

Heidolph
Research made easy

Research made easy



Magnetic Stirrers

Technical specifications

Model		MR Hei-Mix S	MR Hei-Mix L	MR Hei-Mix D	MR Hei-Standard	MR Hei-Tec	MR Hei-Tec []	MR Hei-End
P/N	(230 V)	503-02000-00	505-00000-00	505-01000-00	505-20000-00	505-30000-00	505-34000-00	505-50000-00
Speed, max.	(rpm)	2,200	1,400	1,400	1,400	1,400	1,400	1,400
Speed accuracy	(%)	± 5	± 2	± 2	± 2	± 2	± 2	± 1
Display		-	-	digital	-	digital	digital	digital
Analog/digital interface		-	-	-	-	-	-	yes
Heating power	(W)	-	-	-	800 (*)	800 (*)	800 (*)	800 (*)
Hot plate temperature	(°C)	-	-	-	20 - 300	20 - 300	20 - 300	20 - 300
Medium temperature, max.	(°C)	-	-	-	250	250	250	250
Accuracy temperature setting	(K)	-	-	-	± 5	± 1	± 1	± 1
External temperature sensor		-	-	-	Hei-Con	Hei-Con	Hei-Con	Pt 1000
Temperature accuracy with external temperature sensor	(K)	-	-	-	± 1	± 1	± 1	± 0.2
Sensor breakage protection		-	-	-	with Hei-Con	with Hei-Con	with Hei-Con	with Pt 1000
Temperature control		-	-	-	electronic	electronic	electronic	Microprocessor
Temperature accuracy hot plate	(K)	-	-	-	± 5	± 5	± 5	± 5
Safety circuit hot plate	(°C)	-	-	-	25 °C over hot plate temperature	25 °C over hot plate temperature	25 °C over hot plate temperature	10 - 25 °C over nominal temperature
Stirring capacity, max. (H ₂ O)	(l)	5	20	20	20	20	20	20
Load, max.	(kg)	6	25	25	25	25	25	25
Power consumption	(W)	7	20	20	820	820	820	825
Ambient temperature range	(°C)	0 - 40	0 - 40	0 - 40	0 - 40	0 - 40	0 - 40	0 - 40
Max. relative humidity	(%)	80	80	80	80	80	80	80
Max. permitted operation	(%)	100	100	100	100	100	100	100
Plate diameter	(mm)	ø 104	ø 145	ø 145	ø 145	ø 145	132 x 132	ø 145
Plate material		PVDF	V2A	V2A	Silumin with ceramic coating	Silumin with ceramic coating	enameled Silumin (white)	Silumin with ceramic coating
Weight	(kg)	1,2	2,6	2,6	2,6	2,6	2,6	2,6
Dimension l x w x h	(mm)	126 x 140 x 80	173 x 277 x 94	173 x 277 x 94	173 x 277 x 94	173 x 277 x 94	173 x 277 x 94	173 x 277 x 94
Protection class	(DIN 60529)	IP 21	IP 32	IP 32	IP 32	IP 32	IP 32	IP 32
Supply voltage	(**)	230 V/ 50 Hz 115 V/ 60 Hz	230 V/ 50 Hz 115 V/ 60 Hz	230 V/ 50 Hz 115 V/ 60 Hz	230 V/ 50 Hz 115 V/ 60 Hz	230 V/ 50 Hz 115 V/ 60 Hz	230 V/ 50 Hz 115 V/ 60 Hz	230 V/ 50 Hz 115 V/ 60 Hz

(*) 600 W for 115 V-units

(**) Standard 230 V/ 50 Hz: others upon request, please specify for order

While you concentrate on research, we'll look after your support needs

The team at Heidolph is dedicated and committed about delivering the highest quality product and services to its customers, allowing you to concentrate on research. Take the walk with us and see for yourself.

- 24 hour service for all inquires
- Individual application support
- Short delivery time for standard equipment
- After sales service provided by your local dealer
- More than 80 distributors worldwide
- Priority technical service
- 3 year warranty



Magnetic Stirrers

Preferred use of Heidolph magnetic stirrers includes smooth to intense mixing of low-viscosity fluids. Depending on the application, they are able to mix and heat at the same time. They are the first choice for decomposing organic and inorganic substances.

