

Ovens

**basic
excellent
perfect**

The New Generation

Mo Tu We Th Fr Sa Su

on -055 h

RAMP 03



2058 °C



250 °C



memmert



memmert

Experts in Thermostatics

Ovens

Your choice:

- three product groups
 - U** : Universal ovens
 - I** : Incubators
 - S** : Sterilisers (hot air)

- two air circulation modes
 - N** : natural air circulation (convection)
 - F** : forced air circulation (fan)

- three performance classes
 - B** : Basic
 - E** : Excellent
 - P** : Perfect

- Eight model sizes
100-800

- 68 standard models

Universal ovens

There are many reasons why this range, certainly the most successful Memmert range, has such universal application:

8 sizes (14 l to 749 l) ensure that there is never "too large" or "too small".

3 temperature ranges (Basic to 220 °C, Classes E/P to 250 °C, option to 300 °C), no thermal compromises.

3 performance classes offer every user the optimal price/performance ratio.

Choice of three safety levels offers optimised thermal security appropriate to the application.

Taylor-made ventilation technology, natural convection or enforced circulation by fan (Classes E/P: controlled or off), perfectly assisted by restrictor flap for adjustable admixture of preheated fresh air.

Universal ovens Classes E/P offer not only "intelligent" control technology but also unlimited programming and documentation facilities, including chip cards, interfaces, software and integral documentation memories.

Incubators

All-round heating spread over extremely large areas of these incubators fitted with double doors (glass inside, stainless steel outside) ensures exceptionally gentle heating of the load. This produces excellent temperature uniformity even without enforced air circulation (which may result in undesirable drying-out).

7 sizes, 3 performance classes and virtually unlimited documentation and programming facilities offer ideal solutions for the most diverse applications. By the way, on Class P incubators the chamber can be sterilised to prevent cross-contamination using the new Steri card(!).

Sterilisers

Our well-established hot air sterilisers produce (at 160 – 180°C) economical and safe sterilisation. Classes E/P sterilisers, with their "setpoint-dependent" function, guarantee minimum sterilisation time even with different loading conditions; together with process-controlled electromagnetic door lock and an optional fine filter every Class P steriliser represents the absolute peak of perfection.



e.g. **INE 400** double doors (glass inside, stainless steel outside)

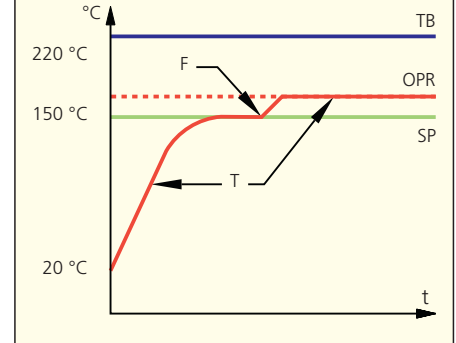
e.g. **UFE 500** "Full-sight-glass door" (against extra charge)

Basic technology: the new Class B

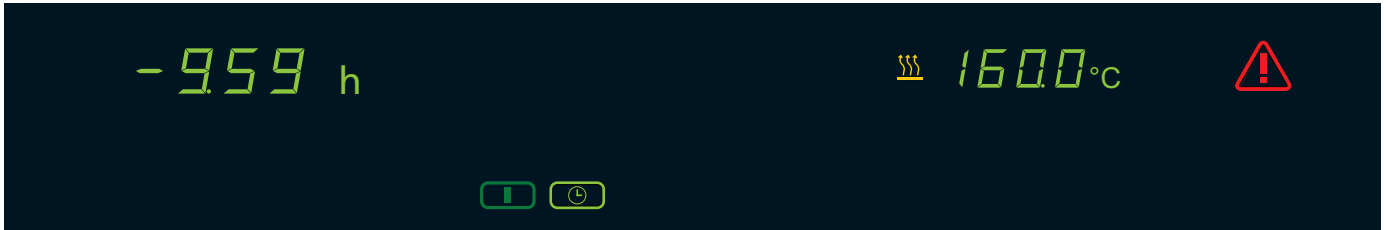
- Basic is our ideal performance class for thermal treatment at a single pre-selected temperature.
- Our "premium quality" philosophy applies also to the new Class B; there is no saving in material (stainless steel inside and out), in temperature control (electronic PID controller), in the sensor (PT 100 Class A), or in overtemperature protection (double).
- Optimum user friendliness is achieved through an integral digital timer (99 h 59 min), digital indication of temperature and time, and function

signals for stand-by, operating mode, heating, and error.

- Safety at the most economical: the two-level safety package with heating cut-off close to the setpoint using an extra relay and (for the worst case) a fixed cut-out set approx. 10 °C above maximum oven temperature. That is how Memmert set standards in this price class (see ill. right).
- Adjustment of preheated air supply by an air slide is another feature of Class B, preventing temperature shifts due to air changes.



