

B 15 COMPACT INCUBATOR

Small, capacious and high-performance

Due to its minimum space requirements and revolutionary ergonomic design, the general purpose Heraeus® B 15 Compact Incubator from Kendro is an absolute must for all laboratories.



Advantages:

- Extremely low space requirements
- Ideal for a variety of applications
- Very reasonably priced
- Sophisticated design for high safety

◀ The high-performance B 15 Compact Incubator takes up very little space.

Wide range of applications

The Heraeus® B 15 Compact Incubator is ideal for a wide range of incubating, tempering, thermal storage and drying applications:

- in medical diagnostics for identifying bacteria, e.g. biochemical differentiation
- for testing the sensitivity of micro-organisms to antibiotics/chemotherapeutic substances, e.g. MIC test
- in genetics for mutagenicity tests, e.g. Ames test
- for bacteriological and serological tests
- for enzymatic tests, e.g. restriction analysis
- in the hygiene industry, e.g. food and environmental hygiene

● for quality control of raw materials and finished products in the food, pharmaceutical and cosmetic industries

- for tempering infusion- and rinsing-liquids, contrast media and cell cultivation media
- for thermal storage of culture dishes and media
- for drying, e.g. dental instruments

High volume and high performance

The B 15 Compact Incubator offers a total volume of 15 litres for a wide variety of samples. It operates at temperatures from 5 °C above ambient to 50 °C and is freely adjustable. The temperature is displayed in increments of 0.2 °C. A sophisticated air circulation system

ensures outstanding heat distribution and minimizes the drying out of samples.

Easy to operate

With its very small footprint (340 x 431 mm; 13.4 x 17.0 inches) the B 15 can be set up directly on any counter top or work bench. It is very narrow in design, and the cover is opened vertically. A removable insertion plate with a grip recess, designed to handle loads of up to 5 kg, ensures easy loading and unloading of the unit.

B 15 comes standard with either a toned cover for observation of the samples or with painted cover to avoid incidence of light to the sample.

Designed with safety in mind

The B 15 Compact Incubator is made of plastic that can be sterilised with standard disinfectants. A small opening on the housing can be used to accommodate cables for electrical devices placed inside the incubator.

A reservoir for collecting spilled liquids is provided for additional safety.

The B 15 is equipped with a resettable over temperature protection system in compliance with IEC 1010, Class 1.



B 15 Compact Incubator:
the ideal solution for a wide range of applications, such as microbiological testing, ...

... and tempering media.

ACCESSORIES

Convenient stacking components

Kendro offers new stacking components for microbiological tests using very little space. They are useful for space-saving incubating of immersion testers. Multiple stackable every single component accepts 6 immersion testers.

Just give us a call.

We will be glad to give you more information.

TECHNICAL DATA

Exterior dimensions	(W/H/D)	mm	340/270/431
		inch	13.4/10.6/17.0
Interior dimensions	(W/H/D)	mm	270/205/288
		inch	10.6/8.1/11.3
Total volume		l	15
Insertion plate			1
Temperature range		°C	T _A +5 ¹⁾ ... 50
Temperature deviation over time²⁾		K	< ± 0.2
Spatial temperature deviation^{2) 3)}		K	< ± 0.8
Net weight		kg	5.5
Rated voltage/rated frequency		V~, Hz	230, 50/60
Rated power		kW	0.2

1) T_A = Ambient temperature

2) At a room temperature of 20 °C and work chamber temperature of 37 °C

3) Measured in filled petri dishes, 6 stacks of 6 dishes each; top and bottom dish measured

ORDER NUMBERS

Type	Order no.
B 15 Compact Incubator with tinted, transparent cover	50043619
Option	Order no.
B 15 Compact Incubator with painted, opaque cover	50044698

