



# **Overhead Stirrer**

## **PE-8300**

### **Data Sheet**

Version 1.3EN dtd. 19.10.2015

Part number: 1.75.45.0080



Saint Petersburg  
2015



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## **1. General**

- 1.1. The present Data Sheet is intended for familiarizing with the principle of operation, construction and rules of operation of the stirrer PE-8300.
- 1.2. Due to continuous improvement of the device, modifications not worsening the technical specification of the instrument can be made to its design.
- 1.3. Never proceed to operation of the instrument without getting familiarized with the technical description and rules of operation stated in the Data Sheet.

## **2. Purpose**

- 2.1. PE-8300 Stirrer is intended for stirring a fluid of various viscosity at set speed by paddle mixer in bottles, glasses, flasks and other vessels.
- 2.2. The following functions are implemented in the device:
  - setting and indication of the set rotational speed;
  - maintaining the set rotational speed with required accuracy;
  - indication of current rotational speed;
  - timer setting for stirring turning off upon expiration of set time;
  - current settings memorizing and recalling them from memory;
  - alarming and protection of the motor from overload;
  - alarming and protection of the motor from overheating;
  - alarming in case of rotational speed sensor fault;
  - alarming in case of motor temperature sensor fault;

## **3. Operating conditions**

- 3.1. Ambient air temperature, °C.....from +10 to +35
- 3.2. Relative air humidity, %..... up to 75
- 3.3. Supply voltage, V .....220±20
- 3.4. Power supply frequency, Hz .....50±2
- 3.5. Allowable time of continuous work, not more than, hours.....16

#### **4. Technical Specification**

4.1.	Volume of stirred sample (water), l.....	0.25÷20
4.2.	Maximum viscosity of fluid, mPa·s.....	50000
4.3.	Maximum torque, N·cm .....	60
4.4.	Motor power, W .....	100
4.5.	Rotation speed of stirrer shaft, rpm .....	100÷3000
4.6.	Accuracy of speed maintenance, rpm, at least .....	± 20
4.6.	Maximum timer setting .....	99 h 59 min.
4.7.	Maximum diameter of stirrer shaft, mm .....	8 (10) <sup>1</sup>
4.8.	Supply voltage, V.....	220 (50 Hz)
4.9.	Overall dimensions (WxLxH), mm .....	100x190x255
4.10.	Weight, kg .....	4.4
4.11.	Rated service life, years .....	5

#### **5. Scope of Delivery**

5.1.	Stirrer PE-8300 .....	1 pcs.
5.2.	Rod for fastening onto stand rod Ø16 mm.....	1 pcs.
5.3.	Key for rod fastening to the device.....	1 pcs.
5.4.	Propeller-type stirrer IM .....	1 pcs.
5.5.	Key for the stirrer shaft clamping in chuck .....	1 pcs.
5.6.	Power cable.....	1 pcs.
5.7.	Data Sheet.....	1 pcs.

#### **6. Construction and Principle of Operation**

- 6.1. The stirrer PE-8300 is designed as a monoblock unit (Figure 1). The power switch 1 and control panel 2 with liquid-crystal display and keyboard are located in the front part of the device. The jaw chuck is fastened onto hollow shaft of motor from underneath. On top of the device housing there is a hole for the stirrer output, which passes through the motor hollow shaft. This allows to change extension of the stirrer without moving the device vertically on stand rod. Rear wall of the device is equipped with connector for power cable and rod 4 for the unit fastening onto the

<sup>1</sup> The first value – maximum diameter of stirrer shaft, which passes through motor shaft, the second – maximum diameter, which can be clamped in chuck.

laboratory stand rod of type ES-2720, PE-2730 or similar, using special-purpose clamp (not included into the scope of delivery).



Figure 1 - Stirrer PE-8300

1 – power switch, 2 – control panel, 3 – chuck, 4 – rod.

6.2. The principle of operation of the device is based on stirring a liquid in vessel by the stirrer, which is fastened onto shaft of the DC electric motor, while providing for adjustable and stabilized rotational speed. Meanwhile, the control electronics of the device provides for performance of all required functions (item 2.2.).

