



Learning Resources for the course:

Steel Structure Inspector Course for EN 1090

This document covers only:

Competence unit no. CU-2 EVALUATING AN INQUIRY

Table of Contents

Structure of this document:.....	2
Introduction.....	2
Objective.....	2
A. Teacher Guideline.....	3
B. Students Guideline.....	4
C. Learning resources.....	5
Video resources created for this CU.....	5
D. Students tasks.....	6
Mapping of students knowledge.....	7
F. Appendix.....	14

Structure of this document:

Introduction.

Objective.

A. Teacher Guideline.

B. Students Guideline

C. Learning resources

D. Students tasks

E. Appendix.

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 teacher may alter the reference drawings and products if that is better for the actual course and if it suits the local industry. That means that all drawings referred to as “VEIT FAZA “ can be changed to local drawings containing the same type of information. Or it might be that you will use a steel bridge as an example instead of an industry-, housing- or office structure.

But if so, then the following CUs should be verified so that the content follows naturally according the fabrication process.

Please also not that the tasks for the students are referring to the material envisaged here. If the learning resources are altered then it may happen that the tasks should be altered as well.

Time schedule for CU 2: 6 hours (4 hours studying and 2 hours zoom meeting)

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 how to evaluate an inquiry that comes to a company, from an inspectors point of view. We therefor assume that an inquiry document are present with all relevant drawings that are natural at this stage in the production flow.

The inspectors role in the evaluation of the inquiry is the main topic.

- * Which considerations shall be taken?
- * Which function and responsibility shall the inspector have if the inquiry materialize into an order?
- * How shall the inspector highlight any shortcomings in the company for this inquiry ?

As a result of this CU the inspector shall have a better understanding of his/her role in this part of the work process.

A. Teacher Guideline.

Content of the Teacher Guideline:

CU 2 is the first step in the work-based product cycle.

The VEIT FAZA Steel structure drawings are the reference documents for this CU and also serves as the basis for the course: Steel Structure Inspector Course for EN 1090. If you will run the complete course then note references to these drawings will follow you through the course. If you select to use another set of drawings then be aware that you have to harmonize the other CUs to this content.

We also assume that the students understand and can read ISOMETRIC drawings.

The students get additional resources covering welding drawings both for ISO and ASME. Both standards are added because a some steelwork is following the ASME standards. It is therefor important that the students have knowledge of the differences between those standards. A set of self test questions for the students have been added for this purpose. The questions are only meant for self test and the students are expected to go through the results by themselves.

Two general procedures have been added as reference for the students, QA-4.2-1 and QA-4.3-10 (Note these two procedures have a left column which can be used for creating an information flow diagram).

A general overview resource for planning of inspection is added. This document gives a general overview of the inspection process.

Note. If some of the students have similar products that they are in process of evaluating in their company, such products can be used as examples as well or as reference for the student.

Note. The reference course used Its Learning LMS system as a reference. If you want to distribute the Learning resources differently, then you have to inform the students on how your delivery and communication structure should be.

The report that shall be submitted by the students can also be submitted as group report.

The knowledge that the students should obtain through this CU will be used in CU 2 to develop an inspection plan for the product.

Discussions for student group work or for individual work if groups are not created:

Discuss and report on the following topics:

1. Administrative personnel- job functions and competence requirements for this inquiry.
 2. Evaluate training needs and recertification.
 3. What functions and tasks shall the inspector have for this inquiry?
- * Verify if the welding drawings are ok
 - * What function and tasks shall the inspector have?
 - * What personnel is needed for this job and what will be their required competence?

Create a short report of the findings and deliver that either as group tasks or as individual tasks

B. Students Guideline

CU 2 represents the first step in the work-based learning.

The course contains a set of Learning Resources which you can find in Internet and additionally a set of resources that have been developed for this course. It is a set of drawings that gives the basic detail for an inquiry. The key tasks is to evaluate if the welding information is correct as well as the welding information in the drawings. But in addition you have to evaluate if the company has the right resources with knowledge and competence for this job.

The tasks given here shall result in a short report.

What you learn through this CU will be used in later CU`s for developing inspection plans and so forth.

Where do you find information and learning materials etc. in the LMS system, Its Learning, that was used as the reference LMS system for the original course.

If the teacher use a different system for communication then the teacher will inform and guide you for this purpose.

Under folder with “Resources and activities”. The material is available as pdf-files, word- and excel files, and video material (online at YouTube and as MP4 files stored in the learning management system). Please notice that the written assignments should be answered by using the word-files that are embedded into the description of the tasks. **You shall not use** the Office package installed on your own device when you are using Its Learning.

If you are not using Its Learning LMS system, then the teacher have to decide where you shall find the resources for the course.

