LEGOR®

MASTER ALLOY

TECHNICAL SHEET

Proderma

NPF301 585‰

NI-PD FREE ALL-PURPOSE MASTER ALLOY FOR 333-375-417-585‰ (8-9-10-14 KT) WHITE GOLD

GENERAL INFORMATION

General information	
Typology	Master alloy for gold
Color	White, nickel-free
Color shade	Off-white
Production process	All-purpose
Grain refinement level	Low
Deoxidation level	Minimum

Commercial composition (%)	
AG	82.0
CU	10.0
ZN	8.0

Melting Temperatures	
Solidus [°C]	840.0
Liquidus [°C]	910.0
Melting range [°C]	70.0

FULL CHARACTERIZATION DATA

Color coordinates

L *	a*	b*	c*	Yellow Index
94.6	-2.9	16.0	16.3	26.3

Mechanical characteristics	
As cast hardness [HV 0.2]	100.0
Hardness after 70% area red. [HV 0.2]	195.0
Hardness after annealing [HV 0.2]	110.0
Single step age-hardening hardness [HV 0.2]	125.0
Tensile strength (Rm) [Mpa]	434.0
Yield strength (Rp0.2) [MPa]	266.0
Elongation at rupture (A) [%]	28.0

Physical characteristics	
Density [g/cm³]	12.7

General characteristics	
As cast grain size [µm]	25.0

Product applications

Continuous casting
Ingot casting
Casting in closed systems
Casting without stones
Handmade production
Massive chain production
Wire production
Sheet production
Stamping production

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CASTING PROCESSING PARAMETERS

Pre-melting temperature

Temperature [°C] 1030

POURING TEMPERATURES	Flask from [°C]	Flask to [°C]	Metal from [°C]	Metal to [°C]
< 0.5 mm	630	680	1010	1040
0.5 - 1.2 mm	580	630	990	1010
> 1.2 mm	530	580	970	990

Trees without stones

Let the flask cool down for 20 minutes, then quench it in water.

Stone-in-place casting trees

Let the flask cool down for 30-45 minutes, then quench it in water.

Pickling

Dip in RADIAL solution (50 g/l conc. at 60°C) for 2 minutes, or in sulphuric acid (10% concentration at 50°C) for 5 minutes.

MECHANICAL WORKING PARAMETERS

Pre-melting temperature

Temperature [°C] 1030

Reductions

Wire - diameter (%)	45.0
Sheet - area or thickness (%)	70.0

POURING TEMPERATURES	Countinous from [°C]	Countinous to [°C]	Ingot to [°C]	Ingot from [°C]
Temperatures	1010	1090	990	1030

MECHANICAL WORKING ANNEALING	Temp. from [°C]	Temp. to [°C]	Time [min]
< 1 mm	660	700	30
1 - 5 mm	660	700	35
> 5 mm	660	700	40

Mechanical working quenching

Quench directly in water.

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AGE HARDENING PROCESSING PARAMETERS

SINGLE STEP	Temperature [°C]	Time [min]	Quenching
AGE HARDENING	300.0	90.0	In air or in furnace

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