Metro Guard

Impressed Current Cathodic Protection System

INSTALLATION INSTRUCTIONS

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Metro Guard is a versatile, efficient way to virtually eliminate corrosion of underground ferrous metal surfaces. Designed to protect the structure regardless of soil composition, Metro Guard makes costly engineering surveys to determine soil composition and resistance, obsolete.

What makes Metro Guard work is a constant, positive current forced through an anode. Utilization of anodes is a proven, economical means of protection for your underground steel lift station or treatment plant.

When the constant current is forced through the anode, it negates surface currents on the structure; something that may not be accomplished with the use of conventional magnesium anode systems. In addition, anode life expectancy is many times greater than that of magnesium systems.

Virtually Eliminates Corrosion of Steel Underground Lift Stations

- No need for costly soil analysis
- Uses high silicon iron anodes
- Protects any size buried steel system
- Life expectancy in excess of 50 years
- Latest design in positive corrosion protection

Customers using Metro Guard are assured that their underground facility is protected by the latest in corrosion control equipment.

Specifications

Metro Guard is built with solid-state circuitry to protect regardless of soil resistivity. Metro Guard utilizes cast iron anodes.

An indicator light allows at-a-glance check of anode operation. The system operates on 120 vac, 60 Hz. power with power consumption less than 1 amp. The system is protected by a 5 x 15 mm fuse.

Metro Guard is housed in a black enclosure molded from tough, lightweight, flame retardant ABS plastic with UL's best rating of 94-5VA.

The anodes used with the Metro Guard system are to be high silicon steel type CD. Other type anodes can be used if they are specifically designed for impressed current systems. Magnesium anodes or other sacrificial systems must NOT be used.

Features

1. Continuous at-a-glance monitoring of anode performance. No internal electrical connecting or switching to read anode performance.

2. Compact enclosure and solid state design. Enclosure size: 7" wide x 4.75" high x 2.5" deep.

3. Continuous forced current feed through anodes at the rate of 100 ma per anode.

4. No costly soil analysis required to determine composition or resistance.

5. Utilizes high silicon cast iron anodes. Life expectancy is in excess of 50 years.

Metro Guard Installation

The Metro Guard is installed inside the pump control panel or at the top of the entrance tube either inside or outside.

Note that the anode leads do not connect to the structure but only to the Metro Guard (either directly or through a weatherproof junction box), and the Metro Guard is grounded to the structure.

Make sure that the 115 volt power is connected to the Metro Guard from the control panel or other source of line power and that a 1-amp fuse is installed in the fuse holder.

Anode Installation

The anodes used with the Metro Guard system are to be high silicon steel type CD. Other type anodes can be used if they are specifically designed for impressed current systems. Magnesium anodes must **NOT** be used.

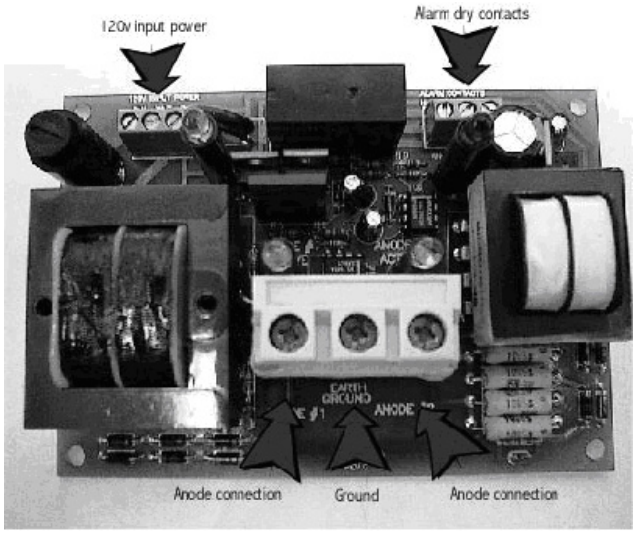
The anodes are furnished packed in a backfill material wrapped in a metal sleeve about 8 inches in diameter. The anode must be buried with the sleeve intact. (Do not remove the sleeve and backfill).

