

Our order No.: (A08) 2102861      Your order No.: (A07) 45388      Order registration date: 13.12.2022      Date of dispatch: 28.02.2023 B

## Material requirements and customer information

<b>Product:</b> <small>(A03)</small> Plate	<b>Steel standard and grade:</b> <small>(B02)</small> EN10025-2:2019 S355K2+N	<b>Surface tolerance:</b> EN 10163-2 B3
<b>Delivery condition:</b> <small>(B04)</small> Furnace normalized (N)		<b>Length tolerance:</b> EN 10029 Table 3
<b>Customer name and address</b> <small>(A06)</small>	<b>Certificate address</b>	<b>Width tolerance:</b> EN 10029 Table 2
4002	4002001	<b>Thickness tolerance:</b> EN 10029 Class B
FEON OY	FEON OY	<b>Flatness tolerance:</b> 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>
63398B1	2980E	6	45.0	2000	6000	2	8 478	S355K2+N	Head	45388
63398B2	2981E	6	45.0	2000	6000	2	8 478	S355K2+N	Head	45388
63398B3	4005E	6	45.0	2000	6000	1	4 239	S355K2+N	Head	45388
63397C4	3072E	7	50.0	2000	6000	2	9 420	S355K2+N	Head	45388
63397G2	3073E	7	50.0	2000	6000	1	4 710	S355K2+N	Head	45388
63411B1	3875E	7	50.0	2000	6000	1	4 710	S355K2+N	Head	45388
63411D1	3876E	7	50.0	2000	6000	2	9 420	S355K2+N	Head	45388
63233G4	3951E	7	50.0	2000	6000	1	4 710	S355K2+N	Head	45388
63233F4	5068E	7	50.0	2000	6000	1	4 710	S355K2+N	Head	45388

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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>
63178D4	9368D	7	50.0	2000	6000	1	4 710	S355K2+N	Head	45388
63414F4	3880E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63414F3	3881E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63411D3	3920E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63411A1	3985E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63411A4	3987E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63411A3	3988E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63411A2	3989E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63410G4	4010E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63410G3	4011E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63410G2	4012E	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63178D3	9369D	8	60.0	2000	6000	1	5 652	S355K2+N	Head	45388
63178I3	0984E	9	70.0	2000	6000	1	6 594	S355K2+N	Head	45388
62782F2	7290D	10	80.0	2000	6000	1	7 536	S355K2+N	Head	45388
63414F1	3879E	11	90.0	2000	6000	1	8 478	S355K2+N	Head	45388
62782F4	8355D	12	140.0	2000	4400	1	9 671	S355K2+N	Head	45388
63229A1	3887E	19	70.0	2500	6000	2	16 486	S355K2+N	Head	45388
						31	174 522			

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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
62782	0.17	1.52	0.21	0.015	0.007	0.043	0.048	0.029	0.006	0.043	0.042	0.002	0.002	0.0043	0.0002
63178	0.17	1.48	0.22	0.013	0.002	0.034	0.032	0.021	0.003	0.038	0.042	0.002	0.002	0.0035	0.0002
63229	0.17	1.50	0.21	0.011	0.004	0.028	0.030	0.016	0.001	0.042	0.042	0.001	0.002	0.0032	0.0002
63233	0.17	1.47	0.21	0.009	0.004	0.029	0.025	0.017	0.002	0.044	0.042	0.001	0.002	0.0034	0.0002
63397	0.15	1.45	0.19	0.014	0.002	0.019	0.010	0.010	0.001	0.038	0.046	0.001	0.002	0.0042	0.0001
63398	0.15	1.46	0.19	0.015	0.002	0.016	0.026	0.008	0.001	0.044	0.044	0.001	0.002	0.0038	0.0002
63410	0.17	1.47	0.21	0.014	0.005	0.033	0.026	0.015	0.002	0.045	0.042	0.002	0.002	0.0036	0.0003
63411	0.17	1.48	0.22	0.017	0.007	0.040	0.037	0.018	0.002	0.038	0.039	0.002	0.002	0.0032	0.0002
63414	0.17	1.50	0.20	0.009	0.006	0.032	0.025	0.016	0.003	0.046	0.041	0.001	0.002	0.0037	0.0002

