





Date of dispatch: 12.01.2016 B

71 127 937





DanSteel A/S

Havnevej 33
DK-3300 Frederiksværk

(A01)

Inspection Certificate

(A02)

EN 10204:2004/3.1

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Date of creation: (Z02)

12.01.2016

Certificate No.: (A03) **041557/1**

Our order No.: (A08) 5181381 Your order No.: (A07) 1109037 Order registration date: 25.11.2015 Date of dispatch: 12.01.2016 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.														
	max.	0.20	1.60	0.25	0.025	0.025	0.300	0.400	0.300	0.080	0.100	0.100	0.050	0.0120	0.0008
				0.15						0.020					
48635	0.17	1.48	0.20	0.009	0.003	0.020	0.029	0.017	0.002	0.035	0.016	0.003	0.001	0.0029	0.0002
48639	0.17	1.52	0.22	0.012	0.004	0.028	0.039	0.018	0.002	0.036	0.038	0.004	0.017	0.0032	0.0002
48704	0.13	1.48	0.18	0.017	0.007	0.023	0.037	0.020	0.001	0.039	0.004	0.044	0.001	0.0073	0.0003
48705	0.14	1.45	0.21	0.015	0.003	0.031	0.031	0.029	0.002	0.039	0.003	0.043	0.002	0.0078	0.0003

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

Set values:	min.	
	max.	0.45

48635	0.42	1346
48639	0.44	1346
48704	0.40	1346
48705	0.40	1346

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)

Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

Z. Greisen



DanSteel A/S
Havnevej 33
DK-3300 Frederiksværk

(A01)

Inspection Certificate

(A02)

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Date of creation: 12.01.2016
Certificate No.: 041557/1

Our order No.: (A08) 5181381 Your order No.: (A07) 1109037 Order registration date: 25.11.2015 Date of dispatch: 12.01.2016 B

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
48635F1	8554N-1-1	40.0	R	H	T	379	R02	541	A5	20	0.70
48635F1	8554N-1-2	40.0	R	H	T	379	R02	541	A5	20	0.70
48635C6	8976N-1-1	25.0	R	H	T	379	R02	541	A5	20	0.70
48635C6	8976N-1-2	25.0	R	H	T	379	R02	541	A5	20	0.70
48635C3	8986N-1-1	25.0	R	H	T	379	R02	541	A5	20	0.70
48635C3	8986N-1-2	25.0	R	H	T	379	R02	541	A5	20	0.70
48635H2	9022N-1-1	35.0	R	H	T	395	R02	548	A5	30	0.72
48635H2	9022N-2-1	35.0	R	H	T	395	R02	548	A5	30	0.72
48639B7	9024N-1-1	40.0	R	H	T	427	R02	571	A5	25	0.75
48635C5	9034N-1-1	12.0	R	H	T	432	REH	566	A5	28	0.76
48635C5	9034N-1-2	12.0	R	H	T	432	REH	566	A5	28	0.76
48635C5	9034N-1-3	12.0	R	H	T	432	REH	566	A5	28	0.76
48635E1	9114N-1-1	25.0	R	H	T	395	R02	548	A5	30	0.72
48635E1	9114N-1-2	25.0	R	H	T	395	R02	548	A5	30	0.72
48635E1	9114N-1-3	25.0	R	H	T	395	R02	548	A5	30	0.72
48635E4	9115N-1-1	18.0	R	H	T	395	R02	548	A5	30	0.72
48635E4	9115N-1-2	18.0	R	H	T	395	R02	548	A5	30	0.72
48635E4	9115N-1-3	18.0	R	H	T	395	R02	548	A5	30	0.72
48635F2	9124N-1-1	25.0	R	H	T	395	R02	548	A5	30	0.72
48635F2	9124N-1-2	25.0	R	H	T	395	R02	548	A5	30	0.72
48635F2	9124N-2-1	25.0	R	H	T	395	R02	548	A5	30	0.72
48635E3	9125N-1-1	18.0	R	H	T	395	R02	548	A5	30	0.72
48635E3	9125N-1-2	18.0	R	H	T	395	R02	548	A5	30	0.72
48635E3	9125N-1-3	18.0	R	H	T	388	R02	547	A5	31	0.71
48635D4	9131N-1-1	18.0	R	H	T	388	R02	547	A5	31	0.71
48635D4	9131N-1-2	18.0	R	H	T	388	R02	547	A5	31	0.71
48635D4	9131N-2-1	18.0	R	H	T	388	R02	547	A5	31	0.71
48635D4	9131N-2-2	18.0	R	H	T	388	R02	547	A5	31	0.71

