# PREMUM LABORATOR EQUIPMENT



### Laboratory and Magnetic Stirrers

# GENTLE POWERHOUSES



### Don't compromise

# Contents

Heidolph Premium laboratory equipment stands for reliability, precision, and efficiency. Your demand drives us to provide the fastest service, individual support, and quality without compromise. So that you can keep your head clear to successfully drive forward the research work for your company, organization or institution. Briefly: "research made easy".

That's why "Made in Germany" is much more than a marketing strategy for us: It's part of our corporate philosophy.

Our location in Germany enables us to develop and manufacture reliable laboratory equipment for years of continuous use with an average service life of more than 10 years. This makes your purchase a worthwhile investment in the future.

All Heidolph products are developed and manufactured at our Schwabach headquarters in Nuremberg; they go through a multi-stage quality checks. Powerful, maintenance free motors ensure constant results even in continuous operation, preventing downtime and costly repairs.

For us, premium service means: individual and application-related advice, competent and professional installation and instruction as well as the shortest possible repair and delivery times – simply "research made easy".

### MADE IN GERMANY

3-year warranty on all devices and an average operational lifespan of 10 years

Multi-stage quality checks in development and production

Premium service according to the "research made easy" principle

#### Test our devices before you decide!

Schedule an appointment for an online demo presentation from our showroom.

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#### Hei-TORQUE Overhead Stirrer

The Hei-TORQUE series All benefits at a glance Hei-TORQUE Core Hei-TORQUE Expert Hei-TORQUE Ultimate Performance ranges Technical specifications Stirring tools Blade / Half-moon impellers Pitched-blade impeller Radial-flow impeller Anchor-type impeller VISCO JET<sup>®</sup> stirring system Further accessories Packages

### Hei-Control Software

#### Hei-PLATE Magnetic Stirrer

All benefits at a glance The Hei-PLATE series Magnetic stirrers Hei-Mix S/Hei-PLATE Mix 20 l Magnetic stirrer with heating function Hei-PLATE Mix 'n' Heat Core Hei-PLATE Mix 'n' Heat Core+ Hei-Connect Technical specifications Accessories for magnetic stirrers The Findenser<sup>™</sup> Heat-On blocks Heat-On attachments StarFish workstation StarFish accessories Packages

**Best Service** 

# Hei-TORQUE Overhead Stirrers Powerful Stirring

Small and light, easy to use, high torque, precise setting options and an interface for documentation purposes: The Hei-TORQUE series offers a suitable solution for any requirement.

Ideal for mixing larger quantities, high viscosities or also for applications in reactor systems. Available in different performance classes depending on the model.





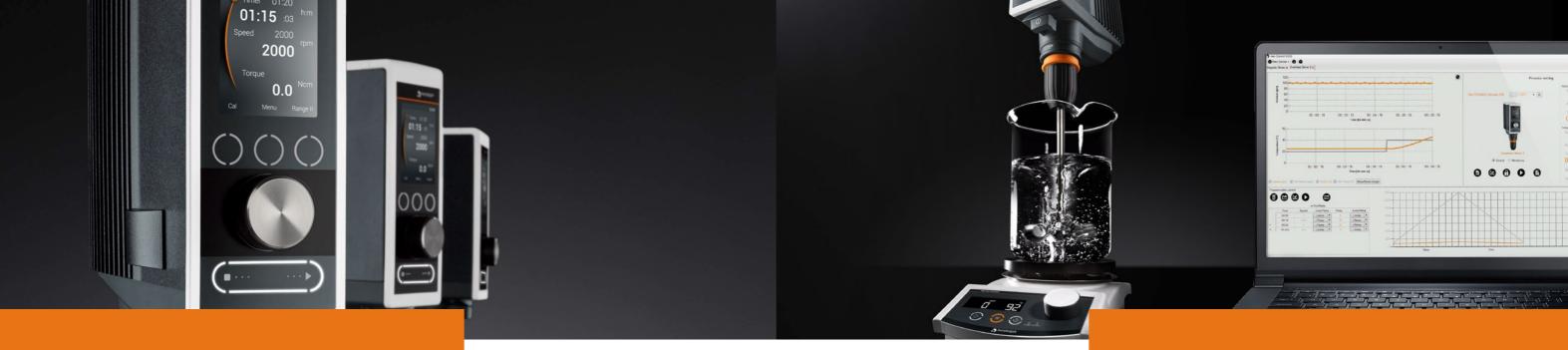






## Leading Safety Standards

- The individually adjustable start-up reliably prevents splashing, as the speed is slowly ramped up to the selected speed
- The optional stirrer shaft guard protects against accidents due to the fast rotating blade
- The spark-free motors ensure leading safety standards
- To prevent overheating, the motor is switched off in case of continuous overload – important for unattended continuous use
- The safety-oriented start/stop touch function prevents unwanted switching on
- No liquid splashes with the adjustable speed limitation
- Accidental starting up during the tool change is prevented by the opened safety ring of the quick-chuck
- Three audible latching-in sounds confirm the maximum clamping force after tightening and thus the secure fit of the stirring tool



### Superior Ease of Use

- The uniquely high torque achieves fast and excellent mixing results even when processing highly viscous media
- The speed is kept constant even when there are strong fluctuations in viscosity
- State-of-the-art motors achieve maximum performance at minimum noise level
- Searching for the chuck key is a thing of the past: With the quick-action chuck, the blades can be easily replaced with just one hand – without the need for tools
- Whether blades made of stainless steel, glass or with Teflon coating: The right solution is also available for special applications. To position the blade correctly at a height of your choice, the stirrer shaft can simply be routed through the housing
- With just one swift move at the optional Telescopic stand, the overhead stirrer can be repositioned
- Stirrer couplings, flexible shafts and seals to enable stirring under vacuum and pressure extend the range of applications
- Outstanding product design with glass display and touch elements for intuitive control and durability, awarded the iF DESIGN AWARD
- The standard RS 232 and USB ports of the Hei-TORQUE Ultimate models enable the process sequence to be documented precisely. The free Hei-Control Software is included in the scope of delivery











### Reduced Cost of Ownership

- The sealed housing reliably protects the overhead stirrer from corrosion. On average, this increases the operational lifespan to more than 10 years and reduces maintenance and repair costs
- The high torque ensures top mixing results and also reduces the process times considerably
- Maintenance-free motors avoid downtimes and repair costs
- Special stirring tools, which even mix large quantities of gel, shorten the process times and improve the results
- The sealed glass user interface increases the leak tightness of the housing thus protecting electronics and mechanics
- No unnecessary extra costs: Free software is included with all Hei-TORQUE Ultimate models
- All devices are suitable for continuous operation without time restrictions – even when handling highest viscosity
- Achieve first-class results even in polymer research: highperformance motors are the distinguishing feature of these overhead stirrers

MADE IN **GERMANY** 

## All Benefits at a Glance

The Hei-TORQUE Series

Small and light, easy to use, high torque, precise setting options and an interface for documentation purposes: The Hei-TORQUE series offers a suitable solution for any requirement.

