BÖHLER

BÖHLER W360
AMPO

ADDITIVE MANUFACTURING POWDER

W360 AMPO / FE-BASED ALLOYS

Available Product Shapes

15 - 45 µm	45 - 90 µm

Product Description

The BÖHLER W360 AMPO is the powder equivalent of the W360 ISOBLOC. Due to its chemical composition, the material belongs to the product group of hot-work tool steels. After hardening and tempering, it can achieve a hardness of up to 57 HRC with very good toughness properties. Its high temperature wear resistance, heat resistance and toughness characterizes the material. Applications: Printed components with conformal cooling for die casting applications, wear protection layers and repair work in mold making using laser cladding.

Properties

Particle size distribution 15 - 45 µm:

D10[µm]	18 - 24
D50[µm]	29 - 35
D90[µm]	42 - 50
Apparent density*	≥ 3.6 g/cm^3

Measurement of particle size distribution according to ISO 13322-2 (Dynamic image analysis methods);
* Measurement of apparent density is based on ASTM B964 resp. DIN EN ISO 3923-1 and relates to our typical measured values

Achievable mechanical properties of printed part after heat treatment:

Tensile strength (Rm)	1970 - 2010 MPa
Yield strength ($RP_{0,2}$)	1500 - 1670 MPa
Elongation (%)	6.6 - 8.1
Hardness	55 - 57 HRc
Impact toughness (ISO V)	8 - 14 J

Particle size distribution 45 - 90 µm:
Details on request

Applications

- 3D Printing - direct metal deposition
- Extrusion
- Gravity / Low Pressure Die-Casting
- Powder for additive manufacturing
- 3D Printing - selective laser melting
- Forging (Hot / Semi-hot)
- Injection Molding
- Press Hardening / Hot Stamping
- Forging Applications
- High Pressure Die-Casting
- Other Components
- Unknown Components Application

Material designation	
BÖHLER patent	Market grade

voestalpine BÖHLER Edelstahl GmbH & Co KG
www.voestalpine.com/bohler-edelstahl

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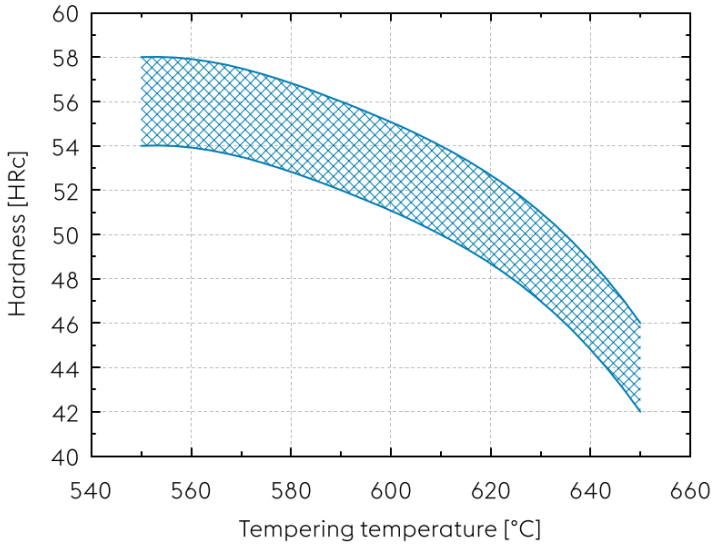
Chemical composition

C	Si	Mn	Cr	Mo	V
0.50	0.20	0.25	4.50	3.00	0.55

Tempering chart



Stress relieving: 690°C in a neutral atmosphere
After through-heating, soak for 1 to 2 hours
Cool slowly in furnace

Hardening: 1050°C
Oil or vacuum furnace with gas quenching
Holding time at hardening temperature after through-heating: 15 to 20 minutes
Achievable hardness: see tempering chart

Tempering (according to tempering chart): at least twice. Heat slowly to tempering temperature immediately after hardening. Holding itme at tempering temperature 1.5 hours per temper. A third temper is advantageous.

Achievable mechanical properties are strongly dependent on the printing process.

For more information see www.voestalpine.com/bohler-edelstahl

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