

# Powerful Stirring

## 顶置搅拌器 Hei-TORQUE Value 和 Hei-TORQUE Precision 操作手册



Leading Safety Standards

Superior Ease of Use

Reduced Cost of Ownership

在使用产品之前，请仔细阅读这些说明，并遵守所有说明和警告。

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### ➤ About this manual

This operating manual describes the features and operation of Hei-TORQUE overhead stirrers. The operating manual is an integral part of the delivery!

There are different variants of the device available, each offering specific characteristics and/or features. These are explicitly identified.

#### Copyright protection

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Any violation is subject to compensation for damages.



- Please read these instructions carefully before using the product and follow all instructions and warnings.
- In addition, follow the applicable national regulations and safety guidelines.
- Please ensure that this operating manual is available to every operator at all times.
- This operating manual should be given to all subsequent owners.



The latest issue of this document can be found by visiting our homepage:

[https://heidolph-instruments.com/en/service/downloads/operation-manuals# Overhead stirrers \(Hei-TORQUE\)](https://heidolph-instruments.com/en/service/downloads/operation-manuals# Overhead stirrers (Hei-TORQUE))




#### Typographic conventions

Symbol	Description
→	Handling instruction, action required
✓	Result of action
▪	List of information
▪	
▪	
a. b. c.	List of variants



## ➤ Symbols and keywords

Standardized symbols and signal words are used in this operating manual to warn against any dangers and provide important instructions. These instructions must be strictly observed to avoid accidents and damage.

Symbol	Additional signal words / explanation
<p><b>Warning signs</b></p> 	<p>The yellow triangle indicates hazardous situations. It is used in combination with the following signal words:</p> <p><b>DANGER:</b> Indicates a hazardous situation which, if not avoided, will result in serious injury or death.</p> <p><b>WARNING:</b> Indicates a hazardous situation which, if not avoided, may result in serious injury or death.</p> <p><b>CAUTION:</b> Indicates a hazardous situation which, if not avoided, may result in property damage and minor or moderate injury.</p>
<p><b>Prohibitory signs</b></p> 	<p>The red circle indicates a situation that should be avoided under all circumstances and which, if not avoided, may result in serious injury or death.</p>
<p><b>Mandatory signs</b></p> 	<p>The blue circle indicates important information. Please observe this information to avoid any property damage.</p>



## ➤ General safety instructions

### EU Declaration of Conformity



This device complies with the following EC-Directives:

- 2006/42/EC Machinery Directive
- 2014/30/EU Electromagnetic Compatibility Directive



The device has been tested according to the following directives:

- UL 61010-1 :2012/R2:2016-04  
CAN/CSA C22.2 No. 61010-1:2012/U2:2016-04
- UL 61010-2-051:2015  
CAN/CSA C22.2 No. 61010-2-051:2015

The device has been manufactured according to state-of-the-art technology and in compliance with recognized safety regulations. However, risks may still arise during installation, operation and maintenance.

→ Please ensure that the operating manual is available at all times.

#### The device may only be used under the following conditions:

- Only operate the device if it is in a technically perfect condition.
- Only operate the device if you are properly aware of the risks and required safety measures.
- Only operate the device in accordance with the instructions given in this operating manual.
- If any information is ambiguous or missing, ask your superior or contact the manufacturer.
- Do not operate anything on the device without authorization.
- Only use the device in accordance with its intended use.

### Intended use

The device may only be operated by authorized personnel.

The device is suitable for the following uses:

- Stirring
- Mixing
- Be- and Degassing
- Emulsifying
- Suspending

The device may be operated in research laboratories, other laboratories and production facilities in the following sectors:

- Chemistry
- Pharmacy
- Biology
- Environmental analytics
- Basic research
- Similar research laboratories

#### Unintended use/Reasonable foreseeable misuse

Any use which deviates from the device's intended use is considered to be improper. The manufacturer is not liable for damage that occurs as a result. The risk is borne by the operator alone.



## Safety Instructions

When used in medical and food sectors the operator alone is responsible for compliance with the applicable regulations and standards.

### Electrical safety

- Ensure that the voltage indicated on the rating plate matches the supply voltage of the country in which the device is being used.
- Ensure that the mains socket-outlet is protected by means of a residual-current device (RCD).
- Always use the supplied power supply cord provided with the device.
- Prior to use, check that the device and the power supply cord are free of visible damage.
- Repairs must be carried out only by a qualified electrician
- Prior to carry out any maintenance, cleaning or repair work, it is obligatory to disconnect and unplug the device.

### Qualifications of employees

- The device may only be operated by trained personnel.
- The device may only be operated by persons who have been instructed and supervised in its proper use by trained specialist personnel.
- The device may only be operated by specialist personnel who are above the legal minimum age.
- Other persons may only work on the device under the constant supervision of experienced and trained specialist personnel.
- This operating manual must be read and understood by all persons working with the device.
- Personnel must receive safety training that ensures responsible and safe working practices.

## ➤ Obligations of the operator

### Installation site

- The device must be installed in a suitable location.
- The device must be installed on a firm and stable surface.
- Ensure that the device and all of its components are easily accessible at all times.
- Maintain a sufficient safety clearance to, in particular, any moving and/or hot equipment components.
- It is not permitted to place or store any objects such as accessories, tools or chemicals within this clearance area during operation.
- All screw connections must be securely tightened.
- It is not permitted to operate the device near to highly flammable or explosive substances.
- Operate the device in conjunction with an extractor hood, if working with potential harmful media (see EN 14175).



## Safety Instructions

- The device is designed for indoor use in dry spaces only and under the following ambient conditions:

Ambient temperature	5 - 31 °C, up to 80 % relative humidity 32 - 40 °C, decreasing linearly to 50 % relative humidity, max.
Installation altitude	0 - 2,000 m above sea level
Contamination level	2
Overvoltage category	II
Permissible supply deviations	± 10 %

- If the device is operated in corrosive atmospheres, the service life of the device will decrease based on the concentration, duration and frequency of the exposure to the corrosive atmosphere e.g. concentrated hydrochloric acid (HCl).

## Modifications to the device

- It is not permitted to make any unauthorised modifications or changes to the device.
- Do not attach or install any parts that have not been approved by the manufacturer.
- Only use the supplied accessories and original spare parts from the manufacturer.
- Unauthorised modifications or changes will void the EC Declaration of Conformity for the device and operation of the device will no longer be permitted.
- The manufacturer is not liable for any damage, dangers or injuries that result from unauthorised modifications and changes or due to the non-observance of the instructions in this manual.

## Employee safety

- Ensure that the device is only operated by qualified specialist personnel and trained employees.
- Observe the following instructions to avoid any personal injuries and property damage:
  - Laboratory regulations
  - Accident prevention regulations
  - Hazardous Substance Act
  - Other generally accepted occupational health and safety regulations
  - Local regulations

## California Residents

- Important information for California residents regarding Prop 65. Please visit [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov) for more information.





## Safety Instructions

### ➤ Safety during use

- Wear the appropriate clothing when working on the device (protective clothing, protective glasses and, if necessary, safety gloves).
- Do not use the device in potentially explosive areas. The device is not protected against explosion. There is no explosion or ATEX protection available.
- Do not carry out work with naked flames in the vicinity of the device (risk of explosion).
- Do not operate any devices in the vicinity which may exhibit electromagnetic fields in the frequency range  $9 \times 10^3$  Hz to  $3 \times 10^{11}$  Hz.
- Do not operate or assemble devices in the vicinity which are emission or radiation sources (electromagnetic radiation) for the frequency range  $3 \times 10^{11}$  Hz to  $3 \times 10^{15}$  Hz (in the optical spectral range wavelengths from  $1,000\mu\text{m}$  to  $0.1\mu\text{m}$ ).
- Do not operate or assemble appliances in the vicinity of the device which constitute emission or radiation sources for ionizing radiation or in the ultrasonic range.
- Do not operate the device where adiabatic compression or shock waves might occur (shock wave combustion).
- Do not use materials which pose a potential risk of uncontrolled energy release which might result in pressure increase (exothermic reaction; spontaneous combustion of dusts).
- Only use impellers approved by Heidolph Instruments.
- Install all cables without kinks and outside the operating and danger zone.
- Avoid putting pressure on the display when you are not operating the device.
- Do not spill liquids over the device or any parts of it.
- Remove any accidentally spilled liquids immediately.
- Eliminate errors immediately.
- Do not use abrasive material to clean the glass surface. Only wipe with damp cloth.
- Always switch the device OFF after use.

### ➤ Disposal



- Check the device components for hazardous substances and solvents.
- Clean all components before disposal.
- Dispose of the device in accordance with the relevant national regulations.
- Dispose of the packaging material in accordance with the appropriate national regulations.



#### **Caution: Possible damage to the environment**

The device is equipped with a lithium button cell termed CR2032 by IEC-2. According to the European battery directive batteries must be disposed off separately.

In case of disposal ensure, the waste disposal plant is either member of the common redemption system for batteries or has installed an individual redemption system according to the Battery Directive 2013/56/EU.

