Graphite Furnace System - AAS Graphite Atomizer - 20-3000°C Range - 9 Heating Steps

Model **MSGRD-3202SWISS** | Brand **Master Science**





The Master Science Graphite Furnace System is an electrothermal atomizer for quantitative trace element analysis by graphite furnace atomic absorption. Connected to a compatible atomic absorption spectrophotometer, it lowers detection limits well below flame AAS, reaching picogram levels for elements such as cadmium.

KEY HIGHLIGHTS

- Lower detection limits
- Method flexibility
- Protected operation
- Easy integration
- Small sample volumes

AT A GLANCE

20 °C to 3000 °C (nominal) TEMPERATURE RANGE	**About 5.1 kW at 2700 °C** HEATING POWER
microlitre injections are enough for analysis. LIMITED SAMPLE VOLUME	**7.2 kW** RATED POWER

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Overview

A nine-step temperature program from ambient to 3000 °C, with adjustable ramp and hold times, lets each method dry, ash and atomize the sample under controlled conditions.

The furnace is designed as an accessory for the Master Science double beam flame AAS analyzer.

Key Benefits

Lower detection limits
the Master Science Graphite Furnace System atomizes the whole sample in the tube, reaching picogram levels for trace metals.

Method flexibility
nine programmable steps with independent ramp and hold times suit dry, ash and atomize stages for different matrices.

Protected operation
alarms warn of low argon pressure or furnace overheating before damage occurs.

Easy integration
RS232 and autosampler interfaces connect the furnace to the AAS workflow.

Small sample volumes
furnace analysis needs far less sample than flame aspiration.

Technical Specifications

GENERAL

Brand	Master Science
Model Number	MSGRD-3202SWISS
SKU	MSGRD-3202SWISS
Heating Steps	9
Temperature Range	**20 °C to 3000 °C (nominal)**
Ramp Time	0 to 999 s
Hold Time	1 to 999 s (ramp + hold ≤ 999 s)
Inert Gas	Argon, inlet pressure above 0.3 MPa
Cooling Water	Tap or recirculated water, at least 2 L/min
Alarms	Gas pressure and furnace overheat
Characteristic Mass (with AAS)	Cd ≤ 1×10^{-12} g; Cu ≤ 1×10^{-10} g
Operating Conditions	+10 °C to +30 °C; humidity below 85 %

POWER

High-power Heating	1000 °C to 2700 °C
Power Supply	220 V ±22 V, 50 Hz ±1 Hz (3 A control; 30 A heating)
Heating Power	About 5.1 kW at 2700 °C
Rated Power	7.2 kW

DISPLAY & DATA

Display	LCD
Interfaces	AAS spectrophotometer, autosampler, RS232

DIMENSIONS & WEIGHT

Package Dimensions (W × D × H)	730 × 660 × 910 mm

COMMON LABORATORY PROBLEMS AND HOW THIS FURNACE HELPS

Common Laboratory Problems and How This Furnace Helps	Typical trace metal challenges addressed by the Master Science Graphite Furnace System:
Flame AAS not sensitive enough	furnace atomization reaches far lower concentrations.
Limited sample volume	microlitre injections are enough for analysis.
Matrix interference	separate drying and ashing steps remove the matrix before atomization.
Equipment damage from utility failure	gas and overheat alarms protect the furnace.
Manual sample injection	an autosampler interface supports unattended runs.

Applications

The Master Science Graphite Furnace System is used for trace analysis of: Lead, cadmium and other heavy metals in drinking water Toxic elements in food and biological samples Trace metals in soil and environmental samples Impurities in pharmaceutical and high-purity materials Research on low-level elemental contamination

Temperature Program

- Ambient to 3000 °C nominal range
- Nine heating steps
- Ramp 0 to 999 s and hold 1 to 999 s per step
- High-power heating mode from 1000 °C to 2700 °C

Safety and Utilities

- Argon purge for tube protection
- Water cooling at 2 L/min or more
- Gas pressure and overheat alarms

Connectivity

- Interface to atomic absorption spectrophotometer
- Autosampler connection
- RS232 output and LCD display