Type of work:

You have 2 weeks to complete each CU. The first week should be preparation activities, while the second week should be used to solve the tasks, exercises and hand in your results to the teacher. The learning activities include individual studies, work-based training in your company, group activities, classroom training and a digital Zoom video meeting with the teacher once per week (Saturdays) of using zoom meetings

C. Learning resources

Support resources from selected from the Internet.

Search in the Internet for these resources. Use document name and producer as reference.

Title	Producer	Language	No of pages	Copy-right
Planning and preparing for inspection	Xcalibur Learning network	English	24	no
Welding Symbols-ISO/AWS	University of Hail	English	66	no
Welding Inspection acc to EN1090-2	AAS JAKOBSEN	English		no
NYS-Steel Construction Manual	New York State	English	320	no
SLV 1090 General Part	GSI-SLV	English	24	yes

Learning resources developed in the project. These learning resources are listed in the Appendix.

Contact the producer if more information is required.

Title	Producer	Language	No of pages	Copyright
Welding symbols and drawings	ISIM	English	13	no
QA-4.2.1 Verification of contract requirements	QMS	English	1	yes
QA-4.3-10 Personnel requirements for Inspection and verification	QMS	English	1	yes
VEIT FAZA Steel structure	MHtE	Hungarian	1	no
VEIT FAZA Roof carrier-gr 38	MHtE	Hungarian	1	no
VEIT FAZA General drawing	MHtE	Hungarian	1	no
VEIT FAZA Foundation plates	MHtE	Hungarian	1	no
VEIT FAZA Pillar group -203	MHtE	Hungarian	1	no
VEIT FAZA Pillar group -22	MHtE	Hungarian	1	no
VEIT FAZA Pillar group -45	MHtE	Hungarian	1	no
VEIT FAZA Pillar group -7	MHtE	Hungarian	1	no
VEIT FAZA HEB 240	MHtE	Hungarian	1	no
VEIT FAZA Holder group 44	MHtE	Hungarian	1	no

Video resources created for this CU

No special resources have been created for this CU

D. Students tasks

Discussions for student groups or to be submitted as individual tasks for the students:

Discuss and report on the following topics:

1. Administrative personnel- job functions and competence requirements for this inquiry.
2. Evaluate training needs and recertification.
3. What functions and tasks shall the inspector have for this inquiry?

*Verify if the welding drawings are ok

* What function and tasks shall the inspector have?

* What personnel is needed for this job and what competence is required?

Create a short report and deliver that either as group tasks or as individual tasks

4. Administrative Personnel-Job functions and competence requirements for this inquiry.
5. Evaluate training needs and recertification.
6. What functions and tasks shall the inspector have for this inquiry?

Task: Sketch the welded joints shown in the drawing, and symbolize them

Task: Study the technical drawings, 1.1-1.2 and 1.3 Kivitele terv

Discussions topics for the students:

* The control requirements for the inquiry ---hall it be valid for all items in the inquiry or a limited number of items?

· What does all items means?

· What does a limited number means?

* Will your decisions here for this inquiry also be valid for an identical inquiry from the same client?

· Shall your decisions be approved by the client?

- If we are using a subcontractor-- how will this be influenced by the decisions above?

Additional questions to be given to the students in order to map their knowledge after submitting their tasks to the teacher.

Mapping of students knowledge

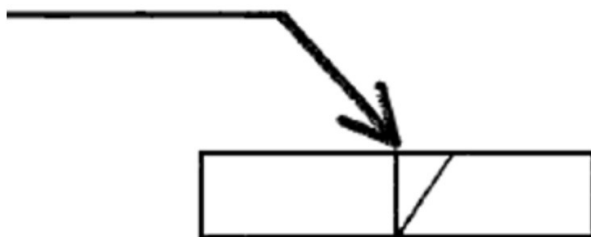
The intention of this student mapping is to let the students get an overview of their knowledge in some of the important topics in this CU. The result is for information and reference to the students only.

1. Which EN standard is used for welding symbols on drawings?

- * EN ISO 5817
- * EN ISO 4063
- * EN ISO 2553
- * EN ISO 12153
- * I don't know

2. How shall the symbol be arranged ?

The arrow line:



- None of the above
- I don't know
- Shall touch the joint intersection
- Shall never be parallel to the surface of the plates
- Shall point always towards the root plate preparation

3. Basic welding symbol consist of:

- * An arrow line

- * A reference line
- * A tail
- * a,b,c
- * I don't know

4. The welding symbol “a” on a drawing for a fillet weld, represents:

- * Leg length
- * Penetration depth
- * Nominal throat thickness
- * Deep penetration throat thickness
- * I don't know

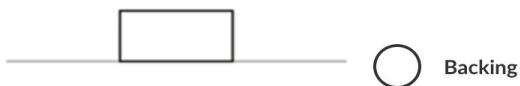
5.

