



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001C8
Revision No:
2

This is to certify:

That

Sande Stahlguss GmbH
Gießereistraße 32, 26452 Sande,
Germany

is an approved manufacturer of
Steel Castings

in accordance with

DNV rules for classification – Ships
DNV class programme – DNV-CP-0246 Steel castings

and the following particulars:

Application area	Castings for hull structures and equipment, Castings for machinery, Stainless steel castings
Steel type	Carbon and carbon-manganese, Alloy, Austenitic stainless, Martensitic stainless, See page 2 and 3
Casting method	Sand casting
Max. weight	50 000 kg
Heat treatment condition	See page 2 and 3
Additional approval conditions	Including fabrication welding, see page 3

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 **2023-04-19**

for **DNV**

This Certificate is valid until **2026-04-30**.

DNV local unit: **Bremerhaven**

Approval Engineer: **Andreas Koch**

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Thorsten Lohmann
Head of Section

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Particulars of the approval

Castings for hull structure and equipment

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	NV C400UW, NV C440UW, NV C480UW, NV C520UW, NV C560UW, NV C600UW	SC	50 000	N, NT, QT
Alloy	NV C550AW, NV C620AW	SC	50 000	QT

Castings for machinery

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	NV C400U, NV C440U, NV C480U, NV C520U, NV C560U, NV C600U	SC	50 000	N, NT, QT
Alloy	NV C550A, NV C600A, NV C690A	SC	50 000	QT

Stainless steel castings

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
Austenitic	GX 2 CrNi 18 10 (304L) GX 5 CrNi 19 9 (304) GX 6 CrNiNb 19 10 (347) GX 2 CrNiMo 19 11 2 (316L) GX 5 CrNiMo 19 11 2 (316) GX 5 CrNiMo 19 11 3 (317)	SC	50 000	SHT

Steel castings acc. other standards ³⁾

Steel type	Standard	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition
C and C-Mn, Alloy, Austenitic stainless, Martensitic stainless	EN 10293	SC	50 000	Acc. standard
	EN 10213	SC	50 000	Acc. standard
	EN 10283	SC	50 000	Acc. standard
	SEW 510	SC	50 000	Acc. standard
	SEW 515	SC	50 000	Acc. standard
	SEW 520	SC	50 000	Acc. standard
	SEW 685	SC	50 000	Acc. standard

Remarks:

- ¹⁾ SC: Sand Casting
- ²⁾ SHT: Solution Heat Treated (Solution Annealing)
N: Normalized
QT: Quenched and tempered
NT: Normalized and tempered
- ³⁾ Incl. equivalent grades in acc. to other standards

Special conditions:

Repair welding as well as fabrication welding for joining of castings is permitted according to DNVGL approved procedures using qualified welders.

Approved procedures:

Letter Ref.-No. 28394/96/Hei/HT: GP240GH acc. EN 10213 and equivalent, GS-21Mn5 acc. SEW 685 and equivalent, Certificate WF 0510214: GX4CrNi13-4 acc. EN 10213 and equivalent, G20Mn5 acc. EN 10293 and equivalent.