



Co-funded by  
the European Union

*This project has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use, which may be made of the information contained therein.*

**Learning Resources for the course:**

## **Steel Structure Inspector Course for PED INSPECTOR**

**This document covers only:**

**Competence unit no. CU-10 COURSE SUMMARY, EXAMINATION**

### **Table of Contents**

Introduction.....	2
Objective.....	3
A. Teacher Guideline.....	3
B. Students Guideline.....	3
C. Learning resources.....	4
D. Students tasks.....	5
E. Evaluation.....	5
F. Appendix.....	5

## Introduction

**Note. It is assumed that the teacher has in depth knowledge of the industry requirements for the topics discussed in this CU.**

**Reference document covering the course structure, see document D2.2**

**The content of this document covers deliverables for D4.1 and D4.2**

The course consists of a number of CU's. A CU is the smallest element in the education system that specifies Learning Outcomes, Skills and Competence. A CU can be delivered individually or it can be delivered in combinations with other CUs in order to cover a defined range of knowledge and competence.

The course will be work-based and follows the manufacturing process from the order is received until the welded product is ready for delivery. The inspector is responsible for producing documents that ensure traceability of the components and related manufacturing action throughout this process.

In CU-9 the content of Inspection and Testing Plan (ITP) will be summarized in Product Record Book or Product documentation book. This book shall contain all documentation relevant for the product including repair reports and any deviation reports.

The Inspector level for the course is based on WI-S (International Welding Inspector -Standard level). The examination will follow the rules in the IIW Guideline, IAB-041r5-19/SV-00.

A candidate completing the "Standard" level of training under this program shall possess an advanced knowledge of welding and inspection theory and application. This knowledge base will enable the candidate to perform the following tasks (in addition to the IWI-B):

Supervise the activities of the IWI-B;

Develop and provide instructions to IWI-B;

Develop, comment and review Quality Control Plans and Inspection and Testing Plans based on product standards, codes, specifications, drawings and regulatory requirements;

Witness procedure qualification tests including testing of the specimens;

the applicable standards, codes and specifications for conventional applications (e.g. arc welding processes, steels, aluminum alloys - see Section 1 in the Guideline for detailed information);

Verify the compliance of PWHT specifications against the applicable standards, codes and specifications;

Verify the compliance of raw materials and consumables certificates against the applicable standards, codes and specifications;

Take decisions on acceptance of quality documents related to welding fabrication (e.g NDT, material testing, production testing, etc.);

Take decisions based on quality documents (e.g NDT, material testing, production testing, etc.) according to the requirements defined for the construction;

Verify radiographic films quality adequacy (no interpretation);

Identify and verify the relevant NDT techniques for a welded construction; and

Report on all the above actions.

Based on delivery of the different tasks specified in the CUs, where the delivered tasks in CU 4 and CU 9 shall be evaluated and approved by the teacher, the candidate can be admitted to a full ANB (Authorized National Body) assessment.

The full ANB detailed assessment shall contain:

- a detailed paper assessment of knowledge (checklist with points)
- a professional assessment interview designed to test understanding and ability to reason in the field of welding and the syllabus of the standard course and
- a project or a technical interview to test logical application of knowledge

The sequence of this assessment shall be determined by the ANB. It is at the discretion of the ANB to terminate the assessment and send the candidate back or into the standard route

**Please also note that the learning resources summarized and added in chapter C, is the deliverables harvested from 3 different pilot courses in Hungary and Slovenia.**

## **Objective.**

The objective of this CU is divided into two tasks:

- a) Acceptance of the delivery from CU 4 and CU 9 by each student.
- b) Admission to a full ANB detailed assessment.

## **A. Teacher Guideline.**

### **Content of the Teacher Guideline:**

The CU 10 covers course summary and examination.

In CU 9 it is expected that the students have created all documents that they have specified through the Inspection and Testing Plan (ITP) in CU 3.

They should verify that the documents are available and they should be able to understand and explain why an ITP is important and why it is required.

In addition a Document Record Book, (or Document Register) containing the as-built documentation should be created through this CU.

In CU 4 the students should define inspection plans and a traceability scheme for the product.

The student documentation from these two CUs shall be used as proof of concept for the tasks they should do

You should verify these examples and either accept them or reject them with comments to the students. Completed document sets from CU 4 and CU 9 will be used as reference for admission to the ANB assessment.

When the students work have been accepted, the student will be admitted to detailed ANB assessment.

The Inspector level is IWI-S (International Welding Inspector -Standard level). The examination will follow the rules in the IAW Guideline, IAB-041r5-19/SV-00.

## **B. Students Guideline**

The CU 10 covers course summary and examination.

You should already have delivered a detailed set of documents in CU 4 and in CU 9 that will be used as reference for being admitted for a detailed ANB (Authorized National Body) assessment.

The full ANB detailed assessment will contain:

- a detailed paper assessment of knowledge (checklist with points)
- a professional assessment interview designed to test understanding and ability to reason in the field of welding and the syllabus of the standard course and
- a project or a technical interview to test logical application of knowledge

The ANB will define the time schedule for the assessment.

## C. Learning resources

Support resources from selected from the Internet.

Title	Producer	Reference	Language	No of pages	Copy-right
International Welding Inspection Personnel	IIW	IAB-041r5-19/SV-00	English		yes

Learning resources developed in the project.

Title	Producer	Language	No of pages	Copyright
5.01 Case study content				
5.02 Job description				
5.15 List of incorporated materials				
5.21 Seam material book				
5.3 List of certified welders				
5.41 WPS				
5.42 WPS examination				
5.43 WPS examination				
5.44 WPS examination				
5.6 Production equipment list				
5.7 Surveillance and inspection plan				
5.8 List of measuring instruments				
5.03 Error Gap				
5.9 Non-destructive material				

### Video resources created for this CU

None

Title	Producer	Time	Reference	Language	Format	Copy-right
-------	----------	------	-----------	----------	--------	------------

**D. Students tasks.**

- \*Deliver Inspection documentation that have been created during manufacturing and detailed through CU 4.
- \* Create a document list that should be stored in the company and documents to be submitted to client.
- \* Deliver a complete ITP (Inspection and Testing Plan) according to CU 9.
- \* Deliver a complete Document Record Book according to CU 9

**E. Evaluation****1. Did you find this module relevant ?**

- \* Yes
- \* No
- \* I don't know

**2. Was it time enough for going through the material ?**

- \* Yes
- \* No
- \* I do not know

**3. Was the resources relevant for this module ?**

- \* Yes
- \* No
- \* I do not know

**F. Appendix.**

Learning resources developed for this CU.



## Nr. of 5 Case study Examination document

Name of examinee:

Sign of examinee:

Nr. of exam:

Place of exam:

Course organiser: MHE Akadémia

Type of exam: IWI-S / EWI-S

Date:

### Reflux and assembly of columns Content

<b>Nr.</b>	<b>Denomination</b>	<b>Page number</b>
0.1	Job description	1
0.2	Error Gap Summary Sheet	1
1.1	Stone plan1	1
1.2	Stone plan2	1
1.3	Stone plan3	1
1.4	Technical description	10
1.5	List of incorporated materials	2
2.1	Seam book	5
2.2	Seam map	3
3.	List of certified welders	1
4.	13-1,13-2,13-3,13-4 WPS	8
5.	WPQR	2
6.	Production equipment list	2
7.	Monitoring and inspection plan	6
8.	List of measuring instruments	2
9.	Non - destructive material tester data	1
10.	Raw material receipts	5



## Job description

### Nr. 5. case study – examination documentatation

Name of examinee:

Sign:

First task: In Case Study 5, 10 major technical errors and / or deficiencies were identified. The "Error Defect Summary Sheet" lists the locations of the discrepancies. The candidate will review the relevant documents in Case Study 5 and look for a total of 10 technical deviations. Then record the errors and / or deficiencies found in the Error / Defect Description column on the "Error Defect Summary Sheet".