Designation of this elementary symbol is:



- Flare bevel
- Single-U butt
- Flare V
- Square butt
- I don't know

Designation of this supplementary symbol is:



- Permanent backing
- Removable backing
- Spacer
- I don't know

6.

7. Nominal weld length dimensions shall be placed to:

- * The right of the elementary symbol

- * The left of the elementary symbol
- * Above of the elementary symbol
- * No answer is correct
- * I don't know

8. In the case of an intermittent weld, the “e” term represents:

- * Number of weld elements
- * Length of each weld element
- * Spacing between weld elements
- * None of the above
- * I don't know

9. A drawing with symbols to EN ISO 2553 will show a 7mm leg filler by which of the following:

- * a7
- * t7
- * z7
- * b7
- * I don't know

10. No dimension to the left of the elementary symbol “single-V butt” indicates that the weld shall be:

- * Full penetration
- * Continuous
- * Intermittent
- * None of the above
- * I don't know

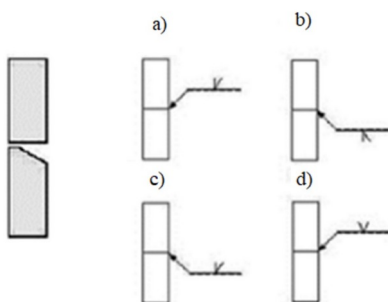
11. No dimension to the right of the elementary symbol “single-V butt” indicates that the weld shall be:

- * Full penetration
- * Continuous
- * Intermittent
- * None of the above
- * I don't know

12. According to EN ISO 2553 – in system A, the dashed component of the reference line can be drawn:

- * Above or below the continuous line
- * Only above the continuous line
- * Only below the continuous line
- * No dashed line is required
- * I don't know

13. Which symbol for the weld seam is correct according to EN ISO 2553 ?



- * a)
- * b)
- * c)
- * d)
- * I don't know

14. The number 141 is shown at the tail-end of a weld symbol reference line. According to EN ISO 2553, what does this number indicate?

- * Welding process
- * Type of welding electrode
- * Welding position
- * Total weld length
- * I don't know

15. Asymmetrical weld symbols to EN ISO 2553 are:

- * The same both sides of the arrow
- * Different each side of the arrow
- * Show fillet welds only
- * Show butt welds only
- * I don't know

Additional Test yourself Questions

1. When should material dossier verification and validation be performed?

- * Before manufacturing
- * After manufacturing
- * Not required
- * During manufacturing
- * I do not know

2. When should the technical drawings be checked?

- * After manufacturing
- * Not required
- * Not often
- * Before manufacturing
- * I do not know

3. Who determines the types of documents specified in the standard MSZ EN 10204 during the production of the product?

- * Always the legislation
- * The radiographic report
- * The controlling plan
- * The consignee of the product
- * I don't know

4. Why should welded joints be monitored?

- * Have work of a quality inspector
- * Be found and documented in the event of failure
- * No monitoring is required
- * Monitoring is a profession
- * I don't know

5. Arc welding may be done by which of the following processes:

- * SAW
- * GMAW
- * SAW and GMAW
- * I don't know

6. Which of the following types of defects other than cracks may be repaired with prior customer authorization?

- * Cracks in the root
- * Cracks in the filler beads
- * Excessive undercut
- * I don't know

7. Testing of weld repairs requires:

- * All repairs be re-radiographed
- * All repairs be ultrasonically tested
- * The repaired areas to be re-radiographed or inspected by the same means previously used
- * I don't know

8. Pipe shall be welded only by:

- * Qualified welders
- * Pipeline welders
- * Both of the above
- * I don't know

9. A record of certified non-destructive testing personnel shall be kept by the company. Level I and Level II NDT personnel (EN ISO 9712) shall be re-certified at least every:

- * Year
- * 2 years
- * 5 years
- * I don't know

10. Why should welded joints be monitored?

- * Have work of a quality inspector

- * Be found in the event of failure.
- * No monitoring is required.
- * Monitoring is a profession.
- * I do not know.

11. Who determines the types of documents specified in the standard MSZ EN 10204 during the production of the product?

- * Always the legislation.
- * The radiographic report.
- * The controlling plan.
- * The consignee of the product.
- * I do not know.

12. When should the technical drawings be checked?

- * After manufacturing.
- * Not required.
- * Not often.
- * Before manufacturing.
- * I do not know.

13. When should material dossier verification and validation be performed?

- * Before manufacturing.
- * After manufacturing.
- * Not required.
- * During manufacturing.
- * I do not know

E. Evaluation of this CU.

The evaluation is a short multiple choice based questions added to get feedback from the student for this CU. For the course itself a more comprehensive questionnaire has been developed and can be used.