Your benefit:

- Flat designed magnetic stirrers with plates in different sizes and shapes
- Intuitive operation guidance and illuminated digital display
- Heating power of 800 W for fast heating-up
- Wide speed range up to 1,400 rpm
- Enhanced heavy-duty stirring magnet drives stirring bars with ease
- Excellent stirring results in volumes up to 20 litres (H₂O)
- Maintenance-free motors with smooth start feature
- High accuracy temperature setting of ± 1 K
- High-efficiency motor with low power consumption
- Hermetically sealed corrosion-proof aluminium die-cast housing
- Complete isolation between hotplate and housing against high and low temperatures. Ideal for cooled samples.



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Highest safety standards available

MR Hei-End

- 800 Watt heating power (600 W at 115/100 V)
- Hot plate made of Silumin (aluminium alloys) with ceramic coating:
 - excellent heat conduction and distribution
 - extremely resistant against scratches and chemicals
- Plate diameter: 145 mm
- Extra safety control circuit and hot plate cut-out by two independent temperature sensors
- An independent safety circuit switches off the heating if a prefixed temperature difference (ΔT) above set temperature is reached
- No unintentional temperature setting

- Speed range: 30 - 1,400 rpm
- Superior speed accuracy: $\pm 1\%$
- Digital display for speed and temperature (both, nominal and actual)
- Hot plate temperature range: 20 - 300 °C
- Medium temperature range: up to 250 °C
- Accuracy temperature setting: $\pm 1\text{ K}$

- Hot plate residual heat indicator in the digital display lights when unit is turned off and the hot plate temperature is still higher than 50 °C
- Illuminated switch for actual heating condition
- Triac guarantees long service life
- Electronic current limiting to protect the motor
- Enhanced heavy-duty stirring magnet drives stirring bars with ease
- Excellent stirring results in volumes up to 20 litres (H₂O)

Interfaces

- RS 232 interface
- Analog 0 – 10 V interface, read-out actual sample temperature

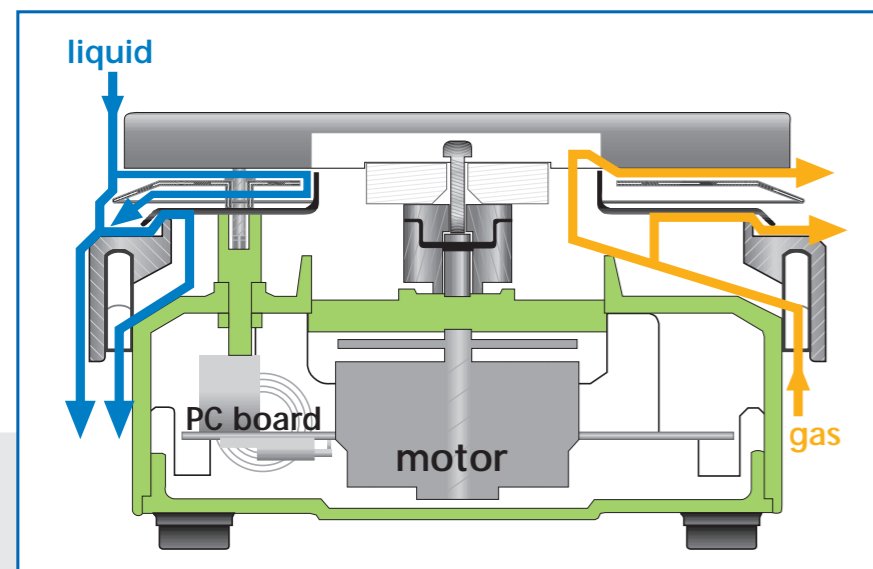
Required Accessories

- Medium temperature sensor (optional) uses two independent Pt 1000, double-checking each other (safety circuit)
- Medium temperature control accuracy with temperature sensor Pt 1000 (optional): $\pm 0.2\text{ K}$



MR Hei-End
P/N 505-50000-00

Hermetically sealing of the Heidolph Magnetic stirrers MR Hei



The hermetically sealed housing that protects the PC board and the motor is marked in **green**.

The way a liquid would take flowing down from the hotplate is marked in **blue**. As one can see, even if the liquid reaches the heat shields, it cannot penetrate to where the PC board or the motor is but will be led outwards.