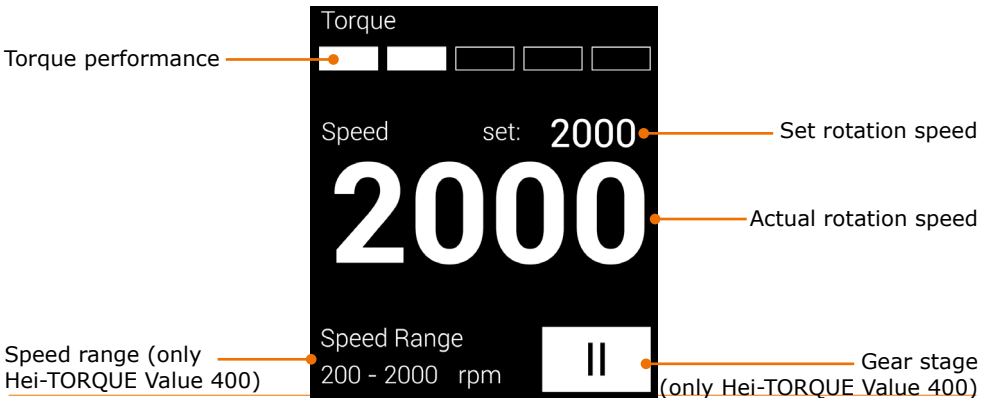


## › Device overview

### Hei-TORQUE Value overall view



### Hei-TORQUE Value control panel



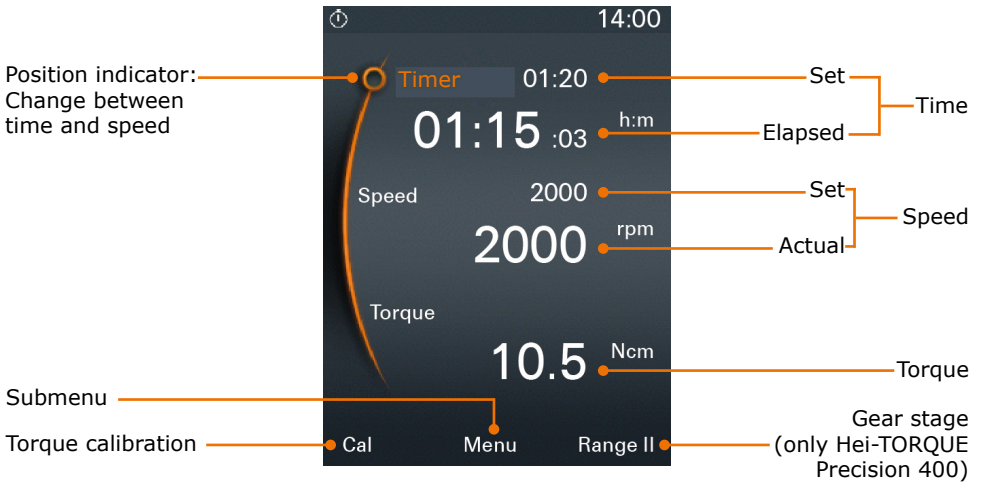


# Device Description

## Hei-TORQUE Precision overall view



## Hei-TORQUE Precision control panel





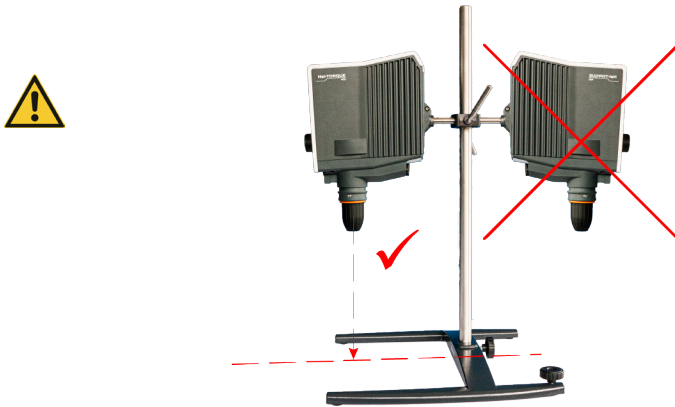
### ➤ Setting up device

Before start-up the device has to be mounted by aid of the support rod either to a stand or to a wall grid (see chapter "Assembly, Support rod and quick chuck", section "Mounting the support rod").

**Warning: Danger of tipping due to insufficient stability. Risk of injury and damage to property.**

When mounting the overhead stirrer, make sure that the structure is sufficiently stable. Otherwise, the stand may tip over at any moment!

- The stand must be used and placed on a clean and stable surface.
- Observe the specific assembly instructions for the stand.
- Make sure that the quick chuck of the mounted overhead stirrer points towards an imaginary center line between the **large sections** of the stand base bars, see figure:



- After assembly, check all screw connections/clamps for tightness.

### ➤ Power supply

The device is equipped with a IEC appliance inlet for power supply. A three-pole power supply cord is included in the scope of delivery. This power supply cord features a safety mechanism (V-Lock) to hold the female connector in position.

**Caution: Risk of loss of production and/or damage to property!**

Power supply cords without V-Lock may become loose during operation due to the vibrations generated. In case of an uncontrolled shutdown, there is a risk of loss of production and/or damage to property!

For reasons of operational safety, use only the power supply cord with safety mechanism (V-Lock) included in the scope of delivery!





## Start-Up

### Connecting the power supply cord

Before connecting the power supply cord, make sure that the main switch of the appliance is switched off.

- Insert the connector with safety mechanism (yellow) into the appliance inlet on the back of the device.
- Make sure that the connector audibly engages and check the connection for tightness.
- Finally, insert the power plug into a mains socket-outlet.



Safety mechanism  
V-Lock

### Disconnecting the power supply cord

- Before disconnecting the power supply cord, make sure that the main switch of the appliance is switched off.
- Disconnect the power plug from the mains socket-outlet.
- Push the V-Lock to disengage and to disconnect the connector from the device.



IEC appliance inlet

## ➤ Switching the device on and off

### Switching on the device

- Press the ON/OFF switch.
- ✓ The ON/OFF switch remains engaged.
- ✓ The display switches on.
- ✓ A short animation is shown.

#### Hei-TORQUE Precision:

- ✓ The main menu opens.

### Switching off the device

- Press the ON/OFF switch.
- ✓ The ON/OFF switch disengages.
- ✓ The display switches off.



ON/OFF switch



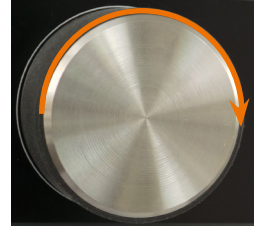
## ➤ How to do the Settings

### Control knob

#### Hei-TORQUE Value

The speed is adjusted using a rotary knob.

- Turn the control knob clockwise
- ✓ to increase the speed.
- Turn control knob counterclockwise.
- ✓ to decrease the speed.



#### Hei-TORQUE Precision

The rotary knob is used to call up, change and save all settings.

- To call up and change the settings: Turn the control knob
- To select and confirm settings: Push the control knob
- ✓ "Speed" is selected in the main menu by default and the value displayed in orange figures.
- Turn the control knob clockwise or counterclockwise to increase or decrease the speed.
- Push the control knob to exit speed setting.
- Turn the control knob clockwise within 3 seconds.
- ✓ The indicator jumps to "Timer".
- Push the control knob to confirm your selection.
- ✓ Setting changes from white to orange for approx. 2 seconds.
- While the figures are orange turn the control knob clockwise or counterclockwise to increase or decrease the setting.
- Push the control knob to confirm.
- ✓ Without confirmation, the setting will be saved automatically after approx. 2 seconds.



The settings can only be changed while the figures are displayed in orange.



The control knob sound can be switched off and on. (See chapter "Start-Up, Hei-TORQUE Precision: Additional functions", "Settings" section.)



## Control keys

### Hei-TORQUE Value 400

On the Hei-TORQUE Value 400, the gear stage is set using the touch-sensitive control panel.

- Touch the control panel to set the gear stage.
- ✓ The control panel will display the current gear setting.



### Hei-TORQUE Precision

The Hei-TORQUE Precision has several touch-sensitive control keys.

The functions specified above the keys indicate what each key applies to.

- ✓ In the main menu there are three adjacent touch-sensitive keys.

Hei-TORQUE Precision 400:



- ✓ "Range I or II" is displayed.

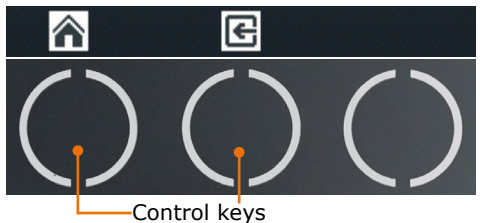


Hei-TORQUE Precision 100/200

- ✓ "Graph" is displayed.
- Touch one of the control keys.
- ✓ The function specified above the panel applies.


















- ✓ In the submenu there are two adjacent touch-sensitive keys.
- ✓ The "Back" key  takes you back to the previous step.
- ✓ The "Home" key  takes you back to the main menu.





## ➤ Hei-TORQUE Precision: Additional functions

### Symbols used

Symbol	Name	Function
	Home	Back to main menu
	Back	Back to previous menu
	Save	Save setting or profile
	Ramp jump	Rotation speed jumps to predefined setting immediately
	Ramp slope	Rotation speed increases or decreases to predefined setting gradually
	Correct	Deletes last input
	Delete	Deletes template
	Continuous operation	Activates repeated operation of a profile
	Activate	<ul style="list-style-type: none"> <li>▪ Activates single operation of a profile</li> <li>▪ Activates input</li> </ul>
	Deactivate	<ul style="list-style-type: none"> <li>▪ Deactivates the profile</li> <li>▪ Deactivates input</li> </ul>
	Profile cycle	Profile cycle active: Adjustment of time or speed not possible
	Continuous operation	Continuous operation active: Adjustment of time or speed not possible
	Start time	Start time active
	Direction	Clockwise rotation
	PC control	Only available when using interface and PC (see separate instruction manual)

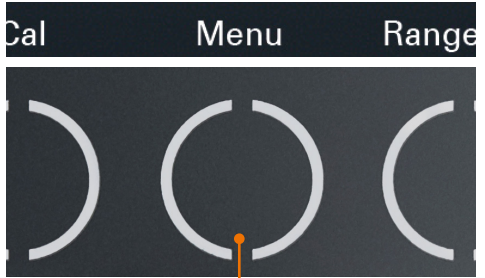




## Menu navigation

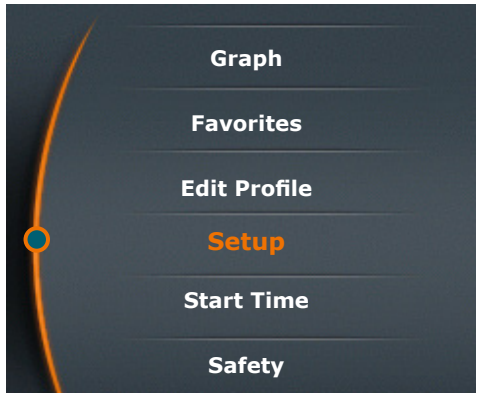
### Switching to a submenu

→ Touch the "Menu" key.

