

Our order No.: (A08) 2399741 Your order No.: (A07) 45036 Order registration date: 09.11.2022 Date of dispatch: 06.01.2023 B

Material requirements and customer information

Product: <small>(A03)</small> Plate	Steel standard and grade: <small>(B02)</small> EN10025-2:2019 S355K2+N	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
4002	4002001	Thickness tolerance: EN 10029 Class B
FEON OY	FEON OY	Flatness tolerance: EN 10029 Table 4 Class N
Teollisuuskatu 33	Finland	
00510 Helsinki		
Finland	certificates@feon.fi;janne.myllynen@feon.fi;a.faktarauskas@eu.nlmk.com	

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>
62341D5	4754C	3	50.0	2000	6000	3	14 130	S355K2+N	Head	45036
62334E4	4846C	3	50.0	2000	6000	3	14 130	S355K2+N	Head	45036
62339C1	5668C	3	50.0	2000	6000	3	14 130	S355K2+N	Head	45036
62339C3	5669C	3	50.0	2000	6000	3	14 130	S355K2+N	Head	45036
62339C2	5703C	3	50.0	2000	6000	3	14 130	S355K2+N	Head	45036
62345E2	5704C	3	50.0	2000	6000	3	14 130	S355K2+N	Head	45036
62346D1	7262C	3	50.0	2000	6000	2	9 420	S355K2+N	Head	45036
62346D3	7263C	3	50.0	2000	6000	2	9 420	S355K2+N	Head	45036
62346D2	7264C	3	50.0	2000	6000	2	9 420	S355K2+N	Head	45036

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61921E2	7940C	3	50.0	2000	6000	1	4 710	S355K2+N	Head	45036
62347B2	6929C	4	70.0	2000	6000	2	13 188	S355K2+N	Head	45036
62337D2	7319C	4	70.0	2000	6000	2	13 188	S355K2+N	Head	45036
62347B1	6930C	5	100.0	2000	6000	2	18 840	S355K2+N	Head	45036
62341A4	7224C	5	100.0	2000	6000	1	9 420	S355K2+N	Head	45036
62341A3	7225C	5	100.0	2000	6000	1	9 420	S355K2+N	Head	45036
62341A2	7257C	5	100.0	2000	6000	1	9 420	S355K2+N	Head	45036
62346D5	7341C	5	100.0	2000	6000	1	9 420	S355K2+N	Head	45036
62346D4	7342C	5	100.0	2000	6000	1	9 420	S355K2+N	Head	45036
62337B5	7343C	5	100.0	2000	6000	1	9 420	S355K2+N	Head	45036
62344A5	4841C	6	50.0	2500	8000	1	7 850	S355K2+N	Head	45036
62340D4	4918C	6	50.0	2500	8000	1	7 850	S355K2+N	Head	45036
62341E3	5118C	6	50.0	2500	8000	2	15 700	S355K2+N	Head	45036
						41	250 886			

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Chemical composition (heat analysis) all results in %

Heat No. <small>(B07)</small>	C	Mn	Si	P	S	Cr	Cu	Ni	Mo	Al	Nb	V	Ti	N	B
Set values:	min.		0.15							0.020					
	max.	0.22	1.60	0.25	0.025	0.025	0.290	0.400	0.400	0.080	0.100	0.060	0.100	0.050	0.0120 0.0008
61921	0.16	1.46	0.18	0.016	0.002	0.019	0.014	0.007	0.001	0.042	0.044	0.001	0.002	0.0027	0.0002
62334	0.17	1.50	0.22	0.011	0.009	0.036	0.032	0.022	0.003	0.043	0.039	0.002	0.002	0.0034	0.0002
62337	0.17	1.51	0.22	0.016	0.007	0.032	0.034	0.016	0.002	0.045	0.042	0.002	0.002	0.0031	0.0002
62339	0.17	1.50	0.20	0.011	0.006	0.027	0.016	0.012	0.001	0.044	0.040	0.001	0.002	0.0027	0.0002
62340	0.18	1.48	0.21	0.009	0.004	0.034	0.030	0.016	0.002	0.043	0.041	0.001	0.001	0.0032	0.0002
62341	0.17	1.48	0.21	0.013	0.007	0.029	0.028	0.015	0.002	0.040	0.041	0.001	0.001	0.0033	0.0002
62344	0.16	1.49	0.21	0.011	0.005	0.037	0.040	0.024	0.003	0.037	0.042	0.001	0.002	0.0034	0.0002
62345	0.17	1.50	0.20	0.013	0.003	0.037	0.030	0.021	0.003	0.041	0.042	0.001	0.002	0.0038	0.0002
62346	0.17	1.48	0.20	0.012	0.005	0.033	0.029	0.017	0.002	0.041	0.041	0.001	0.002	0.0030	0.0002
62347	0.17	1.52	0.23	0.013	0.004	0.036	0.031	0.021	0.002	0.045	0.042	0.001	0.002	0.0035	0.0002

