

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 labworldsoft® 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, UL standards and fulfils international safety regulations.



3 Year warranty*

* 2+1 years after registering at www.ika.com/register, glassware and wearing parts excluded

Protection class according to DIN EN 60529: IP 40



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 labworldsoft® 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

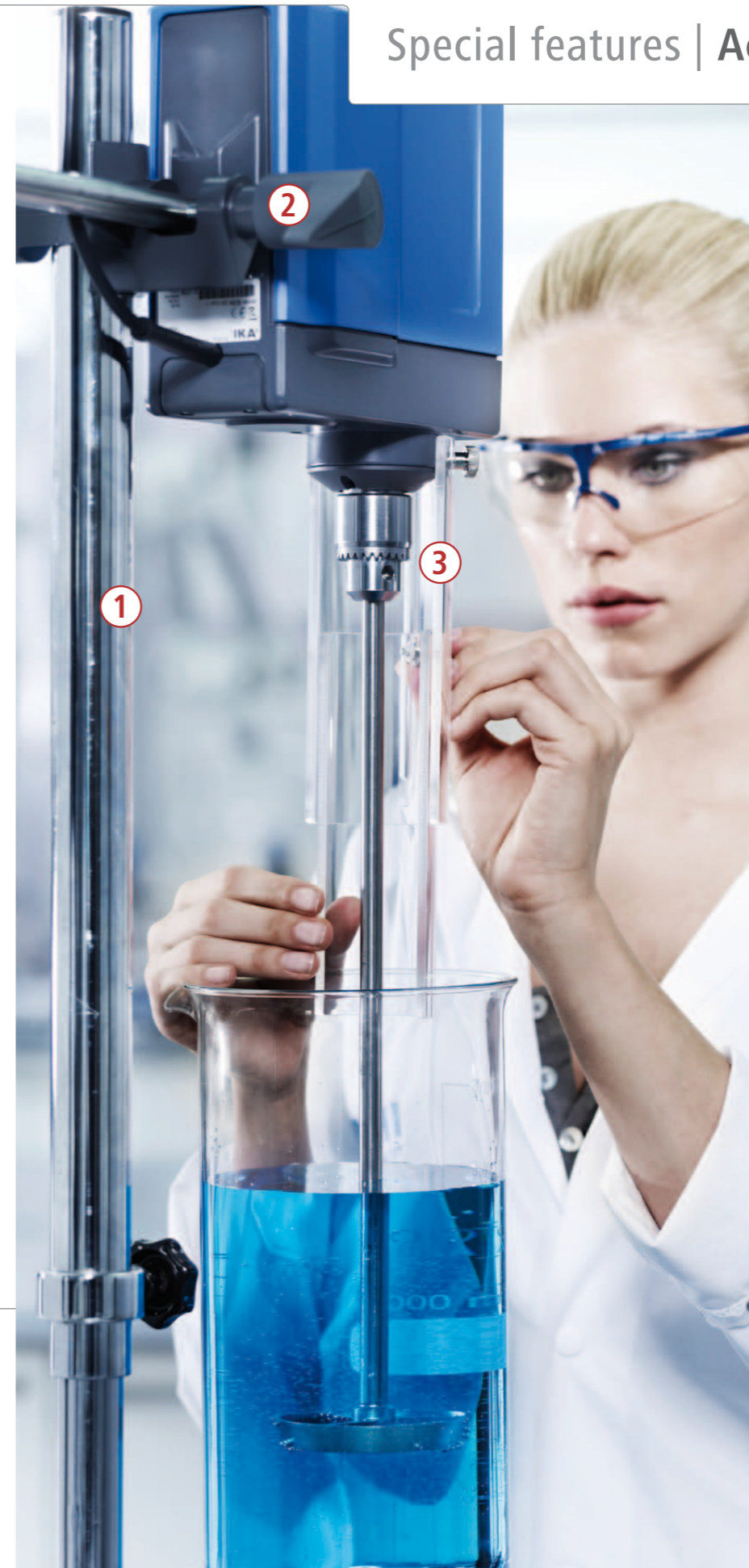
IKA+



R 60 keyless chuck available for all EUROSTAR series and for RW 20/28 digital!