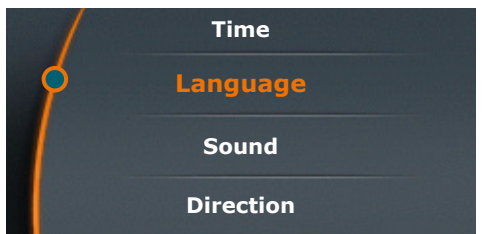


Control key "Menu"

- ✓ The first submenu opens.
- Turn the control knob clockwise or counterclockwise.
- ✓ The position indicator jumps to a menu item.
- ✓ The color of the selected menu item changes from white to orange.



- Push the control knob.
- The selected menu is displayed.



### Quitting the submenu

- Touch the "Back" key
- ✓ This will take you back to the previous menu.
- Touch the "Home" key
- ✓ This will take you back to the main menu.





## Settings

All basic settings for daily use are set using the "Settings" menu.

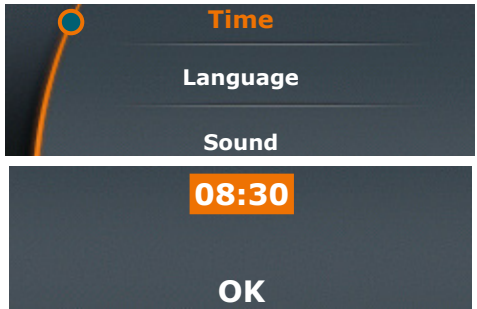
### Setting the language

- Open the "Settings" submenu.
- Select the "Language" menu item and choose your desired language.
- Push the control knob to confirm your selection.



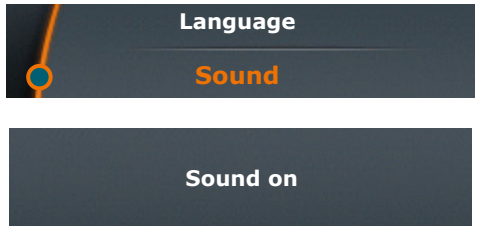
### Setting the time

- Select the "Time" menu item.
- Push the control knob to adjust time.
- Turn the control knob to change the time.
- Push the control knob to complete setting.
- Push the control knob again to confirm and save your selection by pressing "OK".




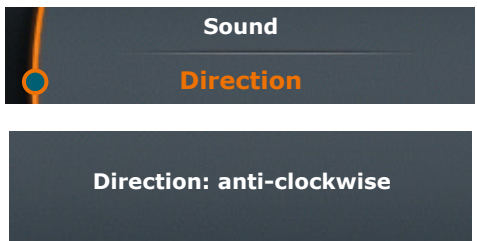
### Setting the sound

- Select the "Sound" menu item.
- Select "Sound on" or "Sound off".
- Push the control knob to confirm.
- ✓ The setting will be displayed for a few seconds.



### Setting the direction (only applicable to Hei-TORQUE Precision 100 and 200)

- Select the "Direction" menu item.
- Select "Left" or "Right".
- Push the control knob to confirm.
- ✓ The setting will be displayed for a few seconds.
- ✓ If "Clockwise" is activated, an additional icon  will be displayed in the upper right corner.





## Safety settings

Use the "Safety settings" menu to individually adjust all settings required by the nature of your sample to ensure personal safety.

### Setting the acceleration

Switching rotation on may result in splashing at high acceleration.

The default setting is medium acceleration.


→ Select the "Acceleration" menu item.

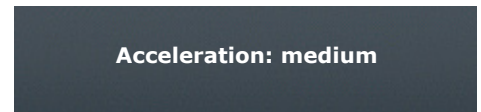
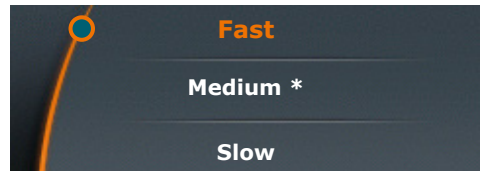
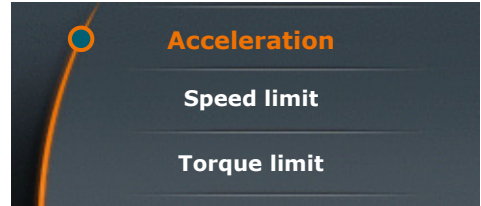
✓ The current setting is marked with an asterisk.

→ Select the required setting.

→ Push the control knob to confirm.

✓ The selected setting is displayed briefly for confirmation.

→ Press "Back"  to exit the "Acceleration" menu.



### Setting a speed limit

Some samples may only be exposed to low rotation speed. In this menu you can restrict the speed to avoid accidental changes.

The default setting is the maximum possible speed.

→ Select the "Speed limit" menu item.

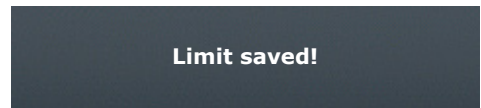
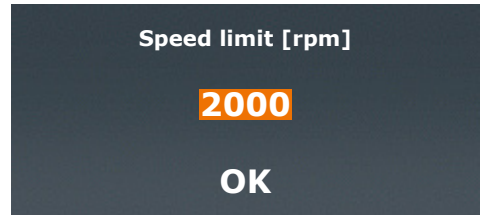
→ Set the required maximum speed in rpm.

→ Push the control knob to confirm.

✓ A confirmation is displayed briefly.

→ Press "Back"  to exit the menu.

✓ The speed cannot be set to higher than this speed limit, regardless of the gear stage selected.



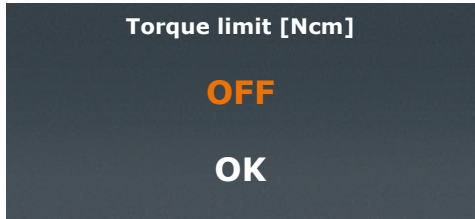


## Start-Up

### Setting the torque limit


Fragile impellers might not withstand a load above a certain torque. This setting allows you to limit the torque accordingly.

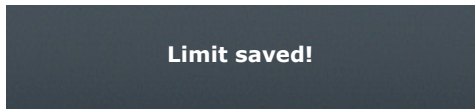
- Select the "Torque limit" menu item.
- Push the control knob to confirm "OFF" or the last setting.



- Set the required maximum torque in Ncm using the control knob.
- Push the control knob to exit setting.
- Push the control knob again to confirm by pressing "OK" and save the setting.



- ✓ A confirmation is displayed briefly.
- Press "Back"  to exit the menu.
- ✓ If the torque limit is exceeded, the device will shut down automatically.



The safety settings are saved and are not lost by switching off the device.



## Editing the profile

You can edit up to seven profiles and save them as favorites.

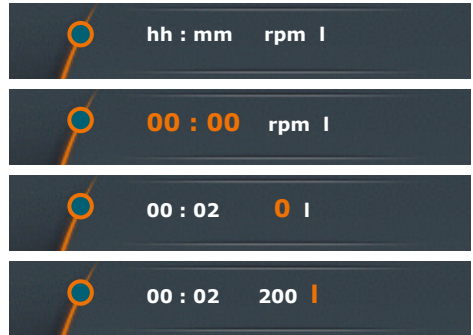


The timer of each profile step always counts down to zero. This means that each subsequent profile step must always be at least 1 minute higher than the previous step. – Exception: Ending the profile cycle.

### Example:

- 1<sup>st</sup> step: Time = 00:02 Speed increases to 200 rpm within 2 minutes.  
Rotation = 200  
Ramp = /
- 2<sup>nd</sup> step: Time = 00:03 Speed increases to 400 rpm between the 2<sup>nd</sup> and the 3<sup>rd</sup> minute.  
Rotation = 400  
Ramp = /
- 3<sup>rd</sup> step: Time = 01:00 Speed remains at 400 rpm between the 3<sup>rd</sup> and the 60<sup>th</sup> minute.  
Rotation = 400  
Ramp = |

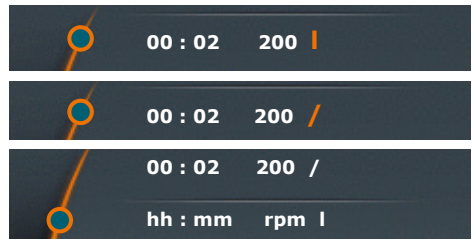
- Open the submenu.
- Select the "Edit profile" menu item.
- Push the control knob and select the rotation time by turning the control knob.
- Push the control knob to confirm and select the speed by turning the control knob.
- Push the control knob to confirm selection.
- ✓ The profile symbol is now displayed in orange.



### Ramp icon

- | : The speed immediately ramps up to the pre-programmed rpm settings for the pre-programmed time.
- / : The speed increases (or decreases) gradually within the pre-programmed time until it reaches the pre-programmed rpm setting.

- Choose your desired ramp by turning the control knob clockwise or counterclockwise.
- Push the control knob to confirm selection.
- ✓ The positioning indicator jumps to the next row.
- Enter the next ramp.






