

IKA EUROSTAR digital

IKA EUROSTAR power basic

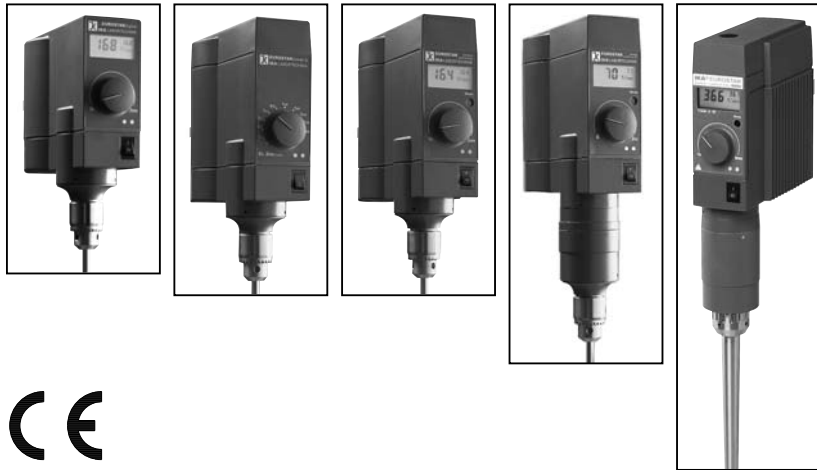
IKA EUROSTAR power control-visc

IKA EUROSTAR power control-visc P1

IKA EUROSTAR power control-visc P4

IKA EUROSTAR power control-visc P7

IKA EUROSTAR power control-visc 6000



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EG-KONFORMITÄTSERKLÄRUNG**DE**

Wir erklären in alleiniger Verantwortung, daß dieses Produkt den Bestimmungen der Richtlinien 89/336/EG, 98/37/EG und 73/23/EG entspricht und mit den folgenden Normen und normativen Dokumenten übereinstimmt: DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 und EN 60204-1.

CE-DECLARATION OF CONFORMITY**EN**

We declare under our sole responsibility that this product corresponds to the regulations 89/336/EG, 98/37/EG and 73/23/EG and conforms with the standards or standardized documents DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 and EN 60 204-1.

DÉCLARATION DE CONFORMITÉ CE**FR**

Nous déclarons sous notre propre responsabilité que ce produit est conforme aux réglementations 89/336/EG, 98/37/EG et 73/23/EG et en conformité avec les normes ou documents normalisés suivant DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 et EN 60204-1.

DECLARACION DE CONFORMIDAD DE CE**ES**

Declaramos por nuestra responsabilidad propia que este producto corresponde a las directrices 89/336/EG, 98/37/EG y 73/23/EG y que cumple las normas o documentos normativos siguientes: DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 y EN 60204-1.

CE-KONFORMITEITSVERKLING**NL**

Wij verklaren in eigen verantwoordelijkheid, dat dit produkt voldoet aan de bepalingen van de richtlijnen 89/336/EG, 98/37/EG and 73/23/EG en met de volgende normen of normatieve documenten overeenstemt: DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 and EN 60204-1.

CE-DICHIARAZIONE DI CONFORMITÀ**IT**

Dichiariamo, assumendone la piena responsabilità, che il prodotto è conforme alle seguenti direttive: 89/336/EG, 98/37/EG e 73/23/EG, in accordo ai seguenti regolamenti e documenti: DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 e EN 60204-1.

CE-KONFORMITETS FÖRKLARUNG**SV**

Vi förklarar oss ensamt ansvariga för att denna produkt motsvarar bestämmelserna i riktlinjerna 89/336/EG, 98/37/EG och 73/23/EG och att den överensstämmer med följande normer eller normativa dokument: DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 och EN 60204-1.

CE-KONFORMITETSERKLÄRING**DA**

Vi erklærer, at dette produkt opfylder bestemmelserne i direktiverne 89/336/EG, 98/37/EG og 73/23/EG og at det er overensstemmende med følgende normer eller normgivende dokumenter: DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 og EN 60204-1.

CE-KONFORMITETSERKLÄRING**NO**

Vi erklærer på helt og holdent eget ansvar at dette produktet er i samsvar med bestemmelsene i forskriftene 89/336/EG, 98/37/EG og 73/23/EG, og at de er i overensstemmelse med følgende normer eller normative dokumenter: DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 og EN 60204-1.

CE-STANDARDINMUKAISUUSTODISTUS**FI**

Ilmoitamme täysin omalla vastuullamme, että tämä tuote vastaa EU-direktiivejä 89/336/EG, 98/37/EG sekä 73/23/EG ja on seuraavien normien tai ohjeasiakirjojen mukainen: DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 sekä EN 60204-1.

DECLARAÇÃO DE CONFORMIDADE DA CE**PT**

Declaramos sob nossa responsabilidade exclusiva que este produto corresponde às determinações estabelecidas nas directivas 89/336/EG, 98/37/EG e 73/23/EG do Conselho e que está de acordo com as seguintes normas e documentos normativos: DIN EN IEC 61010-1; DIN EN IEC 61326-1; EN 12 100-1 -2 e EN 60204-1.

DEKLARACJA PRODUCENTA CE**PL**

Oświadczamy z pe ną odpowiedzialnoŚcią, że produkt ten spe nia wymagania dyrektyw: 73/23/WE, 89/336/WE i 98/37/WE i jest zgodny z następującymi normami i dokumentami normatywnymi: DIN EN IEC 61 010-1; DIN EN IEC 61 326-1; DIN EN ISO 12 100-1, -2 i EN 60 204-1.

PROHLÁŠENÍ O SHODĚ CE**CS**

Prohlášíme se vši zodpovědností, že tento produkt odpovídá ustanovením směrnice 73/23/ES, 89/336/ES a 98/37/ES a je v souladu s následujícími normami a normativními dokumenty: DIN EN IEC 61 010-1; DIN EN IEC 61 326-1; DIN EN ISO 12 100-1, -2 a EN 60 204-1.

