

**HAMILTON**

# MagHeat

Magnetic Heater Stirrer



# Hamilton MagHeat

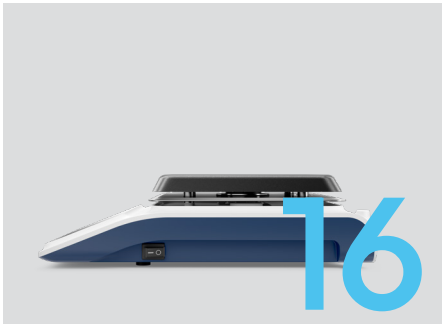
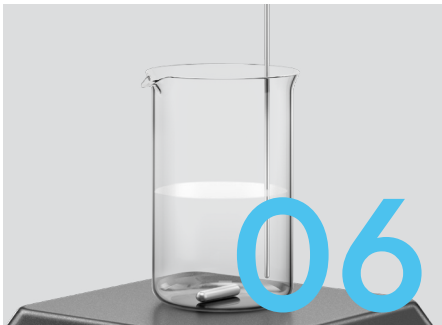
## Your Laboratory's Breakthrough in Sample Preparation Technology

Precision and efficiency are vital in laboratory environments where sample preparation is a critical step. Introducing the Hamilton MagHeat: your go-to solution for bench-top heating and stirring. This innovative magnetic heater stirrer transforms the way scientists work by combining reliable temperature control with consistent mixing—perfect for applications in molecular biology, clinical diagnostics, and beyond.

At Hamilton, we understand that every detail matters. The MagHeat was designed with your research challenges in mind, delivering professional-grade performance and versatile functionality.

Let us help you enhance your workflow, meet stringent specifications, and achieve your goals with confidence.

# Content



Innovative Design for Maximum Performance	04
Essential Tools for Enhanced Functionality	06
Versatile Solution for Your Lab	08
Specifications	09
Intuitive User Interface Simplifying Operation	10
Smart Technology, Reliable Performance	12
Seamless Integration, Advanced Safety	14

# Innovative Design for Maximum Performance

The Hamilton MagHeat seamlessly integrates cutting-edge design with practical functionality, ensuring both precision and ease of use. With a compact, modern design, MagHeat provides your lab with premier heating and stirring capabilities.

## Innovative Design for Longevity

The JET BLACK-coated aluminum hot plate ensures resistance to corrosive liquids and scratches, extending the longevity of your equipment.

## Exceptional Durability

The aluminum housing, coated with UV- and corrosion-resistant paint, protects the mechanical and electronic components from aggressive environments.

## Effortless Maintenance

The sleek, clean surface of the tempered glass front panel is easy to wipe clean, with an anti-fingerprint and anti-smudge, chemical-resistant coating that promotes a hassle-free operation.

## Integrated Safety Features

Integrated proximity warning sensors provide an advanced safety mechanism to prevent accidents.

## Advanced Control at Your Fingertips

Combining capacitive buttons with a 4.3-inch LCD color display creates a seamless and efficient control experience. The intuitive interface enhances the user experience, ensuring precision at every touch.



# Essential Tools for Enhanced Functionality

From stir bars to temperature probes, every accessory has been engineered to complement your research needs.



**Temperature Probe**  
The PT1000 temperature probe is calibrated for optimal compatibility with the MagHeat, ensuring precise temperature control in a variety of experimental setups. Its robust design guarantees accurate readings even in challenging chemical environments.



**Temperature Probe Stand**  
For stable and uninterrupted workflows, the PT1000 probe stand provides a secure setup for consistent temperature monitoring. Its sturdy construction is designed to minimize disruptions, keeping your experiments running smoothly.



**Stir Bars**  
The magnetic stir bars are coated with PTFE (Teflon) for chemical resistance and durability. They are optimized for the MagHeat's stirring mechanism to ensure reliable and efficient mixing. Available in a range of shapes and sizes, these stir bars are suited for various sample volumes and viscosities.

Description	Part Number	Power Cord Included
MagHeat with EU power cord	10191909*	Yes
MagHeat with UK power cord	10191910*	Yes
MagHeat with CH power cord	10191911*	Yes
MagHeat with CN power cord	10191912*	Yes

Table 1. Order Information for MagHeat unit.





