

**UNIMAX 1010 / PROMAX 1020
DUOMAX 1030 / POLYMAX 1040**



**Betriebsanleitung
Instruction Manual
Mode d'Emploi
Instrucciones de
Empleo
Istruzioni per l'uso**

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Thank you for purchasing a Heidolph Instruments product. This item has been designed, made and inspected in compliance with DIN EN ISO 61010 for long-term and flawless operation.

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Important information



Advice about power cord / mains supply



Caution: mandatory action



Caution: fire- and explosion hazard



Advice about maintenance / repair

STANDARD HARDWARE & OPTIONS

	Product	Quantity	P/N 230/240V 50/60Hz	P/N 115V 50/60Hz
	UNIMAX 1010	1	543-12310-00	543-12310-04
or	PROMAX 1020	1	543-22332-00	543-22332-04
or	DUOMAX 1030 (5° tilt)	1	543-32205-00	543-32205-04
or	DUOMAX 1030 (10° tilt)	1	543-32210-00	543-32210-04
or	POLYMAX 1040 (5° tilt)	1	543-42205-00	543-42205-04
or	POLYMAX 1040 (10° tilt)	1	543-42210-00	543-42210-04
	Instruction Manual	1	01-005-002-45	01-005-002-45
	Power cord	1	14-007-003-81	14-007-003-89

Accessories

Product	P/N
adapter with 2 ea. clamping rollers	549-70000-00
clamping roller (extra)	549-71000-00
adapter for 22 ea. 25 ml Erlenmeyer flasks	549-72000-00
adapter for 14 ea. 50 ml Erlenmeyer flasks	549-73000-00
adapter for 9 ea. 100 ml Erlenmeyer flasks	549-74000-00
adapter for 5 ea. 250 ml Erlenmeyer flasks	549-75000-00
adapter for 4 ea. 500 ml Erlenmeyer flasks	549-76000-00
adapter for 2 ea. 1000 ml Erlenmeyer flasks	549-77000-00
adapter for 50 ml / 100 ml separating funnel	549-78000-00

GENERAL



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 product. 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 products.

For the Continental US they feature a US-standard plug (NEMA Pub.No.WDI.1961 ASA C 73.1 . 1961 page 8 15A 125V).



For 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.



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



When connecting your item with your local power supply, please make sure your item is wired for your local voltage. Refer to the data plate on the item.



Please connect your unit with a protective-ground outlet only.



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



Repair work is limited to technicians approved by Heidolph Instruments.



Your item needs a solid stand.



Lab bench needs to be of rigid design, and feature an anti-skid surface coat.



Before starting the item, make sure all vessels are attached safely (must not move while shaking).

SET-UP

1. Machine set-up

Please locate the shaker on a stable, horizontal surface. For safety reasons, keep the area around the machine clear of other items.

Be aware of orbital movement of the shaker plate and vessel set-ups protruding over the standard table surface.

2. Electric hook-up

Use the power cord from your hardware bag and connect it with the plug connector in the item's rear panel.

The item features two-pole circuit breakers located in the item's plug connector for ease of access. For circuit breaker details, refer to data plate.

3. Secure vessels on shaker plate

To secure vessels on shaker plate, use the optional adapters. Adapters for Erlenmeyer flasks, separating funnels and an adapter with clamping rollers for universal use are available. For more details refer to standard equipment and accessories.

In some cases at low shaking speeds, low-profile vessels like Petri dishes may be placed directly on the non-skid rubber plate that comes standard with the item.



Before starting shaking action, make sure all vessels are secured in place properly.

3.1. Adapters for Erlenmeyer flasks

These adapters are used with the UNIMAX 1010, PROMAX 1020; DUOMAX 1030 und POLYMAX 1040 models. Adapters are shipped assembled. Locate adapter on rubber plate. Make sure the crimped edge of the rubber plate is correctly seated over shaker plate. The adapter is secured on the shaker plate with 4 ea. knurled bolts

adapters for Erlenmeyer flasks

(P/N: depends on size of flask, refer to page 17)