CE MEGFELELÉSÉGI NYILATKOZAT**HU**

Felelősségünk teljes tudatában kijelentjük, hogy ez a termék megfelel a 73/23/EU, 89/336/EU és 98/37/EU irányelvek rendelkezéseinek, és összhangban van a következő szabványokkal és normatív dokumentumokkal: DIN EN IEC 61 010-1; DIN EN IEC 61 326-1; DIN EN ISO 12 100-1, -2 és EN 60 204-1.

IZJAVA O SKLADNOSTI IN CE-ZNAK**SL**

Pod izključno odgovornostjo izjavljamo, da ta izdelek ustreza določilom direktiv 73/23/ES, 89/336/ES in 98/37/ES ter naslednjim standardom in standardizacijskim dokumentom: DIN EN IEC 61 010-1; DIN EN IEC 61 326-1; DIN EN ISO 12 100-1, -2 in EN 60 204-1.

VYHLÁŠENIE O ZHODE S NORMAMI EÚ**SK**

Vyhlasujeme na svojo zodpovednosť, že tento výrobok zodpovedá požiadavkám 73/23/ES, 89/336/ES a 98/37/ES a nasledujúcich noriem a normatívnych dokumentov: DIN EN IEC 61 010-1; DIN EN IEC 61 326-1; DIN EN ISO 12 100-1, -2 a EN 60 204-1.

CE-VASTAVUSDEKLARATSIOON**ET**

Kinnitame täielikult vastutades, et käesolev toode vastab direktiivide 73/23/EÜ, 89/336/EÜ ja 98/37/EÜ sätetele ning järgmistele standarditele ja normdokumentidele: DIN EN IEC 61 010-1; DIN EN IEC 61 326-1; DIN EN ISO 12 100-1, -2 ja EN 60 204-1.

CE ATBILSTĪBAS DEKLARĀCIJA**LV**

Ar pilnu atbildību apliecinām, ka produkts atbilst direktīvu 73/23/EK, 89/336/EK un 98/37/EK noteikumiem un ir saskaņā ar šādām normām un normatīvajiem dokumentiem: DIN EN IEC 61 010-1; DIN EN IEC 61 326-1; DIN EN ISO 12 100-1, -2 un EN 60 204-1.

EB ATITIKTIES DEKLARACIJA**LT**

Pristiimdami atsakomybę pareiškiame, kad šis gaminy s atitinka direktivų 73/23/EBG, 89/336/EB ir 98/37/EB ir šių normų bei normatyvinių dokumentų reikalavimus: DIN EN IEC 61 010-1; DIN EN IEC 61 326-1; DIN EN ISO 12 100-1, -2 ir EN 60 204-1.

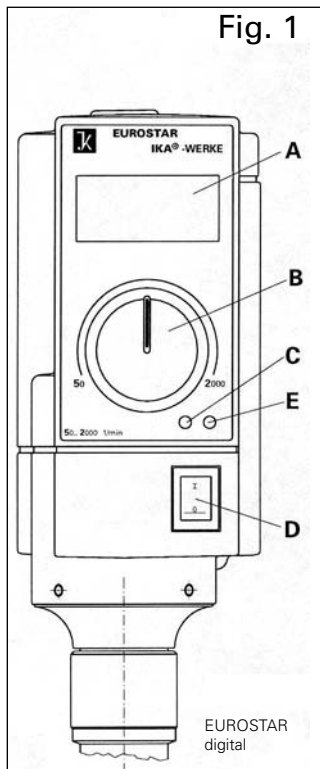


Fig. 1

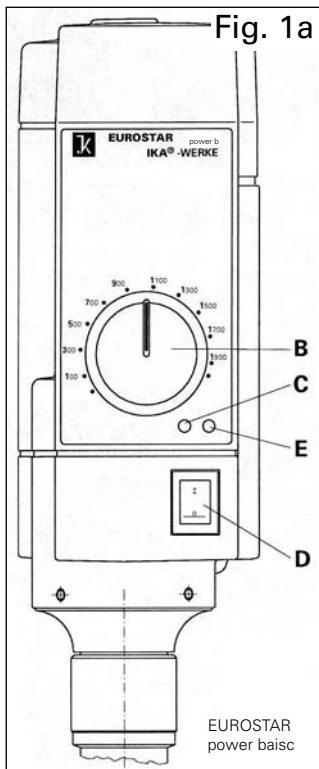


Fig. 1a

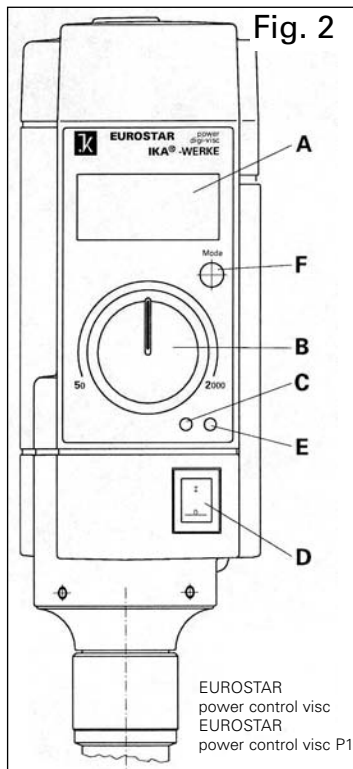


Fig. 2

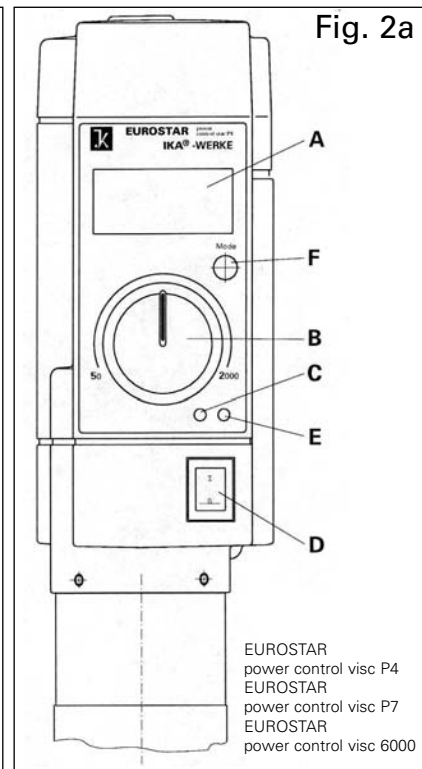


Fig. 2a

EUROSTAR power control visc P4
 EUROSTAR power control visc P7
 EUROSTAR power control visc 6000