Clearly laid out and sturdy

The lightweight choice for big tasks

All Hei-TORQUE models are compatible with the ViSCO JET<sup>®</sup> system.

Customized and precise

State-of-the-art motor technology for maximum performance at minimum noise level – below 50 db

The clearly laid out glass displaywith touch elements simplifies menu navigation

The sealed housing conforms to the high protection class IP 54 and is designed for many years of maintenance-free continuous use in aggressive environments

With the quick-action chuck, the blades can be easily replaced with just one hand – without the need for tools

With free Hei-Control software for all Hei-TORQUE Ultimate models for reliable automation of all processes.



3-year warranty on all devices and an average operational lifespan of 10 years

# **Powerful Stirring**



The overtemperature protection reliably prevents accidents caused by overheating – especially in continuous operation for an unlimited time

Increased safety due to individual performance monitoring: start-up intensity, maximum rotation speed and maximum torque are adjustable

The sealed glass user interface increases the leak tightness of the housing thus protecting electronics and mechanics

Safety-oriented start / stop touch function prevents unwanted switching on

USB and RS 232 interface for process documentation and reproducibility

VISCO JET<sup>®</sup> blades mix media that cannot be mixed with conventional technology - complete circulation is even reached when processing gels

### Hei-TORQUE Core

### The lightweight choice for big tasks

The exceptionally light and compact design allows for integration in closed systems, such as fume hoods, reactors, or production systems. Suitable for up to 25 l of low- to medium-viscosity media.

#### Compact design:

- Light weight at 2,300 g
- Dimensions (w/d/h): 70×195×282 mm

#### Easy to use:

- Control knob for rotation speed, pushing starts or stops the function
- Timer function
- "Max" button for short-term operation at maximum speed

#### Performance features

- Torque up to 40 Ncm
- Speed range up to 2,000 rpm
- Viscosity up to 10,000 mPas

The large diameter of the chuck (10.5 mm) also enables the use of large blades and VISCO JET<sup>®</sup> stirring tools. This facilitates a wide variety of applications, such as homogenizing, dispersing, the dissolving of agglomerates, and many more.

> In reactor systems, the torque can alternatively also be deflected via the flexible shaft, so that the overhead stirrer can be placed next to the actual set-up.

Model		P/N
Hei-TORQUE Core	40 Ncm	501-60410-00

heidolph

Speed set: 375 **375** № 00:00:03

375

### Hei-TORQUE Expert

# The reliable overhead stirrer for standard applications

The Hei-TORQUE Expert models are characterized by their clear display and very easy operation. They perform stirring tasks quickly and reliably.

#### Clearly structured operation:

- Display of torque tendency to detect changes in viscosity
- Modern digital 2.4" display for intuitive operation
- Safety-oriented start / stop touch function to prevent unwanted switching on

#### Forceful stirring in three performance classes:

- 100 Ncm for up to 60,000 mPas
   200 Ncm for up to 100,000 mPas
   400 Ncm for up to 250,000 mPas
   (2-gear stage design)
- Constant speed even under changing load
- Speed range up to 2,000 rpm
- Minimum noise level at maximum power

The sealed glass user interface increases the leak tightness of the housing thus protecting electronics and mechanics.

Model		P/N
Hei-TORQUE Expert 100	100 Ncm	501-61010-00
Hei-TORQUE Expert 200	200 Ncm	501-62010-00
Hei-TORQUE Expert 400	400 Ncm	501-64010-00



### Hei-TORQUE Ultimate

### The professional overhead stirrer for demanding applications

The Hei-TORQUE Ultimate models are particularly suitable for challenging applications that have to be reproducible and documentable. The huge number of additional features allows for perfect adjustment of the stirring operation to your individual application.



Model		P/N
Hei-TORQUE Ultimate 100	100 Ncm	501-61020-00
Hei-TORQUE Ultimate 200	200 Ncm	501-62020-00
Hei-TORQUE Ultimate 400	400 Ncm	501-64020-00

#### Digital 3.2" display for precise working:

- Ramp function, favorites memory, interval mode
- Graphical representation of process flow, torque indicator
- Timer/countdown/clock

#### Forceful stirring in three performance classes:

- 100 Ncm for up to 60,000 mPas 200 Ncm for up to 100,000 mPas 400 Ncm for up to 250,000 mPas (2-gear stage design)
- Speed range up to 2,000 rpm
- Constant speed even under changing load
- Change of rotational direction of the Ultimate 100/200

#### Individually adjustable parameters:

- Intensity of start-up from gentle to fast
- Speed limitation avoids unintentionally high speeds and splashing media
- Torque limitation prevents breakage of glass stirrers due to overloading
- USB and Standard RS 232 interface for easy process documentation

#### Optional: Standard RS 232 cable



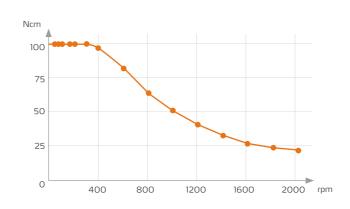
The Hei-Control software is included in the scope of supply and is available here to download for free

### **40 Ncm**

#### Power dynamics of the models:

Performance Ranges

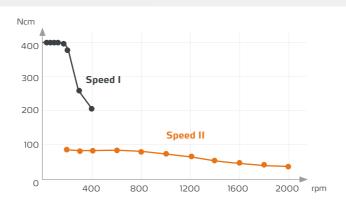
Hei-TORQUE Core

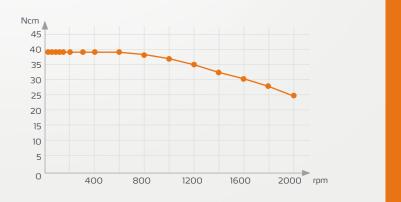


### 200 Ncm

Power dynamics of the models:

- Hei-TORQUE Expert 200
- Hei-TORQUE Ultimate 200

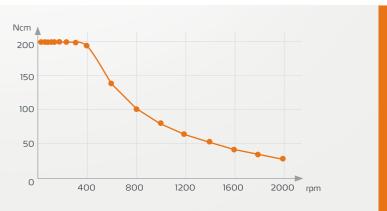




### 100 Ncm

Power dynamics of the models:

- Hei-TORQUE Expert 100
- Hei-TORQUE Ultimate 100



### 400 Ncm

Power dynamics of the models:

- Hei-TORQUE Expert 400
- Hei-TORQUE Ultimate 400

A 2-gear stage design ensures a high torque over the entire speed range.

