

**IKA®**

## Overhead Stirrers



**designed**  
to work perfectly

### Mechanical, Electronic, Software, Control and Design Engineering... Combining the best of all worlds

Designed to optimize complex stirring applications, IKA® offers the very best in overhead stirrer technology. Our overhead stirrers provide the perfect solution to all of your laboratory stirring and mixing needs, from lower to higher viscosities. IKA® overhead stirrers process stirring quantities up to 200 liters.

Our overhead stirrers stand out because of their indispensable features, which include: electronic safety circuit, push through agitator shaft, digital display, two speed ranges, and the ability to control the rheological changes and monitor all parameters using labworks® software. Additionally, there are several other special features available, such as microprocessor controlled speed technology, removable wireless controller and a digital error display. A broad spectrum of stirring tools is the key to successful mixing. IKA® equipment meets CE standards and fulfills international safety regulations.

**3** Year warranty\*

\* 2+1 years after registering at [www.ika.com/register](http://www.ika.com/register)

Protection class according to DIN EN 60529: IP 40

CE



## Twin technology | Digital & Control

**Digital display** for precise monitoring of set and actual speeds



**Torque trend display** to get real-time information on viscosity changes



**Rotating knob** for adjusting the speed and **pressing knob** for navigating through the menu on the wireless controller



**TFT Display** for better image quality and easy navigation



**External probe** for connection to a temperature sensor for accurate temperature control



**USB interface** to control and document rheological changes and other parameters using labsoft® software and for updating your firmware



**Brushless EC motor** for longer life span, low maintenance and higher efficiency



**Wireless Controller (WiCo)**  
Removable wireless controller for easy and user-friendly operation



**2+1**  
Year warranty

2+1 years after registering at [www.ika.com/register](http://www.ika.com/register)

**IKA+**



R 60 hexless chuck is available for EUROSTAR 20 / 40 / 60 / 100 series

## Special features | Accessories

**1 R 2723 Telescopic stand**  
Particularly stable stand with an H-shaped base that prevents the stand from tipping backwards. Additionally, this stand is equipped with a spring stand rod, which enables heavy instruments / attachments to be raised and lowered smoothly without difficulty.



Ident. No.  
0001412100

**2 R 270 Boss head clamp**  
Specialized clamp with openings for stands R 2722 and R 2723



Ident. No.  
0002657800

**RH 3 Strap clamp**  
For securing vessels incl. boss head clamp R 270



Ident. No.  
0003208600

**3 R 301 Stirring shaft protection**  
Prevents potential injuries around rotating shafts and stirring elements



Ident. No.  
0002603000

**IKA+**

To get customized and additional accessories, please visit [www.ika.com/service](http://www.ika.com/service)



The EUROSTAR digital and control series are conceptually similar; both series feature a speed display and an overload protection. Furthermore, the control version is designed with a removable wireless controller and is equipped with a torque trend display, TFT display, RS 232 and USB interface. In addition, you will be able to update your firmware online by connecting your control device via USB to a computer.

## EUROSTAR control | Advanced precision

LED bar indicates the connectivity of the wireless controller (Wi-Fi)

IKA® further advances its mixing technology by offering the first overhead stirrer with wireless technology. Stress-free mixing at your convenience with increased productivity, flexibility and enhanced safety features. Additionally, comes equipped with the new online update function (only control version), your device is always up-to-date.

Safe stop function for the quick stop of overhead stirrer

Connector for fixing the wireless controller

## EUROSTAR control | Wireless technology



The wireless controller can be separated from the overhead stirrer. This allows for working in a fume hood or safety cabinet without lifting the protective screen, which in turn helps protect the user from toxic material exposure in addition to preserving sample integrity.

The display shows torque, temperature, timer, speed and PC connectivity. Additionally, several other parameters can be set such as language, background, brightness, sound, etc.