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.

Special features | Accessories



Ident. No. 1412100

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 pneumatic spring stand rod, which enables heavy instruments / attachments to be raised and lowered smoothly without difficulty.



Ident. No. 2657800

2 R 270 Boss head clamp

Specialized clamp with openings for stands R 2722 and R 2723



Ident. No. 3008600

RH 3 Strap clamp

For securing vessels incl. boss head clamp R 270



Ident. No. 2603000

3 R 301 Stirring shaft protection

Prevents potential injuries around rotating shafts and stirring elements

IKA+

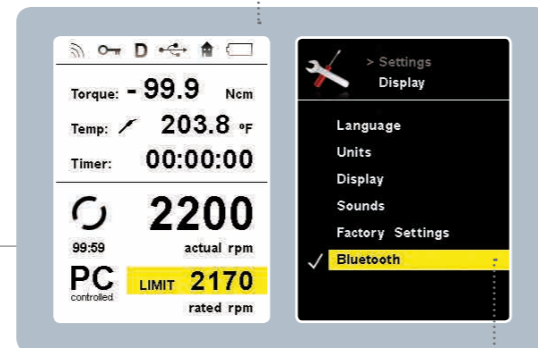
To get customized and additional accessories, please visit www.ika.com/service

EUROSTAR control | Advanced precision



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

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 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.

EUROSTAR 100 | digital & control

EUROSTAR | 20 high speed & 200 P4 control

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



2+1
Year warranty*



Clockwise and counter clockwise rotation



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 labworldsoft® software and for updating your firmware