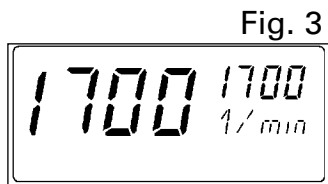


Fig. 3



Fig. 4



Fig. 5

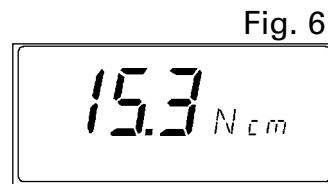


Fig. 6

Fig. 11

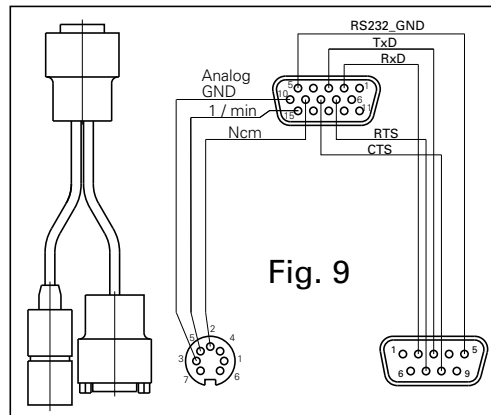
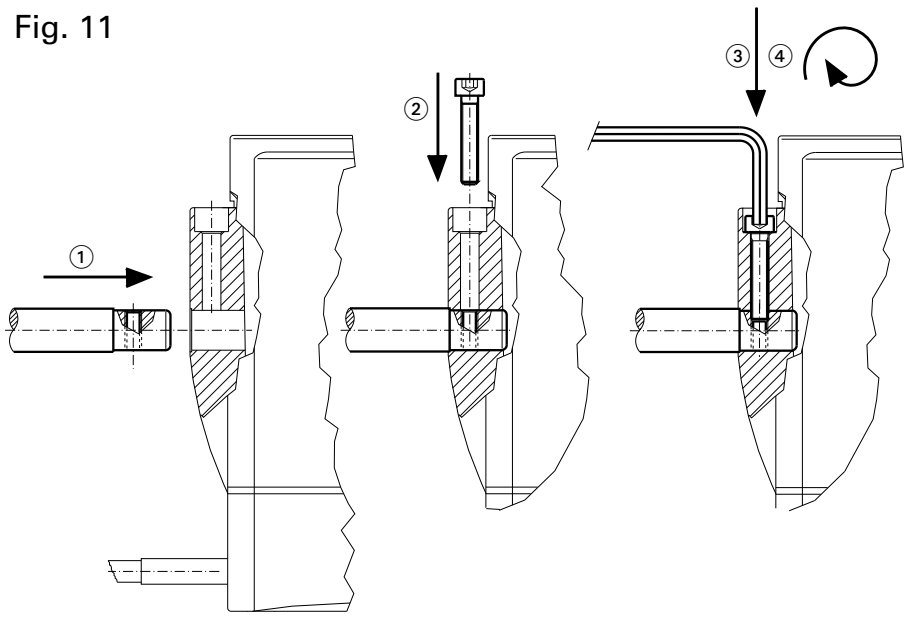


Fig. 9

Fig. 8

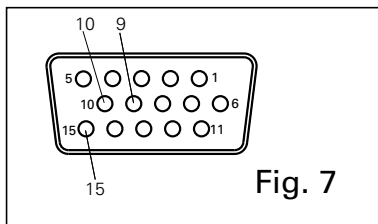
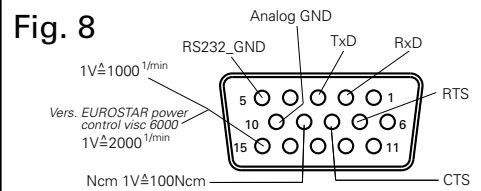


