

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00000XX
Revision No:
3

This is to certify:

That

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

is an approved manufacturer of
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 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 |
| 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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2021-02-21**

for **DNV GL**

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

DNV GL local station: **Belgium FIS**

Approval Engineer: **Christian Wildhagen**

Thorsten Lohmann
Head of Section

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Form code: AM 311

Revision: 2020-01

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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 | - |

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 ⁴⁾

| 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 | - |

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Remarks:

- 1) EAF: Electric arc furnace
- 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