Leichtmetall
Aluminium Giesserei Hannover GmbH

Product data sheet
AA7075
EN AW-7075
EN AW-AlZn5,5MgCu

Features of EN AW-7075

The EN AW-7075 ranks among the high-strength, curable alloys. Correspondingly, a heat treatment such as solution annealing and subsequent artificial aging are necessary so that this alloy can develop its full potential. This can increase the strength by several multitudes. Due to its high strength, this alloy is used for structural components in defense technology and aviation. Corrosion protection is recommended in external atmosphere.

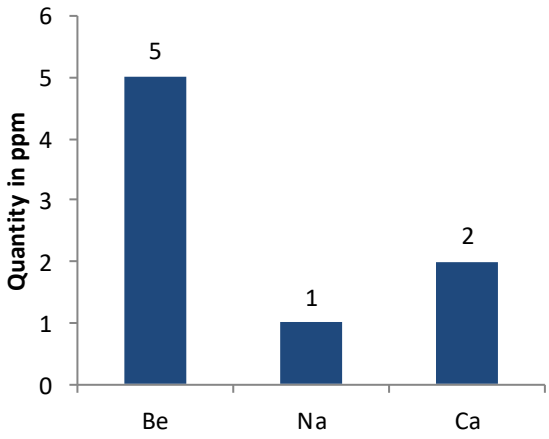
Chemical Composition*

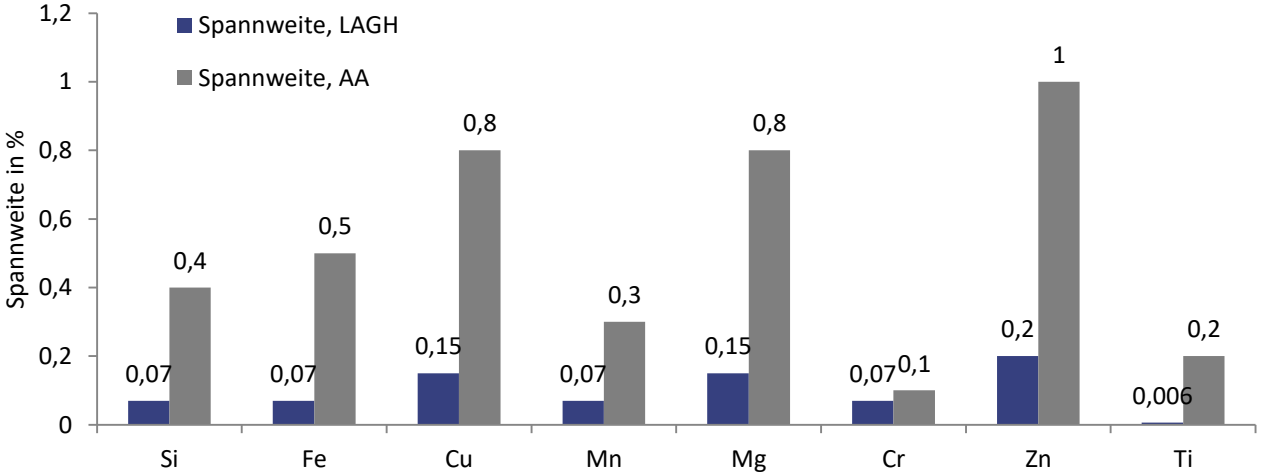
Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	others, each	others, total
Min			1.2		2.1	0.18	5.1			
Max	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.15

*: According to Teal Sheets (AA)

Customer-Specific Adjustments

For many of our customers, the standard-compliant adherence of the chemical composition as represented above is not sufficient. We can therefore construct or further limit the analysis presets specially according to your processing needs and quality requirements for the end product. The feasible span of the individual elements in depicted in the following graphic below. In addition, we are capable of producing high-purity allows with only low amounts of sodium, calcium, or beryllium, which facilitates optimal end results. Typical values can be drawn from the graphic on the right.





A limitation of non-listed elements, or a further limitation of individual elements, is possible upon consultation.

contact: info@leichtmetall.eu
Leichtmetall Aluminium Giesserei Hannover GmbH, Göttinger Chausee 12 -14, 30453 Hannover, Germany