Heat No. <small>(B07)</small>	CEV	Remark <small>(C70)</small>
Set values:	min.	
	max.	0.45
61921	0.41	1 3 4 6
62334	0.43	1 3 4 5 6
62337	0.43	1 3 4 5 6
62339	0.43	1 3 4 5 6
62340	0.43	1 3 4 5 6
62341	0.43	1 3 4 5 6
62344	0.42	1 3 4 5 6
62345	0.43	1 3 4 5 6
62346	0.42	1 3 4 5 6
62347	0.44	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

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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
62341D5	4754C-1-1	50.0	R	H	T	355	REH	509	A5	30	0.70
62341D5	4754C-1-2	50.0	R	H	T	355	REH	509	A5	30	0.70
62341D5	4754C-1-3	50.0	R	H	T	355	REH	509	A5	30	0.70
62344A5	4841C-1-1	50.0	R	H	T	346	REH	510	A5	30	0.68
62334E4	4846C-1-1	50.0	R	H	T	370	REH	517	A5	30	0.72
62334E4	4846C-1-2	50.0	R	H	T	370	REH	517	A5	30	0.72
62334E4	4846C-1-3	50.0	R	H	T	370	REH	517	A5	30	0.72
62340D4	4918C-1-1	50.0	R	H	T	354	REH	509	A5	30	0.70
62341E3	5118C-1-1	50.0	R	H	T	355	REH	509	A5	30	0.70
62341E3	5118C-1-2	50.0	R	H	T	355	REH	509	A5	30	0.70
62339C1	5668C-1-1	50.0	R	H	T	355	REH	518	A5	29	0.69
62339C1	5668C-1-2	50.0	R	H	T	355	REH	518	A5	29	0.69
62339C1	5668C-1-3	50.0	R	H	T	362	REH	519	A5	30	0.70
62339C3	5669C-1-1	50.0	R	H	T	355	REH	518	A5	29	0.69
62339C3	5669C-1-2	50.0	R	H	T	355	REH	518	A5	29	0.69
62339C3	5669C-1-3	50.0	R	H	T	355	REH	518	A5	29	0.69
62339C2	5703C-1-1	50.0	R	H	T	355	REH	518	A5	29	0.69
62339C2	5703C-1-2	50.0	R	H	T	355	REH	518	A5	29	0.69
62339C2	5703C-1-3	50.0	R	H	T	355	REH	518	A5	29	0.69
62345E2	5704C-1-1	50.0	R	H	T	367	REH	519	A5	29	0.71
62345E2	5704C-1-2	50.0	R	H	T	367	REH	519	A5	29	0.71
62345E2	5704C-1-3	50.0	R	H	T	367	REH	519	A5	29	0.71
62347B2	6929C-1-1	70.0	R	H	T	350	REH	522	A5	31	0.67
62347B2	6929C-1-2	70.0	R	H	T	350	REH	522	A5	31	0.67
62347B1	6930C-1-1	100.0	R	H	T	340	REH	515	A5	30	0.66

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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
62347B1	6930C-1-2	100.0	R	H	T	340	REH	515	A5	30	0.66
62341A4	7224C-1-1	100.0	R	H	T	355	REH	512	A5	30	0.69
62341A3	7225C-1-1	100.0	R	H	T	355	REH	512	A5	30	0.69
62341A2	7257C-1-1	100.0	R	H	T	355	REH	512	A5	30	0.69
62346D1	7262C-1-1	50.0	R	H	T	366	REH	517	A5	32	0.71
62346D1	7262C-1-2	50.0	R	H	T	366	REH	517	A5	32	0.71
62346D3	7263C-1-1	50.0	R	H	T	366	REH	517	A5	32	0.71
62346D3	7263C-1-2	50.0	R	H	T	366	REH	517	A5	32	0.71
62346D2	7264C-1-1	50.0	R	H	T	366	REH	517	A5	32	0.71
62346D2	7264C-1-2	50.0	R	H	T	366	REH	517	A5	32	0.71
62337D2	7319C-1-1	70.0	R	H	T	327	REH	518	A5	30	0.63
62337D2	7319C-1-2	70.0	R	H	T	327	REH	518	A5	30	0.63
62346D5	7341C-1-1	100.0	R	H	T	333	REH	498	A5	32	0.67
62346D4	7342C-1-1	100.0	R	H	T	333	REH	498	A5	32	0.67
62337B5	7343C-1-1	100.0	R	H	T	324	REH	508	A5	32	0.64
61921E2	7940C-1-1	50.0	R	H	T	337	REH	474	A5	31	0.71

