	at least 10 above room temperature up to +300			at least 10 above room temperature up to +250
	Setting temperature range	°C	+20 up to +300			+20 up to +250
	Adjustment precision	°C	up to 99.9: 0.1 from 100: 0.5			
Further data	Power consumption at 230 V, 50/60 Hz	W	3400	3200	—	
	Power consumption at 400 V, 50/60 Hz	W	—		7000	8000
Order no. universal oven U = universal oven N = natural convection F = forced air circulation plus = model with TwinDISPLAY			UN250plus	UN400plus	—	—
			UF250plus	UF400plus	UF1550plus	UF2500plus

Options	Order no.	250	400	1550	2500
Voltage 115 V, 50/60 Hz	X2	●	●	—	—
Temperature throttling, temperatures: +60, +70, +80, +95, +100, +120, +160, +180, +200 or +250 °C (please specify when ordering)	A8	●	●	●	●
Full-sight glass door (quadruple insulated glass) Temperature range up to max. +250 °C (requires option A8 subject to surcharge)	B0	●	●	—	—
Chamber modification for the application of reinforced stainless steel perforated shelves or stainless steel grids - includes replacement of standard grids with reinforced grids	K1	●	●	●	●
Supply-air filter (filtration efficiency of 80%) mounted at the base of the unit	R8	●	●	●	—
Interior lighting for observing the load	R0	●	●	●	●
Interior socket (can only be ordered with limited temperature range - max. +60 °C), ampacity 230 V, 2.2 A, can be switched off with the main switch, cannot be switched individually, moisture tight IP68 (requires option A8)	R3	●	●	●	●
Chamber nearly gastight - technical clarification required for combination with other options	K2	●	●	●	—
Chamber nearly gastight with the option of introducing/removing gas through 2 tubes with ball valves - technical clarification required for combination with other options	K3	●	●	●	—
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — left centre/centre	F0	●	●	●	●
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — left centre/top	F1	●	●	●	●
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — right centre/centre	F2	●	●	●	●
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — right centre/top	F3	●	●	●	●
Entry port with 23 mm clear diameter, can be closed with a flap, customisable position (please specify) — left	F4	●	●	●	●
Entry port with 23 mm clear diameter, can be closed with a flap, customisable position (please specify) — right	F5	●	●	●	●
Entry port with 23 mm clear diameter, can be closed with a flap, customisable position (please specify) — rear	F6	●	●	●	●
Entry port with 14 mm clear diameter, can be closed by flap, position in the back panel can be customised (please specify)	D6	●	●	●	●
Entry port with 38 mm clear diameter, can be closed by flap, position in the back panel can be customised (please specify)	F7	●	●	●	●
Entry port with 57 mm clear diameter, can be closed by flap, position in the back panel can be customised (please specify)	F8	●	●	●	●
Entry port with 100 mm clear diameter, can be closed by flap, in position in the back panel can be customised (please specify)	F9	●	●	●	●
4 - 20 mA current interface, sizes 250 to 1550: 0 to +310 °C = 4 - 20 mA, size 2500: 0 to +260 °C = 4 - 20 mA — Temperature controller actual value	V3	●	●	●	●
4 - 20 mA current interface — Temperature of a Pt100 that can be flexibly positioned in the chamber for external temperature monitoring	V6	●	●	●	●
Fan speed monitoring: with heating deactivation and alarm in the event of an error (Only for appliances with interior fan)	V4	●	●	●	—
Lockable door (safety lock with key)	B6	●	●	●	●
Potential-free contact (24 V/ 2 A) with built-in socket for error messages (ALARM, e.g. in case of mains failure, sensor fault, fuse)	H6	●	●	●	●
Potential-free contact (24 V/2 A) with built-in socket, for program-segment controlled signal transmission for freely selectable peripheral functions to be activated (e.g. activation of audible and visual signals, exhaust motors, fans, stirrers, etc.), max. 2 pieces with 1-ph. appliances — 2 contacts	H72	●	●	●	●
Process-dependent programmable door lock	D4	●	●	●	●
Door-open detection	V5	●	●	●	●
Pt100 temperature sensor, positioned flexibly in chamber or load, for local temperature measurement (a maximum of 3 additional sensors are possible). The measured temperatures will be indicated on the display and recorded in the integral data memory, and can be documented via the AtmoCONTROL software	H8	●	●	●	●
MobileALERT, notification by SMS in case of any error or alarm of the appliance (requires option H6)	C3	●	●	●	●
Castor frame (2-part), height 140 mm	R9	●	●	—	—

Accessory	250	400	1550	2500
Stainless steel grid, electropolished	E20167	E28891	—	
Reinforced stainless steel grid, electropolished, max. loading 60 kg, size 750 with guide bars and fastening screws (requires option K1). Please consider max. loading per appliance	—	E29766	B58238	B57167
Stainless steel perforated shelf	B00326	B29725	—	
Reinforced stainless steel perforated shelf, max. loading 60 kg, with guide bars and fastening screws (requires option K1). Please consider max. loading per appliance	—		B50539	B58583
Stainless steel slide-in drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1 for appliance sizes 450/750)	—	E29726	—	
Stainless steel bottom drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1 for appliance sizes 450/750)	—	B29722	—	
Set of height-adjustable feet (4 pcs)	B29768	—		
Plug-in tube extension (outer dia. 60.3 mm, inner dia. 57 mm), straight, for exhaust air removal (if necessary for connection by hose)	B29718			
Plug-in tube extension (outer dia. 60.3 mm, inner dia. 57 mm), angled, for exhaust air removal (if necessary for connection by hose)	B29719			
Flush-fit set (stainless steel frame covering gap between oven and wall opening) with air slots	B42116			
Flush-fit set (stainless steel frame covering gap between oven and wall opening) without air slots	B42117			

Accessories | Software and connectivity	250	400	1550	2500
5 m Ethernet connection cable for computer interface	E06189			
USB-Ethernet adapter	E06192			
USB User-ID stick (with user licence); oven-specific user licence (User-ID program) on memory stick, prevents undesirable tampering by unauthorised third parties. When reordering please specify appliance number	B33170			
FDA-compliant 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). Basic licence for the control of one appliance. Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1			
FDA integration of one additional appliance (up to max. 31 appliances) into a previously acquired FDA licence	FDAQ2			

