



Operating Instructions
Bühler Incubator Hoods

TH 15

TH 30

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General Notes

Thank you for choosing a *Bühler* product for supporting you in your work.

The *Bühler* incubator hoods were developed for the use in laboratories in neutral atmospheres.

If you pay attention to the following points, the device will reward you with long life and optimal operation.

- 1) Read the operating instructions carefully before initial operation.
- 2) The user must acquaint himself with the safety instructions and operating conditions in order to avoid damage / injuries to material and personnel. Liability and all claims under warranty end immediately in case of damages which result from misuse and / or abuse.
- 3) The devices were carefully checked for perfect functioning and condition before delivery.
- 4) Necessary servicing or repair work may only be done by personnel of the manufacturer - *Edmund Bühler GmbH* -, their authorized agents or personnel trained by *Edmund Bühler GmbH*.
- 5) For shipping, the device must be adequately and safely packed. If possible, use the original packing.
- 6) If the device is returned to *Edmund Bühler GmbH* for repair, it should be cleaned and free of any harmful substances or residues.

These operating instructions are protected by copyright.
Technical modifications reserved.

1.0 General Notes Concerning Areas of Application and Mode of Operation

The devices can be used in all laboratory fields in which constant temperatures are required, e.g. for the cultivation of plant cells.

Areas of Application (Examples):

- Fast propagation of homogeneous cultures
- Production of disease-free, resistant plants
- Genetic improvement of useful plants
- Production of secondary natural substances and biogenous pharmaceuticals

The *Bühler* incubator hoods can be used as independent incubator chambers. Combined with *Bühler* shakers they are complete incubator shakers.

Corresponding *Bühler* Shakers:

with TH 15:	with TH 30:
Model KS 15 A control Order No. 6170 000	Model SM 30 A control Order No. 6100 000
Model KS 15 B control Order No. 6172 000	Model SM 30 B control Order No. 6102 000
Model KS 15 A Order No. 6171 000	Model SM 30 C control Order No. 6104 000
Model KS 15 B Order No. 6173 000	Model SM 30 A Order No. 6101 000
Model TiMix 5 control Order No. 6167 000	Model SM 30 B Order No. 6103 000
Model TiMix 5 Order No. 6166 000	Model SM 30 C Order No. 6105 000

The incubator hood is placed directly on the housing of the shakers listed above so that no additional space is required for the incubator hood.

Smaller devices can be placed completely under the incubator hoods.

If you have any questions, please do not hesitate to contact our export sales department:
(Tel.: +49 7471 / 9864-22, Fax +49 7471 / 9864-75).

2.0 Transportation Instructions

Safe transportation of the devices is only ensured if original packaging is used. If they are bumped hard or put down roughly, damages can occur.

<p>ATTENTION: Do not lift the device at the handle ! Transport the device by holding it at the housing (bottom) only!</p>
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3.0 Installation and Connection

3.1 As independent constant temperature chamber:

Place the device on a level, smooth and firm surface.

The electrical connection data and operating voltage are listed in the Technical Data.

<p>ATTENTION: The device may only be connected to supply voltage with earth protection!</p> <p>When installing the device make sure that it is protected against splash water.</p>

3.2 Fixation of the Incubator Hood on a Shaker:

A fixing angle and corresponding screws are delivered with the incubator hoods. The fixing angle must be screwed to the drillings at the back of the shaker with the recessed cheese head screws.

At the left and at the right of the fixing angle there are 2 fixing cones which fit in corresponding drillings at the bottom of the incubator hood. The hood must be placed on the shaker that the drillings slide over the fixing cones and thus is secured.

The incubator hood is connected to mains with the mains plug (see above warning). With the short cable (delivered with the device) the incubator hood is connected to the shaker. The shaker does not need a separate mains plug as its current supply functions via the incubator hood.

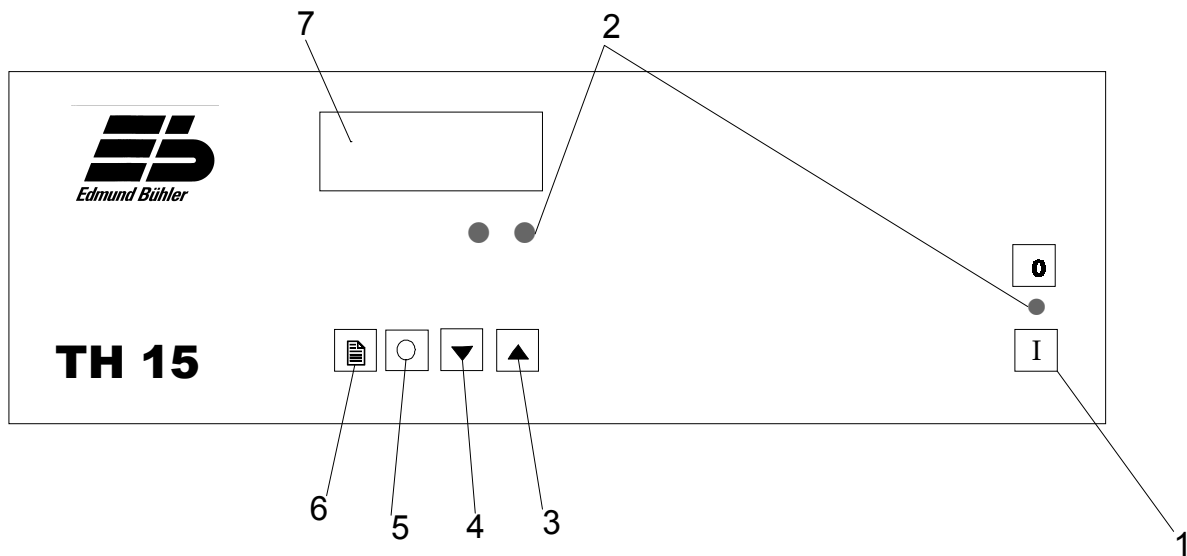
ATTENTION:

