

## CHEMICAL COMPOSITION

### Aluminium and aluminium alloys

#### Alloy designation:

EN AW	Al Cu4 Pb Mg Mn
Old designation	Al Cu Mg Pb
Material no. according to DIN	3.1645
Great Britain BS	
Italy UNI	9002/8
Spain	
Sweden	
Norway	17110
France AFNOR	
Colour code	RAL 9004 Signal black

#### Typical physical properties:

Density [g/cm <sup>3</sup> ]	2,85	
Elastic modulus [GPa]	72,5	
Thermal conductivity [W/m*K]	130 – 160	
Thermal expansion coefficient [K <sup>-1</sup> *10 <sup>-6</sup> ]	-50°C – 20°C	
	20°C – 100°C	23,0
	20°C – 200°C	
	20°C – 300°C	
Specific heat J/(kg * K)	860	
Electrical conductivity [m/Ω*mm <sup>2</sup> ]	18 – 22	
Shear modulus [GPa]	27,3	

#### Chemical composition\* (EN 573-3):

Specifications in %											Remainder: Aluminium		Other	
Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	Note	Individual	Total <sup>2</sup>	
0,80	0,80	3,3 – 4,6	0,50 – 1,0	0,40 – 1,8	0,10	0,20	0,80	0,20	-	-	0,20 Bi • 0,80 – 1,5 Pb • 0,20 Sn	0,10	0,30	

<sup>x</sup> Chemical specifications as perc. of weight. If no ranges are specified, the alloy content has the maximum value.

<sup>2</sup> Includes all items listed for which no limit values are specified.

#### Special features of this material:

- Good machinability, short-chip drilling and turning quality (machining alloy)
- Curable
- Relatively high strength

#### Applications:

- Machine and fixture construction
- Turned and milled parts
- Screws, nuts

#### Available forms:

Bars • Tubes • Wires • Parts from drawings

#### Heat treatment:

Soft annealing / recrystallisation annealing	
Annealing temperature	380°C – 420°C
Heating-up time	1 – 2 hours
Cooling conditions	Cooling conditions 30°C/h to 250°C, below 250°C in air

#### Other data:

##### Processing / machinability

Soft annealed	-
Work-hardened	-
Heat-treated	1
Dimensional stability	2
Erosion	1

##### Surface treatment

Anodising - (protective anodisation)	4 – 5
Special anodising quality (EQ) <sup>EQ</sup>	-
Anodising - decorative	5
Painting / coating	4
Polishing	3

##### Welding

	Filler metal
Gas	-
WIG	-
MIG	-
Resistance welding	-

##### Solder

Brazing with flux	5
Brazing without flux	5
Abrasion soldering	4 – 5
Soft soldering with flux	-

#### Legend:

- 1 very good
- 2 good
- 3 moderate
- 4 poor
- 5 unsuited
- EQ anodising quality must be ordered separately and confirmed

Hardening	
Solution annealing	480°C – 490°C
Quenching	water to 65°C
Natural ageing treatment	5 – 8 days
Artificial ageing treatment	-

