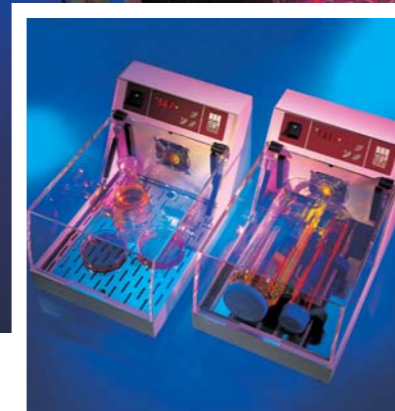


**Shaking Incubators
Mini Incubators
Hybridisation Incubator**

GFL®



■ **State-of-the-art technique and first-class materials secure a top position in the market for our internationally renowned Incubators.**



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Quality built on Tradition

Users in routine, research and special laboratories in medicine, science and industry worldwide have enjoyed the benefit of the precision and reliability of our products that comply with all current European standards and carry the CE mark.

In future, too, experience in every-day use, continuous technical development and an excellent quality approach will continue to secure the success of a range of laboratory instruments that meet the toughest demands on material, function and design.

The term "Quality built on tradition" comprises more than just the sum of impressive product innovations. It is also an expression of our corporate policy which includes a high degree of ready-and-waiting service as our primary customer-friendly service goal.

This approach applies to all GFL laboratory instruments, all of which are exclusively manufactured in our plant in Germany, be it Deep Freezers, Shakers, Shaking Water Baths, Water Baths, Incubators or Water Stills.



Secure future

A vested quality demand in accordance with international standards is documented for all GFL laboratory products with the certification to DIN EN ISO 9001:2000, promoting more trust in the permanent high quality level of our products.

In addition to the continuous optimisation of ongoing production processes, the ISO obligation also calls for the commitment to quality awareness of our employees and the continuous development and rapid implementation of preventive measures to ensure quality assurance at a high level.



GFL Shaking Incubators models 3031 - 3033 operate with state-of-the-art microprocessor technique and dispose of an interface module for comfortable remote control of measuring, controlling and regulating tasks via PC.

The built-in serial interface RS 232 ensures smooth and easy data transfer, at the same time providing compatibility of our Shaking Incubators

with the PC software programme labworldsoft®.

Among other features, this comprehensive software programme enables independent PC control and data analysis of up to 64 laboratory appliances. Set and actual values are available as output signals.

Data input is made online and can be displayed either graphically or numerically. Complete measurement configurations can be memorized with all necessary parameters for optimum

reproducibility. Ready-to-use measuring procedures for various applications are pre-configured and easily retrievable.

System requirements:

Hardware

- Pentium 90 with at least 16 MB RAM, 8 MB free mainboard memory, mouse

- VGA display: monochrome with at least 16 grey shades or colour

Software

- Windows 95/98/2000/NT/ME/XP...



The most progressive technique and first-class quality materials are used to secure GFL Incubators a top position in the market. Three different product ranges cover the most versatile applications in laboratories: Shaking Incubators (3), Mini Incubators (2) and a Hybridisation Incubator.

Our Incubators bear the CE sign, are maintenance-free and can be equipped with numerous accessories. Their stable and durable mechanism ensures an especially silent operation and reliability in continuous mode. The microprocessor-controlled electronics regulates the gentle start-up and exact shaking frequency.

If not expressly stated, the accessories shown in the product pictures in this brochure are not part of the standard scope of supply. The right of constructional modifications remains reserved. Special makes are possible.

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3033	Shaking Incubator with orbital motion	20 kg	4/5	3	7
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Shaking Incubators

Heavy-duty Specialists

In every-day laboratory use GFL Shaking Incubators are renowned as being extremely reliable and suitable for heavy-duty use. Model 3031, with lift-up acrylic glass cover, is made of an outer housing of heavy-duty ABS and powder-coated, electrolytically galvanised sheet steel.

The shaking platform, made of aluminium, disposes of four plastic pins to accept a shaking tray or a universal mount (accessories).

The outer housings of models 3032 and 3033 are made of powder-coated, electrolytically galvanised sheet steel. Interior cabinet, the insides of the doors and the shaking platform are made of stainless steel.

The frame, permitting the use of two shaking trays, is part of the standard scope of supply. Shaking trays are accessories. A fluorescent lamp simulating daylight is separated from the interior cabinet by a diffusing screen.



