

# m4p PureAl

## Pure aluminum for PBF

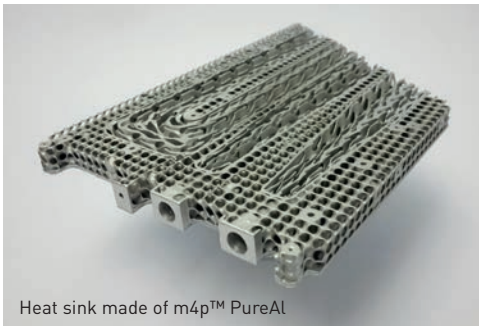
### Description and properties

**m4p™ PureAl** is an unalloyed aluminum powder of high purity which allows for using the excellent properties of pure aluminum in additive manufacturing.

Functional components and prototypes made of m4p™ PureAl are therefore used in many areas - from the chemical industry, mechanical engineering to aerospace. A basic property that often has priority in industrial applications is the **low mass density** of aluminum. At only approx. 2.7 g/cm<sup>3</sup>, aluminum is one of the lightest metals that can be used industrially and facilitates lightweight construction applications. If strength is also required, pure aluminum (m4p™ PureAl) is rather less suitable - however, the **high ductility** of the material is impressive and crucial for many applications.

The high values for the electrical and thermal conductivity are the main reason why m4p™ PureAl is used in additive manufacturing. Despite the high values, the powder can be processed additively without additional measures, which is not possible with pure copper.

However, components made of pure aluminum can also be found in everyday life, which is due to its **harmlessness to health** and the **high level of corrosion resistance** (food packaging). The good **anodisability** of additively manufactured parts made of m4p™ PureAl completes the property profile and enables the subsequent optical upgrading to decorative elements of everyday life.



Heat sink made of m4p™ PureAl



Housing part made of m4p™ PureAl

### Material characteristics

(>99,9% rel. density; volume rate 26cm<sup>3</sup>/h; layer thickness 30µm; EOS M290)

#### Mechanical properties

	As-built-Z	Heat-treated-Z
Tensile strength Rm [N/mm <sup>2</sup> ]	88	89
Yield strength Rp0,2 [N/mm <sup>2</sup> ]	75	74
Elongation A <sub>5</sub> [%]	26	25

#### Further physical properties

	As-built-Z	Heat-treated-Z
Electr. conductivity [MS/m]	29	30
Therm. conductivity [W/mK]	n.d.	229

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