

**MR 3001, MR 3001 K, MR 3001 K8  
MR 3002, MR 3002 S8  
HG 3001, HG 3001 K**



**Betriebsanleitung  
Instruction Manual  
Mode d'Emploi  
Instrucciones de  
Empleo**



**DEUTSCH**

**D**

**ENGLISH**

**E**

**FRANCAISE**

**F**

**ESPAGNOL**

**ES**

Thank you for purchasing a Heidolph Instruments product. This item has been designed, manufactured and inspected in compliance with DIN EN ISO 61010 for continuous operation and long life performance.

## SUMMARY

SUMMARY .....	14
STANDARD EQUIPMENT & ACCESSORIES .....	15
GENERAL INFORMATION .....	16
SAFETY INFORMATION .....	16
SET-UP .....	17
1. Set-up .....	17
2. Electric hook-up .....	17
3. Connect EKT 3001 / EKT 3001 G temperature control on the MR 3001 K / MR 3001 K8 / MR 3002 / MR 3002 S8 / HG 3001 K .....	17
4. Connect a contact thermometer on the MR 3001 K / MR 3001 K8 / MR 3002 / MR 3002 S8 / HG 3001 K .....	18
5. Set-up with tank adapter .....	19
OPERATION AND CONTROLS .....	19
1. Turn item ON .....	19
2. Set stirring speed .....	19
3. Heat medium in absence of a detached control .....	19
4. Heat medium using the EKT temperature control or a contact-type thermometer (MR 3001 K / MR 3001 K8 / MR 3002 / MR 3002 S8 / HG 3001 K only) .....	20
CLEANING & SERVICING .....	20
UNINSTALL, FORWARD & STORE .....	21
DISPOSAL .....	21
MALFUNCTION & REMEDY .....	21
SPECIFICATIONS .....	22
WARRANTY, LIABILITY & COPYRIGHT .....	23
QUESTIONS / REPAIR WORK .....	23
CE-DECLARATION OF CONFORMITY .....	23

## STANDARD EQUIPMENT & ACCESSORIES

### Standard Equipment

product	quantity	P/N	P/N
		230 V / 50/60 Hz	115 V / 60 Hz
MR 3001 or	1	504-10000-00	504-10000-01
MR 3001 K or	1	504-10100-00	504-10100-01
MR 3001 K8 or	1	504-10108-00	-----
MR 3002 S or	1	504-20100-00	504-20100-01
MR 3002 S8 or	1	504-20108-00	-----
MR 3002 C or	1	504-20110-00	504-20110-01
MR 3002 G or	1	504-20120-00	504-20120-01
HG 3001 or	1	504-40000-00	504-40000-01
HG 3001 K	1	504-40100-00	504-40100-01
Instruction Manual	1	01-005-002-92	01-005-002-92
power cord	1	14-007-003-81	14-007-003-89

### Accessories

Item	P/N
EKT 3001 temperature controller incl. pt 100 stainless steel	509-87000-00
EKT 3001 G temperature controller incl. pt 100 glass	509-87100-00
1 liter heating bath, for oil, 250° C max.	504-93000-00
1 liter heating bath, PTFE coated for water, 100° C max.	504-93100-00
2 liter heating bath, for oil, 250° C max.	504-92000-00
2 liter heating bath, PTFE coated for water, 100° C max.	504-92100-00
4 liter heating bath, for oil, 250° C max.	504-91000-00
4 liter heating bath, PTFE coated for water, 100° C max.	504-91100-00
concave block adaptor for 1 liter round-bottom flasks	504-94000-00
stand, 1.4305 (V2A) stainless steel	509-81000-00
stand, 1.4305 (V2A) stainless steel, (for 4 liter heating bath)	509-98000-00
Clamp for temperature sensor	509-67000-00
magnetic stir bars (3 ea), cylindrical, PTFE-coated	509-56000-00
Bath liquid RT up to 240°C	515-31000-00-1

## GENERAL INFORMATION



Unpack your item carefully.