Each found correct deviation is 2 points, incorrect -1 point.

Up to 20 points available,

Acceptance condition: 10 points, ie 50%

Second task: The candidate should answer the following three questions and explain them in writing. If space is tight, separate paper is available.

At least sufficient (2), i.e. 50 to 50%, should be achieved for each response.

Time available to complete tasks: 90 minutes

*1. / Which standard discusses the qualification of welders (steels, bulk welding) and what are the acceptance requirements for test pieces?*

*2. / What is the concept of a measuring device?*

*3. / What does the MSZ EN ISO 3834 series of standards deal with?*



**Nr. of 5 Case Study - Examination Document**  
**Reflux and assembly of columns**

**Error Gap Summary Sheet**

**Name of examinee:**

**Sign:**

<b>Nr.</b>	<b>Place of error</b>	<b>Description of error/deficit</b>	<b>nature</b>
1	Technical description		Error
2	Technical description		Error
3	List of incorporated materials		Error
4	Seam book		Error
5	List of certified welders		Error
6	13-1 WPS		Deficit
7	13-2 WPS		Deficit
8	13-3 WPS		Error
9	Monitoring and inspection plan		Error
10	Non - destructive material tester data		Deficit

**Correct answer: .....**

**Score achieved: .....**



Budapest, 20... IWI-S	<b>No. 5 - case study - examination documentation</b>
--------------------------	---

<b>Denomination:</b>	T-5601 and T-5602 reflux and overhead line replacement
<b>Job No:</b>	
<b>List of built-in materials:</b>	

No.	Denomination	Dimension (Ø, mm)	Material	Heat number	No of Certification	Remark
1	Steel pipe	33,7x4,5	P355NH	84958	52510/1/2018	
2	Steel pipe	33,7x7,1	P355NH	91361	17599/1/2019	
3	Steel pipe	48,3x8,0	P355NH	86436	8385/1/2019	
4	Steel pipe	60,3x8,0	P355NH	85277	66384/1/2018	
5	Steel pipe	88,9x8,0	P355NH	90337	4882/1/2019	
6	Steel pipe	168,3x7,1	P355NH	86405K	20936/18	
7	Steel pipe	216,9x9,0	P355NH	12231K	63995/18	
8	Steel pipe	323,9x7,1	P355NH	883711	1899/EXP/R/19	
9	Steel pipe	323,9x7,1	P355NH	883784	1900/EXP/R/19	
10	Steel pipe	406,4x8,8	P355NH	883661	1932/EXP/R/19	
11	Pipe arch 90°	273x10,0	P265GH	63500	2019-E-1191522/08	
12	Pipe arch 90°	168,3x7,1	P355NH	60145	2019-E-1191522/10	
13	Pipe arch 90°	219,1x8,0	P355NH	48500	2019-E-1191522/09	
14	Pipe arch 90°	323,9x10,0	P355NH	49036	2019-E-1191522/07	
15	T-piece	323,9x10,0/323,9x10,0	P355NH	48806	2019-E-1191522/03	
16	T-piece	323,9x10,0/168,3x7,1	P355NH	64019	2019-E-1191522/02	
17	T-piece	323,9x10,0/219,1x8,0	P355NH	64019	2019-E-1191522/01	
18	T-piece	406,4X12,5/406,4X12,5	P355NH	58474	2019-E-1191522/04	
19	Conc. Reducer	323,9x8,0/219,1x8,0	P355NH	49115	2019-E-1191522/06	

Budapest, 20... IWI-S	<b>No. 5 - case study - examination documentation</b>
--------------------------	---

<b>Denomination:</b>	T-5601 and T-5602 reflux and overhead line replacement
<b>Job No:</b>	
<b>List of built-in materials:</b>	

No.	Denomination	Dimension (Ø, mm)	Material	Heat number	No of Certification	Remark
20	Conc. Reducer	406,4X8,8/323,9x8,0	P355NH	60721	2019-E-1191522/05	
21	H.t. flange	DN300/PN25	P355NH	17300260	AW/2019/04/0811	
22	H.t. flange	DN200/PN25	P355NH	101953	AW/2019/04/0840	
23	H.t. flange	DN150/PN40	P355NH	3927	2019/04/07546	
24	H.t. flange	DN80/PN40	P355NH	1710265	0097/04/19	
25	H.t. flange	DN50/PN40	P355NH	204828	2019/04/07544	
26	H.t. flange	DN40/PN40	P355NH	12002	AW/2019/04/0812	
27	H.t. flange	DN25/PN40	P355NH	1760122	0098/04/19	
28	H.t. flange	DN25/PN40	P355NH	103966	0042/05/19	
29	Plate	6x3000x6000	P265GH	20051	1153548	Stiffening slats
30	Plate	10x2000x12000	S355J2+N	305993	10092512-20018326-76133	Stop disk
31	Acélcső	355,6x15,88	SA 333 Gr.6	45298	D 2139	Pillowcase
32	Acélcső	26,9x2,9	P235GH	92111	30292/1/2019	
33	Steel pipe	329x10,0	P355NL1	714014	FG1755253	
34	Steel pipe	406,4x12,5	P355NH	1153863	2018-E-1181565/27	
35	T-piece	406,4x12,5/219,1x8,0	P355NH	870590	8002/16-MA	
36	H.t. flange	219,1x8,0/168,3x7,1	P355NH	46612K	2015-E-1120003/26	
37	H.t. flange	273x8,8/168,3x7,1	P355NL1	970760	PO-14-0415.12	
38	H.t. flange	323,9x10,0/168,3x7,1	P355NL1	TN647	101797	
39	H.t. flange	406,4x11,0/273x8,8	P355NH	871251	5633/16-AS	
40	H.t. flange	DN150/PN40	P355QH1	801098	PO-18-0054B.4	
41	H.t. flange	DN200/PN40	P355QH1	103966	PO-17-0509A.6	
42	H.t. flange	DN300/PN40	P355QH1	0A1854	17624.4	
43	Vakkarima	DN25/PN40	P245GH	18S05-0529	PO-18-0223.5	
44	Vakkarima	DN25/PN40	P245GH	5635	PO-180359C.6	
45	Vakkarima	DN32/PN40	P265GH	2419	2018/826	
46	Tokoskarima	DN20/PN40	A105N	1438	18/B0182239	
47	Threaded shank	1/2"	A/SA 320 L7	AR0216	3095795	