Qualifications at Memmert factory	250	400	1550	2500
IQ/OQ/PQ checklist	D00124			
IQ/OQ document incl. empty chamber distribution measurement according to DIN 12880:2007-05 temperature value - freely selectable	D00127			
IQ/OQ document additional temperature value - freely selectable	D49121			

Calibrations at Memmert factory	250	400	1550	2500
Calibration temperature value - freely selectable	D00109			
Calibration three temperature values (+100 °C, +160 °C, +220 °C)	D00128			
DAkkS calibration according to method C (DKD-R 5-7) temperature value - freely selectable	E39696			
DAkkS calibration according to method A (DKD-R 5-7) temperature value - freely selectable	E57404			
DAkkS calibration according to method C/A (DKD-R 5-7) additional temperature value - freely selectable	E39697			

CONSTANT CLIMATE CHAMBERS HPPeco | CO_2

Chamber	‹ Stainless steel W.-St. 1.4301 (ASTM 304), deep drawn
Housing	‹ Patterned stainless steel, back panel made of galvanized steel plate, intuitively operated TwinDISPLAY (colour graphic display) with touch-screen
Double doors	‹ Sizes 110 to 1060: Fully insulated stainless steel doors with 2-point lock-ing (compression door lock) and inner glass door, sizes 1400 and 2200: Stainless steel doors with glass panel, fully heated inner glass panes, fitted in full-sight glass doors with 2-point locking (compression lock), sizes 750, 1060 and 1400 double-leaf, size 2200 triple-leaf
Connection	‹ Connection cable with Schuko plug
Setting up	‹ Sizes 110 and 260: 4 adjustable appliance feet, sizes 410 to 1060: mova-ble and lockable on castors, sizes 1400 and 2200: movable, lockable and height-adjustable on castors
Interfaces	Ethernet LAN / USB

Item description			110	260	410	750	1060	1400	2200
Stainless steel interior	Volume	L	108	256	384	749	1060	1360	2140
	Width	mm	560	640		1040		1250	1972
	Height	mm	480	800		1200		1450	
	Depth (minus 32 mm for fan)	mm	400	500		600	850	750	
	Max. number of grids	Number	5	9		14		28	42
	Max. loading per level	kg		20		30	60	30	
	Max. loading per appliance	kg	150		200			250	330
Patterned stainless steel housing	Width	mm	745	824		1224		1435	2157
	Height (incl. castors)	mm	864	1183		1720		1913	
	Depth (without door handle, door handle +56 mm + 111 mm Peltier element)	mm	555	655		755	1005	905	
Basic configuration	Stainless steel grid	Number			2			4	6
	Water tank including connection hose					●			
	Standard works calibration certificate				+37 °C, 5% CO_2				
Temperature	Operating temperature range without light, without humidity	°C			0 (at least 20 below room temperature) up to +70				
	Operating temperature range without light, with humidity	°C		+5 (at least 20 below room temperature) up to +70				+15 (min.10 below room temperature) to +60	
	Operating temperature range with light; without humidity or with humidity	°C			+15 up to +40			—	
	Setting temperature range without light, with humidity	°C			+5 up to +70			+15 up to +60	
	Setting temperature range with light, with humidity	°C			+5 up to +70			—	
	Setting temperature range with light, without humidity	°C			0 up to +70			—	
	Setting temperature range without light, without humidity	°C			0 up to +70				
	Adjustment precision	°C			0.1				
Humidity	Humidity setting range without light	% rh			10 up to 90			10 up to 80	
	Humidity setting range with light	% rh			10 up to 90			—	
	Adjustment precision	% rh			0.5				
CO_2	variation over time	% CO_2			± 0.2				
	Adjustment precision	% CO_2			0.1				
	Setting range	% CO_2			0 up to 20				
Further data	Power consumption at 230 V, 50/60 Hz	W	420	700		1400			2000
	Power consumption at 115 V, 50/60 Hz	W	420	700		1400			—
	Peltier elements in the back panel	Number	1	2		4			6
Order no. constant climate chambers HPPCeco			HPP110Ceco	HPP260Ceco	HPP410Ceco	HPP750Ceco	HPP1060Ceco	HPP1400Ceco	HPP2200Ceco

Options		Code	110	260	410	750	1060	1400	2200
Temperature throttling, temperature: +60 ºC		A8			●			—	
Chamber modification for the application of reinforced stainless steel perforated shelves or stainless steel grids (bearing rails mounted in the working chamber - standard for size 1060) - includes replacement of standard grids by reinforced grids		K1		—		●		—	
Light module cool white 6,500 K: LED light strips arranged on the side walls, 10 strips for model 110, 14 for model 260/410/750, programme-controlled dimming from 0 to 100% (in 1% increments), ramp programming in combination with temperature and humidity		T7			●			—	
Light module cool white 6500 K + warm white 2700 K: LED light strips - 10 strips for model 110, 14 for model 260/410/750 - (5 or 7 alternating cold white light strips and 5 or 7 warm white light strips) on the side walls, programme-controlled dimming from 0 to 100% (in 1% increments), ramp programming in combination with temperature and humidity		T8			●			—	
Light module warm white 2700 K: LED light strips on the side walls, 10 strips for model 110, 14 for model 260/410/750, programme-controlled dimming from 0 to 100% (in 1% increments), ramp programming in combination with temperature and humidity		T9			●			—	
Entry port with 23 mm clear diameter, can be closed, standard positions (F0 and F2 not for model size 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 with 23 mm clear diameter, can be closed, position can be customised (please specify)	left	F4				●			
	right	F5				●			
	rear	F6				●			
Entry port (silicone) with 40 mm clear diameter, moisture tight, can be closed with silicone stopper, position in the back panel can be customised (please specify)		F7			●			—	
Entry port (silicone) with 40 mm clear diameter, moisture tight, can be closed by silicone stopper, standard positions at the back		D8			●			—	
4 - 20 mA current interface	Temperature controller actual value (-10 to +80 ºC = 4 - 20 mA)	V3				●			
	CO$_2$ controller actual value (0 to 25% CO2 = 4 - 20 mA)	V9				●			
Compressed air drying (efficient dehumidification of the chamber by means of compressed air supply. Standard works calibration certificate (measuring point in centre of usable space) for +10 ºC with 10% rh		C9				●			
Lockable door (safety lock with key)	One lock	B6			●			—	
	Two locks (one lock per door)	B62			—			●	—
	Three locks (one lock per door)	B63				—			●
Potential-free contact (24 V/ 2 A) with built-in socket for error messages (ALARM, e.g. in case of mains failure, sensor fault, fuse)		H6				●			
Process-dependent programmable door lock	One	D4			●			—	
	Two (one per door)	D42			—			●	—
	Three (one per door)	D43				—			●
Door-open detection	One	V5			●			—	
	Two (one per door)	V52			—			●	—
	Three (one per door)	V53				—			●
MobileALERT, notification by SMS in case of any error or alarm of the appliance (requires option H6)		C3				●			
MobileALERT for 2 alarm messages; notification by SMS. Temperature and humidity alarm (requires option H6)		C4				●			
Castor frame (2-part), height 140 mm		R9	●				—		

