



VLAVI

PROFESSIONAL WELDING COMPANY

OUTSTANDING AND RELIABLE PARTNER
BRINGING PEOPLE AND BUSINESSES TOGETHER

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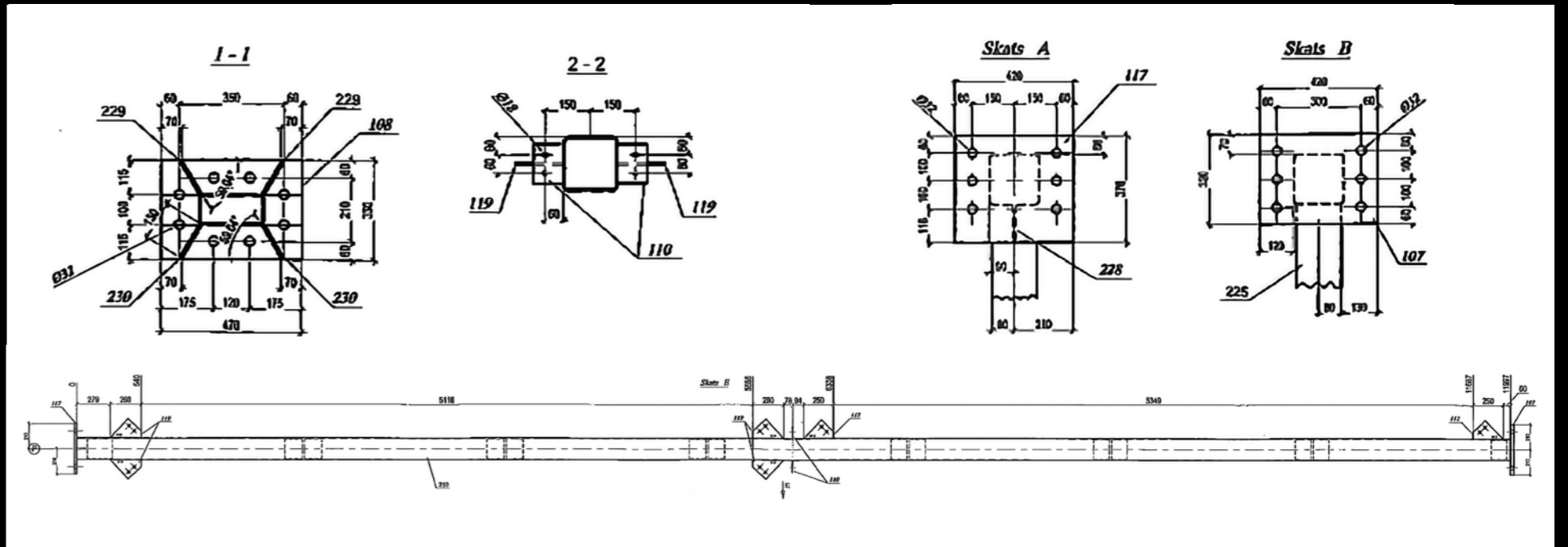
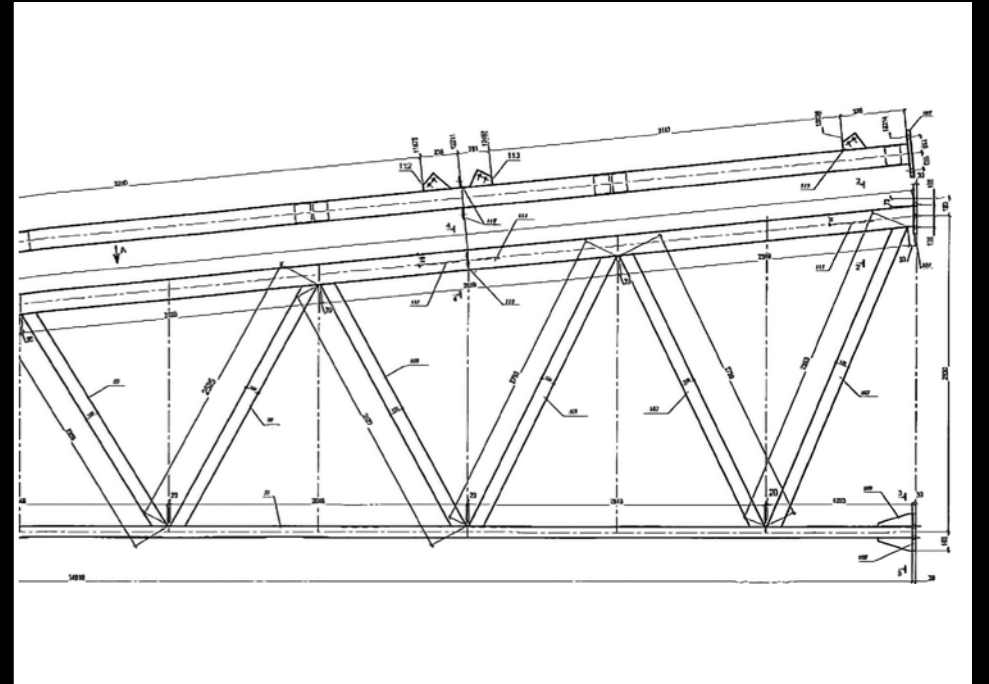
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Project: **Bridge**
 City: **Hisings Kärra, Sweden**
 Year: **2021 – present**
 Type of welding: **135/138**
 Welding position: **PC; PH; PF**





Project: **Warehouse / Cooling and heating system**

City: **Landskrona, Sweden**

Year: **2021**

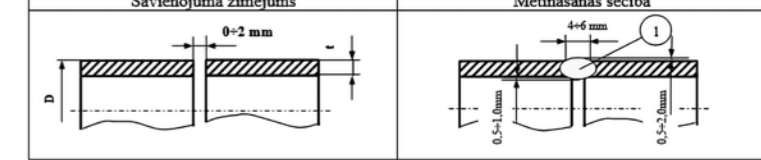
Type of welding: **141**

Welding position: **HL045; PH; PC**

Metināšanas process: **141**
Savienojuma veids: **BW**

Pamatmateriāla specifikācija: **Grupa 8 (AISI304)**
Sagataves biezums t, mm: **2,0**
Caurules ārējais diametrs D, mm: **21,3**
Metināšanas stāvoklis: **PA**

ŠUVES SAGATAVOŠANAS ELEMENTI (SKICE):

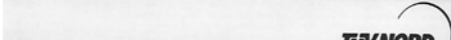


Metināšanas režīmi

| Gājiens | Process | Piedevas materiāla izmērs [mm] | Strāvas stiprums [A] | Spriegums [V] | Strāvas tips/polaritāte | Stieples padeves ātrums [m/min] | Gājienu ātrums [1/min] | Siltuma enerģija uz gramma vienību [kJ/mm] |
|---------|---------|--------------------------------|----------------------|---------------|-------------------------|---------------------------------|------------------------|--|
| 1 | 141 | 2,0 | 40-80 | 8 - 14 | DC (-) | | | |

| WELDING PROCEDURE SPECIFICATION SS-EN ISO 15609-1 | | WPS NR: W-SAN07 | REV: SS-EN ISO 15614-1 |
|--|--------------------------------|---|---------------------------------------|
| Dimensional / Base material Grupp.8.1 1.4404 | Position / Groove design | Revision / Welding design | |
| Dimensions / Dimensions Tjūcklek/Thickness= 1,4-2,6mm Ytterdiameter/Outer diameter= 25- >mm | | | |
| Location / Working method 141 | | Welding position / Positioning Alla utom PG/JL045 Every position but PG/JL045 | |
| Preparation / Grinding Slipning / Grinding | | Preparation / Grinding Häftsvets / Tackweld | |
| Heat treatment / Backing --- | | Heat treatment / Backing --- | |
| Post-welding treatment / Cleaning Slipning och/veller borstning Grinding and/or steelbrusing | | Post-welding treatment / Cleaning --- | |
| Shielding gas Argon 99,99% 10-12 l/min | | Shielding gas Formier 10-10-12/min | |
| Preheating / Preheating temperature Min 20°C | | Preheating / Preheating temperature --- | |
| Welding speed / Interpass temperature --- | | Welding speed / Interpass temperature --- | |
| Material / Material Material 1: 1.4404 Material 2: 1.4404 | | Material / Material --- | |
| Shielding method Gaslīga eller elmatta | | Shielding method --- | |
| Temperature / Temperature Temperaturkrita/Temperaturstick | | Temperature / Temperature --- | |
| Welding method 1 141 | Electrod Norm Code E6013 | Electrod Fabricat Trade name Tysyd 314L | Electrod data Electrod Ø 12.143 |
| | | | Electrod Ø 12.143 |
| | | | Electrod Ø 12.143 |
| | | | Electrod Ø 12.143 |

Metinātāja kvalifikācijas sertifikāts
Sertifikāta Nr. 2-4.4./199M/2016



| METINĀŠANAS PĀRBAUDES ELEMENTI | KVALIFIKĀCIJAS PĀRBAUDES |
|--------------------------------|-------------------------------|
| 141 (TIG) | 141, 142, 143 un 145 |
| T | T, P |
| BW | BW |
| L2 | |
| FM1, FM2 | FM1, FM2 |
| S | Sakne: S; Alzāģētājums: M, sn |
| DC (-) | |
| 4.0 | 3.0 līdz 8.0 |
| 4.0 | 3.0 līdz 8.0 |
| 60.3 | 2-30.8 |
| PA | PA |
| --- | --- |

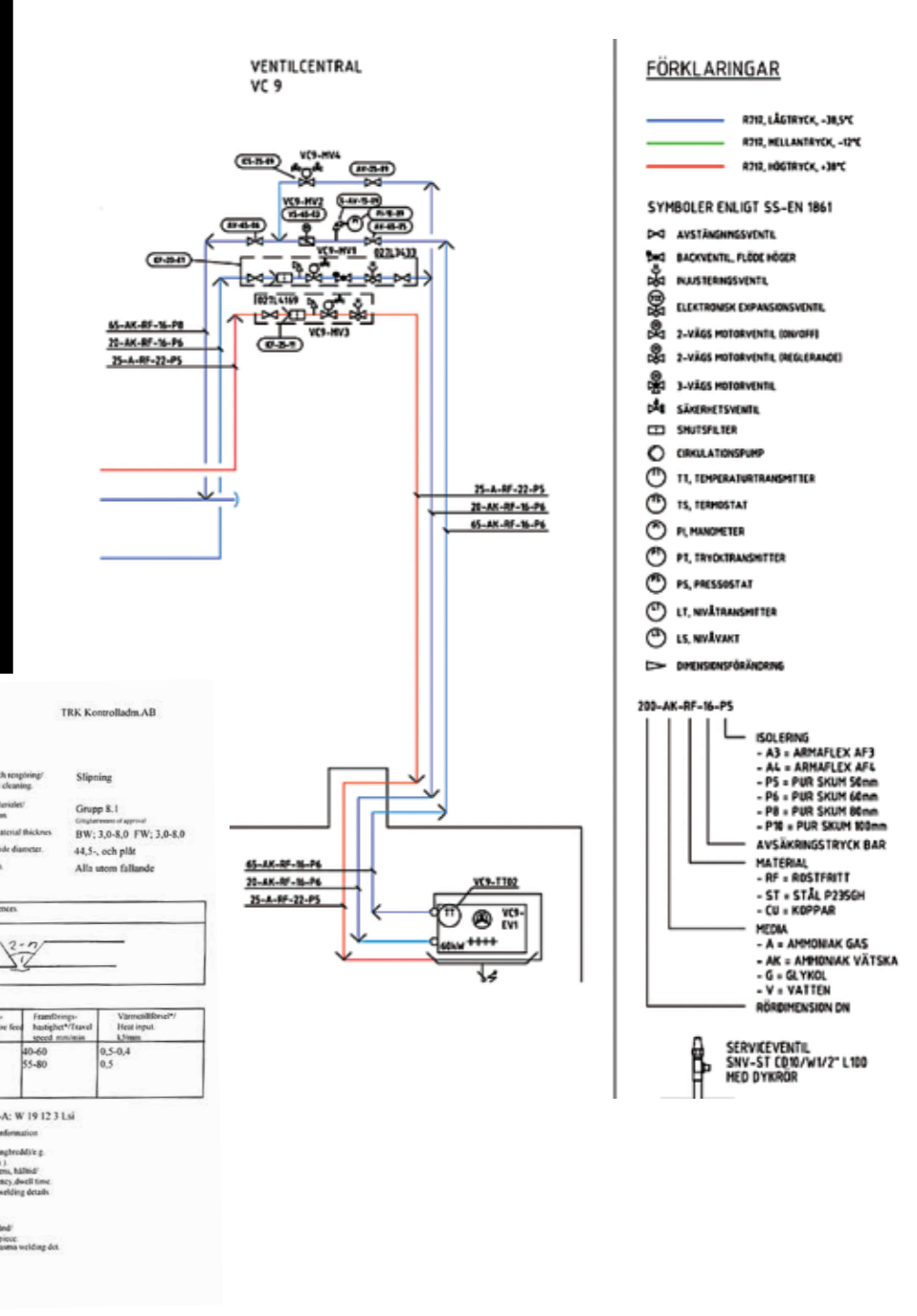
1 WELDER'S QUALIFICATION TEST CERTIFICATE
Page 1 of 2

1 Dispersion (at): EN ISO 9806-1 141 T BW FMS S a02 D18 HL045 ee gbr
2 Examinng Body: "TUV Nord Baltia" TE Ltd Personnel certification centre
3 Certificate No: TMB PSC - MI - 20122110956 Notified Body number: 1409
4 Welding Procedure Specification (WPS) No: WPS-A1133-20
5 Welder's name, surname: Edwards Koivits
6 Identification:
7 Method of identification: Passport Latvia, 16.02.1991
8 Date and place of birth: SA "Vesti Service"
9 Employer:
10 Code / Testing Standard: LVS EN ISO 9806-1:2016
11 Certificate / Test result: Acceptable / Not tested
12 Job title:
13 Welding position (if necessary):
14 Position / Test result: Acceptable / Not tested
15 Job title:
16 Welding process (at): TIG
17 Range of qualification: 141, 142, 143 and 145
18 Type of metal: S, M, mm
19 Parent material group(s)/alloy(s):
20 Filler material, amount: FMS 5
21 Shielding gas: Ar
22 Filler material (designator):
23 Material thickness, A [mm]: 2.0 - 4.0
24 Type of metal and polarity: DC (-)
25 Material thickness, B [mm]: 2.0 - 4.0
26 Essential thickness, A [mm]: 2.0 - 4.0
27 Essential thickness, B [mm]: 2.0 - 4.0
28 Outer pipe diameter (mm): 21.3
29 Outer pipe diameter (inch): 0.841
30 Voltage: 8-14
31 Current: 40-80
32 Shielding gas flow rate:
33 Additional information is provided on attached sheet and/or welding procedure specification:
34
35 Type of test: Preferred and accepted Not tested
36 Visual testing: X
37 Radiographic testing: X
38 Dye penetrant testing: X
39 Hardness testing: X
40 Macroetching: X
41 Microetching: X
42 Method of the extension of qualification: in accordance with 9.3.2
43 Method of the extension of qualification: in accordance with 9.3.2
44 Method of the extension of qualification: in accordance with 9.3.2
45 Method of the extension of qualification: in accordance with 9.3.2

Inspection date: 07.12.2016
Inspector: M. Maatavičs



Project: **Astorp warehouse**
 City: **Åstorp, Sweden**
 Year: **2021**
 Type of works: **Welding / Assembly**
 Type of welding: **141**
 Welding position: **HL045; PH; PC**



TUVNORD

1 WELDER'S QUALIFICATION TEST CERTIFICATE Page 1 of 2

3 Designation (s): **EN ISO 9606-1 141 T BW FMS S e02 D48.3 H-L045 ss gb**

4 Examining Body: **"TUV Nord Baltic" TE Ltd Personnel certification centre**

5 Certificate No: **TNB PSC - MI - 201221/1096E** Notified Body number: **1409**

7 Welding Procedure Specification (WPS) No: **WPS-A039-07**

8 Welder's name, surname: **Eduards Kozins** Photograph (if required)

9 Identification: **Passport**

10 Method of identification: **Latvia, 16.02.1991**

11 Date and place of birth: **SIA "Vlavi Serviss"**

12 Employer: **LVS EN ISO 9606-1:2018**

13 Code / Testing Standard: **Acceptable / not tested** (Delete as necessary)

14 Supplementary list weld test: **ss, gb, ss gb** (Delete as necessary)

15 Job knowledge: **ss, gb** (Delete as necessary)

| TEST PIECE | RANGE OF QUALIFICATION | |
|---------------------------------------|------------------------|-----------------------|
| | 141 (TS) | 141, 142, 143 and 145 |
| 16 Welding process (es) | T | P, T |
| 17 Transfer mode | SP | BW |
| 18 Product type (plate or pipe) | T | P, T |
| 19 Type of joint | BW | BW |
| 20 Filler material group(s)/subgroups | FMS | FMS |
| 21 Filler material (designation) | S | S, R, mm |
| 22 Shielding gas | I1 (Ar) | I1 (Ar) |
| 23 Auxiliaries (if a backing gas) | I1 (Ar) | I1 (Ar) |
| 24 Type of current and polarity | DC-1 | DC-1 |
| 25 Material thickness s, (mm) | 2,0 | 2,0 |
| 26 Deposited thickness s, (mm) | 48,3 | 2,0 + 4,0 |
| 27 Outside pipe diameter (mm) | 48,3 | 2,0 |
| 28 Welding position | HL045 | PA, PC, PE, PF |
| 29 Valid details | ss, gb | ss, mb, ss, gb |
| 30 Multi-layer/multi layer | ss | ss |

33 Additional information is available on attached sheet and/or welding procedure specification No: **WPS-A039-07**

34 Examining Body: **"TUV Nord Baltic" TE Ltd** Personnel certification centre

35 Type of tests: **Performed and accepted** / **Not tested**

36 Visual testing: **X** / **---**

37 Radiographic testing: **X** / **---**

38 Fracture test: **---** / **X**

39 Bend test: **---** / **X**

40 Tensile test: **---** / **X**

41 Macroscopic examination: **---** / **X**

42 Method of the extension of qualification: **in accordance with 9.3.a)** / **Valid until** **20.12.2023**

43 Validity of qualification: **30.12.2020** / **20.12.2023**

44 Signature of the welder: **T. Filipova**

Svetsdatablad WPS SS-EN ISO 15609-1

Plant/Location: **Helsingborg** Granskare/ Examiner: **TRK Kontrolladm AB**

Tätverkarens svetsprocedur/Manufacturer's welding procedure: **SAN06** Metod för färdigställning och rengöring/ Method of preparation and cleaning: **Slipning**

WPS nr / WPS no: **TRK-KAB 2208** Metod för förberedning och rengöring/ Method of preparation and cleaning: **Slipning**

Tätverkare/Manufacturer: **SIA "Vlavi Serviss"** Specifikation för grundmaterialer/ Parent material specification: **Grupp 8.1**

Svetsmetod/Welding process: **141** Materialtycklek (i mm)/Material thickness: **BW; 3,0-8,0; FW; 3,0-8,0**

Svetsposition/ Joint type: **BW/FW** Yrtdiameter (i mm)/Outside diameter: **44,5-, och plåt**

Svetslag/Welding position: **Alla utom fallande**

Fogförbindning (i mm)/Weld preparation details (skickat)

| Fogförbindning/ Joint design | | Svetslag/Welding sequence | |
|------------------------------|--|---------------------------|--|
| | | | |

Svetsdatablad/Welding details:

| Struktur | Metod | Effekt/natur | Storlek | Spänning | Styrning | Trädnings- | Främfrings- | Värmeinslag |
|----------|---------|----------------------|---------|----------|----------|----------------|----------------|--------------------|
| Run | Process | Size of filler metal | Current | Voltage | Polarity | Speed (mm/min) | Speed (mm/min) | Heat input (kJ/mm) |
| 1 | 141 | 2,4 | 60-70 | 10-12 | DC- | 40-60 | 55-80 | 0,5-0,4 |
| 2-n | 141 | 2,4 | 70-85 | 10-12 | DC- | 40-60 | 55-80 | 0,5 |

Beskrivning för tillämpningsområde och handelsnamn/ Designation of welding consumables and trade name: **Avesta 316LSi / EN-ISO 14343-A; W 19 12 3 LSi**

Skickad/ Shipping information: **Mison AR**

Special bakning or drying: **Formier 10**

Skickad/ Shipping information: **Formier 10**

Gasflöde/Gas flow rate: **9-12 l/min**

Wärmeinslag/Heat input: **WTb 20/2,4**

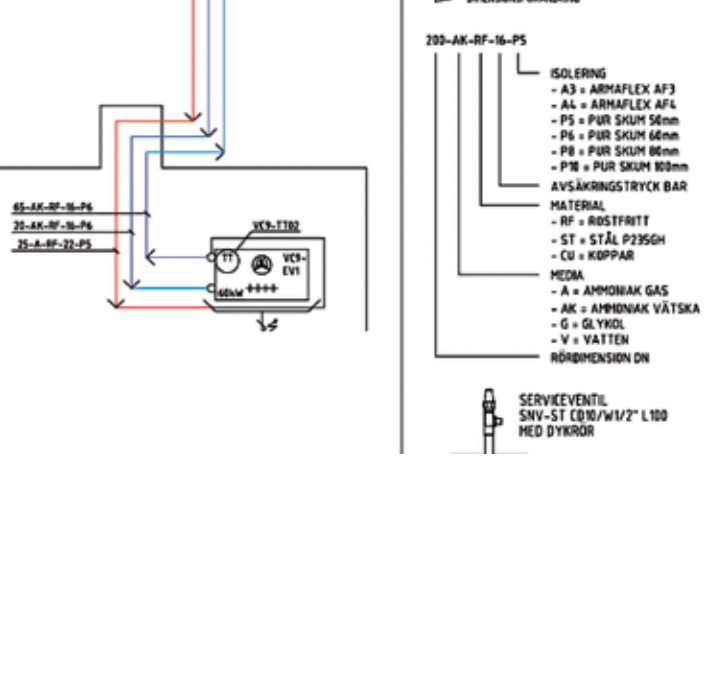
Strömstyrka/Current: **ss-nb**

Detaljer för bakning/Preparation details: **min +15**

Metod för bakning/Preparation method: **Strömsvakt/Torch prep.**

Strömstyrka/Current: **ss-nb**

Metod för bakning/Preparation method: **Strömsvakt/Torch prep.**





Project: **Welding and assembling of metal constructions / Warehouse**
 City: **Hyltebruk, Sweden**
 Year: **2021**
 Type of welding: **111**
 Welding position: **PB; PA; PD; PC**