#### Corrosion resistance

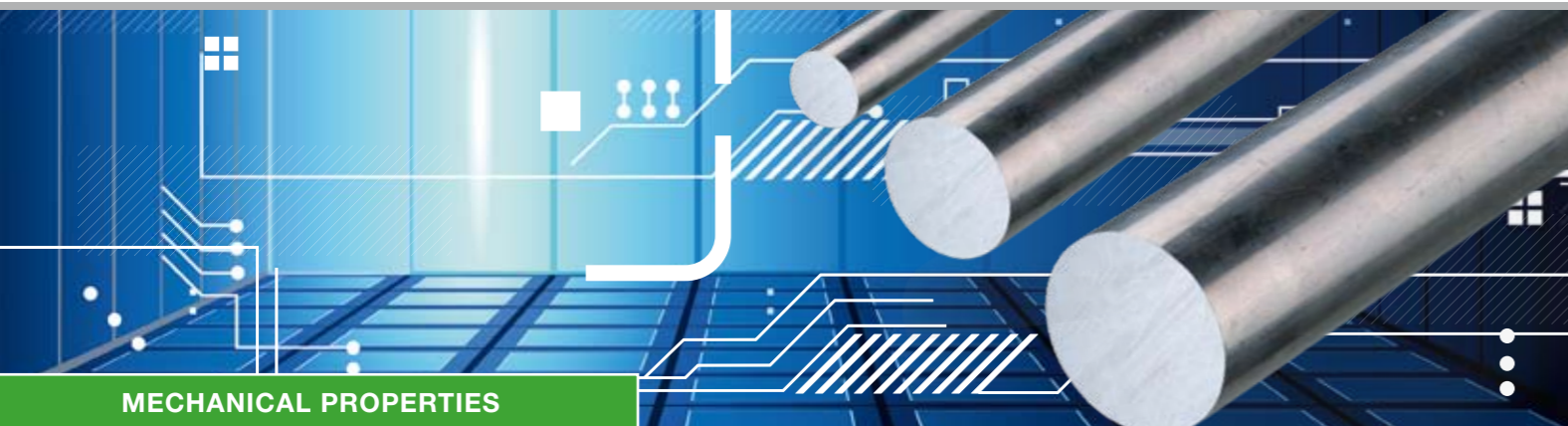
In a normal atmosphere/ weather conditions	4 – 5
Sea water atmosphere	4 – 5

#### Metal forming

Cold forming	Delivery condition
Bending	4 – 5
Pressure forming	-
Deep drawing (condition-based)	-
Upsetting (condition-based)	4 – 5
Impact extrusion	-
Hot forming	
Drop forging	-
Extrusion moulding	4
Hammer forging	-

Suitable for food industry according to DIN EN 602	no
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MECHANICAL PROPERTIES

## Aluminium and aluminium alloys

## EN AW-2007 Al Cu4 Pb Mg Mn

### EN 754-2 Mechanical properties: round bars – drawn

Delivery condition	Dia. mm	Tensile strength $R_m$ MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Hardness <sup>9</sup> HBW
		min.	max.	min.	max.	A50 mm	A	
T3	≤ 30	370	-	240	-	5	7	95
	> 30 to ≤ 80	340	-	220	-	-	6	95
T351	≤ 80	370	-	240	-	3	5	95
<sup>9</sup> For information only								

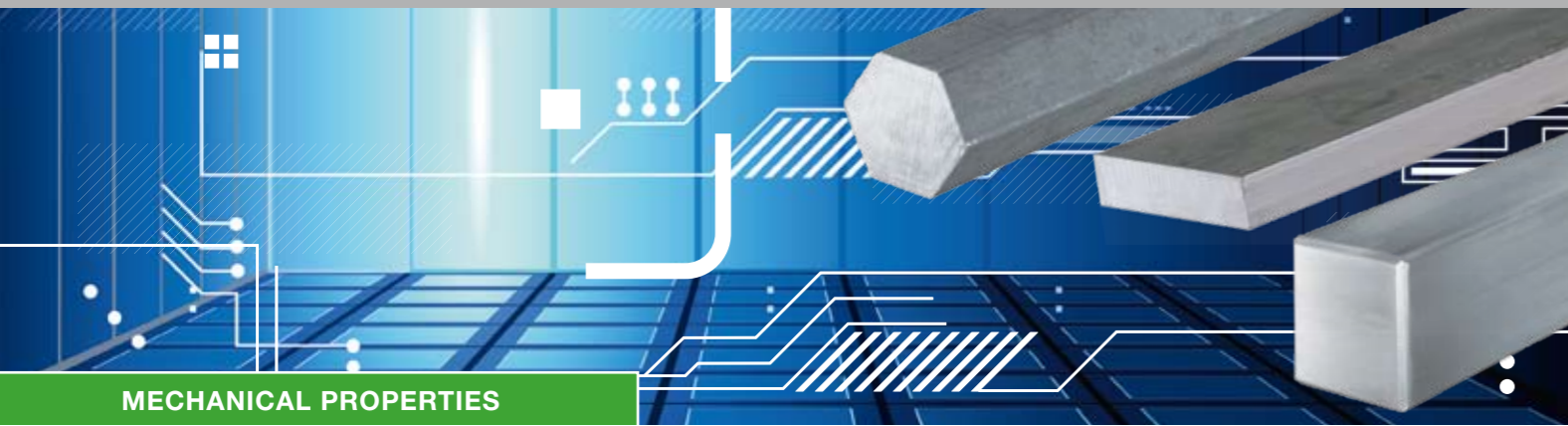
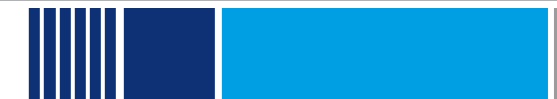
### EN 755-2 Mechanical properties: round bars – pressed

