

# Tantalum

## Technical Datasheet

Short Name		Chemical	Ta	Impurities
Code	Ta	Composition	min. 99,85 %	balance
Material-No. (old)	-	(Reference values in %)		

**Material-Properties**

Good deformability in all temperature ranges. High melting point (3.000°C / 3.273 K), very good resistance against corrosion.

**Applications**

- Parts in devices for chemical plants
- Evaporation boats for capacitors and catalysers
- Thermal shields in vacuum furnace building

<b>Mechanical Properties (Reference values)</b>			annealed	not annealed
	Hardness	HV	80 – 100	<180 – 300
	Tensile strength	N/mm <sup>2</sup>	280 – 330	<600 – 1400
	Elongation	%	20 – 35	2 – 20
	Modulus of elasticity	kN/mm <sup>2</sup>	186	

<b>Physical Properties</b>	Electrical conductivity 20 °C (293 K)	MS/m	8
	Electrical resistance 20 °C (293 K)	$\frac{\Omega \cdot \text{mm}^2}{\text{m}}$	0.125
	Coefficient of thermal expansion 20 °C (293 K)	$\frac{1}{\text{K}}$	$6.5 \times 10^{-6}$
	Specific heat	$\frac{\text{J}}{\text{g} \cdot \text{K}}$	0.14
	Thermal conductivity 20 °C (293 K)	$\frac{\text{W}}{\text{m} \cdot \text{K}}$	54.4
	1254 °C (1527 K)		74
Density (20 °C/293 K)	g/cm <sup>3</sup>	16.6	

**Products** Sheets, Roundbars and machined parts

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### 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.	ca. 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.

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