Denomination T-5601 and 5602 reflux and overhead line replacement.				<b>SEWING BOOK</b>										<b>No. 5 .case study - examir</b> Budapest, IWI-!					
Isometry: 56001-300-D40				P&I Diagram: ---			Plumber: Examiner:				PED category: ---			---					
Isometry data				Welding data				Heat treatment data		Test data						Denomination			
No of seam	DN, (Ø)	Wall thickness	Seam type. (1)	E / H ( 2 )	WPS	Sign of welding	Date of welding	No. Of diagram or minutes	Date	RT/UT		PT/MT		HT		VT	Material 1	Dose number 1	
										No. Of exam	No of minutes	No of minutes	Date	No of minutes	Date		Material 2	Dose number 2	
1	323,9	7,1	BW	E	13-1	LJ48	2019/08/02			55-2695	55/1200/2019	55/1081/2019	2019/08/02			OK	flange	0A1854	
																	arc	49036	
2	323,9	7,1	BW	E	13-1	LJ48	2019/06/13			55-1970	55/879/2019	55/781/2019	2019/06/15			OK	arc	49036	
																	pipe	883784	
3	323,9/33,7	7,1/4,5	BR	E	13-2	HO62	2019/08/06			---	---	55/1092/2019	2019/08/06			OK	pipe	883784	
																	pipe	84958	
3.1	60mm		FW	E	13-4	HO62	2019/08/09			---	---	55/1105/2019	2019/08/09			OK	plate (stiffening strip)	20051	
																	pipe	883784	
3.2	60mm		FW	E	13-4	HO62	2019/08/09			---	---	55/1105/2019	2019/08/09			OK	plate (stiffening strip)	20051	
																	pipe	883784	
3.3	60mm		FW	E	13-4	HO62	2019/08/09			---	---	55/1105/2019	2019/08/09			OK	plate (stiffening strip)	20051	
																	pipe	84958	
3.4	60mm		FW	E	13-4	HO62	2019/08/09			---	---	55/1105/2019	2019/08/09			OK	plate (stiffening strip)	20051	
																	pipe	84958	
4	33,7	4,5	BW	E	13-1	HO62	2019/08/06			55-2710	55/1209/2019	55/1092/2019	2019/08/06			OK	pipe	84958	
																	flange	1760122	
5 5J	323,9	7,1	BW	E	13-1	HO62	2019.07.09 2019.07.12			55-2467 55-246J	55/1060/2019 55/1092/2019	55/950/2019 55/965/2019	2019.07.09 2019.07.12			OK	pipe	883784	
																	arc	49036	
6	323,9	7,1	BW	E	13-1	LJ48	2019/06/13			55-1971	55/879/2019	55/781/2019	2019/06/15			OK	arc	49036	
																	pipe	883784	
7	323,9	7,1	BW	E	13-1	LJ48	2019/08/28			55-2841	55/1285/2019	55/1177/2019	2019/08/28			OK	arc	49036	
																	pipe	883784	
8	323,9	7,1	BW	E	13-1	LJ48	2019/06/13			55-1972	55/879/2019	55/781/2019	2019/06/15			OK	arc	49036	
																	pipe	883784	
9	323,9	7,1	BW	E	13-1	LJ48	2019/08/28			55-2842	55/1285/2019	55/1177/2019	2019/08/28			OK	arc	49036	
																	pipe	883784	
10	323,9	7,1	BW	H	13-1	AL88	2019/09/10			55-3042	55/1405/2019	55/1293/2019	2019/09/10			OK	arc	49036	
																	pipe	883784	
11	323,9	7,1	BW	E	13-1	LJ48	2019/06/18			55-2089	55/912/2019	55/819/2019	2019/06/19			OK	pipe	883784	
																	t idom	48806	
12 12J	323,9	7,1	BW	E	13-1	LJ48	2019.06.18 2019.06.21			55-2090 55-2090J	55/912/2019 55/1025/2019	55/819/2019 55/893/2019	2019.06.19 2019.06.29			OK	t idom	48806	
																	pipe	883784	
12.1	1760mm		FW	E	13-4	GF39	2019/08/10			---	---	55/1133/2019	2019/08/10			OK	pipe	883784	
																	tube (cushion plate)	45298	
12.2	1760mm		FW	E	13-4	GF39	2019/08/10			---	---	55/1133/2019	2019/08/10			OK	pipe	883784	
																	tube (cushion plate)	45298	
13	323,9	7,1	BW	H	13-1	HO62	2019/09/14			55-3097	55/1444/2019	55/1345/2019	2019/09/14			OK	pipe	883784	
																	arc	49036	
14	323,9	7,1	FW	E	13-1	LJ48	2019/08/02			55-2696	55/1200/2019	55/1081/2019	2019/08/02			OK	arc	49036	
																	pipe	883784	
Contractor:  19.09.2019 date									Recipient:  date									Welding engineer:  19.09.2019 date	
			name			signature						name			signature				name

( 1 ) BW : circular seam ,      FW: fillet weld      ( 2 ) E : prefabrication      , H : On-site seam

Denomination T-5601 and 5602 reflux and overhead line replacement.	<b>SEWING BOOK</b>	No 5 case study - Examir Budapest, IWI-
---	--------------------	---

Isometry 56001-300-D40	P&I Diagram: ---	Plumber: Examiner:	PED category: ---	Serial number: ---
---------------------------	---------------------	-----------------------	----------------------	-----------------------

Isometry data				Welding data				Heat treatment data		Test data						Denomination		
No of seam	DN, (Ø)	Wall thickness	Seam type. (1)	E / H (2)	WPS	Sign of welding	Date of welding	No. Of diagram or minutes	Date	RT/UT		PT/MT		HT		VT	Material 1	Dose number 1
										No. Of exam	No of minutes	No of minutes	Date	No of minutes	Date		Material 2	Dose number 2
15	323,9/33,7	7,1/4,5	BR	E	13-2	HO62	2019/08/29			---	---	55/1181/2019	2019/08/30			OK	Pipe	883784
15.1	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1195/2019	2019/09/02			OK	Pipe	84958
15.2	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1195/2019	2019/09/02			OK	plate (stiffening strip)	20051
15.3	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1195/2019	2019/09/02			OK	Pipe	883784
15.4	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1195/2019	2019/09/02			OK	plate (stiffening strip)	20051
16	33,7	4,5	BW	E	13-1	HO62	2019/08/13			55-2775	55/1247/2019	55/1134/2019	2019/08/13			OK	Pipe	84958
17	323,9/33,7	7,1/4,5	BR	E	13-2	HO62	2019/08/29			---	---	55/1181/2019	2019/08/30			OK	karima	103966
17.1	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1195/2019	2019/09/02			OK	Pipe	883784
17.2	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1195/2019	2019/09/02			OK	plate (stiffening strip)	20051
17.3	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1195/2019	2019/09/02			OK	Pipe	84958
17.4	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1195/2019	2019/09/02			OK	plate (stiffening strip)	20051
18	33,7	4,5	BW	E	13-1	HO62	2019/08/13			55-2776	55/1247/2019	55/1134/2019	2019/08/13			OK	Pipe	883784
19	323,9/33,7	7,1/4,5	BR	E	13-2	HO62	2019/08/29			---	---	55/1181/2019	2019/08/30			OK	Pipe	84958
19.1	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1196/2019	2019/09/02			OK	Pipe	883784
19.2	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1196/2019	2019/09/02			OK	plate (stiffening strip)	20051
19.3	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1196/2019	2019/09/02			OK	Pipe	883784
19.4	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1196/2019	2019/09/02			OK	plate (stiffening strip)	20051
20	33,7	4,5	BW	E	13-1	HO62	2019/08/13			55-2777	55/1247/2019	55/1134/2019	2019/08/13			OK	karima	103966
21	323,9/33,7	7,1/4,5	BR	E	13-2	HO62	2019/08/29			---	---	55/1181/2019	2019/08/30			OK	Pipe	883784
21.1	60mm		FW	E	13-4	HO62	2019/09/02			---	---	55/1196/2019	2019/09/02			OK	Pipe	84958
										---	---	55/1196/2019	2019/09/02			OK	plate (stiffening strip)	20051

Contractor:  19.09.2019 date	Recipient:  date	Welding engineer:  19.09.2019 date
name	signature	name
signature	signature	signature

( 1 ) BW : circular seam , FW: fillet weld ( 2 ) E : prefabrication , H : On-site seam

Denomination T-5601 and 5602 reflux and overhead line replacement.	<b>SEWING BOOK</b>										No 5 case study - Examir Budapest, IWI-	
---	--------------------	--	--	--	--	--	--	--	--	--	---	--

Isometry 56001-300-D40	P&I Diagram: ---	Plumber: Examiner:	PED category: ---	Serial number: ---
---------------------------	---------------------	-----------------------	----------------------	-----------------------

