

Arc Melting

Arc melters for melting and alloying
in pure inert gas atmosphere



Mini Arc Melter MAM-1 / MAM-1 Glovebox

Arc melter for quantities of approx. 5-20 g for laboratory purposes



Arc Melter MAM-1

MAM-1 Glovebox version for oxygen-sensitive samples to be handled and alloyed in inert gas atmosphere



MAM-1 Glovebox version

Mini Arc Melter MAM-1 / MAM-1 Glovebox

- Temperature up to 3500°C in very pure argon atmosphere
- Small melting chamber ensures fast evacuation and low gas consumption
- Freely movable, water-cooled electrode
- Dismountable, water-cooled copper crucible plate with trough-shaped moulds
- Crucible plates with customized moulds on request
- Reliable, contactless ignition of the arc
- Pressure manometer and valves for evacuation and gas inlet into the arc melting chamber
- Safety functions: Protection against over-temperature, eye protection

Only MAM-1

- Powerful arc melting generator, integrated in the housing
- Small roughing pump (can be built in) or turbomolecular pumping system (stand-alone unit) for evacuation of the melting chamber

MAM-1 Glovebox

- Melting chamber and movable electrode inside of glovebox
- Generator, vacuum pump and operating panel at the outside
- Powerful arc melting generator, in a separate housing
- Small roughing pump or turbomolecular pumping system (stand-alone unit) for evacuation of the melting chamber

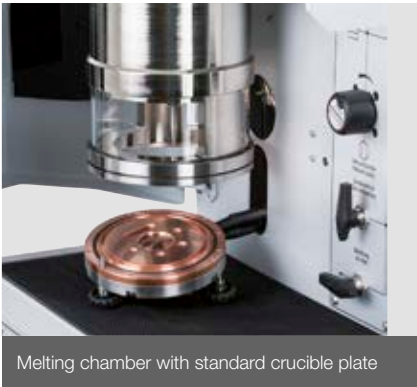
Option Suction Casting

- For melting and casting of rod-shaped samples. With 2-piece crucible insert for rods with different diameters

Standard: Ø 3 mm, length 30 mm. Special versions (on request): Ø 0,5; 1,0; 1,5; 2,0; 4,0; 5,0; 8 x 1,5 mm

Further Options

- Turbomolecular pumping system
- High vacuum measuring system
- Cooling water flow control
- Recirculating water chiller
- Water leakage control
- Sealing of small tubes



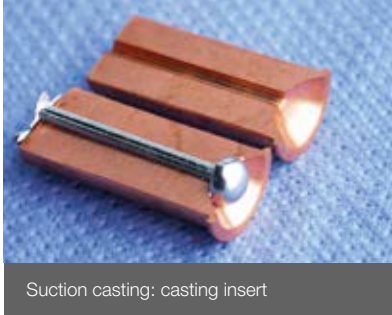
Melting chamber with standard crucible plate



Customized crucible plates (on request)



Option special cold crucible (suction casting)



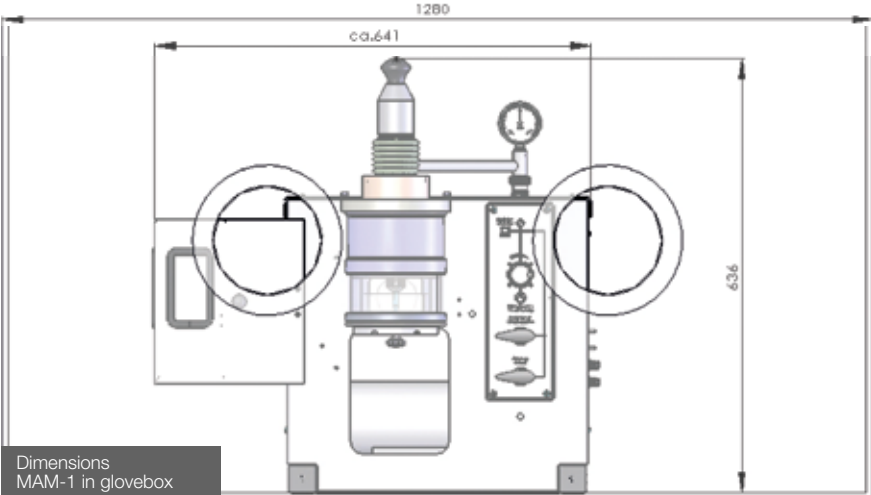
Suction casting: casting insert



Suction casting: crucible plate

Technical Data MAM-1 / MAM-1 Glovebox

Melting quantities	5 – 20 g
Melting temperature	up to 3500°C, depending on quantity
Max. pressure	1300 mbar abs.
Generator power	5 – 200 A
Connection	230 V / 50/60 Hz 1-phase (different voltage on request)
Crucible plates	Standard crucible plate with moulds 1 x Ø 25 mm, 3 x Ø 8 mm, 1 x 8 x 30 mm, or customized
Melting temperature (suction casting)	Max. 1600°C
Dimensions	MAM-1: (w x d x h) 430 x 650 x 750 mm MAM-1 GB: see drawing



Dimensions MAM-1 in glovebox

Arc Melter AM 200 / AM 500

AM 200 designed for melting samples up to 200 g at temperatures up to 3500°C

AM 500 designed for melting samples up to 500 g at temperatures up to 3500°C



Arc Melter
AM 200 / AM 500

- Water-cooled copper crucible plate with different moulds (for button samples and rod samples)
- Crucible plates with customized moulds on request
- Electric drive for easy lifting of the chamber
- Motor —driven, water-cooled tungsten electrode which can be moved freely above the moulds
- Excellent observation of the melting process through viewing port(s)
- Control panel with all major operating functions at the top of the electrode for safe and convenient handling
- Powerful arc melting generators for up to 3500°C