Your Sales Contact

For Ordering or Technical Information

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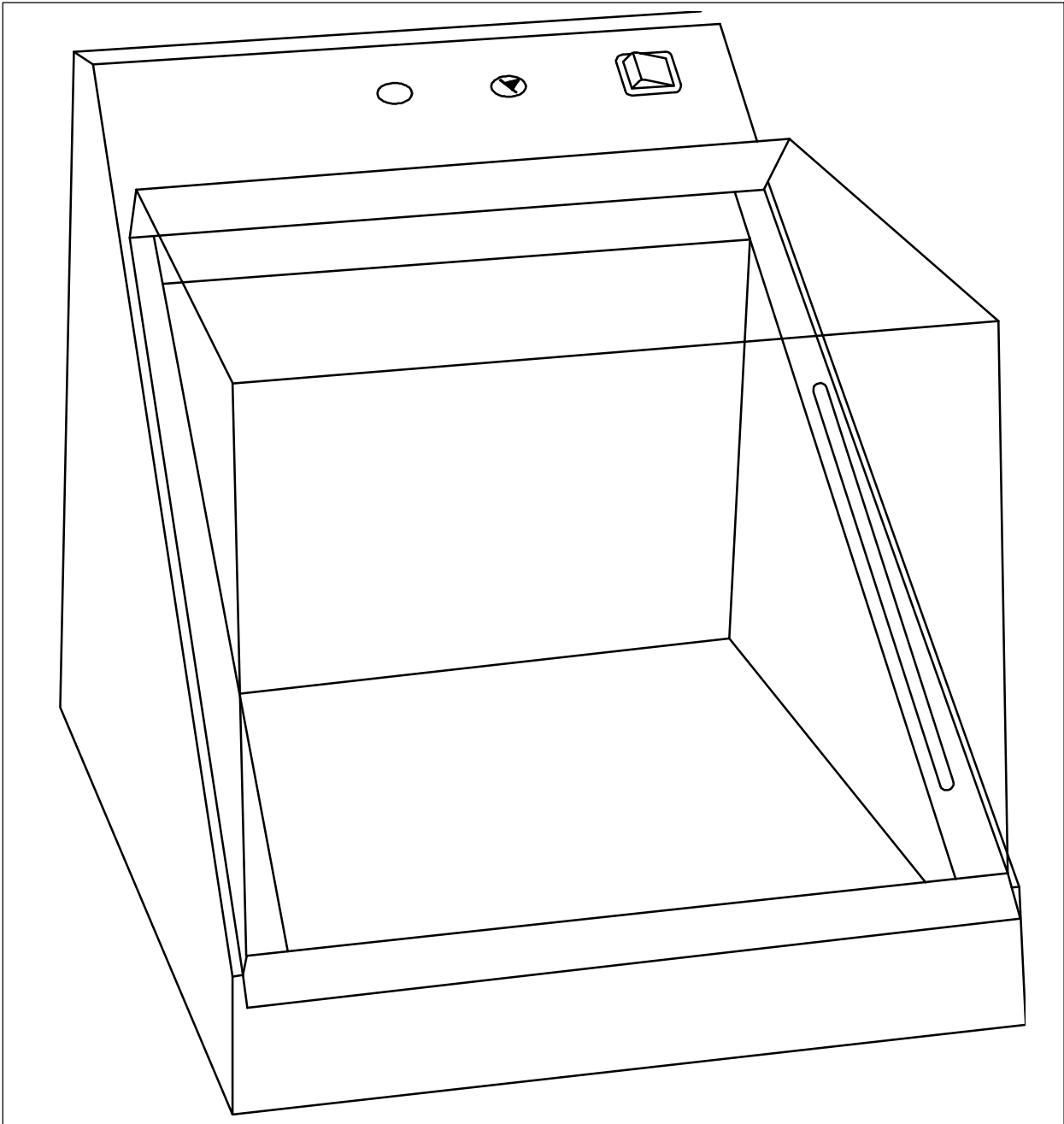
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GB

Compact Incubator Typ B 15 Operating Instructions



Below is a list of the international Thermo marketing organizations.

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Robert-Bosch-Straße 1

Enquiries from Germany

Telefon

Vertrieb 0800 1 536376

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Internet: www.thermo.com

Thermo Electron Corporation, 63505 Langenselbold, Germany

If translated versions of this manual are used, the German version is the authoritative basis.

Subject to technical modifications.



The safety concerning the protection of persons, environment and material to be treated mainly depends on the behaviour of the operating personnel of these units.

Please read and observe the following instructions carefully before starting the unit in order to avoid faults and resulting damage, especially adverse health effects.

WEEE Compliance:

This product is required to comply with the European Union`s Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the following symbol:








Thermo Electron has contracted with one or more recycling/disposal companies in each EU Member State, and this product should be disposed of or recycled through them. Further information on Thermo Electron`s compliance with these Directives, the recyclers in your country, and information on Thermo Electron products wick may assist the detection of substances subject to the RoHS Directive are available at www.thermo.com/WEEERoHS.