Heat No. <small>(B07)</small>	CEV	Remark <small>(C70)</small>
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Set values:	min.	
	max.	0.45
62782	0.44	1 3 4 5 6
63178	0.42	1 3 4 6
63229	0.43	1 3 4 5 6
63233	0.43	1 3 4 6
63397	0.40	1 3 4 6
63398	0.40	1 3 4 6
63410	0.42	1 3 4 6
63411	0.43	1 3 4 6
63414	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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## 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
63178I3	0984E-1-1	70.0	R	H	T	335	REH	516	A5	31	0.65
63398B1	2980E-1-1	45.0	R	H	T	347	REH	492	A5	33	0.71
63398B1	2980E-1-2	45.0	R	H	T	347	REH	492	A5	33	0.71
63398B2	2981E-1-1	45.0	R	H	T	347	REH	492	A5	33	0.71
63398B2	2981E-1-2	45.0	R	H	T	347	REH	492	A5	33	0.71
63397C4	3072E-1-1	50.0	R	H	T	347	REH	477	A5	30	0.73
63397C4	3072E-1-2	50.0	R	H	T	347	REH	477	A5	30	0.73
63397G2	3073E-1-1	50.0	R	H	T	347	REH	477	A5	30	0.73
63411B1	3875E-1-1	50.0	R	H	T	358	REH	519	A5	31	0.69
63411D1	3876E-1-1	50.0	R	H	T	358	REH	519	A5	31	0.69
63411D1	3876E-1-2	50.0	R	H	T	358	REH	519	A5	31	0.69
63414F1	3879E-1-1	90.0	R	H	T	338	REH	502	A5	30	0.67
63414F4	3880E-1-1	60.0	R	H	T	342	REH	508	A5	30	0.67
63414F3	3881E-1-1	60.0	R	H	T	342	REH	508	A5	30	0.67
63229A1	3887E-1-1	70.0	R	H	T	331	REH	499	A5	32	0.66
63229A1	3887E-1-2	70.0	R	H	T	331	REH	499	A5	32	0.66
63411D3	3920E-1-1	60.0	R	H	T	358	REH	519	A5	31	0.69
63233G4	3951E-1-1	50.0	R	H	T	361	REH	509	A5	30	0.71
63411A1	3985E-1-1	60.0	R	H	T	357	REH	528	A5	30	0.68
63411A4	3987E-1-1	60.0	R	H	T	357	REH	528	A5	30	0.68
63411A3	3988E-1-1	60.0	R	H	T	358	REH	519	A5	31	0.69
63411A2	3989E-1-1	60.0	R	H	T	357	REH	528	A5	30	0.68
63398B3	4005E-1-1	45.0	R	H	T	347	REH	492	A5	33	0.71
63410G4	4010E-1-1	60.0	R	H	T	357	REH	511	A5	31	0.70
63410G3	4011E-1-1	60.0	R	H	T	357	REH	511	A5	31	0.70

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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
63410G2	4012E-1-1	60.0	R	H	T	357	REH	511	A5	31	0.70
63233F4	5068E-1-1	50.0	R	H	T	361	REH	509	A5	30	0.71
62782F2	7290D-1-2	80.0	R	H	T	356	REH	530	A5	30	0.67
62782F4	8355D-1-1	140.0	R	H	T	342	REH	507	A5	20	0.67
63178D4	9368D-1-1	50.0	R	H	T	352	REH	517	A5	31	0.68
63178D3	9369D-1-1	60.0	R	H	T	352	REH	517	A5	31	0.68

**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>
63178I3	0984E-1-1	1	CV	10x10	H	L	-20	227	240	202	223
63398B1	2980E-1-1	1	CV	10x10	H	L	-20	284	264	276	275
63398B1	2980E-1-2	1	CV	10x10	H	L	-20	284	264	276	275
63398B2	2981E-1-1	1	CV	10x10	H	L	-20	284	264	276	275
63398B2	2981E-1-2	1	CV	10x10	H	L	-20	284	264	276	275
63397C4	3072E-1-1	1	CV	10x10	H	L	-20	283	267	275	275
63397C4	3072E-1-2	1	CV	10x10	H	L	-20	283	267	275	275
63397G2	3073E-1-1	1	CV	10x10	H	L	-20	283	267	275	275
63411B1	3875E-1-1	1	CV	10x10	H	L	-20	146	168	204	173
63411D1	3876E-1-1	1	CV	10x10	H	L	-20	146	168	204	173
63411D1	3876E-1-2	1	CV	10x10	H	L	-20	146	168	204	173
63414F1	3879E-1-1	1	CV	10x10	H	L	-20	191	166	172	176
63414F4	3880E-1-1	1	CV	10x10	H	L	-20	226	185	184	198
63414F3	3881E-1-1	1	CV	10x10	H	L	-20	226	185	184	198
63229A1	3887E-1-1	1	CV	10x10	H	L	-20	243	219	198	220
63229A1	3887E-1-2	1	CV	10x10	H	L	-20	243	219	198	220
63411D3	3920E-1-1	1	CV	10x10	H	L	-20	146	168	204	173
63233G4	3951E-1-1	1	CV	10x10	H	L	-20	206	241	242	230
63411A1	3985E-1-1	1	CV	10x10	H	L	-20	171	197	183	184
63411A4	3987E-1-1	1	CV	10x10	H	L	-20	171	197	183	184
63411A3	3988E-1-1	1	CV	10x10	H	L	-20	146	168	204	173
63411A2	3989E-1-1	1	CV	10x10	H	L	-20	171	197	183	184
63398B3	4005E-1-1	1	CV	10x10	H	L	-20	284	264	276	275
63410G4	4010E-1-1	1	CV	10x10	H	L	-20	232	201	207	213
63410G3	4011E-1-1	1	CV	10x10	H	L	-20	232	201	207	213

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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>
63410G2	4012E-1-1	1	CV	10x10	H	L	-20	232	201	207	213
63233F4	5068E-1-1	1	CV	10x10	H	L	-20	206	241	242	230
62782F2	7290D-1-2	1	CV	10x10	H	L	-20	227	231	190	216
62782F4	8355D-1-1	1	CV	10x10	H	L	-20	157	169	175	167
63178D4	9368D-1-1	1	CV	10x10	H	L	-20	256	245	255	252
63178D3	9369D-1-1	1	CV	10x10	H	L	-20	256	245	255	252

### 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](http://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