

# ADDITIVE MANUFACTURING POWDER

## M789 AMPO / FE-BASED ALLOYS

### Application Segments

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Additive Manufacturing Application

### Available Product Variants

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15 - 45 µm

45 - 90 µm

### Product Description

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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

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VIGA

### Properties

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- > 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

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- > 3D Printing - direct metal deposition
- > Automotive Racing
- > 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

<b>Material designation</b>	
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);

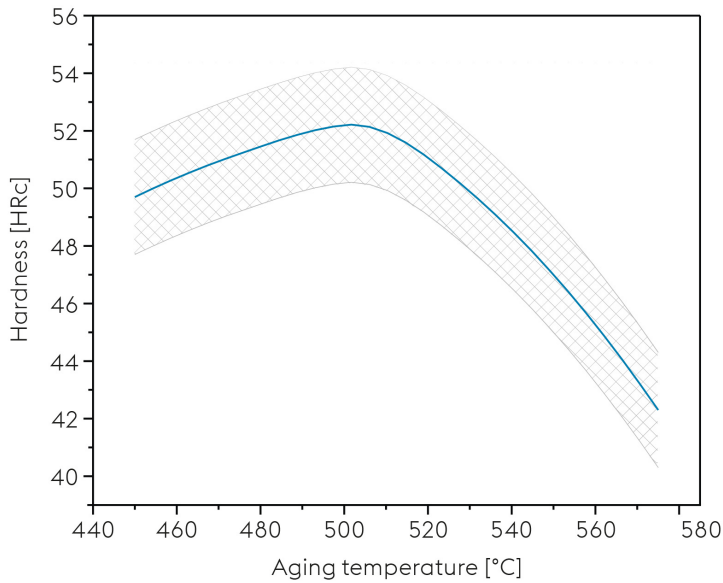
Apparent density\*\* | min. 3.5 g/cm<sup>3</sup>

\*\* 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   ksi)	1,800 to 1,900   262 to 276
Yield strength (Rp <sub>0.2</sub> ) (MPa   ksi)	1,670 to 1,770   243 to 257
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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