NLMK Europe – Plate

# Inspection Certificate (A02)

EN 10204:2004/3.1

Date of creation: (Z02) 17.09.2021

**Certificate No.: (A03) 131311**

**Our order No.:** (A08) 1362581 **Your order No.:** (A07) P091891 **Order registration date:** 15.06.2021 **Date of dispatch:** 17.09.2021 B

## Material requirements and customer information

**Product:** (A03) Plate

**Steel standard and grade:** (B02) EN10025-2:2019 S355K2

**Delivery condition:** (B04) Furnace normalized (N)

**Surface tolerance:** EN 10163-2 B3

**Length tolerance:** EN 10029 Table 3

**Width tolerance:** EN 10029 Table 2

**Thickness tolerance:** EN 10029 Class A

**Flatness tolerance:** EN 10029 Table 4 Class N

**Customer name and address** (A06)

4102
BE Group Oy AB
BOX 54
15101 LAHTI
Finland

**Certificate address**

4102001
certificates@begroup.fi;
Finland
CERTIFICATES@BEGROUP.FI

**Supplementary information:** (C04)

Fully Killed and Fine Grain
Plates <= 25mm are Normalised at 900°C for 3 minutes.
Plates > 25mm are Normalised at 900°C for 5 minutes.

**Visual examination and dimensional checking: Satisfactory. The results of tests performed are in compliance with the requirements.** (Z01)

## Details of supplied materials dimensions, weights and pieces

| Heat/Slab (B07) | Plate No. (B06) | Item | Thickness mm (B09) | Width mm (B10) | Length mm (B11) | Pieces (B08) | Gross kg (B12) | Hard stamp | Stamp location | Customer remark (B99) |
|---|---|---|---|---|---|---|---|---|---|---|
| 59533E2 | 1689G | 7 | 30.0 | 2000 | 6000 | 1 | 2 826 | S355K2+N | Head | P091891 |
| 59520D2 | 4684G | 7 | 30.0 | 2000 | 6000 | 2 | 5 652 | S355K2+N | Head | P091891 |
| 59520D1 | 4694G | 7 | 30.0 | 2000 | 6000 | 2 | 5 652 | S355K2+N | Head | P091891 |
| | | | | | | 5 | 14 130 | | | |

NLMK DanSteel (A01)
Havnevej 33
DK - 3300 Frederiksværk

(A04)

Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

NLMK Europe – Plate

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## Chemical composition (heat analysis) all results in %

| Heat No. (B07) | | C | Mn | Si | P | S | Cr | Cu | Ni | Mo | Al | Nb | V | Ti | N | B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Set values: | min. | | | 0.15 | | | | | | | 0.020 | | | | | |
| | max. | 0.20 | 1.60 | 0.25 | 0.025 | 0.025 | 0.290 | 0.400 | 0.300 | 0.080 | 0.100 | 0.060 | 0.100 | 0.050 | 0.0120 | 0.0008 |
| 59520 | | 0.15 | 1.45 | 0.18 | 0.017 | 0.005 | 0.034 | 0.026 | 0.016 | 0.003 | 0.034 | 0.045 | 0.003 | 0.001 | 0.0041 | 0.0002 |
| 59533 | | 0.17 | 1.48 | 0.22 | 0.013 | 0.009 | 0.025 | 0.028 | 0.021 | 0.003 | 0.038 | 0.041 | 0.001 | 0.001 | 0.0025 | 0.0002 |

| Heat No. (B07) | | CEV | Remark (C70) |
|---|---|---|---|
| Set values: | min. | | |
| | max. | 0.45 | |
| 59520 | | 0.40 | 1 3 4 6 |
| 59533 | | 0.43 | 1 3 4 6 |

**Supplementary information** (C99)

CEV = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15

1 = Basic Oxygen Steel, 2 = Electric Arc Furnace, 3 = Ladle Refined, 4 = Calcium Treated, 5 = Vacuum Degassed, 6 = Continuous Cast, 7 = Ingot

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(A04)

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## Tensile testing

**Tensile tests were performed in accordance with EN 10002/ISO 6892-1 with results as stated below:**

| Heat/slab (B07) | Plate ID (B06) | Thickness mm | Shape (C10) | Loc. (C01) | Dir. (C02) | Yield MPa (C11) | Yield type | UTS Rm MPa (C12) | Elong. type | Elongation % (C13) | Yield/UTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 59533E2 | 1689G-1-2 | 30.0 | R | H | T | 354 | R02 | 512 | A5 | 29 | 0.69 |
| 59520D2 | 4684G-1-1 | 30.0 | R | H | T | 383 | REH | 512 | A5 | 30 | 0.75 |
| 59520D2 | 4684G-1-2 | 30.0 | R | H | T | 383 | REH | 512 | A5 | 30 | 0.75 |
| 59520D1 | 4694G-1-1 | 30.0 | R | H | T | 383 | REH | 512 | A5 | 30 | 0.75 |
| 59520D1 | 4694G-1-2 | 30.0 | R | H | T | 383 | REH | 512 | A5 | 30 | 0.75 |

