



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00002UX

This is to certify:

That

Subhadra Metals Pvt. Ltd.
Plot No.18, V.I.R.D. Complex, At Post - Lohop,
Tal - Khalapur, Dist - Raigad - 410202, Maharashtra,
India

is an approved manufacturer of
Copper Alloy Castings

in accordance with
DNV GL rules for classification – Ships

and the following particulars:

| | |
|---------------------------------|--|
| Application area | Castings for propellers |
| Alloy type | Mn-bronze (VL Cu1), Ni-Al-bronze (VL Cu3) |
| Manufacturing method | Sand casting |
| Max. weight | See page 2 |
| Max. wall thickness | See page 2 |
| Heat treatment condition | See page 2 |

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 classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2021-03-12**

for **DNV**

This Certificate is valid until **2024-03-11**.

DNV local station: **Mumbai NB & CMC**

Approval Engineer: **Christian Wildhagen**

Thorsten Lohmann
Head of Section

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Form code: AM 311

Revision: 2021-03

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Page 1 of 2

Particulars of the approval

Castings for propellers

| Alloy type | Grade | Casting method ¹⁾ | Max. weight [kg] | Max. section / wall thickness [mm] | Heat treatment condition ²⁾ |
|--------------|--------|------------------------------|------------------|------------------------------------|--|
| Mn-bronze | VL Cu1 | SC | 400 | 60 | AC |
| Ni-Al-bronze | VL Cu3 | SC | 400 | 60 | AC |

Remarks:

- ¹⁾ SC: Sand Casting
- ²⁾ AC: As cast