

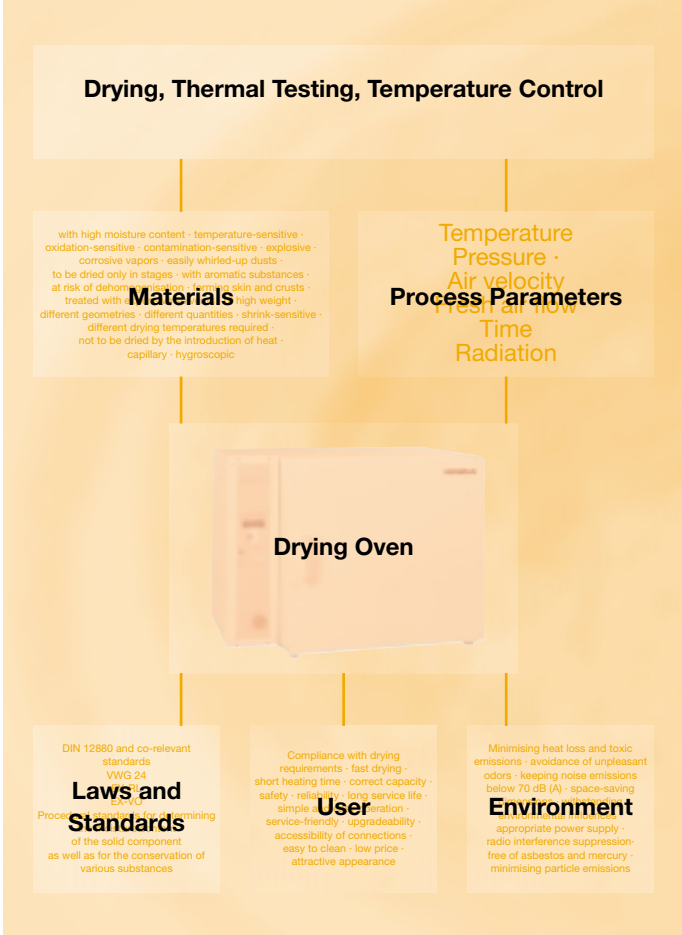
# Heraeus

## **SERIES 6000 HEATING AND DRYING OVENS**

The right choice for your application



**Heraeus® Series 6000 heating and drying ovens are tailored to meet your needs!**



### Asking a lot!

Heating and drying ovens are for everyday use in industrial and scientific laboratories. They are utilised in many drying processes and temperature control applications, and have to be capable of a wide variety of different uses. They also must be capable of seamless integration into a laboratory process.

Why choose Heraeus® Series 6000 heating and drying ovens? Because they offer compromise-free performance at the highest level, for every application. Because work with these extremely versatile ovens can be performed quickly, conveniently, safely and extremely reliably. And because the Heraeus® brand gives you the assurance of safety and quality.

### From a long tradition

The Heraeus® brand has become the standard for quality among customers all over the world – and for very good reasons. Heraeus® ovens are backed by knowledge and expertise gained through 100 years of experience – it is no wonder that today, as many as 100,000 Series 6000 heating and drying ovens are in operation around the globe. Reliable, safe, and efficient – typical of a Heraeus® brand product.

### Success by design

Standing still can be a step backwards. We are never satisfied with what we have achieved, but make efforts day in and day out towards increasing the perfection of our already high quality products.

The results are apparent in the latest equipment solutions manufactured in our own factories, every one tailored to the wide variety of individual needs and requirements of our customers – whether for standard or special applications.

# WHO OFFERS MORE?

## **Variety without limits**

The Heraeus® range of heating and drying ovens covers almost every application. Whether for drying, tempering or warm storage – a Heraeus® Series 6000 oven from Kendro Laboratory Products is at home in many types of laboratories and production plants. In the plastics, electronics, optical industries, in car manufacturing, chemical and pharmaceutical laboratories – the list is endless.

## **With you in mind**

We think along the same lines as you. Our heating and drying ovens are therefore designed using a well thought-out modular system to guarantee the highest level of user-orientated flexibility. Tailored, individual fittings meet all requirements – and to ensure that you will achieve maximum utilization, every unit is robust, service-friendly and has extremely low maintenance requirements.

## **Everything from one source**

In addition to heating and drying ovens, we offer you a comprehensive product range covering the widest variety of equipment to supply a complete laboratory. We can be your reliable partners at all times, from the development stage through quality-assured production right up to on-time delivery and installation. Including expert advice and unmatched customer support.



# STAR PERFORMERS IN HEATING AND DRYING

## Well thought-out concept

Series 6000 heating and drying ovens are modular across the entire range. Six models with capacities from 30 to 760 litres offer the widest sample capacities and volumes, and can be tailored to every application. Additional features include corrosion-protected, stainless steel internal casings and flexible internal layouts with tilt-proof shelves.

## For all requirements

When the requirement is for optimum temperature control accuracy and high work loads with fast work rates, Series "UT" forced-air circulation drying ovens provide the answer.

Series "T" drying ovens with natural convection are ideal for routine everyday laboratory and standard applications.

## High performance

These ovens reach temperatures up to 300 °C and are distinguished by extremely short heating and recovery times.

## Long term commitment

To ensure that your equipment provides years of reliable service, Kendro guarantees the long-term supply of spare parts.



Six models suitable for countless applications up to 300 °C.

6420



6060

6030

### **Meets DIN EN ISO 9001 specifications**

One of the most important factors for reliable results and a long equipment life is build quality. The selection of exclusively high quality materials and components, together with manufacture in an ISO-certified production plant, ensure that Heraeus® ovens are of above average quality.

### **Highly efficient**

Heraeus® Series 6000 heating and drying ovens are highly efficient. A low level of heat emission ensures low energy consumption, and the flexible internal layout allows optimum loading.

### **Optimum use of space**

Take a look at the easy-to-clean stainless-steel interior chamber: variable shelf arrangements and tilt-proof shelves adjustable to a 30 mm shelf pitch provide you with many alternatives for optimum use of the available space.