Isometry data				Welding data				Heat treatment data		Test data						Denomination		
No of seam	DN, (Ø)	Wall thickness	Seam type. (1)	E / H (2)	WPS	Sign of welding	Date of welding	No. Of diagram or minutes	Date	RT/UT		PT/MT		HT		VT	Material 1	Dose number 1
										No. Of exam	No of minutes	No of minutes	Date	No of minutes	Date		Material 2	Dose number 2
21.2		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1196/2019	2019/09/02			OK	pipe	84958
																	plate (stiffening strip)	20051
21.3		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1196/2019	2019/09/02			OK	pipe	883784
																	plate (stiffening strip)	20051
21.4		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1196/2019	2019/09/02			OK	pipe	84958
																	plate (stiffening strip)	20051
22	33,7	4,5	BW	E	13-1	HO62	2019/08/13			55-2778	55/1248/2019	55/1134/2019	2019/08/13			OK	karima pipe	103966
																	pipe	84958
23	323,9/33,7	7,1/4,5	BR	E	13-2	HO62	2019/08/29			---	---	55/1181/2019	2019/08/30			OK	pipe	883784
																	pipe	84958
23.1		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1197/2019	2019/09/02			OK	pipe	883784
																	plate (stiffening strip)	20051
23.2		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1197/2019	2019/09/02			OK	pipe	84958
																	plate (stiffening strip)	20051
23.3		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1197/2019	2019/09/02			OK	pipe	883784
																	plate (stiffening strip)	20051
23.4		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1197/2019	2019/09/02			OK	pipe	84958
																	plate (stiffening strip)	20051
24	33,7	4,5	BW	E	13-1	HO62	2019/08/13			55-2779	55/1248/2019	55/1134/2019	2019/08/13			OK	karima pipe	103966
																	pipe	84958
25	323,9/33,7	7,1/4,5	BR	E	13-2	HO62	2019/08/29			---	---	55/1181/2019	2019/08/30			OK	pipe	883784
																	pipe	84958
25.1		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1197/2019	2019/09/02			OK	pipe	883784
																	plate (stiffening strip)	20051
25.2		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1197/2019	2019/09/02			OK	pipe	84958
																	plate (stiffening strip)	20051
25.3		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1197/2019	2019/09/02			OK	pipe	883784
																	plate (stiffening strip)	20051
25.4		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1197/2019	2019/09/02			OK	pipe	84958
																	plate (stiffening strip)	20051
26	33,7	4,5	BW	E	13-1	HO62	2019/08/13			55-2780	55/1248/2019	55/1134/2019	2019/08/13			OK	karima pipe	103966
																	pipe	84958
27	323,9/33,7	7,1/4,5	BR	E	13-2	HO62	2019/08/29			---	---	55/1181/2019	2019/08/30			OK	pipe	883784
																	pipe	84958
27.1		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1192/2019	2019/09/02			OK	pipe	883784
																	plate (stiffening strip)	20051
27.2		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1192/2019	2019/09/02			OK	pipe	84958
																	plate (stiffening strip)	20051
27.3		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1192/2019	2019/09/02			OK	pipe	883784
																	plate (stiffening strip)	20051

Contractor: 19.09.2019 date	name	signature	Recipient: date	name	signature	Welding engineer: 19.09.2019 date	name
-----------------------------------	------	-----------	--------------------	------	-----------	---	------

(1) BW : circular seam , FW: fillet weld (2) E : prefabrication , H : On-site seam

Denomination T-5601 and 5602 reflux and overhead line replacement.				<b>SEWING BOOK</b>										No 5 case study - Examir Budapest, IWI-					
Isometry 56001-300-D40				P&I Diagram: ---			Plumber: Examiner:				PED category: ---		Serial number: ---						
Isometry data				Welding data				Heat treatment data		Test data						Denomination			
No of seam	DN, (Ø)	Wall thickness	Seam type. (1)	E / H ( 2 )	WPS	Sign of welding	Date of welding	No. Of diagram or minutes	Date	RT/UT		PT/MT		HT		VT	Material 1	Dose number 1	
										No. Of exam	No of minutes	No of minutes	Date	No of minutes	Date		Material 2	Dose number 2	
27.4		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1192/2019	2019/09/02			OK	pipe	84958	
28	33,7	4,5	BW	E	13-1	HO62	2019/08/13			55-2781	55/1249/2019	55/1134/2019	2019/08/13			OK	plate (stiffening strip)	20051	
29	323,9	7,1	BW														karima	103966	
30	323,9	7,1	BW														pipe	84958	
31	323,9/33,7	7,1/4,5	BR	E	13-2	HO62	2019/09/02			---	---	55/1231/2019	2019/09/05			OK	pipe	883784	
31.1		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1192/2019	2019/09/02			OK	pipe	84958	
31.2		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1192/2019	2019/09/02			OK	plate (stiffening strip)	20051	
31.3		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1192/2019	2019/09/02			OK	pipe	883784	
31.4		60mm	FW	E	13-4	HO62	2019/09/02			---	---	55/1192/2019	2019/09/02			OK	plate (stiffening strip)	20051	
32	33,7	4,5	BW	E	13-1	HO62	2019/08/13			55-2782	55/1249/2019	55/1134/2019	2019/08/13			OK	pipe	84958	
33	323,9	7,1	BW	E	13-1	LJ48	2019/08/06			55-2711	55/1210/2019	55/1092/2019	2019/08/06			OK	karima	103966	
34	323,9	7,1	BW	E	13-1	GF39	2019/08/08			55-2752	55/1231/2019	55/1102/2019	2019/08/08			OK	pipe	84958	
34.1		320mm	FW	E	13-4	GF39	2019/08/08			---	---	55/1102/2019	2019/08/08			OK	karima	0A1854	
34.2		320mm	FW	E	13-4	GF39	2019/08/08			---	---	55/1102/2019	2019/08/08			OK	pipe	883784	
34.3		320mm	FW	E	13-4	GF39	2019/08/08			---	---	55/1102/2019	2019/08/08			OK	plate (stop plate)	305993	
34.4		320mm	FW	E	13-4	GF39	2019/08/08			---	---	55/1102/2019	2019/08/08			OK	pipe	883784	
35	323,9	7,1	BW	E	13-1	GF39	2019/08/08			55-2753	55/1231/2019	55/1103/2019	2019/08/08			OK	plate (stop plate)	305993	
35.1		320mm	FW	E	13-4	GF39	2019/08/08			---	---	55/1103/2019	2019/08/08			OK	pipe	883784	
35.2		320mm	FW	E	13-4	GF39	2019/08/08			---	---	55/1103/2019	2019/08/08			OK	plate (stop plate)	305993	
35.3		320mm	FW	E	13-4	GF39	2019/08/08			---	---	55/1103/2019	2019/08/08			OK	pipe	883784	
Contractor:  19.09.2019 date									Recipient:  date									Welding engineer:  19.09.2019 date	
name									signature									name	

( 1 ) BW : circular seam , FW: fillet weld ( 2 ) E : prefabrication , H : On-site seam



**ation documentation**  
20.....  
S

No. Of page:  
1/5

Remakrs

signature



ation documentation  
20.....  
S

No of page:  
2/5

Remarks

signature



ation documentation  
20.....  
S

No of page:  
4/5

Remarks

signature

ation documentation  
20.....  
S

No of page:  
5/5

Remarks

signature

## LIST OF CERTIFIED WELDERS

### DETAILS OF THE WELDERS INVOLVED IN THE CONSTRUCTION

Subject of construction:	<b>T-5601 and T-5602 reflux and overhead line replacement</b>
Place of construction:	
Implementing organization:	

No	Name of welder	Certification	Beütőjel	Validity
1.	XY	ISO 9606-1 141 T BW FM3 S s10,0 D60 PA ss nb	LJ48	2020.02.12
2.	Z	ISO 9606-1 141 T BW FM3 S s12 D50 H-L045 ss nb	HO62	2020.02.12
3.	W	ISI 9606-1 141 T BW FM4 S s7.0 D50 H-L045 ss gb	GF39	2020.02.12