knurled bolt

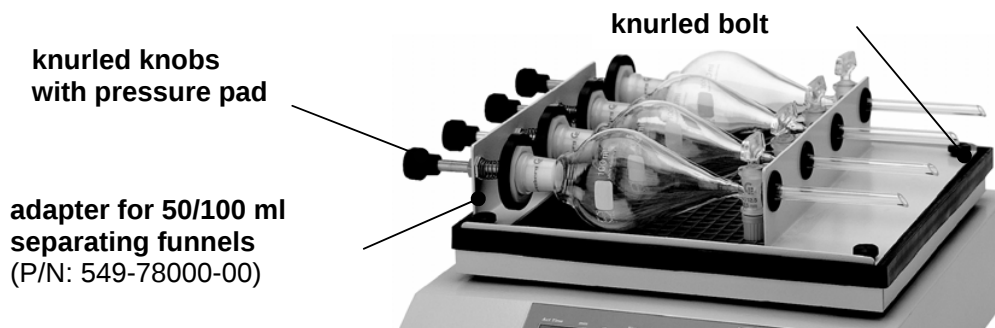


located in the four corners. Load Erlenmeyer flasks in cut-outs. To ease loading, slightly tip flasks. For proper seating, the cut-outs feature a preformed packing.

3.2. Adapter for separatory funnels

A special adapter is available for separatory funnels. This adapter safely holds 4 ea. 50 ml or 4 ea. 100 ml separatory funnels on the shaker plate. The adapter fits the

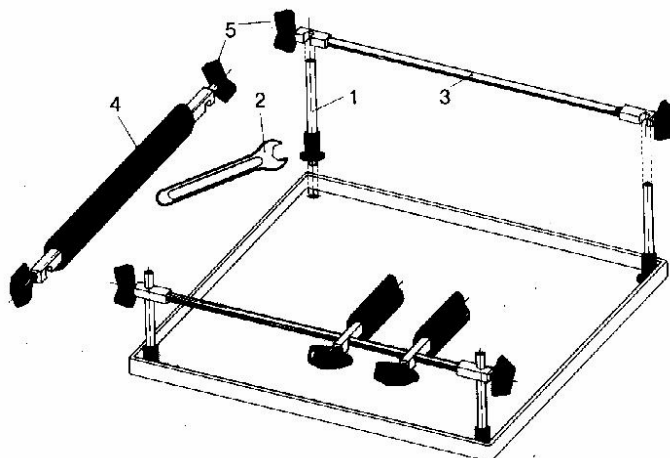
PROMAX 1020 (preferred), UNIMAX 1010, DUOMAX 1030 and POLYMAX 1040 models.



The adapter comes as an assembly. It is put on the shaker plate rubber cushion. Crimped edge of rubber plate is seated over adapter. Adapter is secured with 4 ea, knurled bolts located in the corners. Load separatory funnels in place. To this end unlock pressure pad by pulling knurled knob. Introduce other end of separatory funnel in rubber grommet and allow pressure pad to travel forward slowly until funnel is locked in place. With this sort of clamping, funnel's ground plug is held in place firmly.

3.3. Adapter with clamping rollers

The adapter with clamping rollers goes on the shaker plate as described below: Install 4 ea. bolts (1) in corners and pull tight with box-end spanner (2) from your hardware bag. Secure rod (3) and clamping roller (4) with wingbolts (5). Extra clamping rollers are available under P/N 549-71000-00.

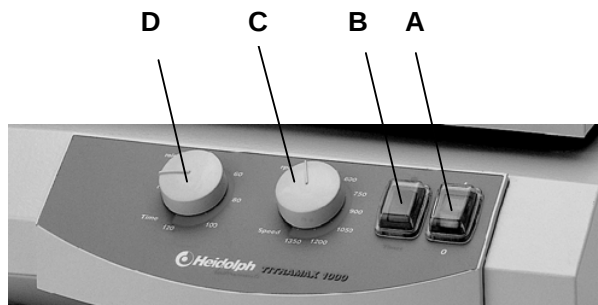


OPERATION AND CONTROLS

-  Before connecting power cord with mains outlet, make sure that:
 - your item is wired for your local voltage and frequency (data plate on item).
 - master switch is set to "0" and all controls are in "min." position (turn CCW completely); this way you avoid spilling fluids by a too intense shaking action.
-  Carefully close your vessels and select appropriate shaking intensity (if vessels remain open) to avoid splashes and spillage.
-  We recommend to start with low shaking speed and gradually increase frequency to avoid accidental shaking at high speed.
-  In general, one single vessel should be arranged in the middle of the shaker plate, whereas more flasks should be distributed equally over the plate.
-  At high loads (load-bearing capacity of shaker plate) and high frequency of shaking, always refer to the load graph applicable for your item (refer to "Specifications" section).
-  When handling hazardous fluids, make reference to applicable safety information.

