

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:**That****Ergocast Guss GmbH
Jünkerath, Germany**is an approved manufacturer of
Iron Castingsin accordance with
DNV GL rules for classification – Ships

and the following particulars:

Iron type(s) **Nodular Cast Iron**
Max. weight **See particulars**

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 **2017-03-27**for **DNV GL**This Certificate is valid until **2020-03-31**.DNV GL local station: **Essen**Approval Engineer: **Stefan Röhr**

Thorsten Lohmann
Head of Section

Particulars of the approval

Cast Iron

Iron type	Grade	Casting method ¹⁾	Max. weight [kg]	Max. section / wall thickness [mm]	Heat treatment condition ²⁾
Nodular	VL NCI 400	SC	40 000	300	AC
	VL NCI 500	SC	40 000	600	AC
	VL NCI 600	SC	40 000	600	AC
	EN-GJS-400-18-RT acc. to EN 1563 ³⁾	SC	40 000	300	AC
	EN-GJS-500-7 acc. to EN 1563 ³⁾	SC	40 000	600	AC
	EN-GJS-600-3 acc. to EN 1563 ³⁾	SC	40 000	600	AC

Remarks:

- 1) SC: sand casting
- 2) AC: as cast
- 3) Certification of any material applied to classed object shall fulfill the applicable material requirements in the DNV GL class rules