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 <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>
62341D5	4754C-1-1	1	CV	10x10	H	L	-20	225	232	201	219
62341D5	4754C-1-2	1	CV	10x10	H	L	-20	225	232	201	219
62341D5	4754C-1-3	1	CV	10x10	H	L	-20	225	232	201	219
62344A5	4841C-1-1	1	CV	10x10	H	L	-20	222	233	228	228
62334E4	4846C-1-1	1	CV	10x10	H	L	-20	190	202	201	198
62334E4	4846C-1-2	1	CV	10x10	H	L	-20	190	202	201	198
62334E4	4846C-1-3	1	CV	10x10	H	L	-20	190	202	201	198
62340D4	4918C-1-1	1	CV	10x10	H	L	-20	186	192	203	194
62341E3	5118C-1-1	1	CV	10x10	H	L	-20	225	232	201	219
62341E3	5118C-1-2	1	CV	10x10	H	L	-20	225	232	201	219
62339C1	5668C-1-1	1	CV	10x10	H	L	-20	223	230	193	215
62339C1	5668C-1-2	1	CV	10x10	H	L	-20	223	230	193	215
62339C1	5668C-1-3	1	CV	10x10	H	L	-20	198	207	172	192
62339C3	5669C-1-1	1	CV	10x10	H	L	-20	223	230	193	215
62339C3	5669C-1-2	1	CV	10x10	H	L	-20	223	230	193	215
62339C3	5669C-1-3	1	CV	10x10	H	L	-20	223	230	193	215
62339C2	5703C-1-1	1	CV	10x10	H	L	-20	223	230	193	215
62339C2	5703C-1-2	1	CV	10x10	H	L	-20	223	230	193	215
62339C2	5703C-1-3	1	CV	10x10	H	L	-20	223	230	193	215
62345E2	5704C-1-1	1	CV	10x10	H	L	-20	176	228	253	219
62345E2	5704C-1-2	1	CV	10x10	H	L	-20	176	228	253	219
62345E2	5704C-1-3	1	CV	10x10	H	L	-20	176	228	253	219
62347B2	6929C-1-1	1	CV	10x10	H	L	-20	171	188	177	179
62347B2	6929C-1-2	1	CV	10x10	H	L	-20	171	188	177	179
62347B1	6930C-1-1	1	CV	10x10	H	L	-20	174	184	158	172

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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>
62347B1	6930C-1-2	1	CV	10x10	H	L	-20	174	184	158	172
62341A4	7224C-1-1	1	CV	10x10	H	L	-20	158	156	155	156
62341A3	7225C-1-1	1	CV	10x10	H	L	-20	158	156	155	156
62341A2	7257C-1-1	1	CV	10x10	H	L	-20	158	156	155	156
62346D1	7262C-1-1	1	CV	10x10	H	L	-20	225	210	253	229
62346D1	7262C-1-2	1	CV	10x10	H	L	-20	225	210	253	229
62346D3	7263C-1-1	1	CV	10x10	H	L	-20	225	210	253	229
62346D3	7263C-1-2	1	CV	10x10	H	L	-20	225	210	253	229
62346D2	7264C-1-1	1	CV	10x10	H	L	-20	225	210	253	229
62346D2	7264C-1-2	1	CV	10x10	H	L	-20	225	210	253	229
62337D2	7319C-1-1	1	CV	10x10	H	L	-20	151	163	168	161
62337D2	7319C-1-2	1	CV	10x10	H	L	-20	151	163	168	161
62346D5	7341C-1-1	1	CV	10x10	H	L	-20	187	229	170	195
62346D4	7342C-1-1	1	CV	10x10	H	L	-20	187	229	170	195
62337B5	7343C-1-1	1	CV	10x10	H	L	-20	165	163	186	171
61921E2	7940C-1-1	1	CV	10x10	H	L	-20	254	256	266	259

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

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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

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