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1 GENERAL SAFETY INSTRUCTIONS

EXPLANATION OF ICONS

	This symbol marks chapters and sections of this instruction manual which are particularly relevant to safety When attached to the unit, this symbol draws attention to the relevant section of the instruction manual
	Marks information about optimum utilization of the unit in the instruction manual
	Information about proper disposal / recycling
	Overtemperature protection device
	Temperature control function, select temperature

General information

The unit fulfils the following safety standards:
DIN EN 61 010 - 1 / 03.'94, VDE 0411 Part 1 / 03.'94, E DIN VDE 0411 Part 111, DIN 12 880 Part 1 / 11.'78 and
DIN EN 60 335 - 1, VDE 0700 Part 1 DIN EN 55 011 Part 3, DIN VDE 0875 Part 11 / 07.'92



Always quote the data on the rating plate when requesting information or ordering spare parts



Operating instructions

The operator must provide anybody working on or with this equipment with written instructions for any operations to be performed. Such instructions must be easy to understand and must be available in the language of the respective personnel (FRG: UVV VBG 1 § 7 (2)).

Log book

We recommend that a log book is kept, which records any tests and calibration operations performed on the unit and any other work (repairs, modifications, etc.).



Field of application

The laboratory heating cabinet has been designed as an item of laboratory equipment for technical applications.

- Heat treatment of samples of materials with **operating temperatures** of between **room temperature + approx. 5 ° C and 50 ° C**,
e.g. the incubation of biological samples.

The unit has been designed for **installation and operation** in the following fields:

- Laboratories of security levels L 1 and L 2, e.g. in the commercial or industrial sector, schools, universities, hospitals.

The unit is equipped with an independent overtemperature protection device as standard, which means that it does not require constant supervision.

The incubator has been designed for continuous use.

Make sure that an adequate clearance is maintained between the inside walls of the inner chamber and the loaded articles, and between the various layers of loaded articles, to prevent uneven heating of the materials.

Protective gloves, goggles, etc. must be made available to the operator.

The unit must not be used to heat substances which may release combustible gases or vapours into the atmosphere, which could burn or explode when mixed with air. The heating cabinet is equally unsuitable for the heat treatment of combustible dusts or fibrous materials.



Safety instructions

Comply with the instructions in this manual and keep it in the vicinity of the unit.

These items of equipment must be operated in accordance with the instruction manual and may only be used for their intended applications to ensure the safety of personnel, the environment and the processed items and materials.

Read the instruction manual carefully and comply with the instructions that it contains to avoid making mistakes and to prevent any personal injury or damage to property.

The incubator may only be operated by suitable trained personnel.

Apart from the instructions in this manual, the respective national regulations must also be observed for the installation and operation of this unit (FRG: ZH 1/119, DIN 12 880 Part 1).

The applicable national environmental regulations must be observed for the extraction of exhaust gases that are produced during heat treatment. Suitable measures must be implemented to ensure that such gases are safely led outside (FRG: BImSchG, UVPG, AbfG, WHG, ChemG, ...).

Check the mains lead and connector for damage before using the unit. If there are any signs of damage, do not connect the unit up to the mains.

The voltage quoted on the rating plate (rated voltage) must agree with the mains supply voltage.

Any work to be conducted on the electrical equipment of the unit may only be performed by a qualified electrician. The unit must be disconnected from the mains supply before commencing service or repair work.

Only use approved accessories and approved genuine spare parts. The use of any other parts may result in unforeseen problems and should be avoided under all circumstances.

The service ability and safety of the unit can only be guaranteed if the necessary tests, maintenance, servicing and repair work is carried out by the Thermo Electron service personnel or other agencies who are authorized to act on our behalf.

Thermo Electron Corporation cannot accept any liability for any damage that occurs as a result of improper use or repair work, which has not been performed by Thermo service centers, or if parts other than the approved genuine spare parts / accessories are used. Liability can also not be accepted for any damage arising from improper use.

2 SETUP AND INSTALLATION



Transport

Handle the unit with care. Avoid jarring and protect against damage. Do not lift by the cover or the power lead.

Refer to the **TECHNICAL DATA** section for **dimensions and weight**.

■ **Unpacking:**

Unpack the unit and dispose of the packaging materials properly.



Installation

The **installation location** must be **dry** and **free of drafts**.

Do not deposit any tools or other articles on the cover of the incubator.

Condensation should be avoided. If condensation has formed on the unit following a change of location or during transportation, for example, wait until the unit has dried out completely before putting into operation.

