



Europe – Plate

Inspection Certificate (A02)

EN 10204:2004/3.1

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Date of creation: (Z02) 28.06.2022Certificate No.: (A03) 146010/1

28.06.2022

Our order No.: (A08) 2386131Your order No.: (A07) P097977

Order registration date: 01.04.2022

Date of dispatch: 28.06.2022 B

Material requirements and customer information

Product: <small>(A03)</small> Plate	Steel standard and grade: <small>(B02)</small> EN10025-2:2019 S355K2	Surface tolerance: EN 10163-2 B3
Delivery condition: <small>(B04)</small> Furnace normalized (N)		Length tolerance: EN 10029 Table 3
Customer name and address <small>(A06)</small>	Certificate address	Width tolerance: EN 10029 Table 2
4102	4102001	Thickness tolerance: EN 10029 Class A
BE Group Oy AB	certificates@begroup.fi;	Flatness tolerance: EN 10029 Table 4 Class N
BOX 54		
15101 LAHTI	Finland	
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 <small>(B07)</small>	Plate No. <small>(B06)</small>	Item	Thickness mm <small>(B09)</small>	Width mm <small>(B10)</small>	Length mm <small>(B11)</small>	Pieces <small>(B08)</small>	Gross kg <small>(B12)</small>	Hard stamp	Stamp location	Customer remark <small>(B99)</small>
60991A2	3148S	1	45.0	2000	6000	2	8 478	S355K2+N	Head	P097977
61611D1	5300S	4	100.0	2000	6000	1	9 420	S355K2+N	Head	P097977
61625A4	5301S	4	100.0	2000	6000	1	9 420	S355K2+N	Head	P097977
61609A3	5329S	4	100.0	2000	6000	2	18 840	S355K2+N	Head	P097977
61626D2	5352S	4	100.0	2000	6000	1	9 420	S355K2+N	Head	P097977
61467D4	4969S	6	80.0	2000	6000	1	7 536	S355K2+N	Head	P097977
61625A3	5302S	6	80.0	2000	6000	2	15 072	S355K2+N	Head	P097977
61628C4	5350S	6	80.0	2000	6000	1	7 536	S355K2+N	Head	P097977
61628C2	5351S	6	80.0	2000	6000	2	15 072	S355K2+N	Head	P097977



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Details of supplied materials dimensions, weights and pieces

Heat/Slab <small>(B07)</small>	Plate No. <small>(B06)</small>	Item	Thickness mm <small>(B09)</small>	Width mm <small>(B10)</small>	Length mm <small>(B11)</small>	Pieces <small>(B08)</small>	Gross kg <small>(B12)</small>	Hard stamp	Stamp location	Customer remark <small>(B99)</small>
61611D3	5275S	10	60.0	2000	6000	2	11 304	S355K2+N	Head	P097977
61611D2	5296S	10	60.0	2000	6000	2	11 304	S355K2+N	Head	P097977
61374I3	4446S	13	50.0	2000	6000	2	9 420	S355K2+N	Head	P097977
61374I2	4447S	13	50.0	2000	6000	2	9 420	S355K2+N	Head	P097977
61484C4	4450S	13	50.0	2000	6000	2	9 420	S355K2+N	Head	P097977
61514J2	4482S	13	50.0	2000	6000	2	9 420	S355K2+N	Head	P097977
61514H4	4508S	13	50.0	2000	6000	1	4 710	S355K2+N	Head	P097977
61514H2	4510S	15	90.0	2000	6000	1	8 478	S355K2+N	Head	P097977
						27	174 270			