Fig. 7

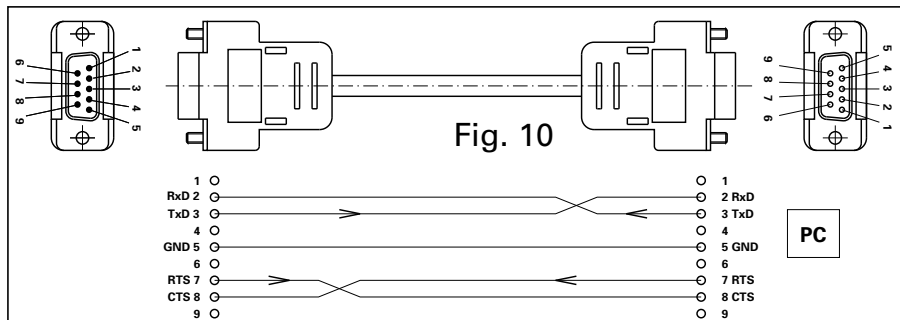
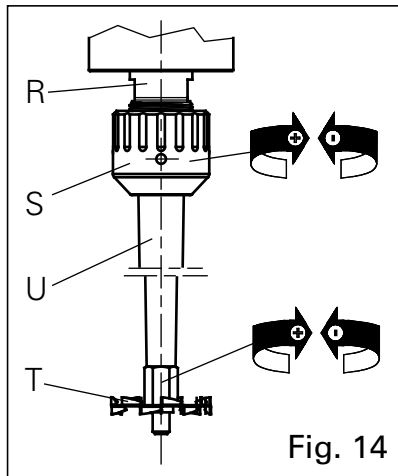
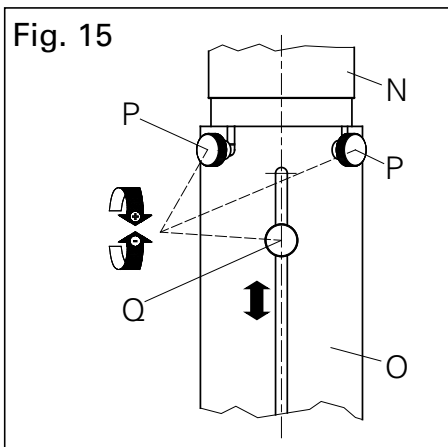
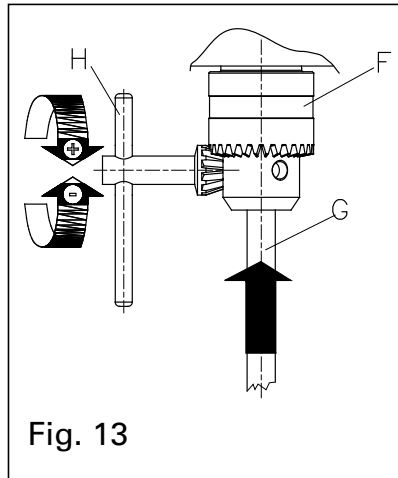
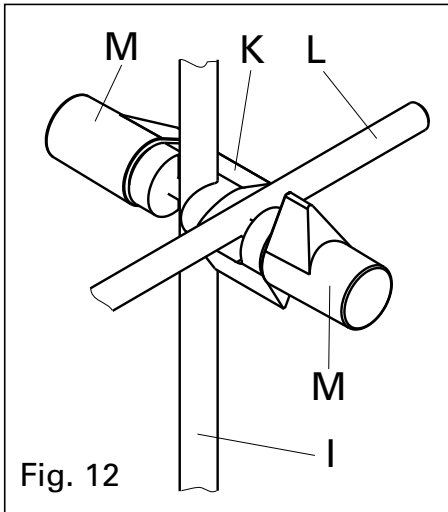


Fig. 10

PC



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Safety instructions

- **Read the operating instructions in full before starting up and follow the safety instructions.**
- Keep the operating instructions in a place where they can be accessed by everyone.
- Ensure that only trained staff work with the appliance.
- Follow the safety instructions, guidelines, occupational health and safety and accident prevention regulations.
- The voltage stated on the nameplate must correspond to the mains voltage.

- Socket must be earthed (protective ground contact).
- Wear your personal protective equipment in accordance with the hazard category of the medium to be processed. Otherwise here is a risk of:
 - splashing liquids
 - projectile parts
 - body parts, hair, clothing and jewellery getting caught.
- Set up the appliance in a spacious area on an even, stable, clean, non-slip, dry and fireproof surface.
- The feet of the appliance must be clean and undamaged.
- Position the knob (B) at the left stop before starting up. Gradually increase the speed.
- Reduce the speed if
 - the medium splashes out of the vessel because the speed is too high
 - the appliance is not running smoothly
 - the appliance begins to move around because of dynamic forces.
- Firmly secure the accessories and vessels in place, otherwise shaking vessels could be damaged or projected out.
- Check the appliance and accessories beforehand for damage each time you use them. Do not use damaged components.
- The equipment is not suitable for manual operation.
- Beware of the risk of
 - flammable materials
 - glass breakage as a result of mechanical shaking powerThere may be dangerous electrostatic activity between the medium and the output shaft
- Only process media that will not react dangerously to the extra energy produced through processing. This also applies to any extra energy produced in other ways, e.g. through high irradiation.
- **Do not** operate the appliance in explosive atmospheres, with hazardous substances or under water.
- Safe operation is only guaranteed with the accessories described in the "Accessories" chapter.
- Always disconnect the plug before fitting accessories.
- The appliance starts up again automatically following a cut in the power supply.

EN





- Protect the appliance and accessories from bumps and impacts.
- The appliance may heat up when in use. The device may become very hot in case of malfunction.
- The appliance may only be opened by experts.
- Adjust the speed of the motor on your test rig so that that it is not possible for any contact to occur between the container and the stirring tool (to avoid breaking the glass).
- Ensure that the motion of the stirring tool is smooth and uniform (no imbalance).
- Warning: For safety reasons, the device may switch off under full load, with 10% over-voltage, and at 40 °C ambient temperature.
- In order to restart the device following a malfunction, it must be switched off for a short time and allowed to cool down before being switched on again.
- The motor speed should be reduced following a malfunction.
- Never operate the equipment with the stirrer tools rotating freely. Pay attention when setting the speed to any imbalance of the stirrer tools and possible spraying of the medium to be stirred.
- Please use stirring shaft protective equipment!
- Operating with a freely rotating shaft end is dangerous. Therefore for safety reasons the stirrer tool is permitted to project over the upper edge of the housing only when the appliance is not running.
- For correct operation, the rubber diaphragm must always be completely closed.
- Take care to ensure that the shaft never runs directly in the rubber diaphragm and any friction with rotating parts (stirrer shafts) is excluded.
- Please pay attention to the dangerous parts of the equipment marked in Figure 16.

Correct use

The EUROSTAR series overhead stirrers are suitable for use with various stirring tools for stirring and mixing fluids with low and high viscosities.

They are designed for use in the laboratory. For correct use the appliance must be fixed to a stand.

Unpacking

► Unpack

- Please unpack the device carefully
- In the case of any damage a fact report must be set immediately (post, rail or forwarder)

► Delivery scope

One EUROSTAR stirring appliance, one extension arm, one hexagonal socket screw, one hexagon socket offset screw key, a chuck key and operation instructions.

Only on version EUROSTAR power control-visc 6000:

One EUROSTAR power control-visc 6000, one extension arm, one hexagonal socket screw, one hexagon socket offset screw key, one hook spanner, one open-end wrench, one R 6000 precision shaft and operation instructions.

Motor protection; safety devices

The motor current is electronically limited. The appliance has an anti-stall and anti-overload system. If a fault occurs, a safety circuit immediately switches off the motor permanently via a relay. A fault is registered if the safe functioning of the appliance is compromised. A fault is always indicated by illumination of the yellow signal light (C) at the front.

