

DATA SHEETS

Aluminium



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



ALUMINIUM

COPPER

BRASS

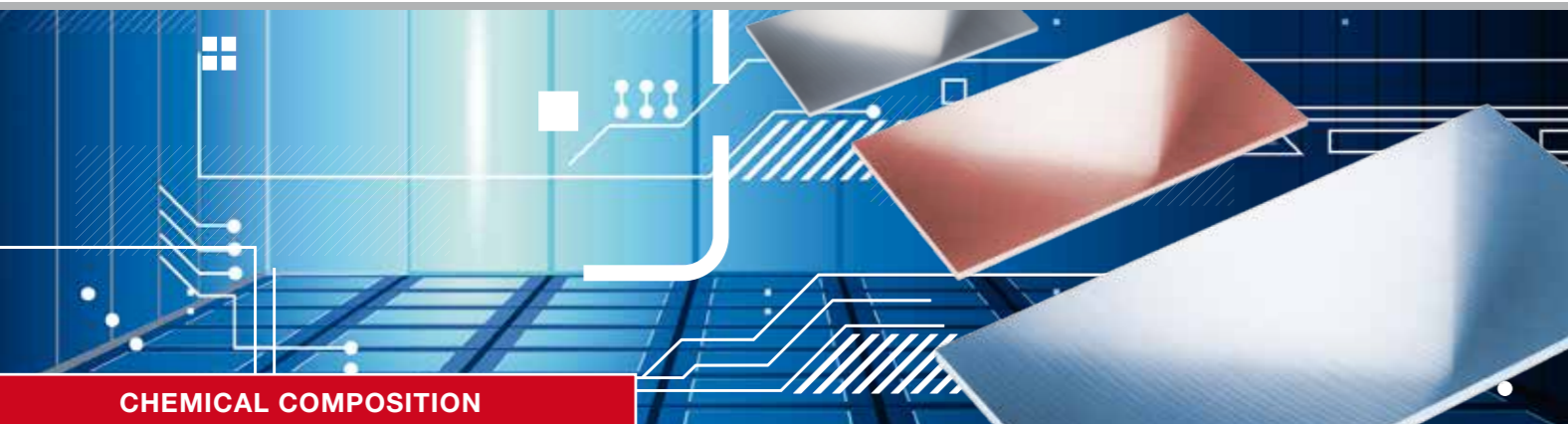
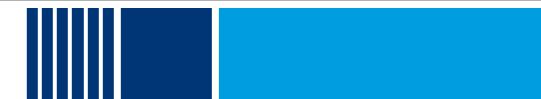
BRONZE

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BIKAR
METALLE



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* (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

Heat treatment:

Special homogenisation technique according to BIKAR specification.

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	
WIG	2	S-Al 5183
MIG	2	S-Al 5356
Resistance welding	2	S-Al 5087

Solder

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

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

Legend:

- 1 very good
- 2 good
- 3 moderate
- 4 poor
- 5 unsuited

Hardening

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

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**

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® 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
	over	to	min.	max.	min.	max.	A10 mm	A	180°	90°	
O3	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
* Precision milled plates available from 10 mm	

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.

Available forms:

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