The EUROSTAR control series can be operated via Bluetooth as well

## EUROSTAR 100 | Digital & Control

## EUROSTAR | 20 high speed digital & 200 control P4

### IKA+

The only stirrer with clockwise and counter clockwise rotation for intensive applications and better mixing results

Laboratory stirrer designed for highly viscous applications and intensive mixing



Clockwise and counter clockwise rotation

2+1 years after registering at [www.ika.com/register](http://www.ika.com/register)



**Digital Display** for precise monitoring of set and actual speeds



**Wireless Controller (WiCo)**  
Removable wireless controller for easy and user-friendly operation



**TFT Display** for better image quality and easy navigation



Extremely powerful laboratory stirrer designed with **high torque**



**USB interface** to control and document rheological changes and other parameters using Labworks® software and for updating your firmware



**RS 232 interface** for PC connection

# Electronic Overhead Stirrers



please also see IKA® Pilots 02/2013

# Mechanical Overhead Stirrers



**Technical data**

Speed range max. P=0	51   251
Max. capacity	6000 ml   30000 ml
Max. viscosity	2100 mPa·s   19784 mPa·s
Permissible shaft force	30 N
Speed range	0.38 – 2000 rpm
Speed range (at 2000 Hz)	—
Speed range (at 5000 Hz)	—
Max. torque at air ng. shaft	20 Nm   40 Nm
Display	LED   TT
Power capacitor	no
Intermittent operation	no
Temperature measurement	no
Temperature measurement range	—
Temperature measurement precision	—
Dimensions (W x D x H)	86 x 276 x 268 mm
Weight	4.4 kg   4.7 kg
Permissible shaft temp.	5 – 60 °C
Permissible shaft speed	1200 rpm
Permissible shaft torque	100 Nm
Voltage	230 V
Frequency	50/60 Hz
Item No.	000442000   000442000

**Technical data**

Speed range	0.38 – 2000 rpm
Speed range (at 2000 Hz)	—
Speed range (at 5000 Hz)	—
Max. torque at air ng. shaft	20 Nm   40 Nm
Display	LED   TT
Power capacitor	no
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Voltage	230 V
Frequency	50/60 Hz
Item No.	000442000   000442000

**Technical data**

Max. capacity	1000 ml
Max. viscosity	1000 mPa·s
Permissible shaft force	100 N
Speed range	0.38 – 2000 rpm
Speed range (at 2000 Hz)	—
Speed range (at 5000 Hz)	—
Max. torque at air ng. shaft	20 Nm
Display	LED   TT
Power capacitor	no
Intermittent operation	no
Temperature measurement	no
Temperature measurement range	—
Temperature measurement precision	—
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Temperature measurement	no
Temperature measurement range	—
Temperature measurement precision	—
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Permissible shaft speed	1200 rpm
Permissible shaft torque	100 Nm
Voltage	230 V
Frequency	50/60 Hz
Item No.	000428000   000428000

**Technical data**

Max. capacity	200 l
Max. viscosity	30000 mPa·s
Permissible shaft force	1300 N
Speed range	60 – 2000 rpm   1/2 – 1600 rpm
Speed range (at 2000 Hz)	—
Speed range (at 5000 Hz)	—
Max. torque at air ng. shaft	210 – 1600 Nm   268 – 1680 Nm
Display	LED
Power capacitor	no
Intermittent operation	no
Temperature measurement	no
Temperature measurement range	—
Temperature measurement precision	—
Dimensions (W x D x H)	273 x 252 x 364 mm
Weight	31 kg
Permissible shaft temp.	5 – 60 °C
Permissible shaft speed	2000 rpm
Permissible shaft torque	1650 Nm
Voltage	230 V
Frequency	50/60 Hz
Item No.	000953000   000953000

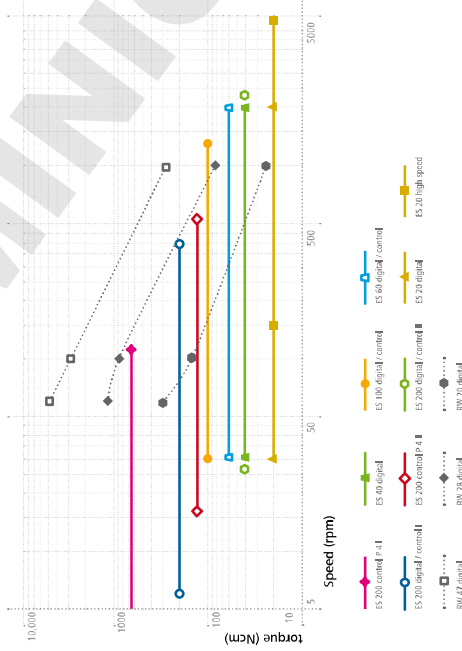
**Technical data**

Max. capacity	90 l
Max. viscosity	30000 mPa·s
Permissible shaft force	1300 N
Speed range	60 – 2000 rpm   1/2 – 1600 rpm
Speed range (at 2000 Hz)	—
Speed range (at 5000 Hz)	—
Max. torque at air ng. shaft	210 – 1600 Nm   268 – 1680 Nm
Display	LED
Power capacitor	no
Intermittent operation	no
Temperature measurement	no
Temperature measurement range	—
Temperature measurement precision	—
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Permissible shaft torque	1650 Nm
Voltage	230 V
Frequency	50/60 Hz
Item No.	000953000   000953000

