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Speedsafe™ from Hanna

There are two types of magnetic stirrers; mechanical and electronic. Most manufacturers of magnetic stirrers use the mechanical approach, using steel and aluminum for the structural material and outdated methods of speed control. These units are not only very heavy, but also very inaccurate. The use of these materials and methods appear to make the units rugged and strong, but they are instead cumbersome and obsolete.

Something as simple as completely dissolving salts in a medium is, in reality, a science. Often this cannot be achieved with simple mechanical processes. The only choice that the user has with mechanical products is to increase the stirring time or the temperature. With electronics, you can do more... the Hanna approach is electronic.

Speed sensor and limiter: Each Hanna stirrer is equipped with a speed sensing device (opto-sensor) coupled with an FVC (frequency voltage converter), which monitors the speed. As the speed reaches a preset maximum level, the speed limiter shuts down the VCO (voltage-controlled oscillator) to slow down the motor speed. This ensures that when the load is suddenly removed from the stirrer, the motor will not accelerate to such a high speed that will be hazardous to both the user and the stirrer; a feature not commonly found in conventional stirrers.

Sophisticated Engineering

Parts are engineered and manufactured to strict specifications to ensure absolute reliability. All components are mounted into a molded casing covered with either ABS plastic or a stainless steel plate, which are splash-proof and chemically-resistant. Minimal vibration and a well-balanced rotating arm provide years of trouble-free operation.

HI190M • HI190M-0 • HI200M

Our Most Popular Magnetic Mini-Stirrers

- **Compact size**
 - The compact size of these stirrers allow users to maximize bench space for efficiency and safety
- **Safety**
 - Speedsafe™ limits the maximum speed to 1000 rpm even if a load is suddenly removed
- **Built to last**
 - The ABS housing of HI190M and HI190 M-0 resists most harmful chemicals in the lab

The HI190M, HI190M-0 and HI200M are compact and lightweight, so that lack of laboratory bench space is no longer a concern.

These stirrers incorporate electronic controls that allow the user to regulate the speed with greater precision. Often, in the lab, a sample is removed from the stirrer before reducing the speed. This would cause the motor of conventional equipment to accelerate until it is destroyed. This does not pose a problem with Hanna mini-stirrers, as the Speedsafe™ mechanism ensures that the maximum speed is never exceeded.

HI190M and HI190M-0 come supplied with an ABS cover that will resist the harmful effects of chemicals that are accidentally spilled.

HI200M has an AISI 316 stainless steel cover. This model is ideal for applications that create exothermic reactions.



- Stainless steel cover

Speedsafe™

- ABS plastic cover

Specifications	HI190M	HI190M-0	HI200M
Maximum Stirring Capacity	1 liter (0.26 gallons)	1 liter (0.26 gallons)	1 liter (0.26 gallons)
Min. Speed Range	100 rpm	100 rpm	100 rpm
Max. Speed Range	1000 rpm	1000 rpm	1000 rpm
Power Supply	110/115 VAC or 220/240 VAC, 50/60Hz	12 VDC (sold separately)	110/115 VAC or 230/240 VAC, 50/60Hz
Installation Category	II	II	II
Cover Material	ABS plastic	ABS plastic	AISI 316 stainless steel
Environment	0 to 50°C (32 to 122°F); RH max 95%	0 to 50°C (32 to 122°F); RH max 95%	0 to 50°C (32 to 122°F); RH max 95%
Dimensions	120 x 120 x 45 mm (4.8 x 4.8 x 1.8")	120 x 120 x 45 mm (4.8 x 4.8 x 1.8")	120 x 120 x 45 mm (4.8 x 4.8 x 1.8")
Weight	640 g (1.4 lbs.)	610 g (1.3 lbs.)	710 g (1.6 lbs.)
Ordering Information	HI190M-1 (110/115 Vac), HI190M-2 (230/240 Vac), HI190M-0 (12 VDC), HI200M-1 (110/115 Vac) and HI200M-2 (230/240 Vac) mini-stirrers are supplied with micro stir bar and instructions.		
Accessories	HI731319 Magnetic micro stir bar (10)		

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HI300N • HI310N

Heavy-duty Magnetic Stirrers



- Stainless steel cover

HI300N and HI310N are heavy-duty stirrers. HI300N can stir up to 2.5 liters (0.66 gallons) of liquid and the HI310N can stir up to 5.0 liters (1.3 gallons). This makes them perfect for laboratory use as well as for use in production. Electronic controls are incorporated into these stirrers that allow the user to regulate the speed with greater precision. With Hanna's Speedsafe™, a limiter will assure that the maximum speed will never be exceeded.

