

# m4p Fe-4011

## Stainless steel powder for laser-based powder bed fusion

### Description and properties

m4p™ Fe-4011 is one of the lowest alloyed stainless steels due to its alloy composition.

The application extends to components whose corrosive load is below the possibilities of higher alloyed materials, such as 316L. The mechanical properties are classified as good. As a special feature of this powder material should be highlighting the ferromagnetic properties, since the material has a ferritic / martensitic structure. The carbon is balanced according to additive manufacturing concerns and reduced so much that a quenching crack occurrence can be suppressed.

When processed by means of laser-based powder bed fusion, this powder shows a similar processing behavior to 316L and can be built over minor parameter adjustments with highest relative densities.

### Powder characteristics

Chemical analysis [wt%]		
Element	Min	Max
C		<0,03
Si		<1,00
Mn		<1,00
Cr	11,50	13,50
Ni		<1,00
Fe		Base

**Particle size** Laser PBF

### Additive manufacturing and strength properties

Mech. characteristics of this alloy <sup>1</sup> :		
Tensile strenght <sup>2</sup>	R <sub>m</sub> ~	<650 MPa
Yield strenght <sup>2</sup>	R <sub>e</sub> ~	<450 MPa
Elongation at break <sup>2</sup>	A <sub>5</sub> ~	15%

<sup>1</sup> according to the steel key

<sup>2</sup> hardened and tempered state

#### INTERNATIONAL

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