TYPE APPROVAL CERTIFICATE

Certificate No: **TAA00002RE** Revision No: **1**

DNV.GL

This is to certify: That the Sample Gas Cooling Unit

with type designation(s) CU-EMA+ Cooling Unit

Issued to Bühler Technologies GmbH Ratingen, Nordrhein-Westfalen, Germany

is found to comply with **DNV GL rules for classification – Ships, offshore units, and high speed and light craft**

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature	Α
Humidity	В
Vibration	Α
EMC	Α
Enclosure	В

Issued at Hamburg on 2020-05-06

This Certificate is valid until **2025-04-01**. DNV GL local station: **Essen**

Approval Engineer: Didier Girardin

for DNV GL

Joannis Papanuskas Head of Section

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LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Page 1 of 3

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.

 Job Id:
 262.1-032438-1

 Certificate No:
 TAA00002RE

 Revision No:
 1

Product description

CU-EMA+ Cooling Unit The sample gas cooling unit is intended for installation into gas analysis systems to comply with MEPC.259 and NOx technical code. The cooling unit is equipped with a Peltier sample gas cooler TC-kit and with a peristaltic condensate pump CPdouble.

Technical Data:

Ambient temperature:+5 to +50 °CNormal cooling capacity:110 kJ/hElectrical data:115/230 VAC, 50/60 Hz, 16 A

Application/Limitation

- The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.
- Each product delivery is to be supplied with related manual for installation, maintenance and use
- The cooling unit "CU-EMA+" shall be installed, calibrated and operated in compliance with manufacturer's instructions.

Type Approval documentation

See annex

Tests carried out

Applicable tests according to DNV GL CG-0339, December 2019

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

 Job Id:
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 Certificate No:
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 Revision No:
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ANNEX

Hidden	
Hidden on published certificate:	
Reports	
TR-U200585E2	28.04.2020
TR-U191335E1	03.12.2020
TR-E191335E2	12.12.2019
Manuals for instruction and installation	
CU-Cooling unit BE440029 03/2020 Original instructions	03/2020
Part lists	
CU-EMA+ 4496282202132200100116 18032020_19:27 (R00601001)	18.03.2020