### Technical Specifications

### **Overhead stirrer**

Model	Hei-TORQUE Core	Hei-TORQUE Expert 100	Hei-TORQUE Expert 200	Hei-TORQUE Expert 400	Hei-TORQUE Ultimate 100
Power rating Motor input / output	105/75 W	90/50 W	120/80 W	150/90 W	90/50 W
Number of gear stages	1	1	1	2	1
Speed range	20–2.000 rpm	10–2.000 rpm	10–2.000 rpm	10–400 rpm (gear stage I) 20–2,000 rpm (gear stage II)	10-2.000 rpm
Change of rotation direction	-	_		-	yes
Rotation speed indicator	digital	digital	digital	digital	digital
Control panel	monochrome 2.4"	monochrome 2.4"	monochrome 2.4"	monochrome 2.4"	color 3.2"
Speed control	electronic	electronic	electronic	electronic	electronic
Max. torque	40 Ncm*	100 Ncm	200 Ncm	400 Ncm	100 Ncm
Forque indicator	Symbol	Symbol	Symbol	Symbol	Value
Behavior in case of overload	Automatic cut-out with display	Automatic cut-out with display	Automatic cut-out with display	Automatic cut-out with display	Automatic cut-out with display
Notor protection	Temperature monitoring software	Temperature monitoring software	Temperature monitoring software	Temperature monitoring software	Temperature monitoring software
Max. viscosity	10,000 mPas	60,000 mPas	100,000 mPas	250,000 mPas	60,000 mPas
Max. volume H <sub>2</sub> O	25L	50 L	50 L	100 L	50 L
Analog/digital nterface	-	-	-	-	USB and RS 232
Permissible duty cycle	Continuous operation	Continuous operation	Continuous operation	Continuous operation	Continuous operation
Counter/timer	yes	-	-	-	yes
Stirrer shaft Ø max.	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm
Dimensions device w/d/h	70×195×282 mm**	86×247×340 mm**	86×247×340 mm**	93×247×340 mm**	86×247×340 mm**
Dimensions support rod Ø×w	13×160 mm	13×160 mm	13×160 mm	13×160 mm	13×160 mm
Weight	2.3 kg	4.4 kg	 5.1 kg		4.4 kg
Permissible Permissible ambient conditions	5–31°C at 80% rel. humidity, 32–40°C linearly reducing up to max. 50% rel. humidity	5–31°C at 80% rel. humidity, 32–40°C linearly reducing up to max. 50% rel. humidity	5–31°C at 80% rel. humidity, 32–40°C linearly reducing up to max. 50% rel. humidity	5–31°C at 80% rel. humidity, 32–40°C linearly reducing up to max. 50% rel. humidity	5–31°C at 80% rel. humidity, 32–40°C linearly reducing up to max. 50% rel. humidi
Degree of protection EN 60529	IP 42	IP 54	IP 54	IP 54	IP 54

Standard supply voltage: 230 V. Other supply voltages on request.

\* 65 Ncm for short-term overload operation

\*\* Height from upper edge of device to lower edge of chuck with jaws completely retracted

#### Hei-TORQUE Ultimate 200

120/80	2 W
1	
10–2.0	000 rpm
yes	
digital	
color 3	.2"
electro	nic
200 N	lcm
Value	
Autom with di	iatic cut-out isplay
Tempe softwa	erature monitoring are
100,0	00 mPas
50 L	
USB a	nd RS 232
Contin	uous operation
yes	
10.5 m	IM
86×24	47×340 mm
13 x 16	

#### 13×160 mm

#### 5.1 kg

5–31°C at 80% rel. humidity, 32–40°C linearly reducing up to max. 50% rel. humidity

IP 54

#### Hei-TORQUE Ultimate 400

150/90 W

#### 2

\_

10–400 rpm (gear stage I) 20–2,000 rpm (gear stage II)

digital

color 3.2"

electronic

400 Ncm

Value

Automatic cut-out with display

Temperature monitoring software

250,000 mPas

100 L

USB and RS 232

Continuous operation

yes

10.5 mm

93×247×340 mm\*\*

#### 13×160 mm

5.3 kg

5–31°C at 80% rel. humidity, 32–40°C linearly reducing up to max. 50% rel. humidity

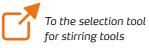
IP 54

### Stirring Tools

### Blade / Half-Moon Impellers

When using a laboratory stirrer, the correct choice of impeller is decisive. They differ in the type of flow that they cause in the medium, in the speed-dependent operating range and in their execution for different viscosities.

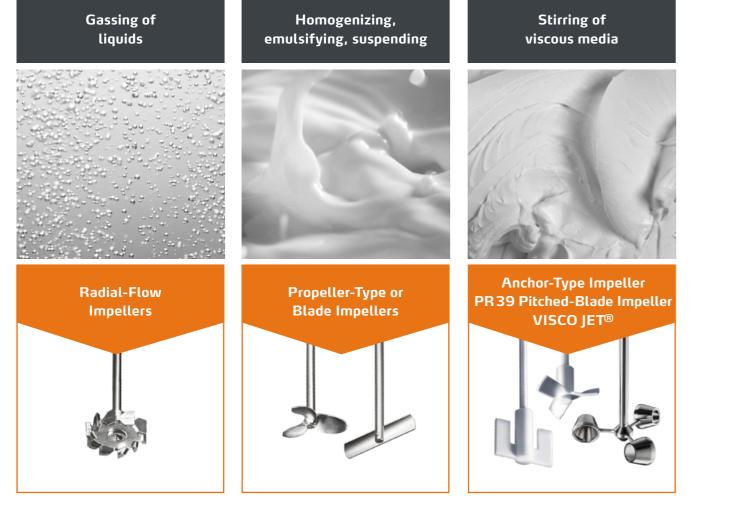
The following applies to stirring tools: Optimum mixing results are achieved when the vessel size and positioning of the impeller are perfectly matched.



### • The primary flow direction is tangential

- The impellers are particularly suitable for medium to high-speed range applications
- For mixing tasks with low to medium viscosity

### The right impeller for every application





### Material Stainless steel

Material

# BR 11 Straight-blade impe

Blade size 50 × 12 mm

Blade size

50 × 12 mm

### BR 12 Pivoting-blade impeller

With tilting blades for narrow neck vessels

Blade size 60 × 15 mm

### BR 13 Square-blade impeller Blade size

70 × 70 mm

### BR 14 Collapsible-blade impeller

With collapsible blades for narrow neck vessels

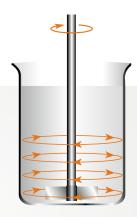
Blade size 90 × 10 mm Material Stainless steel

### HR 18 Half-moon impeller

Has tiltable blades for narrow-necked vessels, is ideal for stirring in round-bottom flasks

Blade size Material 65 × 18 × 3 mm PTFE





### BR 10 Cross-blade impeller

el (V4A)	<b>Length</b>	<b>Ø stirrer shaft</b>	<b>Speed</b>	<b>P/N</b>
	400 mm	8 mm	2,000 rpm	509-10000-00
eller	Length	Ø stirrer shaft	Speed	P/N

Material	Length	Ø stirrer shaft	Speed	P/N
Stainless steel (V4A)	400 mm	8 mm	2,000 rpm	509-11000-00

Material	Length	Ø stirrer shaft	Speed	P/N
Stainless steel (V4A)	400 mm	8 mm	2,000 rpm	509-12000-00

Material	Length	Ø stirrer shaft	Speed	P/N
Stainless steel (V4A)	450 mm	8 mm	800 rpm	509-13000-00

