

Highly machinable alloy from Děčín

Overview & application

- Material of choice for highest tensile strength, good ductility and resistance to fatigue
- Very good stress corrosion resistance with overaged heat treatment
- Suitable for hard and protective anodising
- Good machinability, but not suitable for welding
- Applied in high-stressed structural parts and tools (industry, aircraft, defense etc.)
- Alloy future lead compliant with Pb ≤ 0.1% (EU regulation under consideration for later 2020s)



Product range

	Round (mm)	Hexagonal (mm)	Shaped (mm ²)	Profiles (mm ²)
Drawn	6-80	13-80	200-6400	-
Extruded	20-125	15-85	200-14400	500-9900

Chemical composition (Weight %)

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
Min.	-	-	1,2	-	2,1	0,18	5,1	-
Max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20
Remarks	(Zr+Ti max. 0,25 if agreed)			Others: each: 0,05 / total: 0,15				

Typical tempers

T6 (T651, T6510, T6511), T7 (T7351, T73510, T73511)

Mechanical properties

Product (Temper)	Dimension (mm)	Minimal values (EN)			Typical
		Rm (MPa)	Rp 0.2 (MPa)	A (%)	HBW (2.5/62.5)
Extruded bars (T6, T6510, T6511)	25 ≤ D ≤ 125	560	500	7	150
	25 ≤ D ≤ 75	475	405	7	135
Extruded bars (T73, T73510, T73511)	75 < D ≤ 100	470	390	6	135
	D ≤ 80	455	385	10	135
Cold drawn bars (T73)	D ≤ 80	455	385	8	135

Processing properties

Machinability	★★★★
Machining index (chips #/100g)	4500
MIG-TIG weldability	★
Resistance fusion weldability	★★★★
Soft soldering and brazing	★

Protective anodising

Hard anodising	★★★
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Corrosion

Corrosion resistance @ sea water	★★
Corrosion resistance @ atmosphere	★★★★
Corrosion depth ISO 11846B (µm)	150-450



Physical properties

Density	2,81	g/cm ³
Young's modulus of elasticity	72000	MPa
Coeff. of thermal expansion (20-100°C)	23,4	x10 ⁻⁶ /°C
Thermal conductivity at 20°C	130-160	W/m*K
Specific heat capacity	862	J/kg*K
Electrical conductivity at 20°C	19-23	MS/m

Legend:

- ★★★★★ Excellent
- ★★★★ Good
- ★★★ Acceptable
- ★★ Conditional
- ★ Not recommended