RS 232 interface for PC connection

Electronic Overhead Stirrers

Mechanical Overhead Stirrers

Available
Q1/2013

The Beginner



EUROSTAR 20 digital | 40 digital

The Compact Power



EUROSTAR 60 digital | control

The Unique Clockwise and Counter Clockwise Rotation



EUROSTAR 100 digital | control

Available
Q1/2013

The All-Rounder



EUROSTAR 200 digital | control

The High-Performer



EUROSTAR 200 P4 control

The Speedster



EUROSTAR 20 high speed digital

Available
NOW



RW 20 digital



RW 28 digital

Available
Q2/2013



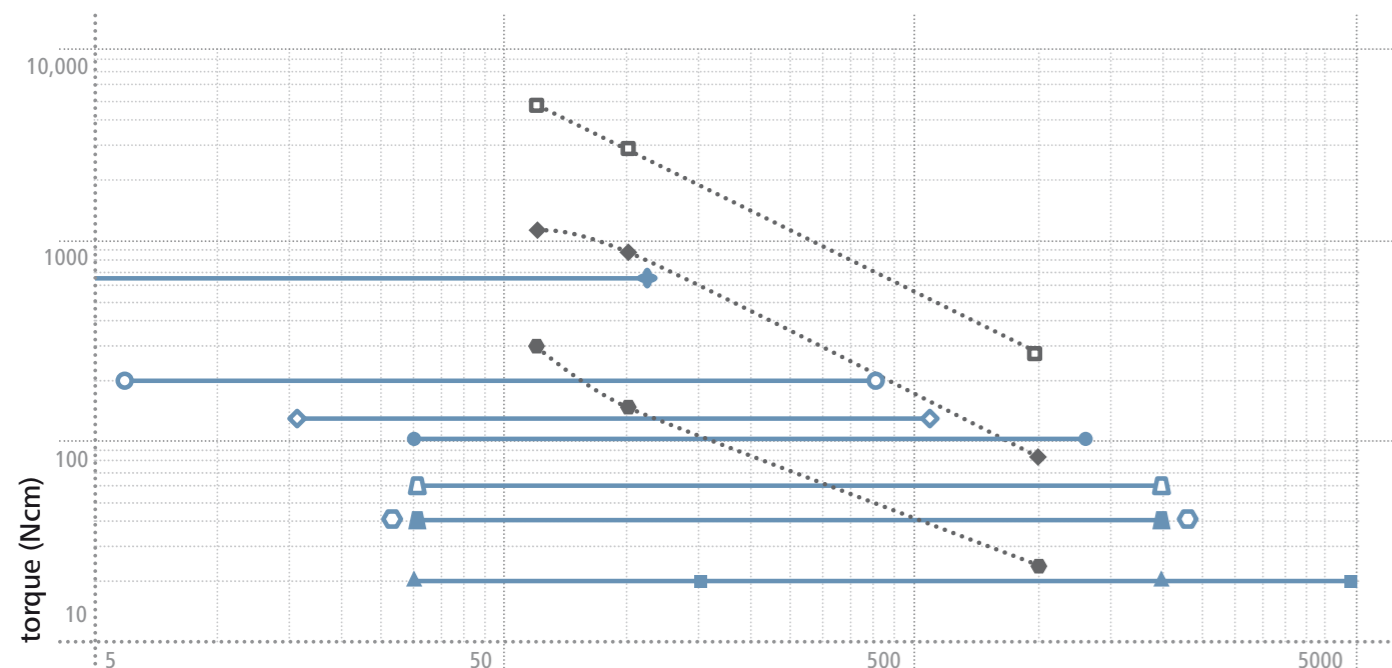
RW 47 digital

Please
also see
IKA® Pilots

Technical data	
Stirring quantity max. (H ₂ O)	15 l 25 l
Max. viscosity	10,000 mPas 30,000 mPas
Motor rating input/output	56 / 44 W 112 / 87 W
Permissible ON time	100 %
Speed range	30 – 2000 rpm
Speed range I (at 50/60 Hz)	–
Speed range II (at 50/60 Hz)	–
Max. torque at stirring shaft	20 Ncm 40 Ncm
Display	LED
Reverse operation	no
Intermittent operation	no yes
Temp. sensor connection	no PT 1000
Chuck range	0.5 – 10 mm
Hollow shaft	yes
Torque measurement	no trend
Timer	no yes
Temperature measurement	no yes
Temperature measuring range	– -50 to 450 °C
Dimensions (W x D x H)	86 x 208 x 248 mm
Weight	4.4 kg
Permissible ambient temp.	5 – 40 °C
Permissible relative moisture	80%
Protection class DIN EN 60529	IP 40
USB / RS 232 interface	no yes
Voltage	230 V
Frequency	50/60 Hz
Price	599,- EUR 765,- EUR
	Ident. No. 4442000 Ident. No. 4444000

Technical data	
Stirring quantity max. (H ₂ O)	100 l
Max. viscosity	100,000 mPas
Motor rating input/output	121 / 99 W
Permissible ON time	100%
Speed range	6 – 2000 rpm
Speed range I (at 50/60 Hz)	6 – 400 rpm
Speed range II (at 50/60 Hz)	30 – 2000 rpm
Max. torque at stirring shaft	200 Ncm
Display	LED TFT
Reverse operation	no
Intermittent operation	no yes
Temp. sensor connection	no PT 1000
Chuck range	0.5 – 10 mm
Hollow shaft	yes
Torque measurement	no trend
Timer	no yes
Temperature measurement	no yes
Temperature measuring range	– -50 to 450 °C
Dimensions (W x D x H)	91 x 209 x 274 mm 91 x 230 x 274 mm
Weight	4.6 kg 4.9 kg
Permissible ambient temp.	5 – 40 °C
Permissible relative moisture	80%
Protection class DIN EN 60529	IP 40
USB / RS 232 interface	no yes
Voltage	230 V
Frequency	50/60 Hz
Price	1565,- EUR 1765,- EUR
	Ident. No. 3990000 Ident. No. 3992000

