

## **WiseStir<sup>®</sup> MSH-D**

# **Hotplate Magnetic Stirrer Operating Manual**

written for  
**MSH -20D / -30D**



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# 1 Introduction

Thank you for purchasing our **WiseStir® MSH-D Hotplate Magnetic Stirrer**. You did a good choice buying a **Wisd** product.

Before use, please read this manual and use it properly.

To cover the user's health and avoid the product's destruction you have to follow the safety instructions of the second chapter.

Please keep this operating manual in a save place for future reference and hand it out if you consign the device to a third person.

**We** reserve to modify the capsule or make amendments for the improvement of quality and efficiency without prior notice.

## 2 Safety Instructions

### 2.1 Description of Symbols



#### **WARNING**

Information for avoiding injuries or fatal accidents.



#### **ATTENTION**

Safety instruction to avoid a damage of the product.



#### **ATTENTION**

Information about technical parameters.



#### **Environment**

Information about the operating environment.



#### **WARNING of explosions**

Safety instruction to avoid explosions.



#### **ATTENTION to high temperatures**

Instructions to avoid injuries caused by high temperatures.



## 2.2 Instructions

For a safety and faultless using of the device it is indispensable that you read the following instructions purposely and follow them by the use.



- Connect the device only to the suitable power supply.
- Use the device only in electric circuits with ground fault circuit interrupter.
- Check the power supply cord before you stick it into the electrical outlet.
- Do not use power bars to extend the power supply cord.
- Only use extension cables with sufficient cable cross section.
- Do not touch the device with wet hands during the usage because this might cause an electrical shock.
- If unexpected sound, smell or smog is generated by the device, pull out the main plug and contact the manufacturer or your supplier immediately.
- Disconnect the power supply plug before cleaning or maintenance.
- If you use radiation or contaminated samples the responsibility is only up to you.



- The hotplate could be scorching during and after the usage.
- Do not put heat-sensitive items at the hot plate.
- Warn all attendees if you leave the device unattended.
- Only use adequate sized vessels and avoid an overboil of the liquids.
- Do not clean the scorching hotplate.



- Use this device only if you read the whole safety instructions.
- This device should only used by persons who are familiarized with safety instructions made for laboratories.
- Pay attention that no liquid reaches the controller or inward of the capsule.
- You have to keep the device clean if you want to get a longer life of it.
- Wear corresponding protective work clothing during the usage.
- Pull out the power cable if you didn't want to use the device for a longer time.



- Make sure that the device can not slip away.
- The device could get damaged if the vibrations are too strong.
- To avoid heat congestions or fires make sure that there is enough space for air circulations.
- Avoid direct solar radiation.
- Do not use the device near highly combustible materials.
- Do not set the device outdoors.
- It is superiorly to set the device in a good illuminated place to avoid accidents engendered by handling errors.
- To set the device in wet or dusty places could cause overheating, short circuits or fires.



- Reparations and amendments should only be made by authorized people.  
Contraventions exclude the warranty.



- Do not use this device in areas with a potentially explosive atmosphere.

## 3 Product description

### 3.1 Key features

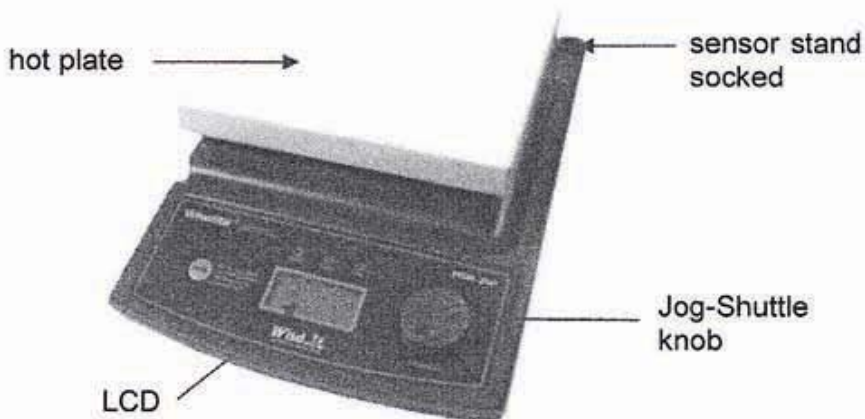
The **Wisd WiseStir® MSH-D Hotplate Magnetic Stirrer** is designed for chemical, biological, medical and pharmaceutical high temperature stirring-applications. The device was developed for simplest usage and a very long life.