T: actual running temperature
 SP: setpoint
 OPR: heater switched off on fault by extra relay (on UIS approx. 10 °C, on I approx. 3 °C above setpoint)
 F: fault (e.g. faulty TRIAC)
 TB: mech. temperature limiter (switch-off approx. 10 °C above T_{max})



Excellent fuzzy PID control: the new Class E

E stands for "excellent" rather over the top?

Let the facts speak for themselves.

Excellent means first of all:

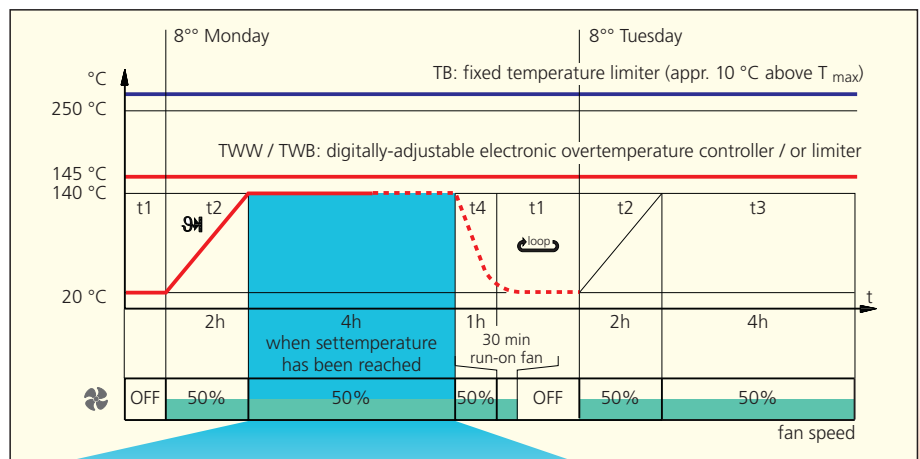
- Multifunctional fuzzy-supported microprocessor control; not a standard version but a true innovation by Memmert, developed specially for use in high-grade ovens. What does it achieve?
- A form of high-tech temperature control, comprising an all-over development concept of carefully matched design elements such as heating, sensor (duplicate), high-performance control, separate electronic overtemperature protection (a total of three protection levels!), control of enforced air circulation, combined with easy-to-use timing and additional (ramp) programming (4 segments locally on the oven, unlimited ramps through interface and software). All combined into a performance package which the professional would expect to find only in a higher price range.

- There is little chance of finding a similar promising solution since our "Excellent" controller in addition incorporates a ring memory for documentation at 1-minute intervals

which stores all relevant oven data over 6 months, fully protected against any manipulation.

Is there any better basis for documentation to GLP/GMP?

Programming of a temperature profile (4 ramps) is optimised by fan speed programme-specifically adjustable in 10% steps (one value for t2 to t4, with generally "OFF" on t1 "WAIT"), and by setpoint-dependent starting segments (9M t2/t3), as well as huge running windows (1 min – 999 h) available on each segment. Through the combination of a weekly programmer with the LOOP function it is possible to set up accurate programme starts on one or several weekdays (8.00).



Timer module

Real-time/weekly programmer
 Ramp timer (relative time)

4-segment temperature profile

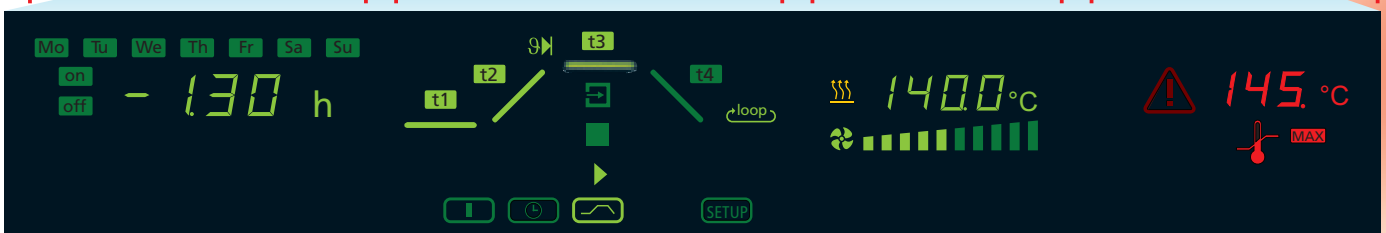
t1: delay, t2: heating up,
 t3: hold, t4: cooling down (delayed)

Temperature setpoint/act.