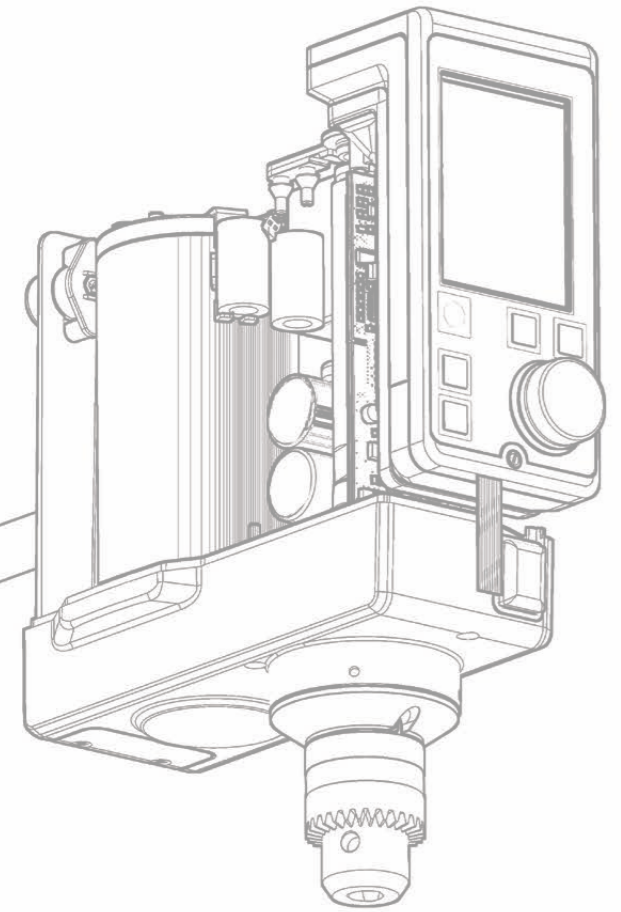
Technical data	
Stirring quantity max. (H ₂ O)	20 l
Max. viscosity	10,000 mPas
Motor rating input/output	70 / 35 W
Permissible ON time	100%
Speed range	60 – 2000 rpm
Speed range I (at 50/60 Hz)	60 – 500 rpm
Speed range II (at 50/60 Hz)	240 – 2000 rpm
Max. torque at stirring shaft	150 Ncm
Display	LED
Reverse operation	no
Intermittent operation	no
Temp. sensor connection	no
Chuck range	0.5 – 10 mm
Hollow shaft	yes
Torque measurement	no
Timer	no
Temperature measurement	no
Temperature measuring range	–
Dimensions (W x D x H)	88 x 212 x 294 mm
Weight	3.1 kg
Permissible ambient temp.	5 – 40 °C
Permissible relative moisture	80%
Protection class DIN EN 60529	IP 20
USB / RS 232 interface	no
Voltage	220 – 240 V
Frequency	50/60 Hz
Price	992,- EUR
	Ident. No. 3593000



- ES 200 control P 4 I
- ES 200 digital / control I
- ES 200 control P 4 II
- ES 100 digital / control
- ES 60 digital / control
- ES 40 digital
- ES 200 digital / control II
- ES 20 digital
- ES 20 high speed
- RW 47 digital
- RW 28 basic
- RW 20 DZM.n

The electronic overhead stirrers have a constant torque over the entire speed range. They can also be used for short-term overload operations. The electronic stirrers are ideal for reproducible procedures as well.

The mechanical overhead stirrers have a high torque at low speed and the torque decreases when the speed increases. The speed range I is for highly viscous samples and the speed range II is for intensive mixing of low viscous samples.



Stirring elements | Accessories



Propeller stirrer, 4-bladed
Standard stirring element for drawing the material to be mixed from the top to the bottom. It creates local shearing forces and axial flow in the vessel. This propeller stirrer is used at medium to high speeds.



Propeller stirrer, 3-bladed
Flow-efficient design for drawing the material to be mixed from the top and the bottom while creating minimum shearing forces. This propeller stirrer is used at medium to high speeds.