(A04)



Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

Z. Greisen



DanSteel A/S
Havnevej 33
DK-3300 Frederiksværk

Inspection Certificate

(A02)

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Date of creation: (Z02) 12.01.2016
Certificate No.: (A03) 041557/1

Our order No.: (A08) 5181381 Your order No.: (A07) 1109037

Order registration date: 25.11.2015 Date of dispatch: 12.01.2016 B

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
48635D2	9187N-1-1	35.0	R	H	T	388	R02	547	A5	31	0.71
48635D2	9187N-1-2	35.0	R	H	T	388	R02	547	A5	31	0.71
48635D2	9187N-1-3	35.0	R	H	T	388	R02	547	A5	31	0.71
48635D3	9195N-1-1	25.0	R	H	T	388	R02	547	A5	31	0.71
48635D3	9195N-1-2	25.0	R	H	T	388	R02	547	A5	31	0.71
48635E2	9223N-1-1	12.0	R	H	T	377	R02	561	A5	30	0.67
48635E2	9223N-1-2	12.0	R	H	T	377	R02	561	A5	30	0.67
48635E2	9223N-1-3	12.0	R	H	T	377	R02	561	A5	30	0.67
48704O2	9371N-1-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704O2	9371N-2-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704O2	9371N-2-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q3	9374N-1-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q3	9374N-1-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q3	9374N-2-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q3	9374N-2-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704K5	9376N-1-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704K5	9376N-1-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704K5	9376N-2-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704K1	9380N-1-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704K1	9380N-1-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704K1	9380N-2-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q2	9381N-1-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q2	9381N-1-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q2	9381N-2-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q1	9382N-1-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q1	9382N-1-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704Q1	9382N-2-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704S2	9467N-1-1	8.0	R	H	T	423	REH	533	A5	33	0.79

(A04)

Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

Z. Greisen

Our order No.: (ADB) 5181381

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Your order No.: (A07) 11

1109037

Order registration date: 25.11.2015

Date of dispatch:

2.01.2016 B

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	Yield	UTS Rm MPa (C12)	Elong. type	Elongation % (C13)	Yield/UTS
						MPa (C11)	type				
48704S2	9467N-1-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704S2	9467N-2-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704L4	9469N-1-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704L4	9469N-2-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704L4	9469N-2-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704L3	9470N-1-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704L3	9470N-2-1	8.0	R	H	T	423	REH	533	A5	33	0.79
48704L3	9470N-2-2	8.0	R	H	T	423	REH	533	A5	33	0.79
48704J3	9471N-1-1	12.0	R	H	T	423	REH	533	A5	33	0.79
48704J3	9471N-1-2	12.0	R	H	T	423	REH	533	A5	33	0.79
48705S3	9476N-1-1	8.0	R	H	T	409	REH	535	A5	33	0.76
48705S3	9476N-2-1	8.0	R	H	T	403	REH	526	A5	33	0.77
48705S3	9476N-2-2	8.0	R	H	T	403	REH	526	A5	33	0.77
48704J2	9481N-1-1	12.0	R	H	T	423	REH	533	A5	33	0.79
48704J2	9481N-1-2	12.0	R	H	T	423	REH	533	A5	33	0.79

Supplementary Information

Loc.: (c01) H = head, T = tail

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

Shape: (c10) Ø = round, R = rectangular

Original gauge length: 200 mm

Original gauge length: 200 mm



DanSteel A/S

Havnevej 33
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Inspection Certificate

(A02)