**Technical data**

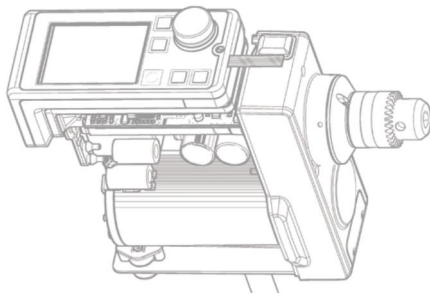
Max. capacity	200 l
Max. viscosity	30000 mPa·s
Permissible shaft force	1300 N
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## Stirring elements | Accessories




The electronic overhead stirrers have a large torque range, which allows them to operate at low speeds for high viscosity samples and the speed range is for intensive mixing of low viscosity samples.

The mechanical overhead stirrers have a large torque range, which allows them to operate at low speeds for high viscosity samples and the speed range is for intensive mixing of low viscosity samples.



**Propeller stirrer 3-bladed**

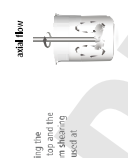
Standard design for drawing the material from the bottom. It creates local shearing forces and axial flow in the vessel. This propeller stirrer is used at medium to high speeds.



Item No.	R 1542	R 1545	R 2302
Stirrer Ø (mm)	50	100	150
Stirrer length (mm)	8	8	17
Stirrer length (mm)	350	440	640
Max. speed (rpm)	2000	600	800

**Propeller stirrer 3-bladed**

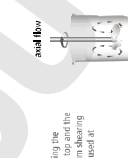
Flare-efficient design for drawing the material from the bottom while creating minimum additional forces. This propeller stirrer is used at medium to high speeds.



Item No.	R 1541	R 1544	R 1610	R 1615
Stirrer Ø (mm)	45	55	55	45
Stirrer length (mm)	8	8	8	8
Stirrer length (mm)	250	250	250	250
Max. speed (rpm)	2000	2000	2000	2000

**Propeller stirrer 3-bladed**


Flare-efficient design for drawing the material from the bottom while creating minimum additional forces. This propeller stirrer is used at medium to high speeds.



Item No.	R 1385	R 1388	R 1389 (PFTS-coated)
Stirrer Ø (mm)	140	140	75
Stirrer length (mm)	10	8	8
Stirrer length (mm)	550	800	350
Max. speed (rpm)	400	400	800

**Disc stirrer**

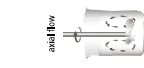
This stirrer provides radial flow for drawing the material from the top and bottom. It creates local shearing forces and high shearing forces for particle reduction. Medium to high speeds required.



Item No.	R 1300	R 1302	R 1602
Stirrer Ø (mm)	80	80	74
Stirrer length (mm)	8	0	8
Stirrer length (mm)	350	350	350
Max. speed (rpm)	2000	2000	2000

**Turbine stirrer**

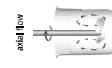
This stirrer is used for drawing the material from the bottom. It creates a minimum level of danger of injury when contact is made with the vessel. It also creates minimum shearing forces and axial flow in the vessel at high speeds.



Item No.	R 1311	R 1312	R 1313
Stirrer Ø (mm)	30	50	70
Stirrer length (mm)	8	8	10
Stirrer length (mm)	350	350	400
Max. speed (rpm)	2000	2000	800

**Centrifugal stirrer**


Investigated stirrer without blades open with the vessel. It creates a minimum level of danger of injury when contact is made with the vessel. It also creates minimum shearing forces and axial flow in the vessel at high speeds required.