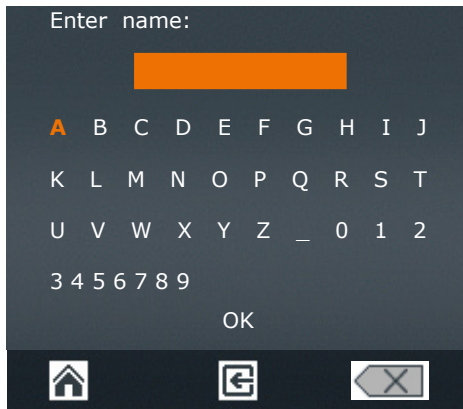


## Start-Up

### Saving the profile



Once all profile steps have been completed:

- Turn the control knob counterclockwise until the Save icon  at the bottom of the display is displayed in orange.
- Push the control knob to confirm your selection.
- ✓ An alphanumeric keypad appears to allow you to enter your favorite.
- Choose a letter or number by turning the control knob.
- Push the control knob to confirm your selection.
- Delete mistakes using the Delete icon .
- Save your selection by pressing "OK".
- ✓ The confirmation message "Data saved" is displayed briefly.
- Exit the menu by pressing  to enter another favorite.



- ✓ The last profile saved is displayed as a template.
- Adjust the settings and save the profile under a new name.

If you want to **change the gear stage** for the next profile:

- ✓ The last profile saved is displayed as a template.
- Select and confirm the Delete icon .
- ✓ The last profile saved is deleted from the template and a blank menu is displayed.
- Exit the menu by pressing the "Home" key .
- Select a different gear stage from the main menu.
- Return to the "Edit profile" menu.
- Now you can enter a new profile with a changed gear stage.



- A profile can only be saved with either gear stage I or II.
- The gear stage for the profile needs to be selected from the main menu.
- If you wish to use a profile with gear stage I (or II) as the template for a new favorite, the new profile also has to be entered in gear stage I (or II).



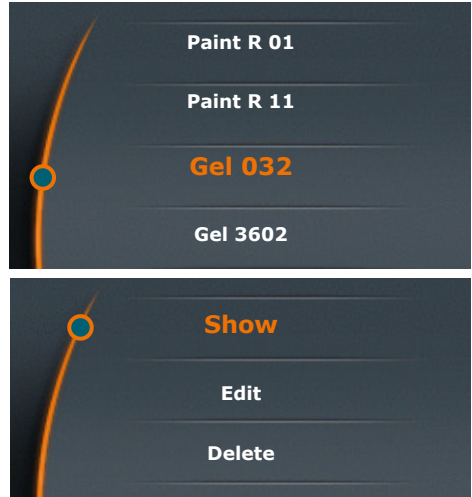
# Favorites

The submenu "Favorites" offers the following options:

- Show an existing profile
- Open an existing profile as a template for a new profile.
- Delete a profile template to create a completely new profile.
- Start a profile.

### Displaying favorites

- Open the "Favorites" menu item in the submenu.
- ✓ If you have saved favorites under "Edit profile" they are displayed here.
- Select a favorite and confirm your selection.
  
- The selection shown on the right is displayed.
- Select "Show".
- The existing profile is shown.




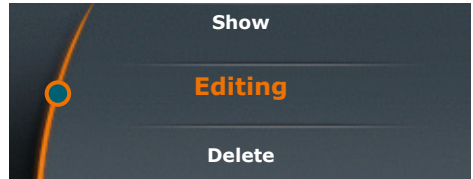
### Selecting favorites as templates

If you want to use a particular favorite as a template, go to the "Favorites" menu instead of the "Edit profile" menu. Save your favorite under a new name via the "Edit" menu.



## Editing favorites

- Open the favorite you want to edit.
- Select "Edit".
- ✓ The existing profile appears in your Favorites.
- Select the row you want to edit with the cursor.
- Push the control knob to activate the row for editing.
- Edit the data as desired.
- Save the changes under a new name by clicking "Save" .





## Deleting a favorite

- Open the favorite that you want to delete.
- Select "Delete".
- Confirm the safety query with "Yes".
- ✓ The favorite will be deleted.



## Starting a favorite

- Open the favorite that you want to start.
- Click the single operation icon  or continuous operation icon .
- ✓ The icons are displayed at the top of the display.
- Start the favorite via the slider.



To prevent accidental changes to tried and tested profiles, it is impossible to change a favorite after it has been saved.

If you really want to change an existing profile, open the profile and edit it, save it under a new name and delete the old version, if you so wish.





## ➤ Setting the gear stage

### Only available for Hei-TORQUE Value 400 and Hei-TORQUE Precision 400

To ensure constant speed despite fluctuations in viscosity you can choose between two gear stages.

#### Speed range:

- Gear stage I: 10 rpm – 400 rpm
- Gear stage II: 200 rpm – 2,000 rpm



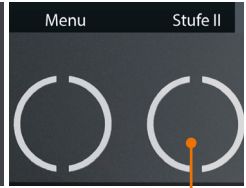
The gear stage can only be changed if the device is not running.

- ✓ Stirring is switched off.
- ➔ Touch the gear stage key on the control panel.
- ✓ The current gear stage is displayed on the control panel.
- ✓ The speed range is automatically adjusted to the lowest speed.

Hei-TORQUE Value 400



Hei-TORQUE Precision 400



Control key gear stage



#### Hei-TORQUE Precision 400

If you select a favorite to start a profile the gear stage will be switched automatically.



#### Hei-TORQUE Precision 400

If you save more than one favorite in succession the software keeps the gear stage of the most recent profile in memory.

Always delete the profile in the "Edit Profile" menu before editing a profile with a different gear stage for a new favorite.



## ➤ Setting the speed

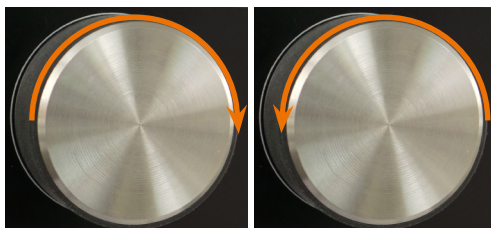
The overhead stirrer rotates clockwise. The speed range varies from 10 rpm - 2,000 rpm (For further details, see the chapter "Technical data".)



We recommend a maximum speed between 500 rpm and 2,000 rpm, depending on the type of impeller used (see the chapter "Attachments, Technical data").

### Hei-TORQUE Value: setting and adjusting the speed

- ➔ Turn the control knob clockwise.
- ✓ to increase the speed.
- ✓ The current speed setting is displayed under "set rotation speed" on the display.
- ➔ Turn the control knob counterclockwise.
- ✓ to decrease the speed.



Increase rotation

Decrease rotation

Turn the control knob clockwise or counterclockwise to adjust speed at any time.

### Hei-TORQUE Precision: setting and adjusting the speed

- ✓ You are currently in the main menu.
- ✓ The cursor is on the left beside "Speed".
- ✓ "Speed" is displayed in orange.
- ➔ Turn the control knob clockwise or counterclockwise to increase or decrease the speed.



In the main menu, turn the control knob clockwise/counterclockwise to adjust the speed while the device is running.



The speed cannot be adjusted if a profile was activated via Favorites



## ➤ Switching rotation on/off



### **Warning: Risk of injury!**

Shattering stirring vessels may lead to serious injuries due to flying parts and escaping fluids.

- Always wear protective clothing in the vicinity of the stirrer when it is running.
- Never operate the stirrer with an imbalanced impeller.
- Never operate the stirrer with an imbalanced chuck.
- The impeller must be able to move freely, without touching the vessel. Choose the inner diameter accordingly.



### **Warning: Risk of injury! Risk of entanglement!**

Rotating items can injure your hands or other parts of the body by drawing in long hair, loose clothing or jewelry.

- Never touch any rotating parts.
- Do not wear loose clothing, belts or ties, which may be drawn in by rotating parts.
- Do not wear long necklaces or bracelets.
- Cover or tie back long hair when operating the stirrer.

### **Warning: Risk of poisoning!**

It may be necessary to operate the stirrer behind a closed and ventilated fume hood.



### **Warning: Risk of poisoning! Risk of injury!**

Depending on the chemicals in use, stirring may result in a chemical reaction which causes dangerous gases to be released.

It may be necessary to operate the stirrer behind a closed and ventilated fume hood.

### **Warning: Risk of injury!**

Switching stirring on at high speed may cause splashing. Depending on the chemicals in use, this may cause injury.

Select a low speed at first and increase it gradually, if necessary.

### **Hei-TORQUE Precision only**

Initially, select "Slow" under "Soft start". Only select "Medium" or "Fast" after testing your application (see chapter "Start-Up, Hei-TORQUE Precision: Additional functions", "Safety settings").



### **Hei-TORQUE Precision only:**



Limit the speed and torque when working with sensitive chemicals and/or fragile impellers unable to withstand high torque loads

(see chapter "Start-Up, Hei-TORQUE Precision: Additional functions", "Safety settings").





## Operation

### Starting rotation

- Touch the slider with your finger and swipe from left  to right .
- ✓ The stirrer starts to rotate.
- ✓ Rotation speed ramps up over a short period until it reaches the pre-programmed speed.




### Stopping rotation

- Touch the slider with your finger and swipe from right  to left .
- ✓ Rotation stops.



### Hei-TORQUE Precision

You can also stop rotation using the slider if you have activated a profile via Favorites .




# Rotation Hei-TORQUE Precision: Additional functions

## Safety settings

- ✓ You have adjusted acceleration to the specific viscosity of the probe in use.
  - ✓ You have set a speed limit, if required.
  - ✓ You have set a torque limit, if required.
- (See chapter "Start-up, Safety settings")

## Setting the rotation time



- The time can be adjusted from 1 minute to 24 hours.
- Display of the program is accurate to the closest second.

- Select "Timer".
- Push the control knob.
- Set the duration of rotation while the settings are displayed in orange.
- Start rotation using the slider.
- ✓ The clock symbol  is displayed at the top of the display.
- ✓ The scale below the set time indicates the remaining time.
- ✓ Regardless of the set time, stirring can be stopped at any time using the slider.



