ALU-CUTTING HUNGARY ZRT.
info@alucut.hu | +36 27 200 860 | 2120 Dunakeszi, Repülőtéri út 1.

FORMODAL® 030 – Cast plates · precision milled

Chemical Composition

Aluminium and aluminium alloys
Specially for tool making, mould making and model making cast · surface machined · PVC coated on both sides

Alloy designation	
EN AW	**5083**
EN AW	**Al Mg4,5 Mn0,7**
Old designation	**Al Mg4,5 Mn**
Material no. according to DIN	**3.3547**
Great Britain BS	**N8**
Italy UNI	**7790**
Spain	**L-3321**
Sweden	**144140**
Norway	**17215**
France AFNOR	**A-G4,5MC**
Colour code	**RAL 8002 Signal Brown** ●

Special features of this material

- ✔ Surface machined cast plates
- ✔ Very good machinability
- ✔ Excellent corrosion resistance
- ✔ Good welding properties
- ✔ Low stress and dimensionally stable

Applications:

- ✔ Tool making, mould making and model making
- ✔ Blow moulds and injection moulds
- ✔ Laminating tools
- ✔ Moulds for elastomer materials
- ✔ Moulds and heat-stressed parts
- ✔ Moulds with welded construction
- ✔ Refrigeration technology

Typical physical properties		
Density [g/cm³]		**2.66**
Elastic modulus [GPa]		**70**
Thermal conductivity [W/m*K]		**110 – 140**
Thermal expansion coefficient [$K^{-1} * 10^{-6}$]	-50 – 20°C	
	20 – 100°C	**23,5**
	20 – 200°C	
	20 – 300°C	
Specific heat [J/kg*K]		**900**
Electrical conductivity [m/Ω*mm²]		**16 – 18**

Chemical composition* (EN 573-3)

Specifications (%) Remainder: Alumínium												Other	
Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	Note	Individual	Total²
0,40	0,40	0,10	0,40–1,0	4,0–4,9	0,05–0,25	-	0,25	0,15	-	-	-	0,05	0,15

* Chemical specifications as % by 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.

Available forms					
Sheets	Plates	Cuttings	Circular blanks	Rings	Parts from drawings

Heat treatment

Soft annealing / recrystallisation annealing	
Annealing temperature	**380°C – 420°C**
Heating-up time	**0.5 – 3 hours**
Cooling conditions	**30°C/h – 50°C/h**

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

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Other data

Processing / machinability	
Homogenised and stress relieved	1 – 2
Dimensional stability	1
Erosion	1

Surface treatment	
Anodising – (protective anodisation)	2
Special anodising quality (EQ)EQ	-
Anodising – decorative	5
Painting / coating	4
Polishing	2 – 3

Welding		
Gas	4	Filler. metal S-Al 5183 S-Al 535 S-Al 5087
WIG	2	
MIG	2	
Resistance welding	2	

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

Corrosion resistance	
In a normal atmosphere / weather conditions	1
Sea water atmosphere	1

Metal forming	
Cold forming	
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
yes

Legend:
1. very good
2. good
3. moderate
4. poor
5. unsuited

EQ anodising quality must be ordered separately and confirmed

Mechanical Properties

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 HBW [9]
	over	to	min.	max.	min.	max.	A10 mm	A	180°	90°	
O3	6	160	230	290	110	130	15	-	-	-	70–80

We supply aluminium sheets and plates of alloy FORMODAL®030 in the following dimensions

Thickness mm	Length x Width mm
5 - 160	3.020 x 1.520
5 - 160	3.670 x 1.570
10 - 160	4.000 x 2.160
10 - 85	6.000 x 2.160
10 - 120	6.100 x 1.520

Surface roughness

Ra 0,2 - 0,4 µm

Tolerances

Thickness mm	Flatness mm[1]	Thickness tolerance mm
≥ 5 - ≤ 6	≤ 0,85	± 0,1
≥ 6 - ≤ 13	≤ 0,44	± 0,1
≥ 13	≤ 0,14	± 0,1

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.

- The plates are plain-milled and foiled on both sides for tool making!
- Casting alloys can contain micro pores, which particularly appear during coloured surface treatment or polishing. This is especially true for dark colours.

Source: BIKAR