Inspect for damage and report such damage or missing parts to your supplier right away.



Read your Instruction Manual carefully. Take time to save time while working with your item. Make sure that every user has read and understood the Instruction Manual.

Please store the Instruction Manual in a place easily accessible to every user.



**IF ALL ELSE FAILS, READ THESE INSTRUCTIONS !**



A so-called EURO-plug (DIN 49441 CEE 7/VII 10/ 16 A 250 V) is standard on all of the items. For the Continental US they feature a US-standard plug (NEMA Pub.No.WDI.1961 ASA C 73.1 . 1961 page 8 15A 125V).



When using the item in a country with deviating outlet / plug systems, we recommend to use approved adapters or to have an electrician replace the standard plug with one suiting your needs.



As shipped, the item features a protective ground wire. When replacing the original plug, make sure to reconnect this protective ground wire in the new plug !

## SAFETY INFORMATION



**Please comply with all safety and accident-prevention regulations as in force for laboratory work !**



**Use extra care when working with flammable substances; refer to safety data sheets.**



**When connecting your item with your local power supply, please make sure your item is designed for your local supply voltage; go by data plate on the item.**



**Turn your power switch OFF whenever the item is not used, or before disconnecting the plug.**



**Repair work is restricted to technicians approved by Heidolph Instruments.**



**Use extra care when working in the vicinity of flammable and explosive substances. Motors are of non-sparking type, however, the item itself is not explosion proof**



**Please do not connect your magnetic stirrer without a protective ground outlet.**



**Caution ! Hazard of serious burns when running the hot plate over 50°C. Avoid contact with hot plate, heating bath and fluid.**



**Caution ! When heating flammable substances, adjust hot plate nominal temperature to a lower level than the substance's flashpoint.**



**Your item requires a solid stand.**

## SET-UP

### 1. Set-up

Please locate the item on a sturdy, horizontal surface. For reasons of safety, keep the area around the stirrer module clear of other items.

### 2. Electric hook-up



MR 3001 / MR 3001 K



MR 3002 / MR 3002 S8



HG 3001 / HG 3001 K

#### Electric hook-up MR 3001 / MR 3001 K / MR 3001 K8 / MR 3002 / MR 3002 S8

Do the following checks before connecting:

- power switches (1 + 2) OFF ("0"); when ON, toggle switch lights GREEN;
- control knobs (3 + 4) in extreme left position (CCW)

#### Electric hook-up HG 3001 / HG 3001 K

Do the following checks before connecting:

- power switch (2) OFF ("0"); when ON, toggle switch lights GREEN;
- control knob (4) in extreme left position (CCW)



rear panel, MR 3001 / HG 3001



rear panel, MR 3001 K / HG 3001 K  
MR 3001 K8 / MR 3002 / MR 3002 S8

Connect item with mains by plugging the power cord in the plug connector (6) located in the item's rear panel and your outlet.

### 3. Connect EKT 3001 / EKT 3001 G temperature control with MR 3001 K / MR 3001 K8 / MR 3002 / MR 3002 S8 / HG 3001 K

In addition to the hot plate temperature control, the EKT 3001 / EKT 3001 G is used to control substance temperature.



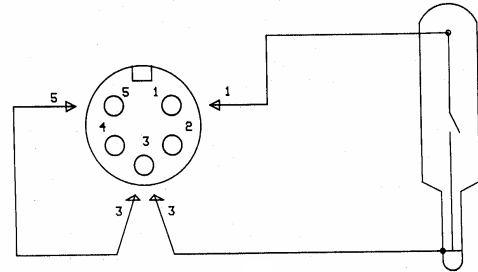
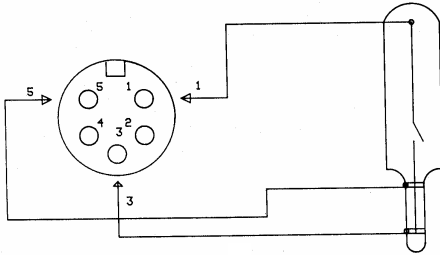
Connect the EKT 3001 / EKT 3001 G with the socket (7) located on the item's rear panel.  
For more details please refer to the EKT 3001 Instruction Manual.