### **Whatever you want**

Every user has individual needs and requirements. Kendro meets these with a comprehensive and flexible range of options. For example: special temperature controllers, access ports, various volumes or individually designed built-in variations – we think along your lines and offer you what you need.

### **Everything you want – standard**

Do extras have to cost extra? Elsewhere maybe, but not with Kendro. This means that other manufacturers' "special solutions" form part of our standard range. For more information, talk with your local Kendro Representative.

# EXCELLENCE HAS MANY ASPECTS

## Safety first

Tilt-proof shelves with pull-out stops, connection facilities for fresh air and exhaust air ducts, rounded edges providing protection against injury – everything is safe and designed for practical use. Optimum insulation ensures low surface temperatures and low energy consumption.



## Temperature protection

Safety is paramount – the adjustable upper limit cut-out operating independently of the temperature controller provides reliable protection for personnel, samples, the environment and the oven.

## Time control

A selection of timers allows individual control of your oven over the course of a day or week.

## Customise your space

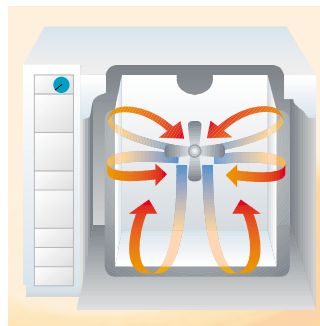
The shelves can be inserted with 30 mm spacing. The advantage: optimum flexibility and efficiency.





### Superior drying

The powerful fan (UT models) provides high fresh air flow rates, ensuring above average drying power and optimum temperature distribution. Special air vanes distribute the air inside the oven. The fan speed can be adjusted.



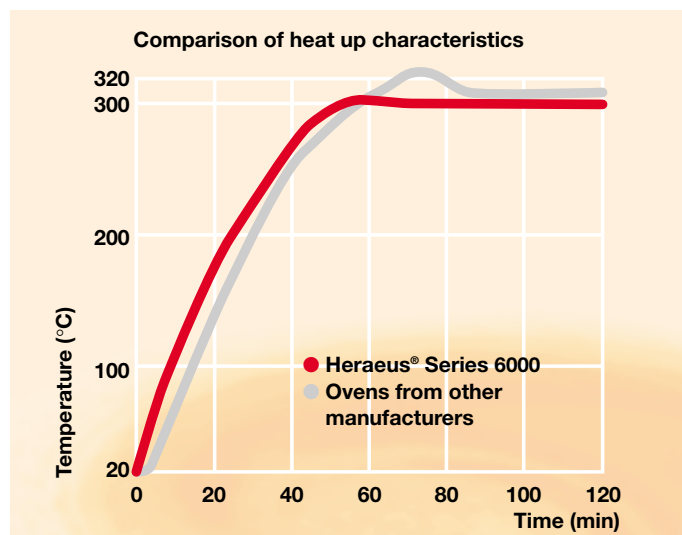
Air distribution

### Perfect documentation

All Series 6000 ovens are equipped with an RS 232 interface, enabling the temperature to be continuously logged.

### Precise temperature control

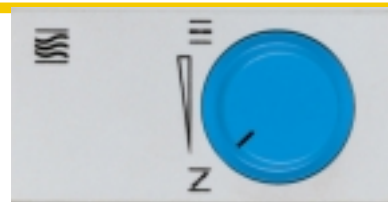
Series 6000 ovens guarantee short heating times with no overshoot on reaching the selected temperature (see graph).



# STANDARD – NOW INCLUDED

## Throttle valve

- Complete control of fresh and exhaust air regulation
- Removal of saturated air during drying processes
- Change in the rate of change of air

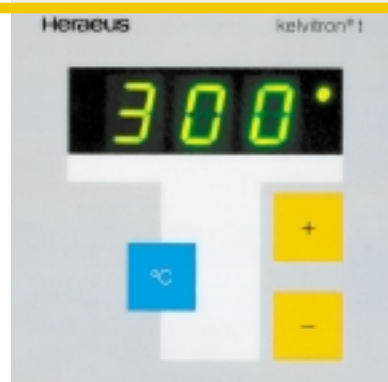


PROCESS  
CONTROL

## Kelvitron® t

Microprocessor temperature controller

- Accurate digital display of the set point or actual reading
- PD/PID control response for rapid heating, minimum overshoot and low control deviation
- Simple to operate
- Moisture protection with soft touch keypad

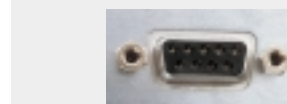


TEMPERATURE  
DOCUMENTATION

TEMPERATURE CONTROLLER

## RS 232 interface for Kelvitron® t (fitted on the rear panel)

- Documentation of existing temperatures
- Software available as an accessory



## Adjustable upper limit cut-out

Protective Class 2, switches off the equipment at an adjustable temperature limit independently of the temperature controller.

- Protection for user, sample, environment and oven



UPPER TEMPERATURE  
LIMIT PROTECTION

## 24-hour timer

for switching the oven on and off

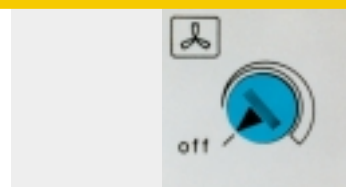
- 24 h timer (20 h at 60 Hz)
- Preheating the oven for the next day
- Timed shutdown of the heating and ventilation without manual intervention



TIMED  
OPERATION

## Speed setting for the air-circulation fan

- Speed continuously variable (20 – 100%)
- Air-circulation fan can be turned off (not on UT 6420 and UT 6760)
- Air velocity can be adjusted to requirements, e.g. for drying powders



AIR CIRCULA-  
TION MODE

## IT'S YOUR CHOICE

### Why pay extra for special requirements?

With Heraeus® Series 6000, many extras come as standard.

And if you need more – all Series 6000 options are available to you.