Accessory	110	260	410	750	1060	1400	2200
Stainless steel grid, electropolished	E20165	E28891		E20182	B41251	B38955	
Reinforced stainless steel grid, electropolished, max. loading 60 kg, size 750 with guide bars and fastening screws (requires option K1). Please consider max. loading per appliance	E29767	E29766		B32190	B32550	—	
Stainless steel perforated shelf	B00325	B29725		B00328	—		
Reinforced stainless steel perforated shelf, max. loading 60 kg, with guide bars and fastening screws (requires option K1). Please consider max. loading per appliance	—			B32191	B32549	—	
Stainless steel slide-in drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1)	—			B32763			
Stainless steel slide-in drip tray, 15 mm rim with guide bars and fastening screws (may impair the spatial temperature distribution, requires option K1)	E02073	E29726		E02075	B32599	—	
Stainless steel bottom drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1)	—			B34055	—		
Stainless steel bottom drip tray, 15 mm rim (may impair the spatial temperature distribution, requires option K1)	B04359	B29722		B04362	B29769	—	
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 410, 750, 1060, 1400 and 2200	B49092			—			
Central water supply with filter cartridges for connection to the domestic water supply. Product information on request	ZWVR6						
Central water supply without filter cartridges for connection to the domestic water supply (only use demineralised/fully demineralised water with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7). Product information on request	ZWVR7						
Flush-fit set (stainless steel frame covering gap between oven and wall opening) with air slots	B29734	B29738	B42116	B29742		—	
Flush-fit set (stainless steel frame covering gap between oven and wall opening) without air slots	B29735	B29739	B42117	B29743		—	
Stacking set (4 pieces), for stacking appliances of the same size	B29744		—				
Set of height-adjustable feet (4 pcs)	B29768		—				
Sub frame, height-adjustable (height 500 mm)	B29749	B29751	—				
Sub frame, mobile (height 560 mm)	B29750	—					
Sub frame, height-adjustable (height 130 mm)	B33661	B33664	—				
External measuring device with measuring sensors for daylight and UV light. Product information on request	B04713					—	
External measuring device with additional detector head for temperature and humidity measurement. Product information on request	B04714						

Accessories | Software and connectivity	110	260	410	750	1060	1400	2200
USB-Ethernet adapter	E06192						
5 m Ethernet connection cable for computer interface	E06189						
USB User-ID stick (with user licence); oven-specific user licence (User-ID-program) on memory stick, prevents undesirable tampering by unauthorised third parties. When reordering please specify appliance number	B33170						
FDA-compliant 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). Basic licence for the control of one appliance. Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1						
Integration of additional appliances (up to max. 31 appliances) into a previously acquired FDA software licence	FDAQ2						

Qualifications at Memmert factory	110	260	410	750	1060	1400	2200
IQ/OQ/PQ checklist	D00124						
IQ/OQ document incl. empty chamber distribution measurement according to DIN 12880:2007-05 Temperature, humidity and CO2 value - freely selectable	D38897						
IQ/OQ document Additional temperature, humidity and CO2 value - freely selectable	D49123						

Qualifications at Memmert factory	110	260	410	750	1060	1400	2200
IQ/OQ document incl. empty chamber distribution measurement according to DIN 12880:2007-05 and measurement of light intensity Temperature and humidity value - freely selectable				D00137			
IQ/OQ document incl. measurement of light intensity Additional temperature and humidity value - freely selectable				D49125			

Calibrations at Memmert factory	110	260	410	750	1060	1400	2200
Calibration Temperature, humidity and CO2 value - freely selectable				D00131			
Calibration three CO2 values (5% CO2, 7% CO2, 10% CO2 at +37 °C)				D00106			
DAkkS calibration according to method C (DKD-R 5-7) Temperature and humidity value - freely selectable				E48847			
DAkkS calibration according to method A (DKD-R 5-7) Temperature and humidity value - freely selectable				E57406			
DAkkS calibration according to method C/A (DKD-R 5-7) Additional temperature and humidity value - freely selectable				E48848			

CLIMATE CHAMBERS ICH | CO_2

Chamber	‹ Stainless steel W.-St. 1.4301 (ASTM 304), deep drawn
Housing	‹ Patterned stainless steel, back panel made of galvanized steel plate, intuitively operated TwinDISPLAY (colour graphic display) with touch-screen
Double doors	‹ Fully insulated stainless steel on outside, glass on inside, double-leaf
Connection	‹ Connection cable with Schuko plug
Setting up	‹ Mobile and lockable on castors
Interfaces	Ethernet / LAN USB

Item description			110	260	750
Stainless steel interior	Volume	L	108	256	749
	Width	mm	560	640	1040
	Height	mm	480	800	1200
	Depth (minus 33 mm for fan)	mm	400	500	600
	Max. number of grids	Number	5	9	14
	Max. loading per level	kg	20	20	30
	Max. loading per appliance	kg	150	200	200
Patterned stainless steel housing	Width	mm	745	824	1224
	Height (incl. castors)	mm	1233	1552	1950
	Depth (without door handle, door handle +56 mm)	mm	585	685	785
Basic configuration	Stainless steel grid	Number		2	
	Entry port at rear, ø 40 mm moisture tight, with silicone stopper			●	
	Water tank including connection hose			●	
	CO_2 connection set, hose with connection coupling and hose clamp			●	
	Standard works calibration certificate			+37 °C, 5% CO_2	
Temperature	Operating temperature range without humidity	°C		-10 up to +60	
	Operating temperature range with humidity	°C		+10 up to +60	
	Setting temperature range	°C		-10 up to +60	
	Adjustment precision	°C		0.1	
Humidity	Humidity setting range	% rh		10 up to 80	
	Adjustment precision	% rh		0.5	
CO_2	variation over time	% CO_2		± 0.2	
	Adjustment precision	% CO_2		0.1	
	Setting range	% CO_2		0 up to 20	
Further data	Power consumption at 230 V, 50/60 Hz	W		1350	
Order no. climate chambers ICH C = climate chamber with CO_2 control			ICH110C	ICH260C	ICH750C

