

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM000029N**  
Revision No:  
**1**

**This is to certify:**

**That**

**Van Voorden Gieterijen B.V.**  
**Bossekamp 6, 5301 LZ Zaltbommel,**  
**Netherlands**

is an approved manufacturer of  
**Copper Alloy Castings**

in accordance with  
**DNV GL rules for classification – Ships**

and the following particulars:

<b>Application area</b>	<b>Castings for propellers</b>
<b>Alloy type</b>	<b>Mn-bronze (Cu1), Ni-Al-bronze (Cu3)</b>
<b>Manufacturing method</b>	<b>See page 2</b>
<b>Max. weight</b>	<b>20 000 kg</b>
<b>Heat treatment condition</b>	<b>See page 2</b>

Manufacturer(s) approved by this certificate is/are accepted to deliver according to DNV GL, DNV and GL rules. Materials to be applied to DNV GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2020-11-25**

for **DNV GL**

This Certificate is valid until **2022-06-30**.

DNV GL local station: **Netherlands**

Approval Engineer: **Andreas Koch**

**Thorsten Lohmann**  
**Head of Section**

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Job Id: **263.11-009099-2**  
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## Particulars of the approval

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### Castings for propellers

<b>Alloy type<sup>3)</sup></b>	<b>Grade</b>	<b>Casting method<sup>1)</sup></b>	<b>Max. weight [kg]</b>	<b>Heat treatment condition<sup>2)</sup></b>
Mn-bronze	VL Cu1	SC	20 000	AC
Ni-Al-bronze	VL Cu3	SC	20 000	AC

Remarks:

- 1) SC: Sand Casting
- 2) AC: As cast
- 3) Incl. equivalent grades in acc. to other standards