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.

The list is according the table: Learning resources developed in the project. Se paragraph C-Learning Resources.

The learning resources for this CU have been scanned and merged together as one document.

M1.2 Welding symbols and drawings

Weld symbols are a way of communicating design details to different shop personnel as welders, supervisors, and inspectors. A weld symbol indicates the type of weld. The Welding symbol is a method of representing the weld on drawings.

Subcontractors are often required to interpret weld symbols on contractor or client drawings. It is essential that everyone should understand the weld symbol requirements, in order to ensure that the initial design requirement is met.

Although the main features of weld symbols are international, variations in detail occur from country to country. In Europe the welding symbols are specified in EN 22553:1994 "Welded, brazed and soldered joints – Symbolic representation on drawings". The below welding symbolization will refer to this standard. For weld drawings the referential is EN ISO 9692: Welding and allied processes - Joint preparation.

WELD DRAWING TERMINOLOGY:

- ◆ Weld leg
- ◆ Weld face
- ◆ Weld throat
- ◆ Weld groove radius
- ◆ Root opening (groove weld)
- ◆ Weld root face
- ◆ Weld groove angle

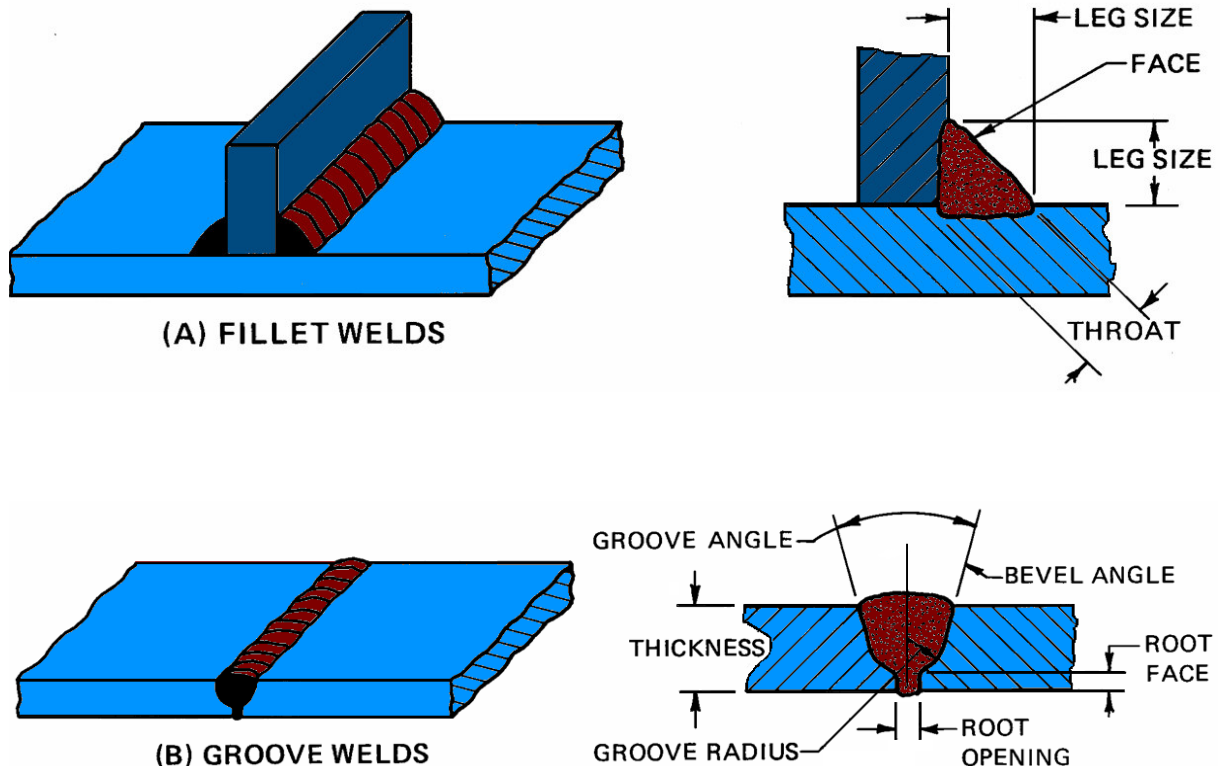


Figure 1: weld drawing terms

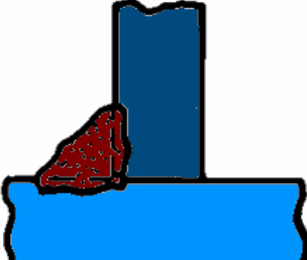
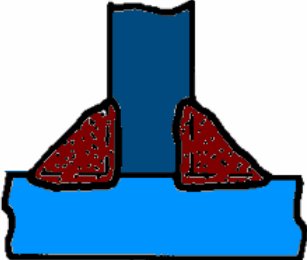