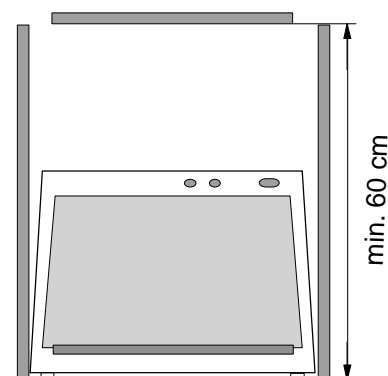
The ambient air should **not** contain excessive amounts of **dust** (comply with the instructions in the MAINTENANCE section).

Place the **heating cabinet** on a **firm, fireproof surface** (e.g. laboratory table, support frame) in a stable, perfectly upright position.

Keep the unit **away from direct sunlight** (UV radiation).

The **temperature** at the **installation location** should be within the range of 18 °C to 30 °C in order to avoid deviations from the specified technical data.

Fig. 1/2: Clearances to adjacent surfaces / objects:



No clearance is required between the back / side walls and adjacent surfaces or objects

Mains connection

The unit is supplied with a flexible mains power lead. The **plug** is used to **disconnect** the unit from the **mains power supply**.

Examine the power lead and connector for damage before using the unit. If there are any signs of damage, do not connect the unit up to the mains supply.

The voltage quoted on the **rating plate** (rated voltage) must agree with the nominal mains voltage.

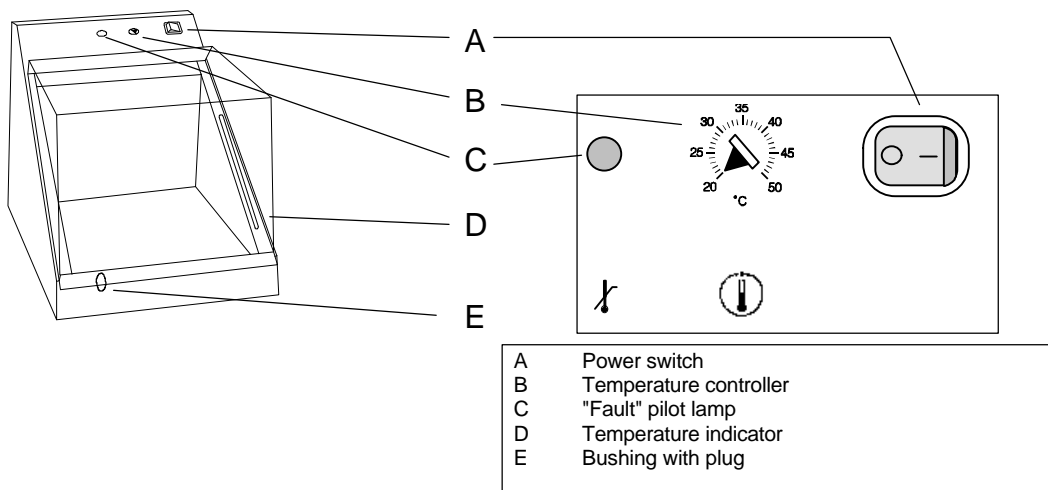
Noise insulation

The unit develops a constant noise load.

Refer to the **TECHNICAL DATA** for the **noise level**.

3 UNIT SPECIFICATION

Fig. 1/3: Overview of the control and display elements



Item A: Power switch

To switch the unit on / off:

" I " = Incubator switched on, temperature controller activated

" O " = Incubator switched off.

Item B: Temperature controller

Set the required working temperature using a suitable tool (e.g. **plug for the bushing (E)** , coin or screwdriver).

Item C: "Fault" pilot lamp

The unit is equipped with a **thermal cut-out** of protection class 1 as defined by DIN 12 880 Part 1. It is electrically and operationally independent of the temperature control system. The thermal cut-out deactivates the unit heating system in the event of a failure in the control system (when the temperature exceeds the preset value).

The red pilot lamp indicates activation of this protective function.

If a "fault" is signalled during operation:

Procedure:

- Switch the unit off.
 - Open the cover to cool the unit down as quickly as possible.
 - Switch on again following an adequate cooling-down period (approx. 1 hour):
 - a) the pilot lamp goes out: start the unit again
 - b) the pilot lamp stays on: contact your local service center
-

Item D: Temperature indicator

The temperature prevailing inside the chamber is indicated by the alcohol thermometer fitted on the side of the unit.

Item E: Bushing

The bushing may be used for cables, hoses, etc.