# OPTIONAL – WHEN YOU NEED MORE



## Temperature recorder for continuous recording of the internal temperature on pressure-sensitive paper

- No colour ribbon or ink needed

- Paper roll with 9.2 m length, sufficient for 14 days of continuous operation
- Recorder can be connected and disconnected



## Recording of sample temperature with display

for measuring the temperature directly at the sample using flexible Pt 100 temperature

sensor (to be selected separately, see page 12)

- Digital display
- Switching to recorder connection possible
- Introduction of the sensor into the oven through an access port or door seal.



## Connection facility for an external temperature recorder

for measuring with Pt 100 or NiCr-Ni temperature sensor, connection via

DIN 41524 plug connection

- Documentation of oven temperature
- Sensor permanently installed



## Thermicon® P temperature controller

Specification as for Kelvitron® t plus:

- Temperature program with max. 9 segments
- Integral timer for switching the drying oven on or off, up to maximum 99h 59 min.
- Sensor breakage indicator



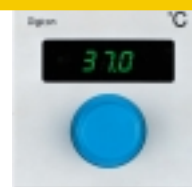
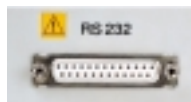
## Eurotherm 2404/P4 temperature controller

Microprocessor-controlled program controller with PID control response

- Accurate process control using four freely-stored temperature programs of 16 segments each

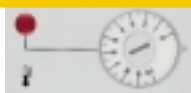
### Alternatively selectable RS 232 or RS 422/485 interface

- External temperature recording or control via PC
- Connection via Sub-D connector



## Digicon® S temperature controller with analog interface

- Accurate digital display of the set points or actual readings
- PD/PID control response for rapid heating, minimum overshoot and low control deviation
- External settings 0 ... 20 mA
- External temperature recording 0 ... 10 V
- Connection via DIN 41524 connector



## Adjustable temperature limit controller

Protective Class 3.1 (upper temperature limit protection), completely independent of the temperature controller

- Automatically takes over the temperature control if the upper temperature limit set by the operator is exceeded
- No interruption to operation caused by a temperature rise due to a control system malfunction



## Adjustable upper and lower temperature limit controller

Protective Class 3.3 (upper/lower temperature limit protection), independent of the temperature controller

- Automatically takes over the temperature control as soon as the temperature range set by the operator is exceeded in either direction.
- No interruption to operation caused by a temperature rise or fall due to a control system malfunction



## Daily program timer (24 h)

for automatic repetition of an on-off cycle over a period of one day

- Shortest switching interval 15 min.
- 90 hour power reserve in the event of a power failure



## Weekly program timer (168 h)

for automatic repetition of an on-off cycle over a period of seven days

- Shortest switching interval 2 hours
- 90 hour power reserve in the event of a power failure



## Digital weekly program timer

with digital display for free programming or for basic program, e.g. "On" at 06.00 hrs and "Off" at 22.00 hrs.

- Shortest switching interval 10 min.
- 16 hour power reserve in the event of a power failure

# PRACTICAL – USEFUL – MEANINGFUL

An extensive range of options and accessories enables Series 6000 models to be customized for almost any application:

## Monitor your progress

A 260 mm x 200 mm door window made of safety glass together with oven lighting provide you with a great view of your results. All door windows have an additional touch protection pane.

## Tight seal

The optional VITON® door seal provides greater chemical resistance to ensure your oven's performance even when using corrosive substances.



## Variable access ports

Variable positioning of access ports allows measuring leads or devices to be individually attached for rotary or displacement movements.

## Power connections

Do you want to introduce electricity or apply voltages simultaneously to several samples? A terminal box with 10 measuring terminals makes this possible.

## Ideal location

The easily assembled stacking frame structure, together with height-adjustable feet, make installation and set up of 60, 120 and 200 litre ovens straightforward.

## Eliminate solvent vapors and gases

An inner casing with conditional gas-tightness for 30 to 200 litre models largely reduces leakage during inert gas operation, preventing odors caused by escaping vapors and gases.

## Fresh air

Incoming fresh air can be efficiently cleaned using a fine fresh-air filter, class EU 12 according to DIN 24183 (filter class H12 according to EN 1822). Separation efficiency is 99.98% based on a 0.3 µm particle size.

## Fresh air fan

Forced-air circulation ovens can be fitted with an additional fresh-air fan to reduce process times for high loads.

# AT HOME IN MANY LABORATORIES



**Electrical/Electronics Industry**

The advantages of the Heraeus® 6000 Series heating and drying ovens are revealed every day in practical applications. Whether in industry or in research – the enormous range of uses can be seen in the widest variety of fields and industrial branches.



**Motor Industry**



**Biotechnology**



**Pharmaceutical Industry**



**Chemical Industry**



**Plastics Industry**

Testing the swelling resistance of various hose materials using standard test items



The product range of Continental AG – well known as a world-wide manufacturer of tires – also includes a large number of technical products such as drive units, profiles, hoses and transport belts. The main tasks of the laboratory for materials testing include quality assurance and material development including brake hoses, expansion hoses for power steering, fuel and coolant hoses as well as hose connections with fittings.



**Optics Industry**

# EXACTLY THE RIGHT CHOICE FOR ANY APPLICATION



## **Built-in drying ovens** **Heraeus® ET 6080, ET 6130** **and EUT 6130**

### **Saving space and time**

Heraeus® built-in drying ovens offer the most efficient, space-saving solution for best use of existing space – for example under laboratory tables and fume hoods.



## **Heating oven up to 500 °C** **Heraeus® WU 6100**

### **Precise and efficient**

Specifically in thermal testing of high quality materials, even slight temperature differences can have considerable effects on the test results. The WU 6100 forced-air circulation heating oven provides precise temperature distribution and exact maintenance of the temperature selected.



## **Paint-drying ovens** **Heraeus® LUT 6050/6050 F**

### **Safe results**

The Heraeus® forced-air circulation heating ovens LUT 6050/ LUT 6050 F have been specially developed for drying paint and other coating materials whose solvent in air can form explosive atmospheres. They comply with DIN EN 1539.