Propeller stirrer, 3-bladed
Flow-efficient design for drawing the material to be mixed from the top and the bottom while creating minimum shearing forces. This propeller stirrer is used at medium to high speeds.



Dissolver stirrer
This stirrer provides radial flow for drawing the material to be mixed from the top and the bottom while creating high turbulence and high shearing forces for particle reduction. Medium to high speeds required.

axial flow	Name	R 1342	R 1345	R 2302
	Ident. No.	0741000	0741300	0739000
	Stirrer (Ø) mm	50	100	150
	Shaft (Ø) mm	8	8	13
	Shaft length mm	350	540	800
	Max. speed rpm	2000	800	600
		A B C	A B C	H
		D F	D F G	

axial flow	Name	R 1381	R 1382
	Ident. No.	1296000	1295900
	Stirrer (Ø) mm	45	55
	Shaft (Ø) mm	8	8
	Shaft length mm	350	350
	Max. speed rpm	2000	2000
		A B C	A B C
		D F	D F

axial flow	Name	R 1385	R 1388	R 1389 (PTFE-coated)
	Ident. No.	0477700	0477800	2343600
	Stirrer (Ø) mm	140	140	75
	Shaft (Ø) mm	10	10	8
	Shaft length mm	550	800	350
	Max. speed rpm	800	400	800
		A B C	A B C	A B C
		D F G	D F G	D F G

radial flow	Name	R 1300	R 1302	R 1303
	Ident. No.	0513500	2387900	2746700
	Stirrer (Ø) mm	80	100	42
	Shaft (Ø) mm	8	10	8
	Shaft length mm	350	350	350
	Max. speed rpm	2000	1000	2000
		A B C	A B C	A B C
		D F G	D F G	D F

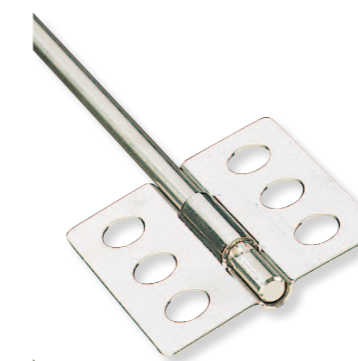
* IKA® recommendations only



Turbine stirrer
This stirrer is used for drawing the material to be mixed from above while generating axial flow within the vessel. It carries a minimum level of danger of injury when contact is made with vessel. It also creates minimum shearing forces and is used at medium to high speeds.



Centrifugal stirrer
Two-bladed stirrer whose blades open with increasing speed. Perfect for stirring in round vessels with narrow necks and the effect is similar to that of a 4-bladed propeller stirrer. Medium to high speeds required.



Paddle stirrer
This stirrer creates tangential flow, minimum turbulence, good heat exchange and gentle treatment of the product. Low to medium speeds required.



Anchor stirrer
This stirrer creates tangential flow, high shearing rate at the edges, minimum deposits on the vessel wall making them great for polymer reactions and even distribution of high mineral contents in liquids. Ideal for medium to highly viscous fluids. Low speeds required.

axial flow	Name	R 1311	R 1312	R 1313
	Ident. No.	2332900	2333000	2333100
	Stirrer (Ø) mm	30	50	70
	Shaft (Ø) mm	8	8	10
	Shaft length mm	350	350	400
	Max. speed rpm	2000	2000	800
		A B C	A B C	A B C
		D F	D F	D F

axial flow	Name	R 1352	R 1355
	Ident. No.	0756900	1132700
	Stirrer (Ø) mm	60 / 15	100 / 24
	Shaft (Ø) mm	8	8
	Shaft length mm	350	550
	Max. speed rpm	2000	800
		A B C	A B C
		D F	D F

tangential flow	Name	R 1375	R 1376	R 2311
	Ident. No.	0757700	0757800	0739500
	Stirrer (Ø) mm	70	150	150
	Shaft (Ø) mm	8	10	13
	Shaft length mm	550	550	800
	Max. speed rpm	800	800	600
		A B C	B C D	H
		D F	F G	

tangential flow	Name	R 1330	R 1331	R 1333
	Ident. No.	2022300	2022400	2747400
	Stirrer (Ø) mm	45	90	150
	Shaft (Ø) mm	8	8	10
	Shaft length mm	350	350	550
	Max. speed rpm	1000	1000	800
		A B C	A B C	B C D
		D F	D F G	E G