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Date of creation: (Z02)

12.01.2016

Certificate No.: (A03) **041557/1**

Our order No.: (A08) 5181381

Your order No.: (A07) 1109037

Order registration date: 25.11.2015

Date of dispatch: 12.01.2016 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 (C42)	SV J (C42)	SV J (C42)	AV J (C43)
48635F1	8554N-1-1	1	CV	10x10	H	L	-20	169	181	192	181
48635F1	8554N-1-2	1	CV	10x10	H	L	-20	169	181	192	181
48635C6	8976N-1-1	1	CV	10x10	H	L	-20	169	181	192	181
48635C6	8976N-1-2	1	CV	10x10	H	L	-20	169	181	192	181
48635C3	8986N-1-1	1	CV	10x10	H	L	-20	169	181	192	181
48635C3	8986N-1-2	1	CV	10x10	H	L	-20	169	181	192	181
48635H2	9022N-1-1	1	CV	10x10	H	L	-20	169	181	192	181
48635H2	9022N-2-1	1	CV	10x10	H	L	-20	169	181	192	181
48639B7	9024N-1-1	1	CV	10x10	H	L	-20	149	158	146	151
48635C5	9034N-1-1	1	CV	10x10	H	L	-20	224	208	206	213
48635C5	9034N-1-2	1	CV	10x10	H	L	-20	224	208	206	213
48635C5	9034N-1-3	1	CV	10x10	H	L	-20	224	208	206	213
48635E1	9114N-1-1	1	CV	10x10	H	L	-20	169	181	192	181
48635E1	9114N-1-2	1	CV	10x10	H	L	-20	169	181	192	181
48635E1	9114N-1-3	1	CV	10x10	H	L	-20	169	181	192	181
48635E4	9115N-1-1	1	CV	10x10	H	L	-20	188	183	203	191
48635E4	9115N-1-2	1	CV	10x10	H	L	-20	188	183	203	191
48635E4	9115N-1-3	1	CV	10x10	H	L	-20	188	183	203	191
48635F2	9124N-1-1	1	CV	10x10	H	L	-20	194	208	198	200
48635F2	9124N-1-2	1	CV	10x10	H	L	-20	194	208	198	200
48635F2	9124N-2-1	1	CV	10x10	H	L	-20	194	208	198	200
48635E3	9125N-1-1	1	CV	10x10	H	L	-20	194	208	198	200
48635E3	9125N-1-2	1	CV	10x10	H	L	-20	194	208	198	200
48635E3	9125N-1-3	1	CV	10x10	H	L	-20	194	208	198	200
48635D4	9131N-1-1	1	CV	10x10	H	L	-20	188	183	203	191
48635D4	9131N-1-2	1	CV	10x10	H	L	-20	188	183	203	191
48635D4	9131N-2-1	1	CV	10x10	H	L	-20	188	183	203	191
48635D4	9131N-2-2	1	CV	10x10	H	L	-20	188	183	203	191

(A04)



Inspection representative NLKM DanSteel A/S (A05)

Zibrandt Greisen

Z. Greisen



DanSteel A/S
Havnevej 33
DK-3300 Frederiksværk

Inspection Certificate

(A02)

EN 10204:2004/3.1

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Date of creation: 12.01.2016
Certificate No.: 041557/1

