



## Highly machinable alloy from Děčín

### Overview & application

- High mechanical properties and fatigue strength, good ductility
- Very good machinability (small chips) and surface after machining etc.
- Not suitable for welding and low corrosion resistance
- Protective anodizing is possible
- Applied in variable high strength machined parts (automotive and electronics)
- This alloy will stop its production & use after 2025 based on existing EU regulation (CLP, RoHS)



### Product range

	Round (mm)	Hexagonal (mm)	Shaped (mm <sup>2</sup> )	Profiles (mm <sup>2</sup> )
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.	-	-	3,3	0,20	0,50	-	0,50	0,20
Max.	0,8	0,7	4,5	1,0	1,3	0,50	0,7	0,40
Remarks	Cr, Ni max. 0,10 / Ti max. 0,20			Others: each: 0,05 / total: 0,15				

### Typical tempers

T3 (T351), T4 (T4510, T4511)

### Mechanical properties

Product (Temper)	Dimension (mm)	Minimal values			Typical	
		Rm (MPa)	Rp 0.2 (MPa)	A (%)	HBW (2.5/62.5)	
Extruded bars (T4, T4510, T4511)	20 ≤ D ≤ 80	370	250	8	95	
	80 < D ≤ 125	340	220	8	95	
Cold drawn bars (T3, T351)	D ≤ 30	370	240	7	95	
	30 < D ≤ 80	340	220	6	95	

### Processing properties

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

### Protective anodising

Hard anodising	★★
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### Corrosion

Corrosion resistance @ sea water	★★
Corrosion resistance @ atmosphere	★★
Corrosion depth ISO 11846B (µm)	100



### Physical properties

Density	2,80	g/cm <sup>3</sup>
Young's modulus of elasticity	74300	MPa
Coeff. of thermal expansion (20-100°C)	23	x10 <sup>-6</sup> /°C
Thermal conductivity at 20°C	130-200	W/m*K
Specific heat capacity	873	J/kg*K
Electrical conductivity at 20°C	18-22	MS/m

#### Legend:

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

