



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00000XX
Revision No:
4

This is to certify:

That

INDUSTEEL BELGIUM SA
266, rue de Chatelet, 6030 Charleroi,
Belgium

is an approved manufacturer of
Steelmaking and Rolled Steel Products

in accordance with
DNV GL rules for classification – Ships
DNVGL-OS-B101 – Metallic materials

and the following particulars:

Application area	High strength steel, Extra high strength steel, Z-grade steels (plates with through thickness properties), Steel for low temperature service, Stainless steel
Products	Plates and sheets, See page 2 ff.
Manufacturing method	Electric arc furnace, continuous casting
Max. thickness / diameter	See page 2 ff.
Heat treatment condition	See page 2 ff.
Additional approval conditions	See page 2 ff.

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 classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2021-04-13**

for **DNV**

This Certificate is valid until **2023-12-31**.

DNV local station: **Belgium FIS**

Approval Engineer: **Christian Wildhagen**

Thorsten Lohmann
Head of Section

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



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Particulars of the approval

High strength steel

Grade	Product	Steel making ¹⁾	Fine grain elements	Max. thickness [mm]	Heat treatment condition ²⁾	Z-quality
VL A40	Plate	EAF, CC	Al, Al+V	10	N	-
VL D40, VL E40	Plate	EAF, CC	Al+Nb, Al+V	40	N	-
VL D40, VL E40	Plate	EAF, CC	Al+Nb, Al+V	40	QT	-

Extra high strength steel

Grade ⁶⁾⁷⁾	Product	Steel making ¹⁾	Fine grain elements	Max. thickness [mm]	Heat treatment condition ²⁾	Z-quality
VL FO620, VL FO690	Plate	EAF, CC	Al, Al+V	75	QT	Z25
VL F620, VL F690						

Stainless steel

Grade ⁴⁾	Product	Steel making ¹⁾	Fine grain elements	Max. thickness [mm]	Heat treatment condition ²⁾	Z-quality
VL 304 L, VL 316 L, VL 316 L N, VL 317 L	Plate	EAF, CC	-	30	SHT	-
VL 304 L N	Plate	EAF, CC	-	56	SHT	-
UNS S31803	Plate	EAF, CC	-	45	SHT	-

Steels acc. to other standards ⁵⁾

Grade	Product	Steel making ¹⁾	Fine grain elements	Max. thickness [mm]	Heat treatment condition ²⁾	Z-quality
Acc. to EN 10088-2						
X2CrNiMoN 22-5-3	Plate	EAF, CC	acc. to standard	45	SHT	-

Steel for low temperature service

Grade	Product	Steel making ¹⁾	Fine grain elements	Max. thickness [mm]	Heat treatment condition ²⁾	Z-quality
VL 9Ni ³⁾	Plate	EAF, CC	-	50	QT	-

Remarks:

- 1) EAF: Electric arc furnace
CC: Continuous casting
- 2) N: normalised
QT: quenched and tempered
SHT: solution heat treated (solution annealed)
- 3) Qualified max. heat input. 2.0 kJ/mm
- 4) Including equivalent grades to other standards
- 5) Possible application and certification of any material to classed object is subject to case by case approval
- 6) Qualified max. heat input. 2.6 kJ/mm. $C_{eq} = 0.62$ during weldability testing
- 7) For $t \leq 50$ mm, $Ni_{min}: 1,32\%$
For $50 \leq t \leq 75$, $Ni_{min}: 1.77 \%$