Heating function: on/off
 Fan speed

Overtemperature control

Max: alarm-overtemperature
 adj. controller (or limiter)

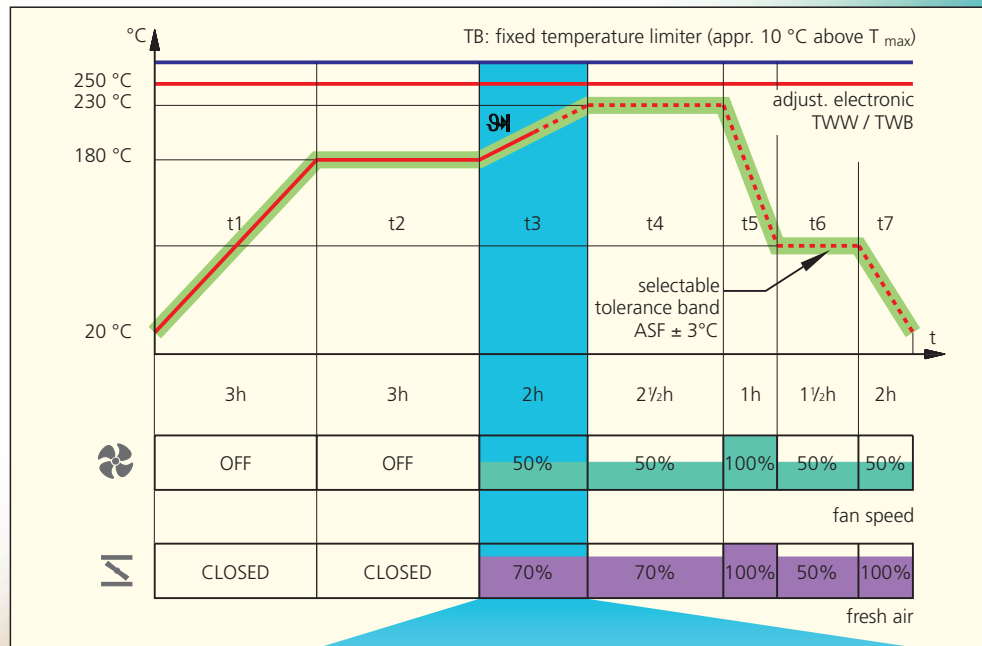


Perfection: The new Class P...

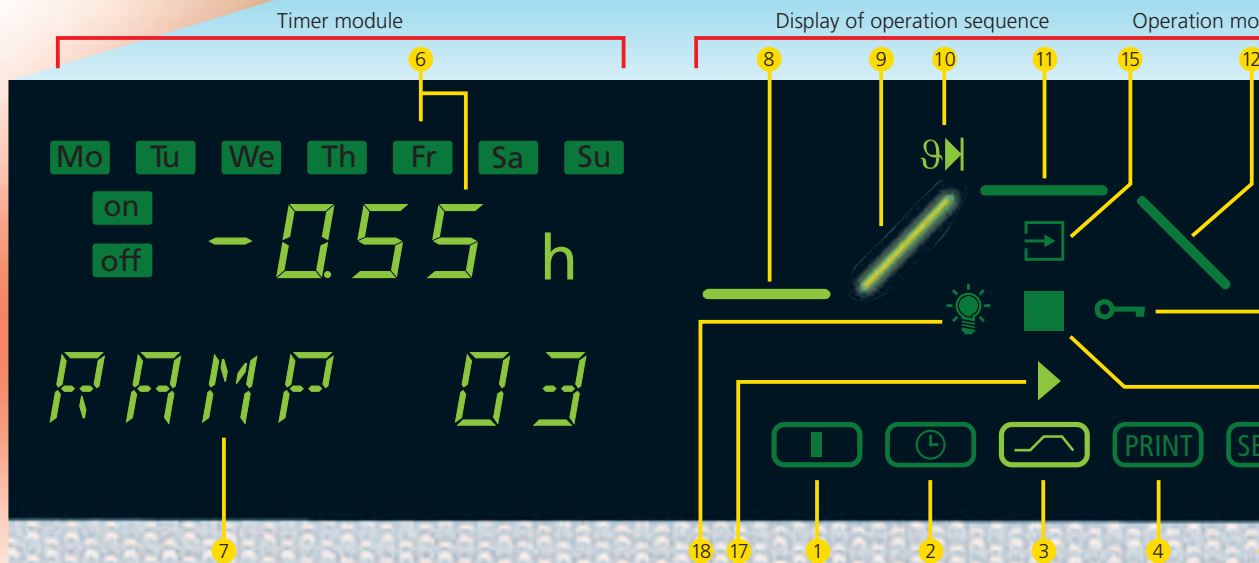
P stands for "perfect" ...for perfect performance of advanced thermal processes. Through innovation and a multitude of detailed optimisations, Class P ovens simply offer more:

- more control accuracy (U/S: +/- 0.25 °C, I: +/- 0.05 °C)
- more uniformity of temperature distribution inside the chamber, e.g. during heating-up (DUC: Dynamic Uniformity Control for ovens from 53 l capacity)
- more control functions (temperature, real time or segment-based relative time, fan, air flap)
- more thermal safety; in addition to the temperature limiter and a separate adjustable electronic temperature controller with over- and undertemperature protection it includes a new technical highlight in the form of ASF (Auto Safety Function). ASF activates a safety corridor (e.g. in programme operation) with an adjustable tolerance band (over/under-temperature).
- more transparency through the new broadband display with alpha-numerical text visualising all relevant parameters, settings and programme segment sequences.

