

Hybridisation Ovens

Instruction Manual

Ver. 09/10



Modell

Mini-Hybridisation Oven OV1 (230V)
Mini-Hybridisation Oven OV1 (115V)
Mini-Hybridisation Oven OV2 (230V)
Mini-Hybridisation Oven OV2 (115V)
Mini-Shaking-Hybridisation Oven OV3 (230V)
Mini-Shaking-Hybridisation Oven OV3 (115V)
Duo-Therm-Hybridisation Oven OV5 (230V)
Duo-Therm-Hybridisation Oven OV5 (230V)

Best. Nr.

052-000
052-090
052-100
052-190
052-200
052-290
052-300
052-390



Please read these instructions carefully before using this apparatus!



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This document describes the state at the time of publishing. It needs not necessarily agree with future versions.

Subject to change!

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1 Introduction

1.1 Field of Applications

The hybridization ovens described herein have been designed for incubation of materials in closed and heat resistant vessels (bottles, basins) within the conditions described in chapter 1.3.4, technical data.

The ovens are not suited for incubation in open vessels or for drying of glasses or other things.

1.2 Special features

1.2.1 Vacuum double glass door

The ovens OV2, 3 und 5 have a metal framed double glass vacuum door. The door protects the user as far as possible from low energy radiation like β -emission and provides for optimal thermal insulation.

1.2.2 Rotor and oven interior

All ovens have at least one rotor that can be equipped with different size spring clamps and therefore offers maximal flexibility. Underneath the rotor is drip tray made of stainless steel that safely collects spills that may occur. Moreover the complete oven interior is lined with easy to clean stainless steel.

1.2.3 Shaking platform

The ovens OV3 and OV5 are equipped with an additional platform that shakes with 1 to 10 rpm and may be used for different kind of applications.

1.3 Technical specifications

1.3.1 Temperature

- Digital temperature setting:	Ambient temperature to 85 °C (0,1 °C steps)
- Regulation range:	Ambient temperature +10°C to 85°C
- Digital display of actual temperature:	Ambient temperature to 85.0°C $\pm$ 0,1 °C
- Heating up from 20 to 60 °C:	$\leq$ 15 min
- Temperature varieties inside the chamber:	$\pm$ 1.0 °C

Note: In the DUO-Therm Hybridisation oven, in case of using both chambers at the same time, the minimal regulation temperature in the chamber used with the lower temperature may be shifted to a higher temperature.

1.3.2 Rotor

Capacity

- 6 large hybridisation bottles (300 x 35 mm) or

- 12 medium hybridisation bottles (150 x 35 mm) or
- 12 small hybridisation bottles (100 x 35 mm)

1.3.3 Rotor speed

Continuously adjustable: about 1 to 9.5 rpm

(Shaking speed: Mini-Shaking-Hybridisation oven OV3 and DUO-Therm Hybridisation oven OV5: about 10 to 160 times back and forth)

1.3.4 Electrical connection values

- Power supply:	230 Volts, 50Hz (052-000,-100,-200,-300) 115 Volts 50/60 Hz (052-090,-190,-290,-390)
- maximum power consumption:	0.63 kW (OV5), 0.32 kW (OV3), 0.31 kW (OV1/2)
- Fuses:	2 x 2.0 AT (OV1,2/230 Volt), 2 x 3.15 AT (OV3/230 Volts) 2 x 4 AT (OV5/230 Volts), 2 x 3.15 AT (OV1,2/115 Volts, 2 x 4.0 AT (OV3/115 Volts), 2 x 8 AT (OV5/115 Volts)
- class:	IP20
- ambient conditions:	15 °C to 30 °C; ≤ 85% relative humidity

1.3.5 Dimensions

	(B x T x H)
Outer dimensions	433 x 400 x 432 mm (OV1, OV2) 433 x 400 x 605 mm (OV3) 433 x 400 x 726 mm (OV5)
Chamber dimensions	355 x 240 x 245 mm (OV1, OV2) 355 x 240 x 400 mm (OV3) 355 x 240 x 245 mm (OV5)
Weight (excluding bottle and mains cable)	20,05 kg (OV1); 21,25 kg (OV2) 26.05 kg (OV3); 36,25 kg (OV 5)

1.4 Legal Notes

1.4.1 Copyright

All rights reserved. It is not allowed to copy and publish the manual or parts of it in any form as copies, micro film or other methods without a written authorisation from Biometra.

