

ProAct™

PRODUCT DESCRIPTION

High Silicon Cast Iron Anode (HSCI) is an auxiliary anode used in impressed-current cathodic protection systems. They are suitable for buried and submerged steel facilities, including underground pipelines, underground storage tanks, deep-well and shallow groundbeds, and selected marine or offshore applications as permitted by the project cathodic protection design.

HSCI anodes are available in rod and tubular configurations. For shallow buried and deep-well groundbed applications, prepackaged assemblies can be supplied to meet specific project requirements.

Prepackaged HSCI anodes typically consist of a high silicon cast iron anode, centralizer, coke breeze backfill, vent tube, cable protection tube, steel canister, and lead cable. The anode assembly can be customized to suit different installation conditions and operating environments.

PRODUCT FEATURES

Connection & Sealing Design

- Grooved structure with central cable connection improves insulation, sealing performance, and electrical reliability.

Structural Configuration

- Available in rod and tubular configurations; tubular anodes are available up to 2,134 mm in length and provide lower anode resistance.

Casting Process

- Chilled casting process ensures a dense and uniform microstructure.

Installation Efficiency

- Patented cable installation equipment provides low connection resistance and high assembly efficiency.

Custom Engineering Capability.

- Specifications can be customized to meet project requirements



HIGH SILICON CAST IRON ANODE



PRODUCT PERFORMANCE

Electrical Performance

- Low-resistance cable connection helps mitigate end effects and improve current distribution.

Anode Utilization Efficiency

- Anode utilization rate of up to 85 – 90%.

Current Density Optimization

- Large effective surface area helps reduce anode current density.

Consumption Uniformity

- Dense and uniform microstructure supports even anode consumption.

Mechanical Reliability

- Controlled casting quality and optimized end design reduce the risk of damage during handling, installation, and operation.

Reference	Title
ASTM A518/A518M-99(2022)	STANDARD SPECIFICATION FOR CORROSION-RESISTANT HIGH-SILICON IRON CASTINGS
NACE RP0285	CORROSION CONTROL OF UNDERGROUND STORAGE TANK SYSTEMS BY CATHODIC PROTECTION
NACE RP0572	DESIGN, INSTALLATION, OPERATION, AND MAINTENANCE OF IMPRESSED CURRENT DEEP GROUNDBEDS
EN 12954:2019	GENERAL PRINCIPLES OF CATHODIC PROTECTION OF BURIED OR IMMERSED ONSHORE METALLIC STRUCTURES
EN 13636:2004	CATHODIC PROTECTION OF BURIED METALLIC TANKS AND RELATED PIPING
BS 1591:1975	SPECIFICATION FOR CORROSION RESISTING HIGH SILICON IRON CASTING

PRODUCT PARAMETERS

Chemical Composition

Elements, %	ASTM A518/A518M-99(2022)	BS1591:1975
	Grade 3	Si Cr 14 4
C	0.70-1.10	≤1.40
Mn	≤1.50	≤0.50
Si	14.20-14.75	14.25-15.25
Cr	3.25-5.00	4.00-5.00
Mo	≤0.20	—
Cu	≤0.50	—
P	—	≤0.25
S	—	≤0.10
Fe	Remainder	Remainder

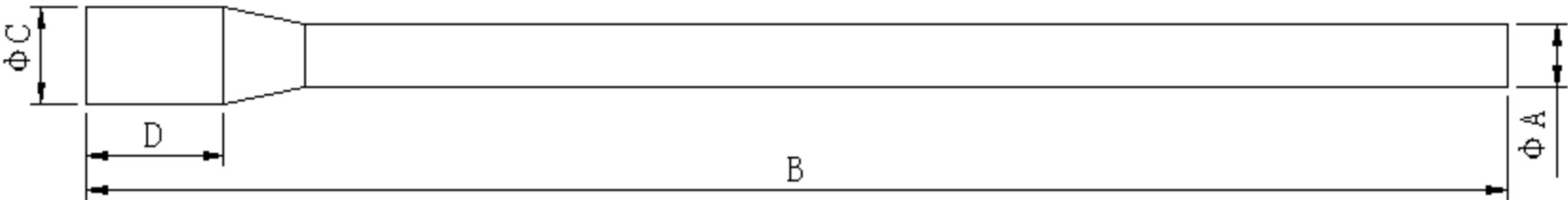
Electrochemical Properties

Parameter	Freshwater and Soil Environment	Seawater Environment
Current Density	2–10 A/m²	10–50 A/m²
Consumption Rate	0.05–0.3 kg/(A·year)	0.3–0.5 kg/(A·year)

MODELS AND SPECIFICATIONS

HSCI Rod Anode

Model	Standard Size（mm）		Surface Area（m²）	Weight（Kg）
	A×B	C		
AT-HSCI-R01	Φ38 × 1220	63	0.15	10.5
AT-HSCI-R02	Φ38 × 1524	63	0.19	13.0
AT-HSCI-R03	Φ51 × 1220	76	0.2	18.0
AT-HSCI-R04	Φ51 × 1524	76	0.25	22.0
AT-HSCI-R05	Φ76 × 1220	102	0.3	40.0
AT-HSCI-R06	Φ76 × 1524	102	0.37	49.0



HSCI Tubular Anode

Model	Standard Size (mm)			Surface Area (m²)	Weight (kg)
	D1 (φ)	D2 (φ)	L		
AT-HSCI-T02	58	35.6	2134	0.39	20.9
AT-HSCI-T03	71	45.7	2134	0.48	28.6
AT-HSCI-T04	96	74.4	2134	0.64	39.2
AT-HSCI-T05	124	99.0	2134	0.83	49.9
AT-HSCI-T06	124	86.4	2134	0.83	79.4



Canada

290 North Queen St
Suite 208,
Etobicoke, Ontario
Canada, M9C 5L2

Phone: + 1 416 433 3186

advance-technology.com

consult@advance-tech.ca

For further information, please contact Advance Technology.

