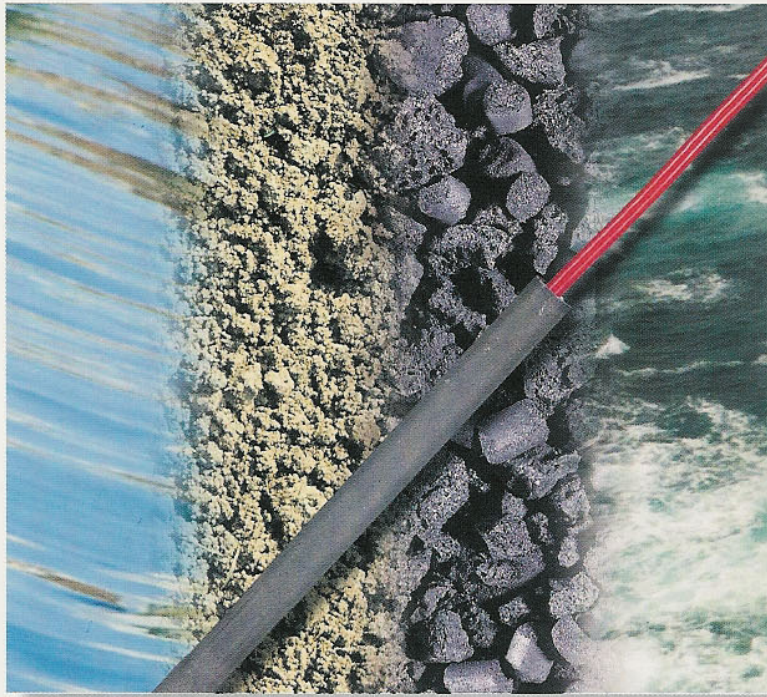




CORROSION CONTROL



**MIXED METAL OXIDE ANODES
HIGH PERFORMANCE
*ISOMMO***

ENGINEERED FOR LIFE

Where Safety, Long Life and Protection of the Environment is essential

A high performance anode specifically designed for harsh environments and areas where conventional installations and replacements would be economically prohibitive.

The mixed metal oxide coating is a crystalline electrically conductive coating that activates and enables a titanium substrate to function as an anode.

Whether operating in fresh water, seawater, soil or mud, ISOMMO mixed metal oxide coatings are extremely stable even in very low pH environments.

The unique ISOMMO crimp cable connection and high specification components means that the ISOMMO anode is extremely durable and unlike other impressed current anodes, will not be affected by the presence of chlorine.

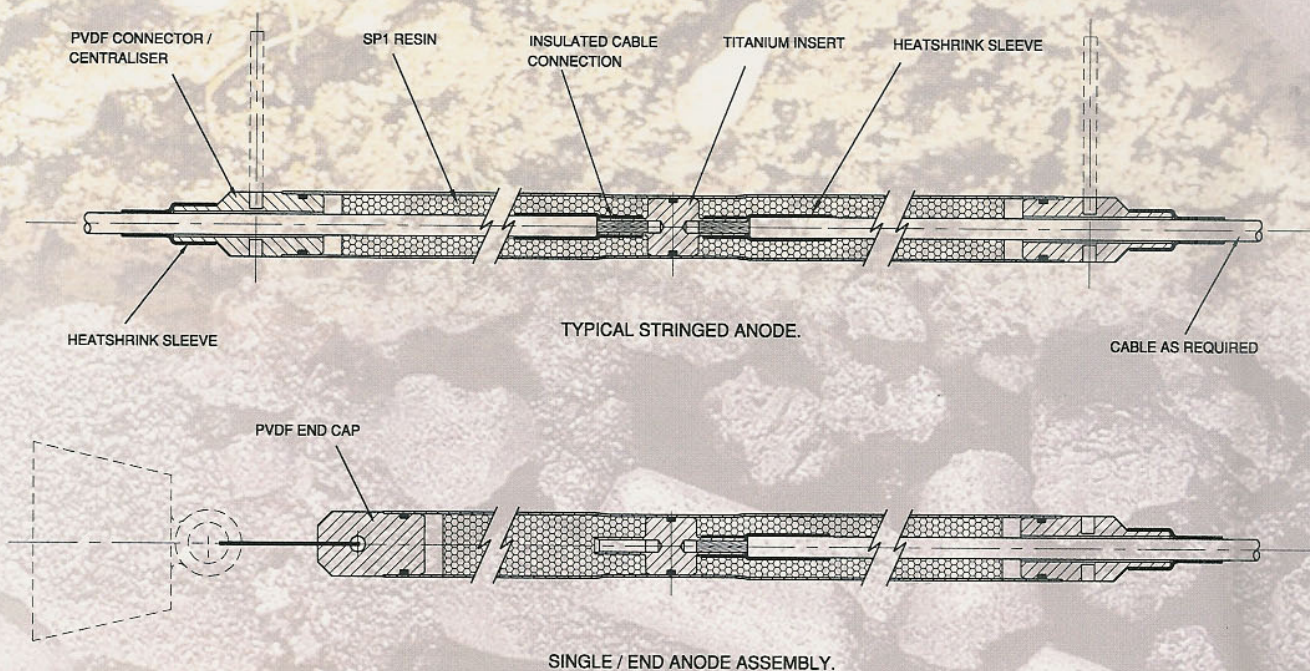
TYPICAL APPLICATIONS:

