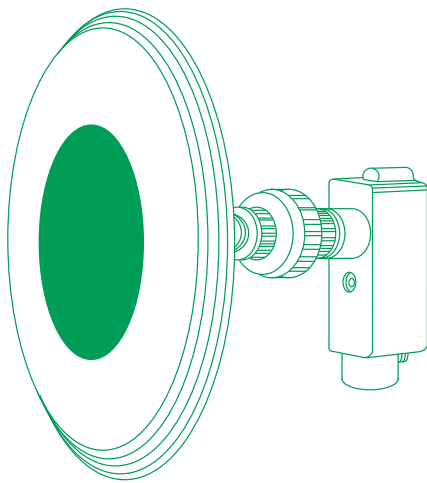


Disk Anode



Disk Anode

The Disk Anode was developed specifically for the rigors of cathodically protecting dam and navigation lock gates.

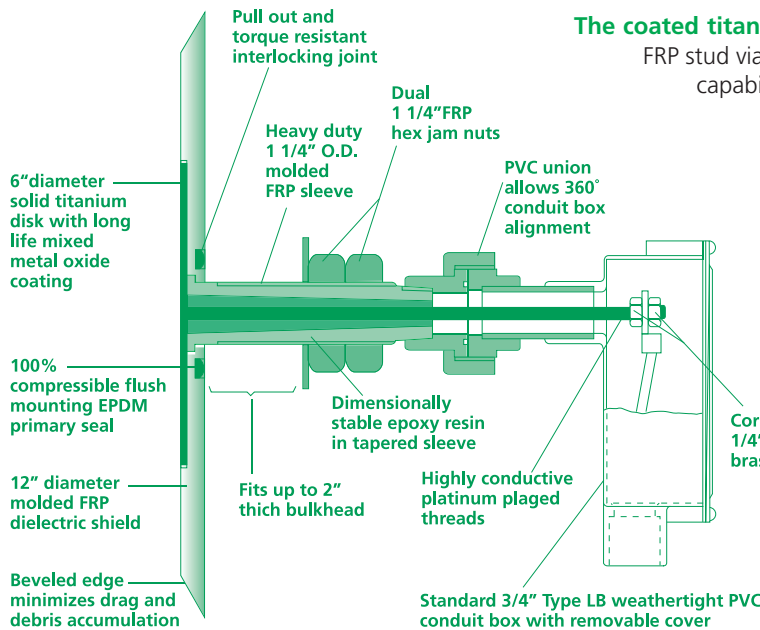
Since our disk anodes are designed to operate in fresh, brackish, and seawater environments, other suitable applications include: marine structures, water tanks, and vessels. With an optional primary seal spacer gasket, it can be used on the inside of pipes, tanks, or other curved surfaces.

The active element in Disk Anode is a 6" diameter x 1/8" thick titanium disk with a mixed metal oxide coating.

This mixed metal oxide is a crystalline, electrically conductive coating that activates the titanium and enables it to function as an anode. When applied on titanium, the coating has an extremely low consumption rate, measured in terms of milligrams per year. As a result of this low consumption rate, the dimensions of the anode remain nearly constant throughout the design life.

The mixed metal oxide coated disk is secured into a 12" diameter x 1/2" thick dielectric shield made of a durable, chlorine resistant, molded FRP vinyl ester. This FRP shield has been designed to resist damage from floating debris and ice, as well as serving to enhance the current throwing capability of the disk. The shield also minimizes excessive current damage to the coating on surrounding steel.

The low profile Disk Anode fits flush with the surface, so total protrusion from the steel bulkhead is a mere 1/2".



The coated titanium disk and shield assembly is attached to a 1 1/4" diameter FRP stud via an interlocking epoxy joint. This unique joint enhances torque capability and subsequent sealing.

A 100% compressible EPDM elastomeric o-ring molded into the shield assures a watertight seal between the disk and steel bulkhead, while simultaneously allowing the shield to fit flush against the bulkhead.

Rod threads are platinum plated to prevent oxidation of the titanium - providing a low and constant contact resistance over the life of the anode. Nickel plated brass nuts further ensure a reliable, low resistance contact. And to prevent crevice corrosion of the titanium disk, a special, mixed metal oxide coating has been applied on the edges and back.



CATHODIC PROTECTION

Disk Anode

FEATURES / BENEFITS

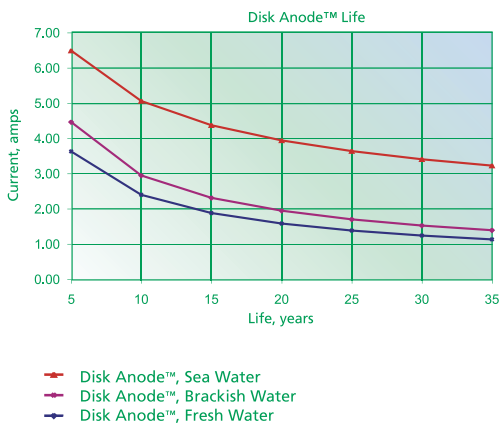
- 6" disk has 44% more active surface area than 5" disk.
- A 1 1/4" diameter FRP stud offers 27% greater load capacity than a comparable 1" diameter stud.
- Platinum plated rod threads prevent titanium oxidation assuring a low and constant contact resistance.
- Increased FRP stud diameter and interlocking epoxy joint allow for a large torque capability on the jam nut threads.
- Double lock nut configuration for securing and maintaining a watertight seal.
- Molded FRP components minimize glass fiber exposure.
- Beveled edge of shield provides less resistance to water movement and minimizes debris accumulation.
- Weather-tight conduit box rotates 360° for optimum alignment with electrical conduit.
- No voltage restriction.

Installation

Disk Anode is a simple and quick process.

1. Drill a 15/16" hole through the steel bulkhead. If a 1" hole is already in place, it will be necessary to ream the hole an additional 5/16". Remove all burrs.
2. Apply silicone caulking to the entire back of the FRP shield being careful not to cover the EPDM seal. This serves to displace water on the steel surface, thereby minimizing corrosion of the bulkhead behind the shield. Enough caulking should be applied so that a small bead forms around the entire shield perimeter after the disk jam nuts are tightened.
3. Once the Disk Anode is mounted, install and tighten the lock nuts against each other. It is suggested that the disk be attached at about 50% of its design torque – approximately 25 ft. lbs. On concave surfaces make sure the spacer gasket has been fitted before installing the Disk Anode in the hole.
4. Electrical connection to the titanium rod should be made with a zinc plated spade type wire terminal with a circular opening for a 1/4" rod. Make sure any exposed copper wire is appropriately protected with heat shrink, petrolatum tape, or other suitable water barrier.
5. For submersion service, it is advisable to fill the conduit box with a silicone or epoxy potting compound.

Maximum Current for the Disk Anode (life in years)



Current Outputs

	Freshwater	Brackish Water	Sea Water
20 Years	1.6 amps	1.9 amps	3.9 amps
15 Years	1.9	2.3	4.4
10 Years	2.4	2.9	5.1

Disk Anode — Calculation of Current Output vs. Lifetime



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