#### 4. Connect a contact-type thermometer with the MR 3001 K / MR 3001 K8 / MR 3002 / MR 3002 S8 / HG 3001 K

In addition to the hot plate temperature control, a contact-type thermometer is used to control substance temperature.



For running the item with the contact-type thermometer, we recommend to use a safety thermometer only.



#### DIN 12878 contact thermometer wiring

The contact-type thermometer needs to be fitted with a 4-pin DIN 41524 plug. For wiring information refer to above diagram.

#### Contact thermometer without glass breakage detector wiring

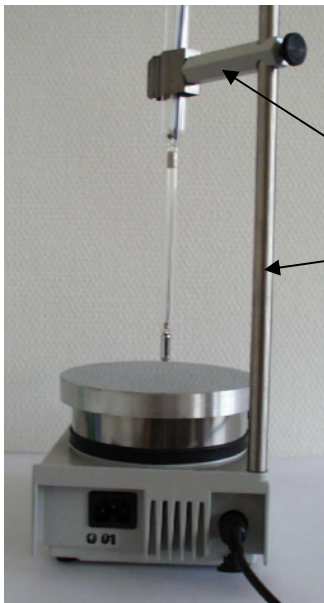
When using a contact-type thermometer *not* featuring a glass breakage detector, you need to jumper pins 5 & 3.



rear view MR 3001 K/HG 3001 K/  
MR 3001 K8/MR 3002/MR 3002 S8

Connect your contact-type thermometer with the socket (7) located in the item's rear panel. Any time you don't use either an EKT or contact-type thermometer, you need to close the socket (7) with a dummy plug (8).

The following optional **attachment accessories** for the **contact-type thermometer** are available:



**Thermometer- or temperature sensor holder**  
(P/N 509-67000-00).

**stand** (P/N 509-81000-00)

Set your contact-type thermometer for the medium temperature required..

**Set-up includes stand and holder**



## 5. Set-up with tank adapter



If you are going to use a heating bath (refer to “Accessory” section) make sure bottom rim of your bath properly fits over the hot plate.

When using the item with a 4 liter bath accessory, you may attach the temperature sensor to a special stand (X) (P/N 509-98000-00) designed for the 4 liter heating bath.

X

Set-up features 4 liter heating bath, clamp for temperature sensor and special stand

## OPERATION AND CONTROLS

### 1. Turn item ON

Place your container or heating bath with the magnetic stir bar and fluid on the active surface of your magnetic stirrer. Magnetic stir bars are available from Heidolph Instruments as an optional accessory.



MR 3001 / MR 3001 K



MR 3002

Prior to turning the power switch (1) ON, rotate speed control (3) to its extreme left position (CCW). When turning power switch to ON, stirrer is going to start running at its preset speed immediately.

### 2. Set stirring speed

set speed to meet your needs with the rotary speed control (3) on the front panel.



**Note:**

HG 3001 and HG 3001 K do not feature a stirrer drive mechanism.

### 3. Heating medium in the absence of a detached control



MR 3001 / MR 3001 K



MR 3002



HG 3001 / HG 3001 K

Prior to turning the power switch (2) to ON, rotate hot plate temperature control fully CCW. At this point you can turn the heating circuit ON with the power switch (2).

Use rotary control (4) to adjust hot plate temperature between ambient and 300°C; make reference to front panel temperature marks.

A yellow LED (5) confirms heating current ON.



**Note regarding temperature adjustment:**

Due to the thermal coefficient of different vessels, the different solvent quantities and radiation losses of the solvent temperature will always be slightly below the hot plate temperature.

We recommend to select a SET temperature with the control knob of approx. 1.5 to 4 times of the solvent temperature required.

This factor could turn out even higher for large volumes or high thermal conductivity solvents.