**Supplementary Information** (C99)
**Loc.:** (C01) H = head, T = tail
**Dir.:** (C02) T = transversal, L = longitudinal
**Shape:** (C10) Ø = round, R = rectangular
**Original gauge length:** 200 mm

## Impact testing

**Impact tests were performed in accordance with EN 10045/ISO 148-1 with results as stated below:**

| Heat/slab (B07) | Plate ID (B06) | Position (C01) | Notch (C40) | Shape (C41) | Loc. (C01) | Dir. (C02) | Temp. °C (C03) | SV J (C42) | SV J (C42) | SV J (C42) | AV J (C43) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 59533E2 | 1689G-1-2 | 1 | CV | 10x10 | H | L | -20 | 138 | 135 | 168 | 147 |
| 59520D2 | 4684G-1-1 | 1 | CV | 10x10 | H | L | -20 | 264 | 250 | 207 | 240 |
| 59520D2 | 4684G-1-2 | 1 | CV | 10x10 | H | L | -20 | 264 | 250 | 207 | 240 |
| 59520D1 | 4694G-1-1 | 1 | CV | 10x10 | H | L | -20 | 264 | 250 | 207 | 240 |
| 59520D1 | 4694G-1-2 | 1 | CV | 10x10 | H | L | -20 | 264 | 250 | 207 | 240 |

**Supplementary Information** (C99)
**Position:** (C01) 1 = surface, 2 = middle, 3 = 1/3 of thickness, 4 = 1/4 of thickness
**Notch:** (C40) CU = Charpy U-notch, CV = Charpy V-notch, CVA = Charpy V-notch (ASTM)
**Loc.:** (C01) H = head, T = tail
**Dir.:** (C02) T = transversal, L = longitudinal

NLMK DanSteel (A01)
Havnevej 33
DK - 3300 Frederiksværk

(A04)

Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

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**Certificate No.:** (A03) **131311**

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|---|---|---|---|---|---|---|---|
| **Our order No.:** (A08) | 1362581 | **Your order No.:** (A07) | P091891 | **Order registration date:** | 15.06.2021 | **Date of dispatch:** | 17.09.2021 B |

We hereby certify that the material has been made and tested in accordance with the mentioned specification(s).
Certified according to Construction Products Regulations (305/2011/EU) by TÜV NORD Systems GmbH (Notified Body Reg. No. 0045).
For Declaration of Performance please see www.DanSteel.dk and DoP number 010CPR2013-07-01.

CE

TÜV-NORD 0045-CPR-0554
Year of initial inspection: 2005
Intended use: Welded, bolted and riveted structures.

Our products are Cobalt, Gold, Mercury free and are free of radioactive substances and do not exceed the clearing limit value of 100 Bg/kg, which guarantees the compliance with limit values given in the Radiation Protection Ordinance (StrlSchV) for the unrestricted clearance of solid material (StrlSchV Annex III, Section 5) for ferrous nuclides.
Manufactured in Denmark

NLMK DanSteel (A01)
Havnevej 33
DK - 3300 Frederiksværk

(A04)

Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

**Information description**

acc. to EN 10168

A Commercial transactions and parties involved

A01 Manufacturer's works
A02 Type of inspection document
A03 Document number
A04 Manufacturer's mark
A05 Originator of the inspection document
A06 Customer consignee
A07 Purchaser's order number and, where applicable, item number
A08 Manufacturer's works order number
A09 Customer article number
A10 to A99 Supplementary information

B Description of Products

B01 Product
B02 Steel designation
B03 Any supplementary requirements
B04 Product delivery condition
B05 Reference (heat) treatment of samples
B06 Marking of the product
B07 Identification of the product
B08 Number of pieces
B09 to B11 Product dimensions
B12 Theoretical mass
B13 Actual mass
B14 to B99 Supplementary information

C Inspection

C00 Identification of the sample
C01 Location of the sample
C02 Direction of the test pieces
C03 Test temperature
C04 to C09 Supplementary information
C10 Shape of the test piece
C11 Yield or proof strength
C12 Tensile strength
C13 Elongation after fracture
C14 to C29 Supplementary information
C30 Method of test
C31 Individual values
C32 Mean value
C33 to C39 Supplementary information
C40 Type of test piece
C41 Width of test piece
C42 Individual values
C43 Mean value
C44 to C49 Supplementary information
C50 to C69 Supplementary information
C70 Steelmaking process
C71 to C92 Chemical composition
C93 to C99 Supplementary information

D Other tests

D01 Marking and identification, surface appearance, shape and dimensional properties
D02 to D50 Non-destructive tests
D51 to D99 Supplementary information

Z Validation

Z01 Statement of compliance
Z02 Date of issue and validation
Z03 Stamp of the inspection representative
Z04 CE marking
Z05 to Z99 Supplementary information