Version **EUROSTAR power basic**

(Fig. 1)

Please first try switching the appliance off and on again to see if operations can continue. If the fault does not clear after a reasonable interval, please call our Service department.

Versionen **EUROSTAR digital,**

(Fig. 2)

EUROSTAR power control - visc,
EUROSTAR power control - visc P1,
EUROSTAR power control - visc P4,
EUROSTAR power control - visc P7, and
EUROSTAR power control - visc 6000

At the same time as the yellow signal light comes on, further details of the fault are shown by a fault code in the LCD display (A):

ER 3: Internal temperature too high

Generally this fault can only occur if the permitted environmental temperature is exceeded.

Remedy: Switch off appliance and allow to cool; switch on again.

ER 4: Speed fault

This fault is indicated if the output shaft is locked or the speed was higher than permitted. If there are jerky loads which exceed three times the nominal torque, the appliance switches itself off as a safety precaution.

Remedy: Check whether the output shaft is locked due to an external cause. If it is, switch the appliance off and ensure that the shaft can rotate freely. If not, switch the appliance off without taking further steps. Then switch the stirrer on again.

If any other fault code is indicated, please initially check whether operations can be continued. If the fault cannot be rectified by the means described, contact our Service department. In each case we need to know which fault code was indicated. This makes fault-finding easier and allows us to make an initial diagnosis.

Speed - normal operations

Speed - regulated (no variation in speed)

The speed is monitored and regulated by computer control. The NOMINAL value is constantly compared with the ACTUAL value of the output shaft and variations corrected. This guarantees a constant speed even if the viscosity of the substance being stirred changes.

Fluctuations in mains voltage within the permitted tolerance range have no effect on the quality of regulation and constancy of speed.

EUROSTAR power basic

Version

The speed is set using the front knob (B). During normal operations the speed value on the scale corresponds to the speed of the output shaft in revolutions per minute (rpm).

Versionen

EUROSTAR power control - visc,
EUROSTAR power control - visc P1,
EUROSTAR power control - visc P4,
EUROSTAR power control - visc P7, and
EUROSTAR power control - visc 6000

The speed is set with the front knob (B). The ACTUAL value is indicated directly in rpm (1/min.) on the LCD display (A). The NOMINAL value set corresponds to the ACTUAL value. When using the EUROSTAR power control – visc 6000 the displayed ACTUAL value must be multiplied by a factor of 10.

For display see Figs. 3-6.

Speed - overload operation

Current - regulated (speed variation possible)

The stirrer can deliver doubled output for a short time to even out load peaks which could, for instance, occur if solid or semi-pourable agents are added. If operations continue in the overload range for a long time (eg process-related increase in viscosity), the speed is reduced until the stirrer torque corresponds to the nominal torque of the machine. The possible speed is continually adapted to operating conditions, guaranteeing that speed is as close as possible to the NOMINAL speed set.

Version

EUROSTAR power basic

To protect the machine from overloading, the speed is reduced if the machine has been operating for some time in overload mode. The NOMINAL speed (scale value) set then does not correspond to the ACTUAL speed of the output shaft. This condition is indicated by flashing of the yellow control light (C) (overload operation)

Versions

EUROSTAR power control - visc,
EUROSTAR power control - visc P1,
EUROSTAR power control - visc P4,
EUROSTAR power control - visc P7, and
EUROSTAR power control - visc 6000

A distinction is made here between two different conditions:

- **Set Value = Process Value (flashing)** : (Fig. 4)

The machine is already running in the overload range, but the NOMINAL speed (SV) does not yet correspond to the ACTUAL speed (PV). This condition is maintained so long as neither the motor current nor the temperature exceed the permitted limit values.

- **Set Value > Process Value (flashing)** : (Fig. 5)

The machine is running in the overload range, speed is reduced. The ACTUAL speed of the stirrer shaft (PV) is smaller than the NOMINAL speed set (SV). The ACTUAL speed is

regulated by output. The machine can be operated permanently in this condition provided the output shaft is not stalled. The indicator is extinguished when the load is reduced accordingly or the NOMINAL speed is adapted to the possible ACTUAL speed.

If there is a fluctuating load which is over double the nominal torque, the speed is reduced immediately.

The status indicator then shows the second condition (SV>PV flashing).

Torque indicator

With the stirrer appliances EUROSTAR power control-visc, EUROSTAR power control-visc P1, P4, P7 and EUROSTAR power control-visc 6000 it is possible on the basis of the integrated torque trend measurement to indicate the torque acting on the stirrer shaft on the LCD display. In addition the torque value on the EUROSTAR power control-visc is displayed via the serial interface and on the EUROSTAR digi-visc and EUROSTAR power digi-visc via the analogue output.

Absolute torque measurement is not possible with these machines.

By touching the illuminated key (F) "Mode" (for approx. 1 sec.) the LCD display can be changed over to show the torque value in Newton centimetres (Ncm). (Fig. 6).

Only the relative change in torque in relation to a starting point determined by the user is measured, indicated and output.

To obtain the most precise values possible in torque trend measurement it is necessary for the machine to have achieved its operating temperature (pre-running time 10-15 min.).

Interfaces and outputs

The appliance in the EUROSTAR power typ series are equipped with a 15-pin SUB-D connector on the back. depending on the option selected, the pins are supplied with analogue and/or serial signals.

- Analogue output (Fig. 7)
(all versions **EUROSTAR power basic** and **EUROSTAR power control-*visc***)

On the pins with analogue signals there are voltage values for the measurements of speed and torque.

	(9) 1VDC Torque measurement	(10) Analogue GND	(15) 1VDC Speed measurement
EUROSTAR power basic	100		1000
EUROSTAR power control visc	100		1000
EUROSTAR power control visc P1	100		1000
EUROSTAR power control visc P4	200		270
EUROSTAR power control visc P7	400		145
EUROSTAR power control visc 6000	25		2000

- Serial interface RS 232 (V24) (Fig. 8)
(only on version **EUROSTAR power control-*visc***)

The serial interface on the connector can also be used on the appliance version EUROSTAR power control-*visc* to control the appliance externally using a computer and suitable applications programme (e.g. *labworldsoft*).