## **Fresh-air drying oven** **Heraeus® FT 6060**

### **Drying without risk**

In many heat treatment processes, flammable solvents are released, which when combined with air can form explosive mixtures. The FT 6060 fresh-air drying oven was developed for these applications. Compared with many other ovens on the market, it features unlimited acceptance of solvents. It thus offers a very high level of safety in routine applications.

## **Application**

Ideal for drying materials and for heating processes in temperatures from +5 °C to 220 °C.

Our solution for exacting heat treatment processes up to 500 °C.

LUT 6050 for use in the normal laboratory area (Degree of Protection IP 22).  
LUT 6050 F for use in plants with a risk of fire and which requires Degree of Protection IP 54 because of special location conditions.

The FT 6060 is highly suitable for all research and application laboratories as well as in production plants where flammable solvents of temperature classes T1, T2, T3 and T4 are used as well as explosion groups IIA and IIB.

## **Standard features**

- Microprocessor temperature controller Kelvitron® t
- Stainless steel inner casing
- Independent upper temperature limit protection
- Adjustable throttle valve
- Exhaust air connector for connecting an exhaust air extraction system
- 2 wire mesh shelves of chromium plated steel

- Microprocessor controlled program controller with temperature/time program
- Independent upper temperature limit protection
- Throttle valve to regulate air inflow
- Exhaust air connector with flue
- 2 wire mesh shelves

- Microprocessor temperature controller Kelvitron® t
- Independent upper temperature limit protection
- Visual and audible error signal
- Readjustable door
- Stainless steel drip tray
- 2 wire mesh shelves of chromium plated steel

- Microprocessor temperature controller
- Independent upper temperature limit protection
- Visual error signal
- Readjustable door
- Stainless steel drip tray
- 2 wire mesh shelves of chromium plated steel



### Corrosion-protected drying oven

#### Heraeus® UT 6060 AR

##### Protection against acids

The inner casing of the Heraeus® forced-air circulation drying oven UT 6060 AR is coated with a special corrosion-resistant coating, which provides reliable protection against acids and aggressive vapors. The benefits: comprehensive corrosion protection, a high level of operational safety, reproducible processes and long life.



### Test oven

#### Heraeus® UT 6050

##### The test specialist

The UT 6050 offers even temperature distribution over the entire temperature range, specifically for materials testing.



### Cable testing oven

#### Heraeus® TK 6060

##### For testing rubber and plastics

The TK 6060 is the ideal heat testing cabinet with natural ventilation for testing insulation and servings in cables and insulated conductors.



### Vacuum drying ovens

#### Heraeus® vacutherm 6000

##### Fast protective drying

These vacuum drying ovens provide protective drying of temperature-sensitive materials – an intelligent, modular system with three sizes and two heating versions that offers you many possibilities.

In chemical-analytical laboratories and everywhere where aggressive vapors and corrosive gases are released in the heat treatment of products.

Because of its even temperature distribution ( $\leq \pm 2K$ ), the UT 6050 test oven is used in the plastics as well as electrical and electronics industries. In its equipment and fittings, the UT 6050 complies with the standards DIN 50011 Part 12, Accuracy Class 2, DIN EN 60811, ASTM D2436-85 and various others.

It is used in laboratories in industry and research.

A wide range of applications where easily decomposable substances such as pharmaceutical agents, cosmetics, seasoning, aromatics or plastic granules have to be carefully dried or where oxidation must be avoided during heat treatment. As vacutherm VT-BL also suitable for flammable solvents.

- Microprocessor controlled temperature controller Kelvitron® t
- Independent upper temperature limit protection

- Microprocessor controlled temperature controller Kelvitron® t
- Adjustable upper temperature limit protection

- Microprocessor controlled PID controller Kelvitron® t
- Independent upper temperature limit protection
- Aluminium "Iso box" in the inner casing
- Access port in the door for measuring and calibration purposes

- PD/PID temperature controller
- Adjustable temperature limit protection, Protective Class 2
- Stainless steel inner casing
- Corrosion-protected vacuum fittings
- Analog pressure gauge
- Fast ventilation and fine dosage valve
- Inert gas connection

# ENSURING THAT EVERYTHING OPERATES AS IT SHOULD

## Calibration according to DIN ISO 9001

Perfect precision – careful calibration in our own factory laboratories, documented with the appropriate factory calibration certificate, guarantees all measuring and test results.

## Highly qualified

Anton Laukamp and his team provide expert individual support for your validation procedure. This is based on a perfected qualification plan, the standards and legislation relating to the ovens and the recommendations and directives for the field of application concerned.

The product-related qualification plan IQ/OQ, including detailed worksheets for in-house validation or performance of the complete IQ/OQ procedure by Kendro Service, represents our contribution to the quality assurance of your cGMP/GLP process requirements. We will be glad to tell you more in a personal discussion.



**Anton Laukamp**  
Manager of the Validation  
Department

**“We all guarantee that every product from Kendro is manufactured according to the established specifications and quality characteristics”.**

## Factory Calibration Certificate

## Cat. No.

|                                                                    |            |
|--------------------------------------------------------------------|------------|
| Calibration certificate 150 °C – centre of usable space            | 50057685   |
| Calibration at additional temperature (max. 2)                     | 50057686   |
| Certificate according to DIN 12880 (27 measuring points at 150 °C) | 50044952   |
| Certificate according to DIN 12880 at additional temperature       | 50057687   |
| Validation documentation/qualification plan IQ/OQ                  | on request |
| Qualification plan IQ/OQ service package                           | on request |