## ***7. Preparation for Operation***

- 7.1. Place the rod 4 as far as it will go into flange on rear part of the device.
- 7.2. Use hexagonal wrench to firmly tighten two screws for the rod fastening.
- 7.3. Fasten the stirrer on the stand rod at required height above a vessel, where a liquid to be stirred is.

- 7.4. If necessary, put the stirrer shaft through sealing element of the vessel neck. Use special-purpose key to reliably fasten the stirrer in the chuck 3.
- 7.5. Make sure, that power switch 1 is in position ON (o), then connect the power cable to appropriate connector on rear side of the device.

## ***8. Working Procedure***

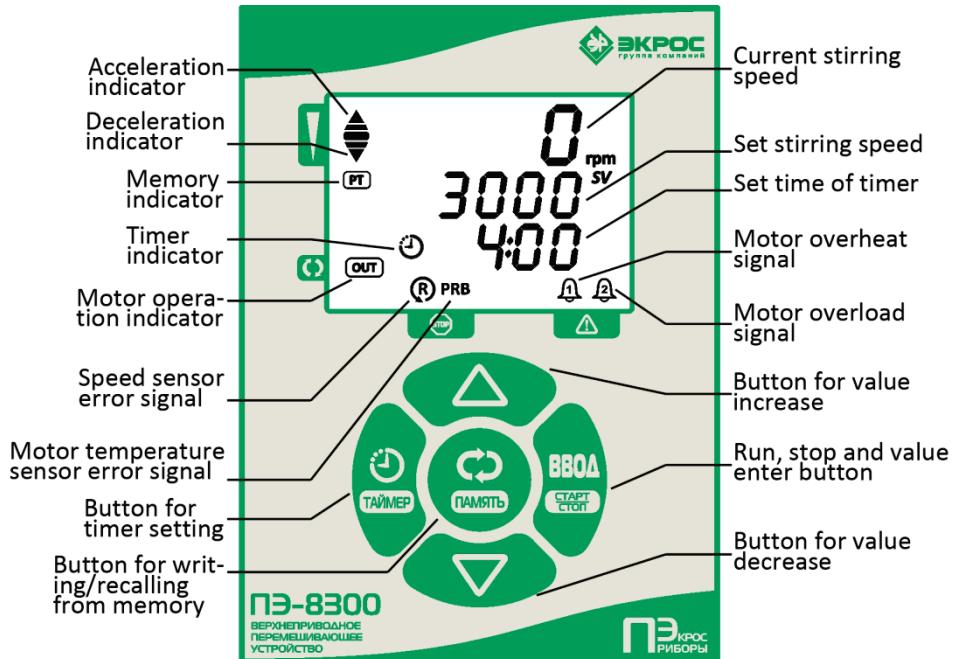


Figure 2 - Control panel

The controls and indication elements of the stirrer PE-8300 are shown on above figure (Figure 2).

### ***8.1. Setting stirring speed***

- 8.1.1. Use buttons  $\Delta$  and  $\nabla$  to set required stirring sped at the display.
- 8.1.2. To start or stop stirring, press the button  $\text{ENT}$ .

- 8.1.3. It is allowed to change stirring speed using buttons  and  without stopping the stirring process. At that, changes are implemented immediately.
- 8.1.4. The motor operation indicator  is shown on the display during stirring.

## 8.2. Setting the timer

- 8.2.1. Press the button , then use buttons  and  to set required stirring time until stopping, then again press the button .
- 8.2.2. If the timer is set when stirring is stopped, then press the button  to start stirring with timer. If the timer is set during stirring, then it will start to operate immediately.

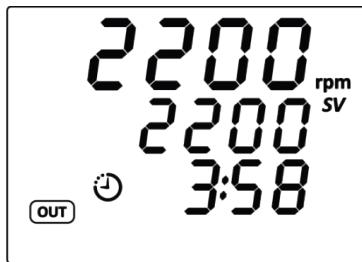


Figure 3 - Stirring with timer

During the timer operation, the display shows remaining duration of stirring in format HH:MM and timer operation indicator  (Figure 3).

