

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001XB
Revision No:
1

This is to certify:

That
Silbitz Guss GmbH
Dr.-Maruschky-Straße 2, 07613 Silbitz,
Germany

is an approved manufacturer of
Steel Castings

in accordance with
DNV GL rules for classification – Ships
DNVGL-OS-B101 – Metallic materials

and the following particulars:

Application area	Castings for hull structures and equipment Casting for machinery Castings for boilers, pressure vessels and piping systems
Steel type	Stainless steel castings Carbon and carbon-manganese, Alloy, Austenitic stainless, Martensitic stainless, Ferritic stainless See page 2
Casting method	Sand casting, Chill casting, see page 2
Max. Weight	10 000 kg
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 **2020-11-12**

This Certificate is valid until **2023-11-30**.

DNV GL local station: **Essen**

Approval Engineer: **Christian Wildhagen**



for DNV GL
Digitally Signed By: Roehr, Stefan
Location: DNV GL Hamburg, Germany
Signing Date: 13.11.2020 , 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.



Job Id: **263.11-007873-3**
 Certificate No: **AMMM00001XB**
 Revision No: **1**

Particulars of the approval

Castings for hull structure and equipment

Steel type	Grade	Casting method ¹⁾	Max. weight [kg]	Delivery condition ²⁾
C and C-Mn	VL C400UW, VL C440UW, VL C480UW, VL C520UW, VL C560UW, VL C600UW	SC, CC	10 000	N, NT, QT
Alloy	C550AW, C620AW	SC, CC	10 000	NT, QT

Castings for machinery

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Delivery condition ²⁾
C and C-Mn	VL C400U, VL C440U, VL C480U, VL C520U, VL C560U, VL C600U	SC, CC	10 000	N, NT, QT
Alloy	C550A, C600A, VL C690A	SC, CC	10 000	NT, QT

Stainless steel castings

Steel type	Grade	Casting method ¹⁾	Max. weight [kg]	Delivery condition ²⁾
Austenitic	GX 2 CrNi 18 10 (304L)	SC, CC	10 000	SHT
	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)			

Castings for boilers, pressure vessels and piping systems

Steel type	Grade	Casting method ¹⁾	Max. weight [kg]	Delivery condition ²⁾
C and C-Mn	VL C450H	SC, CC	100	N, QT

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Steels acc. other standards³⁾

Steel type	Grade³⁾	Casting method ¹⁾	Max. weight [kg]	Delivery condition²⁾
C and C-Mn	Acc. EN 10293 / EN 10213	SC, CC	10 000	N, NT, QT
Alloy	Acc. EN 10293 / EN 10213	SC, CC	10 000	N, NT, QT
Austenitic	Acc. EN 10283 / EN 10213	SC, CC	10 000	SHT
Martensitic	Acc. EN 10283 / EN 10213	SC, CC	10 000	QT
C and C-Mn	GP240GH acc. EN 10213	SC, CC	10 000	N, QT

Remarks:

- ¹⁾ SC: Sand Casting
CC: Chill Casting
- ²⁾ SHT: Solution Heat Treated (Solution Annealing)
N: Normalised
QT: Quenched and tempered
NT: Normalised and tempered
- ³⁾ Possible application and certification of any material to classed object is subject to case by case approval

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001XC
Revision No:
2

This is to certify:

That
Silbitz Guss GmbH
Dr.-Maruschky-Straße 2, 07613 Silbitz,
Germany

is an approved manufacturer of
Iron Castings

in accordance with
DNV GL rules for classification – Ships
DNVGL-OS-B101 – Metallic materials

and the following particulars:

Iron type(s)	Grey cast iron, Nodular cast iron, Austenitic cast iron
Casting method	Sand casting, Chill casting
Max. weight	See page 2
Heat treatment condition	See page 2

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Job Id: **263.11-007873-4**
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 Revision No: **2**

Particulars of the approval

Cast iron

Iron type	Grade	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
Grey	200	SC, CC	10 000	AC, SR
	250			
	300			
	350			
	EN-GJL-200 acc. EN 1561			
	EN-GJL-250 acc. EN 1561			
	EN-GJL-300 acc. EN 1561			
	EN-GJL-350 acc. EN 1561			
Nodular	VL NCI-1	SC, CC	10 000	AC, F, SR
	VL NCI-2			
	VL NCI 370			
	VL NCI 400			
	VL NCI 500			AC, P, SR
	VL NCI 600			
	VL NCI 700			
	VL NCI 800			AC, F, SR
	EN-GJS-350-22-LT acc. EN 1563			
	EN-GJS-400-18-LT acc. EN 1563			
	EN-GJS-400-18 acc. EN 1563			
	EN-GJS-400-15 acc. EN 1563			
	EN-GJS-450-10 acc. EN 1563			
	EN-GJS-500-7 acc. EN 1563			
	EN-GJS-600-3 acc. EN 1563			AC, P, SR
EN-GJS-700-2 acc. EN 1563				
EN-GJS-800-2 acc. EN 1563				
Austenitic	EN-GJSA-XNi35 acc. EN13835	SC	5 500	AC, SR

Remarks:

¹⁾ SC: Sand casting


CC: Chill Casting

²⁾ AC: As cast

F: Ferritizing

P: Pearlitizing

SR: Stress relieving



Job Id: **263.11-007873-4**
Certificate No: **AMMM00001XC**
Revision No: **2**

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001XD
Revision No:
1

This is to certify:

That
Silbitz Guss GmbH
Dr.-Maruschky-Straße 2, 07613 Silbitz,
Germany

is an approved manufacturer of
Steelmaking

in accordance with
DNV GL rules for classification – Ships
DNVGL-OS-B101 – Metallic materials
DNV GL rules for classification – Naval vessels

and the following particulars:

Application area	Steelmaking
Products	Semi-finished products for rolling or forging stock (ingots)
Steel type	Carbon and carbon-manganese, Alloy, Austenitic stainless, Ferritic stainless, Martensitic stainless Austenitic-ferritic (Duplex) stainless, Non-magnetizable steels, see page 2
Manufacturing method	Electric Arc furnace, Ingot casting
Deoxidation	Killed
Max. weight	10 000 kg
Heat treatment condition	See page 2

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Job Id: **263.11-007873-5**
Certificate No: **AMMM00001XD**
Revision No: **1**

Particulars of the approval

Semi-finished products

Steel type	Product	Steel making ¹⁾	Max weight [kg]	Max. Thickness [mm]	Delivery condition
C and C-Mn	Ingot	EAF, IC	10 000	-	Acc. standard
Alloy	Ingot	EAF, IC	10 000	-	Acc. standard
Austenitic stainless	Ingot	EAF, IC	10 000	-	Acc. standard
Ferritic stainless	Ingot	EAF, IC	10 000	-	Acc. standard
Martensitic stainless	Ingot	EAF, IC	10 000	-	Acc. standard
Duplex	Ingot	EAF, IC	10 000	-	Acc. standard
Non-magnetizable steel (1.3964)	Ingot	EAF, IC	10 000	-	Acc. standard
Heat resisting steels (X5NiCrCeNb32-37)	Ingot	EAF, IC	10 000	-	Acc. standard

Remarks:

- ¹⁾ EAF: Electric arc furnace
IC: Ingot casting