If both devices (shaker and hood) are connected to mains separately, the automatic cut-off for the shaker does not work when the incubator hood is opened.

The combination of a shaker type KS 15 with universal tray for spring clamps and incubator hood TH 15 may require higher distance rings between shaker and tray, otherwise the tray could be blocked. Please contact us if this is the case.

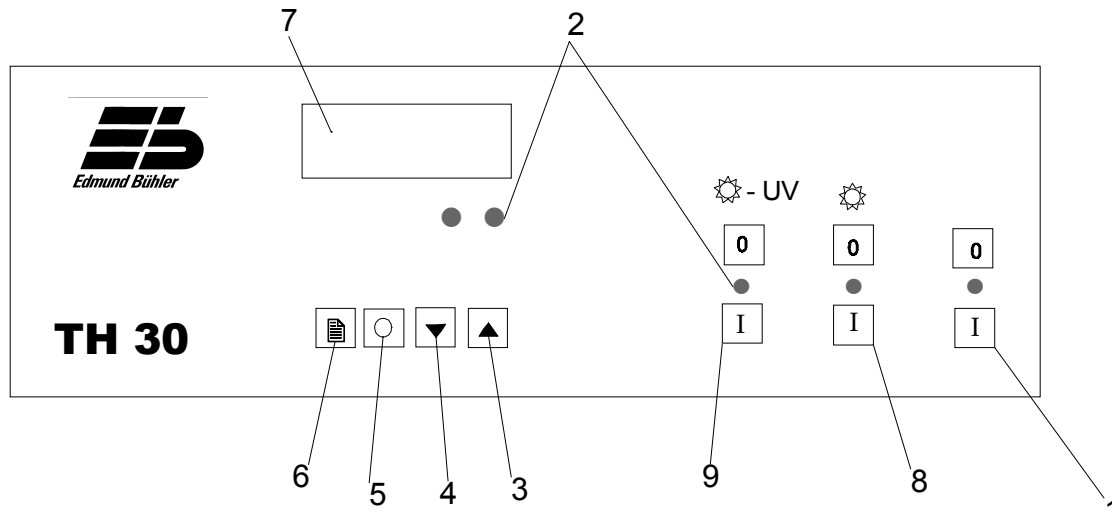
4.0 Operation of the Models:

4.1 Operating Panel TH 15:



Key/ Display	Function
(1)	Mains switch ON/OFF
(2)	Control lamp for heating
(3)	+ Key (set value)
(4)	- Key (set value)
(5)	Function key
(6)	Function key
(7)	Display

4.2 Operating Panel TH 30:



Key/ Display	Function
(1)	Mains switch ON/OFF
(2)	Control lamps
(3)	+ Key (set value)
(4)	- Key (set value)
(5)	Function key
(6)	Function key
(7)	Display
(8)	Light ON/OFF
(9)	UV light ON/OFF

- The incubator hood is switched on (I) or off (0) by means of the mains switch. (After having switched the mains switch on, the temperature control runs a self test which lasts approx. 3 seconds.)
- The display (7) shows the actual temperature.
- Adjust the required temperature (set value) with keys (3) or (4). The display returns to the actual temperature. The device is heated up. The control lamp at the right underneath the display is illuminated as long as the heating is active. When the set value is reached, the control lamp blinks.
- Press keys (3) or (4) once to control the set value on the display.
- Press key (5) once to see the unit of notation, „°C“.

ATTENTION: The keys (5) and (6) are nearly completely blocked and only serve for programming the controller in our works !

At the incubator hood TH 30 2 additional pairs of keys serve for switching light (8) or UV light (9) on or off.

4.3 Safety Cut-off when the Incubator Hood is Opened

When the incubator hood is used as incubator shaker in combination with a shaker, the shaker is automatically stopped for reasons of safety when the hood is opened. The UV light extinguishes (only TH 30).

ATTENTION: The safety cut-off only works when the devices are correctly connected (see page 6) !

New start of the shaker after closing of the hood:

Analog models:

(No. 6171 000, 6173 000,
6166 000, 6101 000,
6103 000, 6105 000)

When the hood is closed, the shaker starts again automatically. (The timer is not stopped when the door is opened !)

Control models:

(No. 6170 000, 6172 000,
6167 000, 6100 000,
6102 000, 6104 000)

Mode A:

Speed and time must be newly set.