	Length	Ø stirrer shaft	Speed	P/N
el (V4A)	400 mm	8 mm	800 rpm	509-14000-00

Length	Ø stirrer shaft	Speed	P/N
350 mm	8 mm	800 rpm	509-18000- 10
Clamping range			
6.5 mm			

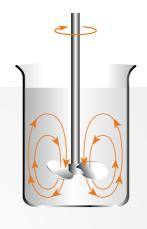
### Pitched-Blade Impellers

• These blades are particularly recommended for applications

• Excellent mixing properties for homogenizing and suspending

which require an average to high speed range

For mixing tasks with low to high viscosity



### Radial-Flow Impellers

- The primary flow direction is radial
- These blades are particularly recommended for applications which require an average to high speed range

Ø turbine

Ø turbine

50 mm

28 mm

- For mixing tasks with low to medium viscosity
- Ideal for gassing of liquids and for emulsifying



• The primary flow direction is axial

### PR 30 Pitched-blade impeller

Ø propeller Material 58 mm Stainless steel (V4A)

Length 400 mm 8 mm

Length

400 mm

Ø stirrer shaft max. rpm P/N 2,000 rpm 509-30000-00



Material Stainless steel (V4A)

Material



### PR 31 Ringed pitched-blade impeller

Ø propeller 33 mm

Material Length Stainless steel (V4A) 400 mm

Ø stirrer shaft max. rpm 8 mm 2,000 rpm

P/N 509-31000-00



### PR 32 Ringed pitched-blade impeller

Ø propeller Material Stainless steel (V4A) 45 mm

Ø stirrer shaft	max.
8 mm	2.00

rpm P/N 509-32000-00 00 rpm



### PR 33 Ringed pitched-blade impeller Material

Ø propeller 66 mm

Length Ø stirrer shaft max. rpm Stainless steel (V4A) 400 mm 8 mm

8 mm

P/N 800 rpm 509-33000-00



### PR 39 Pitched-blade impeller

Perfect mixing results even at high viscosity

Material

PTFE

Ø propeller 75 mm

Length 350 mm

Ø stirrer shaft max. rpm P/N 800 rpm 509-39000-10

TR 21 Radial-flow impeller

# Anchor-Type Impeller

- The primary flow direction is tangential
- This blade is particularly recommended for applications which require a low to average speed range
- Axial primary flow
- For mixing tasks with high viscosity





### TR 20 Radial-flow impeller

Length 400 mm

Ø stirrer shaft 8 mm

Speed 2,000 rpm

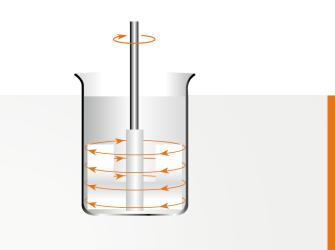
P/N 509-20000-00

Length Stainless steel (V4A) 400 mm

Ø stirrer shaft 8 mm

Speed 2,000 rpm

P/N 509-21000-00



Length 350 mm Ø stirrer shaft Speed 8 mm

800 rpm

P/N 509-19000-10

### VISCO JET<sup>®</sup> Stirring System

### VISCO JET® Stirrers

### The all-rounder for thick and thin

The VISCO JET<sup>®</sup> stirring system from VISCO JET Rührsysteme GmbH is based on the so-called cone principle. Turbulences are generated by the dynamic pressure at the displacer inlet and by the accelerated flow within the displacer (so-called nozzle effect). These turbulences collide during the circular movement of the stirring tool and lead to the revolutionary mixing movement.

- Reduced process times with clearly improved mixing results
- The stirring principle achieves complete degassing of the medium – foaming and air ingress are effectively prevented
- Even with media that cannot be mixed with conventional blades, complete circulation is achieved
- Even at low speeds, the special shape triggers a unique flow with its own inherent dynamics
- A system for virtually any stirring task involving low to high viscosity media
- Also compatible with the compact Hei-TORQUE Core, as it also features a large-diameter chuck (10 mm)

The only impeller world wide capable of completely mixing larger quantities of high-viscosity liquids and gels.



VISCO JET<sup>®</sup> – 60 mm Ø Material Length Stainless steel (V4A) 500 mm



VISCO JET<sup>®</sup> – 80 mm Ø Material Length Stainless steel (V4A) 500 mm



VISCO JET<sup>®</sup> – 120 mm Ø Material Length Stainless steel (V4A) 500 mm

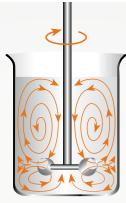


VISCO JET® - 80 mm Ø (POM) Material Length POM\* 500 mm



#### VISCO JET<sup>®</sup> – 120 mm Ø (POM) Material Length POM\* 500 mm

\* Stirring tool: plastic (POM), hub: brass, shaft: polyamide-coated



### **Ranges of application**

- Beverage production, dairy products
- Food, sugar and confectionery production
- Chemistry, petrochemistry, ceramics, water treatment
- Pharmaceuticals, cosmetics production
- Paint and varnish production
- and many more

#### VISCO JET<sup>®</sup> CRACK – 80 mm Ø Material Length Stainless steel (V4A) 500 mm



VISCO JET <sup>®</sup> CR	ACK – 1
Material	Length
Stainless steel (V4A)	500 mm

One stirrer shaft is always included in the scope of delivery.

Ø stirrer shaft 10 mm

Ø vessel 80–150 mm

Speed 200–800 rpm

P/N 509-16060-00

Ø stirrer shaft 10 mm

Ø vessel 115–200 mm

Speed 200–700 rpm

P/N 509-16080-00

Ø stirrer shaft Ø vessel Speed P/N 509-16120-00 10 mm 170–300 mm 120–500 rpm

Ø stirrer shaft Ø vessel Speed P/N 10 mm 115–200 mm 200–700 rpm 509-16081-00

Ø stirrer shaft P/N Ø vessel Speed 10 mm 170-300 mm 120-500 rpm 509-16121-00

Ø stirrer shaft 10 mm

Ø vessel 115–200 mm

Speed 200–700 rpm

P/N 509-17080-00

### 120 mm Ø

Ø stirrer shaft 10 mm

Ø vessel

Speed 170-300 mm 120-500 rpm

P/N 509-17120-00

### **Further Accessories**



Universal stand S2

Ø stand tube 25 mm, height 700 mm, foot spacing 370 mm, weight 5.8 kg

P/N 570-12000-00



for universal stand S2, stand S2 XXL and telescopic stand, Ø 13 – 32 mm

P/N 570-22000-00



Stand S2 XXL

Ø stand tube 25 mm, height 1,000 mm foot spacing 370 mm, weight 6.0 kg

P/N 570-12200-00



Flex coupling With clamping spigot, for stirrer shafts

with Ø 10 mm

P/N 509-03000-00



Flexible shaft incl. chuck, 1,300 mm overall length

P/N509-07000-00

P/N 509-08100-00

from approx. 187 – 312 mm

For Hei-TORQUE, made of PMMA,

incl. adapter set, height-adjustable

Shaft guard

Adapter set (not illustrated) For fixing the stirrer shaft guard on the Hei-TORQUE overhead stirrer