**Specifications and  
Documentation**

**Installation and  
Documentary Proof**

**Operational Test and  
Documentary Proof**



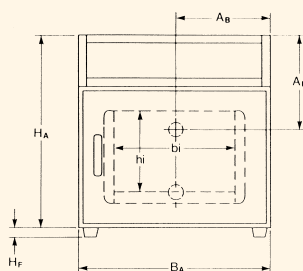
**DQ Design  
Qualification**

**IQ Installation  
Qualification**

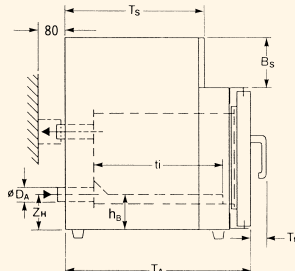
**OQ Operational  
Qualification**

**PQ Performance  
Qualification**

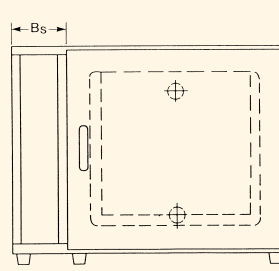
# TECHNICAL DRAWINGS



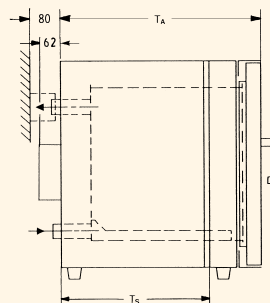
**Front view**  
Models 6030, 6420, 6760



**Side view**

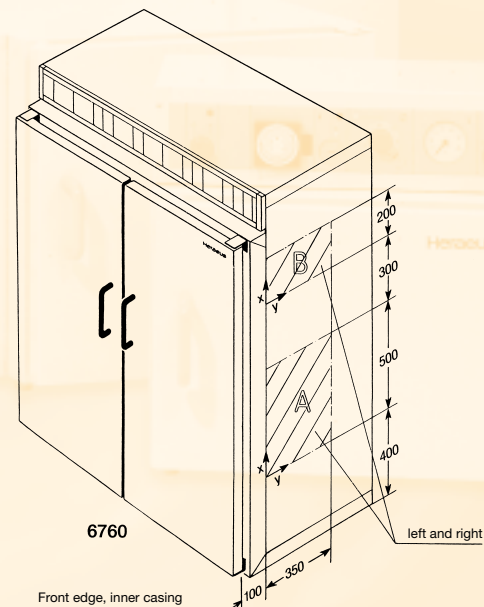
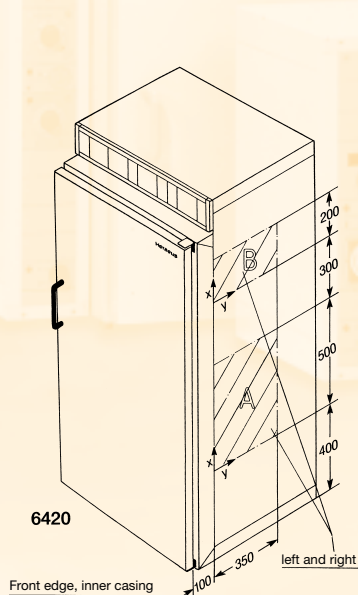
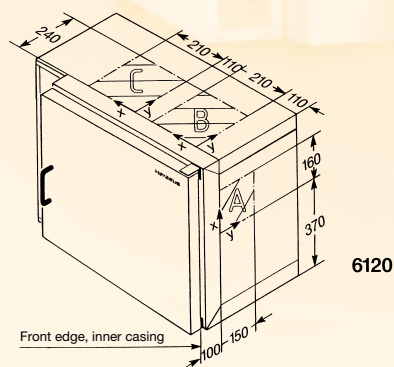
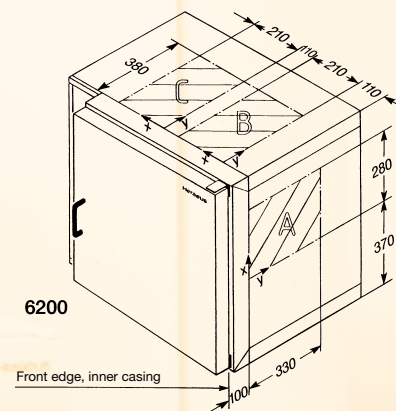
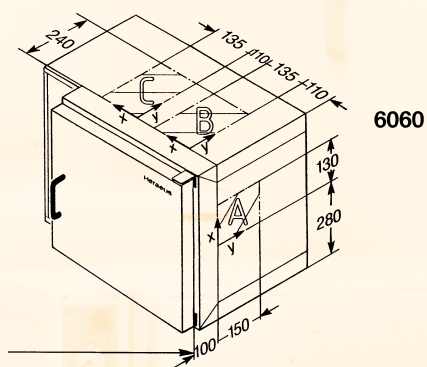
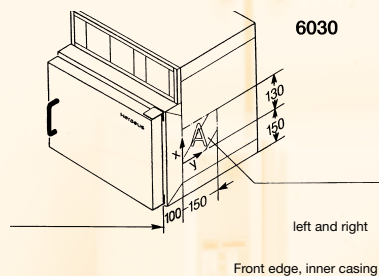