WELDING PROCEDURE SPECIFIKATION (WPS)
(EN ISO 15609-1:2019)

| | | |
|--|---|----------------------------------|
| 1) Manufacturer: Rahlén | 6) Welding Process: 111 (MMA) | EN ISO 4063 |
| 2) Location: Dufstara lida 19, Ljepja, Latvija | 7) Parent Material Specification: S235-S355, EN 10025 | 1.1, 1.2, EN 15608 |
| 3) WPS No.: 111-FWS_60-a6-1 | 8) Parent Metal Thickness(mm): 4-6-60 | 42-6-60 |
| 4) WPS No.: RAK-M-02318 | 9) Welding position: PB, PA, PD, PC | EN ISO 6947 |
| 5) Joint type: FW | 10) Method of preparation/cleaning: machining | Sagatavolana / attafilana metode |

11) Weld Preparation Details
Bases sagatavolanas skice

| Joint Design Savienojuma skice EN ISO 9692 | Welding Sequence Metinanas seciba |
|--|--------------------------------------|
| | |

12) Welding Details
Metinanas rezhimi

| Run Grijans | Process Procesa | Filler Metal Size Pildvevas materiāla izmērs (mm) | Current Saitavas spriegums (A) | Voltage Spriegums (V) | Current type, Polarity Saitavas tips, polaritāte | Wire Feed Speed Saitavas ātrums (m/min) | Welding Speed Metinanas ātrums (mm / min) | Heat Input Ietilpuma enerģija (kJ/mm) |
|----------------|--------------------|---|--------------------------------------|-----------------------------|---|--|--|---|
| 1-2 | 111 | 3.2 4.0 (opcionāli) | 100 - 140 100 - 100 | 18-22 20-24 | DC+ | - | 100 - 150 150 - 200 | 1.8 - 1.4 |

13) Filler Metal: E42 4 B 47 HS, EN ISO 2560-A
Pildvevas materiāls: ESAB OK48.00

14) Shielding / Backing Gas: n/a
Aizsarggāze / Formējuma gāze

15) Shielding Gas Flow Rate: n/a
Aizsarggāzes plūsmas ātrums

16) Backing Gas Flow Rate: n/a
Formējuma gāzes plūsmas ātrums

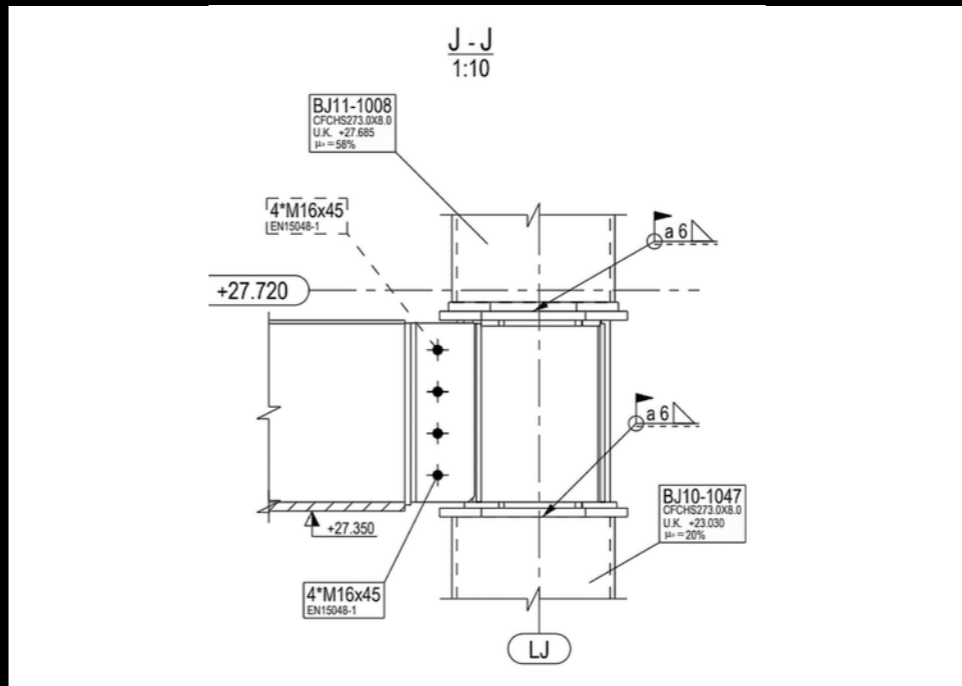
17) Preheat Temperature: 10-5-80mm: min 5°C
Iepriekšējās uzsilšanas temp.

18) Interpass Temperature: n/a
Starptempu temperatūra

19) Post Weld Heat Treatment: n/a
Termiska apstrāde pēc metināšanas

20) Details of Back Gouging/Backing: ml
Saknes apstrāde, pakļaušana

21) Electrode drying temperature, time: 350°C, 2 hours
Elektroda žāvēšanas temperatūra, laiks



WELDING PROCEDURE SPECIFIKATION (WPS)
(EN ISO 15609-1:2019)

| | | |
|--|---|----------------------------------|
| 1) Manufacturer: Rahlén | 6) Welding Process: 111 (MMA) | EN ISO 4063 |
| 2) Location: Dufstara lida 19, Ljepja, Latvija | 7) Parent Material Specification: S235-S355, EN 10025 | 1.1, 1.2, EN 15608 |
| 3) WPS No.: 111-FWS_30-a6-2 | 8) Parent Metal Thickness(mm): 4-5-30; | 42-5-30; |
| 4) WPS No.: RAK-M-02318 | 9) Welding position: PB, PA, PD, PC | EN ISO 6947 |
| 5) Joint type: FW | 10) Method of preparation/cleaning: machining | Sagatavolana / attafilana metode |

11) Weld Preparation Details
Bases sagatavolanas skice

| Joint Design Savienojuma skice EN ISO 9692 | Welding Sequence Metinanas seciba |
|--|--------------------------------------|
| | |

12) Welding Details
Metinanas rezhimi

| Run Grijans | Process Procesa | Filler Metal Size Pildvevas materiāla izmērs (mm) | Current Saitavas spriegums (A) | Voltage Spriegums (V) | Current type, Polarity Saitavas tips, polaritāte | Wire Feed Speed Saitavas ātrums (m/min) | Welding Speed Metinanas ātrums (mm / min) | Heat Input Ietilpuma enerģija (kJ/mm) |
|----------------|--------------------|---|--------------------------------------|-----------------------------|---|--|--|---|
| 1 | 111 | 3.2 4.0 (opcionāli) | 100 - 140 100 - 100 | 18-22 20-24 | DC+ | - | 100 - 150 150 - 200 | 1.8 - 1.4 |

13) Filler Metal: E42 4 B 47 HS, EN ISO 2560-A
Pildvevas materiāls: ESAB OK48.00

14) Shielding / Backing Gas: n/a
Aizsarggāze / Formējuma gāze

15) Shielding Gas Flow Rate: n/a
Aizsarggāzes plūsmas ātrums

16) Backing Gas Flow Rate: n/a
Formējuma gāzes plūsmas ātrums

17) Preheat Temperature: 5°C
Iepriekšējās uzsilšanas temp.

18) Interpass Temperature: n/a
Starptempu temperatūra

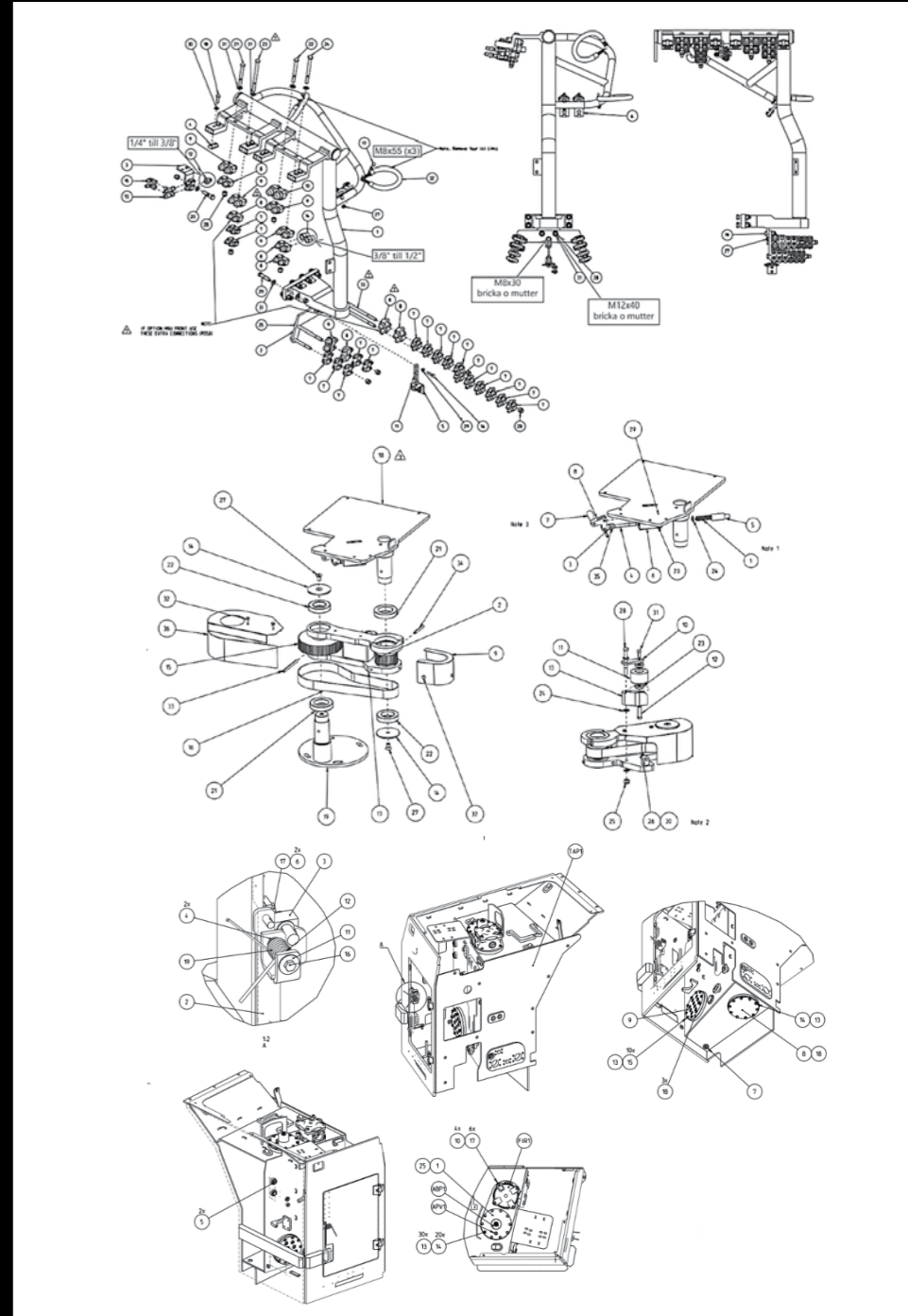
19) Post Weld Heat Treatment: n/a
Termiska apstrāde pēc metināšanas

20) Details of Back Gouging/Backing: ml
Saknes apstrāde, pakļaušana

21) Electrode drying temperature, time: 350°C, 2 hours
Elektroda žāvēšanas temperatūra, laiks



Project: **Hydraulic system**
 City: **Örebro, Sweden**
 Year: **2021**
 Type of works: **Welding / Assembly**
 Type of welding: **135/138**
 Welding position: **PA; PB**



TUV NORD

WELDER'S QUALIFICATION TEST CERTIFICATE Page 1 of 2

1
 2
 3 Designation (s): **EN ISO 9606-1 135 T/P FM1 S 106.3/110 D114.3 PH ml**

4 Examining Body: **"TUV Nord Baltik" TE Ltd Personal certification centre**

5 Certificate No: **TNB PSC - MI - 161216/1297E** Notified Body number: **1409**

7 Welding Procedure Specification (WPS) No: **WPS 135-002**

8 Welder's name, surname: **Arturs Baginskis**

9 Identification: **Passport** Photograph (if required):

10 Method of identification: **Passport**

11 Date and place of birth: **Latvia, Bauska, 22.01.1985**

12 Employer:

13 Code / Testing Standard: **LVS EN ISO 9606-1:2014**

14 Supplementary that were tested: **Acceptable / not acceptable** (Circle as necessary)

15 Job knowledge: **Acceptable / not tested** (Circle as necessary)

| TEST PIECE | RANGE OF QUALIFICATION | |
|--------------------------------|--|------------------------|
| | 135 (MAG) | 138 (TIG) |
| Transfer mode | D (short-circuit), D (spray transfer), S (spray) | |
| Product type (plate or pipe) | P, T | P, T |
| Type of weld | FW | FW |
| Parent material group/subgroup | 1.2 | 1.2 |
| Filler material group(s) | FM1 | FM1, FM2 |
| Shielding gas | S | S, M |
| Shielding gas | Z,ArC+NO-18/0,5 | |
| Auxiliary (if a backing gas) | DC (+) | |
| Type of current and polarity | | |
| Material thickness, t (mm) | 6.3 (T) + 16.9 (P) | 2, 3,6 |
| Deposited thickness, s (mm) | | |
| Outside pipe diameter, D (mm) | 114,3 | 2 87,2 |
| Welding position | PH | PA, PB, PC, PD, PE, PF |
| Test date: | | |
| Multi-approach layer: | ml | ml, ml |

33 Additional information is available on attached sheet and/or welding procedure specification No: **WPS 135-002**

34 Examining Body: **"TUV Nord Baltik" TE Ltd Personal certification centre**

| Type of tests | Performed and accepted | Not tested |
|----------------------------|------------------------|------------|
| 35 Visual testing | X | |
| 36 Radiographic testing | | X |
| 37 Fracture test | | X |
| 38 Impact test | | X |
| 39 Hardness test | | X |
| 40 Macroscopic examination | X | |

41 Date of qualification: **16.12.2020**

42 Method of the extension of qualification: in accordance with 3.3.1

43 The only valid date extension is correct and the test piece was retested in accordance with the qualification of another

44 Confirmation of the validity by employer / welding coordinator /

45 Signature of the employer / welding coordinator: **T. Filipova**

46 Signature of the welder: **Arturs Baginskis**

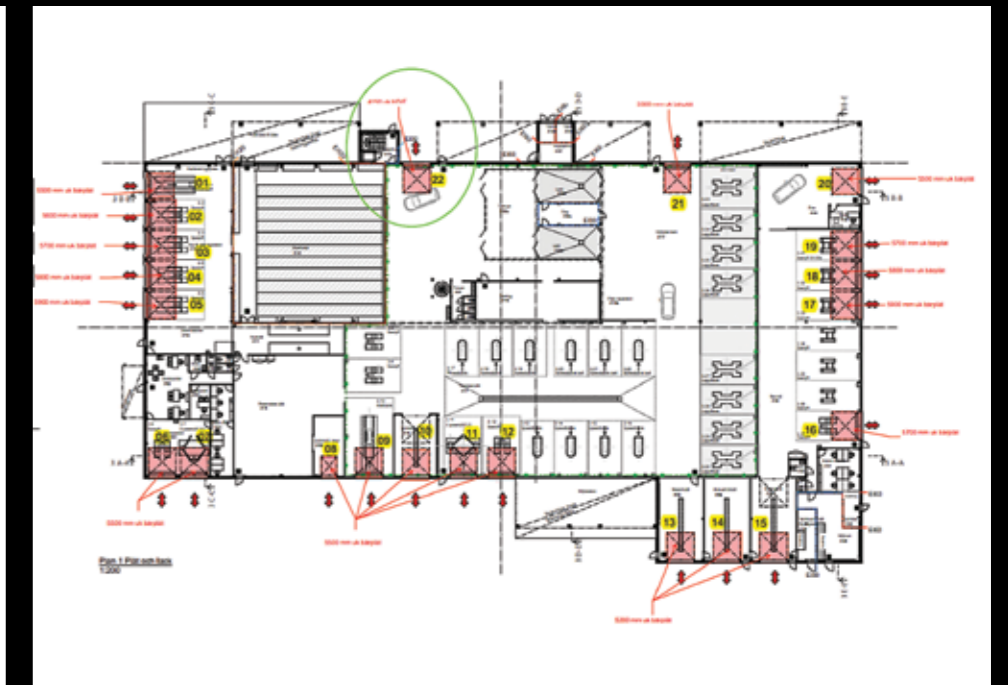
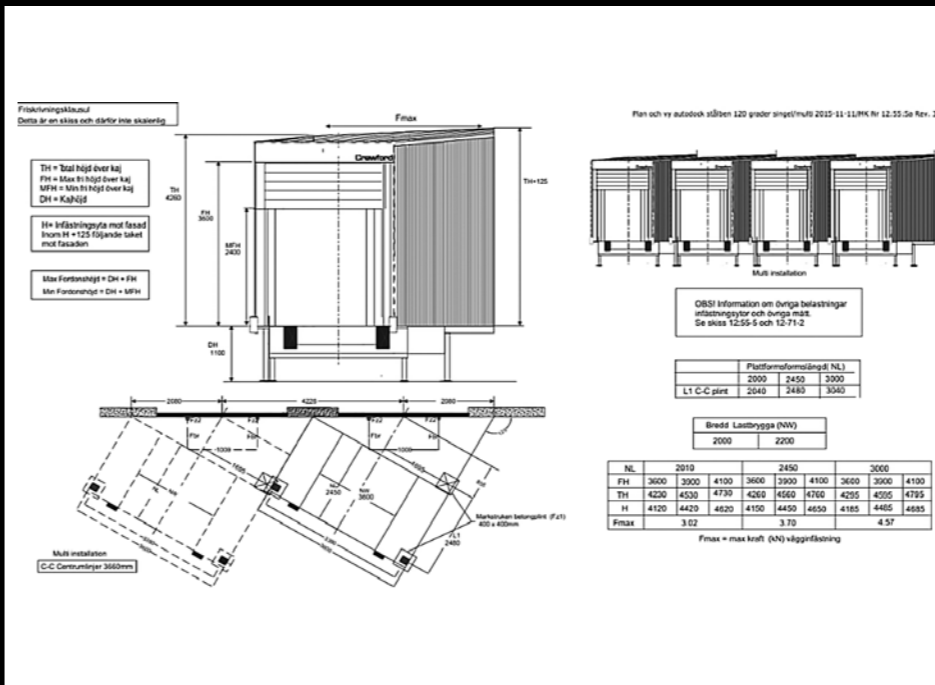
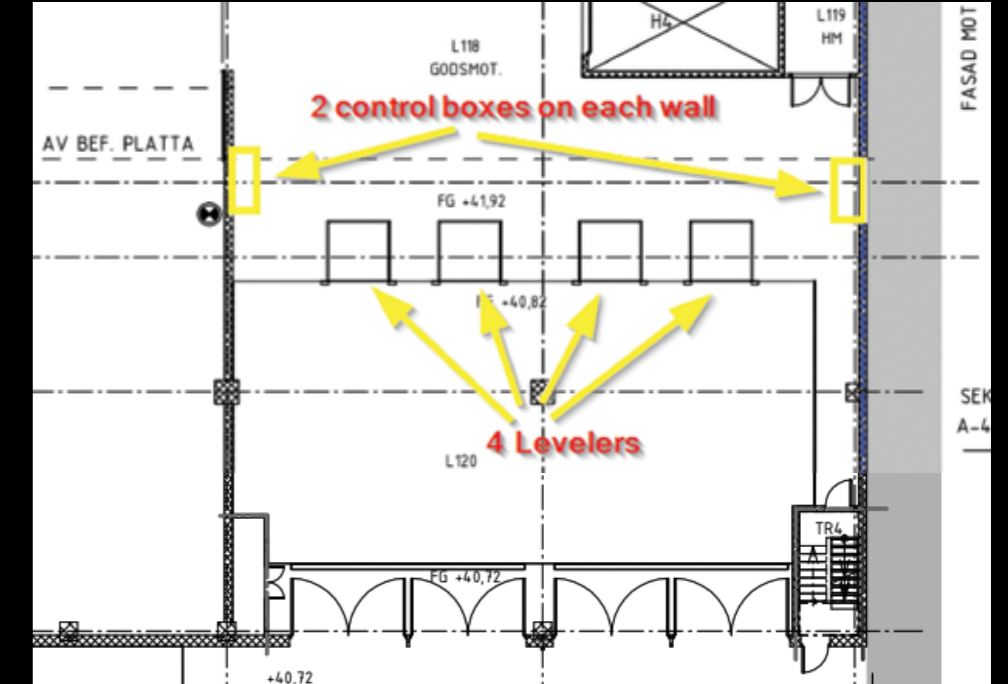


Project: **Grain dryer**
City: **Skeninge, Sweden**
Year: **2020 – present**
Type of works: **Welding / Assembly**
Type of welding: **111**
Welding position: **PB; PC; PD**





Project: **Industrial and Commercial doors / Loading dock equipment**
 City: **Stocholm/ Malmö/ Göteborg, Sweden**
 Year: **2020 – present**
 Type of works: **Assembly**
 Type of welding: **136/135/111**





Project: **Repair works**
 City: **Kiruna, Sweden**
 Year: **2020 – present**
 Type of works: **Welding / Assembly**
 Type of welding: **136/135/111**
 Welding position: **PB; PC; PD**

ŠUVES SAGATAVOŠANAS ELEMENTI (SKICE)*:

| Savienojuma zīmējums | | Metināšanas secība | | | | | | |
|----------------------|---------|--------------------------------|----------------------|---------------|-------------------------|---------------------------------|-------------------------------------|--|
| | | | | | | | | |
| Metināšanas režīmi | | | | | | | | |
| Gājiens | Process | Piedevas materiāla izmērs [mm] | Strāvas stiprums [A] | Spriegums [V] | Strāvas tips/polaritāte | Stieples padeves ātrums [m/min] | Gājiena garums/ātrums ²⁾ | Siltuma enerģija uz garuma vienību ³⁾ [kJ/mm] |
| 1 | 111 | 3,2 | 90-130 | 21 -24 | DC(+) | — | — | — |

7 Welding Process: 136 (MAG welding) Parent Material Specification: Steel group No. 1
 8 Joint Type: FW (fillet weld) acc. to CEN ISO/TR 15608 (steel with min R₄₁ ≤ 355 N/mm²)
 9 Welding Position: PB, PD, PF acc. to EN ISO 6947 Material Thickness t, [mm]: t₁=8,8; t₂=8,8
 10 Joint preparation: (according to EN ISO 9692-1: 2013 point 3.1.2.) Outside Pipe Diameter D, [mm]: —
 11 Gap between workpieces b, [mm]: b=0 + 2

12 WELD PREPARATION DETAILS (SKETCH)*:

| Joint Design | Welding sequence |
|--------------|------------------|
| | |

14 WELDING DETAILS

| Run | Welding Process | Size of Filler Material, [mm] | Current, [A] | Voltage, [V] | Type of current / Polarity | Wire Feed Speed, [m/min] | Run-out length / Travel speed [mm/min] ¹⁾ | Heat input ³⁾ [kJ/mm] |
|-----|-----------------|-------------------------------|--------------|--------------|----------------------------|--------------------------|--|----------------------------------|
| 1 | 136 | 1,2 | 230 ÷ 240 | 26 ÷ 28 | DC / + | 10,0 ÷ 11,0 | 232 ÷ 346 | 0,83 ÷ 1,39 |
| 2 | 136 | 1,2 | 200 ÷ 220 | 23 ÷ 25 | DC / + | 8,0 ÷ 9,0 | 183 ÷ 257 | 0,86 ÷ 1,44 |

"Certification Centre" Ltd
 SPECIALIST CERTIFICATION CENTRE
 WELDER QUALIFICATION TEST CERTIFICATE

EN ISO 9606-1 136 P FW FM1 P s10 PB ml
 SC – M – 0237/2021

136-4, 136-5

Māris Draulis

PASSPORT

Latvia, 25.12.1974

"VLAVI SWE" Ltd.