3031

Technical Data

Exterior dimensions (W x D x H):
525 x 665 x 570 mm

Interior dimensions (W x D x H):
450 x 450 x 280 mm

Volume / capacity:
approx 46 l / 1 shaking tray

Shaking frequency: 10 - 250 rpm

Shaking amplitude: 30 mm

Maximum load: 12 kg

Electrical connection:
230 V / 50...60 Hz / 0.8 kW

Net / gross weight: 38.5 kg / 50 kg

Packing volume (cardboard box):
approx 0.51 m³

Order No. 3031

Specifications and Features

- ▶ Fast and exact temperature setting, exact reproducibility of set values, such as temperature, shaking frequency and incubation time.
- ▶ Optimum temperature distribution throughout the cabinet interior with a ventilator.
- ▶ Serial cooling coil for applications below ambient temperature.
- ▶ Electronic monitoring of the temperature regulators triggers visual and acoustic alarms in case of fault. The heating is switched off, the cause of the fault is shown on the LED display.

- ▶ Silent and robust shaking mechanism with gentle start-up and even orbital motion, independent of load, set shaking frequency and incubation time.
- ▶ The microprocessor-controlled timer displays continuously the current remaining running time of the incubation time and signals acoustically its expiry.
- ▶ Soft-touch keys with clear symbols. Protection against unintended alterations by memorizing of the set values, such as temperature, shaking frequency and incubation time.

Application

Specialised in gentle mixing as well as vigorous shaking, GFL Shaking Incubators are used for applications that require exactly reproducible orbital motions and temperatures of up to +70 °C.

They are preferred by standard and research laboratories for incubations, fermentations, homogenisations, chemical and biochemical reactions, enzyme and tissue studies, as well as for cultivating bacteria cultures.

Further technical data of models 3031 / 3032 / 3033

Shaking motion:	orbital, can be switched on and off
shaking frequency display and setting:	digital - LED
Temperature regulation:	electronical, microprocessor-controlled, PID type
Temperature setting and display:	digital - LED, in 0.1 °C increments
Temperature range:	+20 °C bis +70 °C,
Operating range:	from 8 °C above ambient temperature to +70 °C, serial cooling coil for operation below ambient temperature to connect to the water mains or to an external refrigerated circulator
Temperature constancy (temporal):	±0.2 °C
Over-temperature cut-out:	electronical / dependent on the set value, to protect the test substances, and electro-mechanically, to protect the heating element
Under-temperature cut-out:	electronical, max 9.9 °C below set temperature
Incubation time:	microprocessor-controlled, 1 minute to 999 hours
Time display and setting:	digital - LED

3033

Technical Data

Exterior dimensions (W x D x H):
930 x 890 x 820 mm

Interior dimensions (W x D x H):
674 x 540 x 430 mm

Volume / capacity:
approx 150 l / 2 shaking trays, for vessel height of more than 180 mm 1 shaking tray

Shaking frequency:
10 - 250 rpm if only bottom tray is loaded;
10 - 200 rpm if both trays are loaded

Shaking amplitude: 25 mm

Maximum load: 20 kg

Electrical connection:
230 V / 50...60 Hz / 0.8 kW

Net / gross weight: 135 kg / 270 kg

Packing volume (wooden crate):
approx. 1.74 m³

Order No. 3033

3032

Technical Data

Exterior dimensions (W x D x H):
710 x 650 x 710 mm

Interior dimensions (W x D x H):
450 x 300 x 320 mm

Volume / capacity:
approx 45 l / 2 shaking trays, for vessel height of more than 150 mm 1 shaking tray

Shaking frequency: 10 - 250 rpm

Shaking amplitude: 25 mm

Maximum load: 12 kg

Electrical connection:
230 V / 50...60 Hz / 0.8 kW

Net / gross weight: 70 kg / 80 kg

Packing volume (cardboard box):
approx 0.86 m³

Order No. 3032





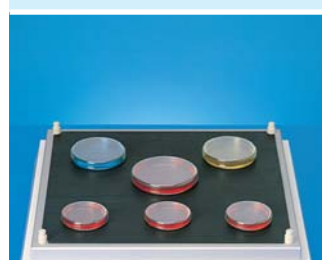
3031



Shaking Tray

made of stainless steel, 450 x 450 mm, with holes to accept clamps for Erlenmeyer flasks and test tube racks.

Order No. 3966



Non-slip Rubber Mat

for the shaking platform, 420 x 420 mm, for slow moving of e.g. of nutritions in Petri dishes.