Mode B and Mode C:

The set program must be restarted by pressing the ok key.

5.0 Maintenance and Servicing Instructions

The devices are maintenance-free. Excessive soiling should be avoided.

In case of failure, please contact the technical service department of the *Edmund Bühler GmbH*.

Edmund Bühler GmbH
Technical Service
Am Ettenbach 6
D-72379 Hechingen
Tel.: +49 7471 / 9864-0
Fax : +49 7471 / 9864-75.

5.1 Exchange of the Fuse

The device is protected against overload by means of a fine fuse (see technical data).

The fuse holder is located at the back of the device underneath the mains plug. Pull out the fuse insert and exchange the fuse.

ATTENTION: Before removal of the fuse insert disconnect the mains plug !

5.2 Overheat Protection

The devices are equipped with a thermal overheat protection. Should the temperature rise up to 100°C due to a defect of the control, the heating is automatically cut off in order to avoid further damages.

The device may not be operated again without prior check or repair ! Send the device to the technical service department of the *Edmund Bühler GmbH* , together with a detailed description of the defect (address: see above).

6.0 CE Declaration of Conformity

We declare under our sole responsibility that this product corresponds to the regulations 89/336EWG and 73/23EWG and conforms with the standards or standardized documents EN 61 010; EN 50 082; EN 55 014; EN 60 204; EN 60 555; EN292 und EN414.

Edmund Bühler GmbH
- Technical Department -

Hechingen, December 2004

7.0 Warranty

The *Edmund Bühler GmbH* warrants that the device has the properties guaranteed by contract and that it does not have any defects which rescind its value or its use for customary and usual applications or applications foreseen by the contract. (See general terms and conditions of the *Edmund Bühler GmbH*).

The warranty period for this device ends 24 months after date of invoice.

Technical Data:

	TH 15	TH 30
Temperature range:	+5°C above room temperature to +50°C	+5°C above room temperature to +50°C
Temperature sensor:	PT 100	PT 100
Control accuracy:	± 1 % of the set value	± 1 % of the set value
Air circulation:	240 m ³ / h	240 m ³ / h
Self-heating:	Ventilator switched on: $\Delta T = + 5 \text{ K}$	Ventilator switched on: $\Delta T = + 4 \text{ K}$ Ventilator and both lamps switched on: $\Delta T = + 6 \text{ K}$
Light:	-	Standard light lamp 15 W UV light lamp 15 W
Connection:	230 V, 50/60 Hz, 345 VA	230 V, 50/60 Hz, 720 VA
Fuse:	2,0 AM	4,0 AM
Inner dimensions (w x d x h):	490 x 410 x 310 mm	660 x 540 x 430 mm
Overall dimensions (w x d x h):	510 x 460 x 450 mm	660 x 540 x 560 mm
Weight:	19 kg	33 kg

Options:

- **Extended temperature range up to 60°C**

Order No. 0052 105

Can be delivered for TH 15 and TH 30, but should be indicated in case of order.
Retrofitting of this option is only possible in our works.

- **Cooling coil (TH 30 only !)**

Order No. 0051 581

Installation of cooling coil and connectors for an external cooling device.
(Built in either when the hood is ordered, or retrofitted in our works later)

The cooling power depends on the cooling device.

Example:

Temperature range with cooling and a flow-through cooler with 200 - 300 W:

$\Delta T = - 7 \text{ K}$ below room temperature (lamps switched off)

$\Delta T = \pm 0 \text{ K} \cong$ Room temperature (Ventilator and both lamps switched on)

Accessories for TH 30:

2-storey top frame SM/TH:

Thanks to the newly developed 2-storey top frame SM/TH the capacity of the incubator hood TH 30 can be even better utilized.

The top frame fits on all shakers type SM and can be used in combination with the incubator hood TH 30. It allows shaking and incubation of small or shallow vessels (maximum height approx. 14 cm) on 2 levels simultaneously.

For fastening the vessels, either the universal tray SM with spring clamps or the sliding plates SM with Combifix can be used. The trays and plates can easily be removed for loading.

Order No. 0052 117

Rack systems:

Universal tray SM (without spring clamps)	Order No. 0051472
Sliding plate SM incl. Combifix „A“	Order No. 0051 484
Sliding plate SM incl. Combifix „B“	Order No. 0051 485
Sliding plate SM incl. Combifix „C“	Order No. 0051 486
Rubber mat SM	Order No. 0003 092
Spring clamps on demand	

Shelf TH

The shelf TH serves as tray inside the incubator hood. This allows the use of the TH 30 as independent, constant temperature chamber.

Alternatively, the shelf can be used as an additional tray when the incubator hood serves as incubator shaker in combination with one of the shakers type SM, i.e. shaking and temperature control on the lower level, temperature control only on the upper level.

The shelf TH is made of stainless steel. It can be attached in 3 different places at the back of the incubator hood. The front edges are placed on adjustable supports which can be easily mounted.

Dimensions: 365 x 558 mm

Shelf TH + Adapter kit, complete

Order No. 0052 123

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Space Requirement of SM 30 with TH 30