The **yellow** marked line shows that gas cannot penetrate and get to the PC board and the motor either.

The apparent crack is due to heat insulation. Because of that crack the temperature inside the magnetic stirrer stays substantially lower by what the durability of the magnetic stirrer is significantly increased.

Pic: Sectional drawing of MR Hei magnetic stirrers

For high requirements

MR Hei-Tec

- 800 Watt heating power (600 W at 115/100 V)
- Digital display for nominal speed and temperature
- Hot plate temperature range: 20 - 300 °C
- Medium temperature range: up to 250 °C
- Speed range: 100 - 1,400 rpm
- Speed accuracy: $\pm 2\%$

- Extra safety control circuit and hot plate cut-out by two independent temperature sensors
- An independent safety circuit with separate circuit switches off the heating if the nominal hot plate temperature is exceeded by 25 °C
- Illuminated switch for actual heating condition

- Connector for electronic temperature control (optional EKT Hei-Con)
- Accuracy temperature setting: $\pm 1\text{ K}$ with EKT Hei-Con (optional)
- Medium temperature control accuracy: $\pm 1\text{ K}$ with EKT Hei-Con (optional)

- Triac guarantees long service life
- Electronic current limiting to protect the motor
- Enhanced heavy-duty stirring magnet drives stirring bars with ease
- Excellent stirring results in volumes up to 20 litres (H₂O)
- Hot plate made of Silumin (aluminium alloys) with ceramic coating:
 - excellent heat conduction and distribution
 - extremely resistant against scratches and chemicals
- Plate diameter: 145 mm



MR Hei-Tec
P/N 505-30000-00

MR Hei-Tec []

- Same specifications as MR Hei-Tec
- Comes with square-shaped hot plate
- Hot plate made of enameled Silumin (aluminium alloys)
- Dimensions hot plate w x d (mm): 132 x 132



MR Hei-Tec []
P/N 505-34000-00



Assembly: MR Hei-End with holding device MR Hei (Accessories see page 11)

Magnetic hot plate stirrer

Standard stirrer for every lab

MR Hei-Standard

- 800 Watt heating power (600 W at 115/100 V)
- Hot plate temperature range: 20 - 300 °C
- Medium temperature range: up to 250 °C
- Speed range: 100 - 1,400 rpm
- Speed accuracy: $\pm 2\%$
- Hot plate made of Silumin (aluminium alloys) with ceramic coating:
 - excellent heat conduction and distribution
 - extremely resistant against scratches and chemicals
- Plate diameter: 145 mm
- Extra safety control circuit and hot plate cut-out by two independent temperature sensors
- An independent safety circuit with separate circuit switches off the heating if the nominal hot plate temperature is exceeded by 25 °C
- Connector for electronic temperature control (optional EKT Hei-Con)
- Accuracy temperature setting: ± 1 K with EKT Hei-Con (optional)
- Medium temperature control accuracy: ± 1 K with EKT Hei-Con (optional)
- Triac guarantees long service life
- Electronic current limiting to protect the motor
- Enhanced heavy-duty stirring magnet drives stirring bars with ease
- Excellent stirring results in volumes up to 20 litres (H₂O)



MR Hei-Standard
P/N 505-20000-00

Complete Package

Package MR Hei-Standard

- Magnetic Stirrer MR Hei-Standard
 - EKT Hei-Con with temperature sensor (stainless steel)
 - Support rod for EKT Hei-Con
 - Temperature sensor holder
- P/N 505-20090-00

Magnetic stirrers without heating

For stirring only

MR Hei-Mix D

- Electronic speed control with digital display
- Speed range: 100 - 1,400 rpm
- Speed accuracy: $\pm 2\%$
- Enhanced heavy-duty stirring magnet drives stirring bars with ease
- Top plate made of corrosion-resistant stainless steel (V2A)
- Plate diameter: 145 mm
- Even after extended operation minor heat transfer to the top plate only
- Recommended for use in cell biology laboratories

