Constellium

2011

AlCu6BiPb

HIGH LEAD STOP EXPIRING IN 2025

Highly machinable alloy from Děčín

Overview & application

- High mechanical properties and high fatigue strength
- Excellent machinability and surface quality (roughness) after machining
- Not suitable for welding and low corrosion resistance
- Good anodizing response

- Applied typically in variable high strength machined parts
- This alloy will stop its production & use after 2025 based on EU regulation (CLP, RoHS)

Product range	Round (mm)	Hexagonal (mm)	Shaped (mm²)	Profiles (mm²)
Drawn	6-80	13-80	200-6400	-
Extruded	20-125	15-85	200-14400	500-9900

Chemical composition (Weight %)	Si	Fe	Cu	Mn	Mg	Zn	Bi	Pb
Min.	-	-	5,0	-	-	-	0,20	0,20
Max.	0,40	0,7	6,0	-	-	0,30	0,6	0,40
Remarks	Others: each: 0,05 / total: 0,15							

Typical tempers	T4. T6, T3, T8

Mechanical properties

Product (Temper)	Dimension (mm)	Minimal values (EN) Rm (MPa)	Rp 0.2 (MPa)	A (%)	Typical HBW (2.5/62.5)
Extruded bars (T4)	D≤125	275	125	14	95
Extruded bars (T6)	D≤75	310	230	8	110
	75<D≤125	295	195	6	110
Cold drawn bars (T3)	D≤40	320	270	10	90
	40<D≤80	280	210	10	90
Cold drawn bars (T8)	D≤80	370	270	8	115

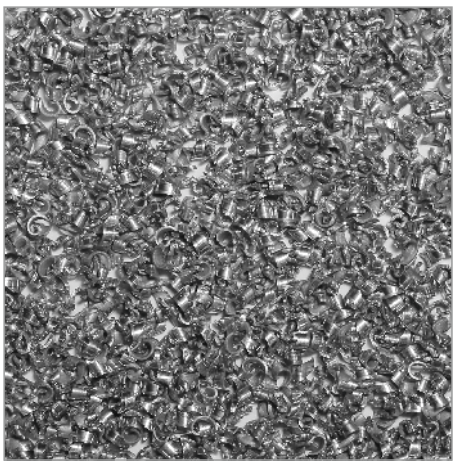
Processing properties

Machinability	♦♦♦♦♦
Machining index (chips #/100g)	7000
MIG-TIG weldability	♦
Resistance fusion weldability	♦
Soft soldering & brazing	♦

Protective anodising	♦♦♦♦
Hard anodising	♦♦♦♦

Corrossion

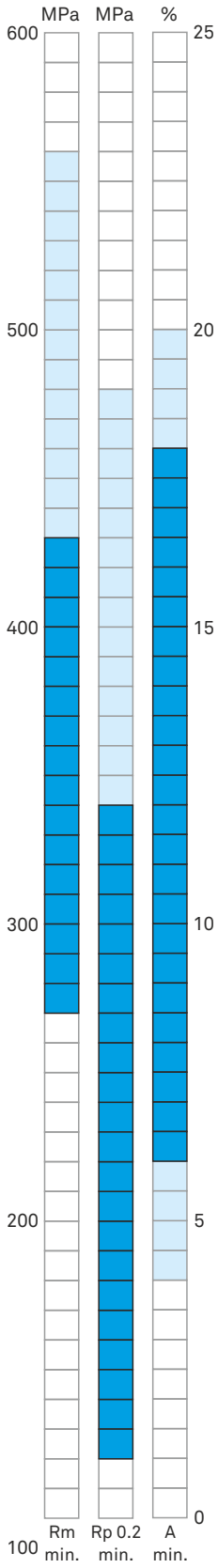
Corrosion resistance @ sea water	♦♦
Corrosion resistance @ atmosphere	♦♦♦
Corrosion depth ISO 11846B (µm)	150-500



Physical properties

Density	2,83	g/cm³
Young's modulus of elasticity	72500	MPa
Coeff. of thermal expansion (20-100°C)	24	x10⁻⁶ /°C
Thermal conductivity at 20°C	170-220	W/m*K
Specific heat capacity	870	J/kg*K
Electrical conductivity at 20°C	24-32	MS/m

Legend:
- ♦♦♦♦♦ Excellent
- ♦♦♦♦ Good
- ♦♦♦ Acceptable
- ♦♦ Conditional
- ♦ Not recommended



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