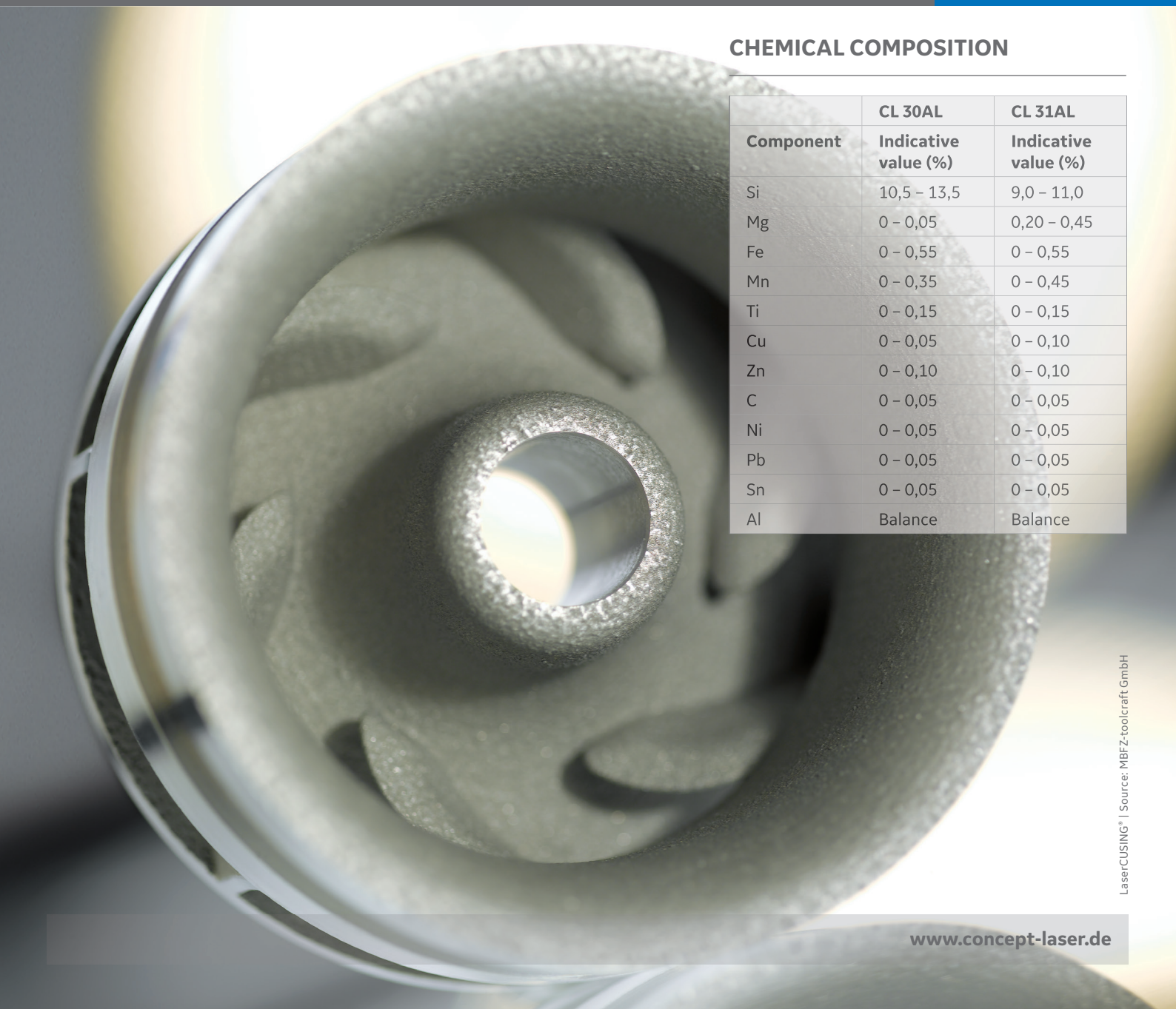
CONCEPTLASER
a GE Additive company

CL 30AL / CL 31AL Aluminium alloys

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

With an appropriate approval* CL 30AL and CL 31AL can be used for production of 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 (%)**
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
Ni	0 – 0,05	0 – 0,05
Pb	0 – 0,05	0 – 0,05
Sn	0 – 0,05	0 – 0,05
Al	Balance	Balance

