

# DATA SHEETS

## Aluminium



New Material:

### FORMODAL® 07

Precision milled or rough sawn aluminium cast plates.  
Based on EN AW-1050A

Applications:

- Electronics industry
- Semiconductor industry
- Panelling in machine construction and plant construction
- Parts with a decorative surface
- Automotive parts
- Food industry



ALUMINIUM

COPPER

BRASS

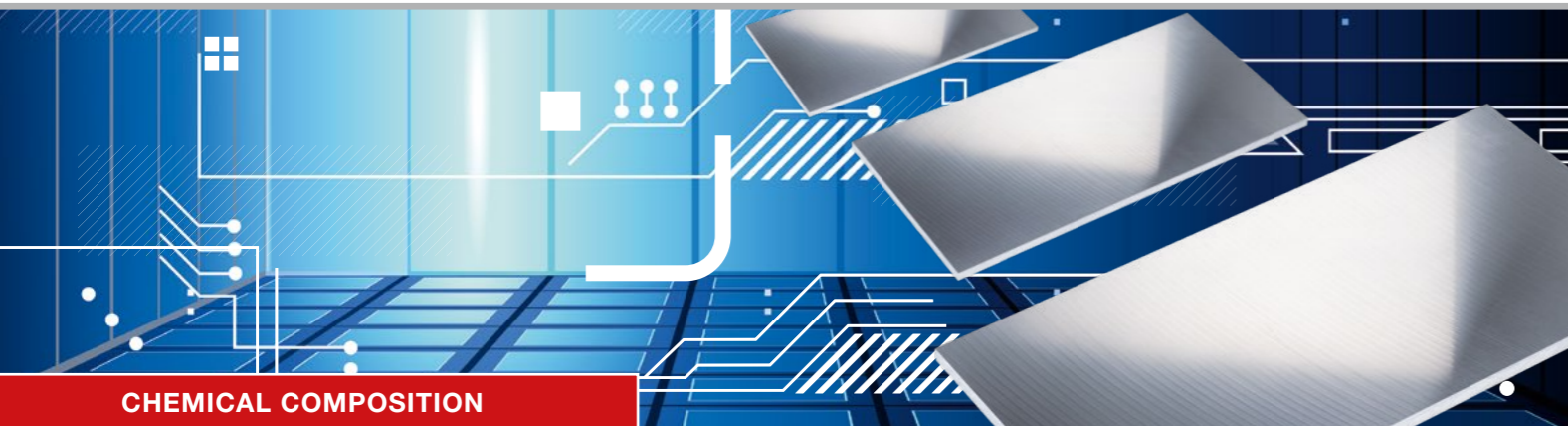
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## CHEMICAL COMPOSITION

### Aluminium and aluminium alloys

Precision milled or rough sawn aluminium cast plates



#### Alloy designation:

EN AW	1050A	
EN AW	Al99,5	
Material no. according to DIN	3.0255	
Great Britain BS	1B	
Italy UNI	9001/2	
Spain	L-3051	
Sweden	144007	
Norway	17010	
France AFNOR	A5	
Colour code	RAL 9004 Signal black	RAL 3020 Traffic red

#### Typical physical properties:

Density [g/cm³]	2,70	
Elastic modulus [GPa]	69	
Thermal conductivity [W/m*K]	210 – 220	
Thermal expansion coefficient [K <sup>-1</sup> *10 <sup>-6</sup> ]	-50°C – 20°C	21,7
	20°C – 100°C	23,5
	20°C – 200°C	24,4
	20°C – 300°C	25,4
Specific heat J/(kg * K)	900	
Electrical conductivity [m/Ω*mm²]	34 – 36	
Shear modulus [GPa]	25,9	

#### Chemical composition\*:

Specifications in %												Remainder: Aluminium		Other	
Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	Note	individual	Total <sup>2</sup>		
0,25	0,40	0,05	0,05	0,05	-	-	0,07	0,05	-	-	-	0,03	-		

<sup>x</sup> Chemical specifications as perc. of weight. If no ranges are specified, the alloy content has the maximum value.

