

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM00001KS**  
Revision No:  
**1**

## This is to certify:

That

**Göpfert AG**

**Industriestraße, 25795 Weddingstedt,  
Germany**

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

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

and the following particulars:

**Application area**  
**Alloy type**

**Castings for valves, fittings and general application**

**Al-bronze,  
Sn-bronze,  
Pb-Sn-bronze,  
see page 2**

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

Issued at **Hamburg** on **2020-07-10**

This Certificate is valid until **2023-06-30**.

DNV GL local station: **Hamburg**

Approval Engineer: **Christian Wildhagen**

for **DNV GL**



Digitally Signed By: Roehr, Stefan

Location: DNV GL Hamburg, Germany

Signing Date: 10.07.2020 , on behalf of

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

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: AM 311

Revision: 2020-01

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Job Id: **263.11-007660-2**  
Certificate No: **AMMM00001KS**  
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## Particulars of the approval

### Castings for valves, fittings and general application

| Alloy type   | Grade <sup>2)</sup>         | Casting method <sup>1)</sup> | Max. weight [kg] | Max. section / wall thickness [mm] | Heat treatment condition <sup>2)</sup> |
|--------------|-----------------------------|------------------------------|------------------|------------------------------------|--|
| Sn-bronze    | CuSn10Zn acc. DIN 1705      | SC                           | 500              | 100                                | AC                                     |
|              | CuSn10-C acc. EN 1982       | SC                           | 500              | 100                                | AC                                     |
| Pb-Sn-bronze | CuSn5Zn5Pb5-C acc. EN 1982  | SC                           | 500              | 100                                | AC                                     |
|              | CuSn5Zn5Pb2-C acc. EN 1982  | SC                           | 500              | 100                                | AC                                     |
| Al-bronze    | CuAl10Fe5Ni5-C acc. EN 1982 | SC                           | 500              | 100                                | AC                                     |
|              | CuAlNi7 acc. WL 2.0968      | SC                           | 500              | 100                                | AC                                     |

Remarks:

- <sup>1)</sup> SC: Sand Casting
- <sup>2)</sup> AC: As Cast