

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM00000YZ**  
Revision No:  
**2**

**This is to certify:**

**That**  
**Wolfensberger AG**  
**Bauma, Switzerland**

is an approved manufacturer of  
**Steel Castings**

in accordance with  
**DNV GL rules for classification – Ships**

and the following particulars:

<b>Application area</b>	<b>Castings for hull structures and equipment</b> <b>Castings for machinery</b> <b>Castings for boilers, pressure vessels and piping systems</b> <b>Stainless steel castings</b>
<b>Steel type</b>	<b>Carbon and carbon-manganese,</b> <b>Alloy,</b> <b>Austenitic stainless,</b> <b>Ferritic-austenitic (Duplex) stainless,</b>
<b>Casting method</b>	<b>See page 2 ff.</b>
<b>Max. weight</b>	<b>See page 2 ff.</b>
<b>Max. wall thickness</b>	<b>See page 2 ff.</b>
<b>Heat treatment condition</b>	<b>See page 2 ff.</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 **2019-05-08**

for **DNV GL**

This Certificate is valid until **2022-02-28**.

DNV GL local station: **Augsburg**

Approval Engineer: **Stefan Röhr**

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



Job Id: **263.11-006041-3**  
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## Particulars of the approval

### Castings for hull structure and equipment

Steel type	Grade <sup>3)</sup>	Casting method <sup>1)</sup>	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	VL C400UW, VL C440UW, VL C480UW, VL C520UW, VL C560UW, VL C600UW	SC	1 500	200	N, NT, QT
Alloy	VL C550AW, VL C620AW	SC	1 500	200	QT

### Castings for machinery

Steel type	Grade <sup>3)</sup>	Casting method <sup>1)</sup>	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	VL C400U, VL C440U, VL C480U, VL C520U, VL C560U, VL C600U	SC	1 500	200	N, NT, QT
Alloy	VL C550A, VL C600A, VL C690A	SC	1 500	200	QT

### Castings for boilers, pressure vessels and piping systems

Steel type	Grade <sup>3)</sup>	Casting method <sup>1)</sup>	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	VL C450H, VL C490H	SC	1 500	200	N, NT, QT
Alloy	VL C0.5Mo, VL C1Cr0.5Mo, VL C2.25Cr1Mo	SC	1 500	200	QT

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### Stainless steel castings

Steel type / grade <sup>3)</sup>	Casting method <sup>1)</sup>	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition <sup>2)</sup>
Austenitic	SC	1 500	200	SHT
22 Cr Duplex	SC	1 500	200	SHT

### Included steels according to other standards

Standard / grade	Casting method <sup>1)</sup>	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition <sup>2)</sup>
Unalloyed and low-alloyed steels up to G26CrMo4 acc. to EN 10293	SC	1 500	200	N
GS17CrMoV5-10 acc. to EN 10213	SC	1 500	200	QT
GX5CrNiMoNb19-11-2 acc. to EN 10213	SC	1 500	200	SHT
GX2CrNiMoN25-6-3 acc. to EN 10283	SC	1 500	200	SHT
Gx4CrNi13-4 acc. to EN 102831 <sup>4)</sup>	SC	1 500	200	QT
GX40CrNiSi 22-10 acc. to EN 10295 <sup>4)</sup>	SC	1 500	200	AC
GNiCr22Mo9Nb acc. to manufacturer's spec. <sup>4)</sup>	SC	400	200	SHT

#### Remarks:

- 1) SC: Sand Casting or Exacast® process
- 2) SHT: Solution Heat Treated (Solution Annealing)  
 N: Normalized; NT: Normalized and tempered  
 QT: Quenched and tempered
- 3) Incl. equivalent grades in acc. to other standards
- 4) Possible application and certification of any material to classed object is subject to case by case approval