forAM AlSi10Mg 20-63 GA

Aluminium alloy powder for Additive Manufacturing

forAM AlSi10Mg GA is a gas atomized powder with good flowability and spreadability, formulated for laser powder bed process. It is a medium strength aluminium alloy with good thermal and electrical conductivity. It is used in variety of applications including light weight structural components, manifolds, heat exchangers and others.

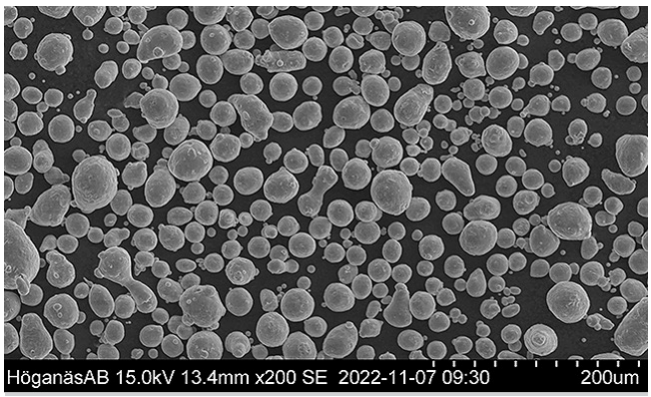
Equivalent materials:

- AlSi10Mg (ISO)
- ENAC-AlSi10Mg(a) (EU)
- A03590 (USA)
- 3.2381 (DIN)

Scan the QR code for more information about the forAM product line and other Höganäs products.

Powder properties

Chemical composition, (typical values)	
Element	**Content, %**
Al	Balance
Si	10
Mg	0.35
Fe	0.15
O	0.02



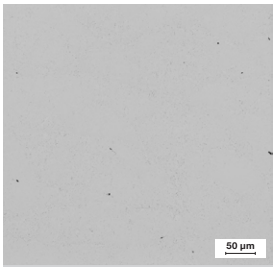
Typical powder properties		
Nominal particle range	20-63 µm (max 5% over and under size)	MPIF05, ASTM B214, ISO4497
Carney flow	19 s/50g	MPIF Std 75, ASTM B417
Apparent density	1.35 g/cm3	MPIF04, ASTM B212, ISO3923/1

Mechanical properties

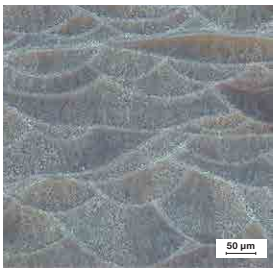
Surface condition is machined			
Heat treatment	**As-printed** (1)	**Stress relieved** (2)	**Direct aged** (3)
Printed in Z-direction – Build direction			
UTS (MPa)	480	300	290
YS (MPa)	240	190	230
Elongation (%)	8	16	13

Heat treatment	As-printed (1)	Stress relieved (2)	Direct aged (3)
Printed in X/Y-direction – Perpendicular			
UTS (MPa)	460	300	320
YS (MPa)	270	190	250
Elongation (%)	12	18	13
Hardness (HV10)	124	93	105

(1) All tensile test bars are machined from cylindrical printed bars
(2) Stress relieved at 300 °C for 3 h in air
(3) Peak hardened by solutionizing at 530 °C for 30 min in air followed by quenching in water and ageing at 165 °C for 6 h in air

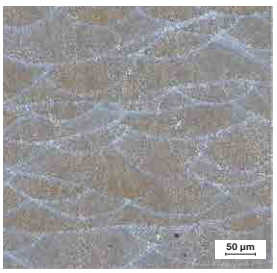


As-polished

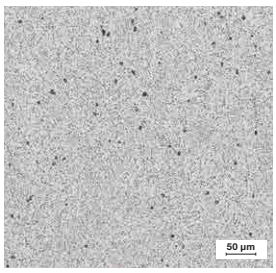


Etched – As-printed condition

Build direction



Etched – Stress relieved condition



Etched – Peak hardened condition

Etching in Flicks reagent 100 ml H_2O + 1 ml HF

Standard packaging:

10 kg, 10L PE drum filled with Ar protective gas
(Other tailored particle sizes and packaging are available under conditions)