P/N 11-002-501-02



P/N 570-12100-00



### Stirrer guide (NS 29/32)

For stirrer shafts with Ø 8 mm, ground PTFE core; suitable for vacuum, perfect guide for stainless steel and glass stirrer shafts

### P/N 509-09000-00



RS 232 cable 9-pin, for Hei-PLATE Mix 'n' Heat Ultimate and Hei-TORQUE Ultimate models

#### P/N 14-007-040-72

### Packages

### Hei-TORQUE



### **HEI-TORQUE GOLD 1 PACKAGE**

- Hei-TORQUE Ultimate 100
- Telescopic stand
- Clamp
- P/N 501-61029-00

### **HEI-TORQUE GOLD 2 PACKAGE**

- - Telescopic stand
  - Clamp
  - P/N 501-62029-00



• Hei-TORQUE Ultimate 200

### **HEI-TORQUE** PLATINUM PACKAGE

- Hei-TORQUE Ultimate 400
- Telescopic stand
- Clamp

P/N 501-64029-00

### Hei-Control Software

With the Hei-Control software, Hei-Connect magnetic stirrers and Hei-TORQUE Ultimate overhead stirrers can be actuated simultaneously to automate and to reproduce their processes. It enables the programming and visualization of process parameters as well as the export of captured data.

#### Use the free software to

- Program process parameters and ramps
- Read out process sequences in the software and save them
- Reload saved settings for reproducible results
- Control up to 4 devices simultaneously

Compatible with the Hei-Connect magnetic stirrer and Hei-TORQUE Ultimate overhead stirrer models





Download the Hei-Control software free of charge from www.heidolph.com

# Hei-PLATE Magnetic Stirrer Homogeneous Stirring





### Leading Safety Standards

- Multiple independent safety mechanisms monitor the ongoing process. In the event of an error, the heating plate is switched off automatically
- If combined with Heat-On blocks, there is no need to use oil
- All models are equipped with a visual residual heat indicator to prevent burns
- For safety reasons, the relevant functions are switched off completely in the event of a short-circuit, temperature sensor break, defective motor and in case of a processor fault
- Unwanted heating is prevented by separate activation of the heating function. The activated heating function can be clearly identified by the illumination of the button or the rotary knob (depending on the model)
- To prevent any splashing, the rotation speed ramps up slowly until it has reached the desired value
- Damage to the device is impossible even at the highest temperatures – all models are equipped with a fire-resistant die-cast housing
- The integrated PID controller ensures precise reaching of the target temperature









### Superior ease of use

- The unique Kera-Disk<sup>®</sup> coating is extremely resistant to chemicals and scratches. The plate is therefore easy-care and dirt can be removed easily
- The powerful stirring magnet allows the stirring rod to be safely entrained even with larger quantities of up to 20 l
- If the hotplate fails, the stirring process is not interrupted. This prevents the sample from overheating
- Efficient (low temperature) thermal insulation prevents condensation in the housing and thus the contact between condensation water and electronic components
- On devices with a display, all parameters can be read from the large, illuminated display, even from a greater distance



### MADE IN **GERMANY**

# All Benefits at a Glance

3-year warranty on all devices and an average operational lifespan of 10 years

With the free Hei-Control software for the Hei-Connect, process parameters can be controlled and stored via a PC

The closed housing protects the electronic and mechanical components of the magnetic stirrer from aggressive media and fumes

Multiple independent safety mechanisms monitor the ongoing process and switch off the heating plate in the event of an error or fault

In the event of a short-circuit, sensor break of the temperature sensor and a processor fault, the device completely switches off the relevant functions

housing

A heating power of 800 watt means significantly faster heating times compared to magnetic stirrers with 600 watt.

### Reduced Cost of Ownership

- Clearly shorter process times. The high heating power of 800 watts enables significantly faster heating times in comparison to conventional magnetic stirrers with 600 watts
- Thanks to its aluminum core, the patented Kera-Disk<sup>®</sup> heating plate ensures the fastest heating up times. Due to the resistant ceramic coating, the plate is chemical-resistant and scratch-proof
- Corrosion-protected electronics add many years to the operational lifespan and reduce expenditure for new purchases
- Wear´and maintenance-free motors save repair and spare part costs
- The average use period is over 10 years and therefore makes its acquisition a worthwhile investment
- A high IP protection class and a closed housing ensure a long life with low repair susceptibility



### Safe Heating and Mixing

The patented Kera-Disk<sup>®</sup> heating plate ensures the fastest heating times; an extremely thin ceramic coating makes the plate chemical-resistant

In the event of a heating plate failure, the stirring process is NOT interrupted; this prevents overheating of the sample

Damage to the device is excluded, even at the highest temperatures the models have a fireproof die-cast

A separate On/Off button for the heating function prevents unwanted heating. The activated heating function is clearly detectable. In addition, a residual heat indicator effectively protects against burns after the heating function has been switched off

### Magnetic stirrers

# The Hei-PLATE series

Whether with or without a heating function, all our magnetic stirrers have one thing in common: A gentle and yet powerful stirring function, which enables up to 20 liters of low-viscosity media to be mixed.





### Hei-PLATE Mix 20 l

For large stirring tasks

- Due to the Kera-Disk<sup>®</sup> ceramic coating, the top plate is chemical-resistant and scratch-proof
- In order to handle the sample gently, following a soft start, the speed is slowly increased to the required value
- Ideal for applications up to 20 l, as the diameter of the plate is 145 mm and the speed range extends from 100 to 1,400 rpm

Model	P/N
Hei-Mix S	503-02000-00
Hei-PLATE Mix 20 l	506-54100-00

- Absolutely robust and durable
- Leading safety standards and superior ease of use
- Top chemical resistance and fastest heating times due to the patented Kera-Disk<sup>®</sup> plate

### Hei-Mix S

# For biology and biochemistry stirring tasks

- With space-saving polyamide housing
- The white PVDF top plate is ideally suited for titration and has a diameter of 104 mm
- The speed range of up to 2,200 rpm is sufficient for applications up to 5 l



### Magnetic stirrer with heating function

### Hei-PLATE Mix 'n' Heat Core

For easy and safe entry level

### Innovative product design: Underside with grip; flattened edges, which discharge liquids from the device; enlarged safety distance of the control elements from the heating plate, enclosure tested to IP 42 Two rotary knobs with scale make adjustment of the speed between 100 and 1,400 rpm easier, with a speed accuracy of $\pm 2\%$ and the max. temperature of 300 °C • A separate button for the heating function prevents unwanted heating. The button illumination indicates the activated heating function Flashing of the heating button signals residual heat and thus also effectively warns to protect against burns even after the NEW heating function is switched off

Model	Heating plate	P/N
Hei-PLATE Mix 'n' Heat Core	Ø 145 mm	506-11100-00

Combinable with the Hei-Con electronic contact thermometer (optional) for even more precision when setting the values.

### Hei-PLATE Mix 'n' Heat Core+

### For academic standards with temperature sensor

Precise setting options and monitoring of the device parameters via the digital display and connection for the external Pt 1000 temperature sensor.

