

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

That
Raguse + Voss Metallgießerei GmbH
Grauwalling 24, 27580 Bremerhaven,
Germany

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 valves, fittings and general application
Alloy type(s)	Phosphor bronze, Gunmetal, Leaded gunmetal, Al-bronze, Ni-Al-bronze
Casting method	Sand casting
Max. weight	2 000 kg
Heat treatment condition	As cast
Additional approval conditions	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 **2018-02-13**

for **DNV GL**

This Certificate is valid until **2020-12-31**.

DNV GL local station: **Bremerhaven**

Approval Engineer: **Christian Wildhagen**

Thorsten Lohmann
Head of Section



Particulars of the approval

Castings for valves, fittings and general application

Grade	Casting method ¹⁾	Max. weight [kg]	Delivery condition ²⁾
CuSn10-C acc. EN 1982 ³⁾	SC	2 000	AC
G-CuSn12 acc. DIN 1705 ³⁾	SC	2 000	AC
G-CuSn10Zn acc. DIN 1705 ³⁾	SC	2 000	AC
G-CuSn7ZnPb acc. DIN 1705 ³⁾	SC	2 000	AC
CuSn7ZnPb-C acc. EN 1982 ³⁾	SC	2 000	AC
CuSn7Zn4Pb7-C acc. EN 1982 ³⁾	SC	2 000	AC
CuAl10Fe5Ni5-C acc. EN 1982 ³⁾	SC	2 000	AC
G-CuAl10Ni acc. DIN 1714 ³⁾	SC	2 000	AC
CuAl9Ni7 acc. WL 2.0967 ³⁾	SC	2 000	AC
CuAl10Ni5Fe-C acc. EN 1982 ³⁾ (Cu3)	SC	2 000	AC

Remarks:

- 1) SC: Sand Casting
- 2) AC: As cast
- 3) Possible application and certification of any material to classed object is subject to case by case approval

Special conditions:

Repair welding is in general permitted according to approved procedure

- WPS No. RV001 dd. 2008-09-03 (WF 0810328 HH)

as well as according to other welding procedures approved by DNVGL.

The requirements for repair welding as stated in DNVGL- RU-SHIP Pt.2 Ch.2 Section 11 shall be complied with.