EN ISO 9606-1: 2017

Acceptable/ not tested (Delete as necessary)

Yes / No (Delete as necessary)

| | TEST PIECE | RANGE OF QUALIFICATION |
|---------------------------------------|------------|------------------------|
| 15 Welding process (es) | 136 | 136 |
| 16 Product type (plate or pipe) | P | T, P |
| 17 Transfer mode | - | - |
| 18 Type of weld | FW | FW |
| 19 Parent material group(s)/subgroups | 1.1 | - |
| 20 Filler material group(s) | FM1 | FM1, FM2 |
| 21 Filler material (Designation) | P | R, P, V, W, Y, Z |
| 22 Shielding gas | M21 | - |
| 23 Auxiliaries | - | - |
| 24 Type of current and polarity | DC/+ | DC/+ |
| 25 Material thickness [mm] | 10.0 | ≥ 3.0 |
| 26 Deposited thickness [mm] | - | - |
| 27 Outside pipe diameter [mm] | - | ≥ 75.0 |
| 28 Welding position | PB | PA, PB |
| 29 Weld details | ml | sl, ml |

Examining Body:
 CERTIFICATION CENTRE Ltd
 SPECIALIST CERTIFICATION CENTRE
 Location: Aptiekas street 150b, Riga

Date of issue: 10.05.2021
 Name, Surname and Signature of Surveyor: A. Saufitis

Date of Welding: 2518 03.05.2021

| Revalidation 9.3 a) | Valid until: 02.05.2024 | Revalidation 9.3 b) | Revalidation 9.3 c) |
|---------------------|-------------------------|---------------------|---------------------|
| - | - | - | - |



Project: **Production of various complex metal structures**

City: **Grobiņa, Latvia**

Year: **2020**

Type of welding: **135**

Welding position: **PA; PB; PF**

WELDING PROCEDURE SPECIFICATION (WPS)
(EN ISO 15609-1:2004)

| | | |
|------------------------------------|--|--|
| 1) Manufacturer: Raibūts | 6) Welding Process: Metināšanas process | 135 (MAG) EN ISO 4063 |
| 2) Location: Atvēršanas vieta | 7) Parent Material Specification: Pamateriāla specifikācija | S355, EN 10025 1.2, EN 15608 |
| 3) WPS No.: WPS Nr. | 8) Parent Metal Thickness(mm): Sagataves biezums | 135-FW-a12i-C EN ISO 15609-1 11A2 ≥ 10 |
| 4) WPQR No.: WPQR Nr. | 9) Welding position: Metināšanas stāvoklis | RK-M-016/16 EN ISO 15614-1 PA, PB EN ISO 6947 |
| 5) Joint type: Savienojuma tips | 10) Method of preparation/cleaning: Sagatavošanas / atīrīšanas metode | FW machining Sagatavošanas / atīrīšanas metode |

11) Weld Preparation Details
Saves sagatavošanas detaļas

| Joint Design Savienojuma skice EN ISO 9002 | Welding Sequence Metināšanas secība |
|--|--|
| | |

12) Welding Details
Metināšanas detaļas

| Run Gājiens | Process Process | Filler Metal Size Pildvielas materiāla izmērs (mm) | Current Stāvas strāvas (A) | Voltage Spriegums (V) | Current type, Polarity Strāvas tips, polaritāte | Wire Feed Speed Stiepļu ātrums (mm / min) | Welding Speed Metināšanas ātrums (mm / min) | Heat Inp Ietilpums enerģija (kJ/mm) |
|----------------|--------------------|--|-------------------------------------|-----------------------------|--|---|---|--|
| 1-6 | 135 | 1.2 | 250 - 330 | 26 - 32 | DC+ | 8 - 13 | 300 - 450 | 1.0 - 1.5 |

13) Filler Metal:
Pildvielas metāls

Ø 1.2, GAS1
EN 14341-A-G 46 4 M

14) Shielding / Backing Gas:
Aisargāze / Formējola gāze

AGA MISON 8
EN 14175, M20

15) Shielding Gas Flow Rate:
Aisargāzes plūsmas ātrums

12-15 l/min

18) Interpass Temperature:
Starpģēnu temperatūra

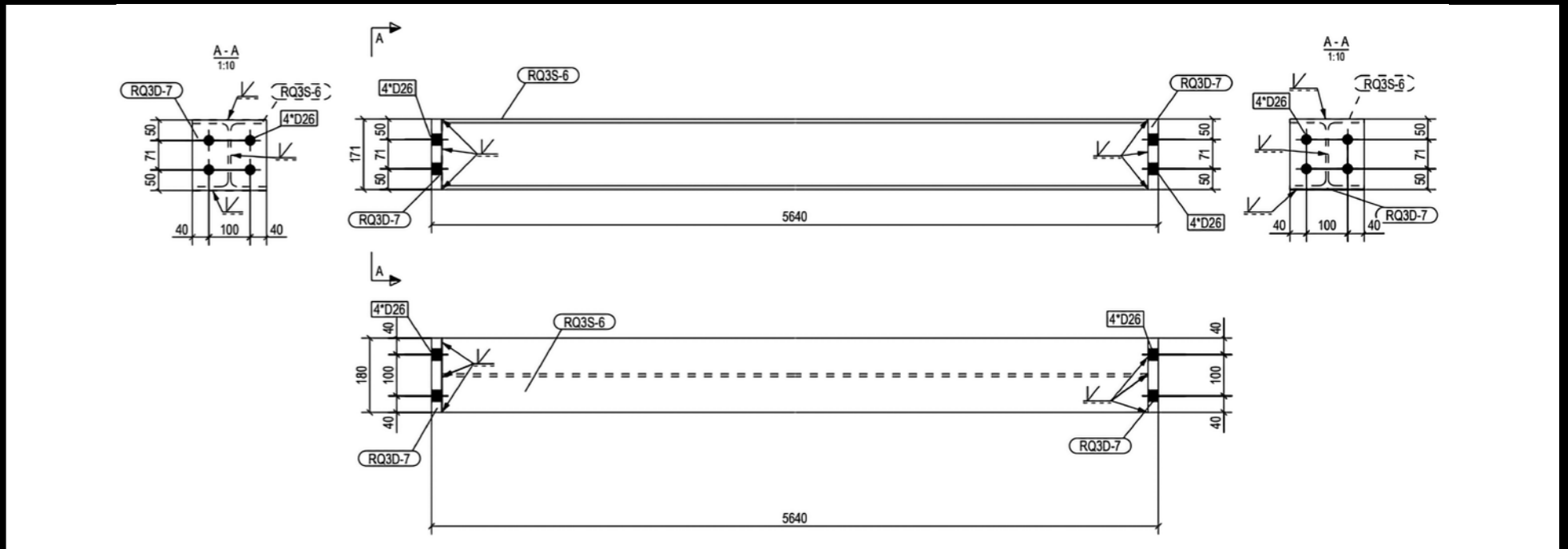
Starpģēnu temperatūra:
EN 1011-2

19) Post Weld Heat Treatment:
Termiska apstrāde pēc metināšanas

n/a

20) Details of Back Googing/Backing:
Saves apstrāde; pulkšņi

ml





Project: **Welding and assembling of metal construction**
 City: **Borlänge, Sweden**
 Year: **2020**
 Type of welding: **111**
 Welding position: **PB; PA; PD**

WELDING PROCEDURE SPECIFICATION (WPS)
 (EN ISO 15609-1:2019)

1) Manufacturer: Rabelex
 2) Location: Drimara iela 19, Līdžiņa, Latvija
 3) WPS No.: 111-FW2_30-4-2
 WPS No.: EN ISO 15609-1
 4) WPQR No.: Q-135-FWS; WPQR R8-M-43478
 WPQR No.: EN ISO 15644-1
 5) Joint type: FW
 Savienojuma tips

6) Welding Process: 111 (MMA)
 Metināšanas process
 7) Parent Material Specification: S235-S355, EN 10025
 Pamateriāla specifikācija
 8) Parent Metal Thickness(mm): 11-30
 Sugāzuma biezums
 9) Welding position: PB; PD; PF
 Metināšanas stāvoklis
 10) Method of preparation/cleaning: machining
 Sagatavošana / attīrīšanas metode

11) Weld Preparation Details
 Savienojuma sagatavošanas sīkums

| Run | Process | Filler Metal | Current | Voltage | Current type | Wire Feed | Welding | Heat Input |
|-------|---------|----------------------------|--------------------|---------------|-------------------------|--------------------------|----------------------------|-----------------------------|
| Grupa | Procesa | Plūsmas metāla izmērs (mm) | Saitas stipums (A) | Sprauguma (V) | Saitas tipa, polaritāte | Stiepuma ātrums (mm/min) | Metināšanas ātrums (kJ/mm) | Ieviešanas enerģija (kJ/mm) |
| 1 | 111 | E42 4 B 42 H5 | 100-140 | 18-32 | DC- | - | 140-180 | 0,8-1,8 |

12) Welding Details
 Metināšanas sīkums

13) Filler Metal: E42 4 B 42 H5
 Plūsmas metāls
 EN ISO 2560-A

14) Shielding / Backing Gas: n/a
 Aizsarggāze / Formējuma gāze

15) Shielding Gas Flow Rate: n/a
 Aizsarggāzes plūsmas ātrums

16) Backing Gas Flow Rate: n/a
 Formējuma gāzes plūsmas ātrums

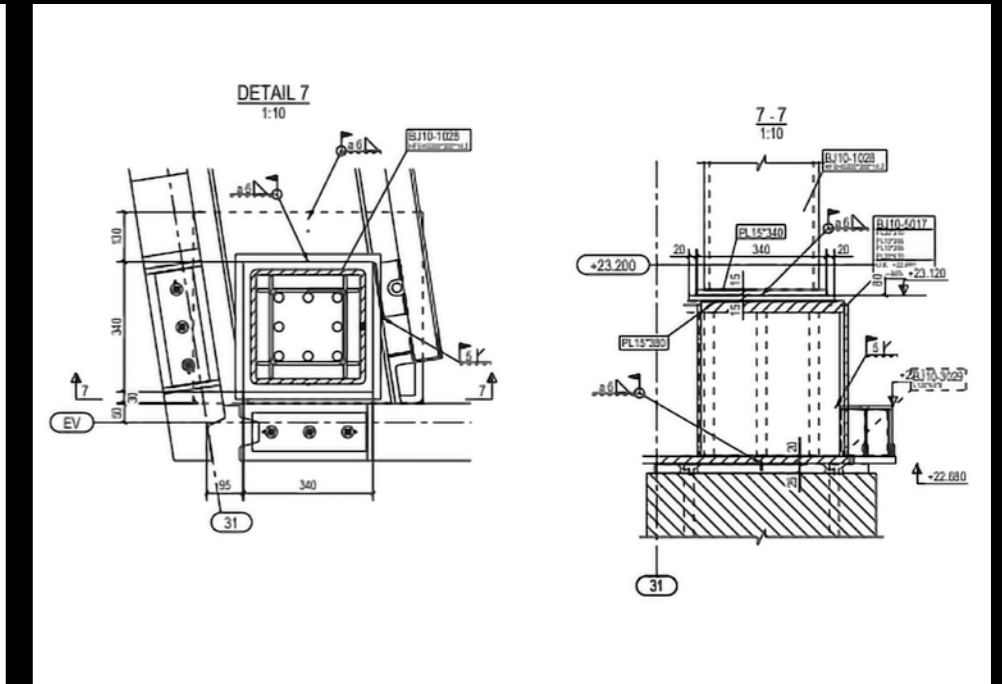
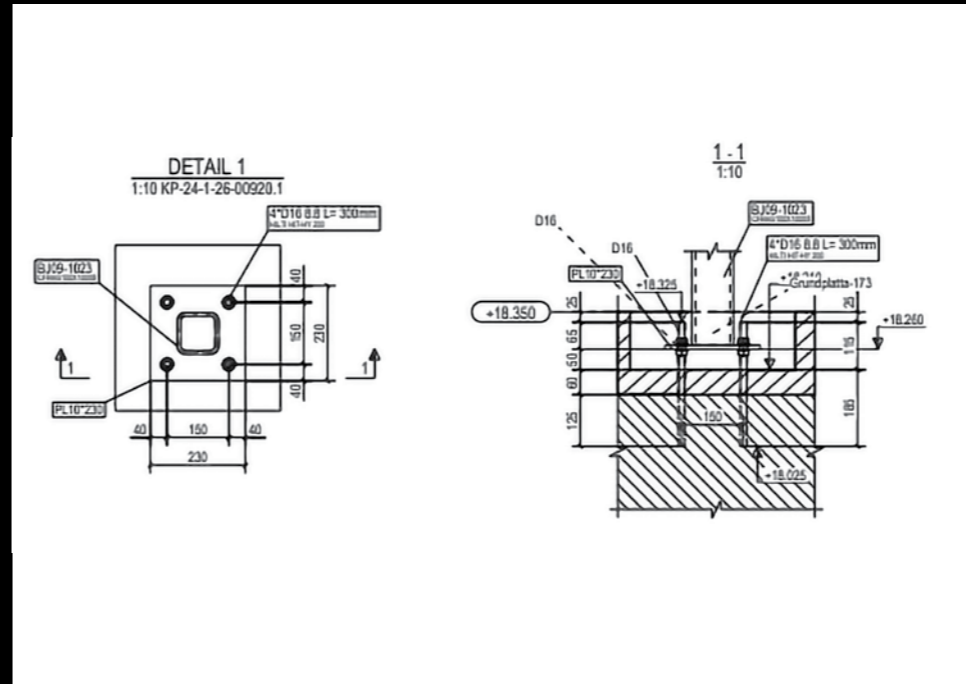
17) Preheat Temperature: min 5°C
 Iepriekšējais uzsildīšanas temper.

18) Interpass Temperature: n/a
 Starpgāzuma temperatūra

19) Post Weld Heat Treatment: n/a
 Termiska apstrāde pēc metināšanas

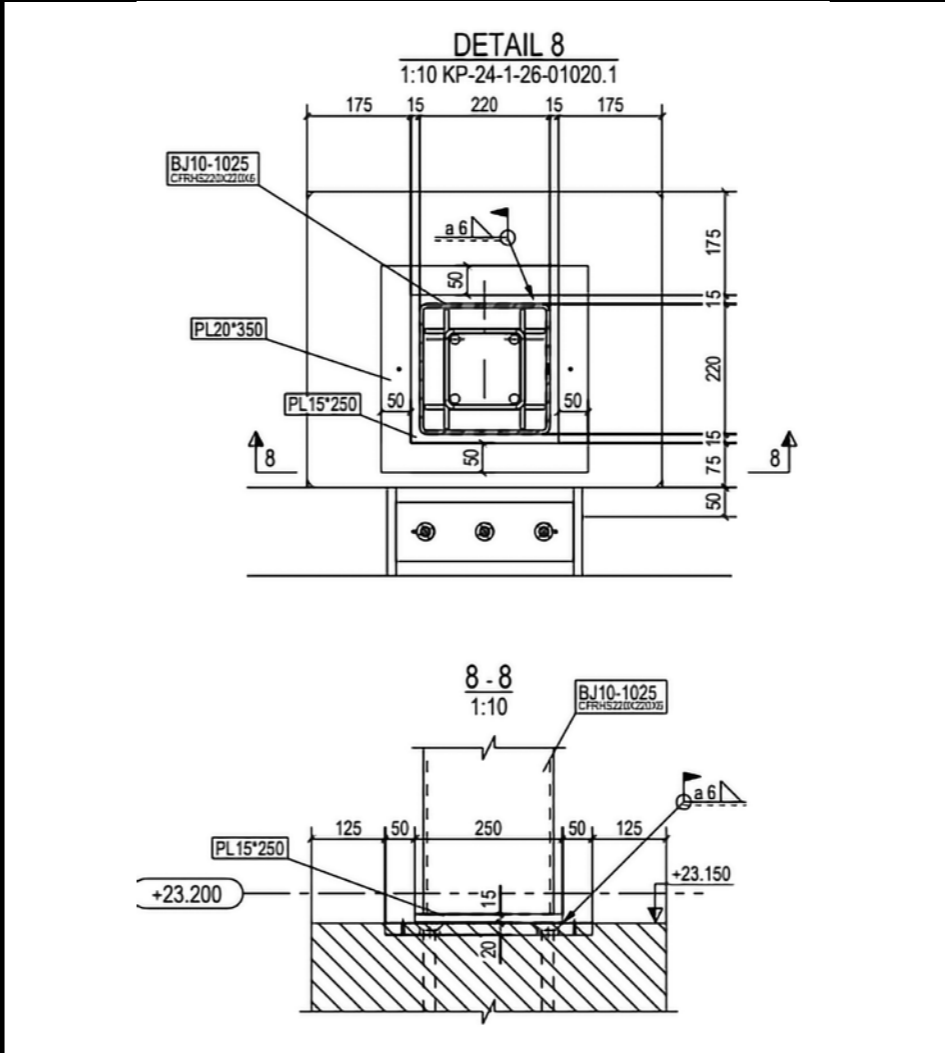
20) Details of Back Gouging/Backing: n/a
 Saknes apstrāde, pakļaušana

21) Electrode drying temperature, time: 350°C, 2 hours
 Elektroda žāvēšanas temperatūra, laiks





Project: **Welding and assembling of metal constructions / Hotel**
 City: **Göteborg, Sweden**
 Year: **2020**
 Type of welding: **111**
 Welding position: **PB; PA; PD; PC**



1 WELDING PROCEDURE SPECIFICATION (WPS)
2 (in accordance with the standard EN ISO 15609 - 1:2005)

3 Location: _____
 4 Manufacturer's WPS No.: **U-T-029-01/19**
 5 Manufacturer's WPQR No.: **WPQR 1** Method of Preparation and Clearing: _____
 6 Manufacturer: **SIA** Method of Preparation and Clearing: **Milling, brushing and / or grinding**
 7 Welding Process: **111 (MMA welding)** Parent Material Specification: **steel subgroup No. 1.1 and 1.2**
 8 Joint Type: **BW (butt weld)** according to **CEN ISO/TR 15608 (carbon steel)**
 9 Welding Position: **PA; PE; PF acc. to EN ISO 6947** Material Thickness t, (mm): **t₁=10.0±12.0; t₂=14.0±16.0**
 10 Joint preparation: **K (according to EN ISO 9692-1: 2013 point 2.9.1)** Outside Pipe Diameter D, (mm): _____
 11 Gap between workpieces b, (mm): **b = 1.0 + 3.0**

12 WELD PREPARATION DETAILS (SKETCH)?:

13

| Joint Design | | Welding sequence | |
|--------------|--|------------------|--|
| | | | |

14 WELDING DETAILS

| Run | Welding Process | Size of Filler Material, (mm) | Current, [A] | Voltage, [V] | Type of current / Polarity | Wire Feed Speed, (mm/min) | Run-out length / Travel speed (mm/min) ¹⁾ | Heat input ²⁾ [KJ/mm] |
|------|-----------------|-------------------------------|--------------|--------------|----------------------------|---------------------------|--|----------------------------------|
| 1; 2 | 111 | 3.2 | 105 + 125 | 22 + 24 | DC / + | --- | 90 + 110 | 1.01 + 1.60 |
| 3; 4 | 111 | 3.2 | 105 + 125 | 22 + 24 | DC / + | --- | 100 + 130 | 0.85 + 1.44 |