The plug can be parked in a slit in the front left handside of the shelf.

4 OPERATION

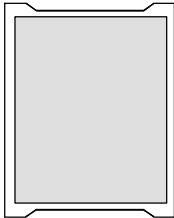


Operating guidelines

■ Loading:

Circulating air conducts the heat to the samples in the chamber. Make sure that the samples are evenly distributed on the tray and that they are arranged in such a way as to ensure an unimpeded flow of air throughout the chamber in order to prevent local overheating. Do not position the articles too close to the inside walls (structured surface).

Fig. 1/4: Loading diagram



■ Controller

Use the sealing plug, a screwdriver or a coin to adjust the controller to the required temperature setting

■ Cover

The cover has a locking mechanism which latches into place when opened. Move the cover beyond the action point to open or close.

Shutdown

- Remove the articles from the chamber
- Switch the unit off and disconnect from the mains
- Allow the heating cabinet to cool down to room temperature
- Clean the inside surfaces of the chamber (also refer to the section on DECONTAMINATION, CLEANING ...)

5 MAINTENANCE

The serviceability and safety of the heating cabinet can only be guaranteed if the necessary tests, maintenance, servicing and repair work is carried out by the Thermo service personnel or other agencies who are authorized to act on behalf of Thermo Electron Corporation.



Decontamination / disinfection

The operator is responsible for implementing suitable, effective measures to decontaminate the cabinet if it is used in connection with hazardous materials. Such measures must be conducted on a regular basis under normal operating conditions and in particular if such materials have been spilt or before commencing service work.

The components inside the chamber may be decontaminated by **wiping out** with a **disinfectant solution** in cases of biological contamination.



A surface disinfectant recommended by Thermo can be ordered under part number 50052425 (250 ml spray bottle) and 50051939 (500 ml refill bottle).

Details for efficiency and approvals are available on request.

The applicable national regulations must be observed with respect to disinfection. (FRG: ZH 1/598...)

Cleaning

Use a **mild soap solution** (water and a mild detergent) and a soft lint-free cloth to **wipe the outer surfaces and control elements** of the unit.

Remove any dust or dirt from the inner chamber. Use a **suitable cleaning agent** in moderate quantities. Never use acids, chloric solvents or salt solutions to clean the surfaces inside the chamber.

Avoid scouring and scratching, **or damage to labels and paintwork will be unavoidable.**

Consult the manufacturer before implementing any other cleaning or disinfection measures than those mentioned above, to ensure that the intended methods will not damage the incubator.



Tests

The following items should be tested at least once a year to ensure that the incubator remains in good working order:

- Mechanical functions
- Operation in accordance with the technical data
- Electrical system (FRG: UVV VBG 4, DIN VDE 0701 Part 1, E DIN VDE 0702 / 11.93)



Repairs

Only approved genuine spare parts and accessories may be used. The use of other parts may result in unforeseen problems and should be avoided under all circumstances.

Approved spare parts / accessories (refer to Page 2 for the telephone number)

B 15 spare part / accessory	Kendro order number
Instruction manual	50 043 901
Circuit diagram 1/PE AC, 230 V	50 043 621
Tray	50 043 959
Cover "transparent"	50 043 958
Cover "opaque"	50 045 000
Thermometer	50 043 960


6 TECHNICAL DATA

DATA	Model	B 15	Unit
MECHANICAL			
Dimensions (W x H x D)	Housing	340 x 270 x 431	mm
	Chamber ¹⁾	270 x 205 x 288	mm
Volume	Chamber ¹⁾	15	liter
Weight	Unit	approx. 5.5	kg
Max. load	surface load	5	kg
Tray	(W x D):	270 x 287	mm
THERMAL			
Operating temperatures		Room temp. + 5 to 50	°C
Reading accuracy		0.2	°C
Temperature deviations			
Spatial ¹⁾	at 37 °C	< ± 2,0	K
	at 50 °C	< ± 3.0	K
Temporal ¹⁾	at 37 °C	≤ ± 0.2	K
	at 50 °C	≤ ± 0.3	K
Warm-up times (unit empty, to 98 % of the operating temperature)			
Operating temperature	37 °C	< 20	min
	50 °C	< 30	min
Cool-down times (unit empty, to 25 °C)			
Operating temperature	50 °C	60	min
	37 °C	45	min
Recovery times (unit empty, door open 30 s, to 98 % of the operating temperature)			
Operating temperature	37 °C	< 2	min
	50 °C	< 8	min
Heat radiation to surrounding areas (at a room temperature of 20 °C)			
Operating temperature	37 °C	approx. 0.06	kW
	50 °C	approx. 0.09	kW

