



DeNora Impressed Current Anode



LIDA anodes can be supplied in various shapes, according to customer technical requirements.

LIDA anodes are available with soil (ST), fresh water (FW), seawater (SW), or mud type (MT) coatings.



Tubular Anode Assemblies:

LIDA tubular anodes are assembled as single or multiple anode strings using a patented procedure. This system that is unique in the industry, allows De Nora to custom assemble strings of the desired length of cable and number of anodes to exactly meet the design requirements.

1. LIDA Tubular anode:

The following table lists the tubular anodes available and their characteristics

Notes:

- 1.6cm dia. Tubular anode are assembled on LIDA PER/CSPE 16 sq.mm. cable.
- 2.5cm dia. Tubular anode are assembled on LIDA PER/CSPE 50 sq.mm. cable.
- Anodes installed in fresh water, or soil, are operated for a nominal design life of 30 years. Anodes installed in flowing Salt Water, mud or brackish water, are operated for a nominal design life of 20 years.
- All anodes are assembled with protective PTPE plastic sleeves on the cable extending approx. 10cm from both ends of the anode.
- For installation in chloride rich soils, mud, or in open holes containing chloride-enriched water, a protective PTPE plastic sleeve can be provided on request, on the total cable length.
- For applications in environments and temperatures different from those mentioned above, please contact Savcor.

Please specify number of anodes, anode types, length of cable and spacing between anodes. Please also specify any optional design (configuration, combination of 50 and 100cm anodes on same cable or uneven spacing) at the time of order placement.

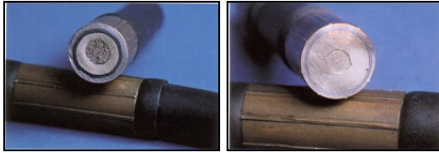
Designation	Diameter cm	Length cm	Current output Amps Temp. from 5 to 70°C	Current Output Amps Temp. from 0 to 5 °C
SOIL (with carbonaceous backfill)*				
S.T .2.5/50	2.5	50	4	2
S.T .2.5/100	2.5	100	8	4
S.T .1.6/50	1.6	50	2.5	1.25
S.T .1.6/100	1.6	100	5	2.5
* For operation in soils without carbonaceous backfill or in open holes, please contact Savcor for recommended current outputs.				
FRESH WATER				
FW.T. 2.5/50	2.5	50	4	2
FW.T. 2.5/100	2.5	100	8	4
FW.T. 1.6/50	1.6	50	2.5	1.25
FW.T. 1.6/100	1.6	100	5	2.5
Designation	Diameter cm	Length cm	Current output Amps Temp. from 5 to 70°C	Current Output Amps Temp. from 0 to 5 °C
BRACKISH WATER				
FW.T. 2.5/50	2.5	50	4 to 12*	2 to 6*
FW.T. 2.5/100	2.5	100	8 to 24*	4 to 12*
FW.T. 1.6/50	1.6	50	2.5 to 7.5*	1.25 to 3.75*
FW.T. 1.6/100	1.6	100	5 to 15*	2.5 to 7.5*
SEA WATER				
SW.T. 2.5/50	2.5	50	25	5
SW.T. 2.5/100	2.5	100	50	10
SW.T. 1.6/50	1.6	50	15	3
SW.T. 1.6/100	1.6	100	30	6
MUD (TYPICAL)				
SW.T. 2.5/50	2.5	50	2 to 4^	1.5
SW.T. 2.5/100	2.5	100	4 to 8^	3
* Current output in brackish water depends on site conditions and chloride concentrations ^ Current output in mud depends on site conditions (sea mud or river mud, etc).				

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2. LIDA CABLE-TO-ANODE CONNECTION

Traditional anodes are connected to the cable with resin-based seals, these seals may develop cracks or loose adhesion to the cable or to the anode. However the LIDA connection obtained in the plant by plastic deformation of the titanium tubes onto the cable – eliminates the need for resin-based seals. The sealing actions results from elastic pressure developed by the rubber like cable sheathing, allowing a long-term service life.



LIDA ROD ANODES

Applications: internal protection of industrial equipment (heat exchangers, filters, boilers and pipelines), seawater intakes, and screening equipment.

Typically rods are connected by a threaded coupling to the feeder cable, then hermetically encapsulated. The feeder cable is then passed through a conduit for mechanical protection.

Standard Diameters: 6-8-12.7-16-20-24-25-30-32mm.
Rods are normally titanium, however platinized rods are also available.
Tantalum and Niobium substrate materials are available on request.



LIDA WIRE

LIDA wire can be used in soil, fresh water or sea water.

Applications: internal cathodic protection of industrial equipment: (boilers, filters) cathodic protection of tumulated tanks, localized cathodic protection of pipelines and other buried structures.

Wire is normally titanium, however platinized wire are also available.
Tantalum and Niobium substrate materials are available on request.

1. Anode – Cable sealing at each end
2. Anode – Cable electrical connection at the centre
3. Lida rod anode
4. Lida Wire anode

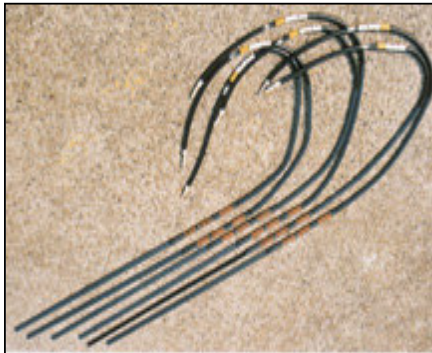
Current output (Amps/m)				
Wire Dia. mm	Soil(ST) with backfill	Fresh water (FW)	Sea water (SW)	Electrical resistance (Ohm/m)
3	1	1	6	0.083
1.5	0.5	0.5	3	0.33

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1. *Lida Strip anode*
2. *Lida Strip anode with cable*
3. *Lida Soil applications*

LIDA STRIPS

LIDA strips consist of titanium strips coated with soil(ST), Freshwater(FW), mixed metal oxide coating. Standard length of 3m, and be cut easily to any length depending on CP current needs.

Ideal for single anode assemblies, such as canistered anodes or shallow continuous ground beds.

Electrical connection to all types of CP cables can be made with standard epoxy kit splice.

Standard length 3m
 Width 20mm
 Thickness 3mm
 Electrical resistance 0.0092 Ohm/m
 Weight/metre 0.27Kg

Maximum current output/metre AMPS (temp from 5 to 70°C)		
Soil with backfill	Soil without backfill	Fresh water
4	2	5

LIDA PLATES AND DISKS

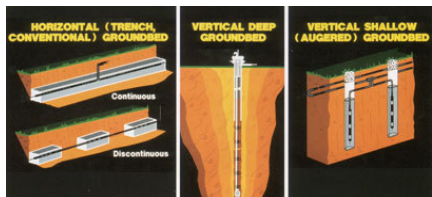
Plates and disks are made according to customer design and can be supplied complete of titanium current feeder, threaded or not.

Applications: Cathodic protection of ship hulls and other metallic structures exposed to seawater.

Standard thickness for titanium sheets are 0.5-1-3-4-5-6-8-10-15mm

Disks is normally titanium, however platinized disks are also available.

Tantalum and Niobium substrate materials are available on request.



LIDA SOIL APPLICATIONS

Tubular LIDA assemblies are installed in deep, shallow and horizontal groundbeds.

LIDA strips and wire are an economical and practical solution for shallow vertical and horizontal groundbeds

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