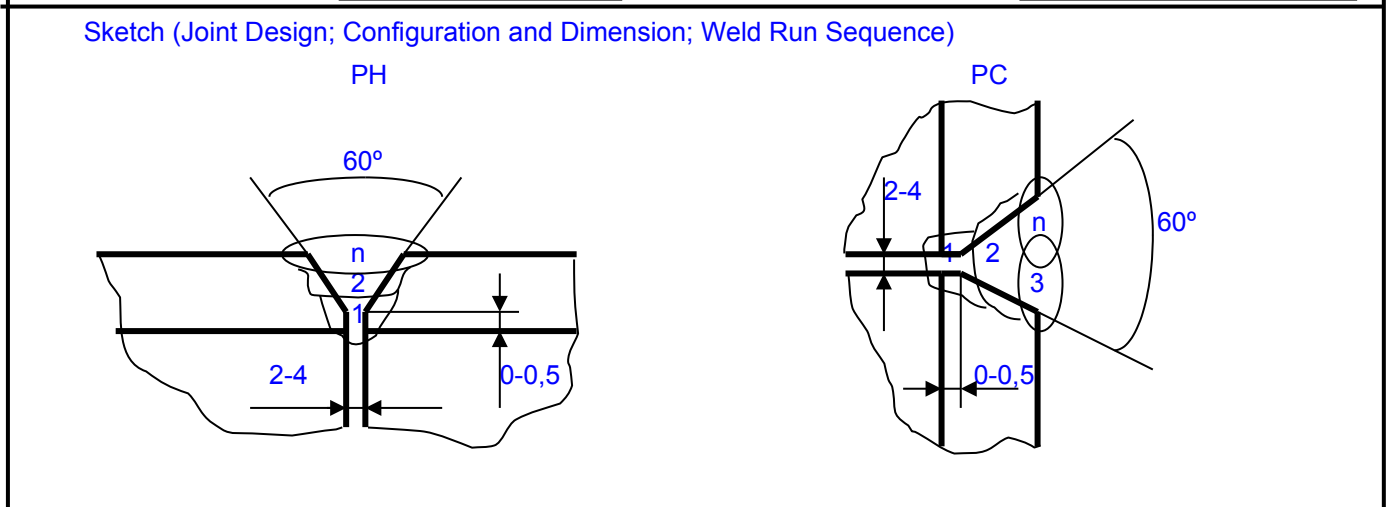
Date.: .....

.....  
Welding coordinator

<b>No 5. case study</b> examination documentation Budapest, 20..... IWIS-S	<b>WELDING PROCEDURE SPECIFICATION (WPS)</b> <b>ACC. EN 15609-1</b>	Project-No
		Project Name
		Page 1 of 2

Company Name _____	Supporting WPAR No.(s) _____
Welding Prodcedure Specifications No _____	Date _____
Revision No _____	Date _____
Welding Process(es) (heg. eljárás(ok)) _____	141
	according to ISO 4063

<b>Joints</b>	Backing <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Joint Design _____	Backing Material(Type) _____



<b>Positions acc. ISO 6947</b>	
Position(s) of Groove _____	PA/PH/PC
Position(s) of Fillet _____	PA/PH/PC
Welding Progression <input checked="" type="checkbox"/> Up <input type="checkbox"/> Down	

<b>Base Materials</b>	
Specification Type and Grade _____	P355QH1/P355NH/P235/245/265GH
to Specification Type and Grade _____	P355QH1/P355NH/P235/245/265GH
<b>Thickness Range (mm)</b>	
Base Metal _____	4-10
Pipe Dia. Range _____	Ø33,7-Ø406,4
Other _____	-

<b>Filler Metals</b>	
Specification _____	141
Trade Name _____	ER 70S-6
Trade Name _____	ESAB OK Tigrod12.64
Size of Filler Metals _____	Ø2,4; Ø3,2
Electrode-Flux (Class) _____	-
Flux Trade Name _____	-
Consumable Insert _____	-

<b>Storage and Rebaking of Electrodes</b>	
Storage in Drying Oven at _____ °C	-
Rebaking at _____ °C;	- Min.

<b>No 5. case study</b> examination documentation Budapest, 20.....  <b>IWI-S</b>	<b>WELDING PROCEDURE SPECIFICATION (WPS)</b>  <b>ACC. EN 15609-1</b>	Project-No
		Project Name
		Page 2 of 2 (2/2 oldal)

<b>Welding Procedure Specification No.</b> 13-1	<b>Rev.No.</b> 0
---	------------------

**Preheat**

Preheat Temp. min. (°C) \_\_\_\_\_ - \_\_\_\_\_ Interpass Temp. max. (°C) 300

For ambient temperature < 5°C, Preheating 60 - 80°C required

**Postweld Heat Treatment**

Postweld Heat Treatment  Yes  No Method \_\_\_\_\_ - \_\_\_\_\_

Temperature Range (°C) \_\_\_\_\_ - \_\_\_\_\_ Time Range (Min.) \_\_\_\_\_ - \_\_\_\_\_

Heating/Cooling Rates (°C/Min) \_\_\_\_\_ - \_\_\_\_\_

**Gas** Percent Composition (mixtures)

ACC. ISO 14175	Gas(es)	Mixture	Flow Rate (l/Min.)
Shielding Gas	-	-	-
Backing Gas	-	-	-

**Electrical Characteristics**

Weld Run	Process	Filler Metal		Current		Volt Range	Travel Speed Range mm/min	Heat input KJ/cm <sup>1)</sup>
		Class	Dia. mm	Type Polarity	Amp. Range			
1-n	141	ER 70S-6	Ø2,4; Ø3,2	DCEN	80-140	11-13	-	-

<sup>1)</sup> if required

Tungsten Electrode Size and Type (mm) \_\_\_\_\_ **Ø2,4; WT20** according to EN 26848

Mode of Metal Transfer for GMAW \_\_\_\_\_ - \_\_\_\_\_

Electrode Wire Feed Speed Range \_\_\_\_\_ - \_\_\_\_\_

**Technique**

String or Weave Bead	Weaving	Single Side Welding	<input checked="" type="checkbox"/>
Orifice or Gas Cup Size	-	Welding from Both Sides	<input type="checkbox"/>
Initial and Interpass Cleaning	Grinding	Multiple Pass (per side)	<input checked="" type="checkbox"/>
Method of Back Gouging	-	Single Pass (per side)	<input type="checkbox"/>
Contact Tube to Work Distance	-	Multiple Electrodes	<input type="checkbox"/>
Other	-	Single Electrodes	<input type="checkbox"/>

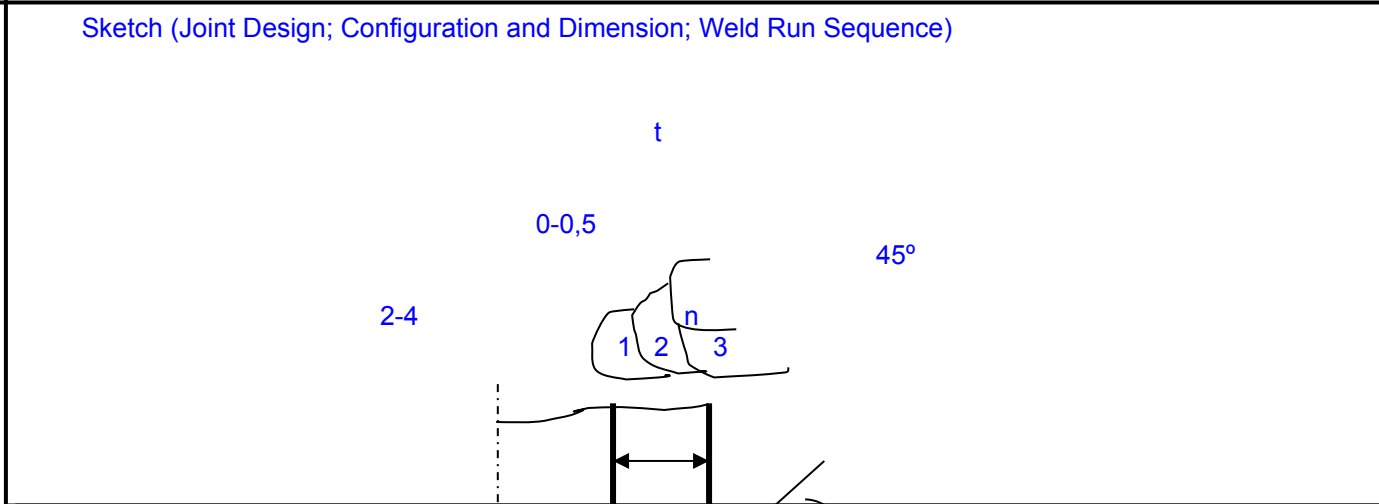
<b>Welding Process</b> 111 - Manual arc welding with covered electrode 141 - Tungsten inert gas arc welding (AWI) 311 - Oxy-acetylene welding 131 - Gas metal arc welding (MIG) 135 - Gas metal arc welding (MAG)	<b>Welding Positions</b> PA - flat position PC - horizontal-vertical position PE - overhead position PH - vertical upwards position
--	---

