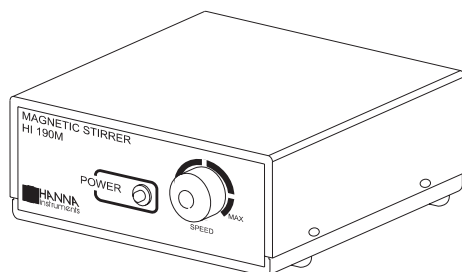


## Instruction Manual

# HI 190 - HI 200 Magnetic Stirrers



Dear Customer,  
Thank you for choosing a Hanna product.  
Please read carefully this instruction manual before using the device. If you need additional technical information, do not hesitate to e-mail us at [tech@hannainst.com](mailto:tech@hannainst.com).  
These instruments are in compliance with **CE** directives.

## PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify your Dealer or the nearest Hanna Customer Service Center.

**Note:** Conserve all packing material until the instrument has been observed to function correctly. Any defective item must be returned to the Dealer in its original packing.

## GENERAL DESCRIPTION

**HI 190M, HI 190MB and HI 200M** are compact and lightweight magnetic stirrers. They incorporate an electronic control that allows the user to regulate the speed with great precision. In addition to speed control, a limiter will assure that the maximum speed (1000 rpm) will never be exceeded. **HI 190M** and **HI 190MB** have a plastic cover that will resist the harmful effects of chemicals that are accidentally spilled. **HI 200M** is provided with an AISI 316 stainless steel cover. This model is ideal for applications that involve exothermic reactions.

Each stirrer is supplied complete with a magnetic stir bar (L 25 x dia 7 mm).

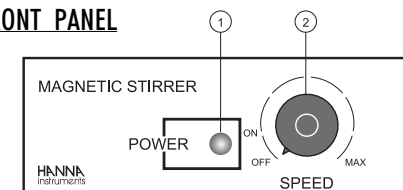
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## SPECIFICATIONS

|                       |   |
|-----------------------|---|
| Max Stirring Capacity | 1 liter (0.26 gallons)                                |
| Speed Range           | 100 rpm (min) / 1000 rpm (max)                        |
| Power Supply          |   |
| HI 190M-1             | 110/115 Vac, 50/60 Hz                                 |
| HI 190M-2             | 220/240 Vac, 50/60 Hz                                 |
| HI 190MB              | 12 Vdc  |
| HI 200M-1             | 110/115 Vac, 50/60 Hz                                 |
| HI 200M-2             | 220/240 Vac, 50/60 Hz                                 |
| Installation Category | II  |
| Cover Material        |   |
| HI 190M               | ABS plastic   |
| HI 190MB              | ABS plastic   |
| HI 200M               | AISI 316 stainless steel                              |
| Environment           | 0 to 50°C (32 to 122°F);<br>RH max 95% non-condensing |
| Dimensions            | 120 x 120 x 45 mm<br>(4.8 x 4.8 x 1.8")               |
| Weight                |   |
| HI 190M               | 640 g (1.4 lb.)                                       |
| HI 190MB              | 610 g (1.3 lb.)                                       |
| HI 200M               | 710 g (1.6 lb.)                                       |

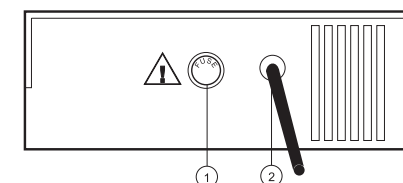
## FUNCTIONAL DESCRIPTION

### FRONT PANEL



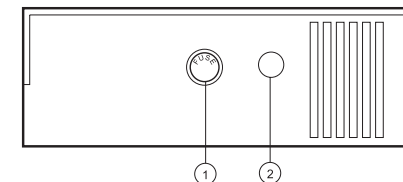
- 1) Power indicator (LED lights up when the stirrer is powered)
- 2) ON/OFF/Speed knob, to turn the stirrer ON and OFF, and set the stirring speed (continuously variable up to the maximum)