MR Hei-Mix L

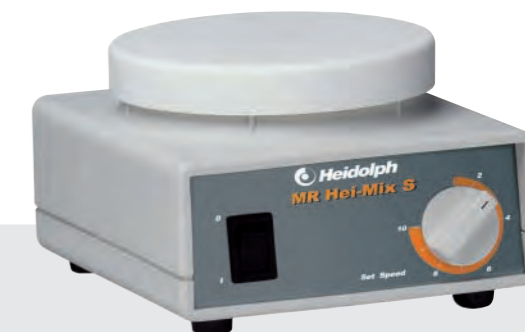
- Same as MR Hei-Mix D, except for digital display
- Speed range: 100 - 1,400 rpm
- Speed accuracy: $\pm 2\%$
- Enhanced heavy-duty stirring magnet drives stirring bars with ease
- Top plate made of corrosion-resistant stainless steel (V2A)
- Plate diameter: 145 mm
- Even after extended operation minor heat transfer to the top plate only
- Recommended for use in cell biology laboratories



MR Hei-Mix D
P/N 505-01000-00
MR Hei-Mix L (not shown)
P/N 505-00000-00

MR Hei-Mix S

- White, chemically resistant PVDF top plate
- Especially recommended for titration
- Plate diameter: 105 mm
- Electronic speed control without digital display
- Wide speed range: 0 - 2,200 rpm
- Housing made of chemically resistant Polyamide
- Minimum space requirements:
126 x 80 x 140 mm (w x h x d)



MR Hei-Mix S
P/N 503-02000-00

Contact Thermometer

EKT Hei-Con

Medium temperature control made easy

- Can be combined with models Hei-Tec, Hei-Tec [] and Hei-Standard also with MR 3001 K and MR 3002
- Electronic temperature controller with innovative design
- Avoids medium temperature overshoots
- Temperature sensor on a lead avoids damage to the controller caused by heat and vapors
- With clear double-spaced display
- Digital display for nominal and actual temperature
- Tendency signal for rising medium temperature
- Displays every temperature between - 50 °C and + 300 °C
- Control accuracy: ± 1 K
- Control range: ambient temperature to + 300 °C
- Fuzzy logic, i.e. fast heating, no temperature overshoot
- Sensor short-circuit and breakage protection
- Mercury free
- Safety and control circuit complies with DIN 12878, class 1 and 2
- Two alternatives available: either with stainless steel sensor (V2A) or for the use with strong acids with glass coated sensor
- Comes with 2 different clamps for fixing on stay bars with dia. 10 mm or 13 mm
- Please order stay bar and temperature sensor holder separately



EKT Hei-Con
Temperature sensor V2A
P/N 509-88000-00

EKT Hei-Con G
Temperature sensor glass coated
P/N 509-88100-00

Contact Thermometer EKT Hei-Con

Temperature range	(°C)	-50 - 300
Resolution	(K)	1
Accuracy of measurement	(K)	± 1
Measuring cycle	(sec)	1.5
Control accuracy	(K)	± 0.5
Temperature sensor EKT Hei-Con		Pt 1000, V2A
Temperature sensor EKT Hei-Con G		Pt 1000, Glass
Sensor length	(mm)	210
Cable length	(mm)	700
Min. immersion depth	(mm)	20
Ambient. temp. range	(°C)	-5 - 60
Housing		Polyamide
Weight	(kg)	0.3
Dimension l x w x h	(mm)	54 x 22 x 126
Protection class	(DIN 60529)	IP 40
Power supply		9-15 V, max. 20 mA

Accessories



1 L Heating Bath
PTFE coated
P/N 504-93100-00



2 L Heating Bath
PTFE coated
P/N 504-92100-00



4 L Heating Bath
PTFE coated
P/N 504-91100-00



1 L Heating Bath for Oil
max. temperature 250 °C
P/N 504-93000-00



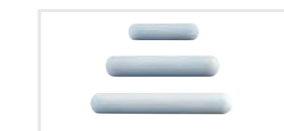
2 L Heating Bath for Oil
max. temperature 250 °C
P/N 504-92000-00



4 L Heating Bath for Oil
max. temperature 250 °C
P/N 504-91000-00



Concave block adapter
for 1 L round flasks
P/N 504-94000-00



Set spin bars
(25, 40, 50 mm each)
cylindrical, PTFE coated
P/N 509-56000-00



Heating bath fluid 5 L
for up to 240 °C, mixable
with water
P/N 515-31000-00



Pt 1000 temperature sensor - stainless steel
for model: MR Hei-End
P/N 509-67910-00