Configuration of serial Interfacel RS 232 C

- The functions of the interface connections between the stirrer machine and the automation system are chosen from the signals specified in EIA standard RS232 C in accordance with DIN 66 020 Part 1.
- For the electrical characteristics of the interface and the allocation of signal status, standard RS 232 C applies in accordance with DIN 66 259 Part 1.
- Transmission procedure: asynchronous character transmission in start-stop mode.
- Type of transmission: full duplex.

- Character format: character representation in accordance with data format in DIN 66 022 for start-stop mode. 1 start bit; 7 character bits; 1 parity bit (even); 1 stop bit.
- Transmission speed: 9600 bit/s.
- Data flow control: hardware handshake RTS/CTS
RTS:(Pin 7) LOW (positive voltage): PC may send
RTS:(Pin 7) HIGH (negative voltage): PC may not send
CTS:(Pin 8) LOW (positive voltage): PC ready to receive
CTS:(Pin 8) HIGH (negative voltage): PC not ready to receive
- Access procedure: data transfer from the stirrer machine to the computer takes place only at the computer's request.

Command syntax and format

The following applies to the command set:

- Commands are generally sent from the computer (Master) to the stirrer machine (Slave).
- The stirrer machine sends only at the computer's request. Even fault indications cannot be sent spontaneously from the stirrer machine to the computer (automation system).
- Commands are transmitted in capital letters.
- Commands and parameters including successive parameters are separated by at least one space (Code: hex 0x20).
- Each individual command (incl. parameters and data) and each response are terminated with Blank CR Blank LF (Code: hex 0x20 hex 0x0d hex 0x20 hex 0x0A) and have a maximum length of 80 characters.
- The decimal separator in a number is a dot (Code: hex 0x2E).

The above details correspond as far as possible to the recommendations of the NAMUR working party (NAMUR recommendations for the design of electrical plug connections for analogue and digital signal transmission on individual items of laboratory control equipment, rev. 1.1).

The NAMUR commands and the additional specific IKA commands serve only as low level commands for communication between the stirrer machine and the PC. With a suitable terminal or communications programme these commands can be transmitted directly to the stirrer equipment. The IKA software package, *labworldsoft*, provides a convenient tool for control-

ling stirring equipment and collecting data under MS Windows, and includes graphical entry features, for motor speed ramps for example.

The following table summarises the (NAMUR) commands understood by the IKA control equipment. Abbreviations used: X=4:speed X=5:torque

Ramp commands

The IKA stirrer appliances with integrated serial interface offer the great advantage in ramp mode that the speed ramps which the stirrer machine is supposed to work off are stored in the stirrer machine and not in the PC.

Through the IKA specific RMP_LOOP_SET command there is even the possibility of transmitting an endless ramp to the stirrer appliance.

NAMUR Commands	Function
IN_PV_X X = 4; 5	Read actual value
OUT_SP_X n X = 4	Set actual value to n (Maximum value: 1999)
IN_SP_X X = 4	Read actual value input
START_X X = 4	Switch on appliance (remote) function; (indication: remote)
STOP_X X = 4	Switch off appliance function. The variable set with OUT_SP_X remains. Includes the command RMP_STOP. (Indication:remote)
RESET	Switch to normal operation. Only possible if the speed control is set to n < 60.
STATUS_X	Status output 0:manuel operation without interruption 1:automatic operation Start (without interruption) 2::automatic operation Start (without interruption) <0: fault code : -83: parity fault

	-84: unknown command -85: incorrect command sequence -86: invalid nominal value -87: insufficient memory
RMP_IN_X X = 4	Read current segment number of ramp. If ramp no started: 0
RMP_IN_X_y	Read end value and ramp segment duration for ramp segment y.
RMP_OUT_X_y n hh:mm:ss X = 4	Set end value (n) and ramp segment duration hh:mm:ss for ramp segment y.
RMP_START_X X = 4	Switch on ramp function starting with ramp segment no.1. Only possible after previous START_X. After RMP_STOP_X, however, START_X is not necessary.
RMP_STOP_X X = 4	Switch off ramp function. Nominal value = 0. (Ramp remains, ramp can be started again with RMP_START_X).
RMP_PAUSE_X X = 4	Halt ramp function. Freeze current nominal value and current ramp segment time.
RMP_CONT_X X = 4	Continue ramp function. (After previous RMP_PAUSE_X)
RMP_RESET_X	Switch off ramp function and cancel all previously input ramp segments.

Further commands

IKA specific

RMP_LOOP_SET_X X = 4	Work off ramps in a loop
RMP_LOOP_RESET_X X = 4	End ramp loop
IN_TYPE	Request laboratory appliance identification
IN_NAME	Request designation
OUT_NAME name	Output designation name (max. 6 characters, default: IKA_RW)

- PC 5.1 Adaptor IKA-Control (Fig. 9)

For appliance types EUROSTAR power an adaptor cable is available as an accessory. It splits up analogue and serial signals. The analogue output signals are placed on a 7-pin connector in accordance with the NAMUR recommendation, the serial signals on a 9-pin Sub-D connector (RS 232 C).

(2) Torque	(2) R x D
(3) Analog GND	(3) T x D
(5) Speed	(5) RS 232 GND
	(7) RTS
	(8) CTS

- PC 1.2 Adaptor

This adaptor is required to connect the 9pin connector to an 8-way serial interface (25-pin plug).

- PC 2.1 Cable (Fig. 10)

This cable is required to connect the 9-pin connector to a PC.

- AK 2.1 Cable

This cable is required to connect the 7-pin connector to a chart recorder (4mm pin plug).

- AK 2.2 Cable

This cable is required to connect the 15-pin connector to a chart recorder (4mm pin plug).

Commissioning

For correct use, the stirrer appliance must be fixed with a cross sleeve (e.g. R182; R270) to a stable stand (e.g. R1826 or R 2723).