- Contactless ignition of the arc
- Different melting programs to prevent overheating of the samples
- High-vacuum pumping and measuring system, built into the rack ready for operation

AM 500
(as AM 200, but additionally)

- Water-cooled, double-walled high vacuum chamber and flanges
- Special crucible plate for higher quantities

Option
Suction Casting

- 2-piece copper inserts for casting of rods (standard diameters: 3 and 5 mm) with respective 2-piece moulds
- Water-cooled crucible plate with additional moulds for alloying before casting
- The suction force can be controlled by means of a throttle valve and adjusted to the diameter of the casting form
- Electric valve with footswitch to start the casting process
- Cooling / heating coil around the casting form for higher cooling rates



Option
Tilt Casting

- Water-cooled crucible for casting (up to approx. 30 cm³), tiltable
- The casting gutter is fixed in such a way that the casting stream remains stationary during casting
- A special intermediate ring offers enough space for casting forms underneath the crucible
- Without casting form; customized solutions on request



Standard crucible plate



Customized crucible plates on request



Functions: current ON/OFF, current regulation, electrode UP/DOWN

Alternative combined solution with solid copper inserts for melting and alloying or casting.

No conversion of the system required.
High quantities (up to approx. 200 g, depending on the melting temperature) can be cast. Inserts for melting and casting: standard or customized



Alternative combined solution: melting and casting option for AM 500

Further
options

- Sample manipulator for turning samples in situ



- Recirculating water chiller

Safety features

- Emergency stop button
- Sensor for chamber lift
- Sensor for protection glasses
- Cooling water flow control

Technical Data
AM 200 / AM 500

	AM 200	AM 500
Melting quantity	max. 200 g	max. 500 g
Temperature	max. 3500°C	max. 3500°C
Max. pressure	1300 mbar abs.	1300 mbar abs.
Generator power	max. 400 A or 800 A	max. 800 A
Connection	400 V, 3-ph; 50/60 Hz and 230 V 1-ph, 50/60 Hz (different voltage on request)	400 V, 3-ph; 50/60 Hz and 230 V 1-ph, 50/60 Hz (different voltage on request)
Standard crucible plate	4 x Ø 15 x 5 mm, 2 x Ø 30 x 5 mm, 1 x 110 x 10 x 7,5 mm	3 x Ø 43 x 20 mm, 1 x Ø 20 x 10 mm
Customized crucible plates	on request	on request
Suction Casting Option	Standard: Ø 3 mm and 5 mm, length 150 mm	Standard: Ø 3 mm and 5 mm, length 150 mm
Quantity	approx. 8 g (Ø 3 mm)	approx. 23 g (Ø 5 mm)
Melting temperature	up to approx. 1700°C	up to approx. 1700°C
Tilt Casting Option	Tiltable crucible Ø 50 mm, approx. 30 cm³	Tiltable crucible Ø 50 mm, approx. 30 cm³
Combined Melting and Casting Option		
Melting quantity		max. 500 g
Casting quantity		max. 200 g
Melting insert		Ø 80 mm, semi-spherical, or customized
Casting insert		2-piece design for round or rectangular rods max. 148 mm long, or customized
Dimensions	(w x d x h) 420 x 600 x 770 mm	

Arc Melter AM C500

Designed for melting quantities up to 500 g and casting quantities up to 200 g



Arc Melter AM C500

- For melting quantities up to 500 g at temperatures up to 3500°C and casting quantities of max. 200 g up to temperatures of approx. 1800°C, depending on the melting temperatures
- Water-cooled, double-walled high vacuum chamber and crucible
- Combined solid crucible holder for melting and casting inserts
- Electric drive for easy lifting of the chamber
- Motor-driven, water-cooled tungsten electrode which is freely movable above the crucible moulds
- Excellent observation of the melting process through viewing port(s)
- Control panel with all major operating functions at the top of the electrode for safe and convenient handling
- Contactless ignition of the arc
- Powerful arc melting generator for up to approx. 3500°C
- PLC control unit with 5.8" touch display (safety and control functions)
- High-vacuum pumping and measuring system, built into the rack ready for operation
- Suction Casting Option with 2-piece insert for casting of round or rectangular rods up to a length of 148 mm

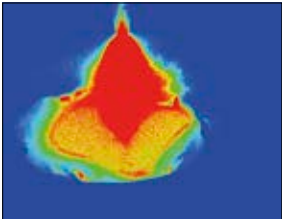
Options

- Sample manipulator for turning samples in situ
- Recirculating water chiller



Further options

- Camera for observation of the melting process, standard and false colour mode. With software for visualization and recording
- Automated evacuation and flushing via software; without PC
- Data logging for vacuum / pressure
Optional: data logging for melting current and melting voltage



2-piece casting insert for rods



Melting inserts



Technical Data AM C500

Melting and alloying	Melting quantity: 100-500 g, depending on the melting temperature
Casting	Melting quantity: max. 200 g up to approx. 1800°C
Temperature	max. 3500°C
Vacuum	< 10 ⁻² to 10 ⁻⁵ mbar
Max. pressure	1300 mbar abs.
Generator power	10 – 1000 A
Connection	400 V, 3-ph, 50/60 Hz und 230 V, 1-ph, 50/60 Hz (different voltage on request)
Dimensions	(w x d x h, without generator) 1600 x 800 x 950 mm

Customized solutions on request.

Product Overview



Arc Melting



Melt Spinning



Levitation Melting



Induction Melting



Heat Treatment



X-Ray Diffraction

