

## TANTALUM TUBING FOR SURGICAL IMPLANTS

### ASTM F 560 R05200

R05200  
ASTM F 560

R05252

#### Chemical Composition

Carbon	max. 0,01 wt.-%	max. 0,01 wt.-%
Oxygen	max. 0,015 wt.-%	max. 0,015 wt.-%
Nitrogen	max. 0,01 wt.-%	max. 0,01 wt.-%
Hydrogen	max. 0,0015 wt.-%	max. 0,015 wt.-%
Niob	max. 0,1 wt.-%	max. 0,10 wt.-%
Tantalum	balance	balance
Tungsten		2,0 - 3,5 wt.-%

#### Physical Properties

Melting Point	2996° C	2996° C
Density at 20° C	16,6 g/cm <sup>3</sup>	16,7 g/cm <sup>3</sup>
Linear coefficient of thermal expansion at 20° C	6,4 x 10 <sup>-6</sup> m/(mK)	6,4 x 10 <sup>-6</sup> m/(mK)
Electrical conductivity at 20° C	8 x 10 <sup>-6</sup> [1/(Ωm)]	8 x 10 <sup>-6</sup> [1/(Ωm)]

#### Mechanical Properties (cold worked)

Ultimate Tensile Strength	min. 482 MPa	min. 900 MPa
Yield Strength	min. 345 MPa	min. 700 MPa
Elongation	min. 1,0 %	min. 1,0 %

#### Microstructure in fully annealed condition

Grain Size	min. 4	min. 4
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#### Comments

These values should only be used as guidelines for developing material specifications. Properties strongly depend on processing history. The values listed above are typical for uniaxial tension. Upon request, we can also deliver this material with other properties.