

DATA SHEETS

Aluminium



Special material:

FORMODAL® 023 compact

High-pressure compacted special casting free of microporosity

Application areas:

- Mould and tool making
- Polishing and graining
- Fast rotating components
- Vacuum technology
- Components with alternating mechanical load



ALUMINIUM

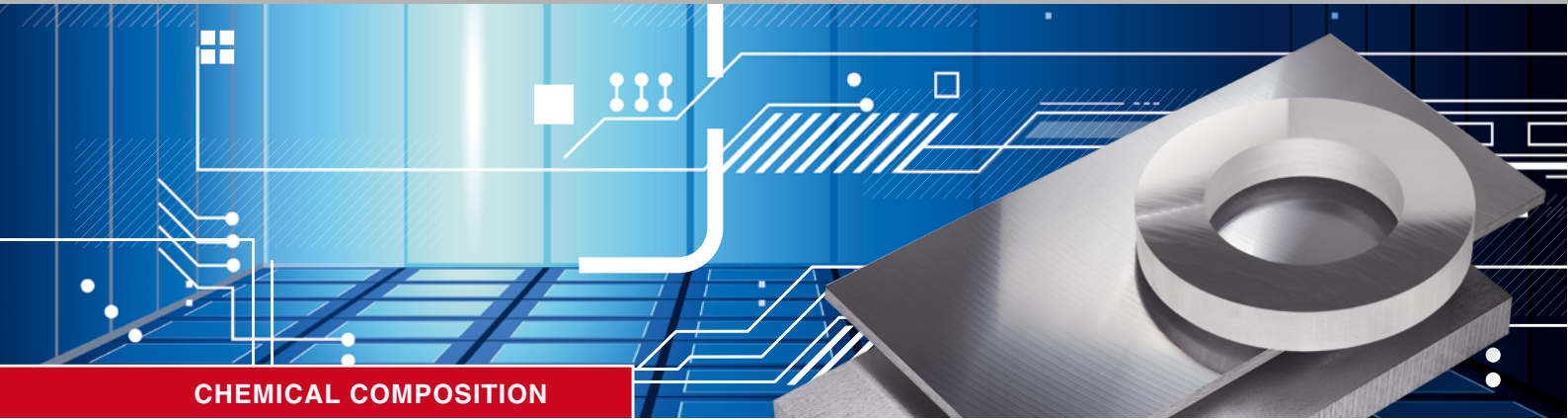
COPPER

BRASS

BRONZE

FORMODAL® 023 compact

WORLD OF METALS



CHEMICAL COMPOSITION

Aluminium and aluminium alloys

High-pressure compacted special casting free of microporosity



Alloy name:

EN AW	5083
EN AW	Al Mg4,5Mn0,7
Alloy type	naturally hard
Delivery condition	O3
Italy UNI	
Spain	
Sweden	
Norway	
France AFNOR	
Colour code	RAL 8002 Signal brown

Typical physical properties:

Density [g/cm³]		2,66
Modulus of elasticity [GPa]		70
Thermal conductivity [W/m*K]		110 – 130
Coefficient of thermal expansion [K ⁻¹ *10 ⁻⁶]	-50°C – 20°C	
	20°C – 100°C	23,3
	20°C – 200°C	
	20°C – 300°C	
Specific heat J/(kg * K)		900
electric conductivity [m/Ω*mm²]		16 – 18

Chemical composition*:

Figures in % Remainder: Aluminium												Other	
Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	Comment	Single	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 data in %. If no ranges are given, the alloy content represents the maximum value.													
² Includes all listed elements for which no limits are specified.													

Special features of this material:

- Increased fatigue strength
- Extremely non-porous with very homogeneous structure, thus diffusion-tight
- Very good machinability
- Very good polishability
- Suitable for use under varying loads

Areas of use:

- Mould and tool making
- Polishing and graining
- Fast rotating components
- Vacuum technology
- Components with alternating mechanical load

Available shapes:

Sheets · Plates · Blanks · Circular blanks · Rings · Drawing parts

Other dimensions on request.

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Heat treatment:

Homogenised

Other data:

Machining / Machinability

homogenised and relaxed	
Dimensional stability/residual stress	1
Machinability	1 – 2
Eroding	

Surface treatment

Polishability	2
Suitability for structural etching	3 – 4
Anodise	
technical	1
decorative	3
Hard anodising	2

Schweißen

Gas	4
WIG	2
MIG	2
Widerstandsschweißen	2
EB	1

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Legend:

- 1 very good
 - 2 good
 - 3 moderate
 - 4 bad
 - 5 unsuitable
- EQ Anodising quality must be ordered and confirmed separately

Hardening

Solution annealing	
Quenching	
Cold ageing	
Warm outsourcing	

Soldering

Brazing with flux	
Brazing without flux	
Friction soldering	
Soft soldering with flux	

Corrosion resistance

in normal atmosphere/weather	1
Seawater atmosphere	1
Stress corrosion cracking	2

Forming

Cold forming		Delivery condition
Bending		
Press		
Deep drawing (conditional)		
Upsetting (conditional)		
Impact extrusion		
Hot forming		
Drop forging		
Extrusion		
Open-die forging		
Temperature insert		
max. °C at duration		180
Short-term assignment		280

Food industry suitable according to DIN EN 602	yes
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The information in our data sheets is without guarantee and is only intended as a reference. Any liability in this respect is excluded. We reserve the right to make changes to the standards and informative values. The agreements in our order confirmation are always authoritative. With regard to anodisability, we would like to point out that no liability is assumed for the anodising result and the colour formation in the decorative area. The same applies to corrosion resistance. Special agreements must be made in writing.

Version 020925 - This data sheet replaces all previous versions.



FORMODAL® 023 compact

MECHANICAL PROPERTIES

Aluminium and aluminium alloys

High-pressure compacted special casting free of microporosity

Typical mechanical properties:

Delivery condition	Nominal thickness mm		Tensile strength R_m MPa	Yield strength $R_{p0.2}$ MPa	Elongation at break A% min.	Hardness ⁹ HB typ.
O3	about	to	typ.	typ.	12	75
	10	500	250	115		
⁹	For information only					

We supply aluminium sheets and plates of the alloy FORMODAL® 023 compact in the following dimensional ranges:

Thickness mm	Length x width mm
10 – 500	1.395 x 1.030

Tolerances:

thickness tolerance mm	Flatness mm	Thickness mm	Length & width mm
10 – 500	–	-0/ +3	-0/ +3

Other tolerances on request.

Available shapes:

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Other dimensions on request.

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