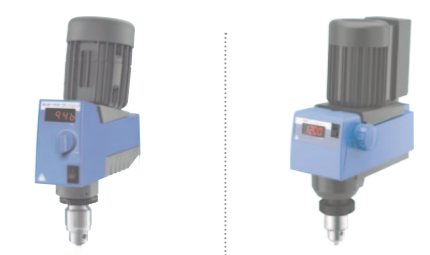
A



B



C



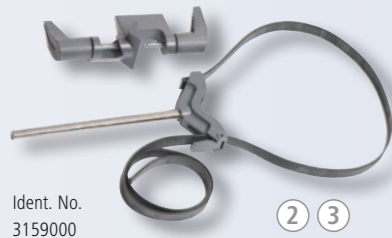
D



E

RH 5 Strap clamp

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

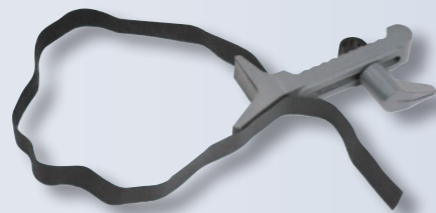


Ident. No.
3159000

2 3

RH 3 Strap clamp

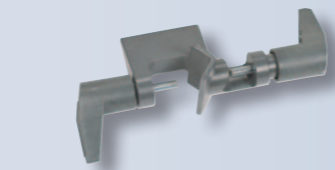
For securing vessels during stirring or dispersing.



Ident. No.
3008600

1

R 270 Boss head clamp



Ident. No.
2657800

2 3

R 271 Boss head clamp

Specialized clamp with openings for the stands R 2722 and R 2723 as well as extensions with Ø 16 mm.



Ident. No.
2664000

2 3

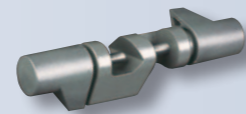
FK 1 Flexible coupling

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



Ident. No.
2336000

R 182 Boss head clamp



Ident. No.
2657700

1



**NEW
2013**

R 4765 Floor stand

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

Ident. No.
4035000

Height: 1014 – 1588 mm



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



1

Ident. No.	
3160000	R 1825
3160100	R 1826
3160200	R 1827

Ident. No.
1412000



Height: 1010 mm

2

R 2722 H-stand

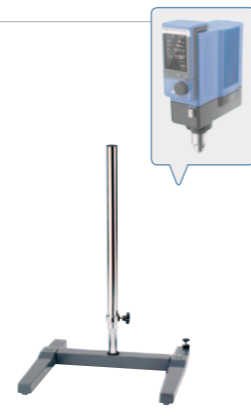
Stable stand with H-shaped base which prevents the stand from tipping backwards.



R 2723 Telescopic stand

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

Ident. No.
1412100



Height: 620 – 1010 mm

3

R 474 Telescopic stand

Specially designed for RW 47 D/digital.