Pt 1000 temperature sensor - glass coated
for model: MR Hei-End
P/N 509-67920-00



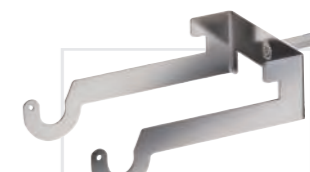
Temperature sensor holder
for EKT Hei-Con or Pt 1000
P/N 509-67000-00



Support rod
for temperature sensor
length: 425 mm, Ø 13 mm
material: stainless steel
P/N 509-81000-00



Silicone protective cover
Flexible and chemically resistant
protection against splashes and
dripping water for MR Hei-Mix D,
MR Hei-Mix L, MR Hei-Tec and
MR Hei-End
P/N 23-07-06-05-59
for MR Hei-Standard
P/N 23-07-06-05-63



Holding device MR Hei
for safe fixation on lab
frames to gain extra lab space.
Comes with clamp as standard.
P/N 509-96000-00

Support rod for 4 L heating bath
P/N 509-97000-00

DrySyn - Attachments

Convert your magnetic stirrer into a reaction block

- A safe, convenient and clean alternative to oil baths
- Eliminating oil baths which caused fire in hundreds of labs world-wide
- An affordable alternative to expensive silicon oil
- Significantly reduced heat-up times over oil baths

Inserts for round bottom flasks and cylindrical reaction vessels

- Up to 12 reactions at the same time
- Greater versatility, do any combination of reaction adaptors
- Powerful stirring in all configurations
- Controlled heating and temperature control
- Temperature sensor fits directly in insert for greater accuracy
- No special glassware required, no additional costs
- Setting up reactions is easy with the DrySyn clamp (please order stay bar separately)

Example of use:

- 1 reaction: Use central position for optimal stirring and heating
- 3 reactions: Do any combination of 10 ml, 25 ml, 50 ml, 100 ml and 250 ml round bottom flasks
- 12 reactions: Use up to 3 reaction vessel inserts for the following vessel dia.: 16.2 mm, 17.4 mm, 20.2 mm, 24.4 mm or 25.75 mm



Package MR Hei-Tec Multi M
P/N 505-30092-00

Complete Packages

Package MR Hei-Tec Multi

- Magnetic Stirrer MR Hei-Tec
- EKT Hei-Con with temperature sensor (stainless steel)
- Support rod for EKT Hei-Con
- DrySyn Multi Set including following inserts:
3 x 25 ml, 3 x 50 ml, 3 x 100 ml
- DrySyn Multi Clamp (3 position clamp incl. cross sleeve S)
P/N 505-30091-00

Package MR Hei-Standard Multi

- Some as above but with Magnetic Stirrer MR Hei-Standard instead
P/N 505-20091-00

Package MR Hei-Tec Multi M

- Magnetic Stirrer MR Hei-Tec
- EKT Hei-Con with temperature sensor (stainless steel)
- Support rod for EKT Hei-Con
- DrySyn Multi M Set including following inserts:
3 x 100 ml, 3 x 250 ml
- DrySyn Multi M Clamp (3 position clamp incl. cross sleeve S)
P/N 505-30092-00

Package MR Hei-Standard Multi M

- Some as above but with Magnetic Stirrer MR Hei-Standard instead
P/N 505-20092-00



DrySyn MULTI

Base incl. 3 inserts for round bottom flasks

Base plate incl. 3 x 10 ml inserts

P/N 505-91310-00

Base plate incl. 3 x 25 ml inserts

P/N 505-91320-00

Base plate incl. 3 x 50 ml inserts

P/N 505-91330-00

Base plate incl. 3 x 100 ml inserts

P/N 505-91340-00



DrySyn MULTI

Base incl. 3 inserts for reaction vessels

for 4 each cylindrical reaction vessels

For vessels with 16.2 mm dia.

P/N 505-91301-00

For vessels with 17.4 mm dia.

P/N 505-91302-00

For vessels with 20.2 mm dia.

P/N 505-91303-00

For vessels with 24.4 mm dia.

P/N 505-91304-00

For vessels with 25.75 mm dia.

