

DATA SHEETS

Aluminium



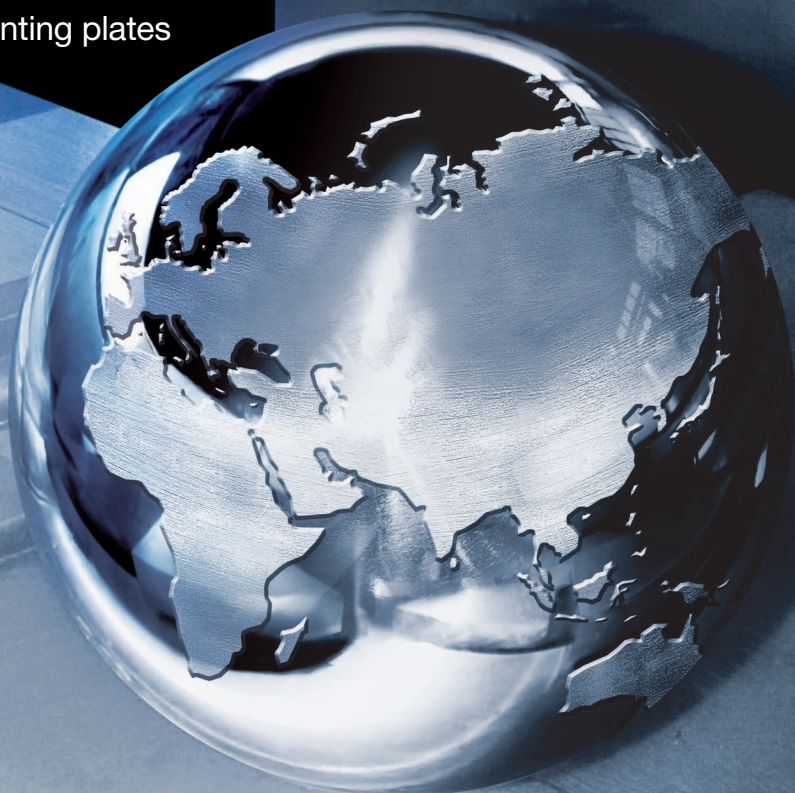
Special Material:

FORMODAL[®] 060

high-strength rolled plates

Applications:

- tool making, mould making, model making
- pressing technique
- base plates, table tops and mounting plates



ALUMINIUM

COPPER

BRASS

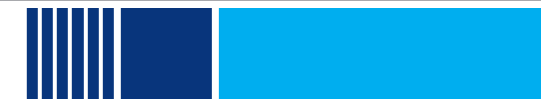
BRONZE

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METALLE



CHEMICAL COMPOSITION

Aluminium and aluminium alloys

rolled · forged



Alloy designation:

EN AW	7050 (similar)
Old designation	Al Zn6 Cu Mg Zr (similar)
Material no. according to DIN	
Great Britain BS	
Italy UNI	
Spain	
Sweden	
Norway	
France AFNOR	
Colour code	

Typical physical properties:

Density [g/cm³]		2,83
Elastic modulus [GPa]		70,3
Thermal conductivity [W/m*K]		154
Thermal expansion coefficient [K ⁻¹ *10 ⁻⁶]	-50°C – 20°C	
	20°C – 100°C	23,5
	20°C – 200°C	
	20°C – 300°C	
Specific heat J/(kg * K)		
Electrical conductivity [m/Ω*mm²]		23,0

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		
0,30	0,35	1,5 – 2,6	0,10	1,8 – 2,6	0,05	-	5,7 – 7,6	0,06	-	-	Zr 0,08 – 0,25	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:

- Rolled plates: according to thickness stretched or compressed
- Optimised for high core strength and optimal dimensional stability for higher strengths
- Very good machinability

Applications:

- Tool making, mould making and model making
 - Blow moulds, injection moulds and vacuum moulds
 - Laminating tools
- Pressing technique
 - Anvil cap and stamp holder
- Base plates, table tops and mounting plates
 - Structures with high strength requirements

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	3
Erosion	1

Surface treatment

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

Welding

		Filler metal
Gas	-	S Al Si5 (4043)
WIG	3 – 4	S Al Mg4,5 Mn (5183)
MIG	3 – 4	S Al Mg5 Mn (5556)
Resistance welding	3	S Al Cu6 Mn Zr Ti (2319)

Solder

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

Legend:

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

Corrosion resistance

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

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	5	
Extrusion moulding	5	
Hammer forging	5	

Suitable for food industry according to DIN EN 602	no
Working temperatures	Long-term to 100°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.

FORMODAL® 060 rolled · forged



MECHANICAL PROPERTIES

Aluminium and aluminium alloys
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Typical mechanical properties:

Delivery condition	Nominal thickness mm		Tensile strength R_m MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Bending radius ⁹		Hardness ⁹ HBW
	over	to	min.	max.	min.	max.	A50 mm	typical A50 mm	180°	90°	
T6 T651 T652		100	550	575	495	535	4,0	7,5	-	-	180
	100	200	500	545	430	485	1,0	4,0	-	-	180
	200	300	460	515	400	455	1,0	2,0	-	-	180
	300	325	450	500	390	430	1,0	2,0	-	-	180
	325	400	-	485	-	415	-	2,0	-	-	180

⁹ For information only

We supply aluminium sheets and plates of alloy FORMODAL® 060 in the following dimensions:

Thickness mm	Length x Width mm
<100 - ≤400 mm	3.600 x 1.650

Available forms:

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