

CERTIFICATE OF CONFORMITY - EC (MODULE G)

Certificate No:
MEDG00000U2

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the On board exhaust gas cleaning systems

with type designation and serial number

100SC1 LT Hybrid in-line scrubber installed onboard TUKUMA ARCTICA (IMO: 9822865) - 1704-08

Issued to

Langh Tech Oy Ab
Piikkiö, Finland

is, by design assessment and product verification, found to comply with
Regulation **(EU) 2019/1397**,
item No. MED/2.10. Marpol 73/78 as amended, Annex VI Regulation 4 and IMO Res. MEPC.259(68)

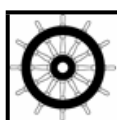
USCG Approval No: **N/A**

Further details of the equipment and conditions for certification are given overleaf.

Issued at **Hamburg** on **2020-01-13**

DNV GL local station:
**Hamburg Environmental
Certification**

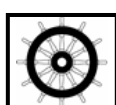
Approval Engineer:
Mirko Schlegelmilch



Notified Body
No.: **0098**

for **DNV GL SE**

Gerhard Aulbert
Head of Notified Body



0098/yyyy

0098: Notified Body number undertaking quality surveillance
yyyy: The year in which the mark is affixed

The product liability tests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate remains valid unless suspended, withdrawn, recalled or cancelled, provided this equipment is not modified without the acceptance of the notified body named herein.

This certificate authorises the manufacturer to affix the "Mark of Conformity" (wheelmark) to the product described herein.



Product description

On board exhaust gas cleaning system used as an alternative compliance method with fuel oil Sulphur limits.

Application/Limitation

According to MEPC.259(68) - Scheme B, compliance with fuel oil sulphur requirements is demonstrated by continuous emission monitoring. The monitoring system is subject to periodical surveys according to MEPC.259(68).

Type Examination documentation

Exhaust Gas Cleaning (EGC) –System SOx Emissions Compliance Plan (SECP), Rev B: 16.12.2019, approved: 2019-12-18

Exhaust Gas Cleaning (EGC) –System Technical Manual (ETM) Scheme B, Rev C: 27.12.2019, approved: 2019-12-27

Exhaust Gas Cleaning (EGC) –System Onboard Monitoring Manual (OMM) Scheme B, Rev C: 27.12.2019, approved: 2019-12-27

Exhaust Gas Cleaning (EGC) –System SOx Emissions Engine Record Book, approved: 2019-12-18

C49: Eimskip Scrubber Wash Water Outlet CFD calculation Report, Version 2.0: 24.7.2019, approved: 2019-12-27

Tests carried out

On-board verification of Exhaust Gas Cleaning System

Test report:

- DNV GL Checklist for verification of Exhaust Gas Cleaning Systems (EGC 631), DNV GL Id No: 37847, date of issue: 2019-12-22

Marking of product

The product is to be indelibly marked with name and address of manufacturer, type designation, dimensions and date of manufacture. In addition, the manufacturer shall affix the Mark of Conformity followed by the DNV GL Notified Body No. 0098 and the production year (2 or 4 digits).