With only a single push-turn button (main switch) and a "set" key you get all the facilities for convenient programming. You can select from five operating modes, then choose menu items, and finally input your desired parameters. In local programming on the oven (offline) you can set profiles with up to 40 ramps. All settings and programme steps are visualised for clarity. The operator is always "in the picture" and can watch how the programme runs, even on temperature programmes extending over weeks and months. In spite of these virtually unlimited possibilities, simple temperature control tasks (e.g. a single setpoint) do not involve a battle with complex technology; Class P ovens work on the same idea of maximum simplicity, on the principle: "switch on, set temperature, and go".



- 1 Normal operation
- 2 Weekly programmer with group function (e.g. weekdays)
- 3 Ramp timer, 1 min – 999 h per segment (residual time)
- 4 Printer (interface)
- 5 Configuration
- 6 Time indications
- 7 Text messages
- 8 Wait at programme start resp. hold
- 9 Heating up ramp
- 10 SP.WT. (next ramp only starts when setpoint is reached)

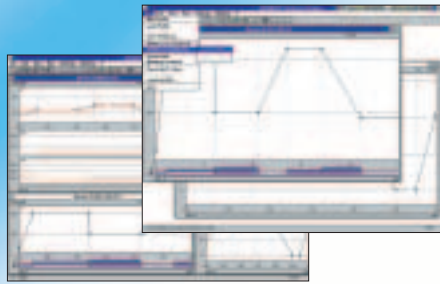


The new



... High-performance temperature technology

- more programming facilities
 - a) up to 40 ramps on the oven
 - b) up to 40 ramps by chip card
 - c) almost unlimited number of ramps via RS232 or RS485 interface, combined with the new user-friendly "Celsius 2005" software
- more applications through optional software conforming to FDA (extra charge)
- more protection against cross contamination on Class P incubators where the Steri card starts an automatic hot air sterilisation sequence for the chamber interior.
- more protection against undesired manipulation by unauthorised third parties thanks to an optional user authorisation I.D. card (extra charge)



- more documentation facilities protected against manipulation (GLP/GMP) with integral long-term ring memory in combination with the standard printer interface and additionally the RS232 serial interface for up to 8 ovens (alternatively RS485 for up to 16 ovens). In conjunction with the "Celsius 2005" software (standard) or the "Celsius 2005 FDA Edition" (extra charge) it offers an almost unlimited range of thermal process programme sequences including comprehensive documentation.



Convincing facts: technical specifications

Temperature

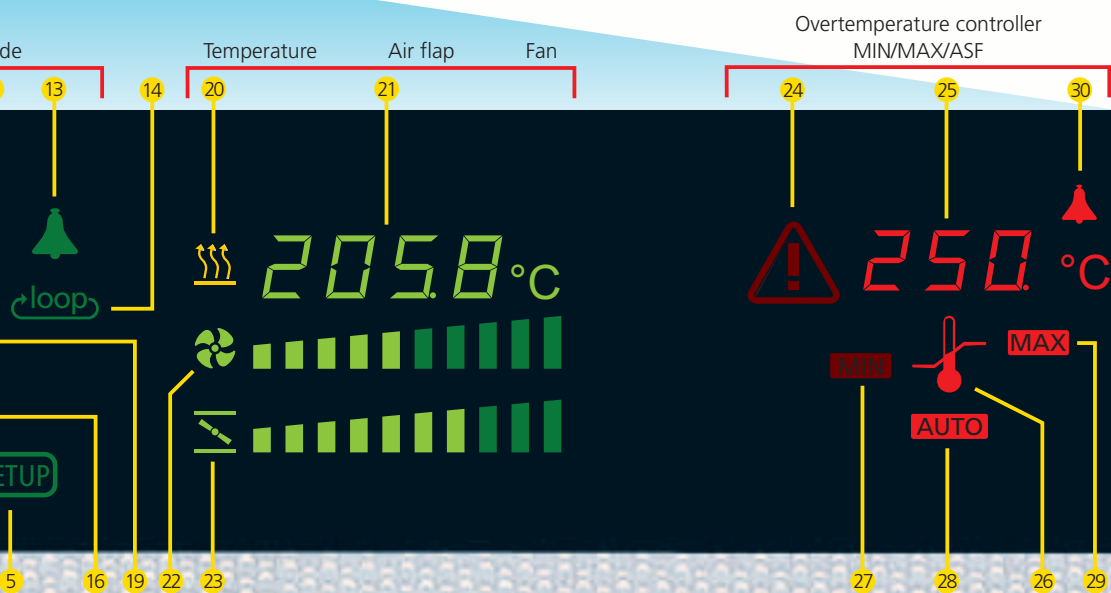
Temperature sensor PT 100 Class A in 4-wire circuit	
Uninterrupted operation on failure of one Pt with warning indication	
Automatic mutual sensor monitoring for temperature deviation between the two sensors with operation transfer	
Dynamic Uniformity Control (DUC), optimisation of temperature distribution, U/S from size 400 l from size 500	
Display resolution	U/S
*(U/S: 0.1 °C to 99.9 °C)	I
Setting accuracy working/overtemperature control	U/S
*(U/S: 0.1 °C to 99.9 °C)	I
Temperature deviation °C	U/S
U/S at 150 °C accuracy	≤
I at 37 °C	≤
uniformity	U/S
	≤

