

Information about the content

Scope:	Plansee SE	Prepared/Updated:	Abenthung Peter
		Released:	Ostheimer Josef
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This specification covers unalloyed Tantalum rods in the diameter range of 3,0 - 120 mm, which are produced out of melted pre-material ingots.

1 Dimensions and tolerances

1.1 Diameter and guaranteed product tolerances

Diameter [mm]	Diameter tolerance [mm]	Out of roundness
ground		
3,00 - 15,9	± 0,05	Values within defined Ø-tolerance
16,0 - 24,9	± 0,10	
25,0 - 34,9	± 0,25	
35,0 - 39,9	± 0,40	
40,0 - 50,0	± 0,80	
Cleaned		
3,00 - 4,74	± 0,076	Values within defined Ø-tolerance
4,75 - 9,51	± 0,102	
9,52 - 12,69	± 0,127	
12,70 - 15,87	± 0,178	
15,88 - 19,04	± 0,203	
19,05 - 25,39	± 0,254	
25,40 - 38,09	± 0,381	
38,10 - 50,79	± 0,508	
50,80 - 63,49	± 0,762	
63,50 - 120,0	± 1,50	
Turned		
30,0 - 49,9	± 0,30	Values within defined Ø-tolerance
50,0 - 120,0	± 0,40	



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1.2 Product length and straightness

Diameter [mm]	Production length [mm]	Straightness / Meter [mm]	
		Cleaned	Ground / turned
3,00 - 9,90	> 500	< 2,5	< 2,0
10,0 - 120,0	> 300	< 2,5	< 1,5

1.3 Guaranteed length tolerances

Nominal length [mm]	≥ 6 – 30	> 30 – 120	> 120 – 400	> 400 – 1000	> 1000 – 2000	> 2000
Lengthtolerance [mm]	± 1,0	± 1,5	± 2,5	± 4,0	± 6,0	± 8,0

2 Physical and mechanical product properties

Density: ^{a)} ≥ 16,6 g/cm³

a) theoretical density

Nondestructive Testing: For diameters > 15,00 mm: 100 % ultrasonic testing (all types)
For diameters of 0,50 – 50,0 mm: Eddy current tests on rods with ground surface, Visual inspection

Diameter [mm]	Tensile Strength [MPa]	0,2 % Yield Strength [MPa]	Elongation [%]
3,00 - 3,19	≥ 207	-	≥ 20
3,20 - 63,5	≥ 172	≥ 103	≥ 25

Unannealed rods on request,
mechanical properties of unannealed rods on request



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2.1 Surface condition

Surface:	Pickled ^{a)}	Ground	Turned
	Ø 3,00 - 120,0 mm	Ø 3,00 - 50,0 mm	Ø > 30,0 mm
Roughness:	Diameter [mm]	Ra Ground [µm]	Ra Turned [µm]
	3,00 - 50,0	≤ 1,20	-
	> 30,0	-	≤ 3,2

a) clean, dull surface



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3 Chemical composition

Main and minor components	Plansee		Standard	EU- Directive
	Min. content [%]		ASTM B365 (R05200)	RoHS ^{a)}
Ta	99,95 % ^{b)}		balance	-
Impurities	Max. values [µg/g]		Max. values [µg/g]	Max. values [µg/g]
	Typical	Guaranteed		
Fe	5	100	100	-
Mo	10	100	200	-
Nb	19	400	1000	-
Ni	5	50	100	-
Si	10	50	50	-
Ti	1	50	100	-
W	20	100	500	-
C	10	30	200	-
H	4	15	15	-
N	5	50	100	-
O	13	100	250	-
Cd	1	10	-	100
Hg ^{c)}	-	1	-	1000
Pb	-	10	-	1000
Cr (VI)	-	-	-	1000
Organic impurities (e.g. PBB, PBDE, PFOS, PFOA)	- **)	- **)	-	1000

a) EU-directives 2015/863/EU, 2011/65/EU and 2000/53/EC

b) Metallic purity without Nb

c) Initial value

***) The presence of Cr (VI) and organic impurities can definitely be excluded because of the production process (multiple heat treatments at temperatures above 1000 °C in HV-atmosphere).

The chemical composition is checked by means of random sampling. The sampling inspection plan, analysis and evaluation methods are determined in the internal instruction PSE-020-WI-003. The application of the measured values for the chemical analysis is defined in PSE-680-WI-001.

Remarks: The specified physical and chemical characteristics are disclosed not regarding measurement accuracy.



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4 Packaging, labelling, storage and certification

4.1 Packaging, labelling and storage

Standard individual packing: rods are either bundled ($\varnothing < 6$ mm) or packed individually.

Each package will be provided with a label with the following information:

Producer's name:	Plansee
Plansee order number:	
Lot number:	
Material number:	
Material:	TaM
Dimension:	Rod diameter and length
Surface:	
Quantity:	Total quantity in m or kg
Date:	

The material must be kept in a dry place and protected from mechanical damage. It is best to keep the material in the original packing until used.

Special packing: (extra costs will be invoiced)

Special packing should be used if the material is stored under unusual conditions or aggressive atmosphere (e.g. sea air, ...).

4.2 Inspection documents

Following inspection documents will be supplied upon customer request according to EN 10 204:

Test report 2.2

Plansee confirms with this test report that the delivered product meets the specification and gives details of the material properties according to ongoing production surveillance, not directly related to the particular production batch.

Inspection certificate 3.1 (extra costs will be invoiced)

An inspection officer from Plansee confirms with this inspection certificate that the delivered product meets the specification and gives test results related to the particular production batch.



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PRODUCT SPECIFICATION

5 Order instructions

Please quote following information when ordering:

- Product description
- Quality (the number of this specification must be mentioned)
- Diameter
- Surface condition
- Required properties (unannealed or annealed)
- Quantity in m or kg
- Required certificate and content in case of a 3.1 inspection certificate
- *For special packing:* Specification of packaging

For further information on our delivery possibilities, please look into our <http://www.plansee.com>

6 Referenced standards

The standards applied for the test methods are listed in the Plansee standard InfoBase and are made available upon request.

This Product Specification is compliant with ASTM B365.

Changes to last version:

Replacement for PS-MPR-112

- New Document numbering key
- New Document layout
- Section 2: theoretical density added
- Section 2: visual inspection added
- Section 3: RoHS Directive appellation updated
- Section 4.2: Description of Test Report / Inspection Certificate eliminated



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