<sup>2</sup> Includes all items listed for which no limit values are specified.

#### Special features of this material:

- Precision milled or rough sawn aluminium cast plates
- Very good anodising properties
- Very good corrosion resistance
- Low stress and dimensionally stable
- Good welding properties
- Very high electrical conductivity as well as thermal conductivity

#### Applications:

- Electronics industry
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- Automotive parts
- Food industry

#### Available forms:

**Sheets · Plates · Cuttings · Circular blanks · Rings · Parts from drawings**

#### Heating treatment:

Soft annealing / recrystallisation annealing	
Annealing temperature	320°C – 350°C
Heating-up time	0,5 – 2 hours
Cooling conditions	uncontrolled

#### Other data:

##### Processing / machinability

Soft annealed	4 – 5
Dimensional stability	1
Erosion	1

##### Surface treatment

Anodising - (protective anodisation)	1
Anodising quality (AQ)	1
Anodising - decorative	2
Painting / coating	3
Polishing	2

##### Welding

		Filler metal
Gas	2	SG-Al 99,5 SG-Al 99,5 Ti
WIG	2	
MIG	2 – 3	
Resistance welding	4	

##### Solder

Brazing with flux	1
Brazing without flux	1
Abrasion soldering	1
Soft soldering with flux	1

#### Hardening

Solution annealing	
Quenching	
Natural ageing treatment	
Artificial ageing treatment	

#### Corrosion resistance

In a normal atmosphere / weather conditions	2
Sea water atmosphere	2 – 3

#### Metal forming

Cold forming	
Bending	3
Pressure forming	3
Deep drawing (condition-based)	4
Upsetting (condition-based)	3
Impact extrusion	3
Hot forming	
Drop forging	1 – 2
Extrusion moulding	1 – 2
Hammer forging	-

Suitable for food industry according to DIN EN 602	yes
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#### Legend:

- 1 very good
  - 2 good
  - 3 moderate
  - 4 poor
  - 5 unsuited
- AQ anodising quality must be ordered separately and confirmed

The specifications in our data sheets are subject to correction and are only valid as references. Liability is excluded in this regard. We reserve the right to make changes to the standards and informative values. The agreements of our order confirmation are always authoritative. With regard to anodic oxidisability, we point out that we accept no liability for the anodisation result and the colour formation for decorative applications. The same applies to the corrosion resistance. Special arrangements must be made in writing.

# FORMODAL® 07



## MECHANICAL PROPERTIES

### Aluminium and aluminium alloys

Precision milled or rough sawn aluminium cast plates



#### Typical mechanical properties:

Temper	Nominal thickness mm		Tensile strength $R_m$ MPa	Elastic limit $R_{p0.2}$ MPa	Elongation % min.	Bending radius <sup>9</sup>	Hardness <sup>9</sup> HBW
	over	to	typical	typical	typical	typical	typical
O3	6	575	65	28	20	20	20

<sup>9</sup>

For information only

#### We supply aluminium sheets and plates of alloy FORMODAL® 07 in the following dimensions:

Thickness mm	Length x Width mm
6 - 575	6.000 x 1.550
6 - 575	4.500 x 1.770
6 - 575	3.520 x 1.770

#### Tolerances:

Cut to size by band saw		Plates
Thickness: -0/+2 mm	Length x Width: -0/+2 mm	Length x Width: ± 20 mm

#### Machined plates:

Thickness mm	Flatness tolerances mm <sup>1</sup>	Thickness tolerance mm
≥ 20	on request	± 0,1

Other dimensions on request:

<sup>1</sup> This specification refers to the total area; not only to sections of a plate or a pre-cut part.  
By dividing the surface, the flatness is not reduced proportionately.

- The milled plates are PVC coated on both sides!
- Casting alloys can contain micro pores, which particularly appear during coloured surface treatment or polishing.  
This is especially true for dark colours

Surface roughness	$R_a < 0,4 \mu\text{m}$
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