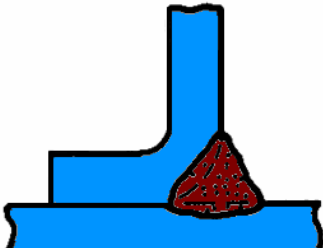
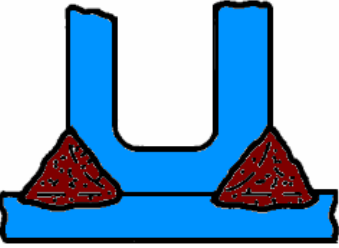
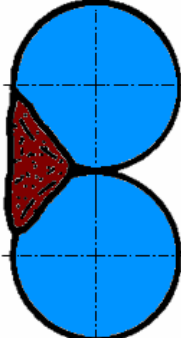

TYPE OF WELD		single side	double side
FILLET			
BUTT	SQUARE		
	BEVEL GROOVE		
	V-GROOVE		
	J-GROOVE		
	U-GROOVE		
FLARE- BEVEL GROOVE			
FLARE-V GROOVE			

Figure 1: Type of welded joints

WELDING SYMBOLS: include supplementary information & consists of the following elements.

- Reference line
- Arrow
- Basic weld symbol
- Dimension and other data
- Supplementary symbols
- Finish symbols
- Tail
- Specification, process or other reference

For symbolization, the position of a joint to be welded is indicated by an arrow. The arrow points to one side of the joint. This is called the **ARROW** side.

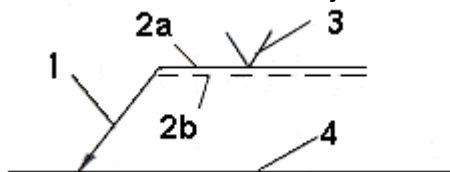
Arrow side - for fillet, groove, and flanged weld symbols, the arrow connecting the welding symbol reference line to one side of the joint

Other side – the side opposite the arrow side.

BASIC WELDING SYMBOLS

Information about the weld is given on a reference line attached to the arrow at a pivot. The reference line is always horizontal and the arrow can swing about the pivot to point at the weld. Details of the weld on the arrow side of the joint are given on the solid line. Other side information is on the dotted line, which can be shown above or below the solid line.

The identification line may be above or below the continuous reference line.



1.arrow line; 2a. Reference line (continuous line, 2b. Identification line (dashed line); 3. Welding symbol, 4. Welded joint

Figure 3: Representation of the main elements in weld symbolization

The arrow line can be at any angle (except 180 degrees) and can point up or down.

The broken reference line is an additional feature.

It is used when a weld preparation needs to be specified on the 'other side' of the arrow as shown in *Fig.3*.

Any symbol that is used to show a joint or weld type feature on the other side of the arrow line is always placed on a dotted line.

A fillet weld is indicated by a triangle placed on the reference line.

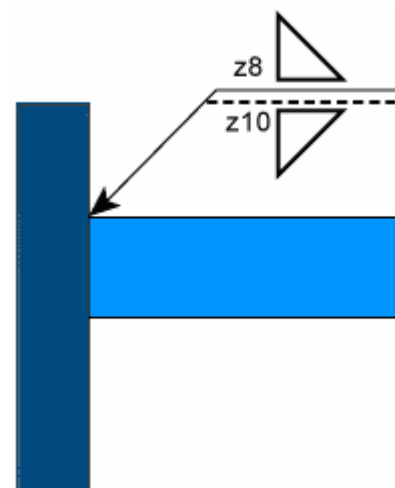
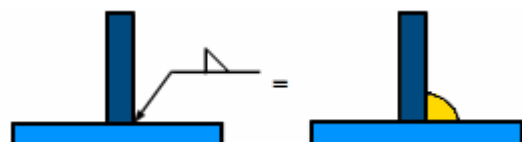


Figure 4: Use of a broken reference line

A triangle on the reference line: specifies a fillet weld on the *arrow side* of the joint.



A triangle on the dotted line:
specifies a fillet weld on the *other side* of the joint.

