



## HSCI Tubular Anodes ( TA Series )

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YUXI Anodes has been a leading supplier of High Silicon Cast Iron for over 40 years.

We manufacture our Anodes in the UK with a combined production capacity of 3000 tons per year.

## Production Process ( Centrifugal Casting )

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YUXI Anodes Tubular HSCI Anodes are manufactured using a Centrifugal Chill Cast method. No other method consistently produces tubular anodes with a superior metallic structure than this proven route.

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High silicon cast iron anodes are used for a variety of impressed current cathodic protection (ICCP) applications including:

- ▶ Deep well systems
- ▶ Shallow installations
- ▶ Grounding cells
- ▶ Offshore structure systems
- ▶ Vertical and horizontal well
- ▶ Long distance transmission pipelines



## FEATURES

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### 1. Ease of Connection

A unique cable connection device can be provided for easy and efficient installation, ( 200 pcs can be connected by 2 people in less than 8 Hours )

### 2. Casting Integrity Achieved Through One Directional Solidification

Centrifugal Castings are cast using a spinning mold rotating at over a 1000 RPM, ensuring the walls of the casting are denser and purer than other casting methods. The anode therefore is made up from a dense, homogenous metal matrix, with no gas inclusions, no porosity and no shrinkage.

### 3. Impact Resistance

The centrifugal casting in a chill or steel mold ensures greater density and integrity resulting in a stronger anode with improved impact resistance helping to avoid anode breakage during handling and installation.

### 4. A Low Consumption Rate

A stippled effect outer surface leads to a large surface area in comparison to anode weight thus reducing the anode current density, giving 30% more amp-years than conventional stick anodes.

### 5. Low Cable Connector Resistance

A low resistivity ( Less than 0.001 Ohms ) Zinc Wedge-lock center connection ensures a balanced spread of current throughout the length of the anode, extending the life of the anode and resulting in a reliable current discharge to the surrounding environment.

### 6. Longer Life Expectancy

Excellent performance proven by 3rd Party Accelerated Corrosion Testing. ( Presentation NACE 2018 Mr C.D. Jennings - MSL Report ). Appendix Ref 1.

## SPECIFICATIONS

| Anode Model | Anode Weight        | Diameter       | Overall Length | Surface Area                    |
|-------------|---------------------|----------------|----------------|---------------------------------|
| YX-60-TA2S  | 32.80lbs (14.90kg)  | Φ2.28" (58mm)  | 60" (1524mm)   | 3.0sq.ft. (0.28m <sup>2</sup> ) |
| YX-60-TA3S  | 44.90lbs (20.40kg)  | Φ2.80" (71mm)  |                | 3.6sq.ft. (0.34m <sup>2</sup> ) |
| YX-60-TA4S  | 61.70lbs (28.00kg)  | Φ3.80" (97mm)  |                | 5.0sq.ft. (0.46m <sup>2</sup> ) |
| YX-60-TA5AS | 124.90lbs (56.70kg) | Φ4.80" (122mm) |                | 6.3sq.ft. (0.59m <sup>2</sup> ) |

| Anode Model | Anode Weight        | Diameter       | Overall Length | Surface Area                    |
|-------------|---------------------|----------------|----------------|---------------------------------|
| YX-84-TA2   | 46.30lbs (20.90kg)  | Φ2.28" (58mm)  | 84" (2133mm)   | 4.2sq.ft. (0.39m <sup>2</sup> ) |
| YX-84-TA3   | 63.05lbs (28.60kg)  | Φ2.80" (71mm)  |                | 5.1sq.ft. (0.48m <sup>2</sup> ) |
| YX-84-TA4   | 86.00lbs (39.20kg)  | Φ3.80" (97mm)  |                | 6.9sq.ft. (0.64m <sup>2</sup> ) |
| YX-84-TA5A  | 175.00lbs (79.50kg) | Φ4.80" (122mm) |                | 8.8sq.ft. (0.82m <sup>2</sup> ) |

# CHEMICAL COMPOSITION

| Element    | ASTM A518 / A518M |                    | BS 1591 1975 |
|------------|-------------------|--------------------|--------------|
|            | Grade 1 (Si-Fe)   | Grade 3 (Si-Fe-Cr) |              |
| Carbon     | 0.65~1.10%        | 0.70~1.10%         | 1.40% Max.   |
| Manganese  | 1.50% Max.        | 1.50% Max.         | 0.50% Max.   |
| Silicon    | 14.20~14.75%      | 14.20~14.75%       | 14.25~15.25% |
| Chromium   | 0.50% Max.        | 3.25~5.00%         | 0.50% Max.   |
| Molybdenum | 0.50% Max.        | 0.20% Max.         | /            |
| Copper     | 0.50% Max.        | 0.50% Max.         | /            |
| Sulphur    | /                 | /                  | 0.10% Max.   |
| Phosphorus | /                 | /                  | 0.25% Max.   |
| Iron       | Remainder         | Remainder          | Remainder    |

# ELECTROCHEMICAL PROPERTIES

| Element          | ASTM A518/A518M<br>Grade 1 (Si-Fe) | ASTM A518/A518M<br>Grade 3 (Si-Fe-Cr) | BS 1591 1975  |
|------------------|------------------------------------|---------------------------------------|---|
| Soil/Fresh Water | 2.0-5.0A/m <sup>2</sup>            | 0.1-0.5kg/A-y                         | <b>Avoid:</b><br>Dry Soils<br>High PH Value<br>High Sulfate<br><b>Consider during design:</b><br>Brittle Chrome Alloy<br>Chloride Environment |
|                  | 0.2-0.5A/ft <sup>2</sup>           | 0.2-1.2lbs/A-y                        |   |
| Carbon Backfill  | 5.0-10A/m <sup>2</sup>             | 0.05-0.3kg/A-y                        |   |
|                  | 0.5-1.0A/ft <sup>2</sup>           | 0.1-0.7lbs/A-y                        |   |
| Sea Water        | 10-50A/m <sup>2</sup>              | 0.3-0.5kg/A-y                         |   |
|                  | 1.0-5.0A/ft <sup>2</sup>           | 0.7-1.0lbs/A-y                        |   |