1. DUOMAX 1030 / POLYMAX 1040 (with mechanical timer)

The control panel features the following controls (from right to left):



- A 2-pole master switch (toggle-type, lighted green)
- B continuous / timer control selector
- C speed selector knob
- D timer setting knob

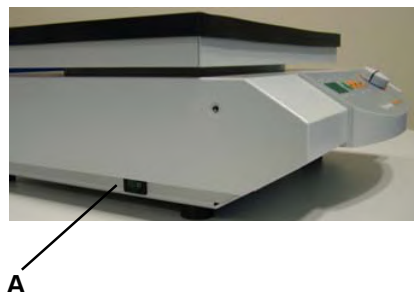
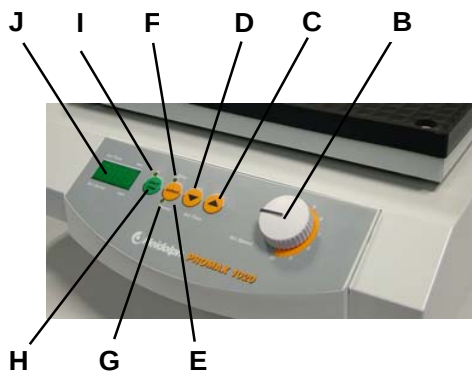
1. Turn item ON with master switch (A).
2. Select shaker frequency with speed selector (C).
3. Select continuous / timer controlled operation with selector (B) (symbol ●) or timer control (timer). In the timer mode, shaking action can be selected between 0 and 120 minutes; time elapsed, item will stop shaking, and a buzzer sounds. The timer will continue running even in case of power supply failure.

-  When using shakers inside conditioning cabinets, make reference to ambient conditions as stipulated in the "Specifications" Section.

2. UNIMAX 1010 / PROMAX 1020 (with digital timer and digital speed display)

The control panel features the following controls:

- A 2-pole master switch (toggle-type, lighted green on the left side of the unit)
- B setting knob, shaking frequency
- C Set Time key $\uparrow$: time up
- D Set Time key $\downarrow$: time down
- E Select key: display selector: shaking frequency (Act Speed) / time (Act Time)
- F LED Time: time appears in display
- G LED Speed: rotational speed (shaking frequency) appears in display
- H Start / Stop key: to START / STOP shaking action
- I LED Start /Stop: lighting, while item is running
- J 4-digit display



A. Continuous shaking

- Turn item ON with master switch (A)
- Set time with $\uparrow$ and $\downarrow$ keys to 000 (depress $\uparrow$ and $\downarrow$ together).
- Start continuous operation by hitting the Start / Stop key. Start and Speed LEDs turn on, shaking frequency is displayed (4-digit display).
- Set shaking frequency with knob (B)
- Hitting Start / Stop key will stop shaking.

B. Timer controlled shaking

- Set time between 0 and 999 minutes with Set Time $\uparrow$ or Set Time $\downarrow$ keys. Short hits on the keys change time setting slowly, whereas depressing keys is going to change time rapidly. Depressing the Set Time $\uparrow$ and Set Time $\downarrow$ keys resets the timer to 000.
- Depressing the Start / Stop key (H) starts shaking at the frequency selected with knob (B) and for the time interval set before. Start LED turns ON.
- Time lapse appears in a 3-digit display. Time LED turns ON.
- Current shaking action may be discontinued with the Start / Stop key (H). Actual time won't change. Hitting this Start / Stop key continues shaking at the moment it had been discontinued.
- In case of a power supply failure or interruption (item turned OFF), this feature is lost.
- Hitting the Select key during timer-controlled operation, you may change display from time to shaking frequency and vice versa. Speed LED turns ON. Timer LED flashes to indicate timer operation mode.
- Timer LED also flashes, when timer-controlled operation was discontinued with the Start / Stop key.