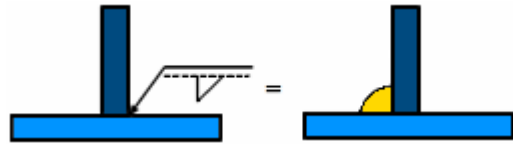
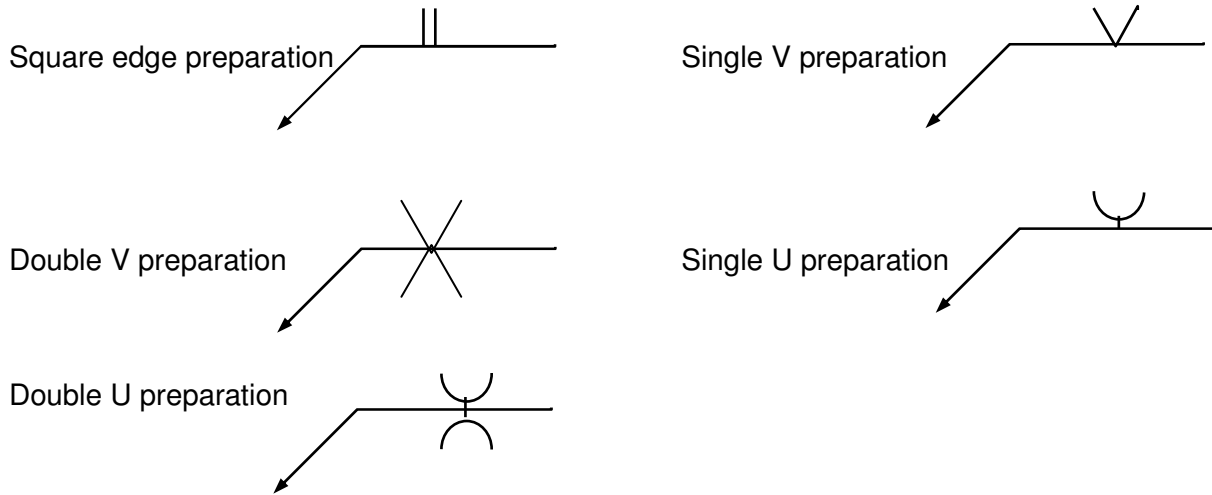


Figure 5: Fillet welds symbolization

TYPES OF BUTT WELDS SYMBOLIZATION

The common types of edge preparation associated with a butt weld are indicated as follows:



In some cases of joint preparation, only one part is prepared, e.g. single bevel butt or single J butt. In these cases, the arrow points at the edge to be prepared. The vertical upright of the symbol is always to the left on the reference line.

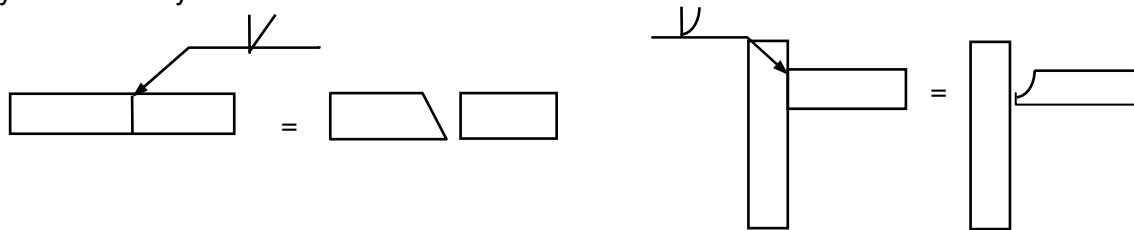


Figure 6: single bevel butt symbolization

DIMENSIONING OF FILLET WELDS

EN 22553 requirements

a = design throat thickness

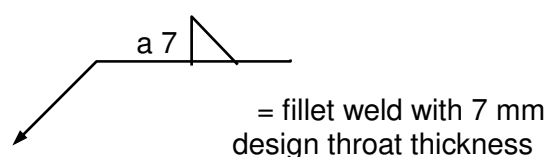
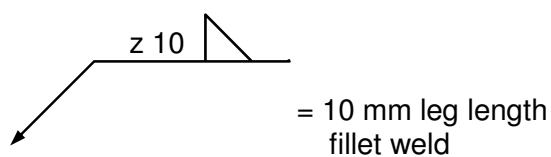
z = leg length

S = actual throat thickness

The leg length of a fillet weld is located to the left of the weld symbol (triangle). The dimension is in millimeters preceded with the letter “z”. Throat thickness is indicated in the same way but is preceded by the letter “a”. If no letter is shown on a drawing, then assume the dimension is leg length.

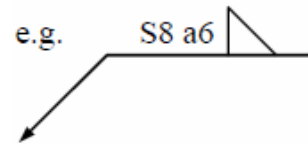
The European system uses mainly the “a” value, while the American one uses the “z” value.

As rule: Design Throat Thickness (“a”) = Leg Length (“z”) x 0.7.