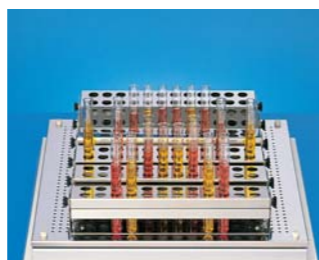
Order No. 3965



Universal Mount

for secure fixing of different shaking objects between the six rubber-coated bars.

Order No. 3967

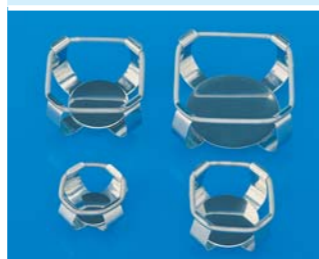


Test Tube Rack

made of stainless steel, for test tubes, perforated part can be tilted by 90°, with clamping springs for secure hold and silent shaking of the tubes, to be screwed onto shaking tray 3966.

Order No. 3953

for max. 24 tubes: 12-17 mm Ø, length 75 - 160 mm, capacity of the shaking tray: six test tube racks



Flask Clamps

made of stainless steel, to be screwed onto shaking tray 3966, complete with fixing material.

- Order No. 3983 for 25 ml flasks (79*)
- Order No. 3984 for 50 ml flasks (49*)
- Order No. 3985 for 100 ml flasks (36*)
- Order No. 3986 for 200 ml flasks (22*)
- Order No. 3987 for 250-300 ml flasks (16*)
- Order No. 3988 for 500 ml flasks (12*)
- Order No. 3989 for 1000 ml flasks (9*)

* Maximum quantity of flask clamps per shaking tray



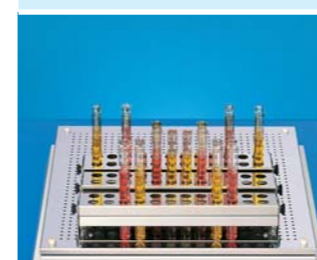
3032



Shaking Tray

made of stainless steel, 450 x 300 mm, with holes to accept clamps for Erlenmeyer flasks and test tube racks.

Order No. 3970

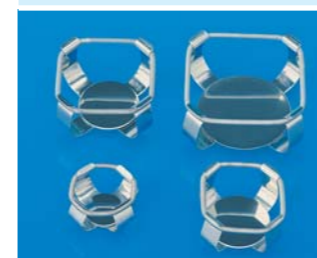


Test Tube Rack

made of stainless steel, for test tubes, perforated part can be tilted by 90°, with clamping springs for secure hold and silent shaking of the tubes, to be screwed onto shaking tray 3970.

Order No. 3953

for max. 24 tubes: 12 - 17 mm Ø, length 75 - 160 mm, capacity of the shaking tray: three test tube racks



Flask Clamps

made of stainless steel, to be screwed onto shaking tray 3970, complete with fixing material.

- Order No. 3983 for 25 ml flasks (52*)
- Order No. 3984 for 50 ml flasks (33*)
- Order No. 3985 for 100 ml flasks (22*)
- Order No. 3986 for 200 ml flasks (15*)
- Order No. 3987 for 250-300 ml flasks (13*)
- Order No. 3988 for 500 ml flasks (10*)
- Order No. 3989 for 1000 ml flasks (6*)
- Order No. 3990 for 2000 ml flasks (3*)

* Maximum quantity of flask clamps per shaking tray



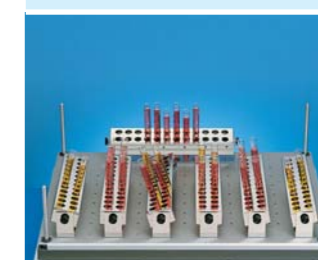
3033



Shaking Tray

made of anodised aluminium, 674 x 540 mm, with 99 holes to accept clamps for Erlenmeyer flasks and test tube racks. Order No. 3980

Order No. 3980

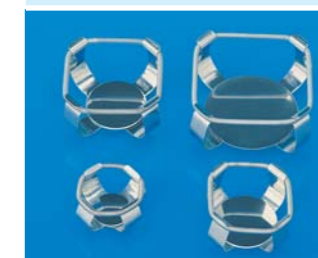


Test Tube Rack

made of stainless steel, for test tubes, perforated part can be tilted by 90°, with clamping springs for secure hold and silent shaking of the tubes, to be screwed onto shaking tray 3980.