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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.									0.020					
	max.	0.22	1.60	0.55	0.025	0.025	0.290	0.400	0.300	0.080	0.100	0.060	0.100	0.050	0.0120 0.0008
60991	0.18	1.45	0.37	0.009	0.005	0.024	0.033	0.023	0.004	0.045	0.044	0.069	0.001	0.0044	0.0003
61374	0.15	1.42	0.19	0.010	0.004	0.029	0.039	0.019	0.002	0.036	0.044	0.001	0.002	0.0044	0.0004
61467	0.16	1.50	0.22	0.011	0.003	0.036	0.044	0.023	0.003	0.045	0.041	0.002	0.002	0.0032	0.0003
61484	0.18	1.51	0.34	0.011	0.003	0.044	0.046	0.029	0.003	0.044	0.034	0.001	0.002	0.0038	0.0004
61514	0.17	1.49	0.34	0.009	0.003	0.028	0.035	0.015	0.002	0.042	0.033	0.001	0.002	0.0039	0.0003
61609	0.17	1.51	0.33	0.015	0.004	0.032	0.040	0.019	0.002	0.044	0.034	0.001	0.002	0.0036	0.0003
61611	0.15	1.49	0.43	0.016	0.003	0.028	0.025	0.012	0.001	0.041	0.044	0.001	0.002	0.0033	0.0003
61625	0.16	1.51	0.43	0.011	0.003	0.034	0.045	0.022	0.002	0.042	0.045	0.001	0.002	0.0031	0.0003
61626	0.16	1.50	0.43	0.013	0.002	0.019	0.015	0.007	0.001	0.037	0.043	0.002	0.003	0.0028	0.0003
61628	0.17	1.49	0.34	0.012	0.003	0.024	0.019	0.009	0.001	0.035	0.034	0.001	0.002	0.0035	0.0002

Heat No. (B07)	CEV	Remark (C70)
Set values:	min.	
	max.	0.47
60991	0.45	1 3 4 6
61374	0.39	1 3 4 6
61467	0.43	1 3 4 5 6
61484	0.44	1 3 4 6
61514	0.43	1 3 4 6
61609	0.43	1 3 4 5 6
61611	0.41	1 3 4 5 6
61625	0.42	1 3 4 5 6
61626	0.41	1 3 4 6
61628	0.43	1 3 4 5 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



(A01)



(A04)

Inspection representative NLMK DanSteel A/S (A05)

Zibrandt Greisen

Z. Greisen



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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 <small>(B07)</small>	Plate ID <small>(B06)</small>	Thickness mm	Shape <small>(C10)</small>	Loc. <small>(C01)</small>	Dir. <small>(C02)</small>	Yield MPa <small>(C11)</small>	Yield type	UTS Rm MPa <small>(C12)</small>	Elong. type	Elongation % <small>(C13)</small>	Yield/UTS
60991A2	3148S-1-1	45.0	R	H	T	400	REH	549	A5	29	0.73
60991A2	3148S-1-2	45.0	R	H	T	400	REH	549	A5	29	0.73
61374I3	4446S-1-1	50.0	R	H	T	345	REH	489	A5	35	0.71
61374I3	4446S-1-2	50.0	R	H	T	345	REH	489	A5	35	0.71
61374I2	4447S-1-1	50.0	R	H	T	350	REH	485	A5	32	0.72
61374I2	4447S-1-2	50.0	R	H	T	345	REH	489	A5	35	0.71
61484C4	4450S-1-1	50.0	R	H	T	350	REH	520	A5	30	0.67
61484C4	4450S-1-2	50.0	R	H	T	350	REH	520	A5	30	0.67
61514J2	4482S-1-1	50.0	R	H	T	352	REH	513	A5	28	0.69
61514J2	4482S-1-2	50.0	R	H	T	352	REH	513	A5	28	0.69
61514H4	4508S-1-1	50.0	R	H	T	352	REH	513	A5	28	0.69
61514H2	4510S-1-1	90.0	R	H	T	329	REH	506	A5	31	0.65
61467D4	4969S-1-1	80.0	R	H	T	364	REH	514	A5	30	0.71
61611D3	5275S-1-1	60.0	R	H	T	364	REH	512	A5	33	0.71
61611D3	5275S-1-2	60.0	R	H	T	364	REH	512	A5	33	0.71
61611D2	5296S-1-1	60.0	R	H	T	364	REH	512	A5	33	0.71
61611D2	5296S-1-2	60.0	R	H	T	364	REH	512	A5	33	0.71
61611D1	5300S-1-2	100.0	R	H	T	316	R02	500	A5	33	0.63
61625A4	5301S-1-1	100.0	R	H	T	316	R02	517	A5	30	0.61
61625A3	5302S-1-1	80.0	R	H	T	342	REH	507	A5	31	0.67
61625A3	5302S-1-2	80.0	R	H	T	342	REH	507	A5	31	0.67
61609A3	5329S-1-1	100.0	R	H	T	347	REH	515	A5	30	0.67
61609A3	5329S-1-2	100.0	R	H	T	347	REH	515	A5	30	0.67
61628C4	5350S-1-1	80.0	R	H	T	346	REH	517	A5	30	0.67
61628C2	5351S-1-1	80.0	R	H	T	352	REH	523	A5	32	0.67



