

ADDITIVE MANUFACTURING POWDER

W722 AMPO / FE-BASED ALLOYS

Application Segments

Additive Manufacturing Application

Available Product Variants

15 - 45 µm

45 - 90 µm

Product Description

Precipitation hardening nickel martensitic (marging) steel, material number 1.20709, which offers a good combination of strength and toughness. Can be printed very easily without additional heating of the building platform or chamber. The achievable hardness of 55 HRC makes this material a universal solution for tool steel applications in which conformal cooling is required, such as die casting applications.

Process Melting

VIGA

Applications

- > 3D Printing - direct metal deposition
- > Automotive Racing
- > High Pressure Die-Casting
- > Other Components
- > 3D Printing - selective laser melting
- > Civil and mechanical engineering
- > Injection Molding
- > Powder for additive manufacturing
- > Automotive
- > Forging Applications
- > Mechanical Engineering

Technical data

Material designation	
1.2709	SEL
1.2709 (Marage 300)	Market grade
X3NiCoMoTi18-9-5	EN

Chemical composition (wt. %)

C	Si	Mn	P	S	Mo	Ni	Co	Ti
≤ 0,03	≤ 0,10	≤ 0,15	≤ 0,01	≤ 0,01	4.9	18	9.3	1.1

Powder Properties

Particle Size Distribution *

Typical Values	D10	D50	D90
[μm]	18-24	29-35	42-50

* Measurement of particle size distribution according to ISO 13322-2 (Dynamic image analysis methods);

Apparent density** | min. 3.5 g/cm³

** Measurement of apparent density is based on ASTM B964 resp. DIN EN ISO 3923-1 and relates to our typical measured values

Mechanical Properties

With according Heat Treatment

Tensile strength (Rm) (MPa ksi)	1,960 to 2,100 285 to 305
Yield strength (RP _{0.2}) (MPa ksi)	1,880 to 2,020 273 to 293
Elongation (%)	4 to 8
Hardness (HRc)	51 to 55
Impact Toughness (ISO-V) (J)	16 to 20

Heat treatment

Solution annealing

Temperature	820 to 1,508 °C 1,508 to 2,746.4 °F	Soaking time: 1h / air, gas
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Precipitation hardening

Temperature	490 to 914 °C 914 to 1,677.2 °F	Holding time: 6h / air
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For more information see <https://www.voestalpine.com/boehler-edelstahl/de/>

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