Key features are as follows:

- Long life by simply and solid construction.
- Jog-Shuttle knob for easy and fast handling.
- Ceramic coated heating plate for high chemical resistance.
- Motor provided with overload and overheat protection.
- Power bar graph, speed, temperature and timer showed on illuminated LCD.
- Storage function for set time and speed values.
- Turn-off delay from one minute up to over 99 hours in one minute steps.
- Signal sound after end of turn-off delay.
- Smooth increase of speed.
- Key lock against inadvertent changing of set speed and timer values.
- Connection for external temperature sensor available to measure the liquid's temperature directly.
- Integrated socket for sensor stand.
- Easy to justify.

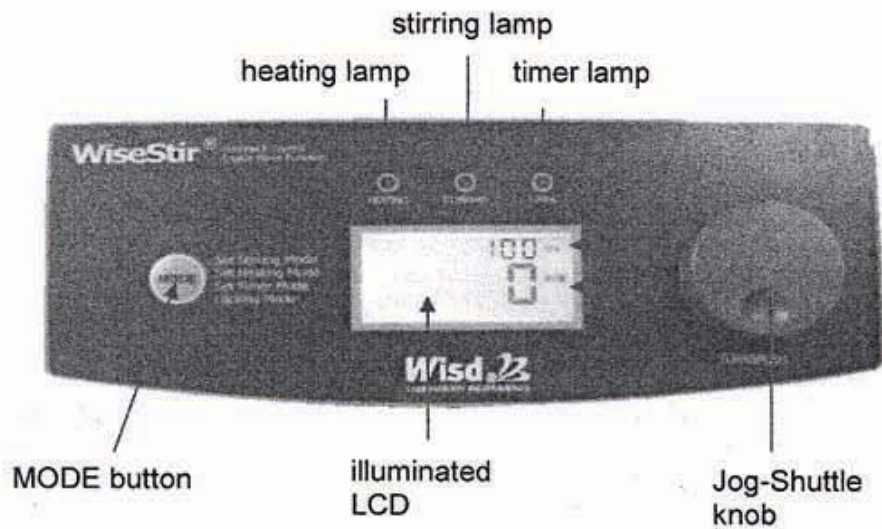
### 3.2 General survey

(MSH-20D is pictured, differences to the MSH-30D are possibly but not serious)

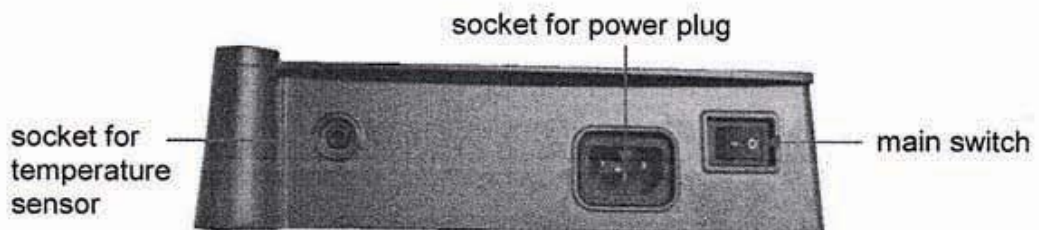




### 3.3 Display



### 3.4 Reverse side



### 3.5 Term description

**SV:** set value (upper line in LCD)

**PV:** present value, measured by the device (lower line in LCD)

**LCD:** liquid crystal display

#### **MODE button**

- For keyboard shortcut and change between the menu items.

