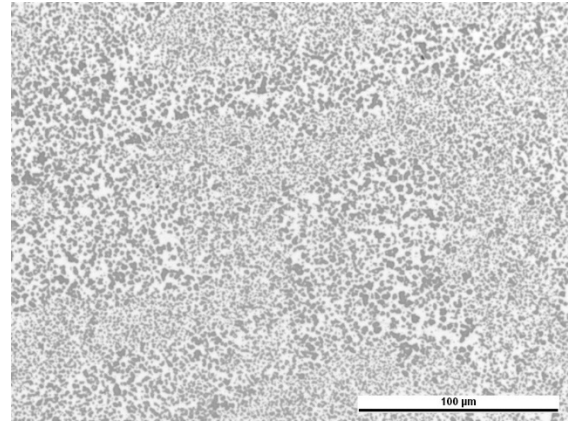


DispAl[®] S220 AM

DISPAL[®] S220 AM is a material characterized by a high stiffness, low thermal expansion, excellent wear and tear behavior, good machinability, and a low density. The material is often used as a replacement for steel and carbon fiber, and it is especially suitable for those applications that require high precision under high loads and elevated temperatures. It is already widely used across various industries such as linear technology, robotics, and aerospace.



Typical applications

- Linear technology
- Optics
- Satellite components

Chemical composition

Element	Unit	Value
Al	%	Balance
Si	%	35

Physical properties (at 20°C)

Property	Unit	Value
Absolute density	g/cm ³	2.54 ± 5%
Relative density ¹	[%]	≥ 99.8
Electrical conductivity	MS/m	15.7 ± 0.5
	%IACS	27.1 ± 0.9
Heat capacity	J/gK	0.85 ± 0.02

Coefficient of thermal expansion

Property	Unit	Value
CTE-value 20 to 100°C	10-6/K	15.1 ± 0.5
CTE-value 20 to 200°C	10-6/K	16.0 ± 0.5
CTE-value 20 to 300°C	10-6/K	16.8 ± 0.5

Thermal conductivity

Temperature (°C)	30	100	200	300	400
Value (W/mK)	152.4	144.3	136.8	131.0	123.5

Thermal data

Solidus temperature = (575.9 ± 3)°C
 Liquidus temperature = (878.8 ± 3)°C



Mechanical properties² Stress relieved 4h at 500°C: (minimum values)

Property	Unit	T= 20°C
Tensile strength, Rm	MPa	200
Yield strength, Rp0,2	MPa	115
Elongation at break, A5	%	1.5
Young's modulus, E	GPa	90

Roughness measurement³

Surface quality depends on the orientation during printing and other process parameters, such as the layer thickness. Listed values represent an indication of what can be expected. Improvement of surface roughness can be achieved based on customer requirements.

As manufactured, vertical	Unit	As built
Roughness average, Ra	µm	8
Mean roughness depth, Rz	µm	50

[1] Optical density determination at test specimen by light microscopy

[2] Tensile test according to DIN EN Iso 6892-1 Method B, test samples were turned before the test; values for vertical specimen (Z direction)

[3] Roughness measurement according to DIN EN ISO 16610-21 0.8mm

The material properties and mechanical characteristics reflect the current knowledge and experience at the time of publication and do not form a sufficient basis for component design and use on their own. Certain part properties are not guaranteed, and it is the responsibility of the user to qualify the properties and their suitability for specific applications.