- Fast access and activation of the heating and stirring function due to the separate rotary-pressure controller for intuitive setting of the parameters - precise or large jumps between 100 and 1,400 rpm and the maximum temperature of 300 °C
- The controller's locking function protects against accidental adjustment
- The values in the illuminated display are easy to read even from a distance. Activated functions are easily detectable due to the LED rings
- Flashing of the orange LED ring signals residual heat and thus also effectively warns to protect against burns even after the heating function is switched off
- Fast and precise temperature control via the connection of an optional external temperature sensor and two selectable heating modes (FAST and PRECISE)
- To protect the sample, the external sensor monitoring switches off the heating automatically if the temperature sensor is no longer immersed in the medium

NEW

Model	Heating plate	P/N
Hei-PLATE Mix 'n' Heat Core	e+ Ø 135 mm	506-22100-00
Hei-PLATE Mix 'n' Heat Core	<b>e+</b> Ø 145 mm	506-21100-00

Precise values without temperature fluctuations are achieved with the optional Pt 1000 temperature sensor.







### Hei-Connect

# For comprehensive process documentation and reproducible results

For exact process documentation with precise setting option and monitoring of the device parameters via the digital display and connection for the Pt 1000 temperature sensor.

- With connection for the optional Pt 1000 temperature sensor for precise values without temperature fluctuations
- All values can be easily read on the illuminated display even from a distance
- Illuminated buttons indicate activated functions
- The speed can be set precisely via the rotary knob from 100 to 1,400 rpm with a speed accuracy of ±2% and a max. temperature of 300°C
- An independent safety circuit switches off the heating to protect against overheating if the set temperature is exceeded by 25 °C
- To protect the sample, the external sensor monitoring switches off the heating automatically if the temperature sensor is not immersed in the medium
- With the timer function, process times for the heating and rotation functions can be defined separately; an acoustic signal sounds at the end of the process
- Residual heat indicator effectively protects from burns



Model		P/N
Hei-Connect		505-40000-00
Hei-Connect	with Pt 1000 temperature sensor	505-40081-00





Reproducible results through

directly on the PC.

programming of ramps and interval

processes. With RS 232 interface for detailed process documentation



The Hei-Control software is included in the scope of supply and is available to download for free at www.heidolph.com

## Technical Specifications

### Magnetic stirrers

Model	Hei-Mix S	Hei-PLATE Mix 20 L
Speed range	0–2.200 rpm	
Speed accuracy	±5 %	±2%
Drive	Shaded pole motor	EC motor, left-handed
Overheat protection	-	
Operating mode	Continuous operation	Continuous operation
Power input	7 W	20 W
Connection	L+N+PE	L+N+PE
Sound pressure level IEC 61010	<70 dB (A)	<50 dB (A)
Display	-	_
Analog/digital interface	-	-
Heating power	-	-
Heating temperature range	-	-
Heating control	-	
Accuracy temperature setting	-	-
Sensor connection	-	-
Control accuracy hotplate	-	-
Residual heat indicator	-	-
Timer	-	-
Max. stirring capacity H <sub>2</sub> O	51	20 l
Max. load	6 kg	 25 kg
Usable area of heating plate Ø	104 mm	 145 mm
Top plate material	PVDF	Kera-Disk <sup>®</sup> aluminum alloy, coated
Weight	1.1 kg	3.0 kg
Dimensions w/d/h	126×140×80mm	168×299×101mm
Maximum height above sea level	up to 2,000 mamsl	up to 2,000 mamsl
Admissible permissible ambient conditions	5–31°C at up to 80% rel. humidity, 32–40°C at up to 50% rel. humidity (linearly reducing)	5–31°C at up to 80% rel. humidity, 32–40°C at up to 50% rel. humidity (linearly reducing)
EMC class		B, Group 1
Overvoltage category		
Protection class IEC 61140		I
Degree of protection IEC 60529	IP 21	IP 42

## Technical Specifications

### Magnetic stirrers with heating function

Hei-PLATE Mix 'n' Heat Core	Hei-PLATE Mix 'n' Heat Core+	Hei-Connect
100–1.400 rpm		
±2 %	±2 %	±2 %
EC motor, left-handed	EC motor, left-handed	EC motor
-	-	no, but error message
Continuous operation	Continuous operation	Continuous operation
825 W	825 W	825 W
L+N+PE	L+N+PE	L+N+PE
<50 dB (A)	<50 dB (A)	<70 dB (A)
-	LCD display	digital
_	-	digital (RS 232)
800 W	800 W	800 W
20-300 °C	20-300 °C	20-300 °C
PID	PID	Micro controller
-	±1 K	±1K with sensor
EKT Hei-Con	Pt 1000	Pt 1000
±5℃	±5 °C	±5 ℃
yes	yes	yes
-	-	yes
20 l	20 l	20 l
25 kg	25 kg	25 kg
145 mm	135 /145 mm	145 mm
Kera-Disk <sup>®</sup> aluminum alloy, coated	Kera-Disk <sup>®</sup> aluminum alloy, coated	Kera-Disk <sup>®</sup> aluminum alloy, coated
3.0 kg	3.0 kg	2.9 kg
168×299×101mm	168×299×101mm	173×277×94 mm
up to 2,000 mamsl	up to 2,000 mamsl	up to 2,000 mamsl
5–31°C at up to 80% rel. humidity, 32–40°C at up to 50% rel. humidity (linearly reducing)	5–31°C at up to 80% rel. humidity, 32–40°C at up to 50% rel. humidity (linearly reducing)	5–31°C at up to 80% rel. humidity, 32–40°C at up to 50% rel. humidity (linearly reducing)
B, Group 1	B, Group 1	
I	I	
I	I	
IP 42	IP 42	IP 32

Standard supply voltage: 230 V. Other supply voltages on request.

Standard supply voltage: 230 V. Other supply voltages on request.

### Accessories for Magnetic Stirrers











### Heating bath<sup>1</sup>

11	PTFE coated
21	PTFE coated
41	PTFE coated

### Heating bath for oil<sup>1</sup>

11	max. temperature 250 °C	504-93000-00
21	max. temperature 250 °C	504-92000-00
41	max. temperature 250 °C	504-91000-00

### Concave block adapter<sup>1</sup>

### For 1 l round-bottom flasks

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### Magnetic stirring bars

PTFE coated		
cylindrical 25, 40, 50 mm Cross shape 16.5 mm	·	509-56000-00
For 25–50 ml flask		509-58500-00
Evaluation kit for round-bottom flash cross-shaped 10 and 16.5 mm, elliptical 25 mm,		
oval 40 and 50 mm	2 pieces each	509-58300-00
oval 15 × 6 mm for round-bottom flask 10 ml	Pack of 3	509-53000-00
oval 25×10 mm for round-bottom flask 25–50 ml	Pack of 3	509-54000-00
oval 30×10 mm for round-bottom flask 100–250 ml	Pack of 3	509-55000-00

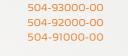
#### Silicone protective cover

#### Protects magnetic stirrers from splashing and dripping water

For Hei-Connect	23-07-06-05-59
For Hei-PLATE Mix 201	23-07-06-05-77
For Hei-PLATE Mix 'n' Heat models	23-07-06-05-76

<sup>1</sup> For magnetic stirrers with plate Ø 145 mm. An adapter plate is available for models with Ø 135 mm.