**Important Note regarding heat-up time:**

The higher the SET temperature, the faster your Heidolph Magnetic Stirrer will heat up.

**4. Heating medium using the EKT temperature control or a contact-type thermometer (MR 3001 K / MR 3001 K8 / MR 3002 / MR 3002 S8 / HG 3001 K only)**

Make reference to „set-up“, para. 4, and connect a contact-type thermometer as described.

For heating, make reference to „2a“ „heating in absence of a detached temperature control“ and set your nominal temperature on the EKT or contact-type thermometer.



**Important Note regarding heat-up time:**

The higher the SET temperature, the faster your Heidolph Magnetic Stirrer will heat up. However, if SET temperature is set too high, (either on the Magnetic Stirrer or on the Heidolph temperature control EKT 3001) your solvent may heat up too fast and the temperature will overshoot.

To avoid an overshoot temperature situation, please adjust the SET temperature very carefully.

## CLEANING & SERVICING

**Cleaning:** wipe housing surfaces clean with a damp cloth (add some sort of mild liquid soap).



**Note**

To avoid damage to the surface finish, avoid using chlorine bleach, chlorine-based detergents, abrasive substances, ammonia, rags or cleaning agents containing metal particles.

The item is maintenance-free. Repair work is limited to technicians authorized or appointed by Heidolph Instruments. Please call your local Heidolph Instruments Dealer or a Heidolph Instruments Field Representative (also refer to page 23).

## UNINSTALL, FORWARD & STORE

### Uninstall

Turn the item OFF and disconnect mains plug.

### Forward & Store

1. We recommend to store the item and its components in its original box, or a similar container that offers adequate protection against damage in transit. Tape the box securely.
2. Store the item in a dry place.



### Caution

Do not jolt or shake the item during transport.

## DISPOSAL

For disposal, please comply with your local or national regulations.

Split by metal, plastic, etc.

Packing material to be treated as described above (material split).

## MALFUNCTION & REMEDY

1. Power switch dim:  
check power supply and power cord
2. Won't stir (magnetic stirrers only):  
– no magnetic stir bar in container  
– speed control knob in extreme left (CCW) position
3. Won't heat:  
– jumper (8) not installed  
– EKT 3001 or contact-type thermometer not connected  
– EKT 3001 or contact-type thermometer broken (sensor broken)  
– thermal circuit breaker in hot plate dropped  
(allow hot plate to cool off)



rear view MR 3001 K / HG 3001 K / MR 3001 K8 / MR 3002 / MR 3002 S8

In case of a malfunction and you cannot repair as described above, contact your authorized Heidolph Instruments Dealer.

## SPECIFICATIONS

	<b>MR 3001; MR 3001 K; MR 3001 K8 HG 3001; HG 3001 K</b>	<b>MR 3002; MR 3002 S8</b>
<b>stirrer drive</b>	condenser motor, electronic speed control, thermal circuit breaker	condenser motor, electronic speed control, thermal circuit breaker
<b>speed range</b>	100 – 1250 rpm (MR 3001...)	0 – 1250 rpm
<b>speed control</b>	scale marks (MR 3001...)	scale marks
<b>temperature control</b>	capillary tube	electronic
<b>heating power</b>	600 watts 800 watts (MR 3001 K8)	600 watts 800 watts (MR 3002 S8)
<b>hot plate temperature</b>	0 – 300 °C	0 – 300 °C
<b>control hysteresis, hot plate</b>	± 15 K	± 5 K
<b>hot plate made from</b>	Silumin (= aluminum alloy)	MR 3002 S (Silumin) MR 3002 C (chromium steel) MR 3002 G (vitrified ceramics)
<b>temperature sensor, hot plate</b>	capillary tube	2 x Pt100
<b>supply voltage</b>	230 volts / 50/60 Hz; others available on request	230 volts / 50/60 Hz; others available on request
<b>temperature range, medium</b>	0 – 250 °C	0 – 250 °C
<b>accepts detached temperature control or contact-type thermometer</b>	MR 3001 K, MR 3001 K8 and HG 3001 K: YES	YES
<b>accuracy of control (with EKT 3001; EKT 3001 G)</b>	± 1 K	± 1 K
<b>safety-circuit hot plate temperature</b>	thermal circuit breaker (bimetal) in hot plate, drops at 370°C	2 independent circuits (Triac and relay), drops at 370 °C
<b>power dissipation</b>	625 watts MR 3001 K8: 825 watts	630 watts MR 3002 S8: 830 watts
<b>weight</b>	3.0 kg	3.0 kg
<b>dimensions (w x d x h)</b>	240 mm x 155 mm x 120 mm	240 mm x 155 mm x 120 mm
<b>ambient specifications</b>	0 – 40 °C at 80 % rel. humidity	0 – 40 °C at 80 % rel. humidity
<b>chemical resistance</b>	housing: encapsulating, polyamide coating front panel: polyester	housing: encapsulating, polyamide coated front panel: polyester