## Starting rotation via favorites

There are two ways to start a saved profile:

- Single operation 
  - The profile runs once on the basis of the set time.
  - Rotation stops automatically as soon as the program is finished.
  - The profile icon is displayed at the top of the display.
- Continuous operation 
  - The profile runs until the end of the cycle.
  - Once the cycle is finished, it starts again.
  - The stirrer continues running until the profile is stopped manually.



# Operation

## Single operation

- Open the favorite you want to activate.
- Select "Edit".
- ✓ The existing profile is displayed.
- Select "single operation"
- ✓ The "Profile active" icon is displayed at the top of the display.
- Return to the main menu.
- Start the profile using the slider.
- ✓ The profile runs and stops after running once.
- Stop the profile by deactivating it via the menu "Favorites", "Edit"
- ✓ The "Profile active" icon disappears.

## Continuous operation

- Open the favorite you want to activate.
- Select "Edit".
- ✓ The existing profile is displayed.
- Select "Continuous operation"
- ✓ The "Profile active" icon and the "Continuous operation" icon are displayed at the top of the display.
- Return to the main menu.
- Start the profile using the slider.
- ✓ The profile starts running and is repeated indefinitely.
- ✓ Stop continuous operation using the slider.
- Stop the profile by deactivating it via the menu "Favorites", "Edit"






## Setting the rotation start time

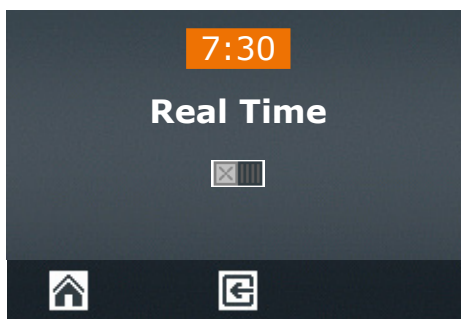
You can set a start time:

- For one of your favorites.
- For a setting which you have directly entered in the main menu. taking consideration of the pre-programmed time.





The start time is interpreted as the actual time. To ensure rotation starts on time it is important that the clock is set correctly.

- Activate the profile for one of your favorites or enter the settings in the main menu.
- Select the menu item "Start time" in the submenu.
- Push the control knob to edit the time.
- Set the time for the profile to start.
- Push the control knob to confirm the start time.
- Press "Activate"  to activate the start time.



The start time remains active until it is deactivated again by the operator.

- ✓ The clock icon  starts flashing in the upper left-hand corner of the display.
- ✓ 30 seconds before to automatic start, the whole display starts flashing.
- Deactivate the start time by pressing "Deactivate" .

### **Warning: Automatic start! Risk of injury! Risk of entanglement!**

Rotating items can lead to severe injuries by drawing in long hair, loose clothing, jewelry or the like.



- Keep long hair, jewelery or loose clothing away from rotating parts.
- When a start time is activated, place the **warning sign (page 91-92)** close to the stirrer. Every individual must be aware of the potential risk of injuries.
- As soon as the display starts flashing, keep a safe distance from the device to avoid contact with any rotating parts.
- Deactivate "Start time" as soon as a profile is finished if it does not need to be repeated.

- ✓ Rotation starts at the pre-programmed time.



## Displaying the progression graph

If you wish to check the programmed ramps, especially for high viscosity samples and saved profiles, you can do so by displaying them as a graph while running a profile.



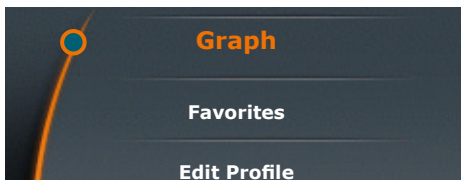
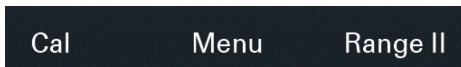
The graph is only displayed when rotation is active.

### Hei-TORQUE Precision 100/200

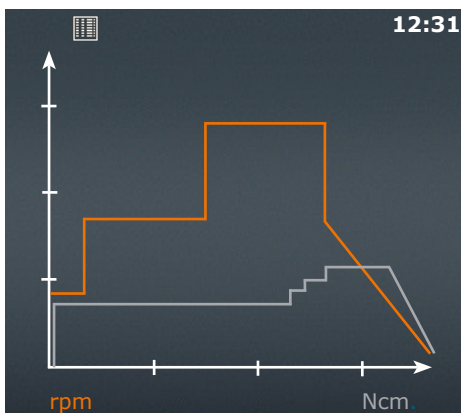
- You have started stirring.
- Select the menu "Graph".

### Hei-TORQUE Precision 400

- You have started stirring.
- Open the submenu.
- Select the menu item "Graph".



- ✓ A diagram of the current profile is displayed.
- ✓ The graph shows the last 3.5 minutes of the profile.



### Warning: Risk of injury! Risk of entanglement!

Rotating items can injure your hands or other parts of the body by drawing in long hair, loose clothing or jewelry.

- Never touch any rotating parts.
- Do not wear loose clothing, belts or ties, which may get drawn in by rotating parts.
- Do not wear long necklaces or bracelets.
- Cover or tie back long hair when operating the stirrer.

### Warning: Risk of poisoning!

It may be necessary to operate the stirrer behind a closed and ventilated fume hood.





## Calibrating the torque

The devices are factory-calibrated, but this cannot reflect your individual ambient operating conditions. If you need the torque to be displayed as accurately as possible, please calibrate the torque under your operating conditions.

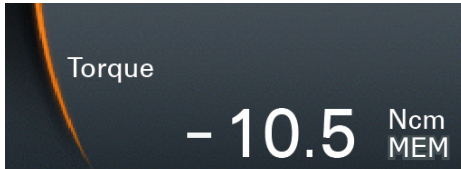
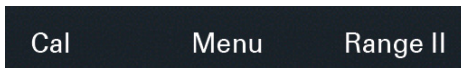
There are 2 ways of calibrating the torque:

- Setting relative zero: Relative zero is measured within the sample, i.e. zero torque is defined by the resistance of your sample.
- Setting absolute zero: Absolute zero is measured outside the sample, i.e. zero torque is defined irrespective of sample resistance.



Do not calibrate the torque until the stirrer has warmed up by running it for approx. 15 - 30 min. Within the first few minutes of operation, when the device is cold, the temperature-dependent resistance of the gear system distorts the torque.

- ✓ Stirring has been running for 15 - 30 minutes in the sample.
- Press "Cal" in the main menu.
- ✓ The message "Torque calibrated" is displayed.
- ✓ "MEM" flashes on the display until calibration is reset to the factory setting.
- ✓ If relative zero is selected, the display shows positive or negative torque, depending on any change in sample viscosity since calibration.
- ✓ If absolute zero is selected, the display shows the absolute torque depending on the resistance of the sample. In general, the torque will be positive.



Calibration is only valid for the speed set while calibration was performed. As soon as the speed is changed, the torque changes and re-calibration might be required.

Therefore calibration is not valid for a profile with differing speeds selected via favorites.

### Resetting calibration

- Stop rotation.
- Press "Cal" in the main menu.
- ✓ Calibration is reset to the factory setting.



As soon as the device is switched OFF, calibration will automatically be reset to the factory setting.



## ➤ Quick chuck

### Installing and removing impellers



**Warning:**  
**Risk of injury!**

If the device is not switched off when you open or close the chuck, rotation may start unexpectedly. This may cause serious injury.

Always switch the device off before opening and closing the chuck.

#### Removing the impeller

- ✓ The device is switched off.
- ➔ Hold the installed impeller with one hand.
- ➔ Turn the safety ring 90° clockwise.
  
- ✓ The safety ring is now open.
  
- ➔ Pull the safety ring down as far as it will go.
- ➔ Turn the quick chuck counterclockwise to open.
- ✓ The quick chuck is fully open when a slight resistance is noticed.
- ➔ Remove the impeller.





# Operation

## Mounting an impeller



### Warning: Risk of injury!

If the chuck is not closed properly, the impeller may come loose during rotation, resulting in serious injuries.

Fasten the chuck securely. Check that it is still securely fastened periodically during prolonged operation.

- Place the impeller in the quick chuck and push it upwards until it reaches the operating position.
- Hold the impeller in this position as centrally as possible and close the quick chuck cautiously until you feel resistance from the impeller.
- Adjust the axial alignment of the impeller and continue fastening the quick chuck until you hear 3 audible clicks.



### Warning: Risk of injury! Damage to equipment

If the impeller is not centered, vibrations might build up and lead to instability and result in serious injuries.

An incorrectly mounted impeller can cause permanent imbalance and damage the impeller as well as the device.

Center the impeller carefully before final fastening.

- Push the safety ring up as far as it will go.



- Turn the safety ring counterclockwise until it stops.
- ✓ The impeller is now securely fastened.





## Interface

### Only Hei-TORQUE Precision

You can connect the stirrer to a PC via the interface. Two serial interfaces are located on the back of the device. (Operation: see separate manual)

The following interfaces are available:

- USB interface: Micro USB type AB
- RS232 interface, SUB D9

You can connect the device either via USB or via the RS232 interface.

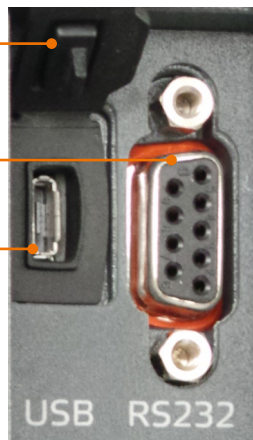
Up to 4 overhead stirrers can be driven via numerous PC interfaces.

→ Close the dust protection cap on the interface if not in use.

USB interface dust protection cap

RS232 interface

USB interface



### Software

Installation and operation of the software program is described in a separate manual.



