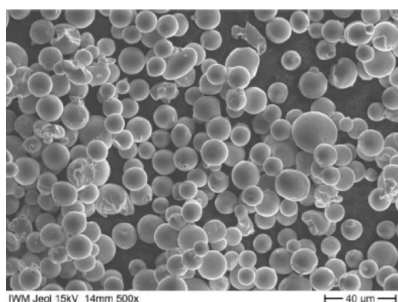


P900

- ProMateria P900 metal powder for additive manufacturing and metal injection molding
- High-nitrogen steel (HNS) analogous to material number DIN EN 1.3816
- Variable gas atomization for optimal yield in the range +0/-150 µm (D10/D90)
- High flowability and sphericity for precise and reproducible results

Appearance



Physical properties

Density (25 °C)	7,7 g/cm ³
Thermal Expansion Coefficient 25 – 200 °C	16,5 10 ⁻⁶ K ⁻¹
Thermal Expansion Coefficient 25 – 400 °C	17,5 10 ⁻⁶ K ⁻¹
Specific Heat Capacity	500 J/kg·K
MeThermal Conductivity	15 W/m·K
Young's Modulus	195 GPa

Chemical composition

Alloying Element	Fe	C	Si	Mn	Cr	Mo	V	Nb*	Al	P	S	Ni	N
Content wt.-%, min	Balance			17,5	17,5								0,5
Content wt.-%, max	Balance	0,15	1	20	20	0,5	0,20	0,25	0,10	0,05	0,03	0,3	

*The element Nb (Niobium) corresponds to the designation Cb (Columbium), commonly used in North America

Corrosion resistance

PREN (Pitting Resistance Equivalent Number): **35**

(Reference 1.4404 / AISI 316; PREN: 25)

General information

High-nitrogen austenitic stainless steels exhibit an excellent corrosion resistance in addition to remarkable toughness and extraordinary strength. Alloying with nitrogen, exceeding the natural solubility limit is hereby the special characteristic of this type of steel. Nitrogen stabilises the austenitic phase, increases the strength without decreasing the toughness and improves the corrosion resistance.

Therefore, these steels are the ideal solution in plant engineering for the pharmaceutical, chemical or food industry. Furthermore, they are predestined for highly stressed components in aerospace or automotive systems or special applications where conventional austenitic stainless steels cannot be implemented due to demanding strength requirements combined with severe environmental conditions.

In addition, the absence of the typically used austenite forming alloying element nickel enables the application in areas, where biocompatibility is essential. Examples can be found in medical technology, but also in jewelry or luxury goods, especially to avoid allergic reactions during contact with the human skin. Outstanding strength and hardness in combination with high purity lead to excellent results in polishing and high resistance against mechanical damage by scratching or centre point loading.

Corresponding standard designations

DIN EN 1.3816

X8CrMnN19-19