#### **Jog-Shuttle knob**

- Change SVs by turning.
- Push the knob for start and stop or probate and save set values.
- Also used for keyboard shortcut.

#### **Main switch**

- On / off switch.

#### **Timer lamp**

- Is blinking in menu items for timer modulation.

### Stirring lamp

- Is blinking in menu items for speed modulation.

### Heating lamp

- Shines if the heater is activated.

### Keyboard shortcut

- For reaching the sub menu items.

## 4 Packing contents

### 4.1 Standard scope of delivery

quantity	DH.WMH03021	DH.WMH03020
	WiseStir® MSH-20D Hotplate Magnetic Stirrer	
1	power supply curt	
1	operating manual	
1	display scratch cover	
1	CL220 clamp + sensor holder	
1	SS200 PT100 temperature Sensor	
1	RD200 stand rod, Ø 12 mm, length 450 mm	

quantity	DH.WMH03023	DH.WMH03022
	WiseStir® MSH-30D Hotplate Magnetic Stirrer	
1	power supply curt	
1	operating manual	
1	CL220 clamp + sensor holder	
1	SS100 PT100 temperature Sensor	
1	RD100 stand rod, Ø 10 mm, length 450 mm	

### 4.2 Additional accessories

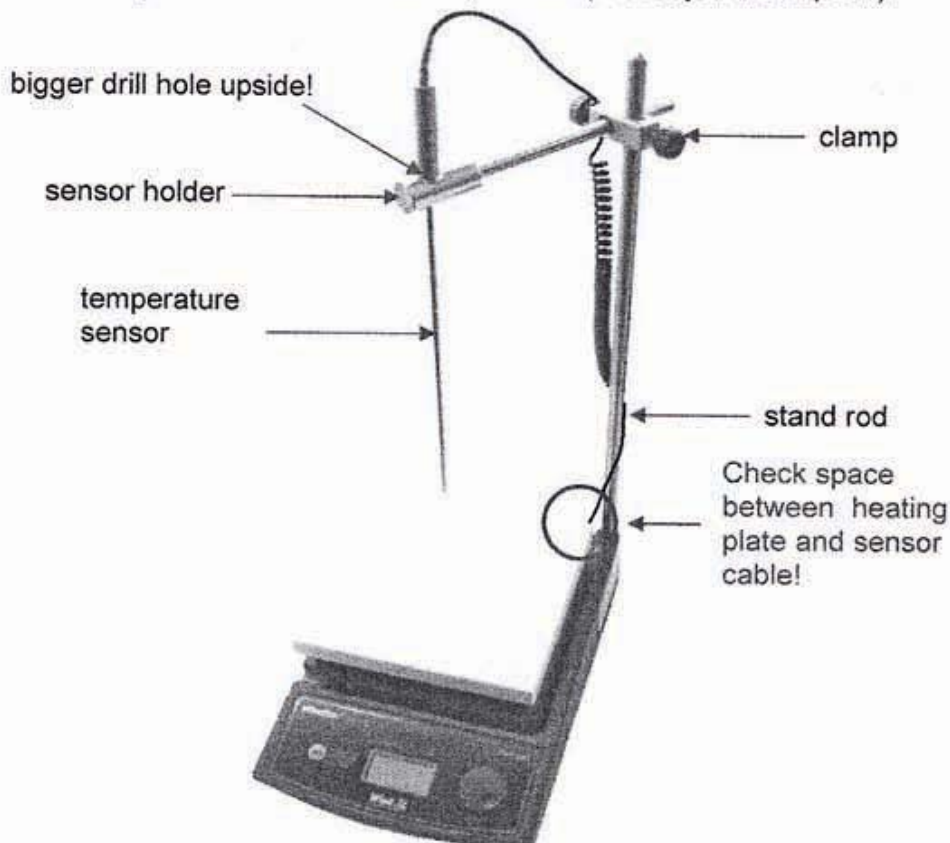
order number	denomination
DH.WHP503020	temperature sensor PT100 for MSH-30D
DH.WHP503021	teflon-coated temperature sensor PT100 for MSH-30D
DH.WHP503030	temperature sensor PT100 for MSH-20D
DH.WHP503031	teflon-coated temperature sensor PT100 for MSH-20D
DH.WHP503011	stainless steel stand rod, Ø 10mm, length 450 mm for MSH-30D
DH.WHP503036	stainless steel stand rod, Ø 10mm, length 450 mm for MSH-20D
DH.WHP503012	holder for temperature sensor + clamp