The anodes are to be installed at equal distances around the structure at about 5 to 8 feet from the structure. The anodes should be positioned about halfway between the surface of the ground and the bottom of the structure.

The leads of the anodes must be handled very carefully to assure that the insulation is not damaged. If a splice is necessary use the proper splicing kit designed for anode leads to assure that there are no electrical leaks in the insulation between the anode and the Metro Guard (or junction box).

Testing the installation

Apply power to the Metro Guard and check to see if the power LED is on and that both anodes LED's are also on, If all LED's are on there is proper continuity to all anodes.



There are no adjustments to be made and if the fuse is good and the anodes are properly installed, the LED's will light and the system is operational.

Troubleshooting

If no LED's are on, Check the fuse and the 115 volt input power. If the power is there and the fuse is good, check the anodes and their connections.

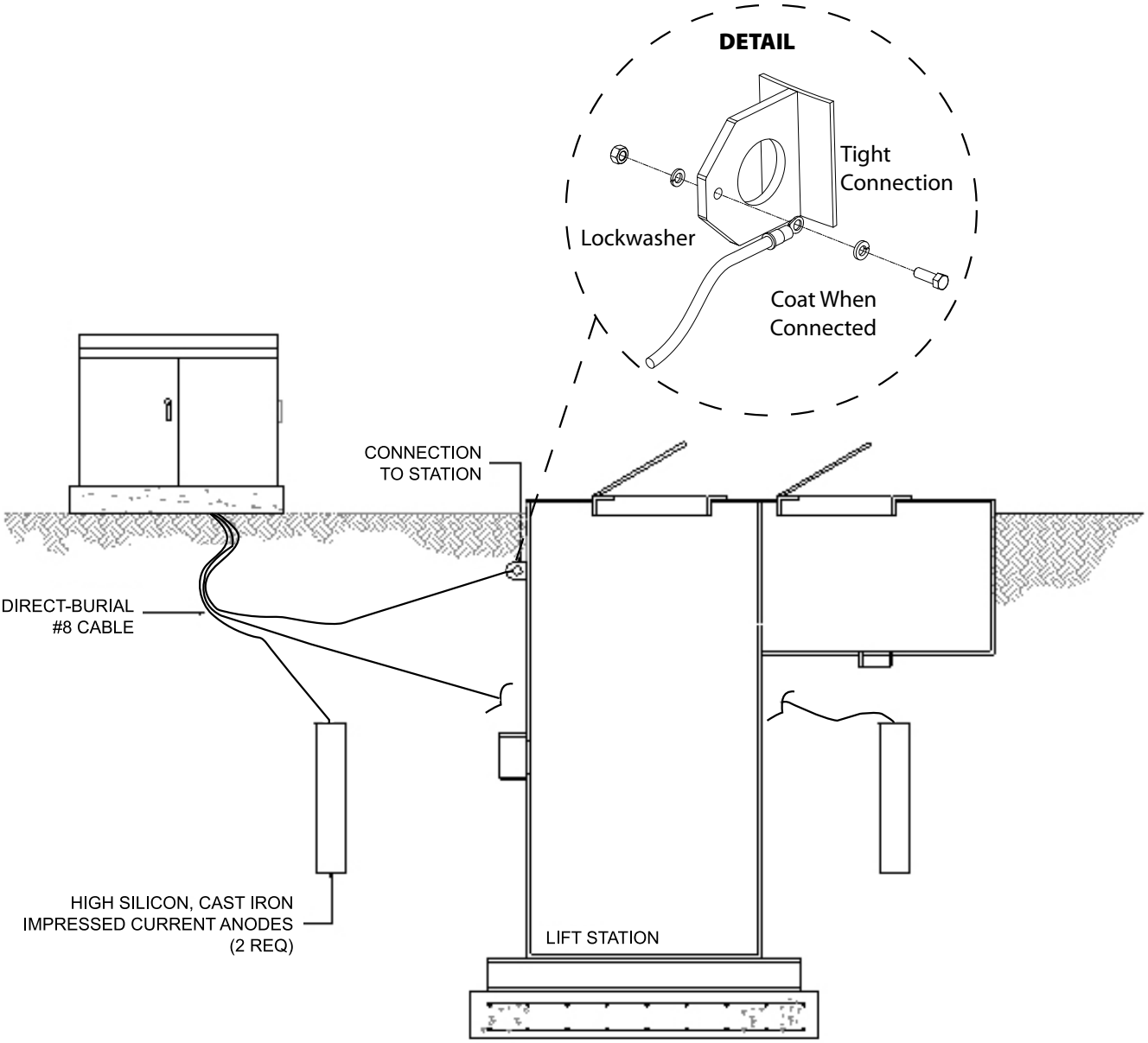
To check the anodes and their connection, with a standard ohmmeter check the resistance between the anode lead and ground (with the anode disconnected from the Metro Guard). If the resistance is higher than 500 ohms then the anode is not connected correctly or there is a break in the anode lead.