- 8.2.3. To change time of the timer actuation during stirring process, it is necessary to press the button , then change time using buttons  and  and press the button  again. Changes will be implemented immediately.
- 8.2.4. Upon expiration of the timer's set time, stirring will stop and audible signal will be given. The display will show message, that set time of stirring has expired (Figure 4).

- 8.2.5. In order to turn the timer off, press the button  , use buttons  and  to set time at 0:00 and press the button  again. It is also possible to reset the timer's time by continuous pressing the button .

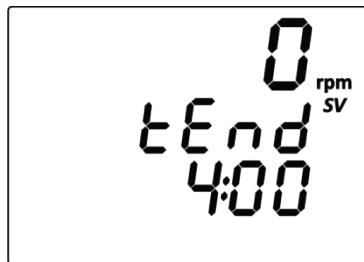


Figure 4 - Stopping by timer

- 8.2.6. If the timer was turned off during stirring process, then stirring will continue in continuous mode.

### 8.3. Memory for settings

- 8.3.1. The device's memory can store only one (last recorder) set of settings - stirring speed and time of the stopping timer actuation.
- 8.3.2. Current setting will be written into the memory when the button  is pressed continuously. At that, the display will show the indicator  (Figure 5).

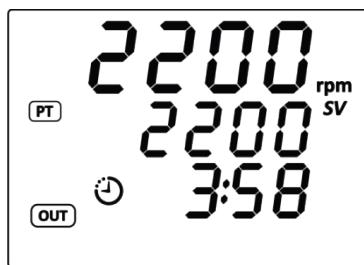


Figure 5 - Settings memorizing

- 8.3.3. Settings can be written into the memory during stirring and in stopped condition.

- 8.3.4. Stirring settings can be recalled only in stopped conditions. For that it is necessary to press the button  . At that, the display will show the indicator  (Figure 6). To start stirring, press the button .



Figure 6 - Recalling of settings from the memory

#### 8.4. Safety functions and faults indication

- 8.4.1. If during stirring, an audible signal sounds and the display shows the motor overloading indicator  (Figure 7), then stop stirring and find the cause of overload. Particularly check, whether volume of stirred fluid and its viscosity is within allowable limits for this stirrer.

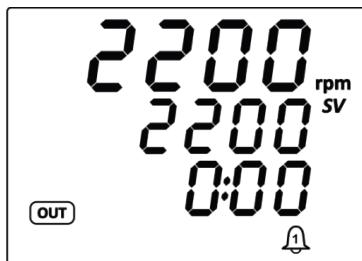


Figure 7 - Motor overload

- 8.4.2. If overload warning is ignored without remedying its cause, then after some time there will be emergency stop of the device with sounding audible alarm and showing the fault message on the display (Figure 8). To start stirring process again after remedying the cause of overload, turn on and off power supply using the power switch.

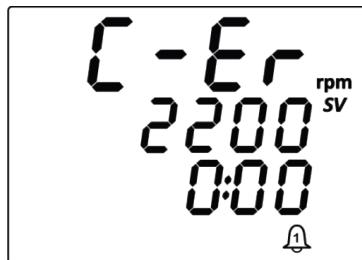


Figure 8 - Emergency stop because of overload

- 8.4.3. If during stirring, an audible signal sounds and the display shows the indicator (Figure 9), this is the warning about motor overheating. Overheat, for example, can be caused by lengthy continuous operation at high load. In such case it is necessary to turn the device off and let the motor cool off.

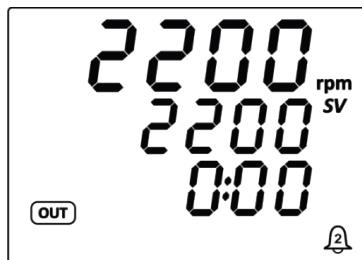


Figure 9 - Motor overheat

- 8.4.4. If overheat warning is ignored and operation is continued, then after some time there will be emergency stop of the device with sounding audible alarm and showing the fault message on the display (Figure 10). Turn the device using power switch, wait until the motor cools off naturally, then turn on power supply again.
- 8.4.5. If the display shows indicator of the rotational speed sensor fault and displays corresponding fault message (Figure 11), then stop operation of the stirrer and contact the manufacturer's service center.
- 8.4.6. If the display shows indicator of the motor temperature sensor fault and displays corresponding fault message (Figure 12),

then stop operation of the stirrer and contact the manufacturer's service center.