504-93100-00
504-92100-00
504-91100-00



504-94000-00











### Adapter plate

For use of accessories for Ø 145 mm heating plate with Ø 135 mm models

P/N 505-99000-01

### Pt 1000 temperature sensor

For Hei-PLATE Mix 'n' Heat Core+

V4A Glass-coated

509-67910-00 509-67920-00

### Pt 1000 clamping system

With support rod and clamping device with cable routing

P/N 509-63100-00

### Pt 1000 clamping system for large attachments (3–5 l)

With support rod and clamping device with cable routing

For Hei-Connect For Hei-Plate Mix'n'Heat models

509-63200-00 509-63300-00

### Hei-Con electronic contact thermometer

For Hei-PLATE Mix 'n' Heat Core+

V4A Glass-coated 509-88000-00 509-88100-00

### RS 232 cable

9-pin, for Hei-Connect P/N 14-007-040-72

### Heating bath liquid

Heating bath liquid (5 kg) up to 170 °C up to 220 °C

515-31000-00 569-00600-00

### Air instead of water. The Findenser<sup>™</sup> – the green alternative

### More safety in the laboratory

The Findenser<sup>™</sup> is a high performance condenser and replaces the need for watercooled condensers in over 95 % of all common chemistry applications. The finned aluminum jacket provides excellent heat transfer.

Leading safety standards No danger due to leakages and flooding in the laboratory – for unlimited continuous operation

Superior ease of use Easy handling, no tubing – more space in the laboratory

Reduced cost of ownership No water consumption – resource friendly and cost-effective

- Immediate use
- Absolutely flexible use no water connection necessary
- Large cooling surface
- No running costs
- No performance difference compared to conventional reflux condensers



#### Aluminum cooling fins

Excellent thermal conductivity and chemical-resistant, anodized surface

### Easy fixing

With standard laboratory clamps or with the Findenser™ attachment kit

> Findenser NS24 Cone Findenser NS29 Cone Findenser NS19 Cone Findenser Mini NS24 Cone Findenser Mini NS19 Cone Findenser Mini NS14 Cone

-20-15-

Attachment kit: 2× retort clamp, 2× boss head, support rod



#### Ground class cones/sockets

The upper ground sleeve and lower ground core are available in different sizes



#### Patented design

Encapsulated thermofluid for maximum heat transfer

#### Prisma design

No rolling away due to flattened edges. Risk of damage is minimized

400 mm 400 mm 400 mm 275 mm 275 mm 275 mm

505-81700-00 505-81710-00 505-81720-00 505-81800-00 505-81810-00 505-81820-00

11-300-008-23

NS24 Socket

NS24 Socket

NS19 Socket

NS24 Socket

NS19 Socket

NS14 Socket

The Buyer's Guide provides answers to the most important questions on the advantages and disadvantages of a reflux cooler and what must be noted when purchasing.



### Heat-On Blocks

### Safe, fast and efficient

Replace oil baths and heating mantles in your lab and reduce the risk of fire. Heat-On blocks are the safest, fastest and most efficient method for heating and stirring in round-bottom flasks from 10 ml to 5 l.

### Heat-On Attachments



1.600-4

### Leading Safety Standards

Increased occupational safety and fire protection: The elimination of oil baths prevents accidents, fires and contamination. The unique design prevents glass breakage and therefore minimizes the risk of cut injuries and leaking liquids. The high temperature accuracy offers leading safety standards for applications up to 260 °C.

### Superior Ease of Use

The temperature can be measured conveniently and precisely, in the medium or directly on the reaction attachment. Oil is no longer necessary as a heat conductor, as the attachments enclose the flask with a precise fit. The cleaning effort is minimized. The PTFE coating offers the highest chemical resistance and corresponding use for many years.

### Reduced Cost of Ownership

Thanks to the simplified handling, process times are minimized and the sample throughput is increased: 150 ml of water are brought to the boil in less than 11 minutes. In addition, the 66 % faster heating times compared to conventional oil baths save on energy costs.



Flask size	Liquid capacity	Hotplate temperature	Time to boiling point
10 ml	6 ml	300 °C	6.8 min
25 ml	15 ml	300 °C	8.0 min
50 ml	30 ml	300 °C	8.5 min
100 ml	60 ml	300 °C	8.8 min
150 ml	100 ml	300 °C	10.0 min
250 ml	150 ml	300 °C	10.8 min
500 ml	300 ml	300 °C	16.4 min
1000 ml	600 ml	300 °C	21.1 min
2000 ml	1200 ml	300 °C	35.1 min
3000 ml	1800 ml	300 °C	47.3 min
4000 ml	2400 ml	300 °C	51.0 min
5000 ml	3000 ml	300 °C	75.5 min







### Heat-On blocks

Block with lateral cut-outs	100 ml	505-80066-00
Block	250 ml	505-80067-00
Block with lateral cut-outs	250 ml	505-80067-01
Block	500 ml 1l 2l 3l 4l 5l	505-80069-00 505-80071-00 505-80073-00 505-80075-00 505-80078-00 505-80076-00

### Heat-On attachments

Clamping system for 3-5 lattachments	509-63200-00
Retort clamp	505-81075-00
Boss head	570-31100-00
Attachment kit for flasks Support rod for large attachments and holding device with cable routing, retort clamp, boss head	
for Hei-Connect	505-81400-00
for Hei-PLATE Mix 'n' Heat Core/Core+	509-63400-00

### Multi-Well inserts and clamping system

10 ml	505-80061-00
25 ml	505-80062-00
50 ml	505-80063-00
00 ml	505-80064-00
150 ml	505-80065-00
	505-80060-00
	505-80077-00
	25 ml 50 ml 00 ml

### Safety covers

For Heat-On Multi-Well holder For Heat-On 200–300-ml Block For Heat-On 500 ml Block For Heat-On 11 Block

505-80080-00 505-80081-00 505-80082-00 505-80083-00

### Heat-On Multi-Well packages

Package Heat-On Multi-Well Basic Includes 1 multi-well holder and 3 inserts 505-81300-00 (for 25-ml, 50-ml and 100-ml flasks)

Package Heat-On Multi-Well Includes 1 multi-well clamping system and 6 inserts (for 2 × 25, 2 × 50 and 2 × 100 ml flasks)

505-81200-00

For magnetic stirrers with plate Ø 145 mm. An adapter plate is available for models with Ø 135 mm.

# Space-saving Working

With the StarFish workstation. Simply combine available round-bottom flasks and other vessels with the suitable StarFish attachments.



### StarFish Workstation

### Process a large number of reactions in a space-saving and time-saving way

- into a multiple, efficiency-increasing reaction system for a maximum of 45 samples simultaneously
- and extractions with vacuum and inert gas
- Simply work with the existing round-bottom flasks and combine them with the matching StarFish attachments
- up to five individual PolyBlocks in different sizes or a MonoBlock with uniform insert sizes



### StarFish Accessories















To the configuration overview of StarFish workstation

### Base plate

The baseplate fits exactly on the heating plate of the magnetic stirrer and ensures very good contact with the heated surface.

