

# APPROVAL OF MANUFACTURER CERTIFICATE

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:

<b>Iron type(s)</b>	<b>Grey cast iron, Nodular cast iron, see page 2</b>
<b>Max. weight</b>	<b>1 000 kg</b>
<b>Remarks</b>	<b>See page 2</b>

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 **2017-04-27**

for **DNV GL**

This Certificate is valid until **2018-06-30**.

DNV GL local station: **DNV Essen**

Approval Engineer: **Christian Wildhagen**

**Thorsten Lohmann**  
**Head of Section**



## Particulars of the approval

### Cast iron

Iron type	Grade	Casting method <sup>1)</sup>	Max. weight [kg]	Max. section / wall thickness [mm]	Heat treatment condition <sup>2)</sup>
Grey	EN-GJL-200 acc. EN 1561	SC	1 000	60	-
	EN-GJL-250 acc. EN 1561	SC	1 000	60	-
	EN-GJL-300 acc. EN 1561	SC	1 000	60	-
Nodular	VL NCI 400	SC	3 000	70	-
	VL NCI 500	SC	3 000	70	-
	VL NCI 600	SC	3 000	70	-
	JS 400-15 /S acc. ISO 1083 <sup>3)</sup>	SC	3 000	70	-
	JS 400-18/S acc. ISO 1083 <sup>3)</sup>	SC	3 000	70	-
	JS 500-17 /S acc. ISO 1083 <sup>3)</sup>	SC	3 000	70	-
	JS 600-3/S acc. ISO 1083 <sup>3)</sup>	SC	3 000	70	-
	GJV-450 acc. EN 16079 <sup>4)</sup>	SC	500	30	-
	FW 0004-VD (Varifer®) acc. Fritz Winter Specification FW 0004 dd. 2014-07- 07 <sup>4)</sup>	SC	500	30	-

#### Remarks:

- 1) SC: Sand Casting  
IC: Investment Casting
- 2) F: Ferritizing  
SR: Stress relieving
- 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