## WARRANTY, LIABILITY & COPYRIGHT

### Warranty

Heidolph Instruments warrants that the present product shall be free from defects in material (except wear parts) and workmanship for 3 years from the date shipped off the manufacturer's warehouse.

Transit damage is excluded from this warranty.

To obtain such warranty service, contact Heidolph Instruments (phone: +49 – 9122 - 9920-68) or your local Heidolph Instruments Dealer. If defects in material or workmanship are found, your item will be repaired or replaced at no charge.

Misuse, abuse, neglect or improper installation are not covered by this warranty promise.

Alterations to the present warranty promise need Heidolph Instruments' consent in writing.

### Exclusion Clause

Heidolph Instruments cannot be held liable for damage from improper use or misuse. Remedy for consequential damage is excluded.

### Copyright

Copyright in pictures and wording of the present Instruction Manual is held by Heidolph Instruments.

## QUESTIONS / REPAIR WORK

If any **aspect** of installation, operation or maintenance remains unanswered in the present Manual, please contact us at the following address:

For equipment repairs, please call Heidolph Instruments (phone: +49 – 9122 - 9920-68) or your local authorized Heidolph Instruments Dealer.



### Note

You will receive clearance for sending your defective item to the following address:

**Heidolph Instruments GmbH & Co. KG**  
**Lab Equipment Sales**  
**Walpersdorfer Str. 12**  
**D-91126 Schwabach / Germany**  
**Tel.: +49 – 9122 - 9920-68**  
**Fax: +49 – 9122 - 9920-65**  
**E-Mail: sales@heidolph.de**



### Safety Information

When shipping items for repair that may have been contaminated by hazardous substances, please:

- advise exact *substance*
- take adequate *protective* action not to harm our parts receiving and service personnel
- *mark* the pack IAW Hazardous Materials Act
- 



## CE-DECLARATION OF CONFORMITY

We herewith declare that the present product complies with the following standards and harmonized documents:

### EMC-guideline (89/336/EEC):

EN 61326: 1997 + A1:1998 + A2:2001+ A3 2003  
 EN 61000-3-2: 2000  
 EN 61000-3-3: 1995 + 1997 + A1:2001  
 EN 61326: 1997 + A1:1998 + A2: 2001+ A3 2003  
 EN 61000-4-3:2002 +A1:2002  
 EN 61000-4-5:1995 +A1:2001  
 EN 61000-4-6:1996 +A1:2001  
 EN 61000-4-11:1994 + A1:2001

### Low-voltage guideline (73/23/EWG):

EN 61010-1 + EN 61010-2-010  
 + EN 61010-2-051

01-005-002-92-0 11/2004

© Heidolph Instruments GmbH & Co. KG

Technische Änderungen sind ohne vorherige Ankündigung vorbehalten.

Technical changes reserved. Publication not mandatory.

Sous réserve de modifications techniques sans notification préalable.

Nos reservamos el derecho de introducir modificaciones técnicas sin previo aviso.