

Tantalum

Technical Datasheet

Code Material-No.	Ta -	Chemical Composition (Typical analysis in %)	Ta 99,85	Impurities bal.
Material Properties	Good deformability in all temperature ranges. High melting point (3.273 K/3.000 °C), very good resistance against corrosion.			
Applications	<ul style="list-style-type: none"> • Parts in devices for chemical plants • Evaporation boats for capacitors and catalysers • Thermal shields in vacuum furnace building 			
Mechanical Properties (Typical)			annealed	not annealed
	Hardness	HV	80 – 100	<180 – 300
	Tensile strength	N/mm ²	280 – 330	<600 – 1400
	Elongation	%	20 – 35	2 – 20
	Modulus of elasticity	kN/mm ²	186	
Physical Properties (Typical)	Electrical conductivity 293 K (20 °C)	MS/m	8	
	Electrical resistance 293 K (20 °C)	Ω.mm ² /m	0,125	
	Coefficient of thermal expansion 293 K (20°C)	1/K	6,5 · 10 ⁻⁶	
	Specific heat	J/g.K	0,14	
	Thermal conductivity 293 K (20 °C) 1527 K (1254 °C)	W/m.K	54,4 74,0	
	Density 293 K (20°C)	g/cm ³	16,6	
Available Sizes	Sheets, Roundbars and machined parts			

Machining Instructions

Drilling		High Speed Steel 1.3207
Cutting speed	m/min.	c. 15
Lip angle		118 – 120°
Machining		Cooling and lubrications with chlorine free universal cutting oil (e. g. S91 from Jokisch*)

Turning		High Speed Steel 1.3207
Cutting speed	m/min.	15 – 18
Rake angle		28 – 30°
Clearance angle		8 – 10°
Feed at depth of cut		s=0,03 – 0,1 mm/U (depending on corner-radius)
Machining		Cooling and lubrications with chlorine free universal cutting oil (e. g. S91 from Jokisch*)

Milling		High Speed Steel 1.3207
Cutting speed	m/min.	c. 15
Rake angle		45°
Clearance angle front face		20°
Clearance angle lateral		3°
Machining		Cooling and lubrications with chlorine free universal cutting oil (e. g. S91 from Jokisch*)

Grinding		Silicon Carbide Wheels
Hardness		K, L
Grain size		120
Structure		open
Binder		ceramic
Cutting speed	m/sec.	30
Infeed		max. 0,02 mm
Machining		Cooling with syntetic watermixable cooling agent (e. g. NBK, solution 1:40 from Jokisch*)

All statements as to the properties or utilization of the materials and products mentioned in this data sheet are only for the purpose of description. Guarantees in respect of the existence of certain properties or utilization at the material mentioned are only valid if agreed upon in writing.