Delivery condition	Dia. mm	Tensile strength $R_m$ MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Hardness <sup>9</sup> HBW
		min.	max.	min.	max.	A50 mm	A	
T4	≤ 80	370	-	250	-	6	8	95
T4510	> 80 to ≤ 200	340	-	220	-	-	8	95
T4511	> 200 to ≤ 250	330	-	210	-	-	7	95
<sup>9</sup> For information only								

### We supply aluminium round bars of alloy 2007 in the following dimensions:

Thickness mm	drawn: 2 - 60	pressed: 8 - 500
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MECHANICAL PROPERTIES

Aluminium and aluminium alloys

## EN AW-2007 Al Cu4 Pb Mg Mn

### EN 754-2 Mechanical properties: Bars – drawn square · flat · hexagonal

Delivery condition	Thickness for flat 4 + 6 pt: wrench size	Tensile strength $R_m$ MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Hardness <sup>9</sup> HBW
		min.	max.	min.	max.	A50 mm	A	
T3	≤ 30	370	-	240	-	5	7	95
	> 30 to ≤ 80	340	-	220	-	-	6	95
T351	≤ 80	370	-	240	-	3	5	95
<sup>9</sup> For information only								

### EN 755-2 Mechanical properties: Bars – pressed square · flat · hexagonal

Delivery condition	Thickness for flat 4 + 6 pt: wrench size	Tensile strength $R_m$ MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Hardness <sup>9</sup> HBW
		min.	max.	min.	max.	A50 mm	A	
T4	≤ 80	370	-	250	-	6	8	95
T4510	> 80 to ≤ 200	340	-	220	-	-	8	95
T4511	> 200 to ≤ 250	330	-	210	-	-	7	95
<sup>9</sup> For information only								

### We supply bars of alloy 2007 in the following dimensions:

Thickness mm	4 point pressed: 8 x 8 - 300 x 300	6 point pressed: wrench size 6 - 80
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MECHANICAL PROPERTIES

Aluminium and aluminium alloys

EN AW-2007 Al Cu4 Pb Mg Mn

EN 754-2 Mechanical properties: tubes – drawn

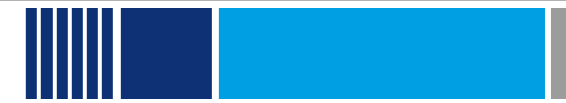
Delivery condition	Wall thickness mm	Tensile strength $R_m$ MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Hardness <sup>9</sup> HBW
		min.	max.	min.	max.	A50 mm	A	
T3	≤ 20	370	-	250	-	5	7	95
T3510 / T3511	≤ 20	370	-	240	-	3	5	95
<sup>9</sup> For information only								

EN 755-2 Mechanical properties: tubes – pressed

Delivery condition	Wall thickness mm	Tensile strength $R_m$ MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Hardness <sup>9</sup> HBW
		min.	max.	min.	max.	A50 mm	A	
T4 / T4510 / T4511	≤ 25	370	-	250	-	6	8	95
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Aluminium and aluminium alloys

