DATA SHEETS
Aluminum

FORMODAL®

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

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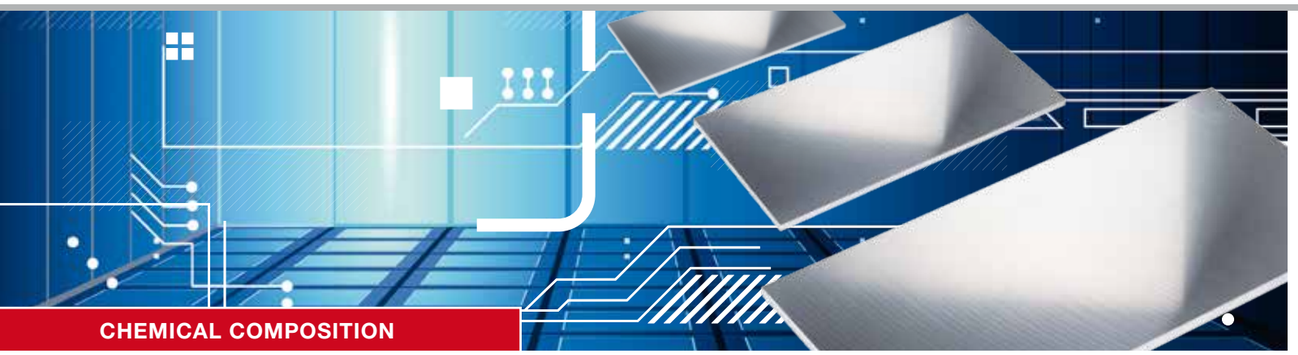

CHEMICAL COMPOSITION

Aluminum and aluminum 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
Color code	RAL 5010 Gentian blue

Typical physical properties:

Density [lb./in³]		0.0975
Elastic modulus		10152 ksi
Thermal conductivity		98.3 – 127.2 Btu/ft x h x °F
Coeff. of Thermal Exp.	-58°F – 68°F	
	68°F – 212°F	12.78
	68°F – 392°F	
	68°F – 572°F	
Specific heat		167 ft lbf / lb °F
Electrical conductivity [m/Ω*mm²]		24 – 32

Chemical composition[x] (EN 573-3):

Specifications in % Remainder: Aluminum												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

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Homogenization:

Soft annealing / recrystallization annealing	
Annealing temperature	716°F – 788°F
Heating-up time	1 – 2 hours
Cooling conditions	≤ 86°F/h to 446°F + 3 – 5 hours hold time, below 446°F in air

Hardening	
Solution annealing	878°F – 896°F
Quenching	water
Natural aging treatment	Artificial aging is usual
Artificial aging treatment	1. stage 230°F – 257°F · 12 – 24 hours 2. stage 329°F – 356°F · 4 – 6 hours

Other data:

Processing / machinability

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

Surface treatment

Anodizing - (protective anodization)	1
Special anodizing quality (EQ)[EQ]	-
Anodizing - 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

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 molding	2	
Hammer forging	2	

Suitable for food industry according to DIN EN 602	yes
Working temperatures	Long-term approx. 248°F – 275°F Short-term approx. 311°F – 338°F

Legend:

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

Version 110916 - This data sheet replaces all previous versions.

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MECHANICAL PROPERTIES

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EN 485-2 Mechanical properties:

Delivery condition	Nominal thickness in.		Tensile strength R_m MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Bending radius[9]		Hardness[9] HBW
	over	to	min.	typical	min.	typical	min. A1.97"	typical A 1.97"	180°	90°	
T651	0.315"	0.492"	43.5	50.8	37.0	44.2	9	11	-	-	105
	0.492"	0.984"	42.8	50.8	34.8	44.2	8	11	-	-	105
	0.984"	2.36"	42.8	50.8	34.8	45.0	8	11	-	-	105
	2.36"	3.94"	42.8	50.8	34.8	45.0	7	11	-	-	105
	3.94"	5.51"	39.9	50.8	34.8	45.0	6	11	-	-	105

[9] *For information only*

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

118.90 x 59.84 in.

Tolerances:

	Thickness tolerance in.	Flatness tolerance[1] in.
0.315" – 0.591"	±0.004"	max. 0.02"
0.591" – 5.51"	±0.004"	max. 0.014"

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 15.75 µin

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