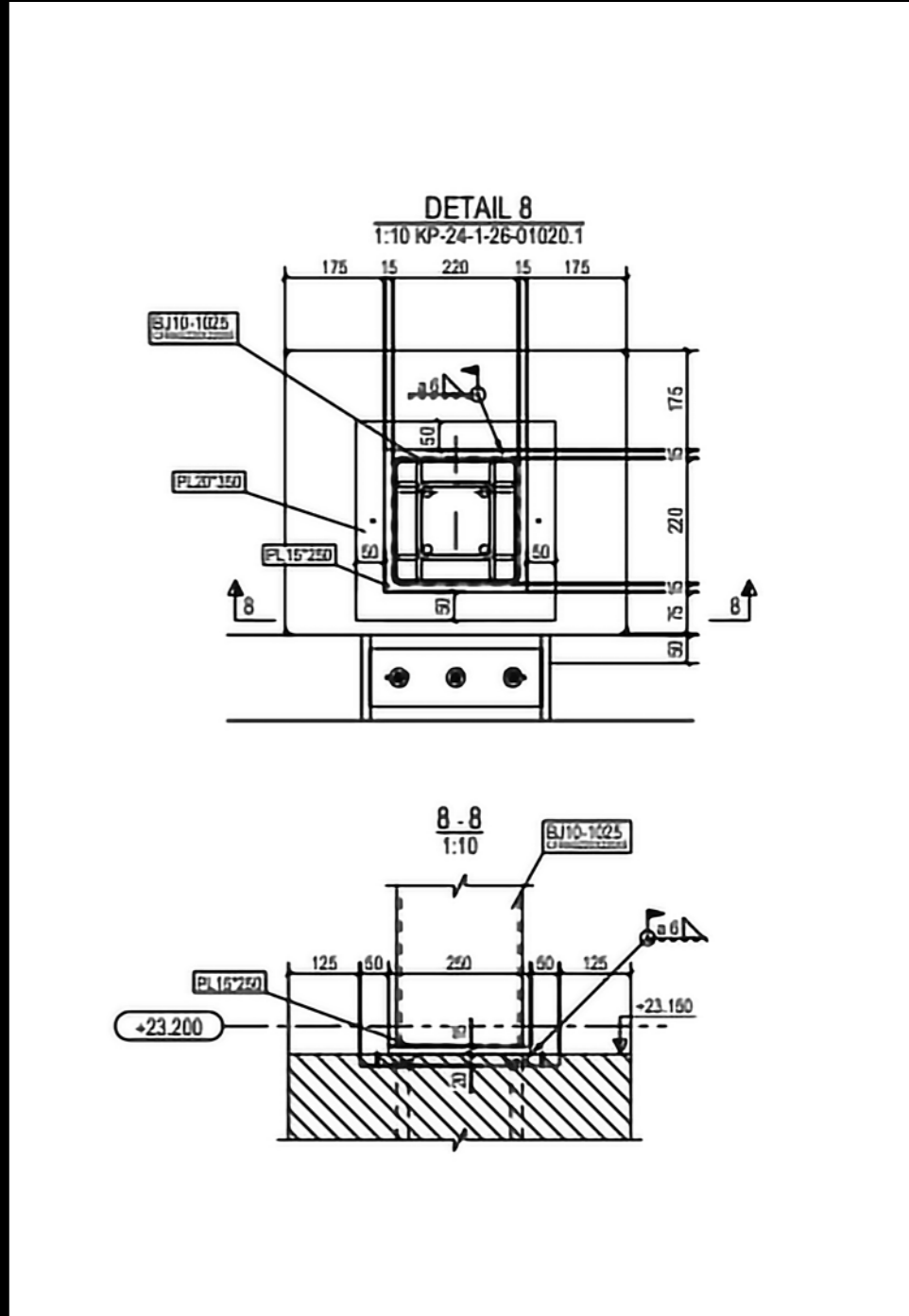
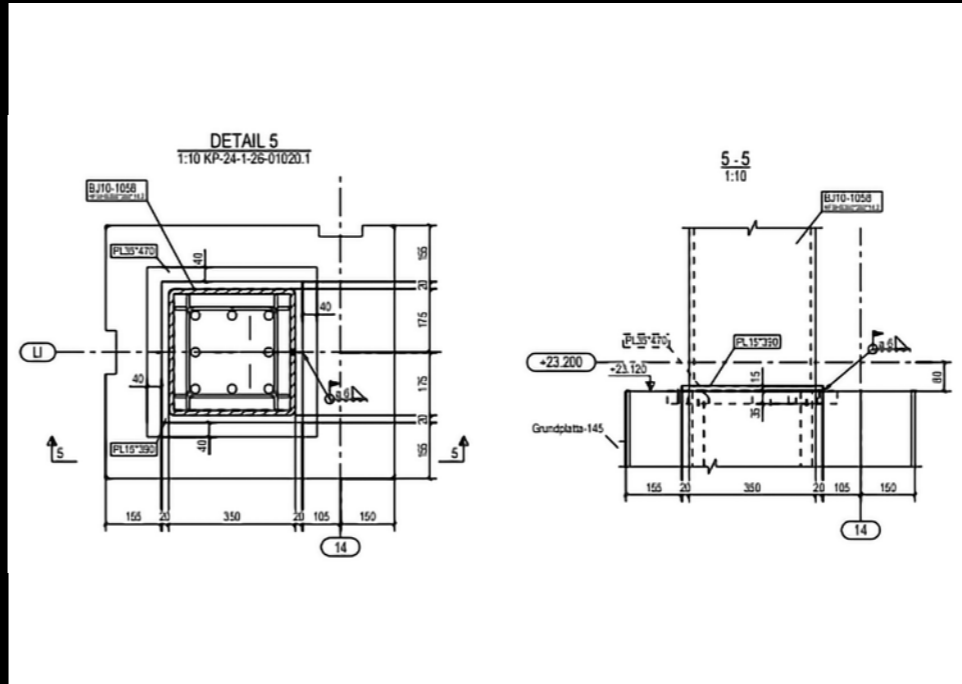
16 Filler Material for Root Run: _____
 17 Designation: **LVS EN ISO 2560-A E 42 5 B 42 H5**
 18 Trademark and Make: **OK 48.00 (ESAB)**
 19 Any Special Baking or Drying: **350 °C, 2 h.**
 20 Shielded Gas / Flux: _____
 21 Shielded: _____
 22 Backing: _____
 23 Gas Flow Rate: _____
 24 Shielded: _____
 25 Backing: _____
 26 Tungsten Electrode Type / Size: _____
 27 Details of Back Gouging / Backing: **bs**
 28 Preheat Temperature: **Min + 0°C**
 29 Interpass Temperature: **Max +150°C**

Other information ^{1), 4), 6), 8):}
 Weaving (maximum width of run): **10.0 mm**
 Oscillation: amplitude, frequency, dwell time: _____
 Distance contact tube / work piece: _____
 Nozzle diameter: _____
 Number of wire electrodes: _____
 Torch angle: _____
 Mode of metal transfer: _____
 The lowest work piece temperature immediately prior to welding without pre-heating, °C: _____
 Filler Material for Interpass and Face Runs: _____

DETAIL 7
 1:10



Project: **Civil engineering project building houses / Skiing resort**
 City: **Sälen, Sweden**
 Year: **2020**
 Type of welding: **111**
 Welding position: **PB; PA; PD**





Project: **Welding and assembling of metal constructions**
 City: **Stocholm, Sweden**
 Year: **2020**
 Type of welding: **111**
 Welding position: **PB; PC; PD**

WELDING PROCEDURE SPECIFICATION (WPS)
(EN ISO 15609-1:2019)

1) Manufacturer: **Rabotilo**
 2) Location: **Drottning Inga 17, Långå, Lättå**
 3) WPS No.: **111-TB12-36-1**
 4) WPS No.: **EN ISO 15609-1**
 5) WPS No.: **Q-125-BW12, Q-125-BW20**
 6) WPS No.: **EN ISO 15609-1**
 7) Joint type: **TBW**

4) Welding Process: **Metalinon prosess**
 5) Parent Material Specification: **EN ISO 4063**
 6) Parent Metal Thickness: **11,12, EN 1008**
 7) Parent Metal Thickness: **11-19-40; 12-13-15**
 8) Parent Metal Thickness: **11-19-40; 12-13-15**
 9) Welding position: **PB, PA**
 10) Method of preparation/conditioning: **metallizing**

11) MMA
 12) EN ISO 4063
 13) EN ISO 4063
 14) EN ISO 4063
 15) EN ISO 4063
 16) EN ISO 4063
 17) EN ISO 4063
 18) EN ISO 4063
 19) EN ISO 4063
 20) EN ISO 4063
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 97) EN ISO 4063
 98) EN ISO 4063
 99) EN ISO 4063
 100) EN ISO 4063

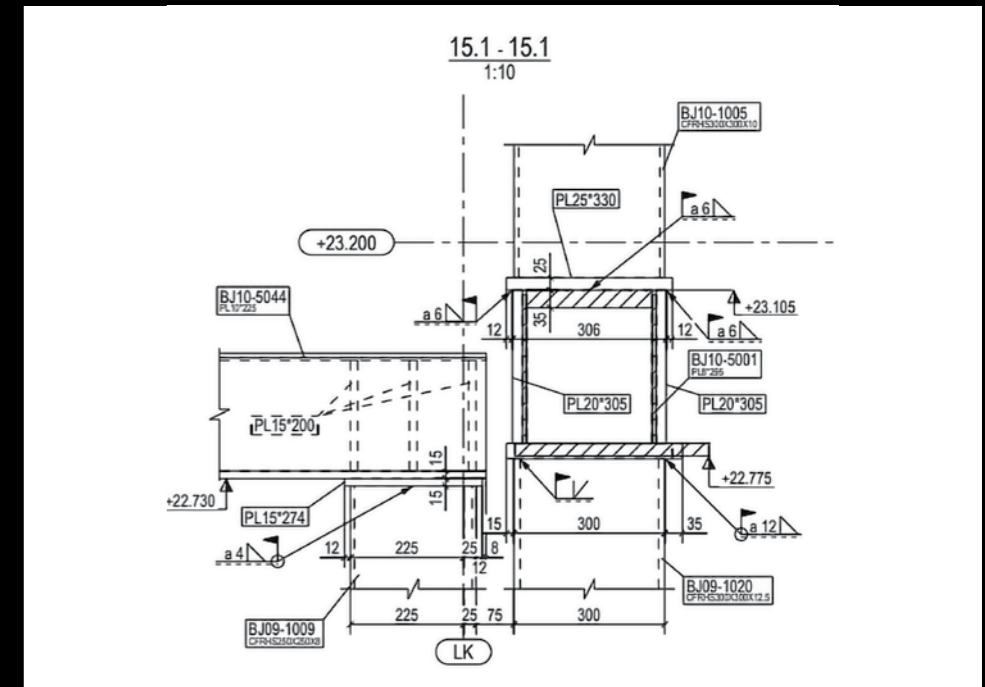
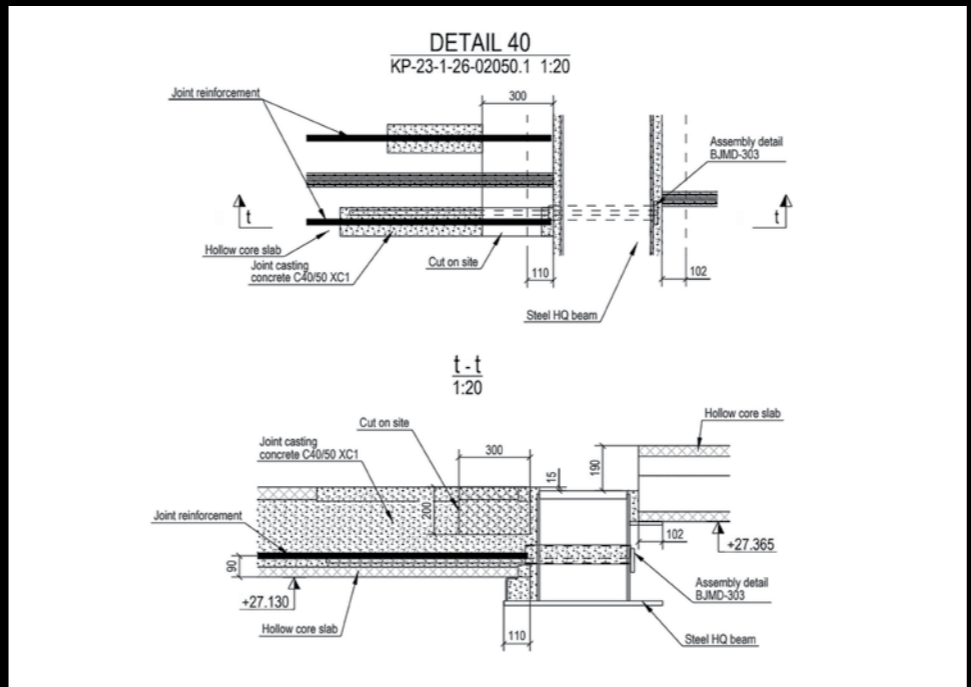
11) Weld Preparation Details: **Joint Design: EN ISO 10077**

12) Welding Details: **Metallinon prosess**

| Run | Process | Filler Metal | Current | Current type | Wire Feed | Welding | Heat Input |
|---------|---------|--------------|---------|--------------|-----------|----------|------------|
| Officer | Process | Size | Value | Value | Speed | Speed | Value |
| 1 | III | EN ISO 10077 | (V) | (A) | (mm/min) | (mm/min) | (kJ/cm) |
| 1 | III | EN ISO 10077 | 18-22 | DC- | 18-22 | 18-22 | 18-22 |
| 2 | III | EN ISO 10077 | 18-22 | DC- | 18-22 | 18-22 | 18-22 |

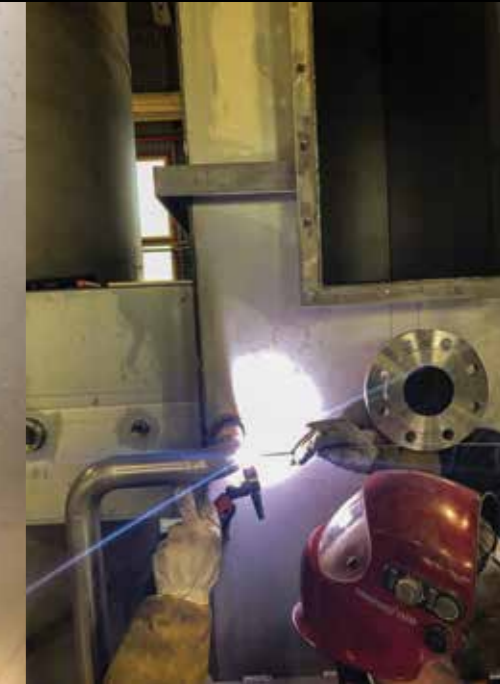
13) Filler Metal: **E42 4 B 42 HS**
 14) Shielding / Backing Gas: **EN ISO 2560-A**
 15) Shielding Gas Flow Rate: **EN ISO 2560-A**
 16) Backing Gas Flow Rate: **EN ISO 2560-A**
 17) Preheat Temperature: **EN ISO 2560-A**

18) Interpass Temperature: **EN ISO 2560-A**
 19) Electrode drying temperature: **EN ISO 2560-A**
 20) Details of Back Gouging Backing: **EN ISO 2560-A**
 21) Electrode drying temperature: **EN ISO 2560-A**
 22) Preheat Temperature: **EN ISO 2560-A**





Project: **Production of vessel**
 City: **Helsingborg, Sweden**
 Year: **2020**
 Type of welding: **136/141**
 Welding position: **PB; PF; PC**



TUV NORD

WELDER'S QUALIFICATION TEST CERTIFICATE Page 1 of 2

1 Designation: EN ISO 9806-1 136 P BW FMS P s12 PF ss mb
 2 Examining Body: "TUV Nord Baltia" TE Ltd Personal certification centre
 3 Certificate No: TNB PSC - MI - 170720664E Notified Body number: 1409
 4 Welding Procedure Specification (WPS) No: 136/1082-1, 136/1082-2
 5 Welder's name, surname: Nikolajs Kovatcuks
 6 Identification: Passport
 7 Date and place of birth: Republic of Belarus, 28.08.1977
 8 Employer:
 9 Code / Testing Standard: LVS EN ISO 9806-1:2014
 10 Supplementary test work (112 PB s1): Acceptable / not tested (Others as necessary)
 11 Job knowledge: Acceptable / not tested (Others as necessary)
 12 TEST PIECE RANGE OF QUALIFICATION

| 13 | TEST PIECE | RANGE OF QUALIFICATION |
|----|------------|------------------------|
| 14 | 136 | 136 |
| 15 | 141 | 141 |
| 16 | 141 | 141 |
| 17 | 141 | 141 |
| 18 | 141 | 141 |
| 19 | 141 | 141 |
| 20 | 141 | 141 |
| 21 | 141 | 141 |
| 22 | 141 | 141 |
| 23 | 141 | 141 |
| 24 | 141 | 141 |
| 25 | 141 | 141 |
| 26 | 141 | 141 |
| 27 | 141 | 141 |
| 28 | 141 | 141 |
| 29 | 141 | 141 |
| 30 | 141 | 141 |
| 31 | 141 | 141 |
| 32 | 141 | 141 |
| 33 | 141 | 141 |

34 Additional information is available on attached sheet and / or welding procedure specification No: 136/1082-1, 136/1082-2
 35 Examining Body: "TUV Nord Baltia" TE Ltd
 36 Type of tests: Performed and accepted / Not tested
 37 Visual testing (BW FMS) X
 38 Radiographic testing X
 39 Ultrasonic testing X
 40 Hardness test X
 41 Macroscopic examination X
 42 Metallographic examination X
 43 Mechanical testing X
 44 Hydrostatic testing X
 45 Penetration testing X
 46 Tensile testing X
 47 Compressive testing X
 48 Bending testing X
 49 Impact testing X
 50 Charpy testing X
 51 Torsion testing X
 52 Fatigue testing X
 53 Creep testing X
 54 Corrosion testing X
 55 Other tests X

56 Issued on: 18.07.2020
 57 Valid until: 18.07.2023
 58 Signature: Nikolajs Kovatcuks
 59 Position: Welder

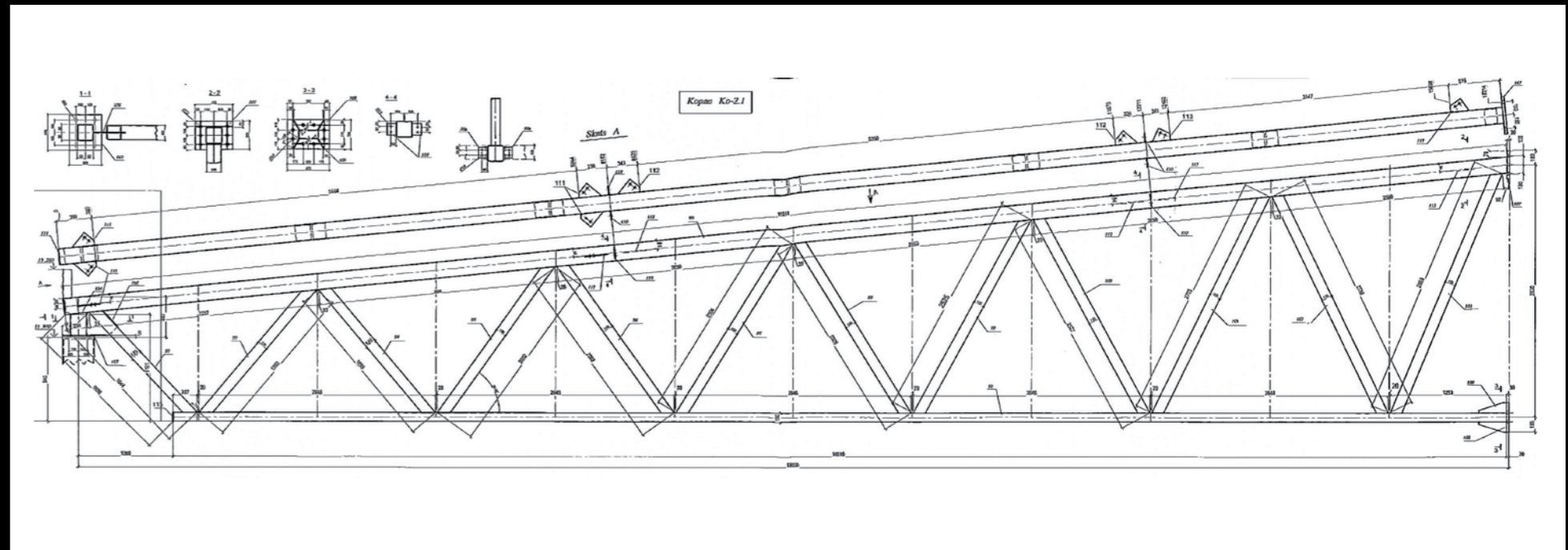
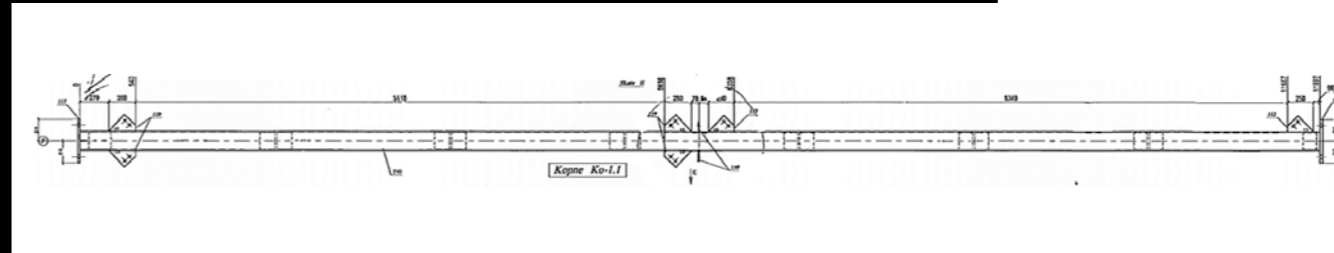
60 Only the original of this certificate or authentication copies are valid as proof of welder qualification
 61 Issuing body: "TUV Nord Baltia" TE Ltd Personal certification centre
 62 Address: "TUV Nord Baltia" TE Ltd, P.O. Box 100, SE-251 22 Helsingborg, Sweden
 63 Tel: +46 (0)40 303 0000, Fax: +46 (0)40 303 0001, E-mail: info@tuv-nord.com, www.tuv-nord.com