Ident. No.
1643000



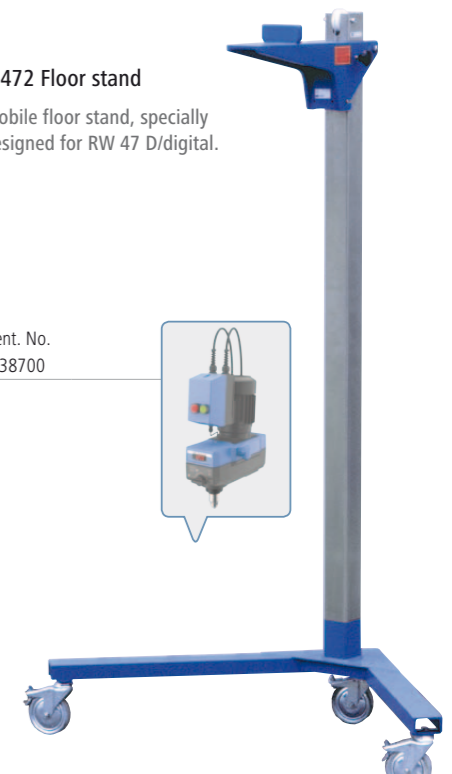
Height: 1200 mm

5

R 472 Floor stand

Mobile floor stand, specially designed for RW 47 D/digital.

Ident. No.
0738700



Height: 2020 mm

6

H 62.51 Stainless steel sensor

Spare sensor for temperature measurement.

Ident. No.
2735451

* 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.
2735551

* Option available only for control units



H 70 Extension cable

To separate the casing from the sensor.

Ident. No.
2735600

* Option available only for control units



Several safety accessories are available for RW 47 digital

R 60 keyless chuck

Available for all EUROSTAR series and for RW 20/28 digital. It allows you to quickly and easily remove the stirring elements without any tools.

Ident. No.
3889500



H 66.53 Temperature sensor

Chemical resistant coated sensor.

Ident. No.
4499900

* 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!

Torque

Torque is mathematically defined as the vector product of force and lever arm. It is therefore calculated as $M = r * F$, 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 viscosity values (Range 1 – 100,000 mPa*s)

Substance	Viscosity η 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
Chocolate	25,000
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

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

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.).

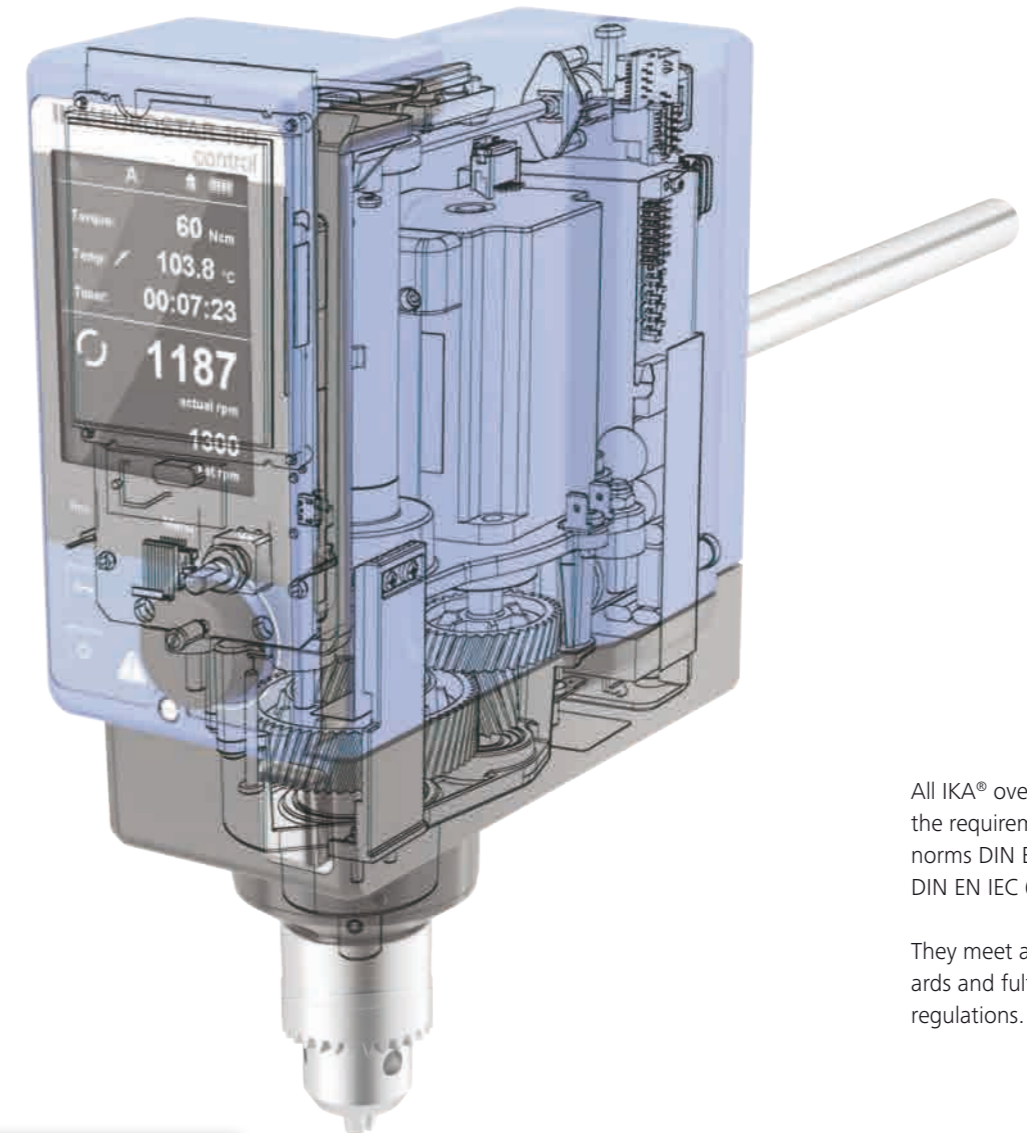
Oil is a good example of a highly viscous liquid. It does not flow easily and affects parameters such as the thickness of the lubricating film on bearings, motors, gear units, leakage losses in the hydraulics, pump efficiency and friction losses in pipes.