Impressed Current Cathodic Protection Installations.

- Oil & Water Well Casings
- Sheet Piling and Marine Jetties
- Internal Storage tanks
- Pipelines

Environments:

- Desert Deep Boreholes
- Sea Water
- Brackish Water
- Fresh Water
- Mud

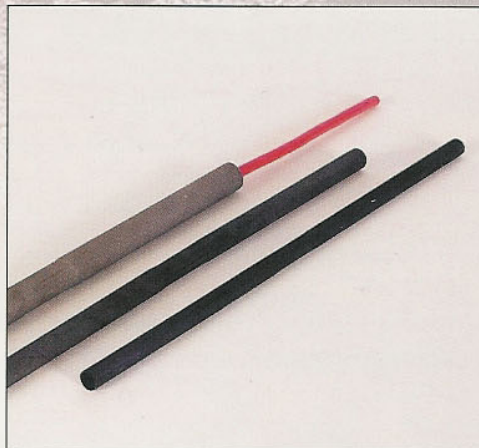


Features:

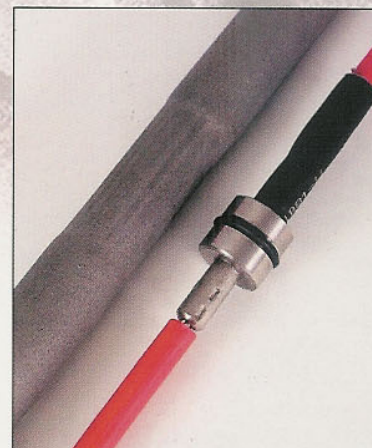
- High Current Output
- Multi Anode Strings
- Lightweight
- Strong
- High Specification Cable Components
- Unique Cable Connection
- Chloride Resistant Components

Benefits:

- Low Cost per Amp
- Low Installation Costs
- Easy Handling
- Low Maintenance
- Reduced Power Requirement



Standard ISOMMO Titanium Tubes
2.5cm, 1.9cm & 1.6cm



Titanium centre connection
insert

TUBULAR ANODE Specifications

| Anode Type | Environment | Length cm (inches) | Diameter cm (inches) | Surface Area M ² (ft ²) | Assembled Weight Kg (lbs) | Maximum Current output Amps |
|--|---|-----------------------|-------------------------|---|---------------------------------|--------------------------------------|
| ISO 2.5-50 FW ISO 2.5-50 SW ISO 2.5-50 MT | coke breeze/fresh water seawater mud/brackish water | 50 (19.7) | 2.5 (1) | 0.039 (0.42) | 0.560 (1.23) | 4 25 4 |
| ISO 2.5-100 FW ISO 2.5-100 SW ISO 2.5-100 MT | coke breeze/fresh water seawater mud/brackish water | 100 (39.4) | 2.5 (1) | 0.079 (0.84) | 1.100 (2.43) | 8 50 8 |
| ISO 1.9-50 FW ISO 1.9-50 SW ISO 1.9-50 MT | coke breeze/fresh water seawater mud/brackish water | 50 (19.7) | 1.9 (0.75) | 0.030 (0.32) | 0.400 (0.852) | 3 19 3 |
| ISO 1.9-100 FW ISO 1.9-100 SW ISO 1.9-100 MT | coke breeze/fresh water seawater mud/brackish water | 100 (39.4) | 1.9 (0.75) | 0.060 (0.64) | 0.770 (1.70) | 6 38 6 |
| ISO 1.6-50 FW ISO 1.6-50 SW ISO 1.6-50 MT | coke breeze/fresh water seawater mud/brackish water | 50 (19.7) | 1.6 (0.63) | 0.025 (0.27) | 0.370 (0.816) | 2.5 15 2.5 |
| ISO 1.6-100 FW ISO 1.6-100 SW ISO 1.6-100 MT | coke breeze/fresh water seawater mud/brackish water | 100 (39.4) | 1.6 (0.63) | 0.050 (0.54) | 0.710 (1.57) | 5 30 5 |

Data based on temperature range:

soil/coke breeze/fresh water: 5°C - 50°C (40°F-122°F) 20 year life
 seawater 10°C -50°C (50°F-122°F) 15 year life
 mud/brackish water 5°C - 50°C (40°F-122°F) 20 year life

Current output should be halved when operating outside the above temperature ranges.

