

MARS Casting Technologies NS d.o.o

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1. TECHNICAL INFORMATION AND SCOPE OF DELIVERY

1.1 Machine for downward vertical continuous casting of bronze bars and tubes TYPE 02 range from 71 to 152 mm

Machine for downward vertical casting of bronze bars and tubes is consisted of 8 basic subassemblies as follows:

1. Platform – 1 pcs.
2. Stand – 1 pcs.
3. Secondary cooling unit – 1 pcs.
4. Clamping and driving unit – withdrawal unit – 1 pcs.
5. Flying circular saw – 1 pcs.
6. Induction furnace – 1 pcs.
7. Crystallizer – copper based mould – 10 pcs.
8. Control system – 1 pcs

1.2 Platform with stand

Platform with stand carry on other subassemblies.

Design of stand and platform based on welded profile provide sufficient carrying capacity.

1.3 Secondary cooling unit

Colling unit with circulated cooling water insure that temperature of casted profile decrease to normal level. Capacity of circulated water needed for crystallizer is c.a. 3 m³/h – equipment which has to provide cooling circulated water is not included in this offer.

1.4 Withdrawal unit

Withdrawal unit, which is consisted of AC servomotor and servo gearbox controled via PLC, provide precise and repeatable withdrawal of profiles via 2 pairs of profiled bronze withdrawal rollers. Specially designed gearbox ensure that all four profiled withdrawal rolles are driven at the same time via servomotor.

Clamping assembly within withdrawal unit, based on hydraulic cylinders ensure sufficent clamping force, while additional mechanical safety subassembly maintain permanent clamping force, even in the case when the hydraulic pressure is not available.

1.5 Flying circular saw



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Flying circular saw cut off profile on specified length.
Cut of length is determine by operator via HMI touch display.
All linear movements of circular saw are performed via hydraulic cylinders and precise guideways.
Circular saw is driven by AC motor on high speed rate.

1.6 Induction furnace

The frequency inverter is based on the latest power IGBT transistor technology. Inverter panel is water-cooled type.
Programmable logic controller (PLC) perform the control of all furnace. All important messages, PLC writes to the text display and operator interface, on the front panel. Text display and operator panel also allows adjustment of designed program variables.
Induction furnace has its own electric cabinet.

Type	IP-120
Mains power supp	160 kVA
Mains power supp	3 ph 400V, 50/60Hz,
Rated frequency	2000 Hz
Crucible capacity	600 kgCu
Melting temperature max	1200° C
Power control	Continuous: 10% - 100%
Cooling water	demineralised
Max. conductivity	100 µS/cm
Flow	Min. 3 m ³ /h at 3bar
Water Temperature - input	Max. 32° C

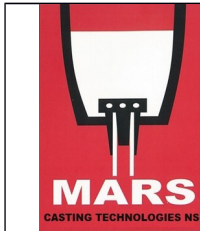
1.7 Crystallizer

Machine also include 10 types of crystalizes which cover casting of profile within range of outer diameter from 71 to 152 mm.
Crystalizer has been cooled via circulated water. Capacity of circulated water needed for crystallizer is c.a. 6 m³/h, 4bar – equipment which has to provide cooling circulated water is not included in this offer.

Each crystallizer consist of:

- outer body, made of stainless steel
- inner jacket , made of forged cooper
- graphite mould – is not part of this offer

1.8 Control system



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Control system include main electric cabinet, based on PLC OMRON series and HMI device OMRON TFT touch panel dimension 10“.

- Input power 30 kW
- Input voltage 380V, 50 Hz
- Control voltage 230V 50Hz, 24 VDC
- Climate conditions: Ambient
- Degree of protection IP54
- Regulation: IEC