Options	Order no.	110	260	750
Voltage 115 V, 50/60 Hz	X2		●	
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — left centre/centre	F0		●	
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — left centre/top	F1		●	
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — right centre/top	F3		●	
Entry port with 38 mm clear diameter, can be closed by flap, position in the back panel can be customised (please specify)	F7		●	
4 - 20 mA current interface (0 to +310 °C = 4 - 20 mA) — Temperature controller actual value	V3		●	
4 - 20 mA current interface (0 to +310 °C = 4 - 20 mA) — Temperature of a Pt100 that can be flexibly positioned in the chamber for external temperature monitoring	V6		●	
4 - 20 mA current interface (0 to +310 °C = 4 - 20 mA) — Humidity controller actual value (0 to 100% rh = 4 - 20 mA)	V7		●	
4 - 20 mA current interface (0 to +310 °C = 4 - 20 mA) — CO_2 controller actual value (0 to 25% CO2 = 4 - 20 mA)	V9		●	
Fan speed monitoring: with heating deactivation and alarm in the event of an error	V4		●	
Compressed air drying (efficient dehumidification of the chamber by means of compressed air) - standard works calibration certificate (measuring point in centre of usable space) for +10 °C with 10% rh	C9		●	
Lockable door (safety lock with key)	B6		●	
Potential-free contact (24 V/ 2 A) with built-in socket for error messages (ALARM, e.g. in case of mains failure, sensor fault, fuse)	H6		●	
Door-open detection	V5		●	
MobileALERT, notification by SMS in case of any error or alarm of the appliance (requires option H6)	C3		●	

Accessory	110	260	750
Stainless steel grid, electropolished	E20165	E28891	E20182
Reinforced stainless steel grid, electropolished, max. loading 60 kg, size 750 with guide bars and fastening screws (requires option K1). Please consider max. loading per appliance	E29767	E29766	B32190
Stainless steel perforated shelf	B00325	B29725	B00328
Reinforced stainless steel perforated shelf, max. loading 60 kg, with guide bars and fastening screws (requires option K1). Please consider max. loading per appliance	—		B32191
Stainless steel slide-in drip tray, 15 mm rim with guide bars and fastening screws (may impair the spatial temperature distribution, requires option K1)	—		B32763
Stainless steel slide-in drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1)	E02073	E29726	E02075
Stainless steel slide-in drip tray, 15 mm rim with guide bars and fastening screws (may impair the spatial temperature distribution, requires option K1)			B34055
Stainless steel bottom drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1)	B04359	B29722	B04362
Central water supply with filter cartridges for connection to the domestic water supply. Product information on request	ZWVR6		
Central water supply without filter cartridges for connection to the domestic water supply (only use demineralised/fully demineralised water with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7). Product information on request	ZWVR7		
External measuring device with additional detector head for temperature and humidity measurement. Product information on request	B04714		

Accessories | Software and connectivity	110	260	750
USB-Ethernet adapter	E06192		
5 m Ethernet connection cable for computer interface	E06189		
USB User-ID stick (with user licence); oven-specific user licence (User-ID-program) on memory stick, prevents undesirable tampering by unauthorised third parties. When reordering please specify appliance number	B33170		
FDA-compliant 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). Basic licence for the control of one appliance. Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1		
Integration of additional appliances (up to max. 31 appliances) into a previously acquired FDA software licence	FDAQ2		

Qualifications at Memmert factory	110	260	750
IQ/OQ/PQ checklist		D00124	
IQ/OQ document incl. empty chamber distribution measurement according to DIN 12880:2007-05 Temperature, humidity and CO2 value - freely selectable		D38897	
IQ/OQ document Additional temperature, humidity and CO2 value - freely selectable		D49123	

Calibrations at Memmert factory	110	260	410
Calibration Temperature, humidity and CO2 value - freely selectable		D00131	
Calibration three CO2 values (5% CO2, 7% CO2, 10% CO2 at +37 °C)		D00106	
DAkkS calibration according to method C (DKD-R 5-7) Temperature and humidity value - freely selectable		E48847	
DAkkS calibration according to method A (DKD-R 5-7) Temperature and humidity value - freely selectable		E57406	
DAkkS calibration according to method C/A (DKD-R 5-7) Additional temperature and humidity value - freely selectable		E48848	

VACUUM OVENS | VOcool

Chamber	‹ Stainless steel interior, material 1.4404 (ASTM 316 L), hermetic seal via welding, with removable built-in side walls for cleaning, including thermoshelf guide bars, built-in ceiling to prevent ventilation turbulence
Housing	‹ Patterned stainless steel 1.4016 (ASTM 430), back panel made of galvanised steel plate 1.0037 (St37-2), intuitive TwinDISPLAY (colour graphic display) with touchscreen
Door	‹ Full-sight glass door, 15 mm thick safety glass with resilient mounting on inside, anti-shatter pane on outside
Connection	‹ Connection cable with Schuko plug
Setting up	‹ 4 adjustable appliance feet
Interfaces	Ethernet / LAN USB

Item description			29	49	101
Stainless steel interior	Volume	L	29	49	101
	Width	mm	385	385	545
	Height	mm	305	385	485
	Depth	mm	250	330	400
	Max. shelf levels for thermoshelves	Number		1	
	Max. loading per appliance	kg	40	60	
	Max. loading per thermoshelf	kg		20	
Patterned stainless steel housing	Width	mm	550	550	710
	Height	mm	607	687	767
	Depth (without door handle, door handle +38 mm)	mm	592	672	742
Basic configuration	Factory calibration certificate			●	
	Thermoshelf - aluminium anodised material W.-St. 3.3547 (ASTM B209) with integrated cooling circuit and large-area heating including local temperature sensing (Pt100, 4-wire circuit); individual overtemperature protection for each shelf MLOP (Multi-Level-Overtemperature-Control) and calibration certificate (calibration certificate only possible when ordering a new appliance)			1	
Temperature	Operating temperature range	°C	at least 5 above room temperature up to +90		
	Setting temperature range	°C	+5 up to +90		
	Adjustment precision	°C	0.1		
	Temperature variation over time (aluminium thermoshelf)	K	≤ ± 0.3		
Pressure (vacuum)	Pressure setting range	mbar	5 up to 1100		
	Permitted final vacuum	mbar	0.01		
	Maximum leakage rate	bar/h	0.01		
Further data	Power consumption at 230 V, 50/60 Hz	W	500	600	750
Order no. vacuum ovens			VO29cool	VO49cool	VO101cool

