

ADDITIVE MANUFACTURING POWDER

N700 AMPO / FE-BASED ALLOYS

Application Segments

Additive Manufacturing Application

Available Product Variants

15 - 45 µm 45 - 90 µm

Product Description

BÖHLER N700 AMPO (17-4 PH) is a precipitation hardening nickel martensitic steel. Thanks to its alloying system, this material has excellent corrosion resistance. Can be printed very easily without additional heating of the platform or chamber and, after solution annealing and aging, hardens up to approx. 40 HRC.

Process Melting

VIGA

Applications

- > 3D Printing - direct metal deposition
- > Civil and mechanical engineering
- > General Components for Mechanical Engineering
- > Other Components
- > Powder for additive manufacturing
- > 3D Printing - selective laser melting
- > Components for Chemical plants (incl. LNG, FGD, Urea, LDPE, etc.)
- > Mechanical Engineering
- > Other Oil and Gas + CPI components
- > Wind Power
- > Motorsport industry
- > Consumer Goods - General
- > Other Aerospace Components
- > Other Power Generation Components

Technical data

| Material designation | |
|----------------------|--------------|
| 17-4 PH | Market grade |
| 1.4542 | SEL |
| X5CrNiCuNb16-4 | EN |
| S17400 | UNS |

Chemical composition (wt. %)

| C | Cr | Ni | Cu | Nb |
|------|-------|----|----|------|
| 0.04 | 16.25 | 4 | 4 | 0.34 |

Powder Properties

Particle Size Distribution 15-45µm*

| 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. 3.4 g/cm³

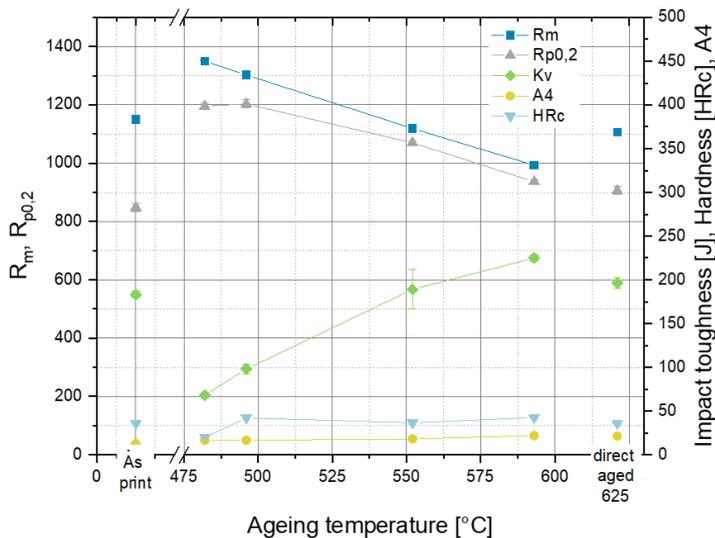
** Measurement of apparent density is based on ASTM B964 resp. DIN EN ISO 3923-1 and relates to our typical measured values

Mechanical Properties

With according Heat Treatment

| | |
|------------------------------|----------------|
| Tensile strength (Rm) (MPa) | 1,000 to 1,300 |
| Yield strength (Rp0,2) (MPa) | 900 to 1,200 |
| Elongation (%) | 15 to 21 |
| Hardness (HRc) | 36 to 43 |
| Impact Toughness (ISO-V) (J) | 75 to 230 |

Analog-Hardening Tempering Curve



Solution annealing:
1040°C / 30min / air quenching

If other available product variants are listed in addition to long products, please note that these may differ in terms of melting process, technical data, delivery and surface condition as well as available product dimensions. For mandatory technical specifications, other requirements and dimensions, please contact our regional voestalpine BÖHLER sales companies. The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.

voestalpine BÖHLER Edelstahl GmbH & Co KG

Mariazeller Straße 25
8605 Kapfenberg, AT
T. +43/50304/20-0
E. info@bohler-edelstahl.at
<https://www.voestalpine.com/bohler-edelstahl/de/>