Biometra is pointing out that applied company and brand names are usually protected trade marks.

1.4.2 Liability

Biometra is not liable for damages and injuries caused by use not considering these operating instructions in parts or completely.

1.4.3 Meaning of the Instructions

Biometra recommends that you first read these instructions carefully. This operation instruction is part of the product and should be kept over the full life-time of the instrument. It should also be forwarded to subsequent owners and users. Make sure that additions and updates are inserted into the operation instructions.

2 Safety and Warning Notices

2.1 Definition of Symbols

<u>Symbol</u>	<u>Definition</u>
	Caution! Refer to instruction manual!
	Danger! High voltage!
	Fragile!
	Danger! Hot surface!

2.2 General Safety Instructions

Please read this manual carefully before starting operation the hybridisation ovens

General safety precautions for laboratory work must be observed when working with the instrument.



Parts in the oven and parts of the housing may be heated to up to 85 °C. Avoid any contact especially with metal parts, hybridization bottles and solutions at high temperatures in the bottles: Danger of burning!



Hybridization bottles containing hot solutions must not be opened or handled without safety protection. Bottles containing hybridization solution must not be transferred rapidly from high to low temperature or vice versa. Danger of explosion!



When opening hybridization bottles at high temperatures hot steam will escape: Danger of burning and contamination.



Due to the sealing and heat insulation of the incubation chambers, cooling down takes quite some time with doors closed. Danger of burning after too short cooling times!



Before unscrewing parts to open the housing of the oven disconnect it from the mains power: Danger by electric shock!



Open vessels with aqueous solutions must not be used in the oven. Vapor may condense on inner surfaces and penetrate into drive and electronics.



Biometra hybridisation ovens contain no user serviceable parts. Do not open the instrument housing! Service and repair may only be carried out by the Biometra Service department or otherwise qualified technical personal.



Do not use the instrument when damages of the housing, block, cable or other parts are visible.



This instrument is designed and certified to meet EN 61010-1 safety standards. It should not be modified or altered in any way. Alteration of this instrument will void the warranty, void the EN61010-1 certification, and create a potential safety hazard.



The instrument must not be used to dry, temperate or shake substances that may lead to concentrating an explosive gas inside the oven.



When using Biometra hybridisation bottles, a temperature of 70 °C Celsius must not be exceeded.



Closed vessels must be suited for the vapor pressure resulting from the temperature chosen.



Make sure that the appliance connector and the plug of the supply cord are accessible, so you can separate the instrument from the mains.



Connect the hybridisation oven to a grounded socket.



Appropriate safety regulations must be observed when working with infectious, pathogenic or radioactive material. Ask the responsible local safety inspector for details.



The hybridisation oven must not be used with explosive, flammable or volatile liquids.



Do not move the rotor by hand. To change the rotor position, close the hybridization oven door and switch the rotor "on".



Be careful when loading the oven with sharp or hard items. Do not abut against the glass door! Danger of breakage of glass and implosion.



Do not use abrasives to clean the instrument.



For transports always use the original Biometra box.

3 Installation

3.1 Content of delivery

- a) Hybridisation oven
- b) Dip tray/shaking platform
- c) Rotor
- d) wide-necked hybridization bottles (300 x 35 mm) with meshes (5 pcs., 230 x 230 mm)
- e) Power cable
- f) Instruction manual

Please keep the original packaging material for return shipment in case of servicing

3.2 Unpack and Check

Unpack and carefully examine the instrument. Report any damage to Biometra. Do not attempt to operate this device if physical damage is present.

Please keep the original packing material for return shipment in case of service issues



!! Attention !!