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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
61628C2	5351S-1-2	80.0	R	H	T	352	REH	523	A5	32	0.67
61626D2	5352S-1-1	100.0	R	H	T	338	REH	517	A5	31	0.65

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

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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)
60991A2	3148S-1-1	1	CV	10x10	H	L	-20	142	136	157	145
60991A2	3148S-1-2	1	CV	10x10	H	L	-20	142	136	157	145
61374I3	4446S-1-1	1	CV	10x10	H	L	-20	234	265	261	253
61374I3	4446S-1-2	1	CV	10x10	H	L	-20	234	265	261	253
61374I2	4447S-1-1	1	CV	10x10	H	L	-20	273	265	192	243
61374I2	4447S-1-2	1	CV	10x10	H	L	-20	234	265	261	253
61484C4	4450S-1-1	1	CV	10x10	H	L	-20	175	191	177	181
61484C4	4450S-1-2	1	CV	10x10	H	L	-20	175	191	177	181
61514J2	4482S-1-1	1	CV	10x10	H	L	-20	184	212	206	201
61514J2	4482S-1-2	1	CV	10x10	H	L	-20	184	212	206	201
61514H4	4508S-1-1	1	CV	10x10	H	L	-20	184	212	206	201
61514H2	4510S-1-1	1	CV	10x10	H	L	-20	218	255	200	224
61467D4	4969S-1-1	1	CV	10x10	H	L	-20	209	279	269	252
61611D3	5275S-1-1	1	CV	10x10	H	L	-20	308	290	241	280
61611D3	5275S-1-2	1	CV	10x10	H	L	-20	308	290	241	280
61611D2	5296S-1-1	1	CV	10x10	H	L	-20	308	290	241	280
61611D2	5296S-1-2	1	CV	10x10	H	L	-20	308	290	241	280
61611D1	5300S-1-2	1	CV	10x10	H	L	-20	300	223	256	260
61625A4	5301S-1-1	1	CV	10x10	H	L	-20	229	236	209	225
61625A3	5302S-1-1	1	CV	10x10	H	L	-20	190	206	257	218
61625A3	5302S-1-2	1	CV	10x10	H	L	-20	190	206	257	218
61609A3	5329S-1-1	1	CV	10x10	H	L	-20	205	181	185	190
61609A3	5329S-1-2	1	CV	10x10	H	L	-20	205	181	185	190
61628C4	5350S-1-1	1	CV	10x10	H	L	-20	259	210	237	235
61628C2	5351S-1-1	1	CV	10x10	H	L	-20	259	210	237	235



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

Heat/slab <small>(B07)</small>	Plate ID <small>(B06)</small>	Position <small>(C01)</small>	Notch <small>(C40)</small>	Shape <small>(C41)</small>	Loc. <small>(C01)</small>	Dir. <small>(C02)</small>	Temp. °C <small>(C03)</small>	SV J <small>(C42)</small>	SV J <small>(C42)</small>	SV J <small>(C42)</small>	AV J <small>(C43)</small>
61628C2	5351S-1-2	1	CV	10x10	H	L	-20	259	210	237	235
61626D2	5352S-1-1	1	CV	10x10	H	L	-20	218	216	240	225

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

Ultrasonic testing Ultrasonic tests were performed with results as stated below:

Heat/slab <small>(B07)</small>	Plate ID <small>(B06)</small>	Thickness mm	Standard	Acceptance level	Result
61611D1	5300S-1-2	100.0	EN10160	S1 E1	Acceptable
61625A4	5301S-1-1	100.0	EN10160	S1 E1	Acceptable
61609A3	5329S-1-1	100.0	EN10160	S1 E1	Acceptable
61609A3	5329S-1-2	100.0	EN10160	S1 E1	Acceptable
61626D2	5352S-1-1	100.0	EN10160	S1 E1	Acceptable



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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 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.



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



^(A01)



^(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