Monitor

Digital overtemperature monitor
Digital undertemperature monitor
Setpoint linked gliding automatic safety function (ASF)
Relay for reliable heating cut-off in case of fault
Mechanical overtemperature limiter with fixed switch-off temperature (TB)
Acoustic alarm on overtemperature

Timer functions

Programmable switch-off timer (hold time)
1 min to 99 h 59 min (residual time indicated)
Real-time/weekly programmer with group function (e.g. every weekday)
Ramp timer (1 min to 999 h per segment), 4 fixed ramps with SP:WT (hold time starts after setpoint is reached), LOOP
Ramp timer with 40 variable ramps, SP:WT, N HOLD, LOOP and END
Audible signal at programme end



- 11 Holding ramp
- 12 Cooling down ramp
- 13 Acoustic alarm after ramp timer end deactivated
- 14 Repeat function
- 15 Edit (ramp timer)
- 16 Stop (ramp timer)
- 17 Start (ramp timer)
- 18 Chamber light (extra charge)
- 19 Manipulation prevention through User ID card; (extra charge)
- 20 Heating on/off
- 21 Setpoint/ actual temperature
- 22 Fan speed (10% to 100%)
- 23 Air flap (in 10% steps)
- 24 Visual overlimit
- 25 Alarm adjustable
- 26 Temperature
- 27 Low alarm
- 28 Automatic (ASF)
- 29 High alarm
- 30 Acoustic overlimit

Generation

Technology at a glance

	Performance Class		
	B	E	P
	single	double	double
	•	•	•
100,	–	•	•
ors,	–	•	•
ion D,	–	–	•
°C	0.5	0.5*	0.1
°C	0.5	0.1	0.1
ontroller	0.5/–	0.5*/1	0.5*/1
°C	0.5	0.1	0.1
°C	0.5	0.1	0.1
+/-	0.5	0.25	0.25
+/-	0.2	0.05	0.05
+/-	2.7	2.2	2.2
+/-	0.7	0.7	0.7
	–	•	•
	–	–	•
	–	–	•
	•	•	•
d	•	•	•
	–	–	•
	•	–	–
nction	–	•	•
	–	•	–
EXT,	–	–	•
	–	–	•

eed
(steps)
o opening
(% steps)
alarm on
hit
limits (setpoints,
able overtem-
re controller)
perature limiter
arm limit
atic alarm limit
arm limit
ic alarm on
hit activated

	Performance Class		
	B	E	P
Air movement			
Air slide for adjustable air flap (admixture of fresh preheated air)	•	•	–
Air flap adjustable by servomotor	–	–	•
Control of fan speed in 10 % steps (Class P: segmentspecific)	–	•	•
Documentation			
Internal documentation memory 1024 kB as ring memory for all setpoints, actual values, errors, settings with real time and date; capacity approx. 6 months at 1 min intervals.	–	•	•
MEMory card XL with 32 kB memory (programming and documentation)	–	–	•
Printer interface for printing documentation data, suitable for all PCL3-compatible ink jet printers	–	–	•
"Celsius 2005" software for control and documentation, tested under Windows 98, NT 4, 2000, ME and XP	–	•	•
Setup			
Programming of maximum heater power	–	–	•
User-specific optimisation of temperature distribution through adjustable heating zones (U/S from size 400, I from size 500)	–	–	•
3-point calibration facility on the controller (without separate PC)	–	•	•
Language selection D / UK / E / F / I	–	–	•
Function selection of digital overtemperature protection TWW/TWB (continue/cut out)	–	–	•
Chip cards (option, extra charge)			
Additional MEMory card XL	–	–	•
Additional Steri card for incubator chamber sterilisation	–	–	•
User ID card, prevents undesired manipulation by unauthorised third parties	–	–	•
Interfaces (incl. software)			
RS232 /option RS485, no extra charge	–	•/–	•/•
Works calibration certificate			
U/S: 160 °C, I: 37 °C	–	•	•

You demand quality and reliability



This is why in 1994 we introduced a quality management system for all areas of the Company and have obtained certification to DIN EN ISO 9001.

In addition our quality assurance system for medical products is certified to DIN EN ISO 13485 and also our quality assurance for sterilisers according to Directive 93/42/EWG, Appendix II.

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

* in preparation about Dec. 04



Our other products, also with the new technology:

Perfect Class temperature control offers improved performance on the cooled incubator and vacuum oven range.



