



Constellium

Stanal[®]

6023 - Stanal 32



Highly machinable alloy from Děčín

Overview & application

- Environmental friendly alternative to lead containing alloys for machining
- Excellent machinability (better than 6064A), relatively high corrosion resistance
- Very good weldability, anodizing and high fatigue strength
- Cracking sensitivity while processing thin parts by temperatures over 180 °C
- Applied typically in machined parts in automotive & transport, industry & defense
- 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	Bi	Sn
Min.	0,6	-	0,20	0,20	0,40	-	0,30	0,6
Max.	1,4	0,50	0,50	0,6	0,9	-	0,8	1,2
Remarks	Others: each: 0,05 / total: 0,15							

Typical tempers

T6, T8, T9

Mechanical properties

Product (Temper)	Dimension (mm)	Minimal values			Typical
		Rm (MPa)	Rp 0.2 (MPa)	A (%)	HBW (2.5/62.5)
Extruded bars (T6)	D≤125	320	270	10	95
Cold drawn bars (T6)	D≤80	320	270	10	95
Cold drawn bars (T8)	D≤80	345	315	4	95
Cold drawn bars (T9)	8≤D≤45	340	330	4	95

Processing properties

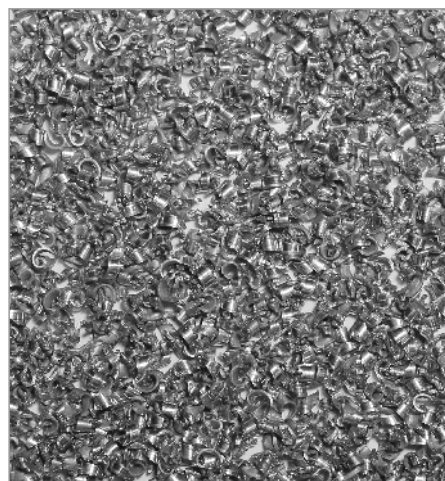
Machinability	★★★★★
Machining index (chips #/100g)	7000
MIG-TIG weldability	★★★★
Resistance fusion weldability	★★★
Soft soldering & brazing	★★★

Protective anodising

Hard anodising	★★★★
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Corrosion

Corrosion resistance @ sea water	★★★
Corrosion resistance @ atmosphere	★★★★
Corrosion depth ISO 11846B (µm)	150-350



Physical properties

Density	2,73	g/cm ³
Young's modulus of elasticity	69400	MPa
Coeff. of thermal expansion (20-100°C)	23,2	x10 ⁻⁶ /°C
Thermal conductivity at 20°C	172	W/m*K
Specific heat capacity	894	J/kg*K
Electrical conductivity at 20°C	26	MS/m

Legend:

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

