

DATA SHEETS

Aluminium



New Material:

FORMODAL[®] 036

High-strength cast plates

Specially for:

- tool making, mould making, model making
- injection moulds
- blow moulds
- machine and fixture construction
- base plates, table tops and mounting plates



ALUMINIUM

COPPER

BRASS

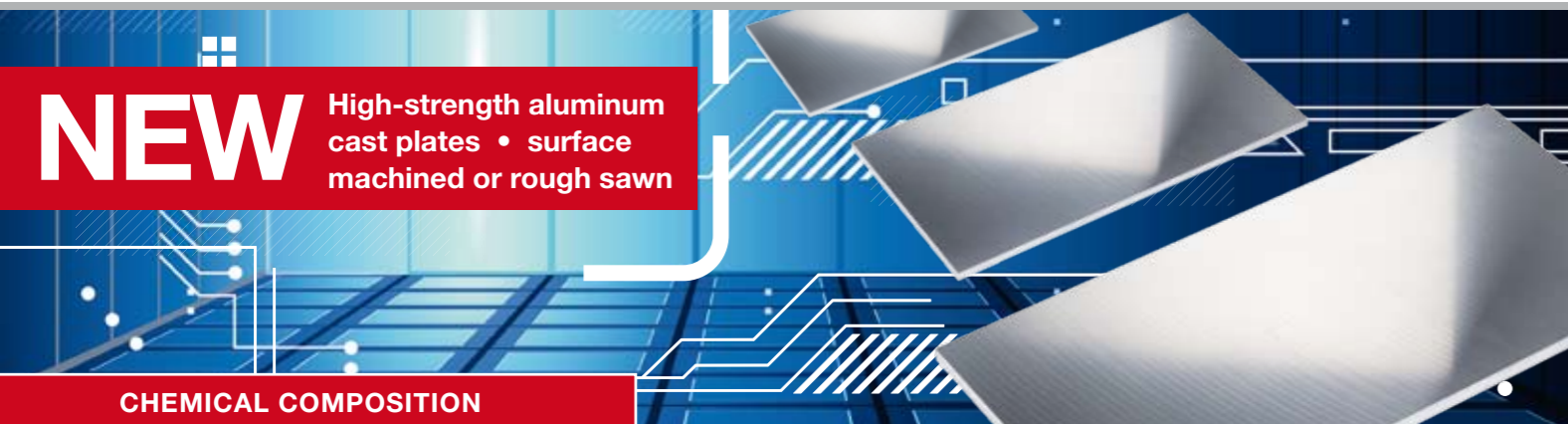
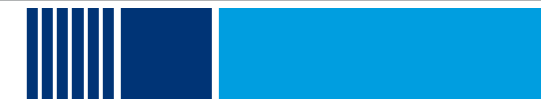
BRONZE

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BIKAR
METALLE



NEW High-strength aluminum cast plates • surface machined or rough sawn

CHEMICAL COMPOSITION

Aluminium and aluminium alloys

High-strength cast material for tool making, mould making and model making



Alloy designation:

EN AW-7021 (Special type)	(Al Zn5.5 Mg1.5)
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Typical physical properties:

Density [g/cm ³]	2,80
Elastic modulus [GPa]	70
Thermal conductivity [W/m*K]	125 – 155
Thermal expansion coefficient +20°C [K ⁻¹ *10 ⁻⁶]	23
Specific heat J/(kg * K)	875
Shear modulus [m/Ω*mm ²]	20-24

Chemical composition¹ (EN 573-3):

Specifications in %												Remainder: Aluminium		Other	
Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	Zr	Individual	Total ²		
0,25	0,40	0,25	0,1	1,2-1,8	0,05	-	5,0-6,0	0,1	-	-	0,08-0,18	0,05	0,15		

¹ Chemical specifications as perc. of weight. If no ranges are specified, the alloy content has the maximum value.

² Includes all items listed for which no limit values are specified.

Special features of this material:

- High-strength aluminum cast plates
- Surface machined and PVC coated or rough sawn
- Very good dimensional stability
- Low internal stresses
- Good welding properties
- Good corrosion resistance

Applications:

- Tool making, mould making and model making
- Injection moulds
- Blow moulds
- Machine and fixture construction
- Base plates, table tops and mounting plates

Available forms:

Sheets • Plates • Cuttings • Circular blanks • Rings • Parts from drawings

Heat treatment:

Soft annealing / recrystallisation annealing	
Annealing temperature	-
Heating-up time	-
Cooling conditions	-

Hardening	
Solution annealing	-
Quenching	-
Natural ageing treatment	-
Artificial ageing treatment	-

Other data:

Processing / machinability

Soft annealed	-
Work-hardened	-
Heat-treated	1
Dimensional stability	1
Erosion	1

Surface treatment

Anodising - (protective anodisation)	2 – 3
Special anodising quality (EQ) ^{EQ}	-
Anodising - decorative	5
Painting / coating	2 – 3
Polishing	1 – 2

Welding

	Filler metal	Filler metal
Gas	5	S-Al 5556 or S-Al 5183
WIG	1 – 2	
MIG	1 – 2	
Resistance welding	5	

Solder

Brazing with flux	-
Brazing without flux	-
Abrasion soldering	-
Soft soldering with flux	-

Corrosion resistance

In a normal atmosphere/ weather conditions	3
Sea water atmosphere	4 – 5

Metal forming

Cold forming	Delivery condition
Bending	5
Pressure forming	5
Deep drawing (condition-based)	5
Upsetting (condition-based)	5
Impact extrusion	5
Hot forming	
Drop forging	-
Extrusion moulding	-
Hammer forging	-

Suitable for food industry according to DIN EN 602	no
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Legend:

- 1 very good
- 2 good
- 3 moderate
- 4 poor
- 5 unsuited
- EQ 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[®] 036 high-strength • heat-treated



Aluminium and aluminium alloys

High-strength cast material for tool making, mould making and model making



Typical mechanical properties:

Delivery condition ⁵	Nominal thickness mm		Tensile strength R_m MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Hardness ⁹ HBW
	over	to	min.	max.	min.	max.	A5 mm	A	
T79	5	450	330	380	250	300	3	10	110-120
⁵ T79	Solution annealed and (very limited) heat-treated (artificially aged)								
⁹	For information only								

Machined plates:

Surface roughness:	R_a 0,4 μ m
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Tolerances:

Thickness (mm)	Flatness (mm)	Thickness (mm)	Length x Width (mm)
< 15	0,4	\pm 0,1	0/+20 / 0/+10
> 15	0,25	\pm 0,1	0/+20 / 0/+10
Cuttings			0/+0,3

We supply aluminium sheets and plates of alloy FORMODAL[®]036 in the following dimensions:

4000 x 1650 x 450 mm From this material, we can cut to your exact size requirements.

Available forms:

Sheets • Plates • Cuttings • Circular blanks • Rings • Parts from drawings