004303





Project: **Welding of metal constructions**
 City: **Tråvad, Sweden**
 Year: **2019 – present**
 Type of welding: **135/138**
 Welding position: **PA; PB; PC**



TUV NORD

WELDER'S QUALIFICATION TEST CERTIFICATE Page 1 of 2

1
2
3 Designation (s): EN ISO 9606-1 135 P BW FM1 S s10 PF ss nb
 4 Examining Body: "TUV Nord Baltic" TE Ltd Personal certification centre
 5 Certificate No: TNB PSC - MI - 161216/1298E Notified Body number: 1409
 6
 7 Welding Procedure Specification (WPS) No: WPS 135-004
 8 Welder's name, surname: Arturs Baginskis
 9 Identification: Passport
 10 Method of identification: Latvia, Bauska, 22.01.1985
 11 Date and place of birth: Photograph (if required)
 12 Employer: LVS EN ISO 9606-1:2014
 13 Code / Testing Standard: Acceptable / not acceptable (Delete as necessary)
 14 Supplementary fillet weld test: Acceptable / not tested (Delete as necessary)
 15 Job knowledge:

| TEST PIECE | RANGE OF QUALIFICATION |
|------------------------------------|---|
| 17 Welding process (s): | 135, 138 |
| 18 Transfer mode: | D (short-circuit), G (globular transfer), S (spray) |
| 19 Product type (sheet or pipe): | P |
| 20 Type of weld: | BW |
| 21 Parent material group/subgroup: | F45 |
| 22 Filler material group(s): | FM1, FM2 |
| 23 Filler material designation: | S, M |
| 24 Shielding gas: | Z-ArC+NG-160.03 |
| 25 Acetylene (a, backing gas): | |
| 26 Type of current and polarity: | DC / + |
| 27 Material thickness, t (mm): | 10,0 |
| 28 Designated thickness, s (mm): | 10,0 |
| 29 Outside pipe diameter, D (mm): | 3.3 - 20.3 |
| 30 Welding position: | PA, PB |
| 31 Weld details: | ss, nb, ss nb, ss nb, ss nb, ss nb |
| 32 Multi-branching test: | no |

33 Additional information is available on attached sheet and / or welding procedure specification No: WPS 135-004
 34 Examining Body: "TUV Nord Baltic" TE Ltd
 35 Type of tests:

| Type of tests | Performed and accepted | Not tested |
|----------------------------|------------------------|------------|
| 36 Visual testing | X | — |
| 37 Ultrasonic testing | X | — |
| 38 Fracture test | — | X |
| 39 Bend test | — | X |
| 40 Notch tensile test | X | — |
| 41 Macroscopic examination | X | — |

36 Location: T. Filipova
 37 Date: 28.12.2020
 38 Signature: T. Filipova
 39 Validity: 16.12.2020
 40 Validity: 15.12.2023

41 We verify that the above statements are correct and that the test piece was prepared, welded and tested in accordance with the specified order of standards.
 42 Confirmation of the validity by employer / welding coordinator /
 43 Signature / years (refer to 9.3.3)
 44 Signature body for the following 8 months (refer to 9.2, 9.3.1)



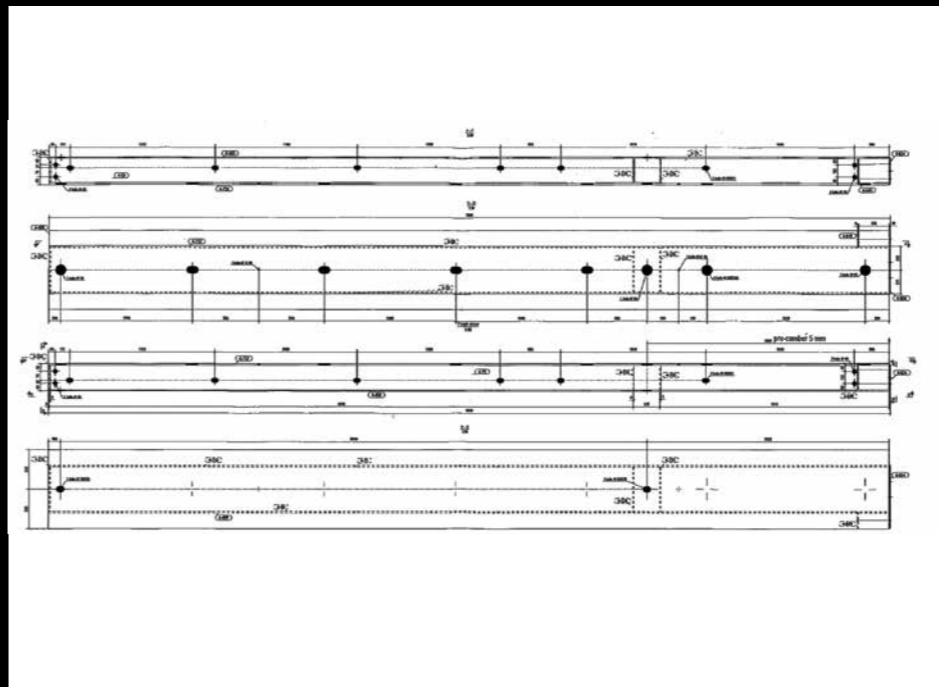
Project: **Loaders and unloaders structures**


City: **Kvänum, Sweden**

Year: **2019 – present**

Type of welding: **135/138**

Welding position: **PA; PF; PB**






EN ISO/IEC 17024:2012
03-474

"Certification Centre" Ltd
SPECIALIST CERTIFICATION CENTRE

WELDER QUALIFICATION TEST CERTIFICATE



Page 1 of 2

1
2

3 Designation (s): **EN ISO 9606-1 135 P BW FM1 S s12.0 PF ss nb
EN 9606-1 135 P FW FM1 S s10 PB sl
SC – M – 0229/2021**

4 Certificate No: **135-9; 135-1**

5 Welding Procedure Specification No: **135-9; 135-1**

6 Welder's name, surname: **Vjačeslavs Stankevičs**

7 Identification: **PASSPORT**

8 Method of identification: **Latvia, 15.10.1978**

9 Date and place of birth: **"VLAVI SWE" Ltd.**

10 Employer: **EN ISO 9606-1: 2017**

11 Testing Standard/ Code: **Acceptable/ not tested** (Delete as necessary)

12 Job knowledge: **Yes / No** (Delete as necessary)

13 Extra verification for fillet welds: **Yes / No** (Delete as necessary)

| | TEST PIECE | RANGE OF QUALIFICATION |
|---------------------------------------|-----------------------------|--|
| 15 Welding process (es) | 135 | 135, 138 |
| 16 Product type (plate or pipe) | P | P |
| 17 Transfer mode | short | all |
| 18 Type of weld | BW; FW | BW; FW |
| 19 Parent material group(s)/subgroups | 1.2 | - |
| 20 Filler material group(s) | FM1 | FM1; FM2 |
| 21 Filler material (Designation) | S | S, M |
| 22 Shielding gas | M21 | - |
| 23 Auxiliaries | - | - |
| 24 Type of current and polarity | DC/+ | DC/+ |
| 25 Material thickness [mm] | 12.0 (BW); 10.0 (FW) | ≥ 3.0 |
| 26 Deposited thickness [mm] | - | - |
| 27 Outside pipe diameter [mm] | - | - |
| 28 Welding position | PF (BW); PB (FW) | PA, PB, PF |
| 29 Weld details | ss nb | BW: ss nb, ss mb, bs, ss gb, ss fb FW: sl; ml |

30

| Type of qualification test | Performed and accepted | Not tested |
|----------------------------|------------------------|------------|
| 32 Visual testing (BW, FW) | X | - |
| 33 Ultrasonic testing (BW) | X | - |
| 34 Fracture test (FW) | X | - |
| 35 Bend test (BW) | X | - |
| 36 Notch tensile test | - | X |
| 37 Macroscopic examination | - | X |

38

| | | |
|---------------------|--------------------------------|---------------------|
| Revalidation 9.3 a) | Valid until: 02.05.2024 | Revalidation 9.3 b) |
| | | Revalidation 9.3 c) |

39 Prolongation for qualification by examining body for the following years

40 Confirmation of the validity by employer / welding coordinator for the following 6 months

Examining Body:
CERTIFICATION CENTRE Ltd
SPECIALIST CERTIFICATION CENTRE
Location: Aptiekas street 17A, Riga

Date of issue: **07.05.2021**

Name, Surname and Signature of Surveyor: **A. Saulitis**

Date of Welding: **25.18**

Date of Revalidation: **03.05.2021**

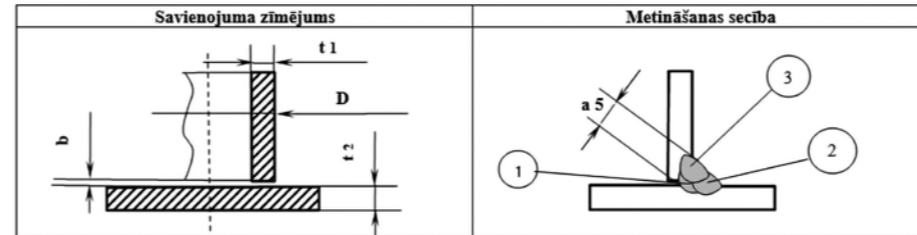


Project: **Conveyor feeder**
 City: **Kvänum, Sweden**
 Year: **2019 – present**
 Type of welding: **135/138/136**
 Welding position: **PB; PC**

METINĀŠANAS PROCESA SPECIFIKĀCIJA (WPS)
 (saskaņā ar standartu LVS EN ISO 15609-1:2005)

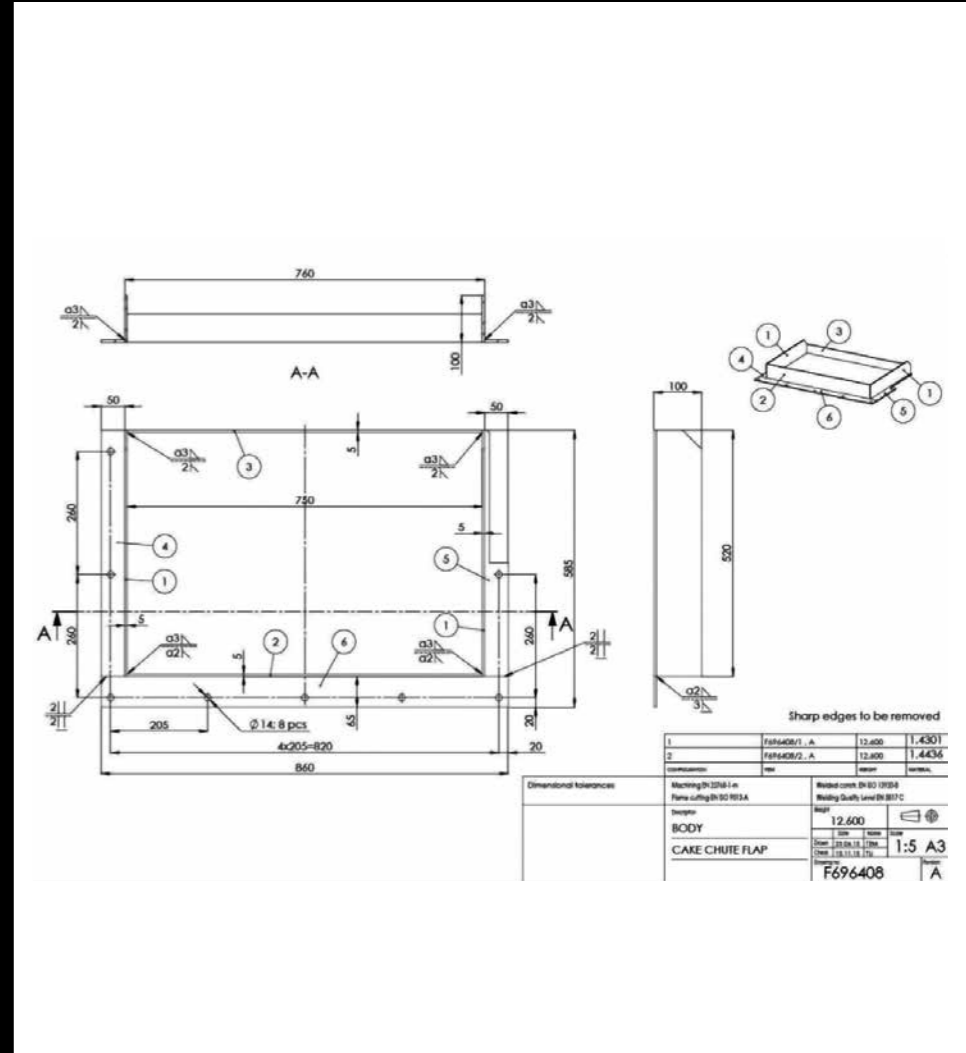
Atrašanās vieta: Meža ielā 7, Rīga, Latvija Eksaminētājs vai eksaminācijas institūcija: _____
 Ražotāja metināšanas process: WPS 135-027/11 speciālists ar EWS kvalifikāciju _____
 WPQR: WPQR-BUTS-016/07 Iepriekšējās sagatavošanas un attīrīšanas veids: _____
 Ražotājs: VLAVI SWE Lāzergriešana, slīpēšana ar slīpdisku _____
 Metināšanas process: 135 (MAG-metināšana) Pamatmateriāla specifikācija: Grupa 1 (S355J2HN)
 Savienojuma veids: FW Apakšgrupa 1.2 CEN ISO/TR 15608
 Metināšanas stāvoklis: PB Sagataves biezums t, mm: t1=6,3; t2=8,0
 Malu apstrādes veids: (saskaņā ar LVS EN ISO 9692-1:2004 punktu 3.1.1) Caurules ārējais diametrs D, mm: 60,3
 Atstarpe starp detaļām b, mm: _____

ŠUVES SAGATAVOŠANAS ELEMENTI (SKICE)²):



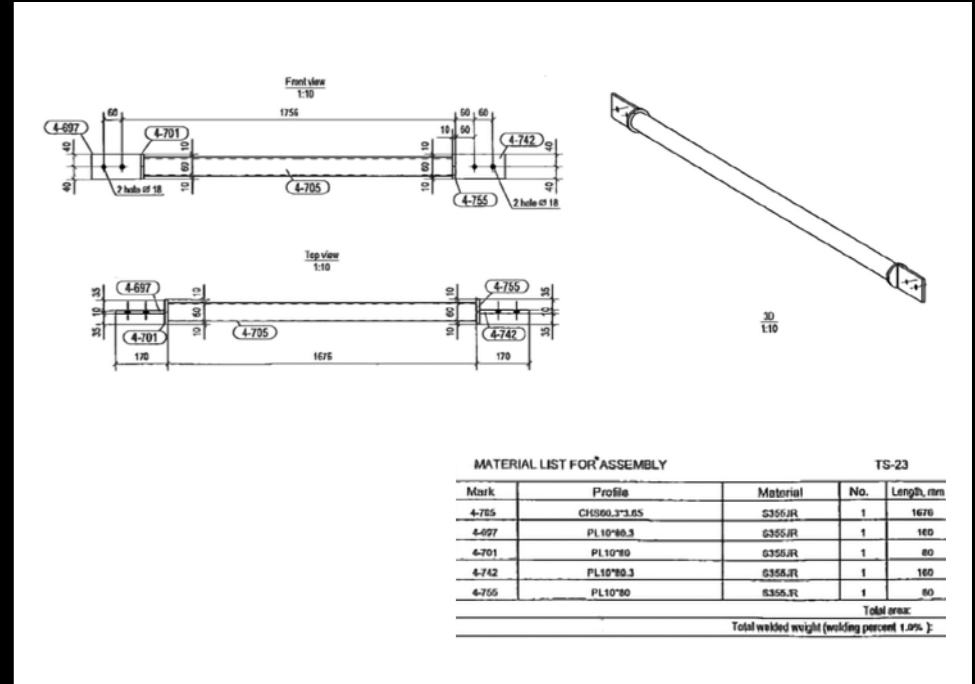
| Metināšanas režīmi | | | | | Metināšanas secība | | | |
|--------------------|---------|--------------------------------|----------------------|---------------|-------------------------|---------------------------------|-------------------------|--|
| Gājiens | Process | Piedevas materiāla izmērs [mm] | Strāvas stiprums [A] | Spriegums [V] | Strāvas tips/polaritāte | Stieples padeves ātrums [m/min] | Gājiena garums/ātrums²) | Siltuma enerģija uz garuma vienību²) [KJ/mm] |
| 1 | 135 | 1,0 | 220-230 | 26,3-26,8 | DC(+) | 12,0-12,4 | — | — |
| 2 | 135 | 1,0 | 220-230 | 26,3-26,8 | DC(+) | 12,0-12,4 | — | — |
| 3 | 135 | 1,0 | 220-230 | 26,3-26,8 | DC(+) | 12,0-12,4 | — | — |

Piedevas metāla apzīmējums: G3Si1 EN ISO 14341 Cita informācija²), piem.: _____
 un tirdzniecības nosaukums: OK AristoRod 12.50 Šķērskustība (maksimālais gājiena platums): _____
 Jēbkura speciāla karsēšana vai žāvēšana _____ Svārstības: amplitūda, frekvence, pārtraukuma laiks: _____
 Gāze / kušņi: _____
 Aizsargāšana no virspuses: MISON®25(AGA) Impulsa metināšanas elementi: _____
M21+0,03NO EN ISO 14175



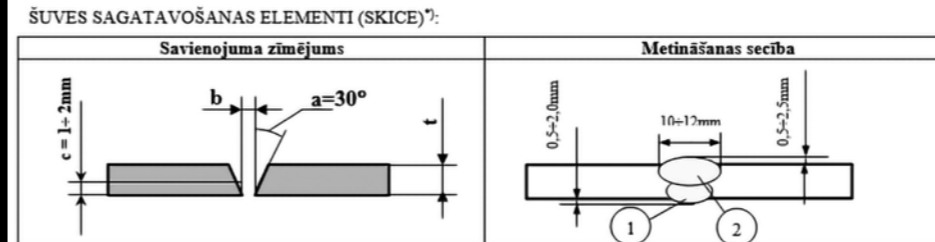


Project: **Belt conveyors**
 City: **Kvänum, Sweden**
 Year: **2019 – present**
 Type of welding: **135/138**
 Welding position: **PA; PB; PF**



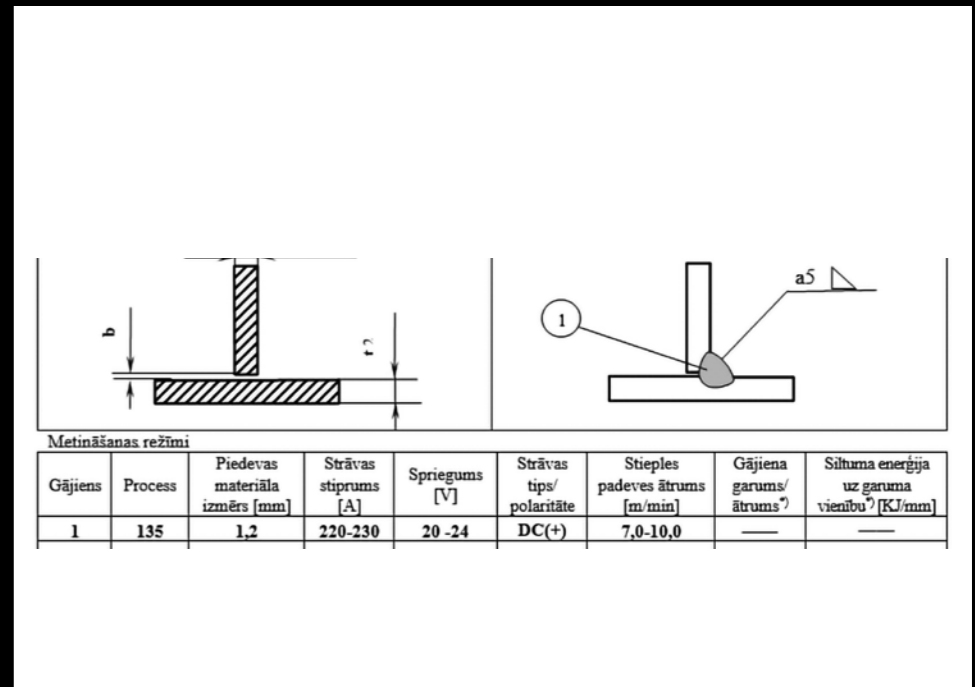
Atrašanās vieta: Meža ielā 7, Rīga, Latvija
 Ražotāja metināšanas process: WPS 135-029/11
 WPQR: WPQR-BUTS-019/08
 Razotājs: SIA "VLAVI SWE"
 Metināšanas process: 135
 Savienojuma veids: BW
 Metināšanas stāvoklis: PC
 Malu apstrādes veids: V (saskaņā ar LVS EN ISO 9692-1:2004 punktu 1.5)

Eksaminētājs vai eksaminācijas institūcija: speciālists ar EWS kvalifikāciju
 Iepriekšējās sagatavošanas un attīrīšanas veids: frēzēšana, slīpēšana
 Pamatmateriāla specifikācija: Grupa 1 (Cr.3 cn)
 Apakšgrupa 1.1 LVS CEN ISO/TR 15608:2006
 Sagataves biezums t, mm: 4,0
 Caurules ārējais diametrs D, mm:
 Atstarpe starp detaļām b, mm:



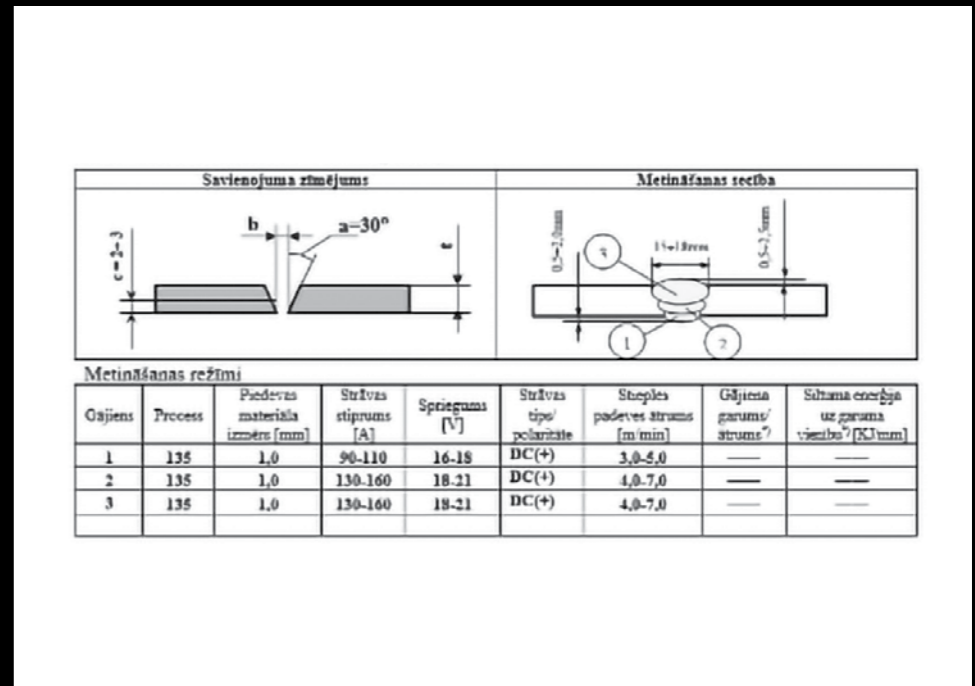
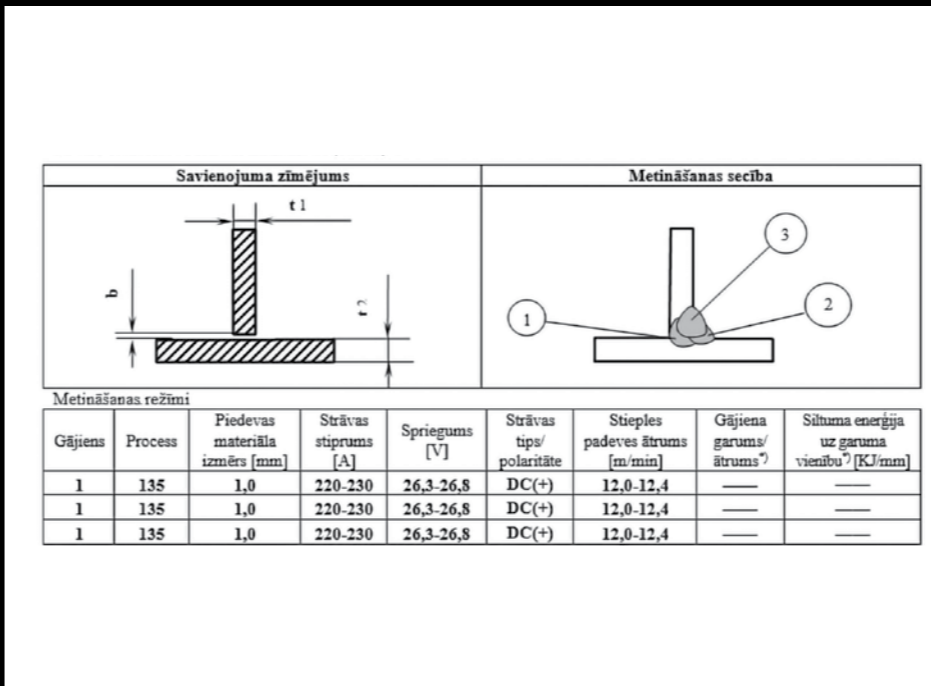
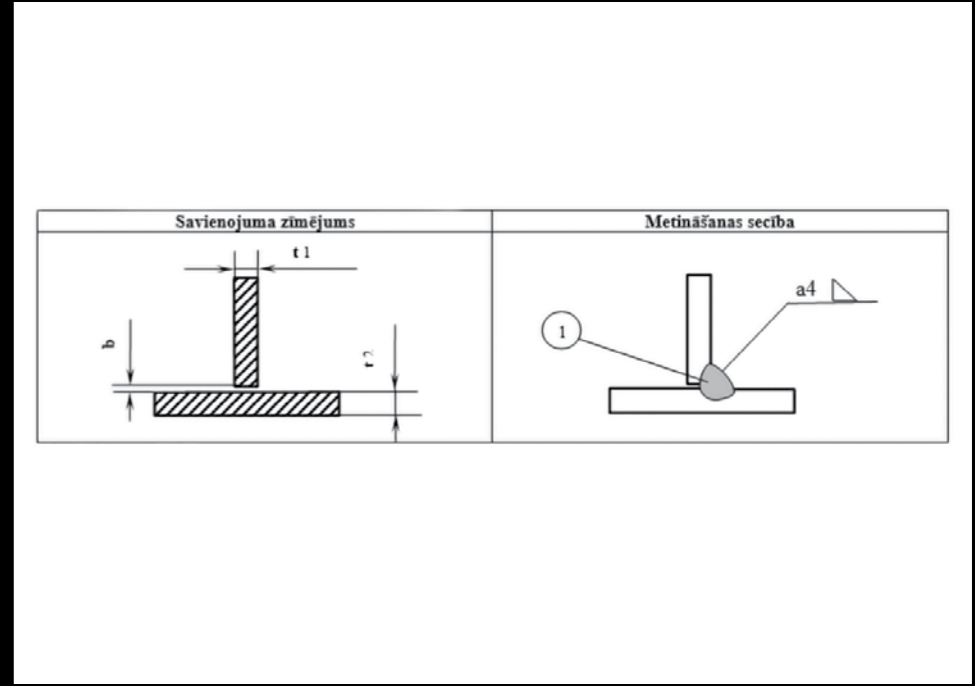
Metināšanas režīmi

| Gājiens | Process | Piedevas materiāla izmērs [mm] | Strāvas stiprums [A] | Spriegums [V] | Strāvas tips/polaritāte | Stieples padeves ātrums [m/min] | Gājiena garums/ātrums ²⁾ | Siltuma enerģija uz garuma vienību ³⁾ [KJ/mm] |
|---------|---------|--------------------------------|----------------------|---------------|-------------------------|---------------------------------|-------------------------------------|--|
| 1 | 135 | 1.0 | 90-110 | 16-18 | DC(+) | 3.0-5.0 | — | — |





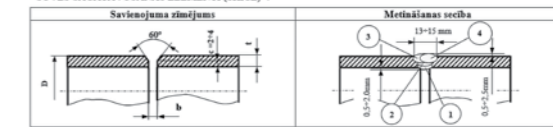
Project: **Conveyor bridges**
 City: **Kvänum, Sweden**
 Year: **2019 – present**
 Type of welding: **135/138**
 Welding position: **PA; PB; PD**





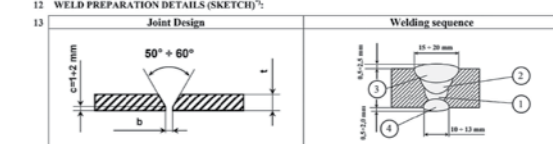
Project: **Shipbuilding**
 City: **Rostock, Germany**
 Year: **2019 – 2020**
 Type of welding: **136/138/111**
 Welding position: **PA; PB; PD; PF**

Metālašanas stāvoklis: **PA** Sagataves biezums t, mm: **12,5**
 Māls apstrādes veids: **Y (cankas) ar LVS EN ISO 159,0** Caurules ārējais diametrs D, mm:
 Atstarpe starp detaļām b, mm: **1 = 4**



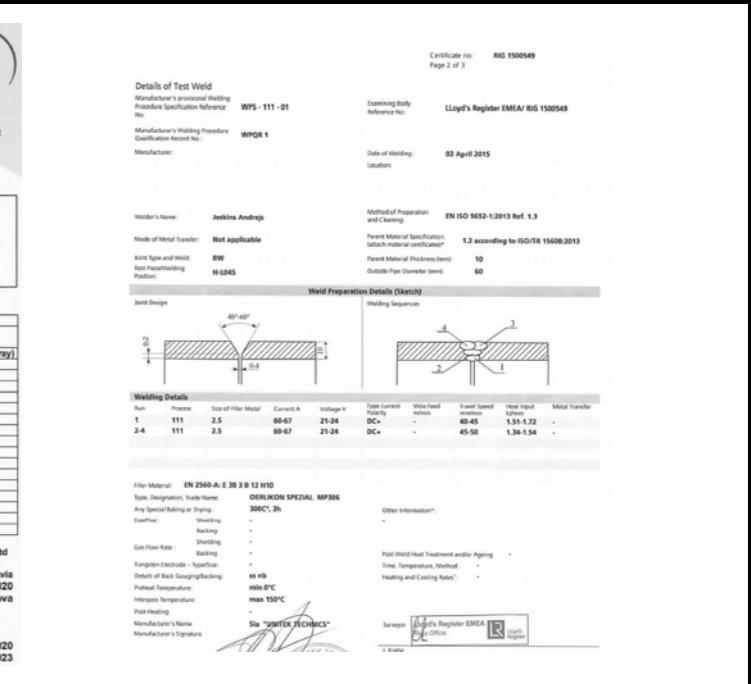
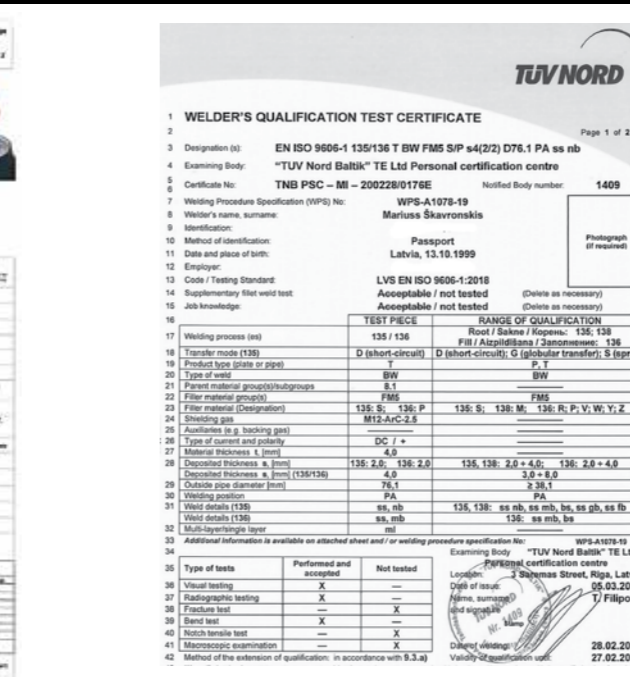
| Sliekšnis | Process | Padevas materiāla izmērs [mm] | Stāvas stiprums [A] | Spietspējas [V] | Stāvas tipa polaritāte | Stāvas spēks [A] | Stāvas ātrums [mm/min] | Sliekšņa garums [mm] | Siltuma ieviršana [kJ/mm] |
|-----------|---------|-------------------------------|---------------------|-----------------|------------------------|------------------|------------------------|----------------------|---------------------------|
| 1 | 136 | 1,2 | 110-150 | 25-37 | DC(+) | 5,8-5,8 | 146-199 | 0,36-1,44 | |
| 2 | 136 | 1,2 | 180-250 | 27-30 | DC(+) | 5,8-11,0 | 108-213 | 0,36-1,44 | |
| 3 | 136 | 1,2 | 180-250 | 27-30 | DC(+) | 5,8-11,0 | 155-213 | 0,94-1,56 | |
| 4 | 136 | 1,2 | 180-250 | 27-30 | DC(+) | 5,8-11,0 | 194-268 | 0,75-1,25 | |

7 Welding Process: **136 (MAG welding)** Parent Material Specification: **Steel group No. 1**
 8 Joint Type: **BW (butt weld)** acc. to CEN ISO/TR 15608 (steel with min R_m ≤ 355 N/mm²)
 9 Welding Position: **PF acc. to EN ISO 6947** Material Thickness t, [mm]: **12,0**
 10 Joint preparation: **V according to EN ISO 9092-1: 2013 point 2.2.2** Outside Pipe Diameter D, [mm]:
 11 Cap between workpieces b, [mm]: **b=1 ± 0,3**



14 WELDING DETAILS

| Run | Welding Process | Size of Filler Material [mm] | Current [A] | Voltage [V] | Type of current / Polarity | Wire Feed Speed [mm/min] | Travel speed [mm/min] | Heat Input [kJ/mm] |
|-----|-----------------|------------------------------|-------------|-------------|----------------------------|--------------------------|-----------------------|--------------------|
| 1 | 136 | 1,2 | 170-190 | 21-23 | DC / + | 6,5-7,5 | 146-199 | 0,36-1,44 |
| 2 | 136 | 1,2 | 190-210 | 22-24 | DC / + | 7,5-8,5 | 108-213 | 0,36-1,44 |
| 3 | 136 | 1,2 | 190-210 | 22-24 | DC / + | 7,5-8,5 | 155-213 | 0,94-1,56 |
| 4 | 136 | 1,2 | 190-210 | 22-24 | DC / + | 7,5-8,5 | 194-268 | 0,75-1,25 |





Project: Oil refinery factory
 City: Lysekil, Sweden
 Year: 2019
 Type of welding: 141/111
 Welding position: HL045; PC; PH

TUV NORD
Baltik

Page 1 of 2

1 WELDER'S QUALIFICATION TEST CERTIFICATE

2

3 Designation (s): EN ISO 9606-1 111 T BW FM5 R s02 D48.3 H-L045 ss nb

4 Examining Body: "TUV Nord Baltik" TE Ltd Personal certification centre

5 Certificate No: TNB PSC - MI - 200901/0653E Notified Body number: 1409

6 Welding Procedure Specification (WPS) No: WPS-A209-07

7 Welder's name, surname: Sergejs Ščeglovs

8 Identification: Photograph (if required)

9 Method of identification: Passport

10 Date and place of birth: Latvia, Jurmala, 1

11 Employer:

12 Code / Testing Standard: LVS EN ISO 9606-1:2018

13 Supplementary filed weld test: Acceptable / not tested (Delete as necessary)

14 Job knowledge: Acceptable / not tested (Delete as necessary)

| TEST PIECE | RANGE OF QUALIFICATION | |
|---------------------------------------|------------------------|---|
| | 111 (MMA) | 111 (MMA) |
| 17 Welding process (es) | 111 (MMA) | 111 (MMA) |
| 18 Transfer mode | | |
| 19 Product type (plate or pipe) | T | T; P |
| 20 Type of weld | BW | BW |
| 21 Parent material group(s)/subgroups | S.1 | |
| 22 Filler material group(s) | FM5 | FM5 |
| 23 Filler material (Designation) | R | Sakne / Root / Kopsens: R, Alzpildīšana / Fill / Заполнение: A, RA, RB, RC, RR, R |
| 24 Shielding gas | | |
| 25 Auxiliaries (e.g. backing gas) | | |
| 26 Type of current and polarity | DC / + | |
| 27 Material thickness t [mm] | 2.0 | |
| 28 Deposited thickness s [mm] | 2.0 | 2.0 + 4.0 |
| 29 Outside pipe diameter [mm] | 48.3 | ≥ 25.0 |
| 30 Welding position | H-L045 | PA, PC, PE, PF |
| 31 Weld details | ss, nb | ss nb, ss mb, bs, ss gb, ss fb |
| 32 Multi-layer/single layer | ml | |

33 Additional information is available on attached sheet and / or welding procedure specification No: WPS-A209-07

34 Examining Body: "TUV Nord Baltik" TE Ltd Personal certification centre
 Location: 3 Saremas Street, Riga, Latvia
 Date of issue: 04.09.2020
 Name, surname: T. Filipova
 Signature:
 Date of welding: 01.09.2020
 Validity of qualification until: 31.08.2023

| Type of tests | Performed and accepted | Not tested |
|----------------------------|------------------------|------------|
| 36 Visual testing | X | — |
| 37 Radiographic testing | X | — |
| 38 Fracture test | — | X |
| 39 Bend test | — | X |
| 40 Notch tensile test | — | X |
| 41 Macroscopic examination | — | X |

42 Method of the extension of qualification: in accordance with 9.3.a)

43 We certify that the above statements are correct and that the test pieces were prepared, welded and tested in accordance with the specified codes of standards.

Certificate no: RIG 1700548
Page 2 of 3

Details of Test Weld

Manufacturer's provisional Welding Procedure Specification Reference No: WPS - 111 - 01
 Manufacturer's Welding Procedure Qualification Record No.: WPQR 1
 Manufacturer: [Redacted]

Examining Body Reference No.: Lloyd's Register EMEA/RIG 1700548
 Date of Welding: 18 August 2017
 Location: Latvia

Welder's Name: Granta Čvengļans
 Method of Preparation and Cladding: EN ISO 9692-1:2013 Ref. 1.3

Mode of Metal Transfer: Not applicable
 Parent Material Specification (attach material certificate): 1.2 according to ISO/TR 15088:2013
 Joint Type and Weld Test Position: BW
 Parent Material Thickness (mm): 50
 Outside Pipe Diameter (mm): 80

Weld Preparation Details (Sketch)

Joint Design:

Welding Sequence:

Welding Details

| Run | Process | Size of Filler Metal | Current A | Voltage V | Type current polarity | Wire Feed mm/min | Torch Speed mm/min | Heat Input kJ/cm | Metal Transfer |
|-----|---------|----------------------|-----------|-----------|-----------------------|------------------|--------------------|------------------|----------------|
| 1 | 111 | 2.5 | 80-97 | 21-24 | DC+ | - | 40-45 | 1.51-1.72 | - |
| 2-4 | 111 | 2.5 | 80-97 | 21-24 | DC+ | - | 45-50 | 1.34-1.54 | - |

Filler Material: EN 2550-A-E 38 3 R 12 H10
 Type, Designation, Trade Name: CERLIKON SPEZIAL MF306
 Any Special baking or drying: 300 °C, 2h
 Gasflow: Shielding: -
 Backing: -
 Gas Flow Rate: Shielding: -
 Backing: -
 Tungsten Electrode - Type/Size: 99 RB
 Details of Back Cladding/Backing: ml
 Preheat Temperature: min 9 °C

Post Weld Heat Treatment and/or Aging: Time, Temperature, Method: -
 Heating and Cooling Rate: -

Certificate no: RIG 2008831
Page 1 of 2

Welder Qualification Test Certificate

EN ISO 9606-1: 2017

Designation: EN ISO 9606-1 111 T BW FM5 R s02 D48.3 H-L045 ss nb

Welding Procedure Specification Reference No: WPS - 111 - 0182
 Examining Body Reference No.: Lloyd's Register EMEA/RIG 2008831

Welder's Name: Andrejs Dubovs
 Method of identification: passport
 Date and place of birth: 02.05.1978 Riga

Employer: EN ISO 9606-1: 2017
 Code / Testing Standard: EN ISO 9606-1: 2017
 Supplementary filed weld test: Not Tested
 Job knowledge: Not Tested

Welding process(es): 111
 Transfer mode: 1
 Product type (plate or pipe): T
 Type of weld: BW (butt weld) FW (fillet weld)
 Parent material group(s)/subgroups: S.1
 Filler material group(s): FM5
 Filler material (Designation): R

Shielding gas: -
 Auxiliaries (e.g. backing gas): -
 Type of current and polarity: DC+
 Material thickness t [mm]: 2.0
 Deposited thickness s [mm]: 2.0
 Outside pipe diameter [mm]: 48.3
 Welding position: H-L045
 Weld details: ss, nb
 Multi-layer/single layer: ml

Additional information is available on attached sheet and / or welding procedure specification No: WPS-A209-07

Examining Body: "TUV Nord Baltik" TE Ltd Personal certification centre
 Location: 3 Saremas Street, Riga, Latvia
 Date of issue: 04.09.2020
 Name, surname: T. Filipova
 Signature:
 Date of welding: 01.09.2020
 Validity of qualification until: 31.08.2023

| Type of tests | Performed and accepted | Not tested |
|----------------------------|------------------------|------------|
| 36 Visual testing | X | — |
| 37 Radiographic testing | X | — |
| 38 Fracture test | — | X |
| 39 Bend test | — | X |
| 40 Notch tensile test | — | X |
| 41 Macroscopic examination | — | X |

Method of the extension of qualification: in accordance with 9.3.a)

We certify that the above statements are correct and that the test pieces were prepared, welded and tested in accordance with the specified codes of standards.