CABLE SELECTION

- Cable selection is an extremely important factor when designing a cathodic protection groundbed.
- BAC recommend XLPE/PVC sheathed cable for general applications in soil, mud, fresh & brackish water and sea water.
- Where high current capacities are required, such as marine applications then the EPR/CSPE sheathed cable is best suited.
- For specialist applications such as deepwell groundbeds and where chlorides are liable to be present, BAC recommend a 1.8mm thick single sheathed PVDF type cable.

CABLE SPECIFICATION

| Insulation | Size mm ² (AWG) | Kg/m (lbs/ft) | *Volt Drop mV/Amp/etre | Application |
|------------|-------------------------------|---------------|---------------------------|--|
| XLPE/PVC | 10mm ² (#8) | 0.13 (0.09) | 2.05 | soil, mud fresh & brackish water, sea water |
| | 16mm ² (#6) | 0.18 (0.12) | 1.3 | |
| EPR/CSPE | 25mm ² (#4) | 0.67 (0.46) | 0.85 | high current marine, sea water |
| | 50mm ² (#1/0) | 0.90 (0.61) | 0.46 | |
| PVDF | 10mm ² (#8) | 0.13 (0.09) | 2.05 | high chlorine environment |
| | 16mm ² (#6) | 0.18 (0.12) | 1.3 | |

Other types and sizes of cable are available on request.

* Ambient at 30°C

ANODE ELEMENTS

- BAC ISOMMO titanium tubular anodes are coated with a mixed metal oxide that has an extremely low consumption rate measured in milligrams per year. Unlike other types of anodes the consumption rate of ISOMMO anodes is negligible with dimensions of the anode element remaining virtually unchanged during the operational service life of the anode. As a result the power required to impress current will remain the same.

ANODE ASSEMBLY

- Single and multi anode assemblies are available in both single lead and ring main type, double lead configurations.

CENTRE CABLE CRIMP CONNECTION

- BAC has developed an extremely strong and electrically low resistance centre crimp connection, which ensures the lowest possible electrical resistance between the cable and anode substrate. In strength tests the cable will always break first without any effect on the crimp connection.

Typical Anode to Cable insert strength (Tensile)

2.5cm Diameter: 1200kg
 1.9cm Diameter: 1200kg
 1.6cm Diameter: 1200kg

COMPONENTS

- All ISOMMO anodes use PVDF end caps and sleeving to ensure maximum protection in the most hostile of environments. As a further safe guard the centre connection is sealed with an extremely high performance 2 pack epoxy resin.

TESTING & INSPECTION

- Each anode assembly is rigorously tested and inspected from design to packaging.

All phases of material selection, MMO coating, testing and assembly are scrutinised under BAC ISO 9001 procedures.



CORROSION CONTROL

ISOMMO ACCESSORIES

CENTRALISERS AND END WEIGHTS

- Ensure that the anode(s) remain central when installed in restricted vertical bore holes. Centralisers are fitted into the PVDF tube seals and do not restrict the active length of the anode(s) element. Standard sizes Range between 150mm (6") to 300mm (12").

End Weights are supplied as standard for multiple anode strings.

WELL CASING AND CHAMBERS

- BAC supply a range of non metallic well casing material, both solid and perforated for deepwell groundbeds. BAC manufacture above ground chambers for deepwell groundbed installations including all necessary connection and control boxes.

VENT PIPES

- For removal of gases generated in down hole installations BAC supply the appropriate continuous and perforated vent pipe systems suitable for any design.

CONTACT BACKFILL

- For both horizontal and vertical installations BAC supply carbonaceous earth contact backfill for any design. All backfill supplied for ISOMMO anode installations is the superior Petroleum Calcined Coke.

HOW TO ORDER ISOMMO

- When ordering BAC ISOMMO anodes please specify the following:
- Anode type: i.e. ISO2.5-100SW
- Number of anodes per String
- Preferred cable type and size i.e. PVDF 10mm²
- Spacing between anodes on string, from anode centre to anode centre.
- Number of cable tails i.e. single or double
- Cable tail length (from top anode for vertical installations)
- Total anode string length.
- Required current output.

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