Please fill out and send back the warranty registration card. This is important for you to claim full warranty.

3.3 Installation Conditions

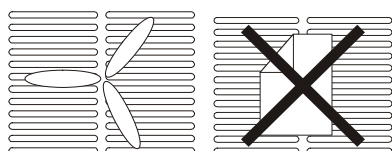
- Place the hybridisation oven on a stable surface in a dry, safe environment.
- Let equilibrate the hybridisation oven to room temperature before starting operation (1 to 6h).
- Make sure that the appliance connector and the plug of the supply cord are accessible, so you can separate the instrument from the mains.
- Connect the hybridisation oven to a grounded socket.
- The maximum temperature that can be used in the Biometra hybridization ovens OV 1,2,3 or OV 5 is 85 °C. Higher values should not be set, as the built in temperature fuse will switch off the heater at about 90 degrees. The fuse will start the heater again after cooling down. Thereby of course an undefined temperature regulation with temperature fluctuating a lot will result.

Note: When opening the doors, rotor, shaking platform, fan and heater will be switched off from safety reasons. The temperature setting will remain in store and the oven will heat to the set temperature again as soon as the door is closed.

- The rotors in the incubation chambers can hold up to 6 large bottles (300 x 35 mm) or six small bottles (150 x 35 mm or 100 x 35 mm). Any combination of large and small bottles can be used. The rotor speed can be set from about 1 to 9.5 revolutions per minute. For longest lifetime of the drive system the rotor should be loaded as balanced as possible; e. g. when

three bottles are incubated do not place them beside each other but leave one clamp empty before placing the next. If just one bottle is used an empty bottle should be placed opposite to it.

- Make sure that the ventilation slots on the bottom and the rear are not obstructed. Make sure that there is no object underneath the instrument that may block the ventilation slots at the bottom (e.g. a piece of paper etc.)
- There must be sufficient distance between the ventilation slots on the rear side of the hybridisation oven and a wall or another instrument (min 10 cm).



Ensure that both the rear and bottom ventilation slits of the rear and bottom of the instrument are unobstructed.

Insufficient ventilation can cause overheating of the instrument.

3.4 Operating elements

Key	function	Description
switch (Green)	<i>Power</i>	Mains switch for on/off
set keys	$\nabla \Delta$	set-temperature value
Key "SET"	Set temperature	Setting and storing of desired temperature
Turning knob	<i>rotor</i>	Set rotor speed
LCD-display		Actual temperature = red, set temperature = green

4 Operating

4.1 Switching on

After switching on the oven (*Power-switch*) the display will show the actual temperature in the oven and the last set temperature value.

Heating up to the set temperature starts immediately.

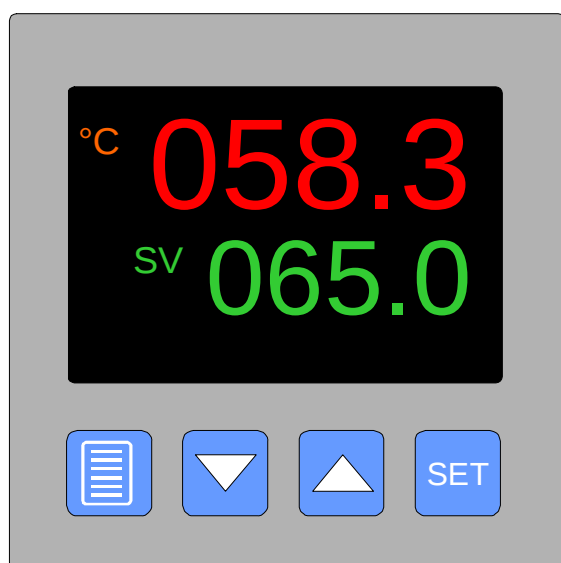
The rotor starts turning immediately after switching on as well, in case the turning knob for the rotor speed is not at the left stop.