Order No. 3953

for max. 24 tubes: 12 - 17 mm Ø, length 75 - 160 mm, capacity of the shaking tray: nine test tube racks



Flask Clamps

made of stainless steel, to be screwed onto shaking tray 3980, complete with fixing material.

- Order No. 3983 for 25 ml flasks (99*)
- Order No. 3984 for 50 ml flasks (99*)
- Order No. 3985 for 100 ml flasks (50*)
- Order No. 3986 for 200 ml flasks (26*)
- Order No. 3987 for 250-300 ml flasks (26*)
- Order No. 3988 for 500 ml flasks (26*)
- Order No. 3989 for 1000 ml flasks (12*)
- Order No. 3990 for 2000 ml flasks (9*)

* Maximum quantity of flask clamps per shaking tray

7601

Technical data

Exterior dimensions (W x D x H):
580 x 610 x 650 mm

Interior dimensions (W x D x H):
400 x 330 x 380 mm

Temperature regulation:
electrical, microprocessor-controlled

Temperature setting and display:
digital - LED, in 0.1 °C increments

Temperature range:
approx 8 °C above ambient to +99.9 °C

Temperature constancy (temporal): ±0.5 °C

Over-temperature cut-out:
electrical / dependent on the set value, with visual alarm at 4 °C above the set temperature, and electro-mechanical > 130 °C

Rotations of the rotating rack:
12 per minute, fixed

Cabinet illumination:
2 lamps at 15 Watt each

Electrical connection:
230 V* ±10% / 50...60 Hz / 0.55 kW
*Other voltages available on request

Net / gross weight: 45 kg / 54 kg

Packing volume (cardboard box):
approx 0.51 m³

■ **Bestell-Nr. 7601**

■ Ideally suited for special cases

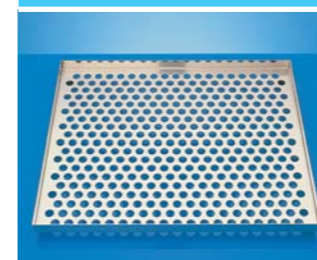
The GFL Hybridisation Incubator 7601 is a specialist for individual cases. The small quantity of hybridisation liquid that is required enables the user to work with high concentrations of probes or antibodies.

Other applications are also possible. Instead of the rotating rack, the Incubator's interior can be equipped with up to five non-tilt and pull-out trays (accessories).

The rotating rack to accept the hybridisation vessels is driven by a geared motor via a sliding clutch. It is easily removable and can be loaded outside the Incubator.



7601



Order No. 7914

Perforated Tray
made of stainless steel, can only be used instead of the rotating rack; max. five trays.

Specifications and Features

- ▶ The ventilator ensures optimum temperature distribution throughout the cabinet interior.
- ▶ Electronical monitoring of the temperature controller triggers a visual alarm in case of fault, i.e. if the set value is exceeded by 4 °C. The heating is switched off, the cause of the fault is shown on the LED display

- ▶ Thermostatic over-temperature cut-out to protect the heating element.
- ▶ High resolutions of the detections and even results due to the constancy of 12 rpm.
- ▶ Soft-touch keys with clear symbols. Protection against unintended alterations by memorizing of the set values.
- ▶ Clear view of the interior cabinet through a large acrylic glass window. Keys to switch on two cabinet lamps.
- ▶ The interior parts of the unit, such as cabinet walls, air baffle plate, interior door frame, rotating racks and the removable drip tray under the rotating rack are made of stainless steel, the robust housing is made of electrolytically galvanised sheet steel.
- ▶ The Hybridisation Incubator 7601 bears the TÜV seal for "Proven Safety".

Application

In every-day laboratory use our Hybridisation Incubator is successfully employed as an ideal appliance for exact hybridisations of DNA and RNA probes with nucleic acid on filter paper (Southern / Northern Blots) and for incubations of protein blots with antibodies (Western Blots).



Clip Wheel

made of stainless steel, with holes for spring clips. Two more clip wheels can be inserted to double the capacity of shorter vessels. Two clip wheels are required for safe and horizontal fixing.

Order No. 7940

Two clip wheels are in the standard scope of supply.



Special hybridisation bottles

made of borosilicate glass, plastic screw cap with 0.5 mm bore hole in the middle for pressure compensation (also available without bore holes on request).

