

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:**That****Josef Schonlau Maschinenfabrik und Eisengiesserei GmbH &
Co. KG
Geseke, Nordrhein-Westfalen, Germany**is an approved manufacturer of
Iron Castingsin accordance with
DNV GL rules for classification – Ships

and the following particulars:

Iron type	Grey cast iron, Nodular cast iron
Casting method	See page 2
Max. weight	3 500kg
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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2019-09-04**for **DNV GL**This Certificate is valid until **2022-06-30**.DNV GL local station: **Essen**Approval Engineer: **Andreas Koch**

Thorsten Lohmann
Head of Section

Job Id: **263.11-003334-3**
 Certificate No: **AMMM00000RN**
 Revision No: **1**

Particulars of the approval

Cast iron

Iron type	Grade ⁴⁾	Casting method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
Grey	200	SC	3 500	250	AC
	250				
	300				
	350				
	Grades acc. to EN 1561				
Nodular	VL NCI-1	SC	3 500	250	F
	VL NCI-2				F
	VL NCI 370				AC/SR
	VL NCI 400				AC/SR
	VL NCI 500				AC/SR
	VL NCI 600				AC/SR
	VL NCI 700				AC/SR
	VL NCI 800				AC/SR
	Grades acc. to EN 1563				AC/SR/F
	EN-GJSA-XNiCr20-2 acc. to EN 13835				AC

Remarks:

- ¹⁾ SC: Sand casting
- ²⁾ AC: As cast
F: Ferritizing
SR: Stress relieving
- ³⁾ Incl. equivalent grades in acc. to other standards