Description	Part Number	Diagram of Plug
Continental Europe, Russia, Schuko	355234	
Switzerland	355235	
UK, Ireland, Malaysia, Middle East	355237	
Australia, New Zealand, Argentina, China	355238	

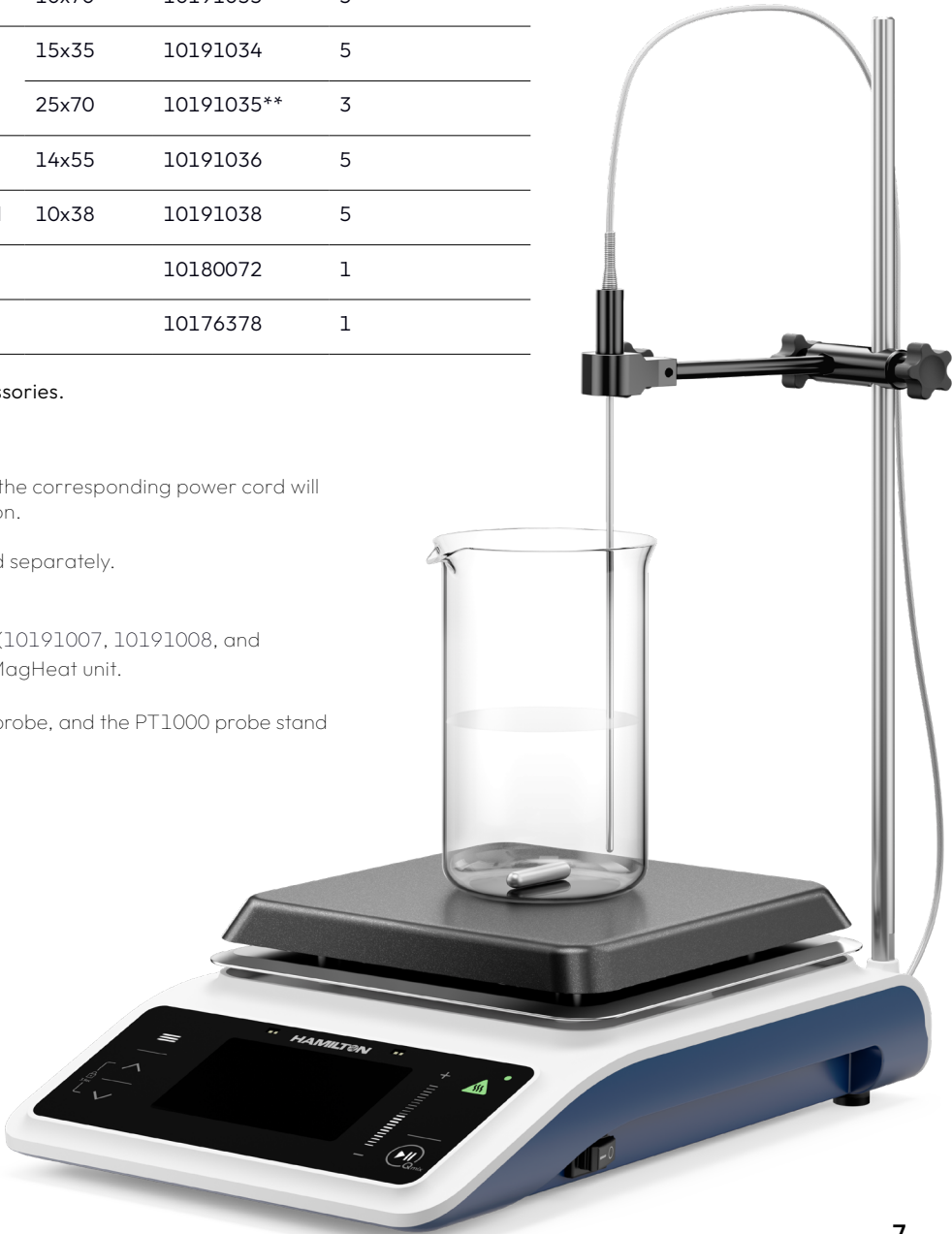
Table 2. Order Information for MagHeat power cables.

Description	Type	Size (mm)	Part Number	Quantity per pack
Magnetic Stir Bars	Cylindrical	8x30	10191007**	5
		8x40	10191008**	5
	Tapered	8x30	10191029	5
	Octa-pivot	8x40	10191030	5
		8x45	10191032	5
		10x70	10191033	5
	Elliptical	15x35	10191034	5
		25x70	10191035**	3
	Triangular	14x55	10191036	5
	Cross-Shaped	10x38	10191038	5
PT1000 temperature probe			10180072	1
PT1000 probe stand			10176378	1

Table 3. Order Information for MagHeat accessories.

Note: \* Upon the purchase of a MagHeat unit, the corresponding power cord will be provided based on the country of destination.  
Any additional power cords must be purchased separately.