Project: **Steel tube towers for wind turbines**

City: **Fürstenwalde, Germany**

Year: **2019**

Type of welding: **135/138**

Welding position: **PA; PB; PF**

TUV NORD

1 WELDER'S QUALIFICATION TEST CERTIFICATE Page 1 of 2

2

3 Designation (s): **EN ISO 9606-1 135/136 T BW FM1 S/P s12.5(3/9.5) D127 PA ss nb**

4 Examining Body: **"TUV Nord Baltik" TE Ltd Personal certification centre**

5 Certificate No: **TNB PSC – MI – 200228/0177E** Notified Body number: **1409**

6

7 Welding Procedure Specification (WPS) No: **WPS-A1052-18**

8 Welder's name, surname: **Rūdofs Ozoliņš**

9 Identification: Photograph (if required)

10 Method of identification: **Passport**

11 Date and place of birth: **Latvia, 03.01.1999**

12 Employer:

13 Code / Testing Standard: **LVS EN ISO 9606-1:2018**

14 Supplementary fillet weld test: **Acceptable / not tested** (Delete as necessary)

15 Job knowledge: **Acceptable / not tested** (Delete as necessary)

16

| | TEST PIECE | RANGE OF QUALIFICATION |
|----|---|--|
| 17 | Welding process (es) | 135 / 136 Root / Sakne / Корень: 135; 138 Fill / Atzplidišana / Заполнение: 136 |
| 18 | Transfer mode (135) | D (short-circuit) D (short-circuit); G (globular transfer); S (spray) |
| 19 | Product type (plate or pipe) | T P, T |
| 20 | Type of weld | BW BW |
| 21 | Parent material group(s)/subgroups | 1.2 |
| 22 | Filler material group(s) | FM1 FM1, FM2 |
| 23 | Filler material (Designation) | 135: S; 136: P 135: S; 138: M; 136: R; P; V; W; Y; Z |
| 24 | Shielding gas | M21-ArC-18 |
| 25 | Auxiliaries (e.g. backing gas) | |
| 26 | Type of current and polarity | DC / + |
| 27 | Material thickness <i>s</i> [mm] | 12,5 |
| 28 | Deposited thickness <i>a</i> [mm] | 135: 3,0; 136: 9,5 135, 138: 3,0 + 6,0; 136: 3,0 + 19,0 |
| 29 | Deposited thickness <i>a</i> [mm] (135/136) | 12,5 ≥ 3,0 |
| 30 | Outside pipe diameter [mm] | 127,0 ≥ 63,5 |
| 31 | Welding position | PA PA |
| 32 | Weld details (135) | ss, nb 135, 138: ss nb, ss mb, bs, ss gb, ss fb |
| 33 | Weld details (136) | ss, mb 136: ss mb, bs |
| 34 | Multi-layer/single layer | ml |

35 Additional information is available on attached sheet and / or welding procedure specification No: **WPS-A1052-18**

36 Examining Body: **"TUV Nord Baltik" TE Ltd**

37 Personal certification centre

38 Location: **3 Sarmāns Street, Rīga, Latvia**

39 Date of issue: **05.03.2020**

40 Name, surname and signature: **T. Filipova**

41 Stamp: **TUV NORD MI 1409**

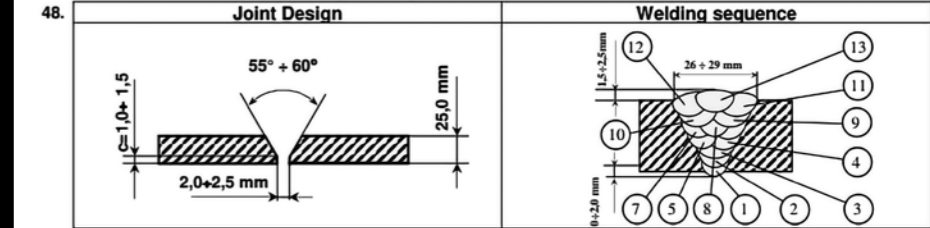
42 Date of welding: **28.02.2020**

43 Validity of qualification until: **27.02.2023**

| Type of tests | Performed and accepted | Not tested |
|----------------------------|------------------------|------------|
| 36 Visual testing | X | — |
| 37 Ultrasonic testing | X | — |
| 38 Fracture test | — | X |
| 39 Bend test | — | X |
| 40 Notch tensile test | — | X |
| 41 Macroscopic examination | — | X |

42 Method of the extension of qualification: in accordance with 9.3.a)

47. WELD PREPARATION DETAILS (SKETCH):



49. WELDING DETAILS

| Run | Welding process | Size of filler material, [mm] | Current, [A] | Voltage, [V] | Type of current / Polarity | Wire feed speed, [m/min] ¹⁾ | Travel speed [mm/min] ¹⁾ | Heat input ¹⁾ [kJ/mm] | Metal transfer |
|---------|-----------------|-------------------------------|--------------|--------------|----------------------------|--|-------------------------------------|----------------------------------|----------------|
| 1 | 138 | 1,2 | 187 | 14,9 | DC / + | 4,2 | 170 | 0,79 | D |
| 2;3 | 138 | 1,2 | 234+240 | 26,1+26,2 | DC / + | 7,5 | 234+308 | 1,10 ¹⁾ | G |
| 5;6 | 138 | 1,2 | 243+244 | 26,1+26,3 | DC / + | 7,8 | 318+358 | 0,91 ¹⁾ | G |
| 4; 7+10 | 138 | 1,2 | 253+275 | 26,1+26,8 | DC / + | 7,8 | 171+528 | 1,04 ¹⁾ | S |
| 11 + 13 | 138 | 1,2 | 261+278 | 26,0+26,4 | DC / + | 7,8 | 300+444 | 0,99 ¹⁾ | S |

51. Filler material for root run:

52. Designation: **LVS EN ISO 17632-A T 46 6 M M21 1 H5**

53. Trademark and make: **BOEHLER HL 51T-MC**

54. Any special baking or drying:

55. Shielded gas / flux:

56. Shielding:

57. Backing:

58. Gas flow rate:

59. Shielding:

60. Backing:

61. Tungsten electrode type / size:

62. Details of back gouging / backing:

63. Preheat temperature:

64. Interpass temperature:

65. Post-weld heat treatment and / or ageing:

66. Time, temperature, method:

67. Heating and cooling rates¹⁾:

68. ¹⁾ If required

¹⁾ Average mean of heat input

69. Manufacturer:

Other information¹⁾, e. g.:

Weaving (maximum width of run):

Oscillation: amplitude, frequency, dwell time:

Distance contact tube / work piece: **15 + 20 mm**

Nozzle diameter: **20,0 mm**

Number of wire electrodes: **1 pc.**

Torch angle: **0° + 10°**

Pulse welding details:

The lowest work piece temperature immediately prior to welding without pre-heating, °C:

Filler material for interpass and face runs:

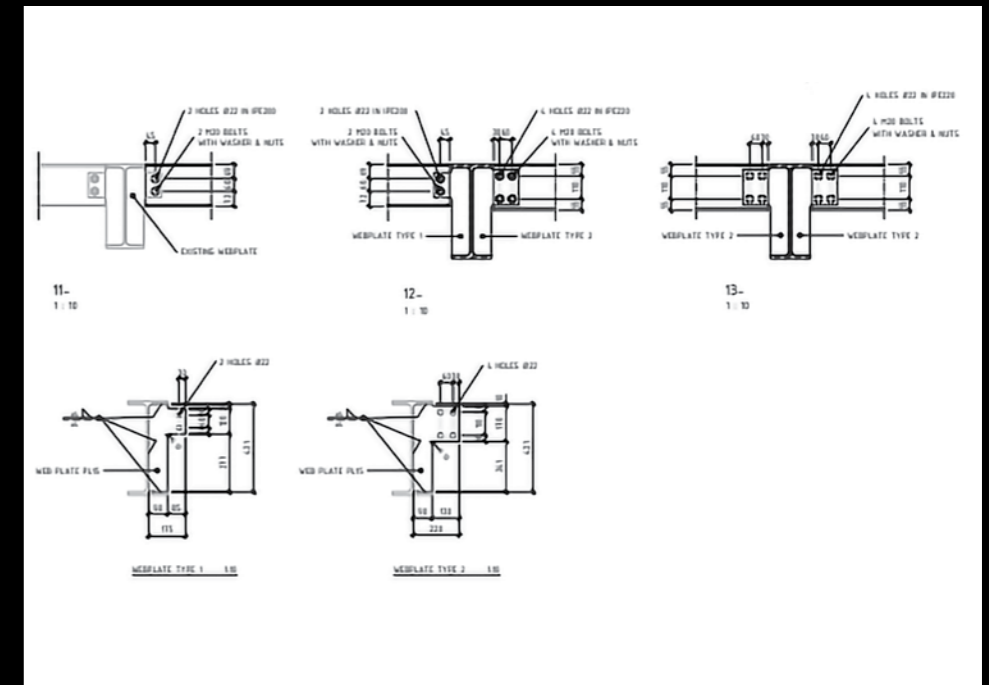
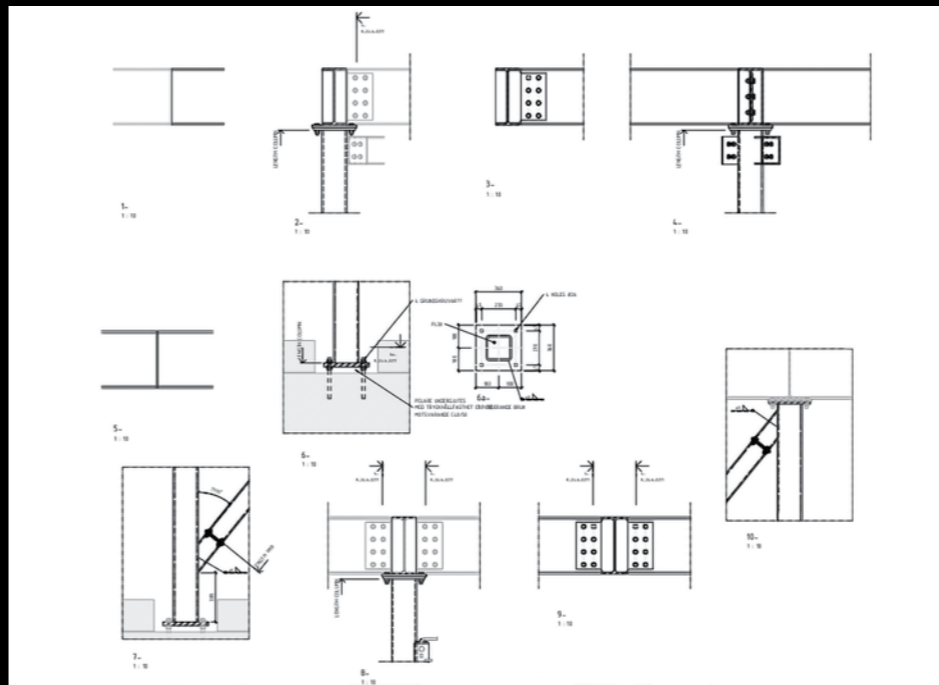
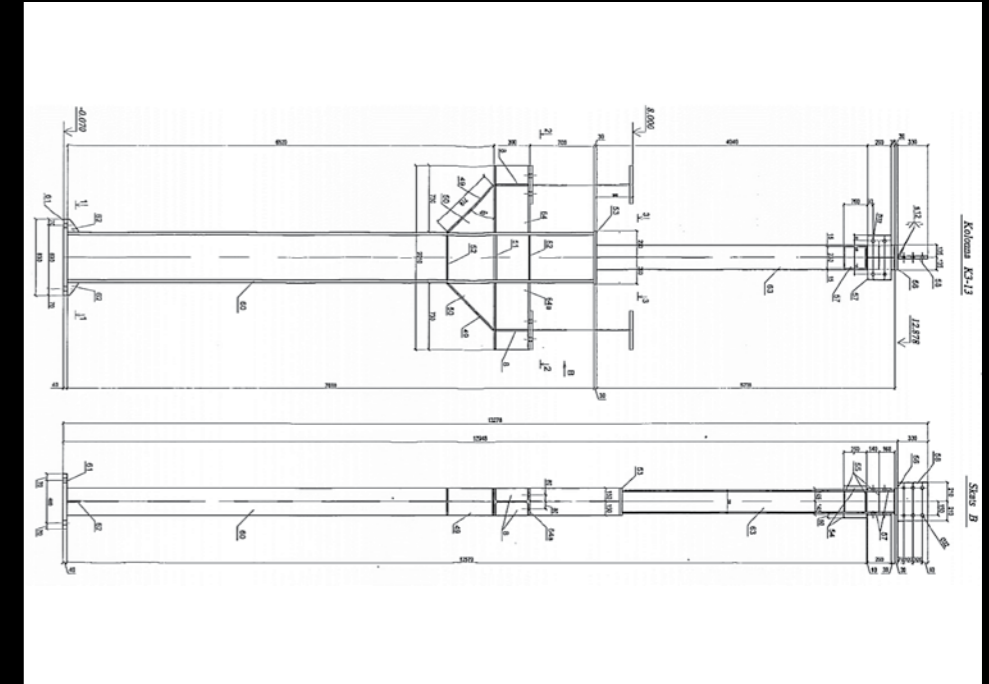
Designation: **LVS EN ISO 17632-A T 46 6 M M21 1 H5**

Trademark and make: **BOEHLER HL 51T-MC**

Examiner or examining body:



Project: **Welding and assembling of metal constructions / School**
 City: **Borås, Sweden**
 Year: **2019**
 Type of welding: **111**
 Welding position: **PB; PA; PD**





Project: **Welding of metal constructions / Stairs and railings**

City: **Göteborg / Hisings Kärna, Sweden**

Year: **2018 – present**

Type of welding: **135/138**

Welding position: **PB; PA; PC**

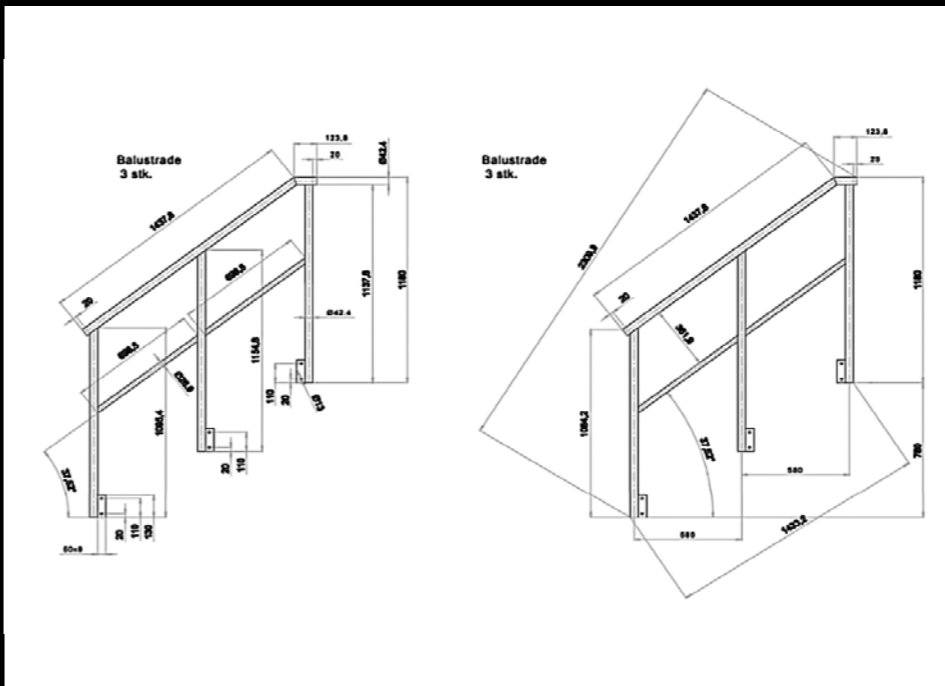
Metināšanas process: **135** Pamatmateriāla specifikācija: **Grupa 1 (S355JRH)**
 Savienojuma veids: **FW** Apakšgrupa **1.2 CEN ISO/TR 15608**
 Metināšanas stāvoklis: **PB** Sagataves biezums t , mm: **$t_1=10,0$; $t_2=10,0$**
 Malu apstrādes veids: **(saskaņā ar LVS EN ISO 9692-1:2004 punktu 3.1.1)** Caurules ārējais diametrs D , mm: _____
 Atstarpe starp detaļām b , mm: _____

ŠUVES SAGATAVOŠANAS ELEMENTI (SKICE)*:

| Savienojuma zīmējums | | | | Metināšanas secība | | | |
|----------------------|--|--|--|--------------------|--|--|--|
| | | | | | | | |

Metināšanas režīmi

| Gājiens | Process | Piedevas materiāla izmērs [mm] | Strāvas stiprums [A] | Spriegums [V] | Strāvas tips/polaritāte | Stieples padeves ātrums [m/min] | Gājiena garums/ātrums ²⁾ | Siltuma enerģija uz garuma vienību ³⁾ [kJ/mm] |
|---------|---------|--------------------------------|----------------------|---------------|-------------------------|---------------------------------|-------------------------------------|--|
| 1 | 135 | 1,2 | 220-230 | 20-24 | DC(+) | 7,0-10,0 | — | — |





Project: **Stairs / Railings / Canopies**

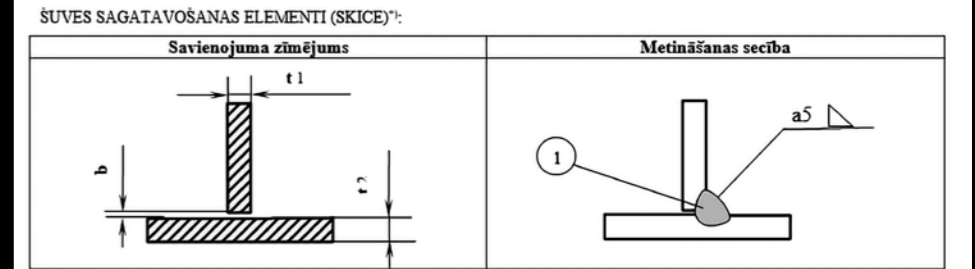
City: **Göteborg, Sweden**

Year: **2018 – 2019**

Type of welding: **135/138**

Welding position: **PB; PA; PC**

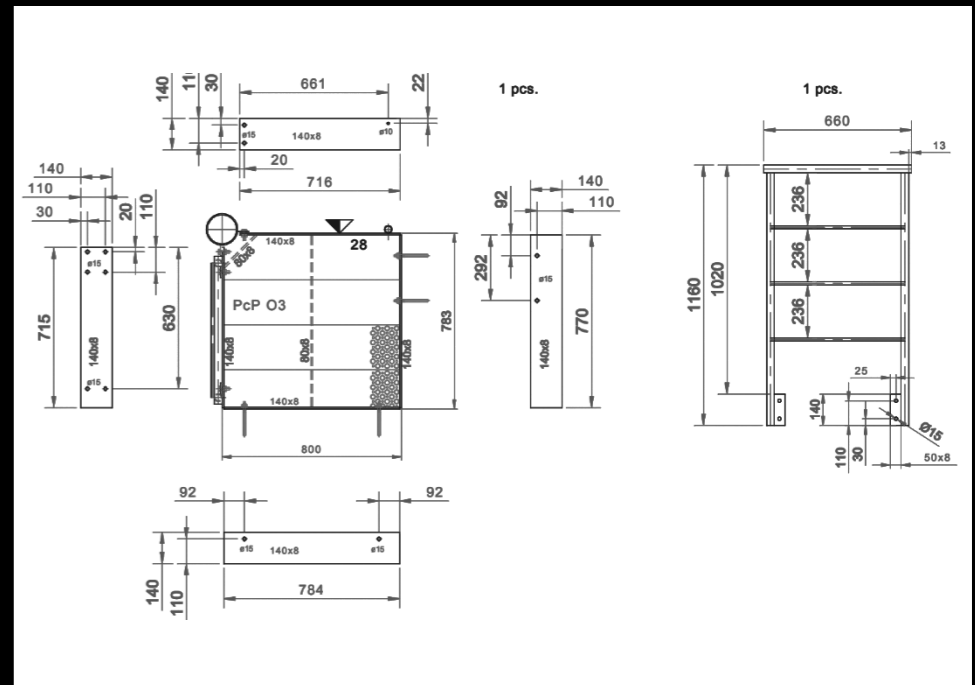
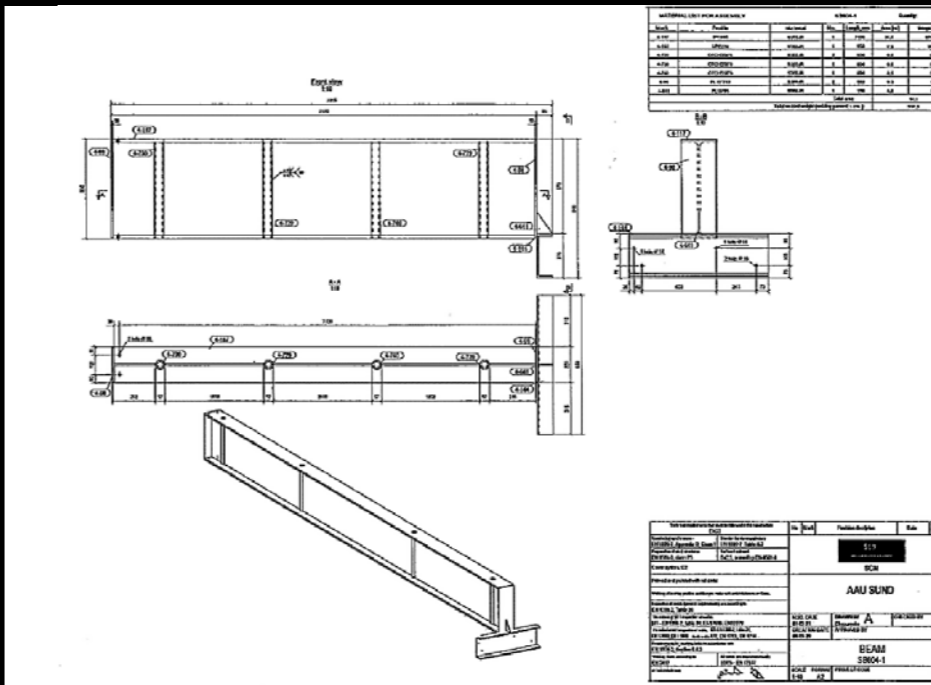
| | | |
|------------------------|---|---|
| Metināšanas process: | 135 | Pamatmateriāla specifikācija: Grupa 1 (S355JRH) |
| Savienojuma veids: | FW | Apakšgrupa 1.2 CEN ISO/TR 15608 |
| Metināšanas stāvoklis: | PB | Sagataves biezums t_1 , mm: $t_1=10,0$; $t_2=10,0$ |
| Malu apstrādes veids: | (saskaņā ar LVS EN ISO 9692-1:2004 punktu 3.1.1) | Caurules ārējais diametrs D, mm: _____ |
| | | Atstarpe starp detaļām b, mm: _____ |