HI310N also has an automatic feedback feature. The motor is electronically controlled to maintain the chosen speed as the load changes. If the viscosity or the level (fluid weight) increases or decreases, the circuitry will adjust the output power to keep the speed constant.

Specifications	HI300N	HI310N
Maximum Stirring Capacity	2.5 liters (0.66 gallons)	5 liters (1.3 gallons)
Min. Speed Range	100 rpm	
Max. Speed Range	800 to 1000 rpm	
Auto-Feedback	-	standard
Power Supply	110/115 VAC or 230/240 VAC, 50/60 Hz	
Installation Category	II	
Cover Material	AISI 316 stainless steel	
Environment	0 to 50°C (32 to 122°F); RH max 95%	
Dimensions	180 x 180 x 70 mm (7.1 x 7.1 x 2.8")	
Weight	1.4 kg (3.1 lbs.)	
Ordering Information	HI300N-1 (115V), HI300N-2 (230V), HI310N-1 (115V), HI310N-2 (230V), and HI310N-3 (AUS plug) are supplied with micro stir bar and instructions.	
Accessories	HI731320 Magnetic stir bar (10)	

HI302N

Auto-reverse Magnetic Stirrers



- Stainless steel cover

The HI302N model can stir up to 2.5 liters (0.66 gallons). It is often desirable to stir your samples in two directions. This will achieve maximum homogeneity and solubility. An advanced circuit allows HI302N to reverse the direction of the stirring at a user-selected interval. The interval can be adjusted from 30 seconds up to 3 minutes. In addition to precision speed control, a limiter will also assure that the maximum speed will never be exceeded.

Hanna stirrers incorporate a VCO device that stops the motor from accelerating as soon as a load is removed (Speedsafe™).

Specifications	HI302N
Maximum Stirring Capacity	2.5 liters (0.66 gallons)
Low Speed Range	100 rpm
High Speed Range	800 to 1000 rpm
Reverse Interval	from 30 seconds to 3 minutes
Power Supply	110/115 VAC or 220/240V, 50/60 Hz
Installation Category	II
Cover Material	AISI 316 stainless steel
Environment	0 to 50°C (32 to 122°F); RH max 95%
Dimensions	180 x 180 x 70 mm (7.1 x 7.1 x 2.8")
Weight	1.4 kg (3.1 lb.)
Ordering Information	HI302N-1 (115V) and HI302N-2 (230V) are supplied with magnetic stir bar and instructions.
Accessories	HI731320 Magnetic stir bar (10)

Auto-reverse Magnetic Stirrers

with Tachometer

- Stainless steel cover



When stirring a solution, to work with a constant speed is an important factor in ensuring that the best repeatability in tests and processes is achieved. Without a tachometer, there is no way of knowing the RPMs.

HI304N is a heavy-duty stirrer with a built-in tachometer. It is often desirable to stir in two directions in order to achieve maximum homogeneity. An advanced circuit allows HI304N to reverse the direction of the stir at a user-selected interval. The interval can be adjusted from 30 seconds up to 3 minutes. In addition to precision speed control, a limiter will also assure that the maximum speed will never be exceeded (Speedsafe™). Often, a sample is removed from the stirrer before the user reduces the speed. This can cause the motor to accelerate until it is destroyed. Hanna stirrers incorporate a VCO device that will stop the motor from accelerating as soon as the load is removed.