C. Repetition

- Repeating last timer controlled operation does not require new time setting, as long as you did not touch the master switch.

D. Edit time during shaking operation

- Time setting may be changed during shaking, while timer is running and even when timer controlled operation was discontinued.
- Memory timer will keep initial value in its memory.

CLEANING & SERVICING

Cleaning: wipe housing 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 so approved or appointed by Heidolph Instruments. Please call your local Heidolph Instruments Dealer or a Heidolph Instruments Field Representative (also refer to page 26)

DISASSEMBLY & STORAGE

Disassembly

1. Turn item OFF and disconnect mains plug.
2. Remove all of the hardware arranged around the shaker to ease disassembly.
3. Unload all flasks from shaker, uninstall optional equipment.

Forward & Store

1. We recommend storing the item and its components in its original box, or a similar container that offers adequate protection against transit damage. 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).



TROUBLESHOOTING

Work on electric, electronic and cryogenic components is limited to qualified personnel.

Master switch on shaker / mixer won't light

1. Check power cord
2. Check circuit breakers

Item won't shake (master switch lighted))

1. Timer run-down
2. Thermal motor circuit breaker triggered by motor overload
Remedy:
Wait about 20 minutes, decrease load applied on shaker plate.
3. Mechanical parts broken (humming motor noise) or electronic failure (no motor noise).

SPECIFICATIONS

All shakers

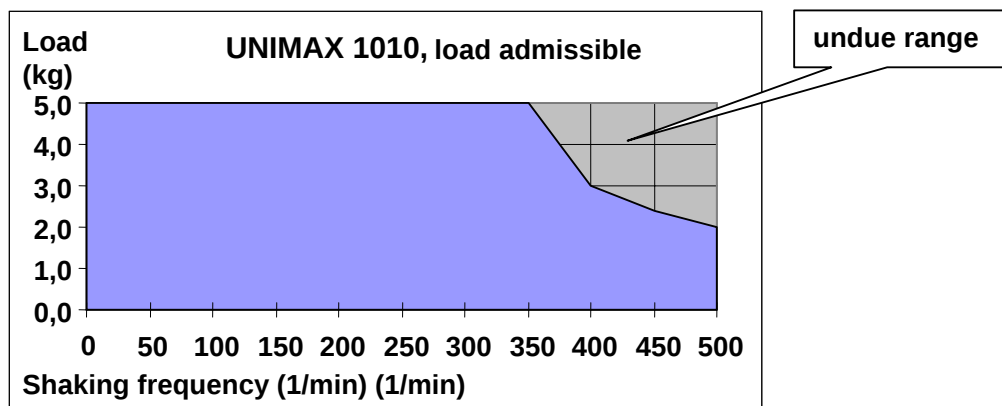
space required	320 mm x 375 mm
shaker plate	258 mm x 290 mm features anti-skid, detachable rubber plate with flanged edges
weight of item	approx. 8 kg
ambient temperature	0°C to 50°C at 80% rel. humidity approved for installation in gassing and conditioning cabinets (make reference to temperature limits)
power dissipation	UNIMAX 1010 / PROMAX 1020 = 30 W DUOMAX 1030 / POLYMAX 1040 = 25 W
voltage / frequency	230/240 V, 50/60Hz; 115V 50/60Hz optional
protective class	IP 40
drive motor	condenser motor, electr. control, overheat protection

UNIMAX 1010

shaking frequency	30 - 500 1/min
total stroke / orbit	10 mm
motion type	rotating
load-bearing capacity	static: 5 kg; less at high shaking frequencies
timer	digital 0 – 999 min / continuous
digital display	shaking frequency / timer



- When running at high shaking frequency, refer to graph for decrease in load bearing capacity of shaker plate

