

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Sacrificial Anode Material for Corrosion Protection**with type designation(s)
AIL III Alloy

Issued to

Alico Industries Co. Ltd.
SHARJAH, United Arab Emirates

is found to comply with

DNV GL class programme DNVGL-CP-0107 – Type approval – Sacrificial anode materials
DNV GL recommended practice DNVGL-RP-B401 – Cathodic protection design, June 2017**Application :****The mean current capacity of the sacrificial anode material after 12 months free running testing is 2559 Ah/kg. The mean closed circuit potential is -1095 mV vs. Ag/AgCl seawater. The approval is given for use in sea water at temperatures below 30°C.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2019-10-22**This Certificate is valid until **2024-10-21**.for **DNV GL**DNV GL local station: **Abu Dhabi**Approval Engineer: **Gisle Hersvik**

Rikard Törnqvist
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

AIL III Alloy; Aluminium based alloy (Al-Zn-In) sacrificial anode material.

Chemical Composition (%):

Fe	Zn	Si	Cu	Cd	In	Others	Al
0.09 max	2.5-5.75	0.12 max	0.003 max	0.002 max	0.010-0.040	¹⁾	Remainder

¹⁾ Others, each: 0.02 max. Others, total: 0.06 max.

Application/Limitation

Approval is given for the sacrificial anode material; not for anode design.

For cathodic protection of steel structures in sea water sediment, sea mud, subsea pipelines, ship's hull, tank internals, steel structures buried in soil, etc.

The mean current capacity of the sacrificial anode material after 12 months free running testing was calculated to be **2559** Ah/kg. The mean closed circuit potential is -1095 mV vs. Ag/AgCl seawater.

The recommended design electrochemical capacity for aluminium based alloys in seawater is 2000 Ah/kg (ref. DNVGL-RP-B401).

The approval is given for use in sea water at temperatures below 30°C.

Type Approval documentation

Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**. Refer to DNV Test Report No. BGN-R2703224 "LONG TERM ELECTROCHEMICAL TESTING ACCORDING TO DNV RP B401, APPENDIX B" for further details on the specific testing performed.

Testing has been performed with basis in DNV-RP-B401 (1993).

Marking of product

Product shall be marked with *manufacturer's name*; **Alico Industries Co. Ltd., UAE** and *type designation*: "**AIL III Alloy**"

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Approval Certificate.

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical assessments (for Certificate Retention and Certificate Renewal) shall be performed according to DNVGL-CP-0338.

This certificate is only valid if required Periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnvgl.com>

END OF CERTIFICATE