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, loam...



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

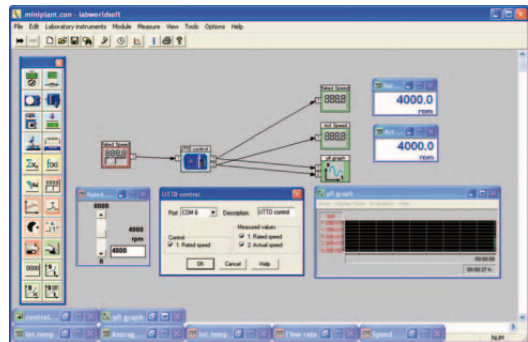


All IKA® overhead stirrers adhere to the requirements set forth by the norms DIN EN IEC 61010-1 and DIN EN IEC 61010-2-051.

They meet and exceed CE, UL standards and fulfil International safety regulations.



labworldsoft®



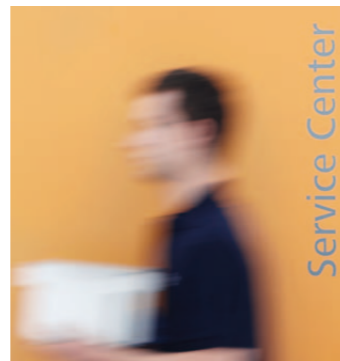
IKA® laboratory software labworldsoft® is an advanced software for all your laboratory needs. With the help of this software, you can network up to 64 laboratory devices via one PC. All test parameters can be documented ensuring complete automation of your laboratory experiments. Measurements and processes 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 (008000 IKAHELP)



IKA® Application Support



IKA® 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 Power Control range – can they measure viscosity?

The Eurostar Power 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 in 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. But 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 2 to 200 liters. Similarly, the viscosity ranges from 100 mPas to 100,000 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 tool and the height two or three times that of the stirrer tool. In the case of high viscosity material, the stirrer tool 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%.



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

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

Prices valid until 31st of December 2013
All prices exclusive to VAT
Subject to alteration of prices

IKA®+

Ordering made easy!

For more information about
our products and to place
your order, please visit:

www.ika.com

201206_Overhead_Stirrers_Brochure_EN

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