**Front view**  
Models 6060, 6120, 6200



**Side view**  
62 mm dimension for  
motor case (UT)

## POSSIBLE POSITIONING OF ACCESS PORT



# TECHNICAL DATA

| Ovens                                                           |                |                   | T 6030      | T/UT 6060 | T/UT 6120 | T/UT 6200 | T/UT 6420 | T/UT 6760 |
|-----------------------------------------------------------------|----------------|-------------------|-------------|-----------|-----------|-----------|-----------|-----------|
| <b>Dimensions</b>                                               |                |                   | see page 15 |           |           |           |           |           |
| <b>Outer casing</b>                                             | T <sub>A</sub> | mm                | 535         | 535       | 535       | 715       | 715       | 715       |
|                                                                 | B <sub>A</sub> | mm                | 552         | 744       | 895       | 895       | 744       | 1200      |
|                                                                 | H <sub>A</sub> | mm                | 552         | 552       | 696       | 816       | 1707      | 1707      |
| Height feet/roller (mm)                                         | H <sub>F</sub> | mm                | 24          | 24        | 24        | 24        | 106       | 106       |
| Depth, door handle (mm)                                         | T <sub>I</sub> | mm                | 50          | 50        | 50        | 50        | 50        | 50        |
| Width, control box (mm)                                         | B <sub>S</sub> | mm                | 149         | 149       | 149       | 149       | 149       | 149       |
| Depth, control box (mm)                                         | T <sub>S</sub> | mm                | 400         | 400       | 400       | 580       | 580       | 580       |
| <b>External diameter</b>                                        |                |                   |             |           |           |           |           |           |
| Fresh/exhaust air connections                                   | D <sub>A</sub> | mm                | 40          | 40        | 40        | 40        | 40        | 40        |
| <b>Inner casing</b>                                             |                |                   |             |           |           |           |           |           |
| Total volume                                                    | I              |                   | 30          | 57/52     | 107/94    | 196/180   | 409/375   | 751/689   |
| Vapour space                                                    | I              |                   | 43          | 76        | 136       | 240       | 489       | 861       |
| Internal dimensions                                             |                |                   | see page 15 |           |           |           |           |           |
|                                                                 | t <sub>i</sub> | mm                | 370         | 370/339   | 370/323   | 550/503   | 550/522   | 550/522   |
|                                                                 | b <sub>i</sub> | mm                | 352         | 403       | 554       | 554       | 544       | 1000      |
|                                                                 | h <sub>i</sub> | mm                | 231         | 380       | 524       | 644       | 1366/1319 | 1366/1319 |
|                                                                 | h <sub>B</sub> | mm                | 100         | 100       | 100       | 100       | 100       | 100       |
|                                                                 | A <sub>B</sub> | mm                | 276         | 302       | 377       | 377       | 372       | 600       |
|                                                                 | A <sub>H</sub> | mm                | 273         | 124       | 124       | 134       | 371       | 371       |
|                                                                 | Z <sub>H</sub> | mm                | 100         | 100       | 100       | 109       | 109       | 109       |
| <b>Shelves</b>                                                  |                |                   |             |           |           |           |           |           |
| Standard number                                                 |                |                   | 1           | 2         | 2         | 2         | 2         | 2         |
| Max. number possible                                            |                |                   | 4           | 9         | 14        | 18        | 39        | 39        |
| Dimensions, T-ovens                                             | WxD            | mm                | 336x365     | 387x365   | 538x365   | 538x545   | 528x541   | 984x541   |
| Dimensions, UT-ovens                                            | WxD            | mm                | –           | 387x335   | 538x318   | 538x498   | 528x513   | 984x513   |
| <b>Weights</b>                                                  |                |                   |             |           |           |           |           |           |
| Total permissible load                                          |                | kg                | 50          | 50        | 50        | 75        | 75        | 150       |
| Point load/shelf                                                |                | kg                | 15          | 15        | 15        | 20        | 20        | 20        |
| Distributed load/shelf                                          |                | kg                | 20          | 20        | 20        | 40        | 40        | 40        |
| Empty weight                                                    |                | kg                | 40          | 50/53     | 65/75     | 92/100    | 153/163   | 223/241   |
| <b>Individual window, No. of windows for door window option</b> |                |                   | –           | 1         | 1         | 2         | 3         | 6         |
| <b>Temperature</b>                                              |                |                   |             |           |           |           |           |           |
| Temperature range <sup>1)</sup>                                 |                | °C                | 300         | 300       | 300       | 300       | 300       | 300       |
| Spatial temperature deviation <sup>2)</sup>                     | at 70 °C       | ± °C              | 1.5         | 2/1       | 2/1       | 2/1       | 3/1.5     | 2/2       |
|                                                                 | at 150 °C      | ± °C              | 3           | 4/3       | 4/3       | 4/3       | 3.5/3     | 5/4       |
|                                                                 | at 300 °C      | ± °C              | 6           | 5/7       | 5/7       | 5/6       | 4/6       | 6/7       |
| Temp. deviation over time                                       |                | ± °C              | ≤ 0.5       | ≤ 0.5     | ≤ 0.5     | ≤ 0.5     | ≤ 0.5     | ≤ 0.5     |
| <b>Times</b>                                                    |                |                   |             |           |           |           |           |           |
| Heating-up times to 98 % of                                     | 70 °C          | min <sup>2)</sup> | 15          | 15/8      | 10/10     | 20/7      | 40/10     | 55/12     |
|                                                                 | 150 °C         | min <sup>2)</sup> | 30          | 25/18     | 20/20     | 30/23     | 35/30     | 55/30     |
|                                                                 | 300 °C         | min <sup>2)</sup> | 75          | 60/55     | 60/60     | 65/65     | 70/80     | 80/85     |
| <b>Recovery time<sup>3)</sup></b>                               |                |                   |             |           |           |           |           |           |
| to 98 % of the initial value                                    | at 70 °C       | min               | 2           | 4/1       | 4/1       | 5/2       | 6/1       | 3/1       |
|                                                                 | at 150 °C      | min               | 6           | 6/4       | 4/5       | 5/4       | 11/6      | 5/6       |
|                                                                 | at 300 °C      | min               | 10          | 12/8      | 9/11      | 10/11     | 18/10     | 8/11      |
| Air exchange max. no. of air exchanges 1/h (air flap open)      |                |                   |             |           |           |           |           |           |
|                                                                 | at 70 °C       | 1/h               | 14          | 7/36      | 19/32     | 11/29     | 11/20     | 10/18     |
|                                                                 | at 150 °C      | 1/h               | 34          | 12/35     | 21/29     | 15/28     | 16/20     | 14/18     |
|                                                                 | at 300 °C      | 1/h               | 33          | 14/33     | 25/27     | 21/20     | 21/21     | 12/12     |
| <b>Fresh air flow</b>                                           |                |                   |             |           |           |           |           |           |
| (air flap open)                                                 | at 70 °C       | m³/h              | 0.6         | 0.5/2.7   | 2.6/4.4   | 2.6/7.0   | 5.6/9.8   | 8.6/15.0  |
|                                                                 | at 150 °C      | m³/h              | 1.45        | 0.9/2.7   | 2.9/4.0   | 3.6/6.7   | 7.8/9.8   | 12.0/15.5 |
|                                                                 | at 300 °C      | m³/h              | 1.4         | 1.1/2.5   | 3.4/3.7   | 5.0/4.8   | 10.3/10.3 | 10.3/10.3 |
| <b>Max. flow of circulating air</b>                             |                |                   |             |           |           |           |           |           |
| (fan capacity) at 20 °C                                         |                | m³/h              | –           | 2.0       | 5.5       | 5.2       | 5.9       | 6.2       |
| <b>Electrical data</b>                                          |                |                   |             |           |           |           |           |           |
| Rated voltage (50/60 Hz) <sup>4)</sup>                          | V              |                   | 230~        | 230~      | 230~      | 230~      | 400.3~N   | 400.3~N   |
| Rated power                                                     | kW             |                   | 0.8         | 1.6/1.65  | 2.2/2.4   | 2.7/2.8   | 4.1/4.2   | 6.1/6.3   |
| Heat emission                                                   | at 70 °C       | Wh/h              | 55          | 75/185    | 85/265    | 120/325   | 210/420   | 280/520   |
|                                                                 | at 150 °C      | Wh/h              | 150         | 200/410   | 265/580   | 350/695   | 610/1100  | 890/1250  |
|                                                                 | at 300 °C      | Wh/h              | 415         | 550/900   | 780/1280  | 1000/1570 | 1800/2500 | 2600/3300 |