Vacuum ovens VO

With the new high-performance temperature control, our vacuum ovens, already positioned in the top technological segment, achieve a quite exceptional eminence.



Cooled Incubators IPP

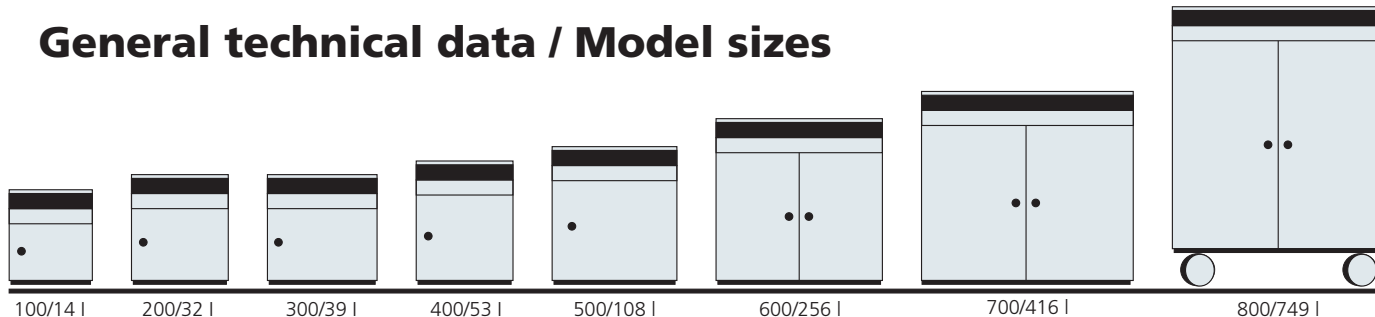
The Peltier-cooled incubators (4 sizes 32 l – 108 l), for use in the temperature range +5 °C to +60 °C, are technologically and ecologically a real highlight.



Cooled Incubators ICP

In the range 0 °C to 60 °C our compressor-cooled incubators series ICP (volume 53 l – 749 l) offer a unique degree of perfection in precision, programmability and documentation.

General technical data / Model sizes



General technical data		Model sizes	100	200	300	400	500	600 ¹⁾	700 ¹⁾	800 ¹⁾
<p>Stainless steel interior</p>	Volume	approx. l	14	32	39	53	108	256	416	749
	Width (clear dimensions)	(A) mm	320	400	480	400	560	800	1040	1040
<p>Stainless steel exterior</p>	Height (clear dimensions)	(B) mm	240	320	320	400	480	640	800	1200
	Depth (see side view left)	(C) mm	175	250	250	330	400	500	500	600
<p>Incubators with double doors (glass inside, stainless steel outside)</p> <p>Further data</p>	Support ribs for shelves/standard	number	2/1	3/1	3/1	4/2	5/2	7/2	9/2	14/2
	Width	(D) mm	470	550	630	550	710	950	1190	1190
<p>Incubators with double doors (glass inside, stainless steel outside)</p> <p>serial (Class E and P) and parallel (Class P) interface</p> <p>supply cable</p> <p>exhaust tube outer Ø 40 inner Ø 38</p> <p>dimensions see right</p> <p>* on models with fan the depth is reduced through the air duct in the middle of the back wall; up to size 600: 30 mm, size 700/800: 45 mm</p>	Height (size 800 with castors)	(E) mm	520	600	600	680	760	920	1080	1620
	Depth (without door handle, door handle 38 mm)	(F) mm	325	400	400	480	550	650	650	750
<p>Electrical load (during heating)</p> <p>Electrical supply 230 V (± 10%) 50/60 Hz ²⁾</p> <p>Net weight</p> <p>Gross weight in Triwall carton</p> <p>Packed dimensions (carton)</p>	Electrical load (during heating)	series U/S approx. W series I approx. W	600	1100	1200	1400	2000	2400	4000	4800
	Electrical supply 230 V (± 10%) 50/60 Hz ²⁾	series U/S series I	V V	230	230	230	230	230	230	400 3 ph N 230
<p>Order numbers</p>	Net weight	approx. kg	20	28	30	35	50	87	121	170
	Gross weight in Triwall carton	approx. kg	25	34	38	42	63	105	145	230
<p>U Universal Ovens</p> <p>I Incubators up to +70 °C³⁾</p> <p>S Sterilisers B: up to +220 °C³⁾ E/P: up to +250 °C³⁾ *Surcharge: up to 300 °C</p>	Packed dimensions (carton)	width approx. cm	58	67	75	67	82	110	134	132
	Packed dimensions (carton)	height approx. cm	62	70	70	78	97	114	131	184
<p>B - Basic</p> <p>Cost-saving basic technology for standard controlled-temperature applications at one (set-point) temperature. Digital (switch-off) timer 99 h 59 min. Double overtemperature protection. Admixture of pre-heated fresh air adjustable through air slide.</p>	Packed dimensions (carton)	depth approx. cm	44	54	54	63	67	84	85	91
	<p>UNB natural air circulation</p> <p>UFB enforced air circulation</p> <p>INB natural air circulation</p> <p>SNB natural air circulation</p> <p>SFB enforced air circulation</p>	<p>100</p> <p>200</p> <p>300</p> <p>400</p> <p>500</p> <p>600</p> <p>700</p> <p>800</p>								
<p>E - Excellent</p> <p>Excellent fuzzy PID control with two integral timers (running time 1 min to 999 h and 7-day-programme timer) and triple thermal protection, fan speed control. Admixture of pre-heated fresh air adjustable through air slide.</p> <p>RS 232</p>	<p>UNE natural air circulation</p> <p>UFE enforced air circulation</p> <p>INE natural air circulation</p> <p>SNE natural air circulation</p> <p>SFE enforced air circulation</p>	<p>200</p> <p>300</p> <p>400</p> <p>500</p> <p>600</p> <p>700</p> <p>800</p> <p>200</p> <p>300</p> <p>400</p> <p>500</p> <p>600</p> <p>700⁴⁾</p> <p>800⁴⁾</p>								
	<p>UNP natural air circulation</p> <p>UFP enforced air circulation</p> <p>INP natural air circulation</p> <p>SFP enforced air circulation</p>	<p>200</p> <p>300</p> <p>400</p> <p>500</p> <p>600</p> <p>700</p> <p>800</p> <p>200</p> <p>300</p> <p>400</p> <p>500</p> <p>600</p> <p>700⁴⁾</p> <p>800⁴⁾</p>								
<p>P - Perfect</p> <p>Perfected high-performance controlled-temperature technology with multi-functional fuzzy-supported process control and optimum facilities for programming, documentation and safety.</p> <p>RS 232 alternative RS 485 printer interface</p>	<p>UNP natural air circulation</p> <p>UFP enforced air circulation</p> <p>INP natural air circulation</p> <p>SFP enforced air circulation</p>	<p>200</p> <p>300</p> <p>400</p> <p>500</p> <p>600</p> <p>700</p> <p>800</p> <p>200</p> <p>300</p> <p>400</p> <p>500</p> <p>600</p> <p>700⁴⁾</p> <p>800⁴⁾</p>								

