



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001C3
Revision No:
2

This is to certify:

That

Fritz Winter Eisengießerei GmbH & Co. KG
Bürgelweg 1, 35321 Laubach,
Germany

is an approved manufacturer of
Iron Castings

in accordance with
DNV GL rules for classification – Ships

and the following particulars:

Iron type	Grey cast iron, Nodular cast iron Special cast iron
Casting 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 **2021-07-08**

for **DNV**

This Certificate is valid until **2024-06-30**.

DNV local station: **DNV Essen**

Approval Engineer: **Christian Wildhagen**

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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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.



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Particulars of the approval

Cast iron

Iron type	Grade	Casting method ¹⁾	Max. weight [kg]	Max. section / wall thickness [mm]	Heat treatment condition ²⁾
Grey	EN-GJL-200 acc. EN 1561	SC	1 000	60	AC
	EN-GJL-250 acc. EN 1561				
	EN-GJL-300 acc. EN 1561				
Nodular	VL NCI 400	SC	3 000	70	AC, SR
	VL NCI 500				
	VL NCI 600				
	JS 400-15/S acc. ISO 1083				
	JS 400-18/S acc. ISO 1083				
	JS 500-7/S acc. ISO 1083				
	JS 600-3/S acc. ISO 1083				
	EN-GJS-500-14 acc. EN 1563				
Special	GJV-450 acc. EN 16079 ⁴⁾	SC	500	30	AC
	FW 0004-VD (Varifer®) acc. Fritz Winter Specification FW 0004 dd. 2014-07-07 ³⁾				

Remarks:

- 1) SC: Sand Casting
IC: Investment Casting
- 2) AC: as cast
SR: stress relieved
- 3) Possible application and certification of any material to classed object is subject to case by case approval

Special conditions:

In case heat treatment is required, will be conducted by Fritz Winter, Stadtallendorf, Germany (AMMM00001WY)