<sup>1)</sup> Control range T: electronic controller from T<sub>ambient</sub> +10 °C to 300 °C; control range UT: electronic controller from T<sub>ambient</sub> +20 °C to 300 °C

<sup>2)</sup> The values stated apply to the unloaded oven in conjunction with wire mesh trays (measurement according to DIN 12880, Part 2), air flap closed.

<sup>3)</sup> Door open for 60 s

<sup>4)</sup> Other voltages on request

# ORDERING INFORMATION

| STANDARD MODELS                                                                                                                      |  | Models  | 6030                   | 6060                   | 6120     | 6200     | 6420       | 6760       |
|--------------------------------------------------------------------------------------------------------------------------------------|--|---------|------------------------|------------------------|----------|----------|------------|------------|
| <b>Volume of work space (l)</b>                                                                                                      |  | T       | 30                     | 57                     | 107      | 196      | 409        | 751        |
| Order No.                                                                                                                            |  |         | 51013448               | 51015264               | 51015265 | 51015266 | 51013301   | 51015267   |
| <b>Volume of work space (l)</b>                                                                                                      |  | UT      | –                      | 52                     | 94       | 180      | 375        | 689        |
| Order No.                                                                                                                            |  |         | –                      | 51014393               | 51012499 | 51014889 | 51015272   | 51015273   |
| OPTIONS                                                                                                                              |  | Models  | 6030                   | 6060                   | 6120     | 6200     | 6420       | 6760       |
| <b>Temperature controller<sup>2)</sup></b>                                                                                           |  |         |                        |                        |          |          |            |            |
| Thermicon® P                                                                                                                         |  |         | 51900003               | 51900062               | 51900062 | 51900062 | 51900004   | 51900004   |
| Digicon® S with analog interface                                                                                                     |  |         | 51900048               | 51900049               | 51900049 | 51900049 | 51900050   | 51900050   |
| Eurotherm 2404/P4 with RS 232 interface                                                                                              |  |         | 51900297               | 51900297               | 51900297 | 51900297 | 51900297   | 51900297   |
| Eurotherm 2404/P4 with RS 422/485 interface                                                                                          |  |         | 51900298               | 51900298               | 51900298 | 51900298 | 51900298   | 51900298   |
| <b>Temperature regulation</b>                                                                                                        |  |         |                        |                        |          |          |            |            |
| Adjustable upper temperature limit controller                                                                                        |  |         | 51900167               | 51900168               | 51900168 | 51900168 | 51900167   | 51900167   |
| Adjustable upper and lower temperature limit controller                                                                              |  |         | 51900163 <sup>1)</sup> | 51900164 <sup>1)</sup> | 51900164 | 51900164 | 51900163   | 51900163   |
| <b>Temperature sensor<sup>2)</sup></b>                                                                                               |  |         |                        |                        |          |          |            |            |
| Temperature recorder                                                                                                                 |  |         | 51900290               | 51900290               | 51900290 | 51900290 | 51900290   | 51900290   |
| PT 100 – connection for external temperature recorder                                                                                |  |         | 51900009               | 51900010               | 51900010 | 51900010 | 51900009   | 51900009   |
| NiCr-Ni – connection for external temperature recorder                                                                               |  |         | 51900046               | 51900047               | 51900047 | 51900047 | 51900046   | 51900046   |
| Digital recording of sample temperature with display<br>(Please select sensor as accessory)                                          |  |         | 51900054               | 51900055               | 51900055 | 51900055 | 51900054   | 51900054   |
| <b>Timers<sup>2)</sup></b>                                                                                                           |  |         |                        |                        |          |          |            |            |
| Daily program timer                                                                                                                  |  |         | 51900159               | 51900160               | 51900160 | 51900160 | 51900159   | 51900159   |
| Weekly program timer                                                                                                                 |  |         | 51900007               | 51900008               | 51900008 | 51900008 | 51900007   | 51900007   |
| Digital weekly program timer                                                                                                         |  |         | 51900161               | 51900162               | 51900162 | 51900162 | 51900161   | 51900161   |
| <b>Fresh air fan</b>                                                                                                                 |  |         |                        |                        |          |          |            |            |
| with speed setting only for UT <sup>1)</sup>                                                                                         |  | UT      | –                      | 51900285               | 51900285 | 51900285 | 51900285   | 51900285   |
| <b>Inner casing version with conditional gas-tightness<sup>2)</sup></b>                                                              |  |         |                        |                        |          |          |            |            |
| with inert gas connection                                                                                                            |  | T       | 51900100               | 51900101               | 51900102 | 51900103 | on request | on request |
| with inert gas connection                                                                                                            |  | UT      | –                      | 51900106               | 51900107 | 51900108 | on request | on request |
| incl. throttle valve                                                                                                                 |  | T       | 51900261               | 51900262               | 51900263 | 51900264 | on request | on request |
| incl. throttle valve                                                                                                                 |  | UT      | –                      | 51900265               | 51900266 | 51900267 | on request | on request |
| <b>Door version</b>                                                                                                                  |  |         |                        |                        |          |          |            |            |
| Left-hinged door                                                                                                                     |  |         | 50027652               | 50027652               | 50027652 | 50027652 | –          | –          |
| Lockable door                                                                                                                        |  |         | 51900059               | 51900059               | 51900059 | 51900059 | 51900059   | 51900059   |