### REAR PANEL OF HI 190M AND HI 200M



- 1) Fuse holder for 400 mA/250 V fuse
- 2) AC power cord

### REAR PANEL OF HI 190MB

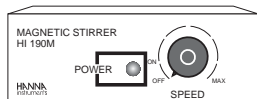


- 1) Fuse holder for 400 mA/250 V fuse
- 2) DC power socket for 12 Vdc adapter

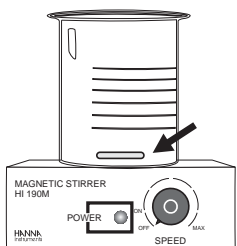
 Always unplug the stirrers before replacing the fuse.

## OPERATIONAL GUIDE

- Make sure that the SPEED knob is in the OFF position.



- Place a beaker or glass container on the top of the stirrer and place the stirring bar at the center of the beaker base.

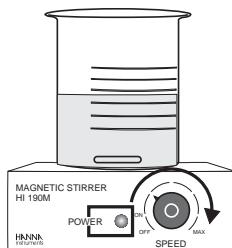


- Pour the liquids to be mixed into the beaker. Do not fill to the brim and leave sufficient space to prevent spillage during stirring.

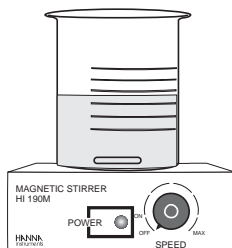


- Connect the power cord to the mains.
- Adjust the SPEED knob slowly until the required stirring speed is achieved.

- Allow sufficient time for the mixing operation to attain uniform rotational flow.



- After stirring is completed, turn the SPEED knob to OFF position.
- If no further stirring is required, disconnect the power supply.



## ACCESSORIES

- |           |  |
|-----------|--|
| HI 710005 | 115 Vac to 12 Vdc power adapter, US plug       |
| HI 710006 | 230 Vac to 12 Vdc power adapter, European plug |
| HI 731319 | Micro stir bar (10 pcs)                        |

## CE DECLARATION OF CONFORMITY

**HANNA**  
instruments

**CE**

**DECLARATION OF CONFORMITY**

We  
Hanna Instruments Italia Srl  
via E.Fermi, 10  
35030 Sarmeola di Rubano - PD  
ITALY

herewith certify that the magnetic stirrers

**HI 190M HI 190MB HI 200M**

have been tested and found to be in compliance with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC according to the following applicable normative:

**EN 50082-1:** Electromagnetic Compatibility - Generic Immunity Standard  
**IEC 801-2** Electrostatic Discharge  
**IEC 801-3** RF Radiated  
**IEC 801-4** Fast Transient

**EN 50081-1:** Electromagnetic Compatibility - Generic Emission Standard  
**EN 55022** Radiated, Class B

**EN 61010-1:** Safety requirements for electrical equipment for measurement, control and laboratory use

Date of Issue: 12-11-1998

*P. Cesa*  
P. Cesa - Technical Director  
On behalf of  
Hanna Instruments S.r.l.

## WARRANTY

All Hanna Instruments products are warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. This warranty is limited to repair or replacement free of charge.

Damages due to accident, misuse, tampering or lack of prescribed maintenance are not covered.

If service is required, contact the dealer from whom you purchased the instrument. If under warranty, report the model number, date of purchase, serial number and the nature of the failure. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the instrument is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization Number from the Customer Service department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

*All rights are reserved. Reproduction in whole or in part is prohibited without the written consent of the copyright owner.*

Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice.

### Recommendations for Users

Before using these products, make sure that they are entirely suitable for the environment in which they are used.

Operation of these instruments in residential area could cause unacceptable interferences to radio and TV equipments, requiring the operator to take all necessary steps to correct interferences. Any variation introduced by the user to the supplied equipment may degrade the instruments' EMC performance.

Unplug the stirrers from the power supply before replacing the fuse.

To avoid damages or burns, do not place these stirrers in microwave ovens.

IST190R4 06/05