Accessories must be assembled according to the following assembly instructions:

Securing

Attaching the extension arm to the overhead stirrer

Please refer to assembly diagram (Fig. 11)

Ensure that the extension is fitted securely.

Vibration may cause the screw to become loose. It is therefore necessary for safe use to occasionally check that the extension arm is attached securely. Tighten the hexagon bolt as if required.

Attaching the stirrer to the stand

Please refer to assembly diagram (Fig. 12)

Attach the cross sleeve (K) to the upright of the stand (I). Attach the extension arm (L) to the side of the cross sleeve not in use, with the opening facing upwards.

Tighten both clamping bolts (M) firmly once the desired position for the stirring procedure has been adjusted correctly.



Check that the stirrer is held in position firmly prior to each use and also at regular intervals. The position of the stirrer must only be adjusted when the equipment is stationary and the power supply is disconnected.

Attaching a stirring tool using the chuck

Please refer to assembly diagram (Fig. 13)

Applies to all EUROSTAR and EUROSTAR power stirring devices with chucks

Slide the stirring tool (G) into the chuck (F). Tighten the chuck firmly using the chuck key (H).



The stirring tool must only be changed when the equipment is stationary and the power supply is disconnected.

Attaching a stirring tool using the conical attachment

Please refer to assembly diagram (Fig. 14)

Applies only to EUROSTAR power control visc 6000 stirrers

Slide the R6000 precision shaft (U) into the conical attachment on the output shaft (R). Tighten the retaining nut (S) using a hook spanner and a single open-end spanner.

To fit the stirring device (T), hold the output shaft/precision shaft stationary using a single open-end spanner. The stirring device can be tightened in place with a second single open-end spanner, using the area on the stirring device provided for this purpose.



Check that the stirring tool is held in position securely prior to each use and also at regular intervals. The stirring tool must only be changed when the equipment is stationary and the power supply is disconnected.

Attaching the stirring shaft protector

Please refer to assembly diagram (Fig. 15)

Use a stirring shaft protector (O), e.g. R301, to provide protection against injury when working with the equipment.

Use the bolts (P) to attach the plastic half-shell pieces to the stirrer (N), as shown in Figure 15. The screw (Q) can be used to adjust the length of the stirring shaft protector.



Check that the stirring shaft protector is held in position securely prior to each use and also at regular intervals. The position of the stirring shaft protector must only be adjusted when the equipment is stationary and the power supply is disconnected.

Switching on the device

Check whether the voltage given on the type plate corresponds to the available mains voltage. The socket used must be earthed (fitted with earth contact). If these conditions have been met, the appliance is ready to operate when the mains is plugged in. If these conditions are not met, safe operation is not guaranteed and the machine could be damaged.

After switching on the mains switch (O) in position 'I', the appliance carries out a self-test. Afterwards, the output shaft starts to rotate. A green control light (E) signals the operating status 'ON'.

During commissioning of the appliance the output shaft starts to run at the last speed set. Therefore check the setting of the control knob. Also ensure that the speed set is suitable for the test texture selected. If in doubt, set the speed knob (B) to the lowest speed (left hand position).

Output shaft

The clamping chuck and output shaft permit all standard commercial stirrer tools up to 10mm diameter to be gripped and screwed in. The opening on the top side of the housing is closed with a slotted rubber diaphragm. It is, however, possible for stirring shafts to push out over the top edge of the housing eg during change of container.

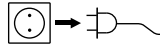
If the stirring shaft cover is removed while the stirrer is stationary, then the rubber membrane must be pushed back into the opening of the housing so that this is properly closed. This is the only way to ensure that working with the unit is safe and that media cannot enter the equipment.

Please see section "Safety instructions"!

Maintenance

The appliance is maintenance-free.

Cleaning



Only use cleansing agents which have been recommended by **IKA**

Use to remove:

Dyes	isopropyl alcohol
Construction materials	water containing tenside/ isopropyl alcohol
Cosmetics	water containing tenside/ isopropyl alcohol
Foodstuffs	water containing tenside
Fuels	water containing tenside

- Do not allow moisture to get into the appliance when cleaning
- Wear protective gloves during cleaning the devices.
- Before using another than the recommended method for cleaning or decontamination, the user must ascertain with **IKA** that this method does not destroy the instrument.

Spare parts order

When ordering spare parts, please give:

- Machine type
- Manufacturing number, see type plate
- Item and designation of the spare part, see **www.ika.de**, spare parts diagram and spare parts list

Repair

In case of repair the device has to be cleaned and free from any materials which may constitute a health hazard.

If you require servicing, return the appliance in its original packaging. Storage packaging is not sufficient. Please also use suitable transport packaging.

Warranty

In accordance with **IKA** guarantee conditions, the guarantee period is 24 months. For claims under the guarantee please contact your local dealer. You may also send the machine direct to our works, enclosing the delivery invoice and giving reasons for the claim. You will be liable for freight costs.

The warranty does not cover wearing parts, nor does it apply to faults resulting from improper use or insufficient care and maintenance contrary to the instructions in this operating manual.

Accessories

	EUROSTAR digital	EUROSTAR power basic	EUROSTAR power control visc	EUROSTAR power control visc P1	EUROSTAR power control visc P4	EUROSTAR power control visc P7	EUROSTAR power control visc 6000
R 1826 Plate stand	•						
R 2722 H-plate stand		•	•	•	•	•	•
R 2723 Telescopik stand		•	•	•	•	•	•
R 182 Cross sleeve	•						
R 270 Cross sleeve		•	•	•	•	•	•
R 271 Cross sleeve		•	•	•	•	•	•
R 301 Stirrer shaft protection	•	•	•	•	•	•	•
RH 3 Tensioner	•						
RH 5 Tensioner		•	•	•	•	•	•
RC 1 Remote control			•	•	•	•	•
FK 1 Flexible coupling	•						
AM 1 Analoge modul			•	•	•	•	•
PC 1.2 Adaptor			•	•	•	•	•
PC 2.1 Cable			•	•	•	•	•
PC 5.1 IKA control adaptor			•	•	•	•	•
AK 2.1 Cable			•	•	•	•	•
AK 2.2 Cable		•	•	•	•	•	•