| Door window incl. internal lighting                                                                                                  |  | T       | –                      | 51900011               | 51900012 | 51900013 | 51900014   | 51900015   |
| Door window incl. internal lighting                                                                                                  |  | UT      | –                      | 51900016               | 51900017 | 51900018 | 51900019   | 51900020   |
| <b>Connection for central monitoring</b>                                                                                             |  |         | 51900063               | 51900064               | 51900064 | 51900064 | 51900063   | 51900063   |
| <sup>1)</sup> Not available for 100-127 V                                                                                            |  |         |                        |                        |          |          |            |            |
| <sup>2)</sup> Only one option from this group possible                                                                               |  |         |                        |                        |          |          |            |            |
| ACCESSORIES                                                                                                                          |  | Models  | 6030                   | 6060                   | 6120     | 6200     | 6420       | 6760       |
| <b>VITON® door seal</b>                                                                                                              |  |         | 50027746               | 50027747               | 50027748 | 50027752 | 50027789   | 50028180   |
| <b>Access ports</b>                                                                                                                  |  |         |                        |                        |          |          |            |            |
| (Standard access port in the middle of the appropriate inner casing wall. Other positions possible on request as in drawing Page 15) |  |         |                        |                        |          |          |            |            |
| Top <sup>1)</sup>                                                                                                                    |  | ø 23 mm | –                      | 50049348               | 50049348 | 50049348 | –          | –          |
| Right-hand side wall <sup>2)</sup>                                                                                                   |  | ø 18 mm | 50049349               | 50049349               | 50049349 | 50049349 | 50049349   | 50049349   |
| Left-hand side wall                                                                                                                  |  | ø 18 mm | 50049350               | –                      | –        | –        | 50049350   | 50049350   |
| Top                                                                                                                                  |  | ø 58 mm | –                      | 50049351               | 50049351 | 50049351 | –          | –          |
| Right-hand side wall <sup>2)</sup>                                                                                                   |  | ø 53 mm | 50049352               | 50049352               | 50049352 | 50049352 | 50049352   | 50049352   |
| Left-hand side wall                                                                                                                  |  | ø 53 mm | 50049353               | –                      | –        | –        | 50049353   | 50049353   |
| <b>Additional measurements for the location grid</b>                                                                                 |  |         |                        |                        |          |          |            |            |
| Work space, centre T/UT                                                                                                              |  | Y =     | 120                    | 120/105                | 120/97   | 210/187  | 210/196    | 210/196    |
| <b>Power access ports</b> with 10 measuring terminals<br>(Terminals located at the side)                                             |  |         | 50027659               | 50027659               | 50027659 | 50027659 | 50027659   | 50027659   |
| <b>Temp. sensor PT 100 for recording of sample temp.</b>                                                                             |  |         |                        |                        |          |          |            |            |
| Max. temperature 220 °C, flexible cable                                                                                              |  |         | 50034313               | 50034313               | 50034313 | 50034313 | 50034314   | 50034314   |
| Max. temperature 300 °C, rigid cable                                                                                                 |  |         | 50034315               | 50034315               | 50034315 | 50034315 | 50034316   | 50034316   |
| <b>Wire mesh shelf</b>                                                                                                               |  |         |                        |                        |          |          |            |            |
| with 2 shelf supports                                                                                                                |  | T       | 50029401               | 50029402               | 50029403 | 50029404 | 50029405   | 50029406   |
| with 2 shelf supports                                                                                                                |  | UT      | –                      | 50029413               | 50029414 | 50029415 | 50029416   | 50029417   |
| <b>Stainless steel perforated shelf</b>                                                                                              |  |         |                        |                        |          |          |            |            |
| with 2 shelf supports                                                                                                                |  | T       | 50029487               | 50029488               | 50029489 | 50029490 | 50029491   | 50029492   |
| with 2 shelf supports                                                                                                                |  | UT      | –                      | 50044614               | 50044615 | 50044616 | 50044617   | 50044618   |
| <b>Stacking frame</b>                                                                                                                |  |         | –                      | 50027660               | 50027661 | 50027661 | –          | –          |
| <b>Four height-adjustable feet</b>                                                                                                   |  |         | 50010923               | 50010923               | 50010923 | 50010923 | –          | –          |
| <b>Fine fresh-air filter</b>                                                                                                         |  |         |                        |                        |          |          |            |            |
| for connection to fresh-air connectors                                                                                               |  | T/UT    | 50030850               | 50030850               | 50030850 | 50030850 | 50030850   | 50030850   |
| for fresh-air fan                                                                                                                    |  | T/UT    | 50027662               | 50027662               | 50027662 | 50027662 | 50027662   | 50027662   |
| <b>Support frame</b>                                                                                                                 |  |         |                        |                        |          |          |            |            |
| 780 mm high                                                                                                                          |  | T/UT    | –                      | 50029890               | 50029596 | 50029597 | –          | –          |
| 300 mm high                                                                                                                          |  | T/UT    | –                      | 50031349               | 50034303 | 50031348 | –          | –          |

<sup>1)</sup> Access port displaced 100 mm away from the centre to the left

<sup>2)</sup> with T/UT 6060 and 6120 access ports displaced 50 mm upwards from the centre

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