

ADDITIVE MANUFACTURING POWDER

M789 AMPO / FE-BASED ALLOYS

Application Segments

Additive Manufacturing Application

Available Product Variants

15 - 45 µm

45 - 90 µm

Product Description

BÖHLER M789 AMPO is a newly developed maraging steel, which combines the mechanical properties of 1.2709 with the corrosion resistance of 17-4PH. This patent bending grade can easily be printed without any preheating and achieves a hardness of about 52 HRC with a very easy heat treatment. Furthermore, this material shows an excellent polishability, which makes it the ideal choice for inserts with conformal cooling in plastic injection molding and in any other application where a high hardness and corrosion resistance is of need.

Process Melting

VIGA

Properties

- > Toughness & Ductility : high
- > Wear Resistance : good
- > Machinability : very high
- > Dimensional stability : very high
- > Polishability : very high
- > Corrosion resistance : very high
- > Micro-cleanliness : very high

Applications

- > 3D Printing - direct metal deposition
- > Motorsport industry
- > Components for Displays
- > Lamps/Lenses for Automotive
- > Plastic Extrusion
- > Wind Power
- > 3D Printing - selective laser melting
- > Camera lenses
- > Consumer Goods - General
- > Mechanical Engineering
- > Powder for additive manufacturing
- > Hotrunner systems
- > Automotive
- > Civil and mechanical engineering
- > Injection Molding
- > Other Components
- > Tool Holders (milling, drilling, turning & chucks)

Technical data

Material designation	
BÖHLER patent	Market grade

Chemical composition (wt. %)

C	Cr	Mo	Ni	Ti	Al
< 0,02	12.2	1	10	1	0.6

Powder Properties

Particle Size Distribution 15-45µm*

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

* Measurement of particle size distribution is based on ISO 13322-2 (Dynamic image analysis methods);

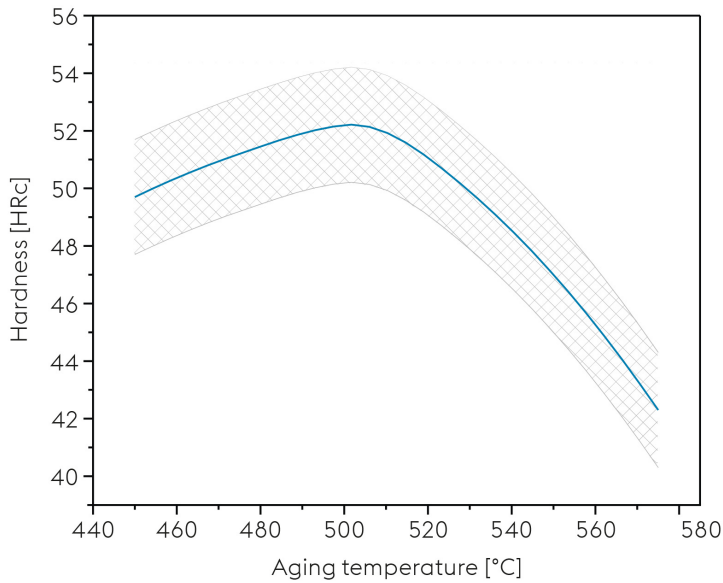
Apparent density** | min. 3.5 g/cm³

** Flowability and apparent density are based on DIN EN ISO 4490 resp. DIN EN ISO 3923-1.

Mechanical Properties

With according Heat Treatment

Tensile strength (Rm) (MPa)	1,800 to 1,900
Yield strength (Rp _{0.2}) (MPa)	1,670 to 1,770
Elongation (%)	4 to 8
Hardness (HRC)	51 to 53
Impact Toughness (ISO-V) (J)	6 to 14

Tempering chart

Heat Treatment for optimum properties:
Solution Annealing: 1000°C / 1h soaking time / air cooling to room temperature
Ageing: 500°C / 3h soaking time / air cooling

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