



DanSteel A/S
Havnevej 33
DK-3300 Frederiksværk

Inspection Certificate

EN 10204:2004/3.1

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Date of creation: 29.04.2015
Certificate No.: 032219

Our order No.: (A08) 5160061 **Your order No.:** (A07) PO31801 **Order registration date:** 18.03.2015 **Date of dispatch:** 28.04.2015 **B**

Material requirements and customer information

Product: (A03) Plate **Steel standard and grade:** (B02) EN10025-4:2004 S420ML **Surface tolerance:** EN 10163-2 B3
Delivery condition: (B04) Thermo mechanical control processed (TMCP) **Length tolerance:** EN 10029 Table 3
Customer name and address: (A06) **Certificate address:** EN 10029 Table 2
 4102001 **Thickness tolerance:** EN 10029 Class A
 BE Group Oy AB **Flatness tolerance:** EN 10029 Table 4 Class N
 PL 54 / Ostolaskut **certificates@begroup.fi; anna-karin@jamsida.se**
 Heisingintie 50
 15101 Lahti
 FINLAND **certificates@begroup.fi; anna-karin@jamsida.se**

Supplementary information: (C04)
Fully Killed and Fine Grain

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 (B99)	Customer remark
47501D1	5780G	1	15.0	2000	6000	3	4 239	S420ML	Head	P031801.
47501B5	5786G	1	15.0	2000	6000	3	4 239	S420ML	Head	P031801.
47501B4	5787G	1	15.0	2000	6000	3	4 239	S420ML	Head	P031801.
						9	12 717			



Inspection representative NLMK DanSteel AIS (A05)
Zibrandt Greisen *Z. Swish*



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Inspection Certificate ^(A02)

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Our order No.: ^(A08) 5160061 **Your order No.:** ^(A07) PO31801 **Order registration date:** 18.03.2015 **Date of dispatch:** 28.04.2015 **B**

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.								0.020						
	max.	1.70	0.50	0.025	0.020	0.300	0.550	0.800	0.200	0.100	0.054	0.120	0.050	0.0250	0.0008
47501		0.15	1.59	0.40	0.024	0.004	0.035	0.017	0.001	0.033	0.036	0.007	0.002	0.0042	0.0002

Heat No. ^(B07) CEV **Remark ^(C70)**

Set values: min. max. 0.43

47501 0.42 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

^(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
47501D1	5780G-1-1	15.0	R	H	T	548	R02	629	A5	30	0.87
47501D1	5780G-2-1	15.0	R	H	T	548	R02	629	A5	30	0.87
47501D1	5780G-2-2	15.0	R	H	T	548	R02	629	A5	30	0.87
47501B5	5786G-1-1	15.0	R	H	T	533	REH	621	A5	24	0.86
47501B5	5786G-2-1	15.0	R	H	T	533	REH	621	A5	24	0.86
47501B5	5786G-2-2	15.0	R	H	T	533	REH	621	A5	24	0.86
47501B4	5787G-1-1	15.0	R	H	T	530	R02	619	A5	29	0.86
47501B4	5787G-2-1	15.0	R	H	T	530	R02	619	A5	29	0.86
47501B4	5787G-2-2	15.0	R	H	T	530	R02	619	A5	29	0.86

Supplementary Information (C09)

Loc.: (C01) H = head, T = tail

Dir.: (C02) T = transversal, L = longitudinal

Shape: (C10) Ø = round, R = rectangular

Original gauge length: 200 mm

(A04)



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(A01)

Inspection Certificate

(A02)

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Date of creation: (702)

29.04.2015

Certificate No.: (A03) **032219**

Our order No.: (A08) 5160061 **Your order No.:** (A07) PO31801 **Order registration date:** 18.03.2015 **Date of dispatch:** 28.04.2015 B

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 (C12)	SV J (C12)	AV J (C13)	
47501D1	5780G-1-1	1	CV	10x10	H	L	-50	167	127	158	151
47501D1	5780G-2-1	1	CV	10x10	H	L	-50	167	127	158	151
47501D1	5780G-2-2	1	CV	10x10	H	L	-50	167	127	158	151
47501B5	5786G-1-1	1	CV	10x10	H	L	-50	200	144	197	180
47501B5	5786G-2-1	1	CV	10x10	H	L	-50	200	144	197	180
47501B5	5786G-2-2	1	CV	10x10	H	L	-50	200	144	197	180
47501B4	5787G-1-1	1	CV	10x10	H	L	-50	130	146	156	144
47501B4	5787G-2-1	1	CV	10x10	H	L	-50	130	146	156	144
47501B4	5787G-2-2	1	CV	10x10	H	L	-50	130	146	156	144

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

(A04)



Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

Z. Greisen



DanSteel A/S

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Inspection Certificate (A02)

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We hereby certify that the material has been made and tested in accordance with the mentioned specification(s).
Certified according to Construction Products Directive (93/68/EC) by TÜV NORD Systems GmbH (Notified Body Reg. No. 0045).



TÜV-NORD 0045-CPD-0554



Inspection representative NLMK DanSteel AIS (A05)

Zibrandt Greisen

Z. Swain

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	