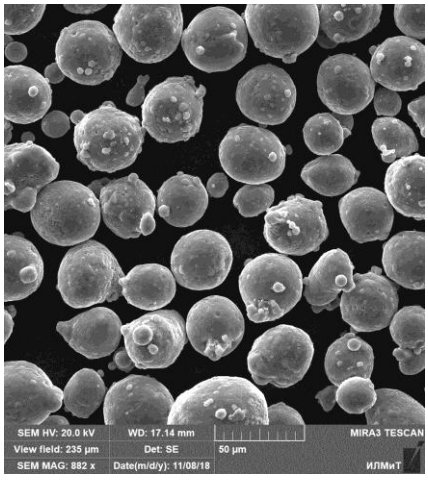
RS-300 (AlSi10Mg) powder

RS-300 – is the basic aluminium alloy with good casting properties and performance during powder bed fusion. Alloy offers good strength and ductility after annealing. Properties are equal or superior to traditional casting Al-Si alloys. Printed parts can be treated in a similar manner as for casted parts.

Chemical composition, wt.%	
Aluminium (Al)	Balance
Silicon (Si)	9,0 – 11,0
Magnesium (Mg)	0,2 – 0,45
Iron (Fe)	≤ 0,35
Titanium (Ti)	≤ 0,15
Copper (Cu)	≤ 0,05
Manganese (Mn)	≤ 0,45
Oxigen (O)	≤0,08
Moisture (H_2O)	≤0,03

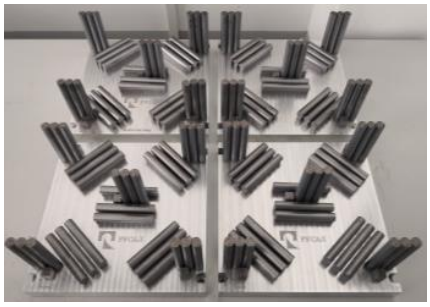
Powder characteristics	
Particle size, μm	20 – 63
D_{50}, μm	45±2
SPAN	≤ 1,2
Flowability (∅2,5 mm), s	87±4
Flowability (∅4,0 mm), s	25±3
Fraction composition can be changed by customer request. Flowability of powder may vary depending on fraction composition	

Mechanical properties (printed samples)			
		As-sintered	Annealed
Elastic modulus E, GPa	XY	68 ± 2	68 ± 2
	Z		
UTS (σ_B), MPa	XY	450 ± 10	370 ± 10
	Z	470 ± 10	400 ± 10
TYS ($\sigma_{0,2}$), MPa	XY	260 ± 10	235 ± 10
	Z	230 ± 10	220 ± 10
Elongation δ_5, %	XY	6,5 ± 1,0	9,5 ± 1,0
	Z	5,5 ± 1,0	7,0 ± 1,0



Powder morphology

Physical properties (sintered material)	
Density, g/cm^3	2,658
Porosity, vol. %	≤ 0,20



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