Metināšanas režīmi



| Gājiens | Process | Piedevas materiāla izmērs [mm] | Strāvas stiprums [A] | Spriegums [V] | Strāvas tips/polaritāte | Stieples padeves ātrums [m/min] | Gājiena garums/ātrums ²⁾ | Siltuma enerģija uz garuma vienību ³⁾ [KJ/mm] |
|----------|------------|--------------------------------|----------------------|---------------|-------------------------|---------------------------------|-------------------------------------|--|
| 1 | 135 | 1.2 | 220-230 | 20-24 | DC(+) | 7,0-10,0 | — | — |

Piedevas metāla apzīmējums: **G3Si1 EN ISO 14341** Cita informācija¹⁾, piem.: _____
 un tirdzniecības nosaukums: **OK AristoRod 12.50** Šķērskustība (maksimālais gājiena platums): _____





Project: **Construction works / Civil engineering project**
 City: **Göteborg, Sweden**
 Year: **2018**
 Type of welding: **111**
 Welding position: **PD; PB**

"Certification Centre" Ltd SPECIALIST CERTIFICATION CENTRE WELDER QUALIFICATION TEST CERTIFICATE

Page 1 of 2

1
2
3 Designation (s): **EN ISO 9606-1 111 T/P FW FM1 B s10/10 D60.3 PH ml**

4 Certificate No: **SC - M - 0217/2021**

5 Welding Procedure Specification No: **111-3, 111-4**

6 Welder's name, surname: **Ojēgs Smirnovs**

7 Identification: **PASSPORT**

8 Method of identification: **PASSPORT**

9 Date and place of birth: **Latvia, 22.05.1976**

10 Employer: **"VLAVI SWE" Ltd.**

11 Testing Standard/ Code: **EN ISO 9606-1: 2017**

12 Job knowledge: **Acceptable/ not tested** (Delete as necessary)

13 Extra verification for fillet welds: **Yes / No** (Delete as necessary)

| | TEST PIECE | RANGE OF QUALIFICATION |
|----|------------------------------------|--------------------------------|
| 14 | Welding process (es) | 111 (MMA) |
| 15 | Product type (plate or pipe) | T, P |
| 16 | Transfer mode | - |
| 17 | Type of weld | BW, FW |
| 18 | Parent material group(s)/subgroups | 1.1 |
| 19 | Filler material group(s) | FM1, FM2 |
| 20 | Filler material (Designation) | B |
| 21 | Shielding gas | A, B, RA, R, RB, RC, RR |
| 22 | Auxiliaries | - |
| 23 | Type of current and polarity | DC/+ |
| 24 | Material thickness [mm] | ≥ 3.0 |
| 25 | Deposited thickness [mm] | - |
| 26 | Outside pipe diameter [mm] | ≥ 30.15 |
| 27 | Welding position | PA, PB, PC, PD, PE, PF |
| 28 | Weld details | sl, ml |

Examining Body:
CERTIFICATION CENTRE Ltd
Specialist Certification Centre
Location: Lubanas street 150b, Riga

| Type of qualification test | Performed and accepted | Not tested |
|----------------------------|------------------------|------------|
| 31 Visual testing (FW) | X | - |
| 32 Ultrasonic testing | - | X |
| 33 Fracture test (FW) | X | - |
| 34 Bend test | - | X |
| 35 Notch tensile test | - | X |
| 36 Macroscopic examination | - | X |

Date of issue: **28.04.2021**
 Name, Surname: **A. Saulitis**
 Surveyor: **A. Saulitis**
 Date of Welding: **21.04.2021**

| Revalidation | Valid until: | Revalidation |
|--------------|-------------------|--------------|
| 9.3 a) | 20.04.2024 | 9.3 b) |

39 Prolongation for qualification by examining body for the following years: _____
 Confirmation of the validity by employer / welding coordinator for the following 6 months: _____

WELDING PROCEDURE SPECIFICATION (WPS) (EN ISO 15609-1:2019)

1) Manufacturer: **Rahodin**

2) Location: **Dziņaru iela 19, Līpāja, Latvija**

3) WPS No.: **111-3/WS_30-a-1**

4) WPS No.: **EN ISO 15609-1**

5) WPS No.: **EN ISO 15609-1**

6) WPS No.: **EN ISO 15609-1**

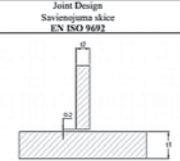
7) Parent Material Specification: **S235-S355, EN 10025 1.1, 1.2, F+N 1.6048**

8) Parent Metal Thickness (mm): **4-5-30; 30-40-30**

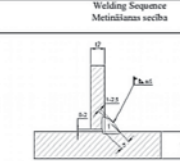
9) Welding position: **Metināšanas stāvoklis: EN ISO 6947**

10) Method of preparation/cleaning: **machining**

11) Weld Preparation Details: **Saves sagatavošanas shēma**



Joint Design
Savienojuma shēma
EN ISO 9602



Welding Sequence
Metināšanas secība

12) Welding Details: **Metināšanas režīmi**

| Run | Process | Filler Metal Size | Current | Voltage | Current type: | Wire Feed | Welding | Heat Input |
|---------|---------|--------------------------------|----------------------|----------------|---------------|------------------------|-----------------------------|-----------------|
| Glijens | Proces | Predevas materiāls izmērs (mm) | Strāvas stiprums (A) | Spriegums (V) | Polaritāte | Spēdes ātrums (mm/min) | Metināšanas ātrums (mm/min) | lielums (kJ/mm) |
| 1 | 111 | 3.2 4.0 (optional) | 100-140 140-180 | 18.22 20.24 | DC+ | - | 100-140 100-200 | 1.8 - 1.4 |

13) Filler Metal: **E42 4 B 42 H5**

14) Shielding / Backing Gas: **n/a**

15) Shielding Gas Flow Rate: **n/a**

16) Backing Gas Flow Rate: **n/a**

17) Preheat Temperature: **5°C**

18) Interpass Temperature: **n/a**

19) Post Weld Heat Treatment: **n/a**

20) Details of Back Gouging/Backing: **n/a**

21) Electrode drying temperature, time: **350°C, 2 hours**

WELDING PROCEDURE SPECIFICATION (WPS) (in accordance with the standard EN ISO 15609 - 1:2005)

3 Location: **mit "AVON"**

4 Manufacturer's WPS No.: **U-T-025-01/19**

5 Manufacturer's WPQR No.: **WPQR 1**

6 Manufacturer: **SIA**

7 Welding Process: **111 (MMA welding)**

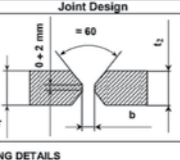
8 Joint Type: **BW (butt weld)**

9 Welding Position: **PA/PB/PE acc. to EN ISO 6947**

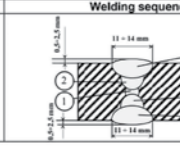
10 Joint preparation: **X** (according to EN ISO 9602-1:2013 point 2.5.1)

11 Shielded Gas / Flux: **350 C, 2 h.**

12 WELD PREPARATION DETAILS (SKETCH):



Joint Design



Welding sequence

13

14 WELDING DETAILS

| Run | Welding Process | Size of Filler Material [mm] | Current [A] | Voltage [V] | Type of current / Polarity | Wire Feed Speed [mm/min] | Run-out length / Travel speed [mm/min] | Heat input [kJ/mm] |
|-----|-----------------|------------------------------|-------------|-------------|----------------------------|--------------------------|--|--------------------|
| 1 | 111 | 3.2 | 105 ± 125 | 22 ± 24 | DC / + | 90 ± 110 | 1.01 ± 1.00 | |
| 2+3 | 111 | 3.2 | 105 ± 125 | 22 ± 24 | DC / + | 100 ± 130 | 0.85 ± 1.44 | |

15

16 Filler Material for Root Run: **LVS EN ISO 2560-A E 42 S B 42 H5**

17 Designation: **LVS EN ISO 2560-A E 42 S B 42 H5**

18 Trademark and Make: **OK 48.00 (ESAB)**

19 Any Special Baking or Drying: **350 C, 2 h.**

20 Shielded Gas / Flux: **350 C, 2 h.**

21 Shielded: _____

22 Backing: _____

23 Gas Flow Rate: _____

24 Shielded: _____

25 Backing: _____

26 Tungsten Electrode Type / Size: _____

27 Details of Back Gouging / Backing: _____

28 Preheat Temperature: **Min + 0°C**

29 Interpass Temperature: **Max +150°C**

30 Post-Weld Heat Treatment and / or Ageing: _____

31

Other information: i. e. g.:
 Weaving (maximum width of run): **10.0 mm**
 Oscillation: amplitude, frequency, dwell time: _____
 Distance contact tube / work piece: _____
 Nozzle diameter: _____
 Number of wire electrodes: _____
 Torch angle: _____
 Mode of metal transfer: _____
 The lowest work piece temperature immediately prior to welding without pre-heating, °C: _____

Filler Material for Interpass and Face Run:
 Designation: **LVS EN ISO 2560-A E 42 S B 42 H5**
 Trademark and Make: **OK 48.00 (ESAB)**



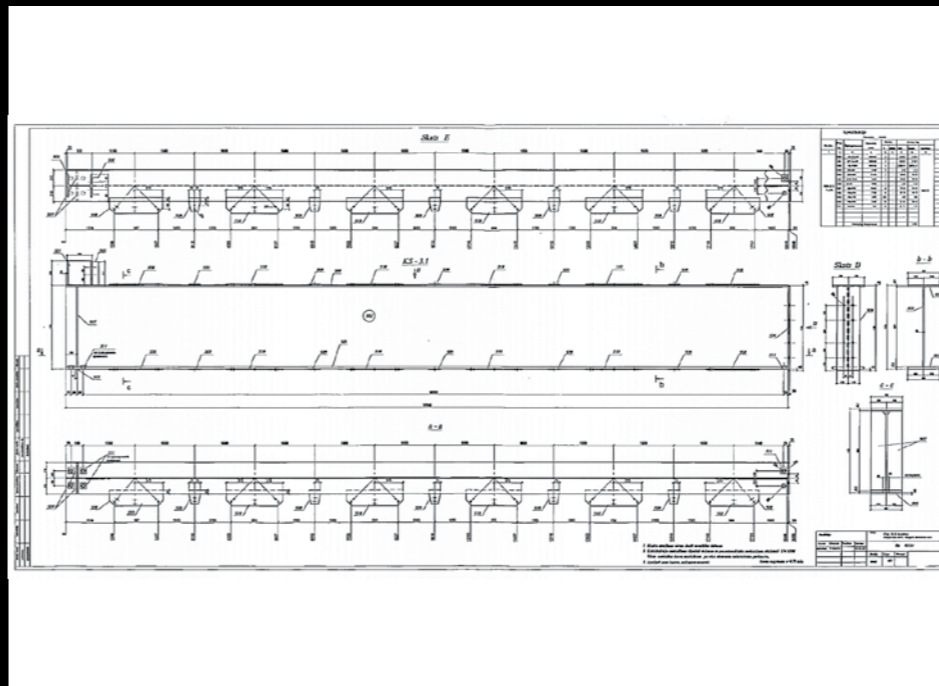
Project: **Welding and assembling of metal constructions**

City: **Lödöse, Sweden**

Year: **2018**

Type of welding: **111/135**

Welding position: **PA; PB; PC; PD**



Metināšanas process: 135 Pamatmateriāla specifikācija: Grupa 1 (S355J2HN)
 Savienojuma veids: FW Apakšgrupa 1.2 CEN ISO/TR 15608
 Metināšanas stāvoklis: PB Sagataves biezums t, mm: t1=10,0; t2=10,0
 Malu apstrādes veids: (saskaņā ar LVS EN ISO 9692-1:2004 punktu 3.1.1) Caurules ārējais diametrs D, mm: _____
 Atstarpe starp detaļām b, mm: _____

ŠUVES SAGATAVOŠANAS ELEMENTI (SKICE)*:

| Savienojuma zīmējums | | Metināšanas secība | |
|----------------------|--|--------------------|--|
| | | | |

Metināšanas režīmi

| Gājiens | Process | Pieejas materiāla izmērs [mm] | Strāvas stiprums [A] | Spriegums [V] | Strāvas tips/polaritāte | Stieples padeves ātrums [m/min] | Gājiena garums/ātrums* | Siltuma enerģija uz garuma vienību? [KJ/mm] |
|---------|---------|-------------------------------|----------------------|---------------|-------------------------|---------------------------------|------------------------|---|
| 1 | 135 | 1,0 | 220-230 | 26,3-26,8 | DC(+) | 12,0-12,4 | — | — |
| 1 | 135 | 1,0 | 220-230 | 26,3-26,8 | DC(+) | 12,0-12,4 | — | — |
| 1 | 135 | 1,0 | 220-230 | 26,3-26,8 | DC(+) | 12,0-12,4 | — | — |

Metināšanas process: 111 Pamatmateriāla specifikācija: Grupa 1 (S355JRH)
 Savienojuma veids: FW Apakšgrupa 1.2 CEN ISO/TR 15608
 Metināšanas stāvoklis: PB Sagataves biezums t, mm: t1=12,0; t2=12,0
 Malu apstrādes veids: (saskaņā ar LVS EN ISO 9692-1:2004 punktu 3.1.1) Caurules ārējais diametrs D, mm: _____
 Atstarpe starp detaļām b, mm: _____

ŠUVES SAGATAVOŠANAS ELEMENTI (SKICE)*:

| Savienojuma zīmējums | | Metināšanas secība | |
|----------------------|--|--------------------|--|
| | | | |

Metināšanas režīmi

| Gājiens | Process | Pieejas materiāla izmērs [mm] | Strāvas stiprums [A] | Spriegums [V] | Strāvas tips/polaritāte | Stieples padeves ātrums [m/min] | Gājiena garums/ātrums* | Siltuma enerģija uz garuma vienību? [KJ/mm] |
|---------|---------|-------------------------------|----------------------|---------------|-------------------------|---------------------------------|------------------------|---|
| 1 | 111 | 2,5 | 60-90 | 20 -21 | DC(+) | — | — | — |
| 2;3 | 111 | 3,2 | 90-130 | 21 -24 | DC(+) | — | — | — |



Project: **Welding of metal constructions**

City: **Tråvad, Sweden**

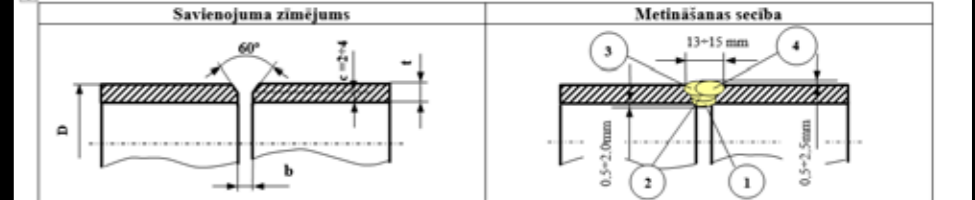
Year: **2017**

Type of welding: **135**

Welding position: **PA; PB; PC**

| | | |
|------------------------|--|--|
| Savienojuma veids: | BW | Apakšgrupa 1.2 LVS CEN ISO/TR 15608:2006 |
| Metināšanas stāvoklis: | H-L045 | Sagataves biezums t, mm: 12,5 |
| Malu apstrādes veids: | Y (saskaņā ar LVS EN ISO 9692-1:2004 punktu 1.5) | Caurules ārējais diametrs D, mm: 159,0 |
| | | Atstarpe starp detaļām b, mm: 1 + 4 |

ŠUVES SAGATAVOŠANAS ELEMENTI (SKICE)ᶞ:

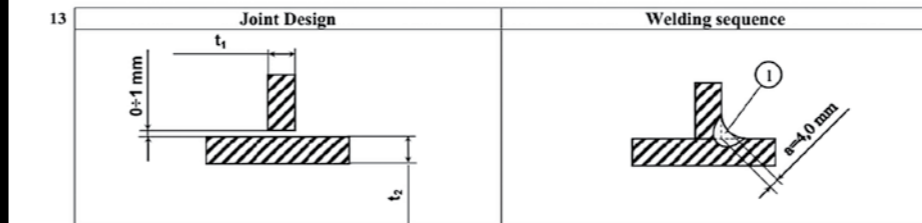


Metināšanas režīmi

| Gājiens | Process | Piedevas materiāla izmērs [mm] | Strāvas stiprums [A] | Spriegums [V] | Strāvas tips/polaritāte | Stieples padeves ātrums [m/min] | Gājiena garums/ātrumsᶞ | Siltuma enerģija uz garuma vienībuᶞ [kJ/mm] |
|---------|---------|--------------------------------|----------------------|---------------|-------------------------|---------------------------------|------------------------|---|
| 1 | 136 | 1,2 | 110-150 | 25-27 | DC(+) | 5,0-5,8 | --- | --- |
| 2 | 136 | 1,2 | 180-250 | 27-30 | DC(+) | 5,8-11,0 | --- | --- |
| 3 | 136 | 1,2 | 180-250 | 27-30 | DC(+) | 5,8-11,0 | --- | --- |
| 4 | 136 | 1,2 | 180-250 | 27-30 | DC(+) | 5,8-11,0 | --- | --- |

| | | | | |
|----|--------------------|---|---|--|
| 7 | Welding Process: | 136 (MAG welding) | Parent Material Specification: | Steel group No. 1 |
| 8 | Joint Type: | FW (fillet weld) | acc. to CEN ISO/TR 15608 (steel with min R _{0.2} ≤ 355 N/mm ²) | |
| 9 | Welding Position: | PB acc. to EN ISO 6947 | Material Thickness t ₁ [mm]: | t ₁ =10,0; t ₂ =10,0 |
| 10 | Joint preparation: | (according to EN ISO 9692-1: 2013 point 3.1.1.) | Outside Pipe Diameter D, [mm]: | |
| 11 | | | Gap between workpieces b, [mm]: | b=0 + 0,5 |

12 WELD PREPARATION DETAILS (SKETCH)ᶞ:

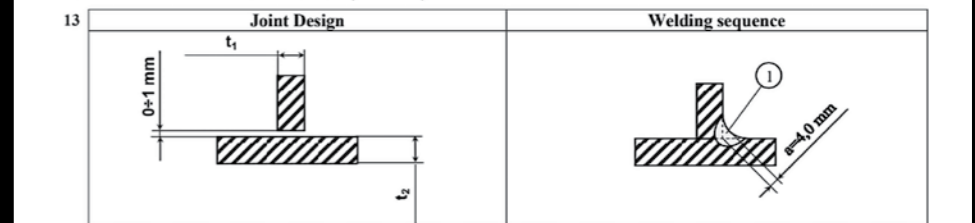


14 WELDING DETAILS

| Run | Welding Process | Size of Filler Material, [mm] | Current, [A] | Voltage, [V] | Type of current / Polarity | Wire Feed Speed, [m/min] | Run-out-length / Travel speed [mm/min]ᶞ | Heat input ᶞ [kJ/mm] |
|-----|-----------------|-------------------------------|--------------|--------------|----------------------------|--------------------------|---|----------------------|
| 1 | 136 | 1,2 | 170 + 190 | 21 + 23 | DC / + | 6,5 + 7,5 | 146 + 199 | 0,86 + 1,44 |
| 2 | 136 | 1,2 | 190 + 210 | 22 + 24 | DC / + | 7,5 + 8,5 | 168 + 233 | 0,86 + 1,44 |
| 3 | 136 | 1,2 | 190 + 210 | 22 + 24 | DC / + | 7,5 + 8,5 | 155 + 213 | 0,94 + 1,56 |
| 4 | 136 | 1,2 | 190 + 210 | 22 + 24 | DC / + | 7,5 + 8,5 | 194 + 268 | 0,75 + 1,25 |

| | | | | |
|----|--------------------|---|---|--|
| 7 | Welding Process: | 136 (MAG welding) | Parent Material Specification: | Steel group No. 1 |
| 8 | Joint Type: | FW (fillet weld) | acc. to CEN ISO/TR 15608 (steel with min R _{0.2} ≤ 355 N/mm ²) | |
| 9 | Welding Position: | PB acc. to EN ISO 6947 | Material Thickness t ₁ [mm]: | t ₁ =10,0; t ₂ =10,0 |
| 10 | Joint preparation: | (according to EN ISO 9692-1: 2013 point 3.1.1.) | Outside Pipe Diameter D, [mm]: | |
| 11 | | | Gap between workpieces b, [mm]: | b=0 + 0,5 |

12 WELD PREPARATION DETAILS (SKETCH)ᶞ:



14 WELDING DETAILS

| Run | Welding Process | Size of Filler Material, [mm] | Current, [A] | Voltage, [V] | Type of current / Polarity | Wire Feed Speed, [m/min] | Run-out-length / Travel speed [mm/min]ᶞ | Heat input ᶞ [kJ/mm] |
|-----|-----------------|-------------------------------|--------------|--------------|----------------------------|--------------------------|---|----------------------|
| 1 | 136 | 1,2 | 170 + 190 | 21 + 23 | DC / + | 6,5 + 7,5 | 146 + 199 | 0,86 + 1,44 |
| 2 | 136 | 1,2 | 190 + 210 | 22 + 24 | DC / + | 7,5 + 8,5 | 168 + 233 | 0,86 + 1,44 |
| 3 | 136 | 1,2 | 190 + 210 | 22 + 24 | DC / + | 7,5 + 8,5 | 155 + 213 | 0,94 + 1,56 |
| 4 | 136 | 1,2 | 190 + 210 | 22 + 24 | DC / + | 7,5 + 8,5 | 194 + 268 | 0,75 + 1,25 |

Our specialists constantly improving their qualifications in the accredited welding training center





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