Leichtmetall
Aluminium Giesserei Hannover GmbH

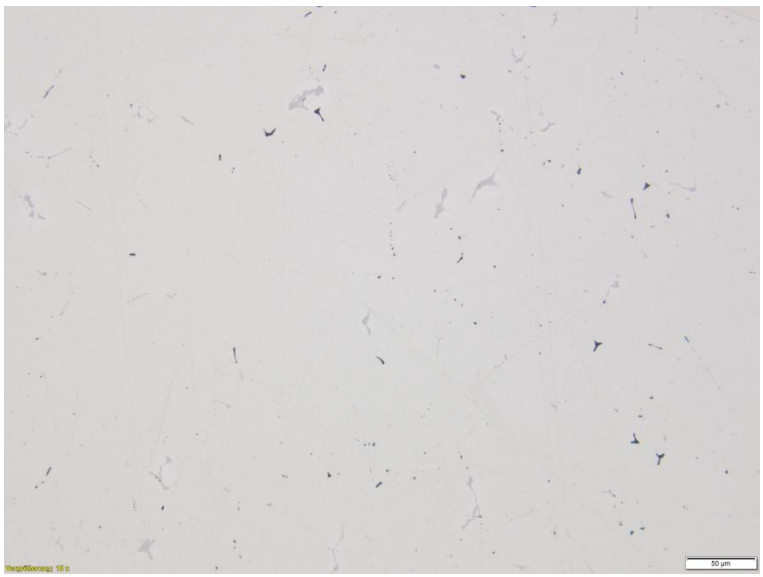
Product data sheet
AA7075
EN AW-7075
EN AW-AlZn5,5MgCu

Structure of Our Billets

Depending on the process, a segregation zone occurs immediately in the marginalized layer of continuously cast billets.

Fundamentally, these should be removed prior to further processing of the billet: this is already the case for the turned billets we produce. Usually, these billets are also subjected to a final quality test by means of an automatic ultrasonic test underwater.
In the case of casting lengths, the depth of the segregation zone is shown by way of example at D. 178 mm.

Macrosection, d178 mm: segregation zone 3.1 mm



Microsection, d178 mm

Casting Length Dimensions

- Ø 178 mm
- Ø 203 mm
- Ø 225 mm
- Ø 252 mm
- Ø 277 mm
- Ø 313 mm
- Ø 372 mm
- Ø 424 mm
- Ø 432 mm

Turned billets

can be produced in all diameters from D. 140 mm –D. 420 mm.

Mechanical Properties

There is no standard for cast round rods (cast billets/bolts) that defines mechanical properties. A Brinell hardness in the homogenized state of approx. 70 HBW can be named as a guideline for cast material. The homogenized state (=”O3” as per EN 515) is comparable in strength with the annealed state (=”O”) for extruded products.
The final strength is essentially adjusted by the reshaping processes and/or heat treatments of our customers. On the next page, you can find empirical values on attainable strength values depending on the heat treatment.

contact: info@leichtmetall.eu
Leichtmetall Aluminium Giesserei Hannover GmbH, Göttinger Chausee 12 -14, 30453 Hannover, Germany

Leichtmetall
Aluminium Giesserei Hannover GmbH

Product data sheet
AA7075
EN AW-7075
EN AW-AlZn5,5MgCu

Empirical Values

We generally ship billets in the homogenized state (O3). This has the benefit of guaranteeing a consistent structure as well as good properties for further processing with reshaping processes like forging or extruding.
Empirical values of attainable mechanical properties can be found in the table “Mechanical Parameters.” Furthermore the physical properties of the alloy, as well as the possible heat treatments and technological properties, are also listed here.

Physical Properties

Density	2.8 g / cm^3
Solidification range	480-640 °C
Electr. Conductivity	19-23 MS / m
Thermal conductivity	130-160 W / (mK)
Modulus of elasticity	72,000 MPa
Specific heat	862 J / (kgK)
Shear modulus	27,100 MPa

Heat Treatment

Soft annealing, recrystallization annealing	
Annealing temperature	380 - 420 °C
Heat-up time	2-3 h
Cooling conditions	> 230 °C: ≤ 30°C + 3-5 h / h ≤ 230 °C: air
Hardening	
Solution annealing	470 - 480 °C
Quenching	water
Natural aging	(unusual)
Artificial aging	
Temperature	110 - 125 °C (II): 165 - 180 °C
Duration	(I): 12 - 24 h (II): 4 - 6 h

Mechanical Parameters

Condition	$R_{p0,2}$ (MPa)	R_m (MPa)	A (%)
O	165	275	10
H111	165	275	10
T6	400	470	5

(all stated values for extruded round rods d between 80-200 mm)

Technological Properties*

Weldability	
Gas / WIG / MIG	--
Resistance welding	+
Surface treatment	
Protective anodization	o
Anodization, decorative	--
Veneer, coating	o
Cold reshapeability	
Bending	o (Zustand O)
Pressing	--
Deep-drawing	· (condition O)
Upsetting	--
Impact Extrusion	--
Corrosion resistance	
Atmospheric conditions	-
Seawater	-
Brazeability	
Hard soldering with / without flux	--
Abrasion soldering	--
Soft soldering with flux	--
Hot reshapeability	
Extrusion molding	-
Drop forging / Open die forging	o
Machinability	
Annealed	nA
Work-hardened	nA
Hardened	+
Use in contact with food	No

*: ++: Very good, ---: Not possible

contact: info@leichtmetall.eu
Leichtmetall Aluminium Giesserei Hannover GmbH, Göttinger Chausee 12 -14, 30453 Hannover, Germany
Version 7075-01