Utilize USB-Port according to USB 2.0 Spec. up to 500 mA maximum.

## Connecting and linking interfaces



### Warnung: Danger of electric shock!

If the interface inputs and outputs are supplied with excessively high voltage and are not sufficiently insulated, in the event of a fault, metallic parts (e.g. the housing), will be electrified.

Voltage inputs and outputs above 25 V AC or 60 V DC are deemed safe if separated according to DIN EN 61140, or by double or reinforced insulation in accordance with DIN EN 60730-1 or DIN 60950-1.

Only use shielded connection cables. Connect shield to connector case.



### Caution: Possible damage of device

If device sockets are not covered, fluids can get in contact with Interface connectors. Penetrating fluids can lead to malfunctions of interface connection and could initiate a short circuit.

Sockets at the backside of device must be covered at all times.



# Operation

## RS232 interface

If you are using an interface cable not supplied by Heidolph (optional accessory) please ensure correct pin allocation. The RS232 cable may only be connected as shown below:

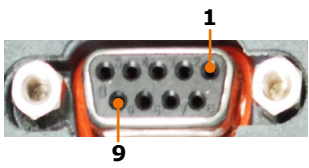
### SUB D9 plug

### SUB D9 socket

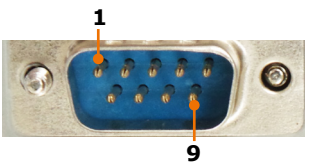


## Pin assignment

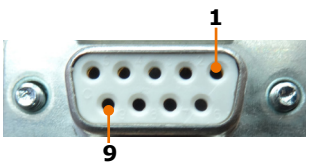
**SUB D9 plug**  
Device connection



**SUB D9 socket**  
Cable to device



**SUB D9 socket**  
Cable to PC

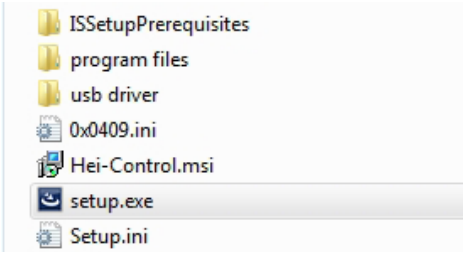


## USB interface

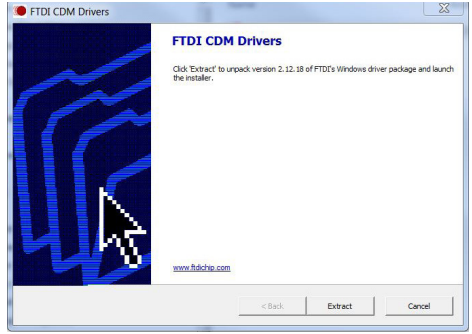
To operate a Hei-TORQUE stirrer via the USB interface, an additional driver needs to be installed on your PC. The driver will simulate a COM interface.

You will find the driver on the USB stick supplied.

- Plug the USB stick into your PC's USB interface.
- ✓ The folders and files shown on the right are displayed.
- Open the "USB driver" folder.
- Double click "CDM v2.12.06 WHQL Certified".



- Follow the instructions on the screen.
- Press "Next" to accept the file location,
- ✓ The driver can be found in the folder for Windows drivers.
- Click "Finish" to complete installation.





### Connecting interfaces



The USB interface cable supplied is 1 m long. We advise against using longer cables.

A longer cable might result in data transmission errors.

- ✓ The device is switched off.
- Insert the plug on the interface cable into the interface on the back of the stirrer.
- Insert the other end into the USB port on your PC.



#### **Warning: Automatic start! Risk of injury! Risk of entanglement!**

Rotating items can lead to severe injuries by drawing in long hair, loose clothing, jewelry or the like.

- Keep long hair, jewelery or loose clothing away from rotating parts.
- Before you activate remote control, place the **warning sign (page 101-102)** close to the stirrer. Every user must be aware of the potential risk of injury.
- Keep a safe distance from the device to avoid contact with any rotating parts.

### Linking interfaces

- ✓ The PC is switched on.
- Switch the overhead stirrer ON.
- Start rotation on the PC.
- ✓ The data link between the PC and stirrer is completed.
- ✓ The stirrer is switched to remote control mode.
- ✓ All commands are executed via the PC.
- ✓ Only the slider on the stirrer is still active to allow you to end the stirring process.
- ✓ You can always switch it OFF using the ON/OFF switch on the stirrer.



## Interface commands

Command to stirrer*	Feedback from stirrer	Feature
r\r\n	RPM: xxxx\r\n	Display actual speed (rpm)
s\r\n	SET: xxxx\r\n	Display set speed (rpm)
m\r\n	NCM: xxxx\r\n	Display torque (Nmm)
f\r\n	FLT: No Error!\r\n	No error detected
	FLT: Motor Error!\r\n	Motor error
	FLT: Motor Temperature!\r\n	Motor overheated, restart rotation
	FLT: Stopped Manually!\r\n	Stirrer stopped manually
	FLT: Overload!\r\n	Motor overloaded
T\r\n	HT:100P\r\n	Connected to Hei-TORQUE 100 Precision
	HT:200P\r\n	Connected to Hei-TORQUE 200 Precision
	HT:400P\r\n	Connected to Hei-TORQUE 400 Precision
Rxxxx\r\n	Rxxxx\r\nSET:xxxx\r\n	Start rotation at set speed xxxx (rpm)
R0000\r\n	R0000\r\nSet\ :0\r\n	Stop stirrer, set speed saved
A\r\n	A direction\r\n	Switch to gear II
	B direction\r\n	
B\r\n	A direction\r\n	Switch to gear I
	B direction\r\n	
C\r\n	Clear Error\r\n	Delete "Overload" error message
D\r\n	Direct control\r\n	Deactivate communication link: ✓ Remote is control deactivated ✓ Device can be operated manually
N\r\n	Null reference\r\n	Set actual torque to zero:
		✓ Torque is being calibrated
F\r\n	F\r\n	Check communication link (Stirrer will shut down off after 60 seconds if no commands are received)
M\r\n	M\r\n	Identify device:
		✓ Display on the linked stirrer will start flashing
t\r\n	TMP: xxx\r\n	Display temperature
z\r\n	zSET: xxxx\r\nzACT: hhmmss\r\n	Timer: display set time and remaining time

**\*Interface parameter RS232:** 9600 Baud, No Parity, 8 Bit, 1 Stopbit



- Do not send commands as package, minimum pause 0.1 seconds
- Commands M, F, T and z are not valid for stirrer RZR
- xxxx stands for a 1 - 4 digit figure
- Receiving \r\n may be displayed in a row



### ➤ Cleaning

The chuck and all of the surfaces on the stirrer can be cleaned with a damp cloth and, if required, a mild soap solution.



---

**Warning: Risk of electric shock!**

If the device is still connected to power during cleaning, you might get in contact with live parts due to accidentally entering liquids.

Prior to cleaning:

- ensure that the device is switched OFF
  - ensure that the plug is pulled from the electric socket.
- 



---

**Caution: Damage to the device**

Accidentally entering liquids will cause the device to fail .

Only wipe with a damp cloth. Never use a soaked cloth.

**Attention:****Risk of damage to the surfaces**

All of the surfaces may be damaged by improper cleaning.

Never use:

- Chlorine bleach or any cleaning agent containing chlorine
  - Solvent-bearing agents (e.g. acetone)
  - Ammonia
  - Abrasive cleaning agents such as scouring agents, cleaning wool or agents with metallic particles
- 

### Cleaning the quick chuck



---

**Warning: Risk of injury!**

A heavily soiled quick chuck might not close properly. As a result, the impeller might come loose, resulting in serious injury.

Check the cleanliness of the quick chuck periodically during prolonged operation after stopping the stirrer. Clean the quick chuck if it is heavily soiled.

---

The quick chuck can be removed for cleaning (see chapter "Assembly, Support rod and quick chuck").

### Cleaning the control knob

The control knob can be removed for cleaning.

- Pull the control knob off the panel to remove.
- After cleaning, push the control knob on to reattach it. Make sure not to tilt the knob!

### ➤ Maintenance

Any repairs required must be performed by an authorized Heidolph distributor.

Please contact Heidolph Instruments or your local Heidolph Instruments distributor.



## ➤ Malfunctions and troubleshooting

### Quick chuck

Malfunction	Possible cause	Troubleshooting
Quick chuck cannot be closed	Quick chuck has been opened with too much force and has been overwound	<ul style="list-style-type: none"> <li>Turn quick chuck with approx. the same effort in closing direction, until a series of audible clicks is heard</li> <li>Turn quick chuck carefully in opposite direction, until a slight resistance will be noticed after 1 - 3 clicks.</li> </ul> <p>The overwinding has been reset, when you can no longer hear clicks when closing the quick chuck.</p>


### Hei-TORQUE Value

Error messages	Possible cause	Troubleshooting
Error: Overload	Motor or power adapter overload: <ul style="list-style-type: none"> <li>Torque too high</li> <li>Impeller blocked</li> </ul>	Rotation stops automatically: <ul style="list-style-type: none"> <li>Remove the cause of blockage</li> <li>Re-start rotation</li> </ul>
Error: Overheating	Motor too hot: Overheat protection activated	Rotation stops automatically: Re-start rotation after allowing to cool down
Malfunctions	Possible cause	Troubleshooting
Display cannot be switched on	No power	Check that the plug is correctly inserted in the power socket and the stirrer.