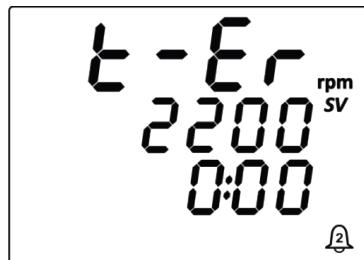


Figure 10 - Emergency stop because of overheat

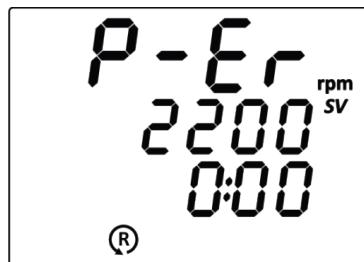


Figure 11 - Rotational speed sensor fault

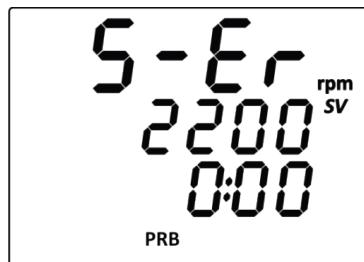


Figure 12 - Motor temperature sensor fault

- 8.4.7. If there is no supply voltage when the device is turned on, then make sure that mains fuse is operable. The mains fuse is installed in connector unit for connection of power cable on rear wall of the device (Figure 13). Disconnect the power cable from socket prior to fuse checking.



Figure 13 - Location of fuse

## ***9. Disposal***

- 9.1. After expiration of its service life, the device causes no hazard for human life or health or for the environment and requires no special methods of disposal.
- 9.2. The disposal procedure shall be determined by the organization operating the stirrer.

## ***10. Safety Requirements***

- 10.1. As regards the method of protection of a human against electric shock, the device corresponds to class I of GOST 12.2.007.0 standard.
- 10.2. When operating the device, the "Rules for Operation of Customers' Electrical Installations" and "Safety Rules for Operation of Customers' Electrical Installations" approved by the State Power Supply Inspectorate (Gosenergonadzor) shall be observed and the requirements of GOST 12.2.007.0 standard shall be met.
- 10.3. The persons allowed to operate the device shall have necessary qualification and be trained in the safety regulation as well as shall have studied the present operation manual.
- 10.4. Prior to connecting the device to the power mains, make sure that the power cord is free of mechanical damages.
- 10.5. The device shall be connected to the earthing loop by means of a two-pole socket and plug with earthing contact.
- 10.6. The electric resistance of the earthing loop shall not exceed  $4 \Omega$ .
- 10.7. It is strictly prohibited to work with the unearthened device.

## ***11. Storage and Transportation Rules***

- 11.1. The stirrer shall be stored indoors in the packing box at the air temperature of +5 to +40°C and relative air humidity of not more than 80%.
- 11.2. The unpacked device should be stored at ambient air temperature of +10 to +35°C and relative humidity of up to 80%.
- 11.3. The device may be transported by any transportation mode in roofed vehicles within the temperature range of -40 to +50°C and relative humidity of no more than 95%.

## ***12. Warranty***

- 12.1. Ecohim Co. Ltd. guarantees the compliance of the product with the requirements stipulated in item 4 hereof provided the consumer adheres to the operation, transportation and storage conditions.
- 12.2. Within the guaranteed service life, the free-of-charge repair or replacement of the device on the claim is provided in case the consumer has observed the storage, transportation and operation rules.
- 12.3. The warranty maintenance shall be only performed by the authorized service centers.

## ***13. Claims Information***

- 13.1. In case of revealing any faults within the guaranteed service life or incompleteness when unpacking the product, the consumer shall submit the claim report to the manufacturer's address:

Ecohim Co. Ltd.

22 17th Line, building I, Suite 406 Vasilyevsky Island, Saint Petersburg  
199178;

Tel./Fax: (812) 322-96-00, 449-31-22, 449-31-23;  
E-mail: [info@ecohim.ru](mailto:info@ecohim.ru), URL: [www.ecohim.ru](http://www.ecohim.ru)

- 13.2. No claims for the device may be submitted:

- on expiration of the warranty period;
- if the consumer has broken the operation, storage and transportation rules provided in the operating documentation.

