Colo Science
Laboratory & Scientific Equipment

COLO.SCIENCE · TECHNICAL SPECIFICATION

# MUFUH

## High-Temperature Laboratory Muffle Furnaces · 4 L to 18 L · up to 1400 °C · ±1 °C · silicon carbide heating

**MUFUH muffle furnaces** are bench-top high-temperature laboratory furnaces with an energy-saving polycrystalline mullite fibre chamber, silicon carbide heating rods and a digital PID controller with fuzzy logic and self-tuning. A MUFUH 1400 °C muffle furnace works continuously between 1000 and 1300 °C, heats at up to 20 °C/min and holds the set temperature within ±1 °C. A side-sliding door on a lever-and-spring mechanism keeps the space in front of the furnace free for loading crucibles, and the heating is switched off as soon as the door opens. Three chamber sizes, 4 L, 13 L and 18 L, cover sintering, calcination, fusion, glass and ceramic work and heat treatment above the range of a 1200 °C furnace.

UP TO 1400 °C | ±1 °C | UP TO 20 °C/MIN | 4 · 13 · 18 L | MULLITE FIBRE CHAMBER | SIC HEATING RODS | SIDE-SLIDING DOOR | DOOR SAFETY SWITCH | LEAKAGE PROTECTION

Document type: **Technical Specification Sheet**
Product series: **MUFUH High-Temperature Muffle Furnaces 1400 °C**
Models: **MUFUH4 · MUFUH13 · MUFUH18**
Format: **A4 landscape · CORE-TECHSPEC 1.0**

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MUFUH · 1400 °C muffle furnace · digital PID controller




MUFUH · side-sliding door on lever-and-spring mechanism, mullite fibre chamber

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Technical data sheet · Informational document · Controlled electronic document
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# MUFUH · technical specification

High-temperature muffle furnaces up to 1400 °C with silicon carbide heating rods, mullite fibre chamber and digital PID controller, 4 L to 18 L

UP TO 20 °C/MIN · PID · FUZZY LOGIC · SELF-TUNING · PARAMETER MEMORY · OVER-TEMPERATURE PROTECTION · DOOR SAFETY SWITCH — **Sintering, calcination and heat treatment up to 1400 °C**

## Product Overview

### Application profile

**Sintering and calcination:** ceramics, powders, catalysts and mineral samples at 1000–1300 °C.

**Materials testing:** building materials, coal, metallurgy and geology — quality testing and thermochemical analysis.

**Fusion and sample preparation:** high-temperature decomposition and ignition steps that a 1200 °C furnace cannot hold continuously.

**Heat treatment:** annealing, hardening and tempering of metal parts and tool steels.

**Research and teaching:** materials science, glass and ceramic work in university and institute laboratories.

### Key features

**Controller:** digital PID controller with fuzzy logic, self-tuning and parameter memory; display of measured and set temperature.

**Heating:** silicon carbide (SiC) heating rods.

**Housing:** integrated design, steel sheet with electrostatic powder coating, double shell.

**Safety:** heating cut-off when the door opens, over-temperature protection, leakage (earth-fault) protection.

### Why MUFUH

**Energy-saving chamber:** polycrystalline mullite fibre insulation — according to the manufacturer more than 60 % less energy than a brick-lined furnace.

**Space-saving door:** the door slides to the side on a lever-and-spring mechanism, so crucibles can be loaded from the front without a door swinging into the way.

**Safe outer surface:** double shell with air gap keeps the housing cooler.

**Continuous work above 1100 °C:** silicon carbide heating rods are built for the 1000–1300 °C range, where alloy-wire furnaces are used only for short periods.

**Three sizes, one series:** 4 L at 220 V single-phase; 13 and 18 L at 380 V three-phase.

### Core technical summary

| Parameter | Specification |
|---|---|
| Maximum temperature | 1400 °C |
| Recommended working range | 1000–1300 °C |
| Temperature control accuracy | ±1 °C |
| Heating rate | up to 20 °C/min |
| Chamber volume | 4 · 13 · 18 L |
| Power | 4 to 10 kW |

| MAX. TEMPERATURE | ACCURACY | HEATING RATE | CHAMBER |
|---|---|---|---|
| 1400 °C | ±1 °C | up to 20 °C/min | 4 L to 18 L |

Values from the manufacturer's technical documentation. Final configuration, supply voltage and accessories are confirmed in the COLO.Science quotation.