The shaking platform starts moving with the speed set, too. When starting the shaking platform a slow speed should be chosen. The speed then can be regulated up adequate to the vessels placed on the shaking platform. When placing the shaking platform into the oven care must be taken the drive slips into the central guide rail.

The upper red display shows the actual temperature inside the oven chamber; the lower green display shows the temperature value set (see chapter 4.2). In continuous use, after heating up, both displays will show the same temperature.

4.2 Display of the set temperature

The set temperature is shown in the lower green display



Actual temperature (red)

Set temperature (green)

4.3 Setting the temperature

The temperature is set by pressing the ∇ and Δ keys on the controller (Increase Δ or decrease ∇ the value).

Therefore first the SET key is pressed until "SV" starts blinking left above the set value. Now one of the ∇ Δ keys is pressed several times or permanently. With a key kept pressed the set value increases/decreases slowly at first. The longer the key is held the faster the set temperature value will change. This allows the user to easily perform large temperature changes.

The new temperature value set must be confirmed by the SET key (SV is not blinking any more). Immediately after confirmation the controller will regulate to the new temperature.

Note: The set temperature should be at least 10°C above the ambient temperature. Otherwise in continuous use the set temperature might be exceeded.

4.4 Set rotor speed and shaking frequency

At the left limit of the knob for setting the rotor speed is the function to turn the rotor on or off. To switch the rotor drive off turn the knob counter clock wise over the left limit.

The ovens containing an integrated shaker (Mini-Shaking-Hybridization oven OV3 and DUO-Thermo Hybridization oven OV5) provide an additional turning knob marked "Shaker" for the shaking speed; this one as well has an on/off switch at the left stop.

In the OV 3 it can be used together with the rotor, in case the vessels to be shaken are not higher than 16.5 cm.

The shaking speed can be set from about 10 to 160 per minute.

4.5 Inserting the hybridisation bottles

The rotor axis is connected to the drive by a coupler, it fits in two positions. After positioning the rotor in the coupler on the left side it must be slightly pushed to the left and afterwards downwards into the holder on the right side. By slightly lifting the rotor on the right side it can be taken out. To load the bottles the rotor should be taken out of the oven. This way the bottles can be pushed into the clamps from the sides. Pushing the bottles into the rotor from the front side may dilate the clamps after some time. Clamps can be exchanged easily and are available as spare parts.

To additionally allow the hybridization solution to move back and forth the bottles can be placed slightly inclined. Therefore the left clamp disk on the rotor can be dismantled by a knurled screw on the axis on the disks inner side. The left clamp disk can be fixed in any position by this knurled screw.

4.6 Removing the hybridisation bottles

To remove the bottles take out the rotor from the instrument (see chapter 4.5) and pull the bottles out of the spring clamps from the side. Pulling out the bottles off the rotor from the front side may dilate the clamps after some time.



Hybridization bottles containing hot solutions must not be opened or handled without safety protection. Bottles containing hybridization solution must not be transferred rapidly from high to low temperature or vice versa. Danger of explosion!



When opening hybridization bottles at high temperatures hot steam will escape: Danger of burning and contamination.



Parts in the oven and parts of the housing may be heated to up to 85 °C. Avoid any contact especially with metal parts, hybridization bottles and solutions at high temperatures in the bottles: Danger of burning!

In case the hybridization oven is not used for a longer period please remove all liquids from the bottles and from inside the chambers. Remove the rotor from the oven and also remove all bottles from the rotor clamps.

4.7 Auto Restart

The hybridization ovens OV1, OV2, OV3 and OV5 have an auto restart function.

In case the mains power supply is interrupted for a few seconds up to several hours the oven will restart automatically as soon as the power is present again. The last temperature set will be regulated to.

4.8 Working at ambient temperature

For working at ambient temperature the value should be set to about five degrees below the ambient temperature in the laboratory. The controller this way will never switch on the heater.