Options		Order no.	29	49	101
Premium module: comprises the inert gas changeover, further connectors for thermoshelves, 1 (size 29) or 2 (sizes 49/101), an additional thermoshelf (sizes 49/101)		T5		●	
4 - 20 mA current interface (requires option T5)	Temperature of a Pt100 that can be flexibly positioned in the chamber for external temperature monitoring	V6		●	
	Temperature actual value (0 to 100 °C = 4 - 20 mA)	V3		●	
Potential-free contact (24 V/2 A) with built-in socket for error messages (ALARM, e.g. in case of mains failure, sensor fault, fuse)		H6		●	
MobileALERT, notification by SMS in case of any error or alarm of the appliance (requires option H6)		C3		●	
MobileALERT for 2 alarm messages; notification by SMS. Temperature and vacuum alarm (requires option T5 and H6)		C4		●	

Accessory	29	49	101
Sub frame, tubular steel, black painted (for stacking unit consisting of vacuum oven and pump module, total height: 1650 mm, see "further data" and dimensioned drawings of oven)	E02030	E02031	E02037
Signal cable (3 m) for speed control and for optimising pump performance by activating flushing processes of the Memmert pump as required. Not required if a pump module with pump is ordered (or available)	B39410		
Noise-attenuating vacuum pump module without pump (exterior dimensions and material, see vacuum oven) with anti-vibration metal plate at the bottom to support the vacuum pump, incl. full-sight glass door. Socket, signal cable and connecting hose to the vacuum oven	PM29	PM49	PM101
Noise-attenuating vacuum pump module, as above, however with built-in pump, 230 V, 50/60 Hz	PMP29	PMP49	PMP101
Vacuum connecting hose (3 m) from oven to Memmert pump incl. optimised connection accessories (partially stainless steel). Not required if a pump module with pump is ordered or available	B04026		
Vacuum pump with chemically resistant 4x diaphragm, pump capacity at atm. pressures: approx. 50 Nl./min = 3.0 m³/h and autom. purge control, 230 V, 50/60 Hz. Max. guarantee period 2 years (requires accessories B39410 and B04026)	E07509		

Accessories | Software and connectivity	29	49	101
USB-Ethernet adapter	E06192		
5 m Ethernet connection cable for computer interface	E06189		
USB User-ID stick (with user licence); oven-specific user licence (User-ID-program) on memory stick, prevents undesirable tampering by unauthorised third parties. When reordering please specify appliance number	B33170		
FDA-compliant 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). Basic licence for the control of one appliance. Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1		
Integration of additional appliances (up to max. 31 appliances) into a previously acquired FDA software licence	FDAQ2		

Qualifications at Memmert factory	29	49	101
IQ/OQ/PQ checklist	D00124		
IQ/OQ document incl. empty chamber distribution measurement according to DIN 12880:2007-05 Temperature and pressure value - freely selectable	D00117		
IQ/OQ document Additional temperature and pressure value - freely selectable	D49126		

Calibrations at Memmert factory	29	49	101
Calibration Temperature and pressure value - freely selectable	D00116		

CLIMATE CHAMBER ICH | SPECIAL SIZE

Some users require an intermediate size of the ICH series. m360 designed the ICH450 and ICH450L precisely for this case. The smaller size means that only one light cartridge is installed in the special appliance compared to the ICH750L. A CO^2 control can also be installed after technical clarification.

Chamber	‹ Stainless steel W.-St. 1.4301 (ASTM 304), deep drawn
Housing	‹ Patterned stainless steel, back panel made of galvanized steel plate, intuitively operated TwinDISPLAY (colour graphic display) with touch-screen
Double doors	‹ Fully insulated stainless steel on outside, glass on inside, double-leaf
Connection	‹ Connection cable with Schuko plug
Setting up	‹ Mobile and lockable on castors
Interfaces	Ethernet LAN USB
Ordering information	‹ No second light cartridge is possible
	‹ ICH-C version on request

Item description			450	450L
Stainless steel interior	Volume	L	449	
	Width	mm	140	
	Height	mm	720	
	Depth (minus 39 mm for fan)	mm	600	
	Max. number of grids	Number	8	
	Max. loading per level	kg	30	
	Max. loading per appliance	kg	200	
Patterned stainless steel housing	Width	mm	1224	
	Height (incl. castors)	mm	1467	
	Depth (without door handle, door handle +56 mm)	mm	784	
Basic configuration	Stainless steel grid	Number	2	
	Entry port at rear, ø 40 mm moisture tight, with silicone stopper		●	
	Water tank including connection hose		●	
	Standard works calibration certificate		+10, +30 and +37 °C with 60% rh	
Temperature	Operating temperature range without humidity ICH	°C	-10 up to +60	—
	Operating temperature range ICH/ ICHL with humidity and/or light	°C	+10 up to +60	
	Operating temperature range ICHL without humidity	°C	-	0 up to +60
	Setting temperature range ICH/ ICHL	°C	-10 up to +60	0 up to +60
	Adjustment precision	°C	0.1	
Humidity	Humidity setting range	% rh	10 up to 80	
	Adjustment precision	% rh	0.5	
Light	Lighting unit (ICHL only) in accordance with ICH Q1B, option 2; can be switched separately via controller, one shelf; number of fluorescent lamps with cool white light: 4, light colour 6500 K; number of fluorescent lamps with UV lamps: 2, spectral range 320 to 400 mm; (daylight and UV light correspond to standard light D65)		—	●
Further data	Power consumption at 230 V, 50/60 Hz	W	1350	1550
Order no. climate chambers ICH = climate chamber ICH L = climate chamber with light			ICH450	ICH450L