For deep welds with penetration, the dimensions are indicated as follows:

a weld of 6 mm design throat, with an 8 mm actual throat desired. The actual throat thickness value is preceded by "S"



Intermittent fillet welds are dimensioned by giving:

- number of weld elements ("n")
- length of weld element ("l")
- distance between weld elements ("e")

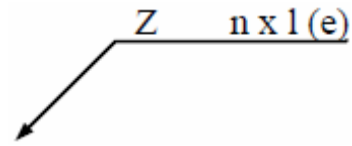


Figure 7 shows the difference between the design throat thickness "a" and the actual throat thickness value "S" for a fillet weld.

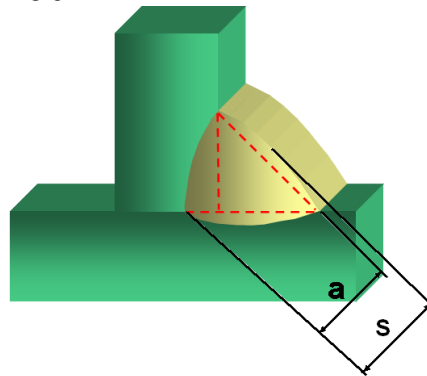


Figure 7

Figure 7 shows the difference between the design throat thickness "a", which normally should be thickness value and the actual throat thickness value "S", who in this case is 15 mm.

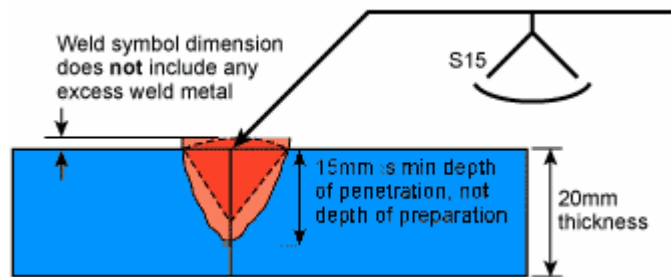


Figure 8:

Often the number of weld elements ("n") is not specified. In this case the symbol can also be written as l (e) l, the length being repeated. The length is always given in centimeters.

A staggered fillet welded joint, realized with access from both sides, can be symbolized by placing a 'Z' through the reference line (Fig.9).

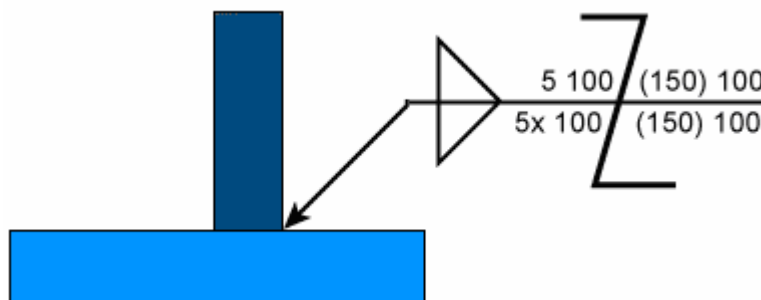


Figure 9: staggered fillet welded joint

A symbol as in the next figure on a double fillet means the weld elements are to be staggered on either side of the joint.

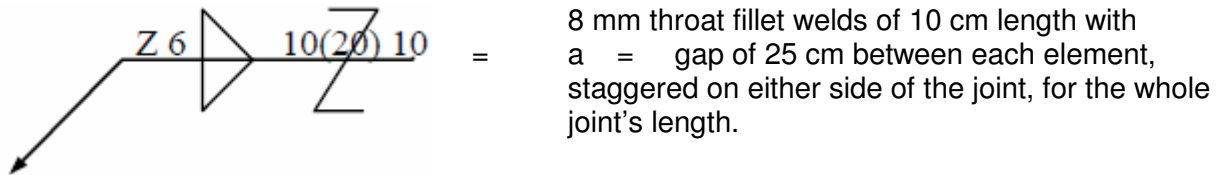


Figure 10: staggered fillet welded joint

SURFACE PROFILES SYMBOLS:

The surface profile can be indicated by an extra symbol placed on top of the weld symbol. Butt welded configurations would normally be shown as a convex profile (Fig.11 a, d and f) or as a dressed-off weld as shown in Fig.11 b and c. Fillet weld symbols are always shown as a 'mitre' fillet weld (a right angled triangle) and a convex or concave profile can be superimposed over the original symbol's mitre shape.

