

**IMPRESSED CURRENT ANODES**  
**Platinised Titanium/Niobium/Tantalum**

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Sheet: 1 of 1

German Cathodic Protection



**Platinised Titanium/Niobium/Tantalum (Pt/Ti-Nb-Ta) anodes**

Platinum is an excellent anode material due to its high conductivity and low consumption rate. Because of its high cost, it is not economical to use platinum by itself. Platinum can be made practical for use by cladding or electroplating a thin layer of platinum over a lower cost substrate. This also increases the effective anode surface area. The substrate must also be able to form an insulating oxide film under anodic conditions. The substrate materials most commonly used are titanium, niobium and tantalum. Of these, titanium is least expensive but it has a much lower breakdown potential than niobium or tantalum. Titanium oxide breaks down at anodic potentials in the 12 V range.

**(Pt/Ti-Nb-Ta) Rod anodes**

Screw-in type Pt/Ti-Nb-Ta rod anodes with pressure resistant head structure are widely used for internal protection of condensers and other process equipment.



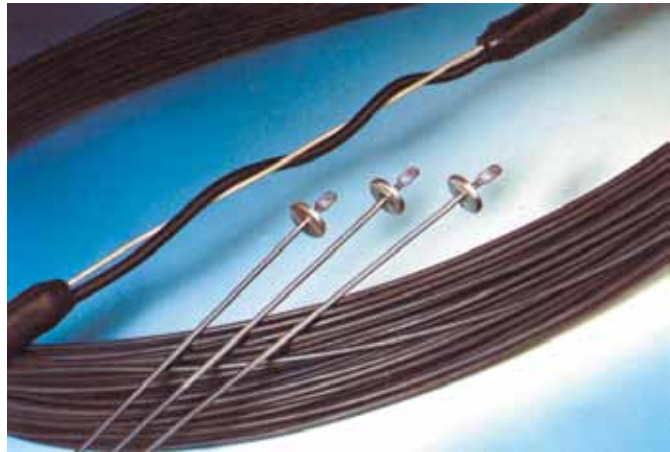
**Technical data**

Base metal	Titanium	Niobium	Tantalum
Max. allowable operating voltage	12 V	40 V	80 V
Rod length	150 - 2500 mm		
Rod diameter	4 / 6 / 8 / 10 / 12 / 16 / 20 / 25 mm		
Pt-coating thickness	5 / 7.5 / 10 µm		
Consumption rate	approx. 0.08 g / A year		
Max. current density	10 A / dm <sup>2</sup>		

All weights and dimensions are nominal and subject to variation in material compositions.

**(Pt/Ti-Nb-Ta) Wire anodes**

Pt/Ti-Nb-Ta wire anodes are used for the internal protection of water tanks and pipelines.



**Technical data**

Base metal	Titanium	Niobium	Tantalum
Max. allowable operating voltage	12 V	40 V	80 V
Wire length	100 m	50 m	50 m
Wire diameter	1 / 2 / 3 / 4 mm		
Pt coating thickness	5 / 7.5 / 10 µm		
Consumption rate	approx. 0.08 g / A year		
Max. current density	10 A / dm <sup>2</sup>		

**(Pt/Ti-Nb-Ta) Mesh anodes**

Pt/Ti-Nb-Ta mesh anodes are used for the protection of reinforced concrete structures.



**Technical data**

Base metal	Titanium	Niobium	Tantalum
Max. allowable operating voltage	12 V	40 V	80 V
Mesh length	max. 2500 mm		
Mesh width	max. 800 mm		
Pt coating thickness	5 / 7.5 / 10 µm		
Consumption rate	approx. 0.08 g / A year		
Max. current density	10 A / dm <sup>2</sup>		