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## Technical Specifications by Model

| Parameter | MUFUH4 | MUFUH13 | MUFUH18 |
|---|---|---|---|
| **SKU** | PRO2970 | PRO5923 | PRO5858 |
| **Chamber volume** | 4 L | 13 L | 18 L |
| **Chamber W × D × H, mm** | 150 × 250 × 100 | 200 × 400 × 155 | 200 × 500 × 180 |
| **Exterior W × D × H, mm** | 480 × 555 × 715 | 530 × 708 × 828 | 530 × 808 × 848 |
| **Rated power** | 4.0 kW | 8.0 kW | 10 kW |
| **Supply** | AC 220 V 1-phase | AC 380 V 3-phase | AC 380 V 3-phase |
| **Net / gross weight, kg** | 70 / 86 | 111 / 131 | 121 / 143 |

MUFUH13 and MUFUH18 need a three-phase 380 V connection; the supply circuit is confirmed with COLO.Science before installation.

## Common Parameters

| | | | |
|---|---|---|---|
| **Maximum temperature** | 1400 °C | **Controller** | Digital PID controller, fuzzy logic, self-tuning, parameter memory |
| **Recommended working range** | 1000–1300 °C | **Display** | Measured and set temperature |
| **Temperature control accuracy** | ±1 °C | **Door** | Side-sliding door on lever-and-spring mechanism |
| **Heating rate** | up to 20 °C/min | **Safety** | Heating cut-off on door opening, over-temperature protection, leakage protection |
| **Heating elements** | Silicon carbide (SiC) rods | **Housing** | Integrated design, powder-coated steel sheet, double shell with air gap |
| **Chamber · insulation** | Polycrystalline mullite fibre | **Design** | Bench-top; design may change without prior notice |

### Choosing the chamber size

**4 L:** a few crucibles or small parts, method development, teaching — on a 220 V single-phase supply.

**13 L:** routine series and longer parts; chamber depth 400 mm.

**18 L:** large series or long work pieces; chamber depth 500 mm. Both larger sizes need three-phase 380 V.

### Good practice

**Ventilation:** place the furnace in a ventilated room or under an extraction when samples release fumes.

**Long service life:** continuous work in the 1000–1300 °C range; use 1400 °C for short periods.

**Calibration:** chamber temperature check and IQ/OQ on request.

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## Visuals, Configuration Guidance and Support




**MUFUH high-temperature muffle furnace · powder-coated housing, digital PID controller**

### Ordering information

| Item | SKU | Chamber · supply |
|---|---|---|
| **MUFUH4** | PRO2970 | 4 L · 220 V 1-phase |
| **MUFUH13** | PRO5923 | 13 L · 380 V 3-phase |
| **MUFUH18** | PRO5858 | 18 L · 380 V 3-phase |

### Configuration checklist

**Method:** working temperature and holding time; for work up to 1100 °C the MUFUS 1200 °C series is the economical choice.

**Sample volume:** number and size of crucibles per run decide the chamber size.

**Supply:** 4 L at 220 V single-phase, 13 L and 18 L at 380 V three-phase; confirm the circuit at the installation site.

**Space:** exterior dimensions on page 3, plus room for ventilation.

**Qualification:** installation, IQ/OQ and calibration of the chamber temperature on request.

SUPPLIER AND SUPPORT

**COLO Lab Experts**

**Polje ob Sotli 4, SI-3255, Slovenia**

**Selection guidance:** Send the method, the maximum temperature, the number of crucibles per run and the supply available at the site. COLO.Science will confirm the chamber size.

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COLO.SCIENCE · MUFFLE FURNACE CONFIGURATION SUPPORT

### Not sure which furnace fits your method?

Send your method or SOP — sintering, calcination or heat treatment. COLO.Science will propose the chamber size and the qualification package, including installation, IQ/OQ and temperature calibration.

Web: **colo.si**

**Ask us:**
Price and current discount, delivery time, installation and qualification (IQ/OQ), temperature calibration, crucibles and accessories — write to sales@colo.si or call us.

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