

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM00002J6**

## This is to certify:

That

**Fushun Special Steel Co., Ltd.**  
**Fushun City, Liaoning Province, China**

is an approved manufacturer of  
**Steel Forgings**

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

and the following particulars:

<b>Application area</b>	<b>Forgings for hull structures and equipment</b> <b>Forgings for shafting and machinery</b> <b>Forgings for boilers, pressure vessels and piping systems</b>
<b>Steel type</b>	<b>Carbon and carbon-manganese,</b> <b>Alloy</b>
<b>Forging method</b>	<b>Open die forging</b>
<b>Max. weight</b>	<b>See page 2</b>
<b>Max. diameter</b>	<b>See page 2</b>
<b>Heat treatment condition</b>	<b>See page 2</b>
<b>Additional approval conditions</b>	<b>Including steelmaking</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 **2019-06-14**

for **DNV GL**

This Certificate is valid until **2022-06-13**.

DNV GL local station: **Dalian**

Approval Engineer: **Stefan Röhr**

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



## Particulars of the approval

### Forgings for hull structures and equipment

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Max. diameter [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	VL F400UW, VL F440UW, VL F480UW, VL F520UW, VL F560UW, VL F600UW	OD	3 000	300	N, NT, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	OD	8 000	450	QT

### Forgings for shafting and machinery

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Max. diameter [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	VL F400U, VL F440U, VL F480U, VL F520U, VL F560U, VL F600U, VL F640U, VL F680U, VL F720U, VL F760U	OD	3 000	300	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD	8 000	450	QT

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

Steel type	Grade <sup>3)</sup>	Forging method <sup>1)</sup>	Max. weight [kg]	Max. diameter [mm]	Heat treatment condition <sup>2)</sup>
C and C-Mn	VL F450H, VL F490H	OD	3 000	300	N, NT, QT
Alloy	VL F0.5Mo, VL F1Cr0.5Mo	OD	8 000	450	N, NT, QT
	VL F2.25Cr1Mo	OD	8 000	450	N, QT

Remarks:

- <sup>1)</sup> OD: Open die forging
- <sup>2)</sup> QT: Quenched and tempered; N: Normalized; NT: Normalized and tempered
- <sup>3)</sup> Incl. equivalent grades in acc. to other standards