Prepared by _____	Reviewed by _____	Approved by _____
Date, Signature _____	Date, Signature _____	Date, Signature _____

<b>No 5. case study</b> examination documentation Budapest, 20.....  <b>IWI-S</b>	<b>WELDING PROCEDURE SPECIFICATION (WPS)</b> <b>ACC. EN 15609-1</b>	Project-No
		Project Name
		Page 1 of 2

Company Name _____	Supporting WPAR No.(s) _____
Welding Procedure Specifications No. _____	Date _____
Revision No. _____	Date _____
Welding Process(es) _____	141 according to ISO 4063

<b>Joints</b>	Backing <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Joint Design <u>BW</u>	Backing Material(Type) _____	-



<b>Positions acc. ISO 6947</b>	
Position(s) of Groove	<input checked="" type="checkbox"/> Up <input type="checkbox"/> Down
Position(s) of Fillet	

<b>Base Materials</b>	
Specification Type and Grade	P355QH1/P355NH/P235/245/265GH
to Specification Type and Grade	P355QH1/P355NH/P235/245/265GH
<b>Thickness Range (mm)</b>	
Base Metal	t=4-10
Pipe Dia. Range	-
Other	-

<b>Filler Metals</b>	<b>141</b>
Specification	ER 70S-6
Trade Name	ESAB OK Tigrod12.64
Size of Filler Metals (mm)	Ø2,4; Ø3,2
Electrode-Flux (Class)	-
Flux Trade Name	-
Consumable Insert	-
<b>Storage and Rebaking of Electrodes</b>	
Storage in Drying Oven at	- °C



Rebaking at \_\_\_\_\_ °C; \_\_\_\_\_ Min.

**No 5. case study**  
examination  
documentation  
Budapest, 20.....  
**IWI-S**

**WELDING PROCEDURE SPECIFICATION (WPS)**  
**ACC. EN 15609-1**

Project-No \_\_\_\_\_  
Project Name \_\_\_\_\_  
Page 2 of 2 (2/2 oldal)

**Welding Procedure Specification No.** 13-2

**Rev.No.** 0

**Preheat (előmelegítés)**

Preheat Temp. min. (°C) \_\_\_\_\_ Interpass Temp. max. (°C) \_\_\_\_\_ 300

For ambient temperature < 5°C, Preheating 60 - 80°C required

**Postweld Heat Treatment**

Postweld Heat Treatment  Yes  No (nem) Method \_\_\_\_\_  
Temperature Range (°C) \_\_\_\_\_ Time Range (Min.) \_\_\_\_\_  
Heating/Coding Rates (°C/Min) \_\_\_\_\_

**Gas**

Percent Composition (mixtures)

ACC. ISO 14175 Gas(es) Mixture Flow Rate (l/Min.)  
Shielding Gas Argon (I1) 99,996 8-12  
Backing Gas - - -

**Electrical Characteristics**

Weld Run	Process	Filler Metal		Current		Volt Range	Travel Speed Range mm/min <sup>1)</sup>	Heat input KJ/cm <sup>1)</sup>
		Class	Dia. mm	Type Polarity	Amp. Range			
1-n	141	ER 70S-6	Ø2,4; Ø3,2	DCEN	80-140	11-13	-	-

<sup>1)</sup> if required

Tungsten Electrode Size and Type (mm) \_\_\_\_\_ EN 26848 szerint  
Mode of Metal Transfer for GMAW \_\_\_\_\_  
Electrode Wire Feed Speed Range \_\_\_\_\_

**Technique**

String or Weave Bead	Lengetett/Weaving	Single Side Welding	<input checked="" type="checkbox"/>
Orifice or Gas Cup Size	-	Welding from Both Sides	<input type="checkbox"/>
Initial and Interpass Cleaning	Köszörülés/Grinding	Multiple Pass (per side)	<input checked="" type="checkbox"/>
Method of Back Gouging	-	Single Pass (per side)	<input type="checkbox"/>
Contact Tube to Work Distance	-	Multiple Electrodes	<input type="checkbox"/>
Other	-	Single Electrodes	<input type="checkbox"/>

**Welding Process**

111 - Manual arc welding with covered electrode  
141 - Tungsten inert gas arc welding (AWI)  
311 - Oxy-acetylene welding  
131 - Gas metal arc welding (MIG)  
135 - Gas metal arc welding (MAG)

**Welding Positions**

PA - flat position  
PC - horizontal-vertical position  
PE - overhead position  
PH - vertical upwards position

Prepared by _____	Reviewed by _____	Approved by _____
Date, Signature _____	Date, Signature _____	Date, Signature _____

<b>No 5. case study</b> examination documentation Budapest, 20..... <b>IWI-S</b>	<b>WELDING PROCEDURE SPECIFICATION (WPS)</b> <b>ACC. EN 15609-1</b>	Project-No
		Project Name
		( Page 1 of 2 (1/2 oldal)

Company Name	Supporting WPAR No.(s)
Welding Procedure Specifications No.	Date
Revision No	Date
Welding Process(es)	111 according to ISO 4063

<b>Joints</b>	Backing	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Joint Design	BW	Backing Material(Type)	-

**Sketch (Joint Design; Configuration and Dimension; Weld Run Sequence)**

Egyoldali:  $a=0,7x_{t_{min}}$   
 Kétoldali:  $a=0,5x_{t_{min}}$

<b>Positions acc. ISO 6947</b>			<input checked="" type="checkbox"/> Up	<input type="checkbox"/> Down
Position(s) of Groove	PF/PB	Welding Progression		
Position(s) of Fillet		PF/PB		

<b>Base Materials</b>	
Specification Type and Grade	S235JR
to Specification Type and Grade	S235JR
<b>Thickness Range (mm)</b>	
Base Metal	t≥5
Pipe Dia. Range	-
Other	-

<b>Filler Metals</b>	<b>141</b>
Specification	E 7018-1
Trade Name	ESAB OK 55.00
Size of Filler Metals	Ø2,5; Ø3,2
Electrode-Flux (Class)	-
Flux Trade Name	-
Consumable Insert	-

<b>Storage and Rebaking of Electrodes</b>	
Storage in Drying Oven at	80-100 °C
Rebaking at	300-350 °C; 120 Min.