### Hei-TORQUE Precision

Error messages	Possible cause	Troubleshooting
Error: Overload	Motor or power adapter overload: <ul style="list-style-type: none"> <li>torque too high</li> <li>Impeller blocked</li> </ul>	Rotation stops automatically: <ul style="list-style-type: none"> <li>Remove the cause of blockage</li> <li>Re-start rotation</li> </ul>
Overheat situation (allow to cool down before restarting)	Motor too hot: Overheat protection activated	Rotation stops automatically: Re-start rotation after allowing to cool down
Do not change while running!	Unauthorized modification attempted while running	Stop the stirrer, make the required changes

## Troubleshooting

Malfunctions	Possible cause	Troubleshooting
Favorite ... already exists!	Name already exists	Choose a different name
No profiles available!	<ul style="list-style-type: none"> <li>▪ When activating a profile: Profile parameters were deleted prior to activation or not yet defined</li> <li>▪ When saving a profile: No profile parameters defined</li> </ul>	Enter the parameters
Safety ring not closed	Safety ring is not properly closed	Ensure the quick chuck is securely fastened, close the safety ring. (See chapter "Operation, Attaching the impeller")
No memory space left!	Maximum number of favorites reached	Delete favorites no longer required
Display cannot be switched on	No power	Check that the plug is correctly inserted in the power socket and the stirrer.
	Electronic fault	Please contact your local Heidolph Instruments distributor
Rotation cannot be switched on	Icon  at the top of the display: Profile with interval active	Deactivate the profile via the "Profiles" menu.
	Circuit board fault	Please contact your local Heidolph Instruments distributor



When opening the quick chuck with too much force, the chuck can get over wound. In this case, the chuck can not be closed normally and a latching noise is heard when turning the chuck in the closing-direction.

Remedies: After moving in the closing-direction, overwind the chuck again in the release-direction until a click is heard.

The quick chuck can then be used in a normal way again.

If you experience a malfunction which can not be resolved, please contact your authorized Heidolph distributor immediately.

## ➤ Support rod and quick chuck

### Mounting the support rod

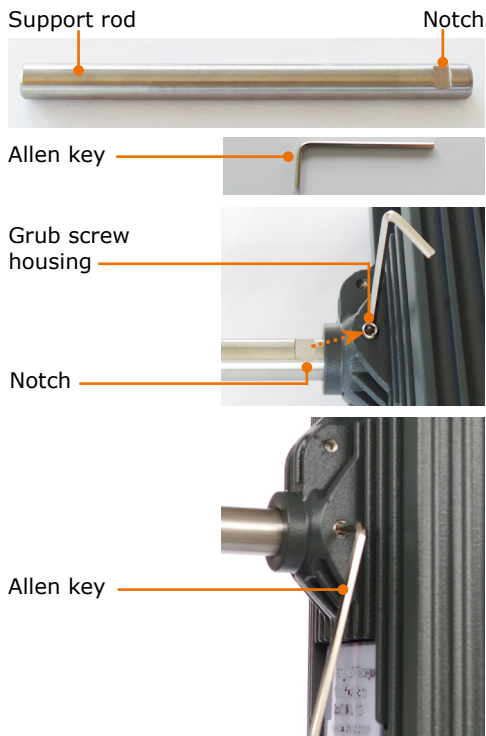
The support rod allows you to attach the stirrer to a stand or to a wall grid. (see chapter "Accessories and spare parts, Accessories").

Scope of delivery:

- Support rod
- Allen key

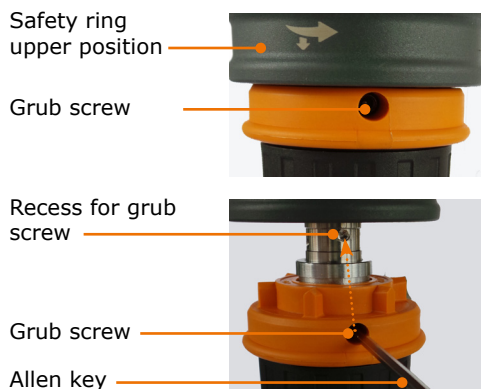
On the back of the device you will find a slot for the support rod.

- ➔ Push the support rod into the slot on the back of the device with the notch facing the front.
- ➔ Make sure that the notch on the support rod aligns with the grub screw in the housing.
- ➔ Secure the support rod using the Allen key provided.



### Mounting the quick chuck

- ➔ Remove the impeller, if currently in place.
- ➔ Close the quick chuck and push the safety ring up into the top position.
- ➔ Slightly loosen the grub screw located in the orange ring using the Allen key.
- ➔ Pull the quick chuck down to remove.
- ➔ When re-mounting, ensure the grub screw aligns with the recess.





## ➤ Shaft guard

### Installing the shaft guard (optional accessory)

A shaft guard can be attached to prevent injuries caused by rotating parts of the impeller (see chapter "Accessories and spare parts, Accessories").

Scope of delivery:

- 1 x adaptor
- 2 x torx screws
- 1 X torx key
- 1 x shaft guard
- 2 x knurled screws

→ Push the adapter up with the cut-out around the ON/OFF switch.

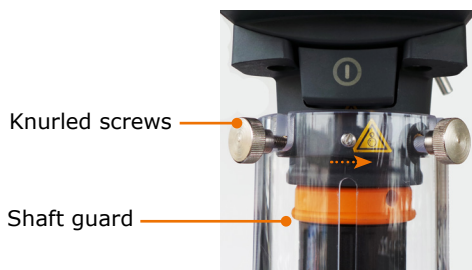
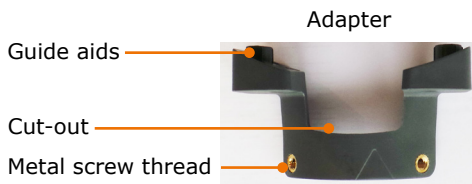
✓ The two guide aids fit into the holes on the left and right and ensure correct fitting.

→ Attach the adapter using the two Allen screws and Allen key provided and tighten them firmly.

→ Attach both of the knurled screws to the hole on the adapter and tighten them 2 - 3 turns.

→ Push the grooves on the shaft guard over the knurled screws until the screws reach the end of the groove. Now turn the shaft guard clockwise to the end of the groove.

→ Carefully tighten both of the knurled screws to hold the shaft guard in place.



### Removing the shaft guard

→ Unscrew both of the knurled screws holding the shaft guard to the adapter 1 - 2 turns.

→ Turn the shaft guard slightly counterclockwise and remove it downwards from the stirrer.



# ➤ Dismantling, transportation and storage

## Dismantling



### **Warning: Risk of injury!**

As long as the device is connected to the mains, you may injure yourself at the impeller by accidentally switching the device ON.

Prior to dismantling the device ensure that the device is switched off and the plug is pulled from the electric socket.

- ✓ The device is switched off.
- Disconnect the plug from the power socket and the device socket.
- Remove the impeller and dismantle the shaft guard, if necessary.

## Transportation and storage

- Store and transport the device and its components only if they were emptied, cleaned and dismantled.
- Store and transport the device and parts in the original packing material or in an adequate container to prevent damage.
- Seal the packaging carefully to prevent unauthorized or mistaken opening.
- Store the device in a dry and frost-free place.



Improper storage and transportation may result in damage to the system and the mechanical components.

Avoid strong vibrations and shocks during transportation.



## ➤ Scope of delivery

Component	Variant	Quantity	Product number
Hei-TORQUE	Value 100*	1	501-61011-00
	Value 200*	1	501-62011-00
	Value 400*	1	501-64011-00
	Precision 100*	1	501-61021-00
	Precision 200*	1	501-62021-00
	Precision 400*	1	501-64021-00
Support rod		1	22-02-14-01-41
USB cable for Hei-TORQUE Precision		1	14-007-040-61
Operating manual English/German		1	01-005-005-55
Hei-Control software		1	592-50100-00
Hei-Control operating manual English/German		1	01-005-005-69
Warranty registration / confirmation of condition		1	01-006-002-78
EC Declaration of Conformity		1	01-001-025-01
Power cord		1	Country-specific

\* The product number is valid for 230 V devices in the european community. Please contact Heidolph Instruments for further product numbers on country specific varieties.

## ➤ Accessories

Component	Quantity	Product number
RS232 cable for Hei-TORQUE Precision		14-007-040-72
Shaft guard	1	509-08100-00
Different sizes of stands and impellers	1	See full catalog

Additional accessories are shown in the full catalog and on our website at [www.heidolph-instruments.com](http://www.heidolph-instruments.com)



## ➤ Technical data

### Hei-TORQUE

Supply voltage	100 - 240 V (50/60 Hz)
Protective class (IEC 61140)	1 Ⓧ
Protection class (IEC 60529)	IP54
Snd. pressure level (dB(A))	< 70 (ref. IEC 61010)
Drive	EC motor
Overheating protection	KTY temperature monitoring
Overload	Automatic power cut-off, message on display
Speed accuracy (%)	± 1
Speed control	Electronic
Support rod (Ø x L) (mm)	13 x 160
Impeller shaft Ø (mm)	min. 2.5 – max. 10.5
Permissible duty cycle	Continuous

### Model Hei-TORQUE

	Value	Precision
Interface	No	USB and RS232
Timer	No	Yes
Control panel	TFT display, monochrome, 2.4"	TFT display, color, 3.2"
Torque	Symbol	Value

### Model Hei-TORQUE

	Value 100/200	Precision 100/200	Value/Precision 400
Clockwise/counterclockwise rotation	No	Yes	No

### Model Hei-TORQUE

	Value/Precision 100	Value/Precision 200	Value/Precision 400
Power consumption (W)	90	120	150
Airborne noise level (dB(A)) without load, distance 1 m	< 42 at 2,000 rpm	< 43 at 2,000 rpm	< 50 at 2,000 rpm
Stirring cap. H <sub>2</sub> O, vol. (L)	max. 50	max. 50	max. 100
Max. viscosity (mPa s)	60,000	100,000	250,000
Max. torque (Ncm)	100	200	400
Number of gears stages	1	1	2
Speed ranges (rpm)	10 - 2,000	10 - 2,000	Gear stage <b>I</b> 10-400 Gear stage <b>II</b> 20 - 2,000
Dimensions (mm)	w	86	86
	h	350	350
	d	247	247
Weight (kg)	4.4	5.1	5.3