Subject to technical modifications

1) two-leaf doors
2) other voltages to special order

3) Control range starts from 5 °C, on ovens with fan from 10 °C above ambient temperature.

4) Sizes 700 - 800 with safety lock according to DIN EN 61010-1-043

Special Equipment, Accessories

for Class B-,E- and P

UNB / UFB / INB / SNB / SFB (only the green marked positions are possible)	Order No.
UNE / UFE / INE / SNE / SFE / UNP / UFP / INP / SFP	
Temperature range 300 °C for Universal Ovens (not available for ovens with glass door)	A0
Adjustable temperature limiter, protection Class 2, instead of adjustable temperature controller, protection Class 3.1 (no extra)	A5
Full-sight glass door ¹⁾ (triple insulating glass) for series UN/UF (extra)	B0
Stainless steel doors (can be used up to 300 °C) with triple insulating glass windows. Price for pair of doors (sizes 600, 700, 800)	B1
Door with lock (safety lock)	B6
(standard on size 700 + 800 sterilisers)	
Door hinged on the left ³⁾	B8
Perforated stainless steel shelf, non-tipping (standard version)	E0(x)
Stainless steel tray (non-perforated) 15 mm rim, non-tipping (affects temperature distribution)	E2(x)
Stackable stainless steel sterilising cassette (material 1.4301) with closing ports (open for sterilisation; closed for transport and storage). Extra port to measure temperature of load using Pt 100. Length 300 mm, width 150 mm, depth 75 mm (1/16 st. unit)	E5(x)
Entry port ³⁾ (standard position centre/centre or left centre/centre centre top) for introducing connections at the side, left centre top can be closed by flap, 23 mm clear diameter right centre/centre (please state location or order no. when ordering right centre top)	F0 F1 F2 F3
Other port ³⁾ (23 mm dia.) left	F4(x)
in special positions (please state location) right	F5(x)
	F6(x)
Other port ³⁾ (38 mm dia.) at the back (please state location)	F7(x)
Wall bracket (tubular frame for wall mounting)	G0
Flush-fit unit (stainless steel frame covering gap between oven and wall opening)	G1
Stacking version for 2 ovens of equal size (bottom oven modification)	G3
Subframe with height adjustment (height mm: size 500 and 600: 622, size 700: 572) ⁴⁾	G5
Subframe with castors (height mm: size 500 and 600: 622, size 700: 572)	G6
Connection cable for computer interface RS232 according to DIN 12 900-1	V6
Fresh-air filter ³⁾ – filtration efficiency 80% – for UF/SF and additional subframe (height 130 mm) for sizes 400-700	R8
Flexible Pt 100 ³⁾ for positioning in chamber or in load with socket according to NAMUR NE 28 for external temperature recording (load temp.)	H4
Interior lighting ³⁾ (up to size 600: 15 W, 700/800: 2 x 15 W)	R0
Interior nearly gastight (UN/IN) ²⁾⁺³⁾ for sizes 400 and 500	K2
Plug-in tube extension (l 88 mm, outer dia. 40 mm, inner dia. 38 mm) for exhaust air ducting (if necessary for connection to extraction system by hose)	G7
Works calibration certificate at three temperatures: 100 °C, 160 °C, 220 °C	Z2
Works calibration certificate (IN) for models at three temp.: 37 °C, 52 °C, 70 °C	Z4
IQ check list with works test data for oven as support for validation by customer	Q1
OQ check list including temperature distribution survey to DIN 12880 for 9 measuring points with works test data for oven as support for validation by customer	Q2

