

# m4p Fe-4021

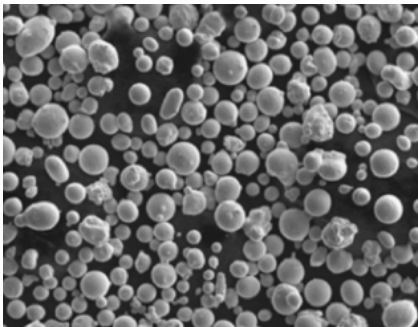
## Metal powder for laser-based powder bed fusion

### Description, properties and applications

**m4p™ Fe-4021** is a martensitic chromium steel with good corrosion resistance. Due to the increased carbon content higher hardness and strength values are achievable. The greatest possible corrosion resistance in this alloy is only achieved in the hardened or tempered state. The material is magnetic in all heat treatment conditions. Due to the achievable hardness values in combination with the relatively good corrosion resistance, components made of m4p™ Fe-4021 are suitable for construction parts as well as tools that have cutting edges or require increased wear resistance.

When processed by selective laser melting, this powder exhibits a similar processing behavior to the m4p™ 316l and can be achieved via minor parameter adjustments with highest specific gravity.

### Powder characteristics



#### Chemical analysis [wt%]

Element	Min	Max
C	0,17	0,25
Si		<1,0
Mn		<1,0
Cr	12,0	14,0
Fe		Base

**Particle size** Laser PBF

**Bulk density** ~3,9 g/cm<sup>3</sup>

### Additive manufacturing and strength properties



#### Typical characteristics of the tensile test

(parameter= 99,95% as-built)

<b>Tensile strength</b>	R <sub>m</sub> ~	1240 N/mm <sup>2</sup>
<b>Yield strength</b>	R <sub>e</sub> ~	800 N/mm <sup>2</sup>
<b>Hardness</b>		572 HV10

At printing on a 10x10x10mm test block metallographically determined relative density: **99,95%**

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