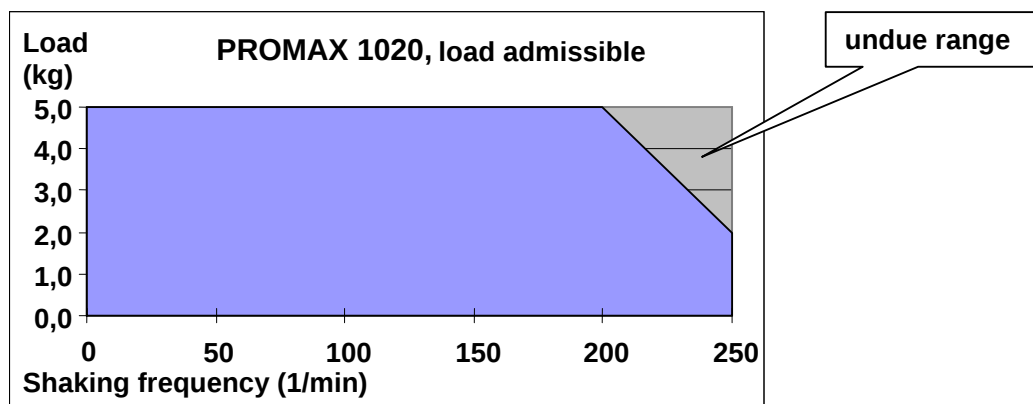


PROMAX 1020

shaker frequency	30 – 250 1/min
total stroke / orbit	32 mm
Bewegungsart	reciprocal
load-bearing capacity	static: 5 kg; less at high shaking frequencies
timer	digital 0 – 999 min / continuous
digital display	shaking frequency / timer



- When running at high shaking frequency, refer to graph for decrease in load bearing capacity of shaker plate





DUOMAX 1030

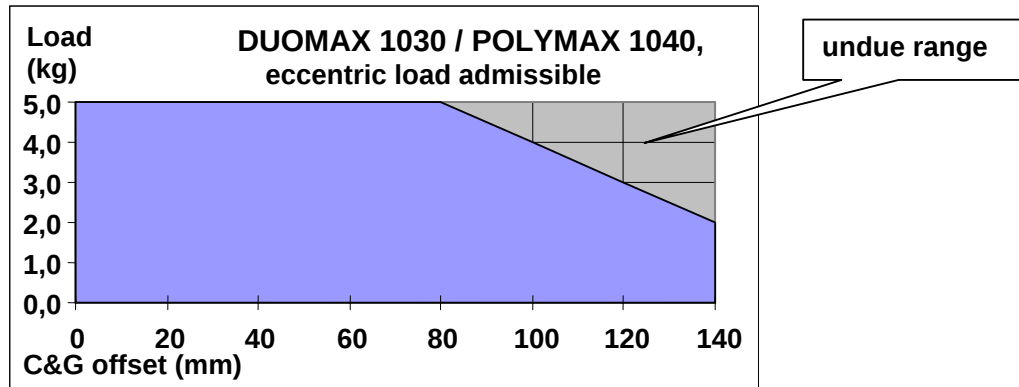
shaker frequency	2 – 50 1/min (fig. 14)
angle	5° / 10 °
motion type	rocking
load-bearing capacity	static: 5 kg, limitations for off-center load
timer	timer 0 – 120 min / continuous

POLYMAX 1040

shaker frequency	2 – 50 1/min (fig. 14)
total stroke / orbit	5° / 10 °
motion type	tumbling
load-bearing capacity	static: 5 kg; static: 5 kg, limitations for off-center load
timer	timer 0 – 120 min / continuous



- When running with off-center loads, refer to limitation of load illustrated in the diagram below.



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.

Damage in transit is excluded from this warranty.

To file for 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.

Alterations to the present warranty 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.

FAQ / REPAIR WORK

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

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

**Note**

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

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

Note

If you are based in the United States of America, please contact Heidolph US:

Heidolph Instruments, LLC
Lab Equipment Sales
2615 River Rd.
Cinnaminson, NJ 08077
Phone: 856-829-6160
Fax: 856-829-7639
E-Mail: heidolph@snip.net

**Safety Information**

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

- identify exact *substance*
- take proper *protective* measure to ensure the safety of our 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/EWG) :

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 61000-4-8: 1993
 EN 61000-4-11:1994 + A1:2001

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

EN 61010-1
 EN 61010-2-051

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We reserve the right to make technical changes without prior announcement.
Sous réserve de modifications techniques sans avis préalable.
Se reserva el derecho de realizar modificaciones técnicas sin previo aviso.
Ci riserviamo il diritto di apportare modifiche tecniche senza alcun preavviso.