Note: \*\* One of each of the following stir bars (10191007, 10191008, and 10191035) is included with the purchase of a MagHeat unit.  
Any additional stir bars, PT1000 temperature probe, and the PT1000 probe stand must be purchased separately.






# Versatile Solution for Advanced Research

Hamilton MagHeat is engineered for precision, reliability, and flexibility, making it an indispensable tool across various laboratory applications, including pharmaceutical research, molecular biology, chemical synthesis, biochemistry, clinical diagnostics, and material sciences.




**Pharmaceutical Research & Drug Development**

Hamilton MagHeat ensures precise temperature control and uniform stirring, critical for pharmaceutical formulation and drug development. It provides homogenous mixing of active pharmaceutical ingredients (APIs) and excipients, ensuring consistent composition and reproducibility. Whether it's solubility studies, controlled drug release testing, or compound synthesis, MagHeat enables highly controlled reaction conditions.



**Molecular Biology & Sample Preparation**

From preparing reagents to maintaining optimal enzyme activity, MagHeat supports essential molecular biology workflows. It ensures homogeneity in buffers, media, and reaction mixes, crucial for successful PCR, DNA/RNA extractions, and protein crystallization. The real-time viscosity monitoring feature helps prevent sample degradation, maintaining the integrity of delicate biological samples.

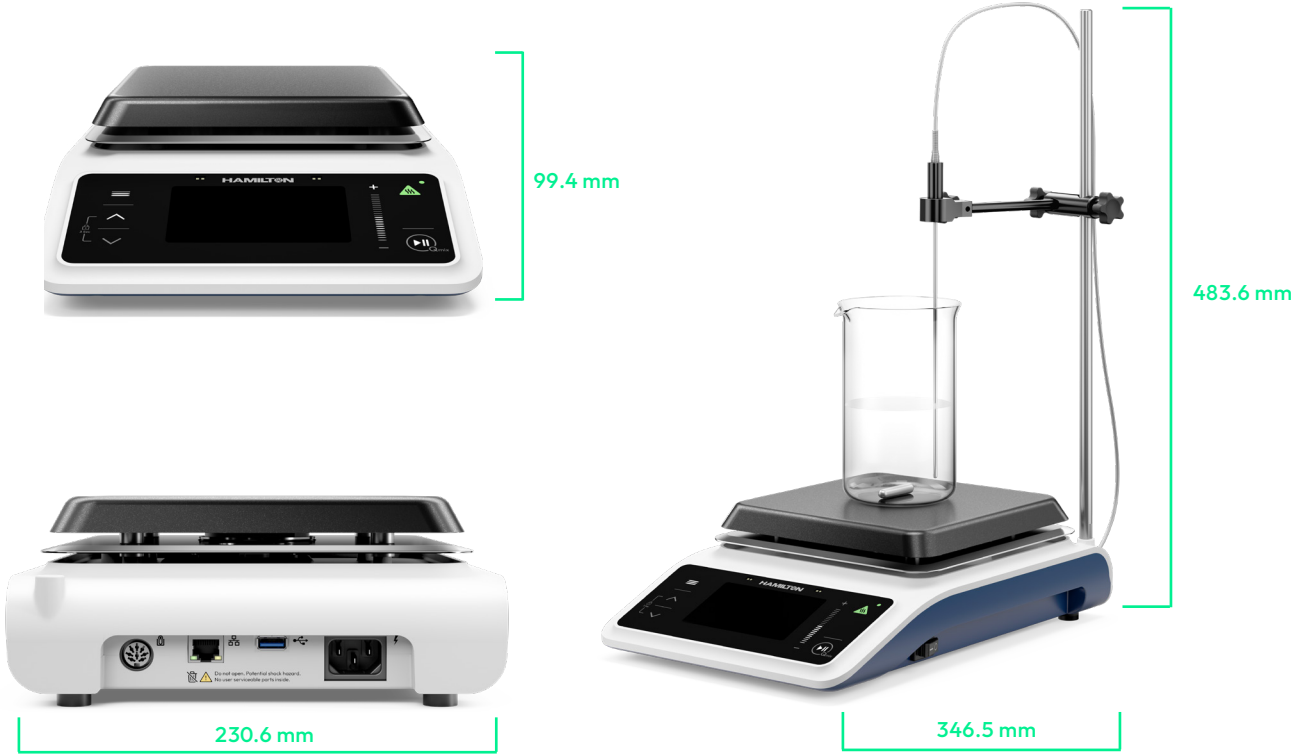


**Chemical Synthesis & Analytical Chemistry**

MagHeat is designed to handle demanding chemical synthesis applications that require precise control over reaction kinetics. Whether conducting titrations, catalyzed reactions, or solubility studies, the precise heating and stable stirring capabilities ensure consistency in laboratory procedures. The adaptive stirring technology prevents stir bar decoupling even in high-viscosity solutions, providing accurate and reproducible experimental conditions.

