

Product Brochure

Magnetiser M1000 and M3000 series industrial range

The M1000 (1000V) and M3000 (3000V) series industrial range of high performance production magnetisers are designed to integrate into semi-automated and fully automated production lines. They are usually supplied with custom fixtures or production towers containing the fixture usually with integrated fluxmeter feedback as part of the fixture tower. First introduced in the 1980s now on the 4th generation which was launched in 2022.



A third generation M3000- 40kj magnetiser with custom skewed multipole fixture for IPM motor applications with IFM06 fluxmeter and embedded Gaussmeter feedback.

Key benefits

- **High Power Magnetisers** – M1000 (1000V)- 20kj & 40kj and M3000 (3000V)- 20kj, 40kj, 60kj, 80kj and 100kj
- **Industrial scale** – modular multi-tower magnetiser.
- **Reliable** – Used across the world since the 1980s.
- **Easy-to-use** - fixed or optional adjustable position 7" touch screen with admin programmable display and simple production interface (Dual Pulse switch, Emergency stop and Display showing status) or controllable as part of a fully automated production line.
- **Production software** – Hirst proprietary production software which is intuitive and easy to use which is customisable to include multiple part programmes.
- **Multi- fixture** – Up to 4 magnetising fixtures can be multiplexed to a single M1000 or M3000.
- **Magnetising fixtures** –mostly supplied with custom fixtures in tower format for large magnetic parts.
- **Advanced monitoring for optimum process control** - peak current and magnetiser waveform capture and display via a high sensitivity Rogowski measurement coil.
- **Communications** - A range of industry standard connectors two RS232 ports inc SCPI, CANopen and PLC interfaces connection to Hirst gaussmeters and Fluxmeters and PCs / Computers.
- **Advanced data collection and capture** – integration with SPC, SCADA and production databases.
- **Production line integration** – can be used in manual, semi-automated and fully automated production lines.
- **High Security** - Admin passcode lock for production applications to protect production setting from operator changes.
- **Safety** – Interlock and emergency stop, internal protection circuits prevent damage (inc temperature on fixture and fixture plugged in, auto energy dump under emergency stop).

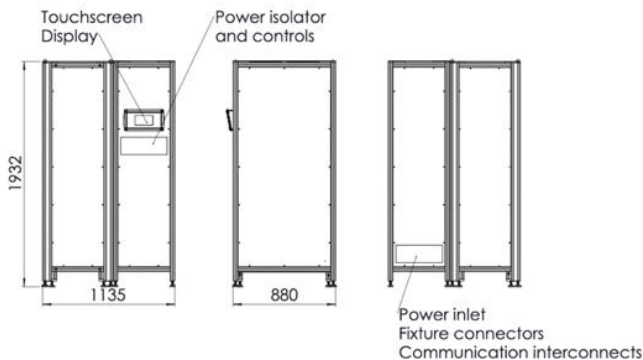
Applications

- Electric motors:
 - M1000 and M3000 - 20kj and 40kj multi-shot magnetisation of small and medium motor assemblies IPM, SPM Axial flux motors
 - M3000 60kj-80kj single-shot magnetisation of medium and larger of SPM & IPM motors and multi-shot or step and repeat magnetisation of large Axial flux motors

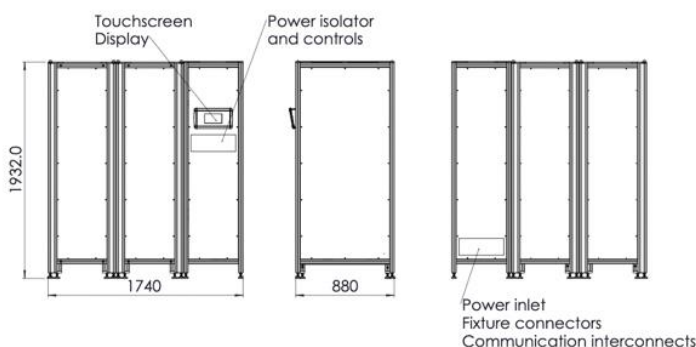
- M3000 100kj single-shot magnetisation of large of SPM & IPM motors and multi-shot or step and repeat magnetisation of high-performance Axial flux motors (including highest AH grade of NdFeB).
- Audio – single shot magnetisation of large loudspeakers.