# Recommended speed

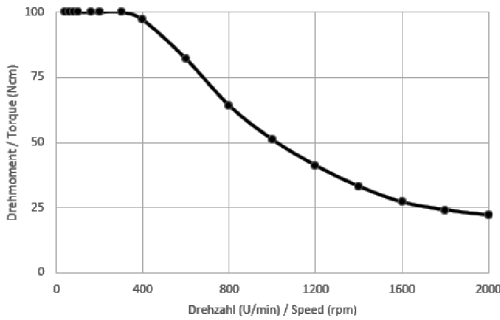
## Impellers

## rpm max.

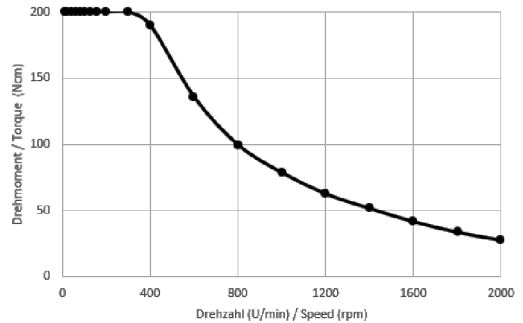
Blade impellers: BR 10, BR 11, BR 12,	≤ 2.000
Blade impellers: BR 13, BR 14	≤ 800
Half moon impellers: H 18	≤ 800
Propeller type impellers: PR 39, PR 33	≤ 800
Propeller type impellers: PR 30, PR 31, PR 32	≤ 2.000
Radial flow impellers: TR 20, TR 21	≤ 2.000
Anchor type impellers: AR 19	≤ 800
VISCO JET® impellers: VISCO JET® 60-120, VISCO JET® CRACK 80-120	≤ 500

# Performance range

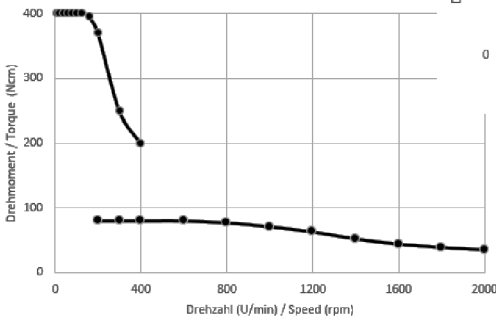
Hei-TORQUE 100



Hei-TORQUE 200



Hei-TORQUE 400







## Attachments



## China RoHS DECLARATION OF CONFORMITY

Heidolph Instruments GmbH & Co.KG has made reasonable efforts to ensure that hazardous materials and substances may not be used in its products.

In order to determine the concentration of hazardous substances in all homogeneous materials of the subassemblies, a "Product Conformity Assessment" (PCA) procedure was performed. As defined in GB/T 26572 the "Maximum Concentration Value" limits (MCV) apply to these restricted substances:

- Lead (Pb): 0.1%
- Mercury (Hg): 0.1%
- Cadmium (Cd): 0.01%
- Hexavalent chromium (Cr(VI)): 0.1%
- Polybrominated biphenyls (PBB): 0.1%
- Polybrominated diphenyl ether (PBDE): 0.1%

### Environmental Friendly Use Period (EFUP)

EFUP defines the period in years during which the hazardous substances contained in electrical and electronic products will not leak or mutate under normal operating conditions. During normal use by the user such electrical and electronic products will not result in serious environmental pollution, cause serious bodily injury or damage to the user's assets.

The Environmental Friendly Use Period for Heidolph Instruments GmbH & Co.KG products is 25 years.

此表格是按照 SJ/T 11364-2014 中规定制定。

This table is created according to SJ/T 11364-2014

MATERIAL CONTENT DECLARATION FOR Heidolph Instruments GmbH & Co. KG PRODUCTS							
有毒有害物质或元素 Hazardous substances							
部件名称 Part name	铅 Pb	汞 Hg	铬 Cd	六价铬 Cr(VI)	多溴联 苯 PBB	多溴二 苯醚 PBDE	环保期限 标识 EFUP
包装 Packaging	○	○	○	○	○	○	
塑料外壳/组件 Plastic housing / parts	○	○	○	○	○	○	
电池 Battery	○	○	○	○	○	○	
玻璃 Glass	○	○	○	○	○	○	
电子电气组件 Electrical and electronic parts	X	X	X	○	○	○	
控制器/测量设备 Controller / measuring device	X	○	X	○	○	○	
金属外壳/组件 Metal housing /parts	X	○	○	○	○	○	
电机 Motor	X	○	○	○	○	○	
配件 Accessories	X	○	○	○	○	○	



**注释:** 此表格适用于所有产品。以上列出的原件或组件不一定都属于所附产品的组成。

**Note:** Table applies to all products. Some of the components or parts listed above may not be part of the enclosed product.

- O: 表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
- O: Indicates that the above mentioned hazardous substance contained in all homogeneous materials of the part is below the required limit as defined in GB/T 26572.
  
- X: 表示该有毒有害物质至少在该部件某一均质材料中的含量超出GB/T 26572规定的限量要求。
- X: Indicates that the above mentioned hazardous substance contained in at least one of the homogeneous materials of this part is above the required limit as defined in GB/T 26572.

除上表所示信息外，还需声明的是，这些部件并非是有意图用铅(Pb)、汞(Hg)、镉(Cd)、六价铬(Cr(VI))、多溴联苯(PBB)或多溴二苯醚(PBDE)来制造的。

Apart from the disclosures in the above table, the subassemblies are not intentionally manufactured or formulated with lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (CrVI), polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE).

Products manufactured by Heidolph Instruments GmbH & Co.KG may enter into further devices or can be used together with other appliances.

With these products and appliances in particular, Heidolph Instruments GmbH & Co.KG will not take responsibility for the EFUP of those products and appliances.

Place, date Schwabach, 19.09. 2019

Wolfgang Jaenicke  
Chief Executive Officer CEO

Marcell Sarré  
Vice President  
Quality Management &  
Technical Service



## ➤ Contact / Technical Service

### Questions / Repair work

If any aspect of installation, operation or maintenance remains unanswered in the present manual, please get in touch with the following address.

For repairs please call Heidolph Instruments or your local authorized Heidolph Instruments distributor.



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#### **Warning! Danger of poisoning!**

Contaminated devices can lead to severe injury or death of our employees!

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

- advise exact substance
  - take adequate protective action towards our parts receiving and service personnel
  - mark the pack in accordance with Ordinance on Hazardous Substances
- 

A "Confirmation of Condition" form can be found at the end of this operating manual.

→ Prior to shipping the device for repair, complete a copy of this form and submit it in advance.

### Contact details:

---

#### **Heidolph Instruments Germany**

Heidolph Instruments GmbH & Co. KG  
Technical Service  
Walpersdorfer Str. 12  
D-91126 Schwabach / Germany

Tel.: +49 – 9122 - 9920-74  
Fax: +49 – 9122 - 9920-84

E-Mail: [service@heidolph.de](mailto:service@heidolph.de)  
[www.heidolph.com](http://www.heidolph.com)



#### **Heidolph Instruments North America**

Phone: 1-866-650-9604  
E-mail: [service@heidolph.com](mailto:service@heidolph.com)  
[www.heidolphNA.com](http://www.heidolphNA.com)

#### **Heidolph Instruments United Kingdom**

Phone: 01799 - 5133-20  
E-mail: [service@radleys.co.uk](mailto:service@radleys.co.uk)  
[www.heidolph-instruments.co.uk](http://www.heidolph-instruments.co.uk)

#### **All other countries**

You will find contact details of your local Heidolph distributor at [www.heidolph.com](http://www.heidolph.com)

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## ➤ Warranty



Heidolph Instruments provides a 3 year warranty for the products described here (excluding glass and wearing parts) if you register using the warranty card enclosed or online ([www.heidolph.com](http://www.heidolph.com)). The warranty period begins with the date of purchase. The serial number is also valid without registration.

This warranty covers material and manufacturing defects.

In the event of a material or manufacturing defect, the device shall be repaired or replaced free of charge under the terms of the warranty.

Heidolph Instruments shall not assume liability for any damage incurred as a result of improper handling or transport.

Warranty claim?

- ➔ Please notify Heidolph Instruments or your local Heidolph distributor if you wish to make a warranty claim.



## ➤ Confirmation of condition

→ In the case of repair, copy and complete the Confirmation of condition form and send it to Heidolph Instruments.

### 1. Details about the device

Product number \_\_\_\_\_

Serial number \_\_\_\_\_

Reason for repair \_\_\_\_\_

\_\_\_\_\_

### 2. Has the device been cleaned, decontaminated/sterilized?

Yes \_\_\_\_\_ No \_\_\_\_\_

### 3. Is the device in a condition which does not represent any health threats for the staff of our service department?

Yes \_\_\_\_\_ No \_\_\_\_\_

If not, which substances has the device come into contact with?

\_\_\_\_\_

\_\_\_\_\_

### 4. Legally binding declaration

The customer is aware of being legally liable to Heidolph Instruments for any damages arising from incomplete and incorrect information.

Date

Signature

Company stamp

Please note

The shipper is responsible for the return of the goods in well packed condition, suitable for the mode of transport.

Sender information

Name, first name \_\_\_\_\_

Company \_\_\_\_\_

Department, research group \_\_\_\_\_

Street \_\_\_\_\_

Zip code, city \_\_\_\_\_

Country \_\_\_\_\_

Phone \_\_\_\_\_

E-mail \_\_\_\_\_



01-005-005-55-6a, 2021-05-17

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Subject to change without notice. The printed version of this operating manual is not regularly updated.  
The latest issue of this document can be found by visiting our homepage.

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