Upon ordering new units, please mention first the order no. of the individual unit and then of the related accessories, f. ex. UNE 400 R0. Do not miss to mention the model size and type for orders covering separate accessories.

Special equipment and accessories only available for
Basic class are marked in **green**
Excellent class are marked in **green and blue**

Accessories for Class B, E and P

Accessories for Class E and P

for Class P only

UNP / UFP / INP / SFP	Order No.															
Computer interface RS485 (for networking a maximum of 16 ovens) instead of interface RS232 (no extra charge)	V2															
Extra for software conforming to FDA „Celsius 2005 FDA Edition“ ⁶⁾ for each unit. 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):	Q3															
<ul style="list-style-type: none"> storage of setpoint profiles and documentation data protected against manipulation user identification with password protection control of access authorization of individual users through the administrator traceability through protected audit trail file protection against and registration of unauthorised access and manipulation attempts clear assignment of documentation data through linkage with serial number use of optional user ID card is recorded in the documentation data 																
Temperature profile write/read unit for PC, for writing to and reading from the chip card, up to 40 ramps	V3															
Chipcard, blank, formatted (32 kB MEMory Card XL for a maximum of 40 ramps)	V4															
Steri card (additional or as replacement) for automatic incubator chamber sterilisation cycle (not for sterilising the load!)	V9															
Oven-linked authorisation card (user ID card) – when (re)ordering please specify serial number – prevents undesired manipulation by unauthorised third parties	V1															
Connection cable (Centronics, 1,8 m) for parallel printer interface	V5															
Process-dependent electromagnetic door lock ³⁾	D4															
Extra for reinforced chamber for sizes 500 – 800 ³⁾⁺⁵⁾ Max. loading (total weight) in kg:	K1															
<table border="1"> <thead> <tr> <th>size</th> <th>from standard chamber</th> <th>to reinforced chamber</th> </tr> </thead> <tbody> <tr> <td>500</td> <td>60</td> <td>175</td> </tr> <tr> <td>600</td> <td>80</td> <td>300</td> </tr> <tr> <td>700</td> <td>100</td> <td>300</td> </tr> <tr> <td>800</td> <td>160</td> <td>300</td> </tr> </tbody> </table>	size	from standard chamber	to reinforced chamber	500	60	175	600	80	300	700	100	300	800	160	300	
size	from standard chamber	to reinforced chamber														
500	60	175														
600	80	300														
700	100	300														
800	160	300														
(includes replacement of 2 standard shelves by 2 reinforced shelves)																
Perforated stainless steel shelf ³⁾ , non-tipping, reinforced for heavy loads Max. loading (total weight) in kg:	E1(x)															
<table border="1"> <thead> <tr> <th>size</th> <th>from standard shelf</th> <th>to reinforced shelf</th> </tr> </thead> <tbody> <tr> <td>500</td> <td>30</td> <td>35</td> </tr> <tr> <td>600-800</td> <td>30</td> <td>60</td> </tr> </tbody> </table>	size	from standard shelf	to reinforced shelf	500	30	35	600-800	30	60							
size	from standard shelf	to reinforced shelf														
500	30	35														
600-800	30	60														
(involves reinforced chamber)																
Potential-free contact (24 V/2 A) with socket to NAMUR NE 28 for external monitoring (indicates when setpoint is reached)	H5															
Potential-free contact for combined fault message (e.g. supply failure, sensor fault, fuse)	H6															
Floating triple contact, for signal generation, controlled by programme segment (using PC), for a total of 3 freely selected functions to be activated (e.g. activation of audible and visual signals, exhaust motors, fans, stirrers etc.)	H7															

- Affects temp. distribution. Not available for 300 °C ovens.
- Tube(s) with ball valves for gas inlet/outlet Order No. K3 (no fresh/exhaust air by flap)
- For special equipment an advance payment of 20% of the complete price is required
- Height variable; minimum height specified

- Increase of total height: size 500-700 by 20 mm, size 800 by 45 mm
- requires Windows 2000 Professional or XP Professional (available Dec. 04)
- Please specify quantity required after the order number

Accessories only for Class P

Subject to technical modifications

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 Electrotechnical equipment for heating, medicine and laboratory

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