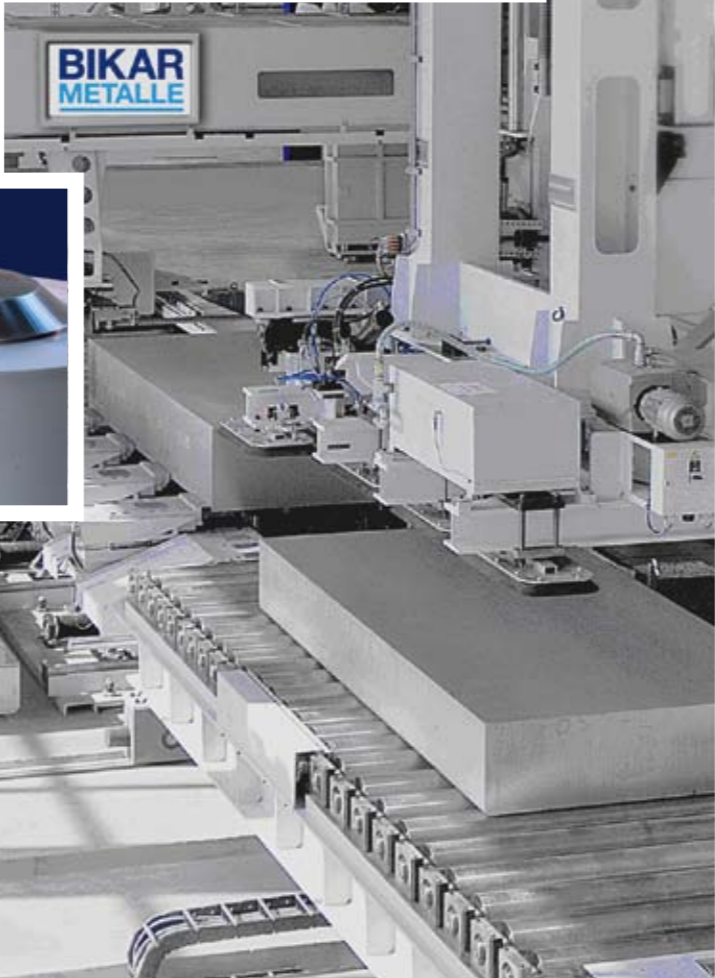
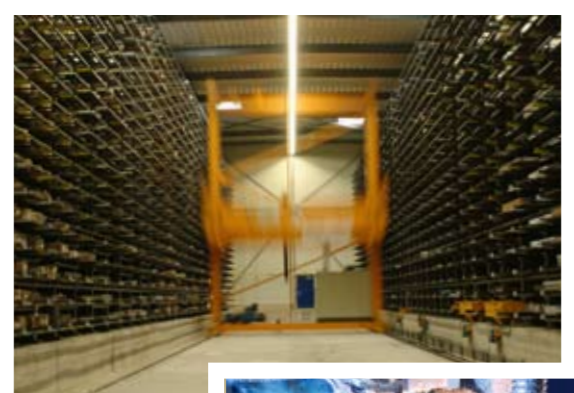
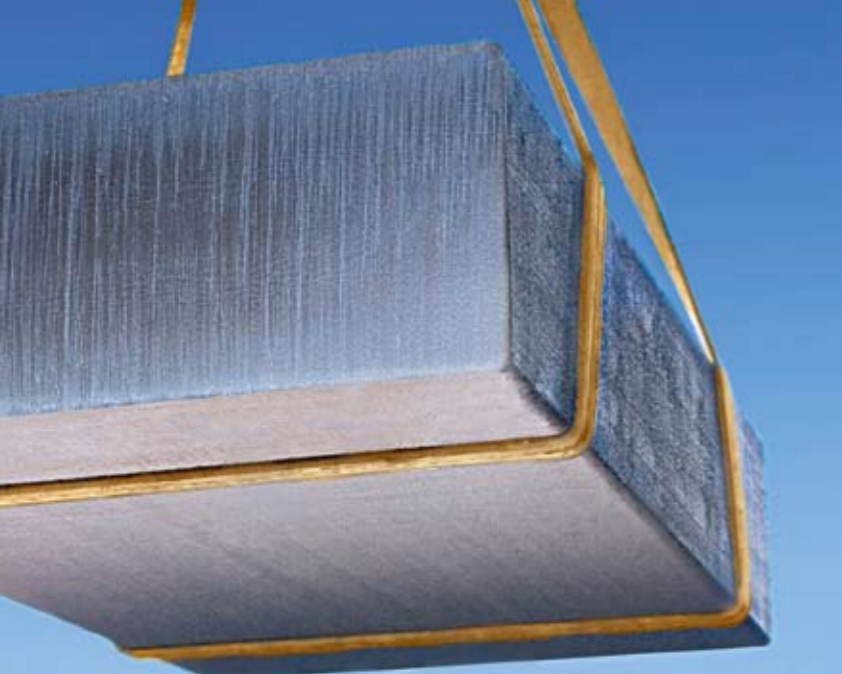
## EN AW-2007 Al Cu4 Pb Mg Mn