**14. Certificate of Acceptance**

The overhead stirrer PE-8300 serial number **8K3P** \_\_\_\_\_  
has been manufactured and accepted in accordance with the statutory  
requirements of the state standards and current technical documenta-  
tion and recognized to be ready for service.

Date of manufacture \_\_\_\_\_

Stamp of the Technical  
Control Department

Inspector \_\_\_\_\_

## Appendix 1 - Additional equipment

### Propeller-type stirrer IM2 (200.01.1040)



- Material: stainless steel
- Diameter of stirrer shaft: 8 mm
- Stirrer length: 350 or 450 mm
- Dimensions of stirrer paddles: 25 mm

### Special stirrer for dissolving IM3 (200.01.1050)



- Material: stainless steel
- Diameter of stirrer shaft: 8 mm
- Stirrer length: 350 or 450 mm
- Dimensions of stirrer paddles: 30 mm

### Propeller-type stirrer IM4 (200.01.1060)



- Material: stainless steel
- Diameter of stirrer shaft: 8 mm
- Stirrer length: 450 mm
- Dimensions of stirrer paddles: 45 mm

### Propeller-type stirrer IM4 (200.01.1070)



- Material: stainless steel;
- Diameter of stirrer shaft: 8 mm;
- Stirrer length: 450 mm;
- Dimensions of stirrer paddles: 35 mm.

### Centrifugal stirrer IM6 (200.01.1080)



- Material: stainless steel
- Diameter of stirrer shaft: 8 mm
- Stirrer length: 450 mm
- Dimensions of stirrer paddles: 50 mm

Folding paddles. Diameter in folded condition: 15 mm.

### Paddle stirrer IM7 (200.01.1090)



- Material: stainless steel
- Diameter of stirrer shaft: 8 mm
- Stirrer length: 450 mm
- Dimensions of stirrer paddles: 45 mm

For vessels with round bottom.

### Fluoroplastic centrifugal stirrer IM8 (200.01.2000)



- Material: stainless steel and fluoroplastic
- Diameter of stirrer shaft: 8 mm
- Stirrer length: 450 mm
- Dimensions of stirrer paddles: 40 mm

Folding paddles. Diameter in folded condition: 19 mm.

**Fluoroplastic turbine stirrer IM9 (200.01.2090)**



- Material: stainless steel and fluoroplastic
  - Diameter of stirrer shaft: 8 mm
  - Stirrer length: 450 mm
  - Diameter of stirrer: 20 mm
- For extraction of oil products out of water.

**Leaf stirrer with holes in paddles IM14 (200.01.2070)**



- Material: stainless steel
  - Diameter of stirrer shaft: 6 mm
  - Stirrer length: 450 mm
  - Dimensions of stirrer paddles: 15 mm
- For chloride salts in oil acc. to GOST 21534-76.

**Fluoroplastic adapter TS-2 for joint 29/32 (200.01.2045)**



For paddle stirrer during stirring in separation funnel.

**Stand rod for stirring devices ES-2720 (200.01.1030)**



- Dimensions of base: 420x380 mm
- Material of base: steel, covered by powder paint
- Rod diameter: 22 mm
- Rod length: 800 mm
- Weight of stand rod: 3.5 kg

**Stand rod for stirring devices PE-2730 (1.75.10.0250)**



- Dimensions of base: 420x380 mm
  - Material of base: steel, covered by powder paint
  - Rod diameter: 22 mm
  - Rod length: 800 mm
  - Weight of stand rod: 5.2 kg
- 2 rod supports are included in set, maximum 10.

**Clamp for the stirrer fastening onto the stand rod (200.01.2040)**



For stand rods ES-2720, ПЭ-2730 for rod Ø16 mm and support Ø22 mm.

***Appendix 2 – Information on the Repairs Performed***

<b>Data of failure</b>	<b>Nature and causes of the failure</b>	<b>Note of the organization having performed the repair</b>	<b>Remarks</b>