



Lloyd's
Register

Type Approval Certificate Extension

This is to certify that Certificate No. 94/00016(E3) for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

PRODUCER	Sargam Metals Private Ltd. 2 Ramavaram Road Manapakkam Chennai-600 089 Tamil Nadu India
DESCRIPTION	Weld-on, clamp-on, leg-mounted or bolt-on sacrificial zinc anodes.
TYPE	ZTC Series: 094, 120, 161, 188, 239, 297, 332, 351, 415 & 460 ZTW Series: 094, 120, 161, 188, 239, 297, 332, 351, 415 & 460 ZHW Series: 035, 043, 055, 078, 100, 130, 131, 160, 183, 200, 220, 260, 286, 353 & 375 ZHB Series: 016, 036, 042, 073, 083, 120, 160, 180, 220, 307, 338 & 413
APPLICATION	To reduce sea water corrosion on hulls, sea chests and ballast tanks or other steel structures such as dolphins, buoys, off shore platforms and wharf piles by cathodic protection.

Certificate No.	15/20010
Issue Date	20 January 2015
Expiry Date	10 May 2019
Sheet	1 of 2

Lloyd's Register EMEA
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RATINGS

Nett weight [kg]		1.45 to 41.1
Anode capacity [Ah/kg]		780
Consumption rate [kg/ ampere year]		11.25
Min closed circuit potential [V]		-0.95 or more negative to Ag/ AgCl electrode in synthetic sea water
Composition [%]	Lead	0.006 max.
	Iron	0.005 max.
	Cadmium	0.025-0.15
	Copper	0.005 max.
	Aluminium	0.1-0.5
	Silicon	0.125 max.
	Zinc	remainder

STANDARDS

Lloyd's Register's Rules and Regulations for the Classification of Ships 2014;
Sargam Metals Anode Alloy Specification CAP.DOC.006.
IS 2062: 2006 Hot rolled medium and high tensile structural steel -
Specification

"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."

The attached Design Appraisal Document No. HTS/ENS 32010-15, Issue No. 0, dated 20.01.2015 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 94/00016(E3) to which this extension should be attached.

Certificate No. 15/20010
Issue Date 20 January 2015
Expiry Date 10 May 2019
Sheet 2 of 2


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Marine Design Appraisal Document

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Date
20 January 2015

Please quote this reference number on all future communications
HPC1461015/32010-15/DS/TS/MCG

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2002
ISSUED TO: SARGAM METALS PRIVATE LTD.
FOR: WELD-ON, CLAMP-ON, LEG-MOUNTED OR BOLT-ON SACRIFICIAL ZINC ANODES.
TYPE APPROVAL CERTIFICATE NO. 15/20010**

**This Marine Design Appraisal Document supersedes and cancels
document number 94/00016(E3), dated 24.05.2010**

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System, 2002 and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Form 2571	Application for Type Approval	27.03.2014
94/00016(E3)	Previous Marine Design Appraisal Document	24.05.2010
CAP.DOC.006 rev. 1	Sargam Metals specification for zinc alloy anodes	05.04.2008
SM14-22180	Drawing ZHB 180 zinc anode slender stand –of type	17.01.2014
SM008-99	Drawing ZHW043 zinc anodes –weldable type	01.04.2010
SM14-23131	Drawing ZHW131 zinc anode	31.01.2014

TEST REPORTS

BOM 1400789	Lloyd's Register Asia visit report for Type Approval	22.09.2014
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FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Date
20 January 2015

Please quote this reference number on all future communications
HPC1461015/32010-15/DS/TS/MCG

Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the products referred to herein have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.

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Part 1B
 Subject: Cathodic Protection
 Product: Sacrificial Anodes (Part 1B)

Producer/Licence No.		Description of Product			Cert. No.
Type		Details of Approval	Application	Remarks	
Sargam Metals Private Ltd. 2 Ramavaram Road Manapakkam Chennai-600 089 Tamil Nadu India		Weld-on, clamp-on, leg-mounted or bolt-on sacrificial zinc anodes: Net weight [kg] 1.45 to 41.1 Anode capacity [Ah/kg] 780 Consumption rate [kg/ ampere year] 11.25 Min closed circuit potential [V] -0.95 or more negative to Ag/AgCl electrode in synthetic sea water Composition [%] Lead 0.006 max. Iron 0.005 max. Cadmium 0.025-0.15 Copper 0.005 max. Aluminium 0.1-0.5 Silicon 0.125 max. Zinc remainder	To reduce sea water corrosion on hulls, sea chests and ballast tanks or other steel structures such as dolphins, buoys, off shore platforms and wharf piles by cathodic protection.	Expires: 10 May 2019	15/20010