# Specifications

General Specifications	
Max. stirring quantity (H <sub>2</sub> O)	20 L
Maximum load	25 kg
Speed	100-1600 rpm
Speed accuracy	10 rpm
Speed Variation	± 2% (no load, nominal voltage, at 100 rpm, ambient temperature ± 25°C)
Stirring bar length	30-80 mm
Heating	Aluminum plate
Set-up plate dimensions	180x180 mm
Temperature	Max. 310°C @ 230V, 50 Hz
Adjustable safety circuit	Min. 100°C - Max. 380°C
Temperature unit	°C / °F
Time setting	Min. 1 s - 99 h
Communication	Ethernet, USB, DIN 918 with 8 pins
Viscosity trend measurement	Yes
Heating rate (1 liter H <sub>2</sub> O in H1500)	Slow (1.5°C/ min) and Fast (2.5°C/ min)
Parameters control and overview	Capacitive buttons and 4.3' display
Overvoltage category	II
Pollution degree	2
Dimensions (L x W x H)	346,5 x 230,6 x 99,4 mm
Weight	3,9 kg
Protection category	IP 42
Nominal Voltage/ Frequency	230V/ 50 Hz
Operation at a terrestrial altitude	Max. 2000 m



# Intuitive User Interface Simplifying Operation

The MagHeat user interface is built to provide an intuitive and seamless operation, allowing for **precise control over temperature, stirring speed, and heating time** with minimal effort. A clear digital display presents all key parameters at a glance, making it easy to monitor system performance and make real-time adjustments when needed.

With a user-friendly temperature and RPM control system, users can quickly set and adjust values while monitoring real-time conditions. The interface ensures accurate temperature regulation, displaying both the **current probe temperature** and the **target set temperature**, giving users full control over their process.

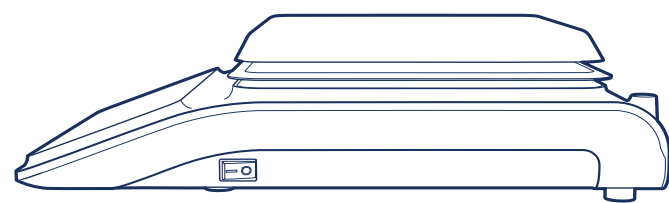
The MagHeat system incorporates dynamic heating profiles to meet diverse laboratory needs. Users can select between fast heating ramps (2.5°C per minute), ideal for time-sensitive applications, or controlled gradual heating (1.5°C per minute), which provides enhanced precision.

**Smart Sliders for Quick Adjustments**  
The interface features **interactive sliders** that allow for smooth and precise modifications. Whether adjusting heating temperature, stirring speed, or operation time, the system responds instantly, reducing setup time and ensuring consistent performance across different applications.

Users benefit from **live parameter tracking**, ensuring immediate feedback on system status. The countdown timer display allows for precise stirring and heating durations, while clear status indicators highlight active functions such as stirring, heating, and sensor activity.

The system also provides 100% visibility into critical data such as circuit temperature and trend values, enhancing overall accuracy and efficiency.

# Safer Than Conventional Hotplates



Whether you're a beginner or a seasoned professional, the intuitive design ensures a

seamless user experience. From adjusting parameters with ease to receiving clear real-time feedback, every feature is crafted for ultimate simplicity, efficiency and safety.

**Save Up to 10 Custom Programs for Effortless Setup**  
Easily recall and execute frequently used heating and stirring profiles with a single touch, reducing setup time and ensuring consistency in every experiment.

**Instant Temperature Feedback: RGB Safety Indicator Lights for Real-Time Status**  
The color-coded system helps prevent accidental contact with hot surfaces, enhancing laboratory safety and awareness.

**Precise Control with Slider Buttons: Adjust Temperature and Speed with Fine Increments**  
Achieve precise temperature and speed adjustments with smooth slider buttons.

**Lock Your Settings: Prevent Accidental Changes During Operation**  
Prevent accidental changes with the lock function, securing your selected parameters during operation. This ensures consistency, especially in long-running experiments requiring stable conditions.

**3 Key Functions in One Button: Pause, Play, Qmix**  
Easily manage processes without complex navigation, allowing for smooth transitions between experimental steps.



# Smart Technology, Reliable Performance

## Stir and Heat Simultaneously

The MagHeat allows both stirring and heating to occur **simultaneously**, providing enhanced productivity by reducing the need for separate devices for heating and stirring.

