

Tantalum

Technical Datasheet

Code	Ta		Chemical Composition	Ta 99,85	Impurities bal.
Material-No.	-		(Typical analysis in %)		
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				annealed	not annealed
(Typical)	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	Electrical conductivity	MS/m			8
(Typical)	293 K (20 °C)				
	Electrical resistance	$\frac{\Omega \cdot \text{mm}^2}{\text{m}}$			0,125
	293 K (20 °C)				
	Coefficient of thermal expansion	$\frac{1}{\text{K}}$			$6,5 \cdot 10^{-6}$
	293 K (20°C)				
	Specific heat	$\frac{\text{J}}{\text{g} \cdot \text{K}}$			0,14
	Thermal conductivity	$\frac{\text{W}}{\text{m} \cdot \text{K}}$			54,4
	293 K (20 °C)				74,0
	1527 K (1254 °C)				
	Density 293 K (20°C)	$\frac{\text{g}}{\text{cm}^3}$			16,6
Available Sizes	Sheets, Roundbars and machined parts				

Tantalum

Technical Datasheet

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*)

*Jokisch GmbH, 33813 Oerlinghausen

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.