5 Accessories:

Hybridisation bottle 300 x 35 mm	052-001
Hybridisation bottle 150 x 35 mm	052-002
Hybridisation bottle 100 x 35 mm	052-003
Spare lid (incl. O-ring)	052-011
O-ring for lid	052-012
Meshes, 5 pieces 230 x 230 mm	052-005
Meshes, 5 pieces 150 x 100 mm	052-105

6 Service

Should you have any problems with this unit, please contact our service department or your local Biometra dealer:

Biometra GmbH

Service Department

Rudolf-Wissell-Straße 14 - 16

D-37079 Göttingen

Phone: ++49 (0)5 51 50 68 6 - 10 or 12

Fax: ++49 (0)5 51 50 68 6 -11

e-mail: Service@biometra.com



If you would like to send the unit back to us, please read the following return instructions in chapter 6.1.

6.1 Instructions for return shipment

In case of an instrument failure that cannot be fixed please proceed as follows:

- Return only defective devices. For technical problems which are not definitively recognisable as device faults please contact the Technical Service Department at Biometra (Tel.: +49 551-50881-10/12, Fax: +49 551-50881-11, e-mail: service@biometra.com).
- Please contact our service department for providing a **return authorization number (RAN)**. This number has to be applied clearly visible to the outer box. **Returns without the RAN will be not be accepted!**
- Important: Carefully clean all parts of the instrument of biologically dangerous, chemical or radioactive contaminants. If an instrument is contaminated, Biometra will be forced to refuse to accept the device. The sender of the repair order will be held liable for possible losses resulting from insufficient decontamination of the device.
- Please prepare written confirmation that the device is free from biologically dangerous and radioactive contaminants. The declaration of decontamination (see section 6.2) must be attached to the outside of the packaging.
- Use the original packing material. If not available, contact Biometra or your local distributor.
- Label the outside of the box with "CAUTION! SENSITIVE ELECTRONIC INSTRUMENT!"
- Please enclose a note which contains the following:
 - a) Sender's name and address,
 - b) Name of a contact person for further inquiries with telephone number,
 - c) Description of the fault, which also reveals during which procedures the fault occurred, if possible

6.2 Equipment Decontamination Certificate

To enable us to comply with german law (i.e. §71 StrlSchV, §17 GefStoffV and §19 ChemG) and to avoid exposure to hazardous materials during handling or repair, please complete this form, prior to the equipment leaving your laboratory.

COMPANY / INSTITUTE _____

ADDRESS _____

PHONE NO _____ FAX NO _____

E-MAIL _____

EQUIPMENT	Model	Serial No
-----------	-------	-----------

_____	_____
_____	_____
_____	_____
_____	_____

If on loan / evaluation Start Date: _____ Finish Date _____

Hazardous materials used with this equipment:

Method of cleaning / decontamination:

The equipment has been cleaned and decontaminated:

NAME _____ POSITION _____
(HEAD OF DIV./ DEP./ INSTITUTE / COMPANY)

SIGNED _____ DATE _____

PLEASE RETURN THIS FORM TO BIOMETRA GMBH OR YOUR LOCAL BIOMETRA DISTRIBUTOR TOGETHER WITH THE EQUIPMENT.

PLEASE ATTACH THIS CERTIFICATE OUTSIDE THE PACKAGING. INSTRUMENTS WITHOUT THIS CERTIFICATE ATTACHED WILL BE RETURNED TO SENDER.

General Information for Decontamination:

Please contact your responsible health & safety officer for details.

Use of radioactive substances:

Please contact your responsible person for details.

Use of genetically change organism or parts of those:

Please contact your responsible person for details.

7 Note for the disposal of electric / electronic waste.

Note

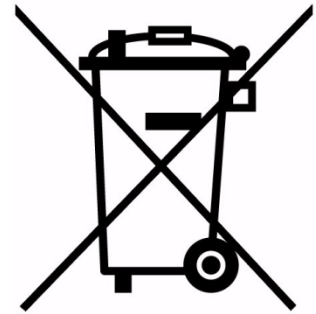
for disposal of electric / electronic waste

Hinweis

für die Entsorgung von Elektroaltgeräten

Renseignement

du traitement des déchets des appareils électrique / électronique



This symbol (the crossed-out wheeled bin) means, that this product should be brought to the return and / or separate systems available to end-users according to your country regulations, when this product has reached the end of its lifetime.

