

**GENERAL INFORMATION**
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Color	Silver
Production process	Mechanical working
Typology	Master alloy for silver

**Melting temperatures**

Liquidus [°C]	895.0
Melting range [°C]	85.0
Solidus [°C]	810.0

**Commercial composition**

Copper (%)	97,00
Indium (%)	1,00
Zinc (%)	2,00



SILVER line

**FULL CHARACTERIZATION DATA**
**Color coordinates**

L*	97.7
a*	-0.6
b*	4.7
c*	4.8
Yellow index	8.3

**Physical characteristics**

Density [g/cm <sup>3</sup> ]	10.3
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**General characteristics**

As cast grain size [μm]	450.0
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**Product applications**

Massive chain production
Wire production
Sheet production
Ingot casting
Continuous casting

**Mechanical characteristics**

As cast hardness [HV 0.2]	70.0
Hardness after annealing [HV 0.2]	80.0
Hardness after 70% area red. [HV 0.2]	165.0
Single step age-hardening hardness [HV 0.2]	105.0
Tensile strength (Rm) [Mpa]	271.0
Yield strength (Rp0.2) [MPa]	166.0
Elongation at rupture (A) [%]	26.0

**CASTING PROCESSING PARAMETERS**

Pre-mixing temperature [°C] 1020.0

CASTING TEMPERATURES	Flask from [°C]	Flask to [°C]	Metal from [°C]	Metal to [°C]
< 0.5 mm	640.0	680.0	995.0	1025.0
0.5 - 1.2 mm	560.0	640.0	975.0	995.0
> 1.2 mm	500.0	540.0	955.0	975.0

**MECHANICAL WORKING PARAMETERS**

Pre-mixing temperature [°C] 1020.0

**Reductions**

Sheet - area or thickness (%) 70.0

Wire - diameter (%) 45.0

POURING TEMPERATURES	Countinous from [°C]	Countinous to [°C]	Ingot from [°C]	Ingot to [°C]
Temperatures	1000.0	1080.0	980.0	1020.0

MECHANICAL WORKING ANNEALING	Temp. from [°C]	Temp. to [°C]	Time [min]
<1 mm	560.0	620.0	20.0
1 - 5 mm	560.0	620.0	25.0
>5 mm	560.0	620.0	30.0

**Mechanical working quenching**

Quench directly in water

**AGE HARDENING PROCESSING PARAMETERS**

SINGLE STEP AGE-HARDENING TREATMENT	Temperature [°C]	Time [min]	Quenching
Age-hardening	300.0	90.0	Air or in furnace

DOUBLE STEP AGE-HARDENING TREATMENT	Temperature [°C]	Time [min]	Quenching
	730.0	40.0	Water, immediate
	300.0	60.0	Air or in furnace