Constellium

Stanal®

2015 - Stanal 40A

LEAD FREE TO HELP NATURE

Highly machinable alloy from Děčín

Overview & application

- High mechanical properties and fatigue strength
- Very good machinability - suitable for all types of chip processing
- Corrosion resistance is comparable to other copper-based alloys (2007, 2030)
- Cracking sensitivity while processing thin parts by temperatures over 180 °C

- Suitable for automotive, electrical and hydraulic industry
- Alloy future lead compliant with Pb ≤ 0.1%
  (EU regulation under consideration for later 2020s)

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	Cr	Zn	Sn
Min.	-	-	3,9	0,30	0,30	-	-	0,7
Max.	0,8	0,8	5,2	1,0	1,3	0,15	0,7	1,5
Remarks	Ni, Ti max. 0,20 / Bi max. 0,40				Others: each: 0,05 / total: 0,15			

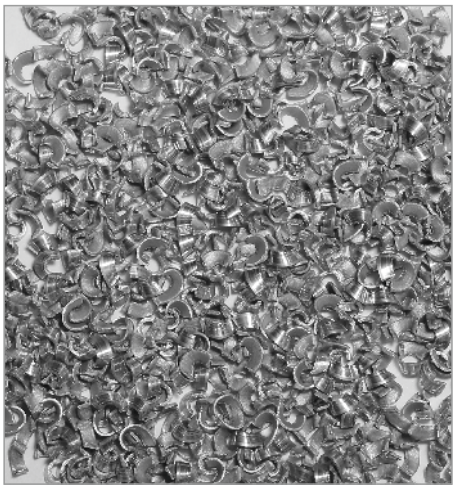
Typical tempers	
	T3, T4

Mechanical properties

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

Processing properties

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



Protective anodising	●●●
Hard anodising	●●●

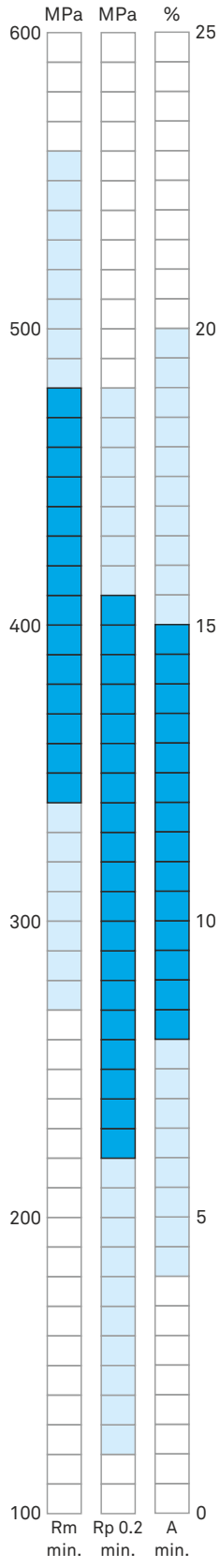
Corrosion

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

Physical properties

Density	2,83	g/cm³
Young's modulus of elasticity	72500	MPa
Coeff. of thermal expansion (20-100°C)	23	x10⁻⁶ /°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



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