DATA SHEETS
Aluminium

FORMODAL®

New Material:

FORMODAL® 024 elox

cast plates with improved anodising ability

Applications:
- tool making, mould making and model making
- laser technology
- cover plates
- printing technology
- fixture construction
- electronics and optical industry
- packaging technology
- medical technology

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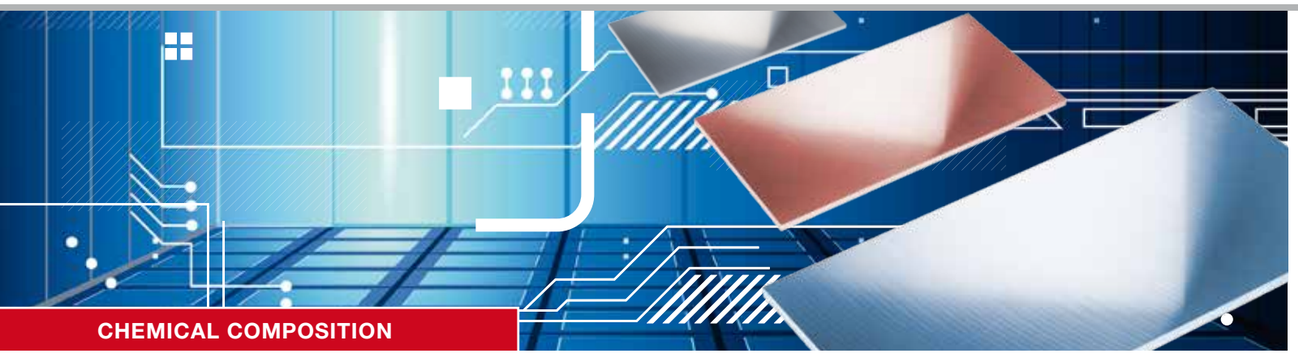
BIKAR METALS

FORMODAL® 024 elox



CHEMICAL COMPOSITION

Aluminium and aluminium alloys

Special alloy with improved anodising ability
cast plates · precision milled or rough sawn

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

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°C – 20°C	
	20°C – 100°C	23,5
	20°C – 200°C	
	20°C – 300°C	
Specific heat J/(kg * K)		900
Electrical conductivity [m/Ω*mm²]		16 – 18

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

Specifications in % Remainder: Aluminium												Other	
Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	Note	Individual	Total[2]
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

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:

- Very good machinability
- Excellent corrosion resistance
- Good welding properties
- Low stress and dimensionally stable
- Improved anodising ability through optimised casting process and special homogenisation
- Very good polishing
- Very fine-grained structure

Applications:

- Tool making, mould making and model making
- Laser technology
- Cover plates
- Printing technology
- Fixture construction
- Electronics and optical industry
- Packaging technology
- Medical technology

Available forms:

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

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Heat treatment:

Special homogenisation technique according to BIKAR specification.

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

Other data:

Processing / machinability

Homogenised and stress relieved	1 – 2
Dimensional stability	1
Erosion	1

Surface treatment

Anodising - (protective anodisation)	1
Anodising - decorative	2 *
Painting / coating	4
Polishing	2 – 3

Welding

		Filler metal
Gas	4	S-Al 5183 S-Al 5356 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		Delivery condition
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

**: For physical reasons we can't guarantee the color finish.*

Go to Shop

Legend:

1	very good
2	good
3	moderate
4	poor
5	unsuited

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.

Version 110916 - This data sheet replaces all previous versions.

FORMODAL® 024 elox

MECHANICAL PROPERTIES

Aluminium and aluminium alloys

Special alloy with improved anodising ability
cast plates · precision milled or rough sawn

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
O3	over	to	min.	max.	min.	max.	A10 mm	A	180°	90°	
	5	500	230	290	110	130	15	-			70 – 80

[9] *For information only*

We supply aluminium sheets and plates of alloy FORMODAL® 024 elox in the following dimensions:

Thickness mm	Length x Width mm
5* – 500	3.025 x 1.550

Tolerances for raw cast material:

Cut to size by band saw		Plates
Thickness: -0/+3 mm	Length x Width: -0/+3 mm	Length x Width: ± 20 mm

Tolerances for plain milled material:

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.

Surface roughness:	R_a 0,2 - 0,4 µm

Anodising ability of alloy:

With **FORMODAL® 024 elox**, the physical limits of the anodising ability are exploited with an optimised casting process and special homogenisation.
This produces optimum anodising results for this alloy.
However, for physical reasons (magnesium content), deviations in the anodised finish can occur, for which BIKAR is unable to accept any liability.

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