## 5 Positioning the device and commissioning



13. Follow especially the safety instructions marked with following symbol:
14. Remove the package carefully.
15. If there are any unexpected transport damages, please inform your forwarder and your customer service.
16. If you want to use the device without additional accessories jump to point 10 (next page), otherwise follow the next points.
17. Attach the stand rod to the socket.
18. Fix the clamp at the stand rod.
19. Attach the sensor holder to the clamp. Have a look at the next picture if you are unsure. Ensure that the bigger drill hole is upside.
20. Stick the sensor into the holder and connect the cable with the device's sensor socket backwards.
21. Check that each connection fits close.
22. Before you connect the device with the electrical outlet, please let some time laps until the device is acclimatised.
23. Make sure that you follow all safety instructions.
24. Connect the device with the power outlet.
25. Switch the device on.
26. Set your values and start the process (look at job description).





### 6.3 Set temperature

- When you push the MODE button in the menu item "set speed" you reach the menu item "set temperature". You can recognize this menu at "°C" behind the SV and PV.
- The temperature is adjustable from 25 °C till 380 °C in 0,5 °C-steps.
- Push the MODE button once again if you want to work without the heating function. Then you reach the next menu (see point 7.5) without collimated temperature value.
- Choose your desired temperature by turning the Jog-Shuttle and confirm the set value by pushing the Jog-Shuttle.
- For changing the confirmed value again, you first have to push the Jog-Shuttle knob again. "HEATING" starts to blink at the LCD and the temperature is adjustable again.
- When the heating lamp is shining, the heater is activated.

### 6.4 Justification

If the temperature measured by you differs from the temperature the device is showing (PV) you have the possibility to compensate the divergence by the offset. So you can balance differences of about  $\pm 10$  °C.

calculate the offset as follows:

$$\begin{aligned} & \text{Temperature measured by you} \\ & - \text{showed Temperature (PV)} \\ & = \text{Offset} \end{aligned}$$

- To reach this menu you have use the keyboard shortcut in the menu item "set temperature".
- Set the calculated value by turning the Jog-Shuttle. The Offset will be added to the PV immediately.
- Save the offset by holding the Jog-Shuttle pushed until the values in PV and SV line starts blinking.
- Push the MODE button to leave the justify menu.



## 6.5 Set delay time

- The delay timer serves as automatically stop function. It turns off the stirring and heating process after elapsing of the timeframe you set.
- To reach the timer menu you have to push the MODE button in the menu item "set temperature". You can recognize this menu by the blinking timer lamp.
- By renewed using of the MODE button you reach the key lock without setting delay time.
- The delay time is adjustable from one minute till over 99 hours (00:01 - 99:59) in one minute steps.
- Turn the Jog-Shuttle knob to set your delay time. Push the Jog-Shuttle if you reached the desired value to confirm it. With the confirmation the timeframe is elapsing.
- If you want to change the value after confirmation, you have to push the Jog-Shuttle once again. The PV initiates blinking and you can modify the value again.
- To confirm the value and start the delay time push the Jog-Shuttle yet again.