Options	Order no.	450	450-L
Voltage 115 V, 50/60 Hz	X2		●
Chamber modification for the use of reinforced stainless steel perforated shelves or stainless steel grids (bearing rails mounted in the working chamber) - includes replacement of standard grids with reinforced grids	K1	●	—
Alternative light cartridges (replace the standard lighting; must be ordered together with the chamber); number of fluorescent lamps: 6, with cool white light (daylight: light colour 865, 6500 K; daylight corresponds to standard light D65) (ICH L only)	T81	—	●
Alternative light cartridges (replace the standard lighting; must be ordered together with the chamber); number of UV lamps: 6, in the spectral range 320 to 400 nm (UV light corresponds to standard light D65) (only ICHeco L/ ICH L)	T01	—	●
Interior socket (can only be ordered with limited temperature range - max. +60 ℃), ampacity 230 V, 2.2 A, can be switched off with the main switch, cannot be switched individually, moisture tight IP68 (requires option A8)	R3	●	
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — left centre/centre	F0	●	—
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — left centre/top	F1	●	—
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — right centre/top	F3	●	—
Entry port with 38 mm clear diameter, can be closed by flap, position in the back panel can be customised (please specify)	F7	●	—
4 - 20 mA current interface (0 to +310 ℃ = 4 - 20 mA) — Temperature controller actual value	V3	●	
4 - 20 mA current interface (0 to +310 ℃ = 4 - 20 mA) — Temperature of a Pt100 that can be flexibly positioned in the chamber for external temperature monitoring	V6	●	
4 - 20 mA current interface (0 to +310 ℃ = 4 - 20 mA) — Humidity controller actual value (0 to 100% rh = 4 - 20 mA)	V7	●	
Fan speed monitoring: with heating deactivation and alarm in the event of an error	V4	●	
Compressed air drying (efficient dehumidification of the chamber by means of compressed air) - standard works calibration certificate (measuring point in centre of usable space) for +10 ℃ with 10% rh	C9		
Lockable door (safety lock with key)	B6	●	
Potential-free contact (24 V/ 2 A) with built-in socket for error messages (ALARM, e.g. in case of mains failure, sensor fault, fuse)	H6	●	
Door-open detection	V5	●	
MobileALERT, notification by SMS in case of any error or alarm of the appliance (requires option H6)	C3	●	

Accessory	450	450L
Stainless steel grid, electropolished	E20182	
Reinforced stainless steel grid, electropolished, max. loading 60 kg, size 750 with guide bars and fastening screws (requires option K1). Please consider max. loading per appliance	B32190	
Reinforced stainless steel perforated shelf, max. loading 60 kg, with guide bars and fastening screws (requires option K1). Please consider max. loading per appliance	B32191	
Stainless steel slide-in drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1)	E02075	
Stainless steel slide-in drip tray, 15 mm rim with guide bars and fastening screws (may impair the spatial temperature distribution, requires option K1)	B32763	
Stainless steel bottom drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1)	B04362	
Stainless steel bottom drip tray, 15 mm rim (may impair the spatial temperature distribution, requires option K1)	B34055	
Central water supply with filter cartridges for connection to the domestic water supply. Product information on request	ZWVR6	
Central water supply without filter cartridges for connection to the domestic water supply (only use demineralised/fully demineralised water with a conductivity of 5 to 10 µS/cm and a pH value between 5 and 7). Product information on request	ZWVR7	
External measuring device with measuring sensors for daylight and UV light. Product information on request (ICH L only)	—	B04713
External measuring device with additional detector head for temperature and humidity measurement. Product information on request	B04714	

Accessories | Software and connectivity	450	450L
5 m Ethernet connection cable for computer interface	E06189	
USB-Ethernet adapter	E06192	
USB User-ID stick (with user licence); oven-specific user licence (User-ID-program) on memory stick, prevents undesirable tampering by unauthorised third parties. When reordering please specify appliance number (only for appliances with TwinDISPLAY)	B33170	

Accessories | Software and connectivity	450	450L
FDA-compliant 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). Basic licence for the control of one appliance (only for appliances with TwinDISPLAY). Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1	
Integration of one additional appliance (up to max. 31 units) into a previously acquired FDA software licence (only for appliances with TwinDISPLAY)	FDAQ2	

Qualifications at Memmert factory	450	450L
IQ/OQ/PQ checklist	D00124	
IQ/OQ document incl. empty chamber distribution measurement according to DIN 12880:2007-05 Temperature and humidity value - freely selectable	D00136	
IQ/OQ document Additional temperature and humidity value - freely selectable	D49122	
IQ/OQ document incl. empty chamber distribution measurement according to DIN 12880:2007-05 and measurement of light intensity Temperature and humidity value - freely selectable	—	D00137
IQ/OQ document incl. measurement of light intensity Additional temperature and humidity value - freely selectable	—	D49125

Calibrations at Memmert factory	110	410
Calibration Temperature and humidity value - freely selectable	D00105	
DAkkS calibration according to method C (DKD-R 5-7) Temperature and humidity value - freely selectable	E48847	
DAkkS calibration according to method A (DKD-R 5-7) Temperature and humidity value - freely selectable	E57406	
DAkkS calibration according to method C/A (DKD-R 5-7) Additional temperature and humidity value - freely selectable	E48848	

UNIVERSAL OVEN DISHWASHER | UF750dw

The dishwasher is a UF heating oven that conforms to the EN 50342 standard and is required by dishwasher manufacturers. In order to properly test the dishwashers, leftovers on plates, glasses, etc. are first dried according to very specific specifications in the Memmert Dishwasher UF750dw. The UF750dw dishwasher was recently redesigned by m360 and now corresponds to the current Memmert design.

