

MATERIAL DATA SHEET



CL 30AL / CL 31AL Aluminium alloy

Aluminium alloy (powder), chemical composition CL 30AL according to DIN EN 1706 AlSi12(a), CL 31 AL according to DIN EN 1706 AlSi10Mg(b).

CL 30AL and CL 31AL are common aluminium alloys for manufacturing lightweight components in the field of automotive and aerospace industries.

13
Al
26,982

CHEMICAL COMPOSITION

	CL 30AL	CL 31AL
Component	indicative value(%)	indicative value(%)
Al	Balance	Balance
Si	10,5 – 13,5	9,0 – 11,0
Mg	0 – 0,05	0,20 – 0,45
Fe	0 – 0,55	0 – 0,55
Mn	0 – 0,35	0 – 0,45
Ti	0 – 0,15	0 – 0,15
Cu	0 – 0,05	0 – 0,10
Zn	0 – 0,10	0 – 0,10
C	0 – 0,05	0 – 0,05
N	0 – 0,05	0 – 0,05
Pb	0 – 0,05	0 – 0,05
Sn	0 – 0,05	0 – 0,05

RANGE OF APPLICATION

The material is used for manufacturing lightweight prototypes, unique or series production parts in the field of automotive and aerospace industries with high mechanical and dynamic load.

TECHNICAL DATA AFTER RECOMMENDED HEAT TREATMENT

Yield Point R_e^1	170 - 220 N/mm ²
Tensile Strength R_m^1	310 - 325 N/mm ²
Elongation A^1	2 - 3 %
Young's modulus ²	approx. $75 \cdot 10^3$ N/mm ²
Thermal conductivity λ^2	120 - 180 W/mK
Coefficient of thermal expansion (at rt) ²	$20 \cdot 10^{-6} K^{-1}$

¹ Tensile test according to DIN EN 50125 at 20°C.

² Specification according to the material manufacturer's data sheet.

CL 30AL
CL 31AL
Aluminium alloy

MICROSECTION

Testpiece (x20 magnification)



Testpiece (x100 magnification)



STRESS RELIEF HEAT TREATMENT

Stress relief annealing: Heat up in 1 hour to 240°C. Maintain temperature for 6 hours. Allow the components to cool down in the oven to 100°C. Afterwards allow the component cooling down at ambient atmosphere.

MICROSTRUCTURE

Components made from aluminium alloys CL 30AL and CL 31AL display a homogeneous, dense structure after they are manufactured by means of the additive manufacturing process.

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All stated values are approximate values. All details given above are to our current up-to-date knowledge and depending on the process and machine parameters. The data contained in the material data sheet is merely for general information and therefore shall not be binding on the company.