For details, please contact your local distributor!

This symbol applies only to the countries within the EEA*.

EEA = European Economic Area, comprising all EU-members plus Norway, Iceland and Liechtenstein.

Dieses Symbol (die durchgestrichene Abfalltonne) bedeutet, dass dieses Produkt von der Firma Biometra für eine kostenlose Entsorgung zurückgenommen wird. Dies gilt nur für Geräte, die innerhalb Deutschlands gekauft worden sind.

Kontaktieren Sie für die Entsorgung bitte die Biometra Service-Abteilung!
Außerhalb Deutschlands wenden Sie sich bitte an den lokalen Händler.

Dieses Symbol gilt nur in Staaten des EWR*.

*EWR = Europäischer Wirtschaftsraum, umfasst die EU-Mitgliedsstaaten sowie Norwegen, Island und Liechtenstein.

Cet symbol (conteneur à déchets barré d'une croix) signifie que le produit, en fin de vie, doit être retourné à un des systèmes de collecte mis à la disposition des utilisateurs finaux en conséquence des réglementations par la loi de votre pays.

Pour des information additionel nous Vous demandons de contacter votre distributeur!

Cet symbole s'applique uniquement aux pays de l'EEE*.

EEE = Espace économique européen, qui regroupe les États membres de l'UE et la Norvège, Islande et le Liechtenstein.

8 EU - Konformitätserklärung/ EU - Declaration of Conformity

Göttingen, den 24. 08. 2004

im Sinne der EG-Richtlinie über elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen 73/23/EWG
following the EC directive about electrical equipment for use within certain limits of voltage 73/23/EEC

und / and

im Sinne der EG-Richtlinie für die elektromagnetische Verträglichkeit 89/336/EWG.
following the EC directive about the electromagnetic compatibility 89/336/EEC .

Hiermit erklären wir, daß folgende **Hybridisierungsöfen**
*Herewith we declare that the following **Hybridization Ovens***

Typen / Mini-Hybridisierungsöfen OV1, Mini-Hybridisierungsöfen OV2, Mini-Shaking-
types: Hybridisierungsöfen OV3, DUO-Therm Hybridisierungsöfen OV5
Mini-Hybridization Oven OV1, Mini Hybridization Oven OV2, Mini Shaking Hybridization Oven OV3, DUO-Therm Hybridization Oven OV5

Best.-Nr. / 052-000, 052-090, 052-100, 052-190, 052-200, 052-290, 052-300, 052-390
Order No

den grundlegenden Anforderungen der
corresponds to the basic requirements of

EG-Niederspannungsrichtlinie 73/23/EWG und der
EC low voltage directive 73/23/EEC and the

EG-Richtlinie über die elektromagnetische Verträglichkeit 89/336/EWG entsprechen.
EC directive about the electromagnetic compatibility 89/336/EEC .

Folgende harmonisierte Normen wurden angewandt:
The following harmonized standards have been used:

EN 55011:1998 + A1:1999 + A2:2000
EN 61000-3-2:2000
EN 61000-6-1:2001
EN 61010-1: 2004

EN 61000-3-3:1995 + A1:2001

Dr. Jürgen Otte
Quality Manager

9 Warranty

This Biometra instrument has been carefully build, inspected and quality controlled before dispatch. Hereby Biometra warrants that this instrument conforms to the specifications given in this manual. This warranty covers defects in materials or workmanship as described under the following conditions:

This warranty is valid for 24 month from date of shipment to the customer from Biometra. This warranty will not be extended to a third party without a written agreement of Biometra.

This warranty covers only the instrument and all original accessories delivered with the instrument. This warranty is valid only if the instrument is operated as described in the manual.

Biometra will repair or replace each part which is returned and found to be defective. This warranty does not apply to wear from normal use, failure to follow operating instructions, negligence or to parts altered or abused.

10 Subject index

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