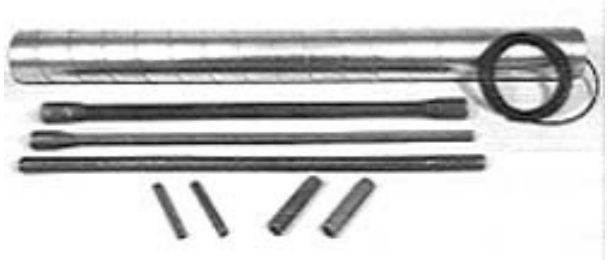
If an anode lead will not check out properly and it is difficult or impossible to dig it back up then another anode may be installed near the defective one with no interaction due to the old anode.

If an anode fails during its life expectance, the red LED will light and there is a set of form "C" contacts which can be wired to an external alarm or light notifying the operator of a failure.

Note to contractor:

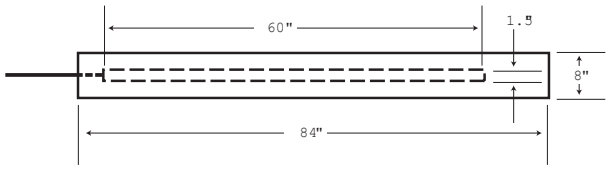
Locate anodes 180° from each other buried about halfway down the wet well. Anodes should be about 5 to 8 feet from structure. Cords get pulled into the control box.





Anode Technical Notes:

1. Anode Type – High Silicon Cast Iron
2. Nominal Dimensions -
   Diameter – 1.5”, Length – 60”
3. Bare Weight – 25 lbs.
4. Area – 2.0 ft^2



Spira-Pak® Canister with Anode

Weight: 150 lbs.
Diameter: 8”
Length: 84”

Model Number:
D-51 Type CD Cast Iron Anode

Manufacturer:
Harco

Additional Information:
Metropolitan Industries, Inc. uses the Durichlor 51 cast iron anodes with the Metro Guard to provide long life to buried steel structures.

Proven Long-Life Protection. High Silicon cast iron anodes have been used for more than four decades to protect buried and submerged structures from corrosion. Over this time period they have proven to be one of the most reliable protection materials available. The anodes are cast using the Durichlor 51 alloy. This special alloy composition gives Harco anodes added strength. It also allows the anodes to form a thin film of silicon dioxide on their surface, which reduces the anode’s rate of consumption.

The anodes are buried in a vertical position next to the steel structure to be protected.

Consumption ratings for solid Harco cast iron anodes encased in metallurgical grade coke are .25 lbs./amp-yr. The anode’s recommended operating current density is at or below 1 amp/ft^2 and the wire-to-anode connections resistance will be less than or equal to 0.004 ohms. Corrpro cast iron anodes are provided prepackaged in a Spira-Pak® canister containing a coke-breeze backfill.

The use of a backfill will greatly enhance the performance of anodes. Carbonaceous coke breeze is the material most commonly used for this purpose. This material lowers anode-to-earth resistance, provides a uniform environment for current discharge, and extends the anode’s design life. Because of its unique composition, the backfill increases the effective dimensional area of the anode and lowers groundbed resistance for significantly improved performance. The backfill is prepackaged with the anode in a galvanized steel case.

The backfill is 85.89% Fixed Carbon.