Order No. 7943 for Ø 32 mm, 273 mm length (16*)

Order No. 7944 for Ø 38 mm, 273 mm length (8*)

Order No. 7945 for Ø 51 mm, 273 mm length (8*)

* Capacity of the rotating rack (quantity of bottles)

Four bottles 7945 are in the standard scope of supply



Spring Clips

to fix the hybridisation bottles on the clip wheels. Two spring clips are required for each bottle. The required fixing material is supplied with each clip.

Order No. 7935 for Ø 32 mm, (16/32)*

Order No. 7936 for Ø 38 mm, (8/16)*

Order No. 7937 for Ø 51 mm, (8/16)*

* maximum quantity of clips per clip wheel / required quantity of clips

Eight spring clips 7937 are in the standard scope of supply

Mini/Tube Roller Incubator

Proven and space-saving

In standard and research laboratories, our **Mini Incubator 4010** and the **Tube Roller Incubator 4020** have meanwhile become indispensable. Due to their compact build, both models require only little space and are, therefore, very well suited for versatile applications directly on the workbench. Furthermore, their lift-up, see-through acrylic glass covers permit a clear view of the cultures in the interior cabinet.



4010

Technical Data

Exterior dimensions (W x D x H):
280 x 510 x 280 mm

Interior dimensions (W x D x H):
230 x 310 x 170 mm

Volume: 12 l

Temperature regulation:
electrical, microprocessor-controlled

Temperature setting and display:
digital - LED, in 0.1 °C increments

Temperature range:
approx. 8 °C above ambient to +60 °C

Temperature constancy (temporal): ±0,2 °C

Over-temperature cut-out:
electrical / dependent on the set value,
with visual alarm at 4 °C above the set
value, and electro-mechanical > 130 °C

4020

Technical Data

Exterior dimensions (W x D x H):
280 x 510 x 280 mm

Interior dimensions (W x D x H):
230 x 300 x 140 mm

Volume: approx. 10 l

Motion: rotating

Frequency: 12 rpm fixed

Temperature regulation:
electrical, microprocessor-controlled

Temperature setting and display:
digital - LED, in 0.1 °C increments

Temperature range:
approx. 8 °C above ambient to +60 °C

Temperature constancy (temporal): ±0.2 °C

Over-temperature cut-out:
electrical / dependent on the set value,
with visual alarm at 4 °C above the set
value, and electro-mechanical > 130 °C

Maximum load: 3 kg

Electrical connection:
230 V / 50...60 Hz / 0.3 kW

Net / gross weight: 11.8 kg / 13.7 kg

Packing volume (cardboard box):
approx 0.11 m³

Order No. 4020

Order No. 4010



Mini Tube Roller Incubator 4020

disposes of a removable bottle rotating device, consisting of four parallel rotating axes each with two rubber rollers that can be moved along the axle.

Hybridisation bottles with Ø 32 mm to Ø 76 mm can be placed individually or in pairs (even with different diameters) between the rubber rollers; two roller bottles for cell cultures with Ø 110 mm and 285 mm length is possible.

To place bottles of different diameters, the outer axes can be placed into pre-fabricated seats without the use of tools.

Specifications and Features

- ▶ The ventilator ensures optimum temperature distribution throughout the cabinet interior.
- ▶ Electronical monitoring of the temperature controller triggers a visual alarm in case of fault, i.e. if the set value is exceeded by 4 °C. The heating is switched off, the cause of the fault is shown on the LED display.
- ▶ Thermostatic over-temperature cut-out to protect the heating element.
- ▶ Soft-touch keys with clear symbols. Protection against unintended alterations by memorizing of the set values.

- ▶ Microprocessor-controlled temperature regulation ensures fast reaching of set temperatures and high temperature constancy. Exact reproducibility of the set value by fast and exact temperature setting.
- ▶ Perforated tray, bottom tray (4010) and removable flask rotating device (4020) are made of stainless steel.

Application

The Mini Incubator is very well suited for incubations that require exactly reproducible temperatures, also for tempering, warming and drying of samples.

The Mini Tube Roller Incubator is universally applicable for incubations and hybridisations. It is equipped with a variable, removable flask rotating device, and provides even results and high resolutions of the detections even when in continuous use due to its constant frequency of 12 rpm.

Accessories



4020



Special hybridisation bottles

made of borosilicate glass, to place between the rubber rollers. Plastic screw cap with 0.5 mm bore hole in the middle for pressure compensation (also available without bore holes on request).

- Order No. 7943 for Ø 32 mm, 273 mm length
- Order No. 7944 for Ø 38 mm, 273 mm length
- Order No. 7945 for Ø 51 mm, 273 mm length