StarFish base plate	145 mm Ø	505-81000-00
StarFish safety handles	Pack of 2	505-81001-00

#### MonoBlocks

MonoBlocks consist of one block with several inserts of the same size and are ideal for applications with identical vessels.

MonoBlock for flasks	5×250 ml	505-80001-00
Flask insert	150 ml	505-80040-00
	100 ml	505-80041-00
	50 ml	505-80042-00
	25 ml	505-80043-00
	10 ml	505-80044-00
	5 ml	505-80045-00
MonoBlock for		
test tubes	16 × 25 mm Ø	505-80002-00
	16 × 24 mm Ø	505-80003-00
	40×16 mm Ø	505-80004-00
	40×12 mm Ø	505-80005-00
MonoBlock for cylindrical		
reagent vials	16 × 28 mm Ø	505-80006-00
	20×21 mm Ø	505-80007-00
	40×17 mm Ø	505-80008-00
	40 × 15 mm Ø	505-80009-00
	40 × 12 mm Ø	505-80010-00

#### PolyBlocks

PolyBlocks are made from narrow segments (five per baseplate), which can be combined suitably to match the vessel size; ideal for use of different vessel types and sizes.

PolyBlock for flasks	1×250 ml	505-80020-00
	3×25 ml	505-80021-00
	3×24 ml	505-80022-00
	9×16 ml	505-80023-00
	9×12 ml	505-80024-00
PolyBlock for		
reagent vials	3×28 ml	505-80025-00
	3×21 ml	505-80026-00
	7×17 ml	505-80027-00
	9×15 ml	505-80028-00
	9×12 ml	505-80029-00

For magnetic stirrers with plate Ø 145 mm. An adapter plate is available for models with Ø 135 mm.







### Universal 5-way clamp

The StarFish clamp enables different size glassware sets to be fixed and is optionally available with a silicone or Velcro<sup>®</sup> strap.

Each clamp is made up of five telescopic arms, which can be extended as required and can therefore be fixed securely around the vessel. Application example for the use of both clamps: The silicone strap holds the vessels securely, lift the samples with a handle if necessary, while the Velcro<sup>®</sup> strap enables the cooler to slip through.

5-way clamp with Velcro® strap 5-way clamp with silicone strap 505-81010-00 505-81020-00

### Water manifold

### Distributes water evenly from one output source to up to five condensers.

Two water manifolds are always used in the set-up. One to distribute the water and a second one to collect the water again. Either for further use or to remove it completely. Each of the five connections has a leakproof cut-off valve.

Water manifold with connections

505-81030-00

### Gas/vacuum manifold

Distributes inert gas or vacuum from an output source uniformly to five different stations or vessels. Regulating the gas or vacuum is not possible. Each of the five connections has a leakproof cut-off valve.

Gas/vacuum manifold 505-81040-00 with connections Replacement Velcro® pads 200 mm (pack of 10) 505-81070-00 for telescopic arms Replacement Velcro® straps 200 mm (pack of 5) 505-81080-00 Replacement spare silicone 200 mm (pack of 5) 505-81090-00 strips Support rod 650 mm 505-81050-00 505-81060-00 Support rod, separable 650 mm



Hei-PLATE sensor packages

### Hei-PLATE reflux packages

#### **HEI-PLATE SENSOR** ADVANCED PACKAGE CORE+

- Hei-PLATE Mix 'n' Heat Core+ Pt 1000 temperature sensor
- Clamping system for Pt 1000 (includes support rod and attachment with cable conduit)
- Silicone protective cover

### Ø 135 mm

Ø 145 mm P/N 506-21151-00





- Hei-Connect
- Pt 1000 temperature sensor (V4A)
- Clamping system for Pt 1000 (includes support rod and attachment with cable conduit)
- Interface cable RS 232

#### P/N 505-40080-00

### **HEI-PLATE SENSOR** ADVANCED PACKAGE CORE

Hei-PLATE Mix 'n' Heat Core

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- Hei-Con contact thermometer incl. clamping system
- Silicone protective cover

### P/N 506-11157-00

#### **HEI-PLATE SENSOR BASIC PACKAGE** CORE+

- Hei-PLATE Mix 'n' Heat Core+
- Pt 1000 temperature sensor (V4A)
- Clamping system for Pt 1000 (includes support rod and attachment with cable conduit)

#### Ø 135 mm P/N 506-22150-00

Ø 145 mm P/N 506-21150-00

#### HEI-PLATE **REFLUX PACKAGE CORE+ MINI**

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- Hei-PLATE Mix 'n' Heat Core+
- Pt 1000 temperature sensor
- Heat-On block 250 ml
- Findenser Mini NS24/24
- Attachment kit

P/N 506-21155-00

### HEI-PLATE **REFLUX PACKAGE** CONNECT

- Hei-Connect
- Pt 1000 temperature sensor
- Heat-On block 1 l
- Findenser NS29/24
- Attachment kit

P/N 505-40715-00



### **HEI-PLATE REFLUX PACKAGE** CORE+

- Hei-PLATE Mix 'n' Heat Core+
- Pt 1000 temperature sensor
- Heat-On block 1 l
- Findenser NS29/24
- Attachment kit

### **HEI-PLATE REFLUX PACKAGE CONNECT MINI**

- Hei-Connect
- Pt 1000 temperature sensor
- Heat-On block 250 ml
- Findenser Mini NS24/24
- Attachment kit

### P/N 505-40732-00

### **Best Service**

### For best results

Purchasing Heidolph Premium laboratory equipment is a decision for the leading quality, service and safety standards. After process optimization and calibration procedure, it is also possible to ensure compliance with standards once defined and reliably reproducible results. To this end, Heidolph has different service packages set up in accordance with EN 13306:2018 with annual preventive service measures and extremely short response times for permanently reproducible processes. Service agreements offer the opportunity to decide for yourself which services help to optimize and secure processes.

### Before the purchase



#### **Initial application counseling for all customers & interested parties** We address the individual requirements of your project, check the theoretical feasibility and find the best equipment combination for optimal results.



### First application testing for all customers & interested parties

To test the theoretical feasibility, we perform a test with your original product in our laboratory. You will receive initial results on the process speed and quality of the sample.



### Advanced application testing

**optional and individual** We offer additional tests in our laboratories, tailored to your requirements and given parameters. The costs are billed by the hour.



#### External analyses for verification If you do not have the facilities for

analyses, we can commission an external laboratory to do so. We determine viscosity, residual moisture and composition of your sample.

### After the purchase

Training



Work successfully from day 1 After receiving your laboratory device, we support you with the commissioning and ensure optimal handling of the devices in individual application training sessions.



#### Optimal processes Maximum performance Our application specialists adjust your installed new devices in

an optimal and applicationspecific manner. We are also happy to help you to increase the performance of processes that are already running.



Subject to a charge



Detailed information and other services also available online on www.heidolph.com

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