Specifications	HI304N
Maximum Stirring Capacity	2.5 liters (0.66 gallons)
Low Speed Range	100 rpm
High Speed Range	800 to 1000 rpm
Tachometer	four-digit LCD
Reverse Interval	from 30 seconds to 3 minutes
Power Supply	110/115 VAC or 220/240 VAC, 50/60 Hz
Installation Category	II
Cover Material	AISI 316 stainless steel
Environment	0 to 50°C (32 to 122°F); RH max 95%
Dimensions / Weight	180 x 180 x 70 mm (7.1 x 7.1 x 2.8") / 1.4 kg (3.1 lbs.)
Ordering Information	HI304N-1 (115V) and HI304N-2 (230V) is supplied with magnetic stir bar and instructions
Accessories	HI731320 Magnetic stir bar (10)

Timer Controlled Magnetic Stirrers

- Stainless steel cover



HI324N is a heavy-duty stirrers that incorporate a timer control that will turn the motor off after a selected amount of time. The time is adjustable from 5 minutes to 2 hours. This feature allows the user to carry out other tasks without worrying about over or under stirring. HI324N can stir up to 5.0 liters (1.3 gallons), making it ideal for laboratory and production use.

This stirrer allows regulated speed control. A limiter will assure the maximum speed is never exceeded (Speedsafe™).

HI324N has an automatic feedback feature and incorporates an LCD tachometer. The motor is electronically-controlled to maintain the chosen speed as the load changes. If the viscosity or the level increases or decreases, the circuitry will adjust the output power. The HI324N's RPM display guarantees repeatability in QC tests and research by constantly displaying the RPMs.

Specifications	HI324N
Maximum Stirring Capacity	5 liters (1.3 gallons)
Low Speed Range	100 rpm
High Speed Range	800 to 1000 rpm
Auto-Feedback	standard
Timer Range	from 5 minutes to 2 hours
Tachometer	four-digit LCD
Power Supply	110/115 VAC or 220/240 VAC, 50/60 Hz
Installation Category	II
Cover Material	AISI 316 stainless steel
Environment	0 to 50°C (32 to 122°F); RH max 95%
Dimensions	180 x 180 x 70 mm (7.1 x 7.1 x 2.8")
Weight	1.4 kg (3.1 lb.)
Ordering Information	HI324N-1 (115V) and HI324N-2 (230V) are supplied with magnetic stir bar and instructions
Accessories	HI731320 Magnetic stir bar (10)

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HI181

Compact Magnetic Mini-Stirrers

with Electrode Holder

- **Electrode holder**
 - The HI181 series features an electrode holder that fits into the base.
- **Round edge**
- **Dynamic design**
 - Easy to handle, these lightweight and compact stirrers need little room and are quickly recognizable on busy benches
- **Built to last**
 - Chemical resistant housing resists damage by accidental falls

Common stirrers are manufactured with steel and aluminum components. These units are often too large and heavy to fit in the limited space of a laboratory. Hanna HI181 series is compact, lightweight and inexpensive.

Often, in the lab, a sample is removed from a stirrer before reducing the speed. Normally, this would cause the motor to accelerate until it is destroyed. Hanna stirrers incorporate electronic controls that allow the user to regulate the speed with greater precision. In addition to speed control, the Speedsafe™ mechanism will assure that the maximum speed is never exceeded. HI181 mini-stirrers are available in eleven colors. The various colors can allow easy sample identification at a distance.

Speedsafe™



11 colors to choose from



HI181 - Black



HI181W - Arctic White



HI181F - Blue



HI181K - Orange



HI181J - Charcoal



HI181I - Ivory



HI181C - Glacier Blue



HI181A - Yellow



HI181M - Moss Green



HI181E - Green



HI181L - Lavender

Specifications**HI181**

Maximum Stirring Capacity	1 liter (0.26 gallons)
Min. Speed Range	100 rpm
Max. Speed Range	1000 rpm
Power Supply	110/115 VAC or 220/240 VAC, 50/60 Hz
Installation Category	II
Cover Material	ABS plastic
Environment	0 to 50°C (32 to 122°F); RH max 95%
Dimensions	137 mm (dia) x 51 mm (h)
Weight	640 g (1.4 lbs.)
Accessories	HI731319 Magnetic micro stir bar (10)