LaserCUSING® | Source: MBFZ-toolcraft GmbH

09/2017 | Subject to technical chenges.
Title photo: finamedia.de
Microsections: Concept Laser GmbH
Artwork: brandnew-design.de

RANGE OF APPLICATION

With an appropriate approval* CL 30AL and CL 31AL can be used for production of lightweight prototypes, unique or series production parts in the field of automotive and aerospace industries with high mechanical and dynamic load.

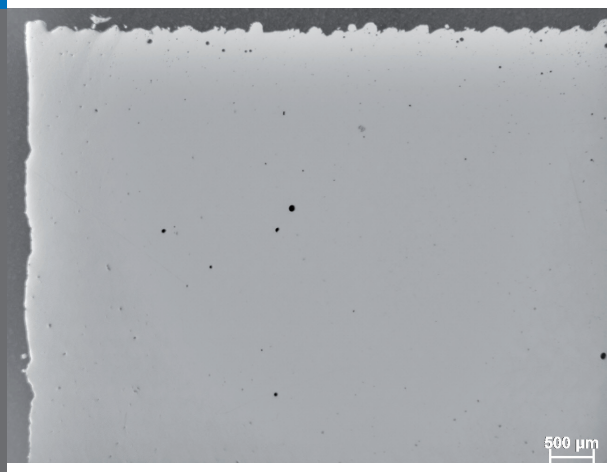
TECHNICAL DATA AFTER RECOMMENDED HEAT TREATMENT

	90° (horizontal)	45° (polar angle)	0° (upright)
Yield Strength $R_{p0,2}$ [1]	211 ± 4 N/mm²	215 ± 3 N/mm²	205 ± 3 N/mm²
Tensile Strength R_m [1]	329 ± 4 N/mm²	346 ± 3 N/mm²	344 ± 2 N/mm²
Elongation A [1]	9 ± 1 %	7 ± 1 %	6 ± 1 %
Young's Modulus [2]	approx. 75 · 10^3 N/mm²	approx. 75 · 10^3 N/mm²	approx. 75 · 10^3 N/mm²
Thermal Conductivity λ [2]	120 - 180 W/mK	120 - 180 W/mK	120 - 180 W/mK
Coefficient of thermal Expansion (at rt) [2]	20 · 10^{-6} K^{-1}	20 · 10^{-6} K^{-1}	20 · 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		

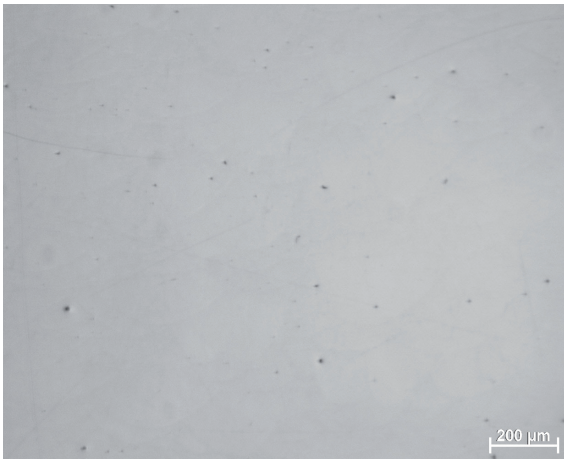
CL 30AL
CL 31AL
Aluminium alloy

MICROSECTION

Test piece (x 20 magnification)



Test piece (x 100 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 metal laser melting process LaserCUSING®.

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