

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:**That****Eisenwerk Erla GmbH
Gießereistraße 1
08340 Schwarzenberg, 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	80 kg
Remarks	see particulars of the approval

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 **2017-04-18**for **DNV GL**This Certificate is valid until **2020-04-30**.DNV GL local station: **Magdeburg**Approval Engineer: **Gabi Dau**

Thorsten Lohmann
Head of Section

Job Id: **263.11-007114-1**
Certificate No: **AMMM00001BF**

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	80	-	-
	VL NCI 500	SC	80	-	-
	VL NCI 600	SC	80	-	-
	EN-GJS-400-15 acc. to EN 1563 ³⁾	SC	80	-	-
	EN-GJS-450-10 acc. to EN 1563 ³⁾	SC	80	-	-
	EN-GJS-500-7 acc. to EN 1563 ³⁾	SC	80	-	-
	EN-GJS-600-3 acc. to EN 1563 ³⁾	SC	80	-	-
	EN-GJSA-XNiSiCr35-5-2 acc. to EN 13835 ⁴⁾	SC	80	-	Acc. to standard
	EN-GJS-XSiMo4-1 acc. to customer specification ⁴⁾	SC	80	-	- / F
	EN-GJS-XSiMo5-1 acc. to customer specification ⁴⁾	SC	80	-	- / F

Remarks:

- 1) SC: Sand Casting
- 2) F: Ferritizing
- 3) Certification of any material applied to classed object shall fulfill the applicable material requirements in the DNV GL class rules
- 4) Possible application and certification of any material to classed object is subject to case by case approval