Chamber	‹ Stainless steel W.-St. 1.4301 (ASTM 304) with all-round deep-drawn ribbing for the integration of the ceramic-metal encased large area heating
Housing	‹ Patterned stainless steel, back panel made of galvanized steel plate, intuitively operated TwinDISPLAY (colour graphic display) with touch-screen; fully insulated stainless steel door (double-leaf)
Fresh air	‹ Admixture of preheated fresh air through electronically adjustable exhaust air flap
Connection	‹ Connection cable with Schuko plug (CEE plug for 400 V)
Setting up	‹ Mobile and lockable on castors
Interfaces	Ethernet / LAN USB
Ordering information	‹ Only available with TwinDISPLAY

Item description				UF750dw
Stainless steel interior	Volume	Litres		749
	Chamber width	mm		1040
	Chamber height	mm		1200
	Chamber depth	mm		600
	Max. number of grids	Number		14
Patterned stainless steel housing	Appliance width	mm		1224
	Appliance height (on castors)	mm		1720
	Appliance depth (without door handle, door handle depth +56 mm)	mm		784
Basic configuration	Loading set consisting of 8 grids and 16 spacer strips - incl. 3 grid baskets for cups/glasses, made of stainless steel, material 1.4301 (ASTM 304)			●
	Factory calibration certificate 80 °C			●
Temperature	Operating temperature range (at room temperature +22 °C)	°C		+20 up to 100
	Setting temperature range	°C		+20 up to 100
Further data	Power consumption at 400 V and 3 x 230V w/o neutral, 50/60 Hz	W		4800
	Power consumption 230 V, 50/60 Hz	W		4800
Order no. universal oven DW UF750DW = universal oven dishwasher				UF750dw

Options	Order no.	UF750dw
Potential-free contact (24 V/ 2 A) with built-in socket for error messages (ALARM, e.g. in case of mains failure, sensor fault, fuse)	H6	●
Potential-free contact (24 V/2 A) with built-in socket, for program segment-controlled signal transmission, for free-selectable peripheral functions to be activated (e.g. activation of audible and visual signals from exhaust motors, fans, stirrers, etc.). Only for appliances with TwinDISPLAY	H72	●
Pt100 temperature sensor, positioned flexibly in chamber or load, for local temperature measurement (a maximum of 1 additional sensor is possible). The measured temperatures will be indicated on the display and recorded in the integral data memory, and can be documented via the AtmoCONTROL software	H8	●

Accessory	UF750dw
Plug-in tube extension - straight	B29718
Plug-in tube extension - angled	B29719
Additional load consisting of 8 grids and 6 place settings and 3 mesh baskets for cups/glasses, made of stainless steel, material 1.4301 (ASTM 304)	B51799

Accessories	Software and connectivity	UF750dw
5 m Ethernet connection cable for computer interface	E06189
USB-Ethernet adapter	E06192
USB User-ID stick (with user licence); oven-specific user licence (User-ID-program) on memory stick, prevents undesirable tampering by unauthorised third parties. When reordering please specify appliance number (only for appliances with TwinDISPLAY)	B33170
FDA-compliant 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). Basic licence for the control of one appliance (only for appliances with TwinDISPLAY). Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1
Integration of one additional appliance (up to max. 31 units) into a previously acquired FDA software licence (only for appliances with TwinDISPLAY)	FDAQ2

Qualifications at Memmert factory	UF750dw
IQ/OQ/PQ checklist	D00124
IQ/OQ document incl. empty chamber distribution measurement according to DIN 12880:2007-05 Temperature value - freely selectable	D00127
IQ/OQ document Additional temperature value - freely selectable	D49121

Calibrations at Memmert factory	UF750dw
Calibration Temperature value - freely selectable	D00109
Calibration Three temperature values (+37 °C, +52 °C, +70 °C)	D00126
DAkkS calibration according to method C (DKD-R 5-7) Temperature value - freely selectable	E39696
DAkkS calibration according to method A (DKD-R 5-7) Temperature value - freely selectable	E57404
DAkkS calibration according to method C/A (DKD-R 5-7) Additional temperature value - freely selectable	E39697

PLASTICINE OVEN | UFpl

Plasticine is a malleable material that can be used to model parts and is primarily used in the automotive industry. Thanks to the specially programmed heating, the m360 Plasticine oven UF tempers the material gently in order to obtain an ideal consistency for modelling. All electronic components in the electronics box of the appliance are also provided with a protective coating so that any gases escaping from the plasticine do not damage the circuit boards.

Product series	‹ UFplus
Product information	‹ Specially designed for the process of heating plasticine mass
	‹ Material-friendly heating-up times
	‹ Blocked ventilation openings
	‹ Protective coatings for electronic components
	‹ Modified software for the special requirements of the closed-loop control technology
Ordering information	‹ Temperature limit A8 to 80 °C included

Appliance size				260	450	750	1060
Stainless steel interior	Max. number of grids		Number	9	8	14	
	Max. load per grid		kg	60			
	Max. loading per appliance		kg	300			
Equipment	Stainless steel grids designed for plasticine application			2			
	Heavy-duty expansion (option K1)			—	●	●	●
	Door-open detection (option V5)			●	●	●	●
	Temperature limitation (option A8)			●	●	●	●
Temperature	Operating temperature range (at room temperature +22 °C)		°C	at least +10 above room temperature up to +80			
	Setting temperature range		°C	+20 up to +80			
Order no. Plasticine oven UF UF = universal oven with forced air circulation				UF260plplus	UF450plplus	UF750plplus	UF1060plplus

Options	Order no.	260	450	750	1060
Voltage 115 V, 50/60 Hz	X2	●	●	●	●
Extended overtemperature protection by additionally integrated Pt100 sensor for independent temperature monitoring for models with SingleDISPLAY	A6	●	●	●	●
Full-sight glass door (quadruple insulated glass) Temperature range up to max. +250 °C (requires option A8 subject to surcharge)	B0	●	●	●	●
Chamber nearly gastight with the option of introducing and removing gas through 2 tubes with ball valves - technical clarification required for combination with other options	K3	●	●	●	●
Entry port with 23 mm clear diameter, for inserting supply lines from the side, can be closed with a flap, standard positions — left centre/centre	F0	●	●	●	●
right centre/top ... left centre/top	F1	●	●	●	●
right centre/centre	F2	●	●	●	●
right centre/top	F3	●	●	●	●
Entry port with 23 mm clear diameter, can be closed, position can be customised (please specify) — left	F4	●	●	●	●
right	F5	●	●	●	●
rear	F6	●	●	●	●
Entry port with 14 mm clear diameter, can be closed by flap, position in the back panel can be customised (please specify)	D6	●	●	●	●
Entry port with 38 mm clear diameter, can be closed by flap, position in the back panel can be customised (please specify)	F7	●	●	●	●
Entry port with 57 mm clear diameter, can be closed by flap, position in the back panel can be customised (please specify; not possible for appliances with forced air circulation sizes 30-75)	F8	●	●	●	●
Entry port with 100 mm clear diameter, can be closed by flap, position in the back panel can be customised (please specify; not possible for appliances with forced air circulation size 75)	F9	●	●	●	●
4 - 20 mA current interface (0 to +310 °C = 4 - 20 mA) — Temperature controller actual value	V3	●	●	●	●
Temperature of a Pt100 that can be positioned anywhere in the chamber for external temperature monitoring (max. 3 sensors) -	V6	●	●	●	●
Fan speed monitoring: with heating deactivation and alarm in the event of an error (for UFplus)	V4	●	●	●	●
Lockable door (safety lock with key)	B6	●	●	●	●
Door hinged on the left	B8	●	—	—	—
Potential-free contact (24 V/ 2 A) with built-in socket for error messages (ALARM, e.g. in case of mains failure, sensor fault, fuse)	H6	●	●	●	●
Potential-free contact (24 V/2 A) with built-in socket, for program segment-controlled signal transmission, for freely selectable peripheral functions to be activated (e.g. activation of audible and visual signals from exhaust motors, fans, stirrers, etc.)	H72	●	●	●	●
Process-dependent programmable door lock (only for appliances with TwinDISPLAY)	D4	●	●	●	●
Pt100 temperature sensor, positioned flexibly in chamber or load, for local temperature measurement (a maximum of 1 additional sensor is possible). The measured temperatures will be indicated on the display and recorded in the integral data memory, and can be documented via the AtmoCONTROL software	H8	●	●	●	●
MobileALERT, notification by SMS in case of any error or alarm of the appliance (requires option H6)	C3	●	●	●	●
Castor frame (2-part), height 140 mm	R9	●	—	—	—
Supply-air filter (filtration efficiency 80%) mounted at the base of the appliance (for appliances with forced air circulation, castor frame R9 or sub frame is essential for sizes 30 - 260)	R8	●	●	●	●