<b>No 5. case study</b> examination documentation Budapest, 20.....  <b>IWI-S</b>	<b>WELDING PROCEDURE SPECIFICATION (WPS)</b>  <b>ACC. EN 15609-1</b>	Project-No
		Project Name
		Page 2 of 2

<b>Welding Procedure Specification No.</b> 13-3	<b>Rev.No</b> 0
---	-----------------

**Preheat**

Preheat Temp. min. (°C) \_\_\_\_\_ - \_\_\_\_\_ Interpass Temp. max. (°C) 300

For ambient temperature < 5°C, Preheating 60 - 80°C required

**Postweld Heat Treatment**

Postweld Heat Treatment  Yes  No Method \_\_\_\_\_

Temperature Range (°C) \_\_\_\_\_ - \_\_\_\_\_ Time Range (Min.) \_\_\_\_\_ - \_\_\_\_\_

Heating/Cooling Rates (°C/Min) \_\_\_\_\_ - \_\_\_\_\_

**Gas** Percent Composition (mixtures)

ACC. ISO 14175	Gas(es)	Mixture	Flow Rate (l/Min.)
Shielding Gas	_____	_____	_____
Backing Gas	_____	_____	_____

**Electrical Characteristics**

Weld Run	Process	Filler Metal		Current		Volt Range	Travel Speed Range mm/min <sup>1)</sup>	Heat input KJ/cm <sup>1)</sup>
		Class	Dia. mm	Type Polarity	Amp. Range			
1-n	111	E7018-1	Ø2,5; Ø3,2	DCEP	80-140	21-23	-	-

<sup>1)</sup> if required

Tungsten Electrode Size and Type (mm) \_\_\_\_\_ - \_\_\_\_\_ according to EN 26848

Mode of Metal Transfer for GMAW \_\_\_\_\_ - \_\_\_\_\_

Electrode Wire Feed Speed Range \_\_\_\_\_ - \_\_\_\_\_

**Technique**

String or Weave Bead	Lengetett/Weaving	Single Side Welding	<input checked="" type="checkbox"/>
Orifice or Gas Cup Size	-	Welding from Both Sides	<input type="checkbox"/>
Initial and Interpass Cleaning	Köszörülés/Grinding	Multiple Pass (per side)	<input checked="" type="checkbox"/>
Method of Back Gouging	-	Single Pass (per side)	<input type="checkbox"/>
Contact Tube to Work Distance	-	Multiple Electrodes	<input type="checkbox"/>
Other	-	Single Electrodes	<input type="checkbox"/>

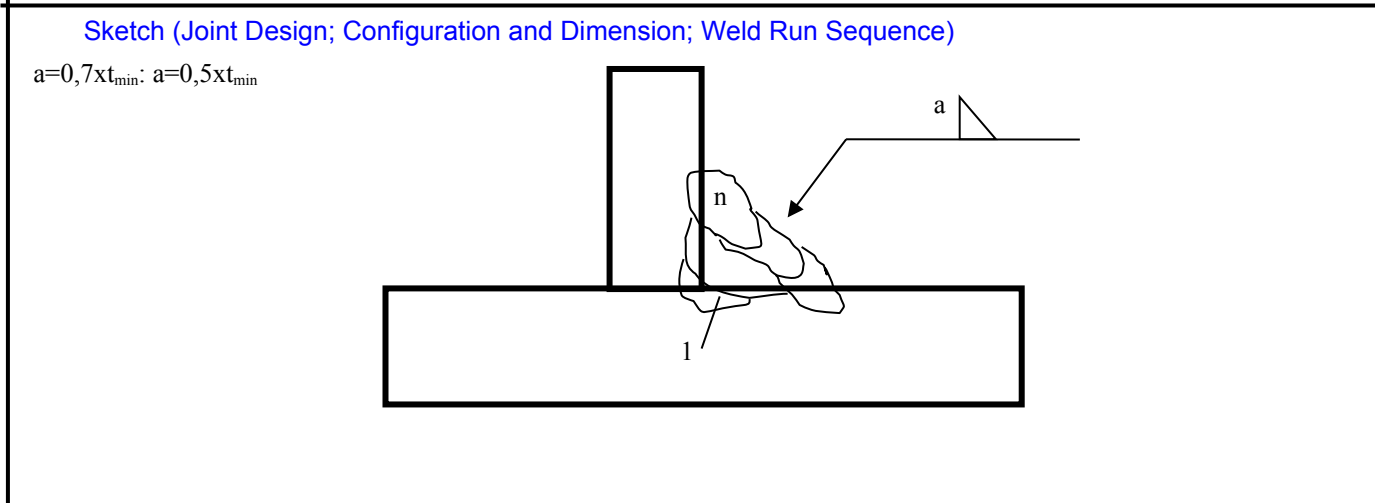
<b>Welding Process</b> 111 - Manual arc welding with covered electrode 141 - Tungsten inert gas arc welding (AWI) 311 - Oxy-acetylene welding 131 - Gas metal arc welding (MIG) 135 - Gas metal arc welding (MAG)	<b>Welding Positions</b> PA - flat position PC - horizontal-vertical position PE - overhead position PH - vertical upwards position
--	---

Prepared by	Reviewed by	Approved by
Date, Signature	Date, Signature	Date, Signature

<b>No 5. case study</b> examination documentation Budapest, 20.....  <b>IWI-S</b>	<b>WELDING PROCEDURE SPECIFICATION (WPS)</b> <b>ACC. EN 15609-1</b>	Project-No
		Project Name
		Page 1 of 2 (1/2 oldal)

Company Name _____	Supporting WPAR No.(s) _____
Welding Procedure Specifications No. _____	Date _____
Revision No. _____	Date _____
Welding Process(es) _____	141 according to ISO 4063

<b>Joints</b>	Backing <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Joint Design _____	Backing Material(Type) _____



<b>Positions acc. ISO 6947</b>			
Position(s) of Groove	PA/PH/PC	Welding Progression	<input checked="" type="checkbox"/> Up <input type="checkbox"/> Down
Position(s) of Fillet	PA/PH/PC		

<b>Base Materials</b>	
Specification Type and Grade	P355QH1/P355NH/P235/245/265GH/S235JR
to Specification Type and Grade	P355QH1/P355NH/P235/245/265GH
<b>Thickness Range (mm)</b>	
Base Metal	t=3-10
Pipe Dia. Range	-
Other	-

<b>Filler Metals</b>		<b>141</b>
Specification	ER 70S-6	
Trade Name	ESAB OK Tigrod12.64	
Size of Filler Metals (mm)	Ø2,4; Ø3,2	
Electrode-Flux (Class)	-	
Flux Trade Name	-	
Consumable Insert	-	
<b>Storage and Rebaking of Electrodes</b>		
Storage in Drying Oven at	-	°C

Rebaking at

°C;

Min.

**No 5. case study**  
examination  
documentation  
Budapest, 20.....  
**IWI-S**

**WELDING PROCEDURE SPECIFICATION (WPS)**  
**ACC. EN 15609-1**

Project-No

Project Name

Page 2 of 2 (2/2 oldal)

**Welding Procedure Specification No.**

13-4

**Rev.No.**

0

**Preheat**

Preheat Temp. min. (°C)

-

Interpass Temp. max. (°C)

300

For ambient temperature &lt; 5°C, Preheating 60 - 80°C required

**Postweld Heat Treatment**

Postweld Heat Treatment

Yes

No (nem)

Method

-

Temperature Range (°C)

-

Time Range (Min.)

-

Heating/Cooling Rates (°C/Min)

-

-

**Gas**

Percent Composition (mixtures)

ACC. ISO 14175

Gas(es)

Mixture

Flow Rate (l/Min.)

Shielding Gas

Argon (I1)

99,996

8-12

Backing Gas

-

-

-

**Electrical Characteristics**

Weld Run	Process	Filler Metal (hozaganyag)		Current (áramerősség)		Volt Range	Travel Speed Range	Heat input KJ/cm <sup>1</sup>
		Class	Dia. mm	Type Polarity	Amp. Range			
1-n	141	ER 70S-6	Ø2,4; Ø3,2	DCEN	80-140	11-13	-	-

<sup>1</sup>) if required

Tungsten Electrode Size and Type (mm)

Ø2,4; WT20

EN 26848 szerint

Mode of Metal Transfer for GMAW

-

Electrode Wire Feed Speed Range

-

**Technique**

String or Weave Bead

Lengetett/Weaving

Single Side Welding

Orifice or Gas Cup Size

-

Welding from Both Sides

Initial and Interpass Cleaning

Köszörülés/Grinding

Multiple Pass (per side)

Method of Back Gouging

-

Single Pass (per side)

Contact Tube to Work Distance

-

Multiple Electrodes

Other

-

Single Electrodes

**Welding Process**

111 - Manual arc welding with covered electrode

141 - Tungsten inert gas arc welding

311 - Oxy-acetylene welding

131 - Gas metal arc welding (MIG)

135 - Gas metal arc welding (MAG)