1) in accordance with DIN 12 880 Part 2 / 11.78

DATA	Model	B 15	Unit
VENTILATION			
Rate of air replacement	at 37 °C	60	h ⁻¹
NOISE [in accordance with DIN 45 635]			
Sound level [20 µPa]		< 50	dB (A)
Sound power level [1 pW]		< 50	dB
ELECTRICAL (rated values)			
Rated voltage		1/ PE AC, 230	V
Rated frequency		50 / 60	Hz
Power consumption		0.2	kW
Connected load		0.21	kVA
Current input		0.92	A
Protective measure		Safety class II	
Degree of protection		IP 20	
Circuit protection to be provided at the installation location ²⁾	T 16 A fusible link (slow-blow) or B 16 circuit-breaker Connection via an earth-leakage circuit-breaker (tripping current ≤ 30 mA) is recommended.		

- 2) The applicable national electrical engineering regulations and technical requirements must be observed when connecting up to mains supply circuits.

	
Component	Materials used
Housing	ABS
Tray	ABS
Cover	SAN
Feet	Soft elastomer
Leads	PVC - sheathed copper wire
Electronic / electrical components	Encapsulated components coated with various plastics, some mounted on glass fiber reinforced PCBs with epoxy resin

**KONFORMITÄTSERKLÄRUNG
STATEMENT OF CONFORMITY
CERTIFICAT DE CONFORMITE**



**SORVALL®
Heraeus**

Produkt: Labor-Wärmeschrank, Brutschrank
Product: Laboratory Drying Oven, Incubator
Produit: Etuve de laboratoire, Incubateur

Kendro
Laboratory Products

Modell(e):
Model (s): B 15
Modèle (s):



Die bezeichneten Erzeugnisse erfüllen die Bestimmungen der Richtlinie:
The designated products conform to the guideline:
Les produits désignés sont conformes aux dispositions de la directive:

**73/23/EWG mit Änderungen / with revisions / avec les modifications
89/336/EWG**

Die Übereinstimmung der Erzeugnisse mit den Bestimmungen der Richtlinie wird durch die vollständige Einhaltung folgender Normen nachgewiesen:

The conformity of the products with the requisites as set forth in the guideline is evidenced by the full compliance with the following standards:

La conformité des produits aux dispositions de la directive est attestée par le respect total des normes suivantes:

EN 61010-1 / 03.94, EN 61010-2 / 03.95 (IEC 1010),
EN 55104:1995, EN 55014:1993,
EN 61326 (EN 50081-1, EN 50082-2)

Weiterhin besteht für diese Geräte der GS-Zeichengenehmigungsausweis des VDE Prüf- und Zertifizierungsinstituts Nr. 89433 G.

Die sicherheitstechnische Übereinstimmung mit dieser Typenprüfung wird durch das GS-Sicherheitszeichen dokumentiert.

In addition these products have been tested and found to be in conformity with the current standards by the VDE Testing and Certification Institute, results are shown in the test report No. 89433 G.

Products, which are in accordance with these type-tests, are marked with the German Safety label "GS".

De plus, ces appareils font l'objet du certificat d'admission au label „GS“ délivré par l'institut de certification et de contrôle VDE sous le No. 89433 G.

Les appareils dont la sécurité est conforme à l'essai de type portent la marque de sécurité "GS".

D-63450 Hanau, 18.12.2000

Kendro Laboratory Products GmbH
Leiter Quality Management

Kendro Laboratory Products GmbH
Heraeusstrasse 12 - 14
D-63450 Hanau

i. V. Loscher

50048881-a.doc



ERSATZTEILLISTE / SPARE PART LIST

Type: B 15

ERSATZTEIL SPARE PART	BEST.-NR. CODE-NO.
Einlageboden / Shelf, bottom	50 043 959
Abdeckhaube (transparent) / Cover (transparent)	50 043 958
Abdeckhaube (lichtundurchlässig) / Cover plate (opaque)	50 045 000
Thermometer / Thermometer	50 043 960
Heizspirale m. Temp. Begrenzer / Heating coil with temp. limiter	50 067 773
Lüftermotor / Fan motor	50 067 190
Reglerplatine / Regulation board	50 072 969
Rückwand Rearwall	50 075 993