- Max stirring quantity (H<sub>2</sub>O): 20 L
- Maximum load: 25 kg
- Stirring speed range: 100-1600 rpm
- Temperature: Max. 310 °C
- Adjustable safety circuit: Min. 100°C - Max. 380°C

## Constant Speed Maintenance

Thanks to the brushless DC (BLDC) motor and an industrial-grade magnet, the MagHeat maintains **constant stirring speed regardless of viscosity**. The system automatically adapts to any changes in viscosity, ensuring a consistent, smooth operation without speed fluctuations for substances with 80-100 cps viscosity.

## Stability & Uniform Heating

The MagHeat is equipped with an aluminum heating plate that distributes heat evenly across the surface, ensuring uniform heating for optimal performance. The device features a temperature range starting from 25°C to 310°C, making it suitable for a variety of experimental conditions, from gentle heating to applications requiring high-temperature.

## Liquid Viscosity Trend Measurement

The MagHeat calculates viscosity variations and presents them in percentage form. This continuous measurement helps users make precise adjustments during experiments, optimizing mixing performance.

## Adaptive Acceleration Ramps

The MagHeat adjusts its stirring acceleration based on viscosity, ensuring that the stir bar never decouples from the magnet. The system intelligently adapts to changes, avoiding sudden jolts and maintaining smooth, efficient mixing.

## Stir Bar Out-of-Place Detection

The MagHeat includes stir bar out-of-place detection, which automatically detects when the stir bar is misaligned with the magnet during active stirring, alerts the user, and shuts down the process to prevent damage and ensure consistent results.

## SmartMix Guardian

SmartMix Guardian is designed for liquids with rapidly changing viscosity, ensuring smooth and precise stirring. It detects viscosity shifts and prevents the stir bar from jumping out of place. Instead of relying on fixed rotations, the Auto mode dynamically adjusts speed in real time, allowing the stir bar to settle before gradually increasing back to the optimal level.



# Seamless Integration, Advanced Safety

The MagHeat heater stirrer is designed with user safety in mind, integrating visual and audio alerts to enhance awareness and prevent accidental contact with hot surfaces, while also featuring advanced connectivity to ensure compatibility with future digital solutions.

**Advanced Connectivity for Modern Labs**

A USB Type-A port allows for firmware and software updates via flash drive, keeping the device up to date with the latest enhancements. Additionally, the shielded Ethernet port ensures secure network communication, making the stirrer hardware-ready for future integrations.

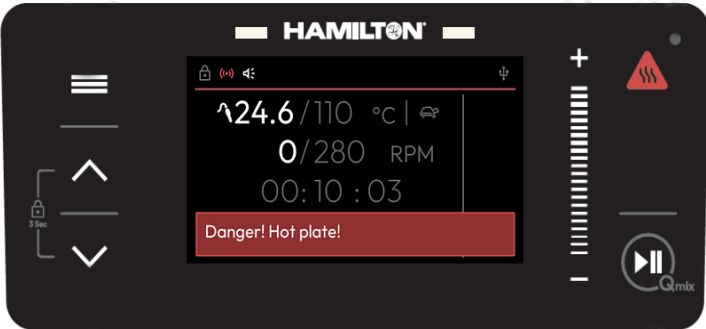
**Designed for Longevity**

The new design effectively prevents the risk of liquids entering the stirrer, ensuring a longer product lifespan. Every element of the housing has been meticulously designed, from easy-carry handles to liquid protection, guaranteeing both functionality and safety.



**Proactive Safety**

To further prevent accidental burns, proximity sensors detect when a user approaches within 20 cm (8 inches) of the unit. This triggers an audible alert and an on-screen error message, drawing attention to the potential danger and encouraging safe handling practices.



When the user switches off the MagHeat, the entire screen will display a warning notification to ensure continued awareness.



**Safety Even During Power Outages**

Even in the event of a power outage or disconnection, a flashing red LED remains active for up to 40 minutes or until the plate is cooled off, signaling that the surface is still hot.

These features provide an additional layer of safety, ensuring user awareness and protection during operation, when the device is idle, and even when it is not powered-on.

**Intuitive temperature indication**

The built-in RGB light on the front panel provides a clear, at-a-glance safety status, helping users navigate temperature changes with ease.

Dynamic color-coded system ensures users always have a clear visual cue, reducing accidental contact with hot surfaces.

The RGB safety indicator dynamically adjusts its color based on the temperature of the heated plate:



## Cool Blue

Safe to touch; the plate is at a non-hazardous temperature.

## Warm Yellow

Caution advised; the plate is heating up.

## Hot Red

High-temperature warning; contact should be avoided to prevent burns.





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