

SinterCast System 4000

The newly upgraded, fully automated System 4000 provides a flexible, robust and accurate hardware and software platform that enables SinterCast customers to independently control CGI series production and product development. The System 4000 is comprised of individual hardware modules that can be configured to suit the layout, process flow and production volume of any foundry, both for ladle production and pouring furnaces. The basic configuration consists of one Sampling Module (SAM), one Operator Control Module (OCM), a Power Supply, and a network-linked Wirefeeder for automated addition of magnesium and inoculant prior to casting. This configuration provides sampling capacity for approximately 15 ladles per hour. Additional Sampling Modules can be added to increase the throughput. The System 4000 *Plus* upgrade additionally incorporates automatic feedback control of the base treatment process.



Figure 1: Fully Automated System 4000 with two Sampling Modules

The System 4000 features include:

- **Accuracy:** Proven, high resolution SinterCast thermal analysis.
- **Process Control:** Automatic cored wire correction of magnesium and inoculation for each ladle.
- **User-Friendliness:** Display of magnesium, inoculant and carbon equivalent results as histogram run-charts with all information in the local language.
- **Process Database:** Collection of melting and pouring data into a single database, including all System 4000 thermal analysis results and process data for advanced traceability.
- **Consistency:** Re-useable Thermocouple Pair can perform up to 250 measurements, providing accuracy and traceability.
- **Re-engineered SAM:** Updated ejection mechanism for a more robust and stronger Sampling Cup ejection.
- **Efficiency Benchmarking:** Production results compiled every month and delivered to each customer with analysis and process improvement recommendations from SinterCast engineers.
- **Independent Control:** Supervisor-level access to process parameters, directly at the Supervisor's desktop computer.
- **Robust:** Rugged Windows 10 IoT embedded operating system and hardware proven in the foundry environment.
- **Remote Support:** VPN access by SinterCast for technical support and maintenance.
- **Flexible:** Pallet mounted (pictured above), individually floor-mounted, or wall-mounted to suit any foundry layout.



Figure 2: Larger graphical OCM display for user-friendly operator interaction



Figure 3: Re-engineered SAM with improved Thermocouple Holder

System 4000 Improvements

- *OCM Display:* Larger graphical display allows increased content and layout flexibility.
- *Computing Power:* Faster, more powerful CPU with increased disk size and new Windows® embedded operating system allows integration of SinterCast Tracking Technologies systems.
- *Re-engineered SAM:*
 - Updated ejection mechanism for a more robust and stronger Sampling Cup ejection.
 - Improved Thermocouple Holder to simplify the installation and alignment of the Thermocouple Pair.
 - Thermocouple Pair mounting and fastening improved to ensure correct and consistent location with easy removal.
 - No tools needed for replacement of complete Sampling Module.
- *Thermocouple Pair Positioning:* Laser based monitoring of the Thermocouple Pair position during sample analysis
- *Operator Box:* SAM and Wirefeeder Operator Boxes upgraded to ethernet based communication to increase speed and flexibility of information exchange. Improved display to provide information to operators in local language.
- *Signal Lamp:* SAM and Wirefeeder Signal Lamp Assemblies with increased visibility and flexibility for colour signals and indicators.
- *Remote Access:* real-time result viewing on any internet-connected device.

System 4000 Specifications

Components	Sampling Module (SAM) Operator Control Module (OCM) Power Supply Module Complete Wirefeeder
Foot-print	1,200 x 800 mm, on pallet
Max Height	1,960 mm
Weight	392 kg (pallet mounted items) 290 kg (Complete Wirefeeder)
Power Supply	110–120V, 50–60Hz, 2kW max 220–240V, 50–60Hz, 2kW max Single Phase. To be specified on order 380–415V, 3 kW max, Three Phase Dry oiled compressed air 5–10 bar



Figure 4: Automatic Wirefeeder, including Wirefeeder Head, Control Cabinet, Operator Box and Signal Lamp Assembly