

U36

CW308G | CuAl11Fe6Ni6 | Nickel-Aluminum bronze

Material designation

EN CuAl11Fe6Ni6, CW308G

Chemical composition*

Cu	balance
Al	11 %
Fe	6 %
Ni	6 %
Mn	max. 1.5 %
Pb	max. 0.05 %

*Reference values in % by weight

Physical properties*

Thermal conductivity	W/m . K	40
Density	g/cm ³	7.45
Modulus of elasticity	kN/mm ²	127
Coefficient of expansion	10 ⁻⁶ /K	17

*Reference values at room temperature

Corrosion resistance³

Aluminum bronzes have generally good corrosion resistance to neutral and acidic aqueous solutions as well as seawater. There is increased resistance to scaling, erosion and cavitation. In contact with strongly acidic media with increased oxidising capacity or in alkaline media the passivated surface layer can be damaged or its formation can be prevented. The suitability of the material must be checked before application.

³Standard value

Product standards

Rod	EN 12163 EN 12165
Tread	EN 12167

Material properties and typical applications

U36 is a heterogeneous aluminum multi-material bronze. Nickel and iron are added to the aluminum content of 10.5% - 12.5%. The resulting optimisation of the corrosion resistance in aggressive media with above-average mechanical and physical properties explains the particular importance of this alloy within the fields of mechanical engineering, shipbuilding and apparatus engineering.

Types of delivery

The BU Global Extruded & Cast Products supplies rods, wires, profiles and tubes. Please ask your contact person about the available shapes, dimensions and conditions.

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	30 %
Capacity for being cold worked	poor
Capacity for being hot worked	good

Joining

Resistance welding (butt weld)	fair
Inert gas shielded arc welding	fair
Gas welding	fair
Hard soldering	fair
Soft soldering	fair

Surface treatment⁵

Polishing mechanical	good
Polishing electrolytic	poor
Electroplating	good

⁵for further processing instructions, please get in touch with your contact person.

Heat treatment

Melting range	1050 – 1080 °C
Hot working	940 – 980 °C
Soft annealing	680 °C, 1 – 3 h
Thermal stress-relieving	350 °C, 1 h

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Dimensions and mechanical properties according to standards

Round rods / polygonal rods											EN 12163	
Temper	Diameter		Width across flat		Tensile strength R _m	Yield strength R _{p0.2}		Elongation %			Hardness	
	mm		mm		MPa	MPa		A100	A11.3	A	HB	
	from	to	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		all		as manufactured							
R740	10	120	10	120	740	420	–	–	–	5	–	–
H220	10	120	10	120	–	–	–	–	–	–	220	260
R830	10	80	10	80	830	550	–	–	–	–	–	–
H240	10	80	10	80	–	–	–	–	–	–	240	–

Rectangular rods										EN 12167
Temper	Thickness		Tensile strength R _m	Yield strength R _{p0.2}		Elongation %			Hardness	
	mm		MPa	MPa		A100	A11.3	A	HB	
	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		as manufactured							
R740	all		740	420	–	3	4	5	–	–
H220	all		–	–	–	–	–	–	220	260
R830	all		830	550	–	–	2	3	–	–
H240	all		–	–	–	–	–	–	240	–