

# Material Data Sheet

## DMLS/SLM technology

### A205

**A205 is a lightweight aluminium powder** derived from the aerospace approved (MMPDS) **A20X™ alloy**, developed and patented by AMT Ltd. With a unique mode of solidification that is an important feature of this patented Al-Cu-TiB2 alloy, A205 is ideal for Additive Manufacturing.

The **high cooling rates** achieved during Additive Manufacture, produces a high density, crack-free and non-dendritic microstructure.

A205 has already received approvals for use in the **aerospace sector**, and has been used in other sectors including the space, defence, and high-end automotive industries.

#### Mechanical Properties

	As Built	Stress Relieved	Heat Treated
Tensile strength	357-394 MPa	312 MPa	450 - 511 MPa
Yield Stress	350-385 MPa	310 MPa	390 - 440 MPa
Young's Modulus	74 GPa	77 GPa	79 GPa
Elongation at break	12-15 %	20%	10-13%

#### Chemical Composition

	Bal
Al	Bal
Cu	4.20 - 5.00 %
Mg	0.20 - 0.33 %
Ag	0.60 - 0.90 %
Ti	3.00 - 3.85 %
B	1.25 - 1.55 %
Si	0.10 Max
Fe	0.08 Max
Other, each	0.08 Max
Other, max	0.17 %

#### Physical Properties

Relative Density	> 99.7 %
Density	2.85 g/cm <sup>3</sup>

#### Elevated temperature tensile Properties

Temp.	Tensile Strength	Yield Stress	Elongation
20°C	511 MPa	445 MPa	11%
100°C	423 MPa	375 MPa	10%
150°C	369 MPa	354 MPa	20%
200°C	331 MPa	311 MPa	15%
250°C	224 MPa	215 MPa	12%