Ordering Information

All models include electrode holder, micro stir bar and instructions

HI181-1	Black mini-stirrer (115V)
HI181-2	Black mini-stirrer (230V)
HI181W-1	Arctic White mini-stirrer (115V)
HI181W-2	Arctic White mini-stirrer (230V)
HI181F-1	Blue mini-stirrer (115V)
HI181F-2	Blue mini-stirrer (230V)
HI181F-3	Blue mini-stirrer (AUS plug)
HI181K-1	Orange mini-stirrer (115V)
HI181K-2	Orange mini-stirrer (230V)
HI181J-1	Charcoal mini-stirrer (115V)
HI181J-2	Charcoal mini-stirrer (230V)
HI181I-1	Ivory mini-stirrer (115V)
HI181I-2	Ivory mini-stirrer (230V)
HI181C-1	Glacier Blue mini-stirrer (115V)
HI181C-2	Glacier Blue mini-stirrer (230V)
HI181A-1	Yellow mini-stirrer (115V)
HI181A-2	Yellow mini-stirrer (230V)
HI181M-1	Moss Green mini-stirrer (115V)
HI181M-2	Moss Green mini-stirrer (230V)
HI181E-1	Green mini-stirrer (115V)
HI181E-2	Green mini-stirrer (230V)
HI181L-1	Lavender mini-stirrer (115V)
HI181L-2	Lavender mini-stirrer (230V)

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11 colors to choose from



Specifications	HI180
Maximum Stirring Capacity	1 liter (0.26 gallons)
Min. Speed Range	100 rpm
Max. Speed Range	1000 rpm
Power Supply	110/115 VAC or 220/240 VAC, 50/60 Hz
Installation Category	II
Cover Material	ABS plastic
Environment	0 to 50°C (32 to 122°F); RH max 95%
Dimensions	137 mm (dia) x 51 mm (h)
Weight	640 g (1.4 lbs.)
Accessories	HI731319 Magnetic micro stir bar (10)

HI180

Compact Magnetic Mini-Stirrers

- Round edge
- Dynamic design
 - Easy to handle, these lightweight and compact stirrers need little room and are quickly recognizable on busy benches
- Built to last
 - Chemical resistant housing resists damage by accidental falls

Hanna HI180 series is compact, lightweight and inexpensive.

Often, in the lab, a sample is removed from a stirrer before reducing the speed. Normally, this would cause the motor to accelerate until it is destroyed. Hanna stirrers incorporate electronic controls that allow the user to regulate the speed with greater precision. In addition to speed control, the Speedsafe™ mechanism will assure that the maximum speed is never exceeded. HI180 mini-stirrers are available in eleven colors. The various colors can allow easy sample identification at a distance.

Ordering Information

All models are supplied with micro stir bar and instructions

HI180-1	Black mini-stirrer (115V)
HI180-2	Black mini-stirrer (230V)
HI180W-1	Arctic White mini-stirrer (115V)
HI180W-2	Arctic White mini-stirrer (230V)
HI180F-1	Blue mini-stirrer (115V)
HI180F-2	Blue mini-stirrer (230V)
HI180K-1	Orange mini-stirrer (115V)
HI180K-2	Orange mini-stirrer (230V)
HI180J-1	Charcoal mini-stirrer (115V)
HI180J-2	Charcoal mini-stirrer (230V)
HI180I-1	Ivory mini-stirrer (115V)
HI180I-2	Ivory mini-stirrer (230V)
HI180C-1	Glacier Blue mini-stirrer (115V)
HI180C-2	Glacier Blue mini-stirrer (230V)
HI180A-1	Yellow mini-stirrer (115V)
HI180A-2	Yellow mini-stirrer (230V)
HI180M-1	Moss Green mini-stirrer (115V)
HI180M-2	Moss Green mini-stirrer (230V)
HI180E-1	Green mini-stirrer (115V)
HI180E-2	Green mini-stirrer (230V)
HI180L-1	Lavender mini-stirrer (115V)
HI180L-2	Lavender mini-stirrer (230V)

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