Technical Data

Modes	Industrial Magnetiser
Maximum voltage	M1000 -1000V and M3000 – 3000V
Magnetiser Energy	M1000 - 20kj & 40kj M3000 - 20kj, 40kj, 60kj, 80kj and 100kj – larger on request
High Voltage resolution	1V
Coil connections	HV connectors
Number of fixtures that can be connected	Up to 4 multiplexed fixtures
Output Configurations	Magnetiser or reverse polarity H-bridge option
Communications and interfaces	Serial connection - RS232 9 way 'D' inc SCPI and 1x 9 way 'D' CAN bus (CANopen), PLC interface and with thermocouples for fixture temperature monitoring
Integration	Standalone and easy integration with Hirst GM08 gaussmeters, IFM06 fluxmeter and other automation systems
Display	7" touch screen
Colours and materials	Steel and Aluminium case
Dimensions / Weight	1932x1135x880mm - M1000 and M3000-20kj & 40kj / 1400kg 1932x1740x880mm - M3000 60kj, 80kj and 100kj / 1970kg
Operating Temperature Range	+5° C to +40° C
Power Supply	M1000 and M3000 up to 80kj : Single Phase 220/240VAC 50-60Hz 32A or 110VAC option Max 5m cable length M3000-100kj :Three Phase 220/240VAC 50-60Hz 32A or 110VAC option Max 5m cable length



M1000-20kj & 40kj and M3000-20kj & 40kj industrial magnetisers with 2 towers for up to 4 fixtures



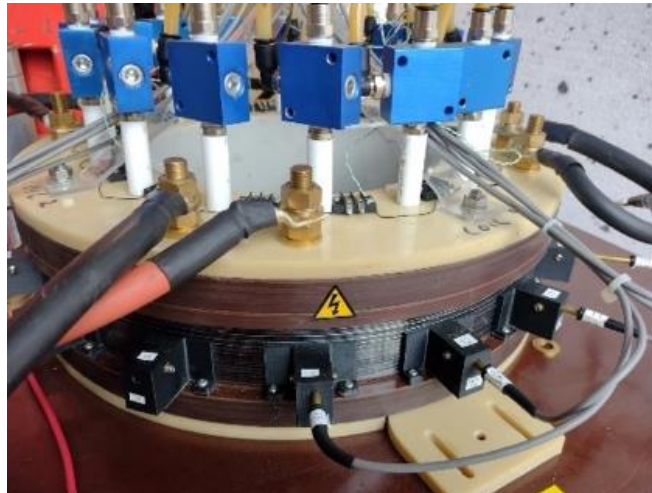
M3000-60kj, 80kj and 100kj industrial magnetisers for up to 4 fixtures

Warranty and Calibration

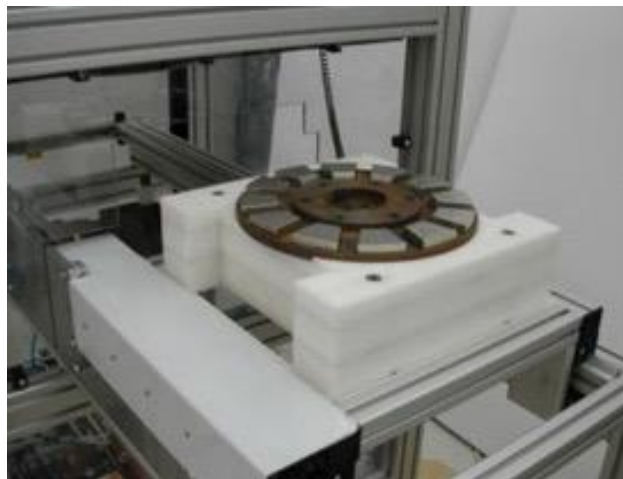
Supplied calibrated with 1 year warranty. A calibration is required every year to maintain the highest levels of performance – Hirst has a dedicated team of installation and service engineers, available to travel worldwide to install and support equipment, service contracts are available. See website for details.

Accessories and Application examples

Custom Fixtures



Custom Electric motor fixture - 16 pole fixture IPM configuration for an EV application with multiple Gaussmeter probes embedded into the fixture.



Custom Electric Motor fixture – Axial flux rotor (from 2005) being loaded into a production 12 pole custom fixture in a second generation production tower M3000-80k

Application Examples

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A third generation M3000-40kj Magnetiser with custom skewed multipole fixture for IPM motor applications with IFM06 fluxmeter and embedded Gaussmeter feedback



Custom production enclosure containing a M3000-100kj magnetiser



Hirst Magnetic Instruments has been active in providing solutions for 60 years in magnetics and magnetic measurement. Hirst manufactures precision hand-held gaussmeters, Fluxmeters, de-magnetisers, bench top & workstation industrial magnetisers, industrial production-line magnetisers, pulse field magnetometers (PFMs) for developing characterising magnetic materials and many custom projects.

Hirst Magnetic Instruments Ltd reserves the right to make changes to any specifications or performance implied in this product brochure without notice – please refer to www.hirst-magnetics.com for the latest version.

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