Item No.	R 1322	R 1325
Stirrer Ø (mm)	60/115	100/134
Stirrer length (mm)	8	8
Stirrer length (mm)	350	350
Max. speed (rpm)	2000	800

**Paddle stirrer**


This stirrer creates tangential flow. Minimum shearing forces and axial flow in the vessel. It also creates minimum shearing forces and axial flow in the vessel at high speeds required.



Item No.	R 1325	R 1326	R 1328
Stirrer Ø (mm)	70	150	150
Stirrer length (mm)	8	13	13
Stirrer length (mm)	550	550	800
Max. speed (rpm)	800	800	600


**Anchor stirrer**

This stirrer creates tangential flow. High shearing forces and axial flow in the vessel. It also creates minimum shearing forces and axial flow in the vessel at high speeds required.




Item No.	R 1323	R 1324	R 1325
Stirrer Ø (mm)	75	90	150
Stirrer length (mm)	8	8	10
Stirrer length (mm)	350	350	550
Max. speed (rpm)	1200	1200	800


**EUROSTAR 200**  
control




**EUROSTAR 200**  
control




**EUROSTAR 100**  
control




**EUROSTAR 100**  
control




**EUROSTAR 60**  
control




**EUROSTAR 60**  
control



**EUROSTAR 40**  
control



**EUROSTAR 20**  
control



# Mechanical | Accessories

## RH 3 Strap clamp

For securing vessels against walls or for synchronized rotation during stirring, incl. boss head clamp R 270.



Ident. No.  
0003159000

2 3

## RH 3 Strap clamp

For securing vessels during stirring.



Ident. No.  
0003008600

1

## R 270 Boss head clamp



Ident. No.  
0002657800

2 3

## FK 1 Flexible coupling

Required for stirring tasks using glass stirring rods. The flexible coupling compensates for any structural variances.



Ident. No.  
0002664000

2 3

## R 182 Boss head clamp



Ident. No.  
0002657700

1

## H 62.51 Stainless steel sensor

Temperature sensor for working with non-aggressive media.

Ident. No.  
0002735451

\* Option available only for control units

## H 66.51 Stainless steel sensor glass-coated

Temperature sensor for working with media such as acid and alkaline solutions.

Ident. No.  
0002735551

\* Option available only for control units

## H 70 Extension cable

To connect EUROSTAR control with the temperature sensor.



Ident. No.  
0002735600

\* Option available only for control units

Several safety accessories are available for RW 47 digital



## R 60 keyless chuck

Available for EUROSTAR 20 / 40 / 60 / 100 series. It allows you to quickly and easily remove the stirring elements without any tools.

Ident. No.  
0003889500



## H 66.53 Temperature sensor

Chemical resistant coated sensor.

Ident. No.  
0004499900

\* Option available only for control units

## Stirring shaft protection

Available for all overhead stirrers for preventing potential injuries at rotating shafts and stirring elements

IKA+

COMING SOON:  
More stand options for optimal stability!

## RH 3 Strap clamp

For securing vessels against walls or for synchronized rotation during stirring, incl. boss head clamp R 270.



Ident. No.  
0003159000

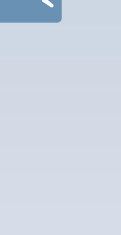
2 3



Ident. No.  
0003008600

1

## R 270 Boss head clamp

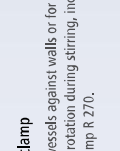


Ident. No.  
0002657800

2 3

## FK 1 Flexible coupling

Required for stirring tasks using glass stirring rods. The flexible coupling compensates for any structural variances.



Ident. No.  
0002664000

2 3

## R 182 Boss head clamp



Ident. No.  
0002657700

1



## R 4765 Floor stand

Electrically adjustable telescopic floor stand, specially designed for RW 47 digital and T 65 basic/digital

Ident. No.  
0004035000

Height: 1014 – 1588 mm



Height: R 1825: 560 mm  
R 1826: 800 mm  
R 1827: 1000 mm

## Plate stands

### R 1825

### R 1826

### R 1827

With slip resistant foil.

Ident. No.

0003160000

R 1825

0003160100

R 1826

0003160200

R 1827

## R 2722 H-Stand

Stable stand with H-shaped base which prevents the stand from tipping backwards.

Ident. No.

0001412000

Height: 1010 mm

## R 2723 Telescopic stand

Similar to R 2722, additionally equipped with a pneumatic spring, which enables effortless raising of the dispersing unit.

Ident. No.

