

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM000015N
Revision No:
1

This is to certify:

That

MAN Energy Solutions SE
Stadtbachstraße 1, 86153 Augsburg,
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
Casting method	Sand casting
Max. weight	See page 2
Heat treatment condition	See page 2
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 **2020-02-04**

for **DNV GL**

This Certificate is valid until **2022-12-31**.

DNV GL local station: **Augsburg**

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 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: **263.11-002169-4**
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Particulars of the approval

Cast iron:

Grade	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
Nodular cast iron acc. DNV GL Rules for Ships, Pt.2, Ch.2, Sec. 9			
VL NCI-2, VL NCI370, VL NCI400, VL NCI500, VL NCI600, VL NCI700, VL NCI800	SC	120 000	AC/F
Nodular cast iron acc. EN 1563			
EN-GJS-400-18-LT, EN-GJS-400-18-RT, EN-GJS-350-22, EN-GJS-400-18, EN-GJS-400-15, EN-GJS-450-10, EN-GJS-500-7, EN-GJS-600-3, EN-GJS-700-2 EN-GJS-800-2	SC	120 000	AC/F
Nodular cast iron acc. to MAN B&W Material Sheet AN 500 ³⁾			
GGG-SiMo3.08	SC	4 000	F
GGG-SiMo4.05	SC	4 000	F
Grey cast iron acc. EN 1561			
EN-GJL-200, EN-GJL-250, EN-GJL-300, EN-GJL-350	SC	120 000	AC

Remarks:

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

Special conditions:

Subject to case-by-case approval, production welding permitted according WPS approved by DNVGL. Prior to any welding DNVGL is to be informed about type and location of welding. The requirements as stated in DNVGL-RU-SHIP Pt.2 Ch.2 Section 9 shall be complied with.