Technical data

		EUROSTAR digital	EUROSTAR power basic	EUROSTAR power control visc	EUROSTAR power control visc P1	EUROSTAR power control visc P4	EUROSTAR power control visc P7	EUROSTAR power control visc 6000
Speed range under nominal load:	1/min	50 - 2000	50 - 2000	50 - 2000	0 - 1200	14 - 530	8 - 290	0 - 6000
min. speed (adjustable):	1/min	50	50	50	50	14	8	150
max. torque stirrer shaft:	Ncm	30	60	60	100	200	380	15
Permitted on-time:	%	100	100	100	100	100	100	100
Speed setting:		Speed regulator with pulse-width modulator						
Speed indicator:		LCD	Scala	LCD	LCD	LCD	LCD	LCD
Nominal voltage:	VAC	230 ±10% (EURO) ... 115 ±10% (USA)						
Frequency:	Hz	50 / 60						
max. input power:	W	75	130	130	153	130	130	130
max. output power:	W	53	105	105	126	95	95	95
Protection type to DIN 60 529:		IP 42						
Excess voltage category:		II						
Contamination level:		2						
Protection at overload:		Motor current limitation						
Fuses (on mains plate):	A	4T (IKA - ident.no. 25 851 00)						
Drive:		DC motor with 1 stage toothed belt drive						
Ambient temperature:	°C	+5 to +40						
Ambient humidity: (rel.)	%	80						
Operation position:		on stand, clamping chuck pointing down						
Actual speed - display resolution:	1/min	1	- / -	1	1	1	1	10
Speed - setting accuracy:	1/min	±2	- / -	±2	±2	±2	±2	±10

		EUROSTAR digital	EUROSTAR power basic	EUROSTAR power control visc	EUROSTAR power control visc P1	EUROSTAR power control visc P4	EUROSTAR power control visc P7	EUROSTAR power control visc 6000
Torque measurement accuracy:	Ncm	±6	- / -	±6	±6	±6	±6	±6
Speed measurement accuracy:	1/min	±3	- / -	±3	±3	±3	±3	±3
max. stirring quantity - water:	ltr	20	40	40	60	40	40	20
for viscosity: 1	%	MV	HV	HV	HV	HV	HV	MV
Clamping chuck clamping range:	mm	0,5 - 10	0,5 - 10	0,5 - 10	0,5 - 10	0,5 - 10	0,5 - 10	2
Hollow shaft internal diameter:	mm	11	11	11	11	11	11	- / -
Extension arm (Ø x L):	mm	13x175	16x220	16x220	16x220	16x220	16x220	16x220
Dimensions (W x D x H): without extension arm	mm	80x222x190	80x222x190	80x253x190	80x253x190	80x330x190	80x330x190	80x317x190
Weight: with extension arm and clamping chuck	kg	2,8	3,8	3,8	4,0	4,9	4,9	4,8
Operation at a terrestrial altitude:	m	max. 2000 above sea level						

1	Viscosity	mPa . s	
	VLV very low viscosity	0 100	Water up to thin-bodied oil
	LV low viscosity	100 1000	Thin-bodied oil up to thick-bodied oil
	MV medium viscosity	1000..... 10000	Thick-bodied oil up to honey at approx. 20 °C
	HV high viscosity	10000 100000	Honey at approx. 20 °C up to inks/dyes

2 Conical attachment for precision shaft, screw-on stirring tool.

Permitted IKA stirrer tools

③ Only to be used in conjunction with R6000 precision shaft:

		max. speed 1/min	EUROSTAR digital	EUROSTAR power basic	EUROSTAR power control visc	EUROSTAR power control visc P1	EUROSTAR power control visc P4	EUROSTAR power control visc P7	EUROSTAR power control visc 6000
R 1342	Propeller stirrer 4fl	≤ 2000	•	•	•	•	•	•	
R 1345	Propeller stirrer 4fl	≤ 800		•	•	•	•	•	
R 1381	Propeller stirrer 3fl	≤ 2000	•	•	•	•	•	•	
R 1382	Propeller stirrer 3fl	≤ 2000	•	•	•	•	•	•	
R 1385	Propeller stirrer 3fl	≤ 800		•	•	•	•	•	
R 1389	Propeller stirrer 3fl PTFE	≤ 800	•	•	•	•	•	•	
R 1311	Turbine stirrer	≤ 2000	•	•	•	•	•	•	
R 1312	Turbine stirrer	≤ 2000	•	•	•	•	•	•	
R 1313	Turbine stirrer	≤ 800		•	•	•	•	•	
R 1300	Dissolver stirrer	≤ 2000	•	•	•	•	•	•	
R 1302	Dissolver stirrer	≤ 1000		•	•	•	•	•	
R 1303	Dissolver stirrer	≤ 2000	•	•	•	•	•	•	
R 1352	Centrifugal stirrer	≤ 2000	•	•	•	•	•	•	
R 1355	Centrifugal stirrer	≤ 800		•	•	•	•	•	
R 1373	Surface stirrer	≤ 2000	•	•	•	•	•	•	
R 1375	Surface stirrer	≤ 800		•	•	•	•	•	
R 1376	Surface stirrer	≤ 800				•	•	•	
R 1330	Anchor stirrer	≤ 1000	•	•	•	•	•	•	
R 1331	Anchor stirrer PTFE	≤ 1000	•	•	•	•	•	•	
R 1332	Anchor stirrer	≤ 800	•	•	•	•	•	•	
R 1333	Anchor stirrer PTFE	≤ 800				•	•	•	
R 1335	Kneading stirrer	≤ 2000	•	•	•	•	•	•	
R 6000	Precision shaft	≤ 6000							•
R 1401	Propeller	≤ 6000							• ③
R 1405	Propeller	≤ 6000							• ③
R 1402	Dissolver disk	≤ 6000							• ③