EN 755-2 Mechanical properties: profiles – pressed

Delivery condition	Wall thickness mm	Tensile strength $R_m$ MPa		Elastic limit $R_{p0.2}$ MPa		Elongation % min.		Hardness <sup>9</sup> HBW
		min.	max.	min.	max.	A50 mm	A	
T4 / T4510 / T4511	≤ 30	370	-	250	-	6	8	95

<sup>9</sup> For information only

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# **BIKAR METALLE**

**A COMPANY THAT CAN SIMPLY DO MORE!**

Modern technologies make us powerful, flexible and allow us to provide the best quality!

## **Computer-controlled high bay warehouse for**

- Standard plates: Capacity 1,000 containers at 5,000 kg
- Super formats and plain milled plates: Capacity 800 containers at 3,500 kg

## **Band saws**

- Horizontal up to sizes of 6,020 x 3,020 x 1,150 mm
- Vertical up to sizes of 4,020 x 2,300 x 1,150 mm

## **Buzz saws**

- Up to sizes of 6,050 x 6,050 x 170 mm

## **Blank saws and ring saws**

- Up to a diameter of 2,500 mm

## **Deep hole drilling**

- Up to 1,100 mm depth
- Thread up to dia 70 mm

## **Milling**

- Precision surface cutter (portal milling machine) – cutter head dia 2.700 mm
- Up to 6000 x 2,500 x 5-150 mm
- Surface cutter for individual depth up to 1,000 x 800 x 300 mm

## **Chamfering**

- 45° up to about 4 mm chamfer

## **Usual sawing tolerances**

- Band saws (sawing tolerance: +2 to 3/-0 mm)
- Circular blanks according to drawing (sawing tolerance: +8 to 10/-0 mm) - depending on the type of pre-cut part
- Precision circular saws (sawing tolerance according to thickness: +/-0.2 to +/-0.5 mm) up to max. cutting height of 170 mm

Other tolerances by arrangement



# OUR DELIVERY PROGRAM

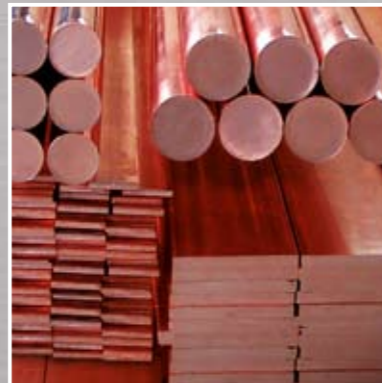
## DIVERSITY FROM A SINGLE SOURCE

BIKAR has learned over many decades to adapt to the needs of its customers. And that's reflected in the diversity of our stocked and available products. You can only win with a strong partner.



### ALUMINIUM

- Plates
- Sheets
- Bars
- Circular blanks
- Rings
- Profiles
- Cuttings
- Parts from drawings



### COPPER

- Plates
- Sheets
- Bars
- Circular blanks
- Rings
- Profiles
- Cuttings
- Parts from drawings



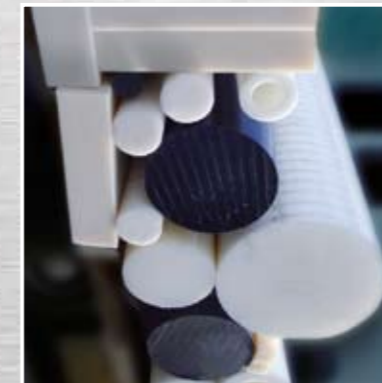
### BRASS

- Plates
- Sheets
- Bars
- Circular blanks
- Rings
- Profiles
- Cuttings
- Parts from drawings



### BRONZE

- Bars
- Tubes
- Bushings
- Rings
- Circular blanks
- Cuttings
- Parts from drawings



### PLASTICS

- Bars
- Tubes
- Bushings
- Cuttings