

DATA SHEETS

Aluminum



New Material:

FORMODAL[®] 060

rolled • stretched • compressed

Specially for:

- tool making, mold making, model making

Optimized for high core strength
and optimal dimensional stability
for higher strengths



ALUMINUM

COPPER

BRASS

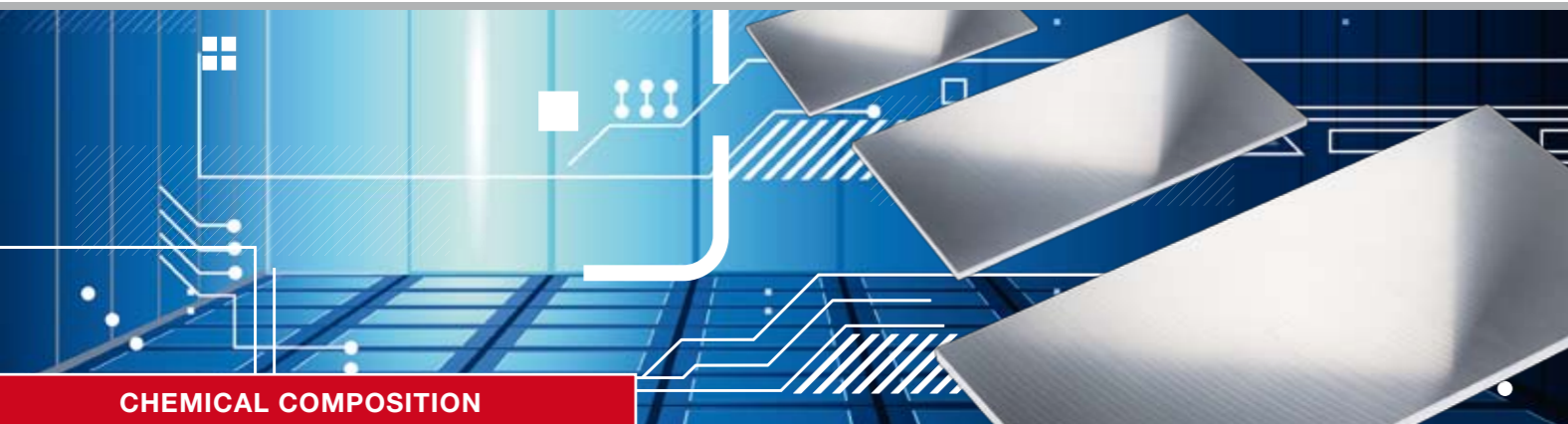
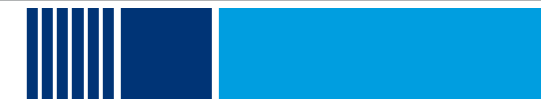
BRONZE

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CHEMICAL COMPOSITION

Aluminum and aluminum alloys

Specially for tool making, mold making and model making
rolled · stretched · compressed



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	
Color code	

Typical physical properties:

Density [lb./in³]	0.1022	
Modulus of Elasticity	10196 ksi	
Thermal conductivity	89 Btu/ft x h x °F	
Coeff. of Thermal Exp.	-58°F – -4°F	
	68°F – 212°F	12.78
	68°F – 392°F	
	68°F – 572°F	
Specific heat		
Electrical conductivity	40 IACS	

Chemical composition* (EN 573-3):

Specifications in %											Remainder: Aluminum		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
- Optimized for high core strength and optimal dimensional stability for higher strengths
- Very good machinability

Applications:

- Tool making, mold making and model making
 - Blow molds, injection molds and vacuum molds
 - 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

Homogenization:

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

Other data:

Processing / machinability

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

Surface treatment

Anodizing - (protective anodization)	2
Special anodizing quality (EQ) ^{EQ}	-
Anodizing - 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 anodizing quality must be ordered separately and confirmed

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

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 molding	5	
Hammer forging	5	

Suitable for food industry according to DIN EN 602	no
Working temperatures	Long-term to 212 °F

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 anodization result and the color formation for decorative applications. The same applies to the corrosion resistance. Special arrangements must be made in writing.

FORMODAL® 060 rolled · stretched · compressed



MECHANICAL PROPERTIES

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Typical mechanical properties:

Delivery condition	Nominal thickness in.		Typical Tensile Strength ksi		0.2% Yield Strength ksi		Typical Elongation		Bending radius ⁹		Hardness ⁹ HBW
	over	to	min.	max.	min.	max.	A50 mm	typical A50 mm	180°	90°	
T6 T651 T652		3.94	79.8	83.4	71.8	77.6	4.0	7.5	-	-	180
	3.94	7.87	72.5	79	62.4	70.3	1.0	4.0	-	-	180
	7.87	11.81	66.7	74.7	58.0	66	1.0	2.0	-	-	180
	11.81	12.80	65.3	72.5	56.6	62.4	1.0	2.0	-	-	180
	12.80	15.75	-	70.3	-	60.2	-	2.0	-	-	180
⁹	For information only										

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

Thickness in.	Length x Width in.
3.94 – 7.87 rolled · stretched	141.73 x 64.96
7.87 – 15.75 rolled · upset	141.73 x 64.96

Available forms:

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