Accessory	260	450	750	1060
Reinforced stainless steel grid, max. loading 60 kg, designed for plasticine application	B42444	B42447		B42450
Reinforced stainless steel perforated shelf, max. loading 60 kg, designed for plasticine application	B42445	B42448		B42451
Stainless steel slide-in drip tray, 15 mm rim with guide bars and fastening screws (may impair the spatial temperature distribution, requires option K1)	—	B32763		—
Stainless steel slide-in drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1 for appliance sizes 450/750)	E29726	E02075		B32599
Stainless steel bottom drip tray, 15 mm rim (may impair the spatial temperature distribution, requires option K1)	—	B34055		—
Stainless steel bottom drip tray, 15 mm rim (may impair the spatial temperature distribution, not in connection with option K1 for appliance sizes 450/750)	B29722	—		B29769
Plug-in tube extension (outer dia. 60.3 mm, inner dia. 57 mm), straight, for exhaust air removal (if necessary for connection by hose)	B29718			
Plug-in tube extension (outer dia. 60.3 mm, inner dia. 57 mm), angled, for exhaust air removal (if necessary for connection by hose)	B29719			
Flush-fit set (stainless steel frame covering gap between oven and wall opening) with air slots	B29738	B29740	B29742	—
Flush-fit set (stainless steel frame covering gap between oven and wall opening) without air slots	B29739	B29741	B29743	—
Set of height-adjustable feet (4 pcs)	B29768	—		
Sub frame, height-adjustable (size 30 to 55/75: height 600 mm, from size 110: height 500 mm)	B29751	B29753	—	
Sub frame, height-adjustable (height 130 mm)	B33664	—		

Accessories | Software and connectivity	260	450	750	1060
5 m Ethernet connection cable for computer interface	E06189			
USB-Ethernet adapter	E06192			
USB User-ID stick (with user licence); oven-specific user licence (User-ID-program) on memory stick, prevents undesirable tampering by unauthorised third parties. When reordering please specify appliance number (only for appliances with TwinDISPLAY)	B33170			
FDA-compliant 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). Basic licence for the control of one appliance (only for appliances with TwinDISPLAY). Respective IQ/OQ documents available in German and English language (without surcharge)	FDAQ1			
Integration of one additional appliance (up to max. 31 units) into a previously acquired FDA software licence (only for appliances with TwinDISPLAY)	FDAQ2			

Qualifications at Memmert factory	260	450	750	1060
IQ/OQ/PQ checklist	D00124			
IQ/OQ document incl. empty chamber distribution measurement according to DIN 12880:2007-05 Temperature value - freely selectable	D00127			
IQ/OQ document Additional temperature value - freely selectable	D49121			

Calibrations at Memmert factory	260	450	750	1060
Calibration Temperature value - freely selectable	D00109			
Calibration Three temperature values (+37 °C, +52 °C, +70 °C)	D00126			
DAkkS calibration according to method C (DKD-R 5-7) Temperature value - freely selectable	E39696			
DAkkS calibration according to method A (DKD-R 5-7) Temperature value - freely selectable	E57404			
DAkkS calibration according to method C/A (DKD-R 5-7) Additional temperature value - freely selectable	E39697			

EVERYTHING YOU NEED TO KNOW ABOUT YOUR ORDER

The List of Services serves to provide information for product adjustments that are implemented by m360 on a recurring basis. Due to the continuous development of m360's special solutions, we would like to point out that due to changes, completeness and latest information cannot always be guaranteed. An initial check of the technical feasibility is required for some of the solutions presented in this List of Services. Depending on the individual customer case and advice from m360, the solutions presented here may be implemented in a modified form and may be different to the product information.

In addition, we would like to point out that the sketches, drawings, constructions and ideas created by us during manufacturing and after the purchase of the product remain the property of Memmert and that duplication or distribution is prohibited.

Dimensions and weight ■ The weights and packing dimensions contained in the list are approximate values that may vary depending on the product variant and additional equipment.

Delivery terms ■ Within Germany, we deliver appliances with the appropriate accessories free of charge on the basis of our general terms and conditions. Please note that in the case of special configurations, different delivery conditions may have to be agreed individually.

Warranty ■ In addition to the statutory provisions on the 12-month warranty, new appliances from the m360 Modifications category also have a 2-year warranty from the invoice date for damage attributable to material and/or production errors. The 2-year warranty also applies to vacuum pumps and cooling units.

The legally defined warranty of 12 months according to the valid terms and conditions of Memmert GmbH + Co. KG applies to new appliances from the category m360 Innovations and spare parts.

Calibration certificates, transport damage, glass and wear parts (e.g. membranes, valves, sealing rings, etc.) as well as damage caused by accident, negligence, improper operation and neglected maintenance work (see operating manual) are excluded from the warranty. Maintenance costs and any additional costs incurred for on-site repairs or on-site removal or installation are not covered by the warranty.

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