P/N 505-91305-00



DrySyn MULTI M

Base incl. 3 inserts for round bottom flasks

Base plate incl. 3 x 100 ml inserts

P/N 505-92340-00

Base plate incl. 3 x 250 ml inserts

P/N 505-92350-00



DrySyn MULTI

Inserts for round bottom flasks (Set of 3)

Set for 10 ml round bottom flasks

P/N 505-90010-00

Set for 25 ml round bottom flasks

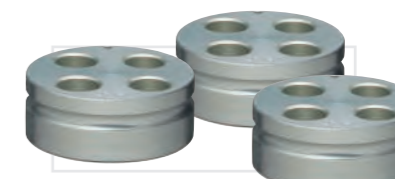
P/N 505-90020-00

Set for 50 ml round bottom flasks

P/N 505-90030-00

Set for 100 ml round bottom flasks

P/N 505-90040-00



DrySyn MULTI

Inserts for reaction vessels (Set of 3)

for 4 each cylindrical reaction vessels

Set for vessels with 16.2 mm dia.

P/N 505-90001-00

Set for vessels with 17.4 mm dia.

P/N 505-90002-00

Set for vessels with 20.2 mm dia.

P/N 505-90003-00

Set for vessels with 24.4 mm dia.

P/N 505-90004-00

Set for vessels with 25.75 mm dia.

P/N 505-90005-00



DrySyn MULTI M

Inserts for round bottom flasks (Set of 3)

Set for 100 ml round bottom flasks

P/N 505-90040-00

Set for 250 ml round bottom flasks

P/N 505-90050-00

DrySyn Sets

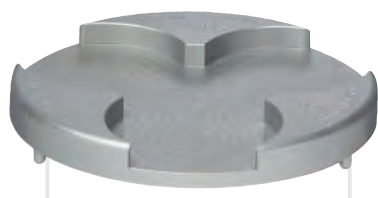
Complete Set DrySyn MULTI

- Base plate DrySyn Multi including following inserts:
3 x 25 ml, 3 x 50 ml, 3 x 100 ml
P/N 505-91900-00

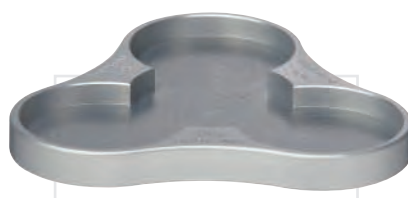
Complete Set DrySyn MULTI M

- Base plate DrySyn Multi M including following inserts:
3 x 100 ml, 3 x 250 ml
P/N 505-92600-00

DrySyn - Accessories



DrySyn MULTI Base
Base plate only
P/N 505-91000-00



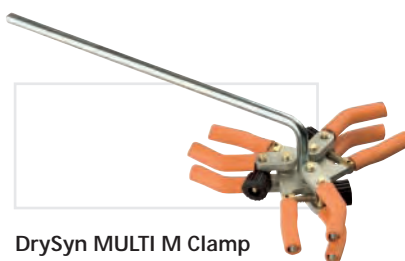
DrySyn MULTI M Base
Base plate only
P/N 505-92000-00



DrySyn Multi Safety handle
For safe and easy transport of the base plate (base plate is not included)
P/N 505-91091-00



DrySyn MULTI Clamp
3 position clamp incl. cross sleeve
P/N 505-91090-00



DrySyn MULTI M Clamp
3 position clamp incl. cross sleeve
P/N 505-92090-00



DrySyn Adapter plate
For hotplates with 135 mm dia.
P/N 505-99000-01



Stirring bar set (15x6 mm) Set of 3
Due to their oval shape these spin bars provide best stirring performance in round bottom flasks and DrySyn attachments (Best for flask size 10 ml)
P/N 509-53000-00



Stirring bar set (25x10 mm) Set of 3
Due to their oval shape these spin bars provide best stirring performance in round bottom flasks and DrySyn attachments (Best for flask size 25 ml and 50 ml)
P/N 509-54000-00



Stirring bar set (30x10 mm) Set of 3
Due to their oval shape these spin bars provide best stirring performance in round bottom flasks and DrySyn attachments (Best for flask size 100 ml and 250 ml)
P/N 509-55000-00

Call or write for free service

- Application information
- Reference list
- Trials or demonstrations
- Literature



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