**Welding Positions**

PA - flat position

PC - horizontal-vertical position

PE - overhead position

PH - vertical upwards position

Prepared by

Reviewed by

Approved by

Date, Signature

Date, Signature

Date, Signature

# No 5. case study - examination documentation

2. számú esettanulmány-M

Budapest, 20..... IWI-S

## Production equipment list

No	Inventory number	Validity	Device: Type
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			

**Production equipment list**

No	Inventory number	Validity	Device: Type
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
Date /signature			

# No 5. case study - examination document

# No. 1 Annex

Budapest, 20..... IWI-S		<b>MONITORING AND INSPECTION PLAN</b>			Number:			
		<b>T-5601 and 5602 reflux and overhead line replacement.</b>			Rev.:			
		<b>EXPORT PLAN</b>			Date:			
Customer:								
No.:	Operation	Acceptance standard	Investigat ion %	Audit format	Inspector			
					Manufacturer	Ltd..	management	Technical Supervision
					Date/signature	Date/ signature	Date/ signature	Date/signature

1.	<b><u>Pre - production activities</u></b>							
1.1	Review of design documentation		100 %		H	H	H	H
1.2	Coordinating the production schedule with the customer, other construction units, the organization performing non-destructive tests	Works contract	100 %		H	H	H	
1.3	Review of the manufacturer 's QUALITY documentation							
1.3.1	Checking the welding certificate	MSZ EN ISO (3834-2)	100 %	Certificate	H	H		H
1.3.2	Quality management system certificate verification	MSZ EN ISO 9001	100 %	Certificate	H	H		H
1.3.3	Inspection of welding and test plans (WIP)	MSZ EN ISO	100 %	Heg terv szám	H	R		R



		15614-1					
1.3.4	Welding Test Inspection (WPAR)	MSZ EN ISO 15614-1	100 %	Certificate	H	H	H

1.3.5	Checking welding plans (WPS tabs)	MSZ EN ISO 15614-1	100 %	WPS	H	H		H
1.3.6	Checking the qualification of welders	MSZ EN ISO 9606-1	100 %	Certificate	H	H		H
1.3.7	Verification of certificates of non-destructive material testing personnel	(MSZ EN 473)	100 %	Certificate	H	R		R
1.3.8	Structural material acceptance and tests Min. According to the plan			Minute	H	H	H	

<b>2.</b>	<b><u>Tasks during prefabrication work</u></b>							
2.1	Inspection of cutting work: size inspection, stamping of markings	Drawing	100 %		H	W		
2.2	Workplace acceptance of manufactured components. Size control, tolerance-deformation control	Export plans	100 %		H	S		
2.3	Inspection of assembled units, joints, prescribed tolerances checking the marking of documents and materials	Drawing	100 %		H	S		

<b>3.</b>	<b><u>Inspection of welding works / Pre-production /</u></b>							
3.1	Preparation, evaluation and documentation of welding work trials	MSZ EN ISO 15614-1		jkv	H	S		
3.2	Preparation of welding seams, inspection of joint joints.	WPS	100 %		W	S		
3.3	Checking welding parameters	WPS	2 %		W	S		
3.4	Inspection of welding consumables	WPS	100 %	Receipt EN 10204 2.2	W	S		



3.5	Check the entry of seam identification marks		100 %		W	S		
3.6	Checking the entry of welding stamps		100 %		W	S		
3.7	Verification of welders' identification		100 %	List of welders + Seam map	W	S		
3.7	Control of heat treatments		100%	Hők ut, diagramm	H	S		

<b>4.</b>	<b><u>Non - destructive testing during prefabrication</u></b>							
4.1	Selection of seams to be tested		WIP	recording	H	S		
4.2	<b>VT</b>	MSZ EN ISO 17637 EN 13840-5 (MSZ EN ISO 5817)	100%	minute	H	R		
4.3	<b>RT</b>	MSZ EN 13840-5 (MSZ EN) 1435 (MSZ EN ISO 5817)	100%	minute	H	R		
4.4	<b>PT</b>	MSZ EN ISO 3452 MSZ EN 13840-5 (MSZ EN ISO 5817)	100%	minute	H	S		
-	-							
4.5	Repair of seam (s) that do not meet the criteria during the tests	WPS	100 %	minute	H			
4.6	Inspection of repaired seam (s)	WIP	100 %	minute	H	R		
4.7	Creating seam maps	WIP	100%	minute	H			



4.8	Preparation of prefabricated pieces for shipment			minute				
-----	--	--	--	--------	--	--	--	--

<b>5. Tasks during on-site installation</b>								
5.1	Preparation of welding seams, inspection of joint joints.	WPS	100 %		W	S		
5.2	Checking welding parameters	WPS	2 %		W	S		
5.3	Inspection of welding consumables	WPS	100 %	Receipt EN 10204 2.2	W	S		
5.4	Check the entry of seam identification marks		100 %		W	S		
5.5	Checking the entry of welding stamps		100 %		W	S		
5.6	Verification of welders' identification		100 %	List of welders + Seam map	W	S		
5.7	Heat treatment							

<b>6. Non-destructive tests during on-site installation</b>								
6.1	Selection of seams to be tested		WIP	Recording	H	S		
6.2	<b>VT</b>	MSZ EN ISO 17637 EN 13840-5 (MSZ EN ISO 5817)	100%	minute	H	R		
6.3	<b>RT</b>	MSZ EN 13840-5 (MSZ EN) 1435 (MSZ EN ISO 5817)	100%	minute	H	R		

6.4	PT	MSZ EN ISO 3452 MSZ EN 13840-5 (MSZ EN ISO 5817)	100%	minute	H	S		
-	-							
6.5	Repair of seam (s) that do not meet the criteria during the tests	WPS	100 %	minute	H			
6.6	Inspection of repaired seam (s)	WIP	100 %	minute	H	R		
6.7	Adjusting and checking the suspension springs			minute	H	R	R	
6.8	Creating seam maps	WIP	100%	minute	H	R		
6.9	Tightness pressure test			minute				H

<b>7.</b>	<b><u>Handover tasks</u></b>							
7.1	Size control	Export plans	100 %	measuring plate	H	S	S	S
7.2	Structural inspection of installed equipment and units	Export plans	100 %	minute	H	R		H
7.3	Implementation doc. compilation:	MSZ EN 13480- 5 9.5.1 tábl.			H			
7.4	Verification of implementation documentation			minute	H	R		R
7.5	ACCEPTANCE			minute	H	H	H	H

<b>Markings used</b>			
	<b>T: Full scope</b>	<b>(covering all items)</b>	<b>VT: Visual inspection minutes</b>
	<b>R: partial</b>	<b>(a selected portion of all items &lt;25%)</b>	<b>PT: Penetration test minutes</b>
	<b>S: random</b>	<b>(all items are arbitrarily selected &lt;10%)</b>	<b>VA: Vacuum test minutes</b>
	<b>NA: does not belong to MF. Around it</b>		<b>UT: Ultrasound examination minutes.</b>
	<b>H: hold point</b>	<b>(stop point)</b>	<b>RT: Radiographic examination minutes</b>
	<b>W: witness point</b>	<b>(reporting point)</b>	<b>MJ: geometric measurement minutes</b>
	<b>D: deviation report</b>	<b>(deviation report)</b>	<b>HT: Hardness measurement minutes</b>
	<b>WPS: welding procedure specification</b>	<b>(Welding instructions)</b>	
	<b>WIP: welding inspection plan</b>	<b>(Welding supervision plan)</b>	







## No 5. sz. case study – eexamination documentation

Budapest, 20.....IWI-S

### DETAILS OF NON-DESTRUCTIVE MATERIAL TESTERS INVOLVED IN THE CONSTRUCTION

Subject of construction:	<b>T-5601 and T-5602 reflux and overhead line replacement</b>
Place of construction:	
Implementing organization:	

No	Name of material inspector	Identification number	Level of qualification	Comment
1.				
2.				
3.				

Date:

.....  
Welding coordinator