0001412100

Height: 620 – 1010 mm

Stroke: 390 mm

## R 474 Telescopic stand

Specially designed for RW 47 Digital.

Ident. No.

0001643000

Height: 1200 mm

Stroke: 500 – 1000 mm

## R 477 Floor stand

Mobile floor stand, specially designed for RW 47 Digital.

Ident. No.

0000738700

Height: 2020 mm

Stroke: 980 – 1860 mm



**Torque**

Torque is mathematically defined as the vector product of force and lever arm. It is therefore calculated as  $M = F \cdot r$ , where M is the torque, r is the lever arm and F is the force. The magnitude of the force is based on the perpendicular distance from the axis of rotation to the line of action of the force.

The unit of measurement of torque is Nm. For example, in mixing systems, the drive power of an electric motor is delivered to the rotating drive shaft or the drill chuck fixed to the mixing tool. What matters is the transfer of power in the drive to the rotating mixing tool. Torque is the key to the relationship between the mixing tool geometry, viscosity of the medium to be mixed and the speed of rotation. The power is transferred from the motor to the shaft and then to the mixing tool. The torque acts on the mixing tool at the drill chuck as shown in the brochure.

**Typical Dynamic viscosity values (Range 1 – 100,000 mPa·s)**

Substance	Viscosity $\eta$ in mPa·s
Water	1
Milk	2
Coffee whipped cream	10
Olive oil	100
Lubricant oil	200
Motor oil	650 – 900
Shampoo	3000
Hand cream	8000
Honey	10,000
Ketchup	50,000
Toothpaste (40°C)	70,000
Asphalt	100,000

Unless otherwise stated, the values refer to the viscosity at 20°C and atmospheric pressure

$$1N = [n] \cdot (m^2 / m \cdot s) \Rightarrow [n] = Ns / m^2 = Pa \cdot s$$

Fluids are either Newtonian or Non-Newtonian. Fluids whose viscosity is constant at all shear rates are called Newtonian fluids (e.g., pure fluids, ideal fluids / water, oil and most gases which have a constant viscosity). Fluids whose viscosity is not constant at all shear rates are called Non-Newtonian fluids (e.g., blood, sand-water mixtures, dough, puddings, asphalt, cement, etc.).

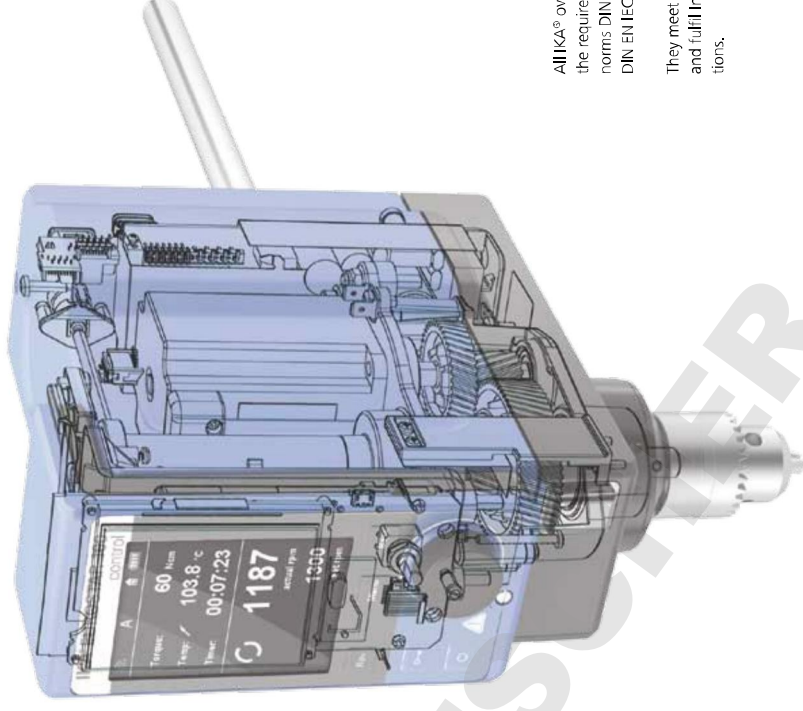
Oil is a good example of a highly viscous liquid. It does not flow easily and affects parameters such as the thickness of the lubricating film in bearings, motors, gear units, leakage losses in the hydraulics, pump efficiency and friction losses in pipes.