## 6.6 Key lock

- To avoid accidental changing of the set values, push the MODE button in the menu item "set delay time".
- In this menu item can you see the actually temperature in the SV-line and the speed in the PV-line. The function of the Jog-Shuttle knob is deactivated.
- Press the MODE button once more to leaf the key lock. Than you are in the menu item "set speed".

## 6.7 Storage function

The **WiseStir® MSH-D Hotplate Stirrer** includes a storage function for speed and delay values. That is practical if you want to work with the same parameters often. Then you need not to set them in every usage.

- For storing values you only need to hold the Jog-Shuttle knob pushed for two seconds. Successful storing is displayed by blinking of the SV for three times.
- If you saved a speed value, "STIRRING" is blinking and if you saved a temperature value "HEATING" is blinking after the device's restart.
- If you saved the delay time it is not showed at the LCD.
- Every stored parameter is erasable. Turn the value with the Jug-Shuttle till "0" and then hold the knob pressed for two seconds.
- If you want to store a new value it is not necessary to erase the old one.

## 7 Maintenance and cleaning

- Please read the whole safety instructions before you start to maintain or clean the device and pull the power plug out of the electrical outlet.
- Only use care cleaning agents and soft cleaning rags.
- Organic lotions, strong chemicals and rough cleaning rags can damage the device.
- If you not want to use the device for a long time, pull of the power plug and keep it dry in the package.
- Only use original spare parts.

## 8 Technical data

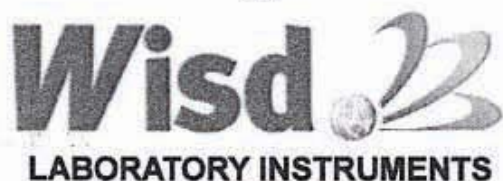
		MSH-20D	MSH-30D
<b>Plate Size (mm)</b>		180 X 180	260 X 260
<b>Stirring Capacity (H<sub>2</sub>O)</b>		Max 20Lit.	
<b>Motor Rating (W)</b>		4	9
<b>Speed Range (rpm)</b>		80 ~ 1,500	
<b>Speed Control Resolution (rpm)</b>		5	
<b>Temp.</b>	<b>Range (°C)</b>	Max. 380	
	<b>Accuracy</b>	±0.3°C at Set Temperature	
<b>Temp. Display Resolution (°C)</b>		0.1	
<b>Temp. Control Resolution (°C)</b>		0.5	
<b>Heating Power (W)</b>		600	1200
<b>Heating Plate</b>		Specially Designed Heating Module (High Uniformity : Temp. Difference less than 3%)	
<b>Controller</b>		Digital Feedback Controller with Jog Shuttle Switch (Turn + Push)	
<b>Display</b>		Digital LCD Display (Temp., Timer, RPM and Power bar-graph)	
<b>Timer</b>		99hr 59min, (Continuous function included)	
<b>Material</b>	<b>Plate</b>	Ceramic Coated Aluminum (Chemical / Acid Resistance)	
	<b>Body</b>	Powder Coated Aluminum	
<b>Dimension (w x d x h mm)</b>		206 X 307 X 99	286 X 387 X 99
<b>Weight (kg)</b>		3.3	3.5
<b>Others</b>		Storage Function (Temp., RPM, Timer), Locking Mode (Jog-Shuttle Input disabled) User Self-compensation function Alarm ( Error Status and Timer-end )	
<b>Power Supply</b>		AC 220 / 230 V, 50 / 60 Hz	



## 9 Certificate

# Certificate

for



**The quality and all features were checked by the manufacturer before the shipment.**

We grant from date of purchase

**two years guaranty.**

This certificate excludes damages by natural disasters or incorrect usages by the costumer.

Please look on your account and complete following table:

<b>Article</b>	<b>WiseStir<sup>®</sup> MSH-D Hotplate Magnetic Stirrer</b>
<b>Typ</b>	
<b>Serialno.</b>	
<b>Date</b>	

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