

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00001B8
Revision No:
2

This is to certify:

That
Frisa Forjados, S.A. de C.V.
Garcia, Nuevo Leon,
Mexico

is an approved manufacturer of
Steel Forgings

in accordance with
DNV GL rules for classification – Ships

and the following particulars:

Application area	Forgings for hull structures and equipment, Forgings for shafting and machinery, Forgings for gearing, Stainless steel forgings
Steel type	Carbon and carbon-manganese, Alloy, Martensitic stainless, See page 2
Forging method	Open die forging / ring rolling, See page 2
Max. weight	See page 2
Max. diameter / section	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 **2020-12-04**

for **DNV GL**

This Certificate is valid until **2023-06-30**.

DNV GL local station: **Houston**

Approval Engineer: **Christian Wildhagen**

Thorsten Lohmann
Head of Section

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Job Id: **263.11-003820-3**
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Particulars of the approval

Forgings for hull structures and equipment

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter / section [mm]	Heat treatment condition ²⁾
C and C-Mn	VL F400UW, VL F440UW, VL F480UW, VL F520UW, VL F560UW, VL F600UW	OD, RR ⁴⁾	25 000	1219	N, NT, QT
Alloy	VL F550AW, VL F600AW, VL F650AW	OD, RR ⁴⁾	25 000	1219	QT

Forgings for shafting and machinery

Forgings for gearing

Steel type	Grade ³⁾	Forging method ¹⁾	Max. weight [kg]	Max. diameter / section [mm]	Heat treatment condition ²⁾
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, RR ⁴⁾	25 000	1219	N, NT, QT
Alloy	VL F600A, VL F700A, VL F800A, VL F900A, VL F1000A, VL F1100A	OD, RR ⁴⁾	25 000	1219	QT

Stainless steel forgings

Steel type / grade	Forging method ¹⁾	Max. weight [kg]	Max. diameter / section [mm]	Heat treatment condition ²⁾
Martensitic stainless	OD, RR ⁴⁾	5 000	1219	SHT

Remarks:

- ¹⁾ OD: Open die forging
RR: Ring Rolling
- ²⁾ QT: Quenched and tempered
N: Normalised
NT: Normalised and tempered
SHT: Solution Heat Treated (Solution Annealing)
- ³⁾ Incl. equivalent grades in acc. to other standards
- ⁴⁾ Max. outer diameter 8 000 mm for rolled rings