**Applications and Industries**

- Food:** Butter, mayonnaise, ketchup...
- Cosmetics:** Creams, shampoo, soap...
- Pharmaceutical industry:** Pills, tablets, suppositories...
- Chemical industry:** Aluminum oxide, calcium hydroxide, glycerin...
- Abrasives:** Silicon carbide, crystals, sand...
- Inks and Coatings:** Printing ink, coating paint...
- Glues and Adhesives:** Adhesive mixture, Vaseline, two-component glue...
- Plastics and Polymers:** PVC powder, pre-polymer, polyester resin...
- Paints and Pigments:** Metallic paints, color pigment suspension, dyes for adhesive plasters...
- Cement and Construction:** Concrete, mineral clay, lean...



DIN EN IEC 61010-1  
DIN EN IEC 61010-2-051



ALLIKA® overhead stirrers adhere to the requirements set forth by the norms DIN EN IEC 61010-1 and DIN EN IEC 61010-2-051.

They meet and exceed CE standards and fulfill International safety regulations.





### labworldsoft®

IKA® laboratory software labworldsoft® is an advanced software for all your laboratory needs. With the help of this software, you can network up to 64 laboratory devices via one PC. All test parameters can be documented ensuring complete automation of your laboratory experiments. Measurements and processes may be run independently. Long waits and processing times are reduced, which increases productivity.



### Comprehensive Worldwide Service!

Our dedicated team of engineers provides comprehensive worldwide technical service. Please feel free to contact your dealers or IKA® directly in case of any service queries. Hotline: In the event of an equipment malfunction or technical questions regarding devices and spare parts call 00 8000 4524357 (00 8000 IKAHELP)



### IKA® Application Support

Our Application Center spans 400 sqm and offers modern facilities for presenting and testing lab devices and processes. This brings us even closer to our customers and improves our service. Here, prospective buyers and customers can test out processes that involve stirring, shaking, dispersing, grinding, heating, analyzing and distilling. In addition, it also further extends the opportunity to test your own devices and to develop new models.



### Does IKA® supply an explosion-proof stirrer system?

IKA® does supply custom-made explosion-proof systems for larger volumes upon request.

### What does torque trend display mean in the case of the EUROSTAR control range – can they measure viscosity?

The EUROSTAR control units only display the change in torque. Normally, this is associated with a change in the viscosity of the medium. The viscosity cannot, however, be directly calculated from the data. In order to do so, one can use a viscometer.

### How long can a stirrer be operated without interruption?

All IKA® stirrers have a 100% duty cycle, i.e. they can be operated without interruption.

### Are there any stirrers which rotate in different directions?

All IKA® stirrers rotate in clockwise direction except for EUROSTAR 100 control which rotates in both clockwise and counter clockwise direction. Additionally, upon request for special applications, counter clockwise direction can be incorporated.

**What is the difference between the electronic and mechanical versions of the stirrers?**  
In mechanical stirrers, the speed is set by means of a continuously variable transmission. A higher torque can be made available directly in the lower speed range by altering the transmission ratio of the actuator. Whereas in electronic stirrers, the power output is monitored and controlled by a processor. This ensures a constant speed range even with changes in viscosity.

### What quantities and viscosities can be processed with IKA® stirrers?

Depending on the unit, maximum stirring quantity ranges from 20 ml to 200 liters. Similarly, the viscosity ranges from 1 mPas to 150,000 mPas.

### What should be the diameter of the vessel in relation to the stirrer tool?

In the case of water, the diameter of the vessel should be twice the diameter of the stirrer element and the height two or three times that of the stirrer element. In the case of high viscosity material, the stirrer element should be closer to the vessel wall.

### What ambient conditions are required for the operation of IKA® stirrers?

The ambient temperature should be consistent between 5 °C and 40 °C and the humidity should not exceed 80%.

**IKA+**  
**Application Support!**

For questions regarding applications and processes, you can call our hotline number:  
**00 8000 4522777 (00 8000 IKAAPPS)\***  
E-Mail: [applicationsupport@ika.de](mailto:applicationsupport@ika.de)

\* Monday – Thursday from 8:30 – 16:30  
Friday from 8:30 – 15:30

Subject to technical changes  
Indications not binding for delivery

**IKA®+**

**Ordering made easy!**

For more information about  
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