



SILICON IRON ANODES

ICP 0011



A comprehensive range of CP Tech silicon iron anodes is available to satisfy impressed current cathodic protection applications.

High silicon iron has excellent resistance to corrosion within a wide variety of environments. This has resulted in its extensive use within the Petrochemical Industry. More than 50 years of experience in the cathodic protection field has given this material a fully proven performance record.

Soundness And Shape of Casting

CP Tech silicon iron anodes and tubular silicon iron anodes are cast under strict quality control conditions.

Alloy Composition

Two alloy compositions are available - Type "N" conforming to BS1591 (1975) for general use and Type "C" - which contains 4.5% chromium and which is better suited to situations where chlorine or other aggressive agents may be generated by electrolysis (e.g. in seawater or deepwell groundbeds).

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Element	Nominal Chemical Analysis	
	Type "N"	Type "C"
Silicon	14.5%	14.5%
Chromium	-	4.5%
Manganese	0.75%	0.75%
Carbon	0.85%	0.95%
Iron	Balance	Balance

Integrity of Cable Connection and Cable Insulation

Premature failure of silicon iron anodes can result from inadequate attention to cable attachment. The CP Tech standard cable connection and sealing method is based upon in-service experience over many years and strict quality control procedures are followed.

The epoxy sealant used in the connection provides optimum adhesion and chemical resistance. Heat shrink end caps are available as an optional extra for secondary sealing. Standard cable provided is a 3 metre length of 10mm² 600/1000 volt Cross Linked Polyethylene insulated - PVC sheathed (XLPE/PVC), although any size and length can be provided.

Standard Tubular Anodes

Lgth	ID	OD	Nominal surface area	Output amps at varying current densities				Approx Weight
				10A/m ²	20A/m ²	30A/m ²	40A/m ²	
mm	mm	mm	m ²					kgs
1067	46.3	67.5	0.23	2.3	4.6	6.9	9.2	14.1
	34.9	55.6	0.37	3.7	7.4	11.1	14.8	20.9
	46.8	67.5	0.45	4.5	9.0	13.5	18.0	28.6
	74.6	95.3	0.64	6.4	12.8	19.2	25.6	38.6
	100.0	120.7	0.81	8.1	16.2	24.3	32.4	50.0
	85.7	120.7	0.81	8.1	16.2	24.3	32.4	79.5



Standard Rod Anodes

Lgth	Rod Ø	End Ø	Nominal surface area	Output amps at varying current densities				Approx Weight
				10A/m ²	20A/m ²	30A/m ²	40A/m ²	
mm	mm	mm	m ²					kgs
915	25	51	0.08	0.8	1.6	2.4	3.2	3.2
	38	63	0.12	1.2	2.4	3.6	4.8	8.6
	51	76	0.16	1.6	3.2	4.8	6.4	14.5
	63	89	0.20	2.0	4.0	6.0	8.0	22.3
	76	102	0.23	2.3	4.6	6.9	9.2	31.4
1220	25	51	0.11	1.1	2.2	3.3	4.4	5.5
	38	63	0.16	1.6	3.2	4.8	6.4	10.0
	51	76	0.20	2.0	4.0	6.0	8.0	19.1
	63	89	0.25	2.5	5.0	7.5	10.0	28.6
	76	102	0.30	3.0	6.0	9.0	12.0	40.9
1525	25	51	0.13	1.3	2.6	3.9	5.2	6.8
	38	63	0.20	2.0	4.0	6.0	8.0	13.2
	51	76	0.25	2.5	5.0	7.5	10.0	22.7
	63	89	0.32	3.2	6.4	9.6	12.8	35.9
	76	102	0.38	3.8	7.6	11.4	15.2	49.1
	114	114	0.55	5.5	11.0	16.5	22.0	99.1

Consumption Rate

The rate of consumption of silicon iron will vary with current density, environment and method of installation. The following figures are given for guidance only:

Environment	Current density A/m ²	Consumption rate kg/A-yr
Fresh water	10 - 30	0.15
Salt water (for type C)	10 - 50	0.50
Wet carbonaceous backfill	10 - 50	0.10
Dry carbonaceous backfill	10 - 50	Negligible