

# ADDITIVE MANUFACTURING POWDER

## H525 AMPO / FE-BASED ALLOYS

### Product Description

Heat resisting austenitic steel. Superior high temperature strength and excellent toughness. Heat resistance in air up to 1150°C. Good resistance in oxidizing, nitrogenous and low oxygen gases. Medium resistance in sulphurous, oxidizing gases but sensitive to the action of reducing sulphurous gases. Embrittlement only occurs after prolonged exposure in the temperature range of 650 to 900°C. Therefore in the case continuous working temperatures more than 950°C are recommended.

### Properties

- > Heat resistance until 2102°F (operating temperature 1742-2102°F)
- > Corrosion resistant

### Process Melting

VIGA

### Applications

- > 3D Printing - direct metal deposition
- > Mechanical Engineering
- > Heat Exchanger
- > 3D Printing - selective laser melting
- > High temperature components
- > Oil & Gas
- > Other Oil and Gas + CPI comps.
- > Burner Nozzles

### Technical data

Material designation	
1.4841	SEL
S31400	UNS
314	AISI
X15CrNiSi25-20	EN

### Chemical composition (wt. %)

C	Si	Mn	Cr	Ni	Fe
0.08	1.7	1.2	24.8	19.8	Rest

## 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

### As Printed

Tensile strength (Rm) (MPa   ksi)	575 to 625   84 to 91
Yield strength (RP <sub>0.2</sub> ) (MPa   ksi)	475 to 525   69 to 77
Elongation (%)	45 to 55
Hardness (HV)	155 to 195

We expressly point out that the values given are only guide values. The mechanical properties highly depends on the pressure parameters or heat treatment.

### With according Heat Treatment

Tensile strength (Rm) (MPa   ksi)	555 to 585   81 to 85
Yield strength (RP <sub>0.2</sub> ) (MPa   ksi)	350 to 370   51 to 54
Elongation (%)	50 to 60

## Heat treatment

### Solution annealing

Temperature	1100 °C   2012 °F	for 30 min
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For more information see <https://www.voestalpine.com/boehler-edelstahl/de/>

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