

DATA SHEETS

Aluminium



precision milled rolled plates

FORMODAL® BM-6082

rolled • precision milled on both sides • PVC coated

Applications:

- shipbuilding
- railed vehicles
- boiler and container construction
- aerospace
- military technology



ALUMINIUM

COPPER

BRASS

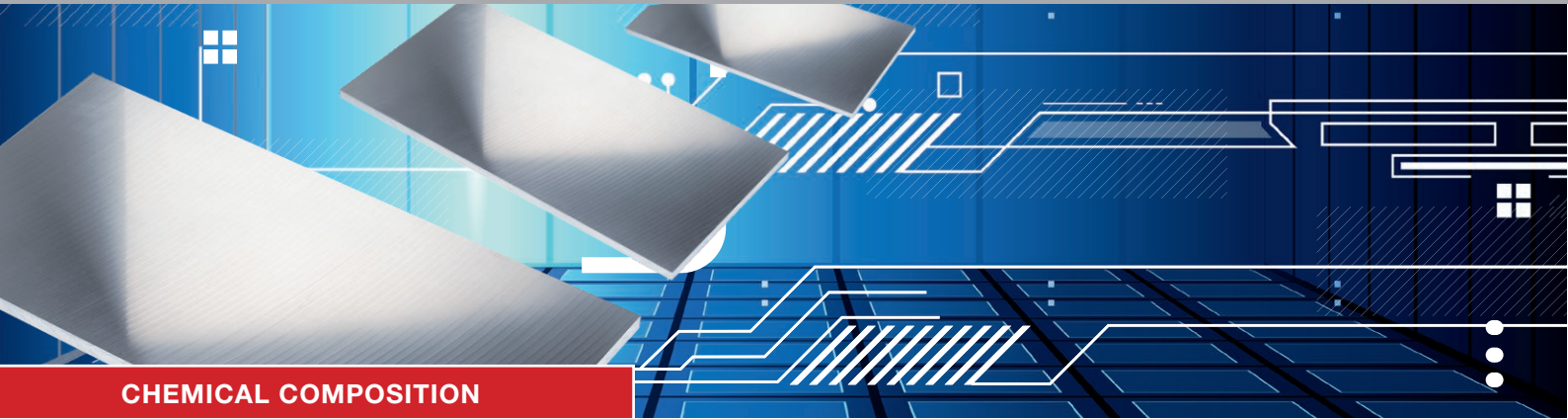
BRONZE

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BIKAR
METALLE



CHEMICAL COMPOSITION

Aluminium and aluminium alloys

rolled · precision milled on both sides · PVC coated



Alloy designation:

EN AW	Al Si1 Mg Mn
Old designation	Al Mg Si1
Material no. according to DIN	3.2315
Great Britain BS	H30
Italy UNI	9006/4
Spain	L-3453
Sweden	144212
Norway	
France AFNOR	A-SGM0,7
Colour code	RAL 5010 Gentian blue

Typical physical properties:

Density [g/cm³]		2,70
Elastic modulus [GPa]		70
Thermal conductivity [W/m*K]		170 – 220
Thermal expansion coefficient[K ⁻¹ *10 ⁻⁶]	-50°C – 20°C	
	20°C – 100°C	23,4
	20°C – 200°C	
	20°C – 300°C	
Specific heat J/(kg * K)		896
Electrical conductivity [m/Ω*mm²]		24 – 32
Shear modulus [GPa]		26,4

Chemical composition* (EN 573-3):

Specifications in % Remainder: Aluminium												Other	
Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	Note	Individual	Total ²
0,70 – 1,3	0,50	0,10	0,40 – 1,0	0,60 – 1,2	0,25	-	0,20	0,10	-	-	-	0,05	0,15

^x 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:

- Precision milled plates
- Good corrosion resistance
- Good welding properties
- Curable alloy
- Good machinability

Applications:

- Shipbuilding
- Railed vehicles
- Boiler and container construction
- Aerospace
- Military technology

Available forms:

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

Heat treatment:

Soft annealing / recrystallisation annealing	
Annealing temperature	380°C – 420°C
Heating-up time	1 – 2 hours
Cooling conditions	≤ 30°C/h to 230°C + 3 – 5 hours hold time, below 230°C in air

Other data:

Processing / machinability

Soft annealed	4
Work-hardened	-
Heat-treated	2
Dimensional stability	3 – 4
Erosion	1

Surface treatment

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

Welding

		Filler metal
Gas	3	SG-Al Mg4 SG-Al Mg4,5Mn SG-Al Si5
WIG	2	
MIG	1	
Resistance welding	3	

Solder

Brazing with flux	3 – 5
Brazing without flux	4
Abrasion soldering	2
Soft soldering with flux	3

Legend:

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

Hardening	
Solution annealing	470°C – 480°C
Quenching	water
Natural ageing treatment	Artificial ageing is usual
Artificial ageing treatment	1. stage 110°C – 125°C · 12 – 24 hours 2. stage 165°C – 180°C · 4 – 6 hours

Corrosion resistance

In a normal atmosphere/ weather conditions	1
Sea water atmosphere	2

Metal forming

Cold forming		Delivery condition
Bending	3	T3 · T4
Pressure forming	2	O
Deep drawing (condition-based)	2	O
Upsetting (condition-based)	2	O
Impact extrusion	2	O

Hot forming	
Drop forging	2
Extrusion moulding	2
Hammer forging	2

Suitable for food industry according to DIN EN 602	yes
Working temperatures	Long-term approx. 120°C – 135°C Short-term approx. 155°C – 170°C

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.

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EN 485-2 Typical mechanical properties:

Delivery condition	Nominal thickness mm		Tensile strength R_m MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % A50mm		Bending radius ⁹		Hardness ⁹ HBW
	over	to	min.	typical	min.	typical	min.	typical	180°	90°	
T651	8,0	12,5	300	350	255	305	9	11	-	-	105
	12,5	25,0	295	350	240	305	8	11	-	-	105
	25,0	60,0	295	350	240	310	8	11	-	-	105
	60,0	100,0	295	350	240	310	7	11	-	-	105
	100,0	140,0	275	350	240	310	6	11	-	-	105
⁹	For information only										

We supply aluminium sheets and plates of alloy FORMODAL® BM-6082 in the following dimensions:

3020 x 1520 mm

Tolerances:

	Thickness tolerance	Flatness tolerance ¹
8-15 mm	±0,1 mm	max. 0,50 mm
15-140 mm	±0,1 mm	max. 0,35 mm
Other dimensions on request.		
¹ 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.		
Surface roughness:	R _a 0,4 µm	

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