Our order No.: 5181381

Your order No.: 1109037

Order registration date: 25.11.2015

Date of dispatch: 12.01.2016

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)
48635D2	9187N-1-1	1	CV	10x10	H	L	-20	188	183	203	191
48635D2	9187N-1-2	1	CV	10x10	H	L	-20	188	183	203	191
48635D2	9187N-1-3	1	CV	10x10	H	L	-20	188	183	203	191
48635D3	9195N-1-1	1	CV	10x10	H	L	-20	188	183	203	191
48635D3	9195N-1-2	1	CV	10x10	H	L	-20	188	183	203	191
48635E2	9223N-1-1	1	CV	10x10	H	L	-20	224	208	206	213
48635E2	9223N-1-2	1	CV	10x10	H	L	-20	224	208	206	213
48635E2	9223N-1-3	1	CV	10x10	H	L	-20	224	208	206	213
48704Q2	9371N-1-1	1	CV	5x10	H	L	-20	54	25	45	41
48704Q2	9371N-2-1	1	CV	5x10	H	L	-20	54	25	45	41
48704Q2	9371N-2-2	1	CV	5x10	H	L	-20	54	25	45	41
48704Q3	9374N-1-1	1	CV	5x10	H	L	-20	54	25	45	41
48704Q3	9374N-1-2	1	CV	5x10	H	L	-20	54	25	45	41
48704Q3	9374N-2-1	1	CV	5x10	H	L	-20	54	25	45	41
48704Q3	9374N-2-2	1	CV	5x10	H	L	-20	54	25	45	41
48704K5	9376N-1-1	1	CV	5x10	H	L	-20	54	25	45	41
48704K5	9376N-1-2	1	CV	5x10	H	L	-20	54	25	45	41
48704K5	9376N-2-1	1	CV	5x10	H	L	-20	54	25	45	41
48704K1	9380N-1-1	1	CV	5x10	H	L	-20	54	25	45	41
48704K1	9380N-1-2	1	CV	5x10	H	L	-20	54	25	45	41
48704K1	9380N-2-1	1	CV	5x10	H	L	-20	54	25	45	41
48704Q2	9381N-1-1	1	CV	5x10	H	L	-20	54	25	45	41
48704Q2	9381N-1-2	1	CV	5x10	H	L	-20	54	25	45	41
48704Q2	9381N-2-1	1	CV	5x10	H	L	-20	54	25	45	41
48704Q1	9382N-1-1	1	CV	5x10	H	L	-20	54	25	45	41
48704Q1	9382N-1-2	1	CV	5x10	H	L	-20	54	25	45	41
48704Q1	9382N-2-1	1	CV	5x10	H	L	-20	54	25	45	41
48704S2	9467N-1-1	1	CV	5x10	H	L	-20	54	25	45	41

(A04)

Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

Z. Greisen



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Inspection Certificate

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Certificate No.: (A03) 041557/1

Our order No.: (A08) 5181381 Your order No.: (A07) 1109037 Order registration date: 25.11.2015 Date of dispatch: 12.01.2016 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 (C42)	SV J (C42)	SV J (C42)	AV J (C43)
48704S2	9467N-1-2	1	CV	5x10	H	L	-20	54	25	45	41
48704S2	9467N-2-1	1	CV	5x10	H	L	-20	54	25	45	41
48704L4	9469N-1-1	1	CV	5x10	H	L	-20	54	25	45	41
48704L4	9469N-2-1	1	CV	5x10	H	L	-20	54	25	45	41
48704L4	9469N-2-2	1	CV	5x10	H	L	-20	54	25	45	41
48704L3	9470N-1-1	1	CV	5x10	H	L	-20	54	25	45	41
48704L3	9470N-2-1	1	CV	5x10	H	L	-20	54	25	45	41
48704L3	9470N-2-2	1	CV	5x10	H	L	-20	54	25	45	41
48704J3	9471N-1-1	1	CV	10x10	H	L	-20	119	153	100	124
48704J3	9471N-1-2	1	CV	10x10	H	L	-20	119	153	100	124
48705S3	9476N-1-1	1	CV	5x10	H	L	-20	60	50	59	56
48705S3	9476N-2-1	1	CV	5x10	H	L	-20	60	62	69	64
48705S3	9476N-2-2	1	CV	5x10	H	L	-20	60	62	69	64
48704J2	9481N-1-1	1	CV	10x10	H	L	-20	119	153	100	124
48704J2	9481N-1-2	1	CV	10x10	H	L	-20	119	153	100	124

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



Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

Z. Greisen

Information description

acc. to EN 10168

A	Commercial transactions and parties involved	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
B	Description of Products	D Other tests D01 Marking and identification, surface appearance, shape and dimensional properties D02 to D50 Non-destructive tests D51 to D99 Supplementary information
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	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	
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		