

# Titanium-MMO Rod Anodes

Titanium rod MMO activated, used as anode for Impressed Current Cathodic Protection of heat exchangers, water condensers, process vessels or for hypochlorite generation anti-fouling inside sea water pipelines.



Rod Anode

## Specifications

<b>FORMAT: ROD</b>	<b>Material : <u>TITANIUM ASTM B 348 UE Grade 1</u></b>		
<b>PRE-COATING TREATMENT</b>	Degreasing – Sandblasting – Etching – Thermal Ceramic Protective Underlayer Formation		
<b>COATING</b>	<i>MMO ( thermally formed )</i>	Multilayer Tantalum/Iridium mixed oxides ( coating thickness adjusted upon duration requested )	
<b>COATING QUALITY TESTS</b>	<i>Iridium load measurement</i>	Instrument: X Ray Analyser NITON XL2 800	
	<i>Adhesion test</i>	Adhesion test ASTM D 3359 - 09 e2	
	<i>Electrochemical tests</i>	NACE TM 0108 - 2012 external High current density accelerated	
<b>DIMENSIONS</b>	<i>Diameter</i>	Available Diameters from 10 to 32 mm	
	<i>Length</i>	as per requirement	
<b>MAX CURRENT OUTPUT</b> (for 100 mm of length of MMO surface)	<b>DIAMETER</b>	<b>SEAWATER</b>	<b>FRESH / BRACKISH WATER</b>
	<b>10 mm</b>	<b>2 A</b>	<b>0,3 A</b>
	<b>12 mm</b>	<b>2.5 A</b>	<b>0,4 A</b>
	<b>20 mm</b>	<b>4 A</b>	<b>0,7 A</b>
	<b>25 mm</b>	<b>5 A</b>	<b>0,9 A</b>
	<b>32 mm</b>	<b>6 A</b>	<b>1 A</b>
<b>MAX FLOW VELOCITY</b>	10 mm	0,23 m / sec	
	12 mm	1,2 m / sec	
	20 mm	1,4 m / sec	
	25 mm	1,8 m / sec	
	32 mm	2,4 m / sec	
<b>LIFETIME</b>	25 / 30 years depending of MMO load and current density Lifetime graph available on request		

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