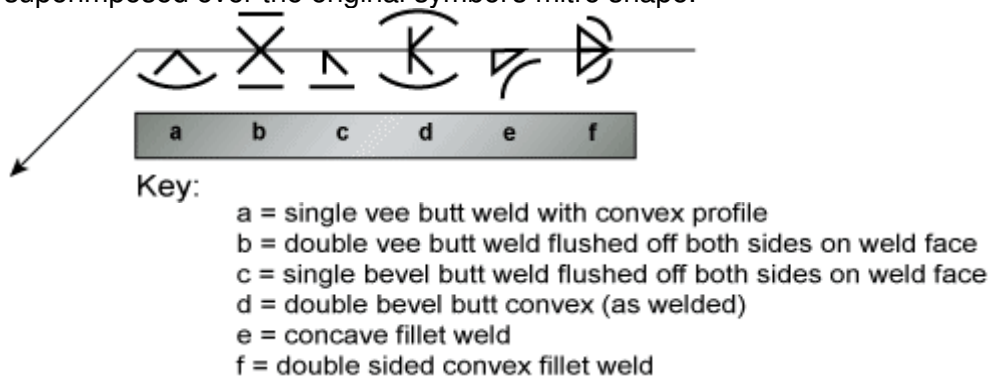


Figure 11: welded configurations profiles

The symbols, in particular for arc and gas welding, are often shown as cross sectional representations of either a joint design or a completed weld. Simple, single edge preparations are shown in the next figure.

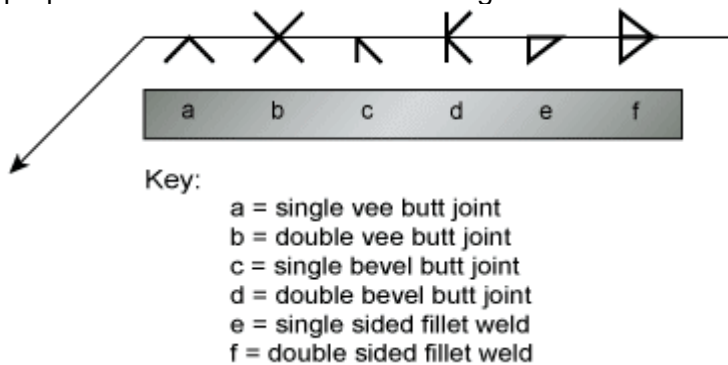


Figure 12: simple edge preparations

The weld symbols for resistance welding, spot weld and seam are as in the next figure:

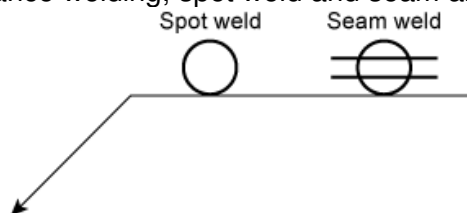


Figure 13: weld symbols for resistance welding

BASIC WELD SYMBOLS																
FILLET	PLUG OR SLOT	STUD	SPOT OR PROJECTION	SEAM	BACK OR BACKING	SURFACING	FLANGE		GROOVE WELDS							
							EDGE	CORNER	SQUARE	SCARF	V	BEVEL	U	J	FLARE-V	FLARE-BEVEL

SUPPLEMENTARY SYMBOLS:

Weld symbols indicate the type of preparation to use or the weld type. However, there may be necessary to add other informations.

To the basic information symbols supplementary symbols should be added to in order to provide more details, as shown in *Figures 14, 15 and 16*.

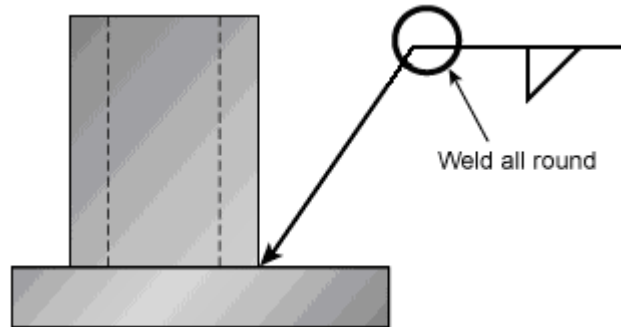


Figure 14:

When there are no specific dimensional requirements specified for butt welds on a drawing using weld symbols, it would normally be assumed that the requirement is for a full penetration butt weld (*Fig. 15*).

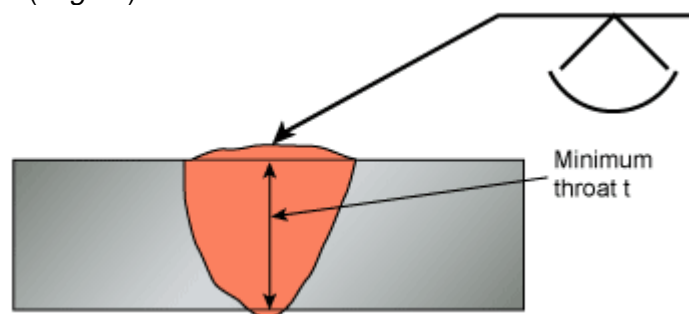


Figure 15:

Numbers to the right of a symbol or symbols relate to the longitudinal dimension of welds, e.g. for fillets, the number of welds, weld length and weld spacing for non-continuous welds, as *Fig. 4*.

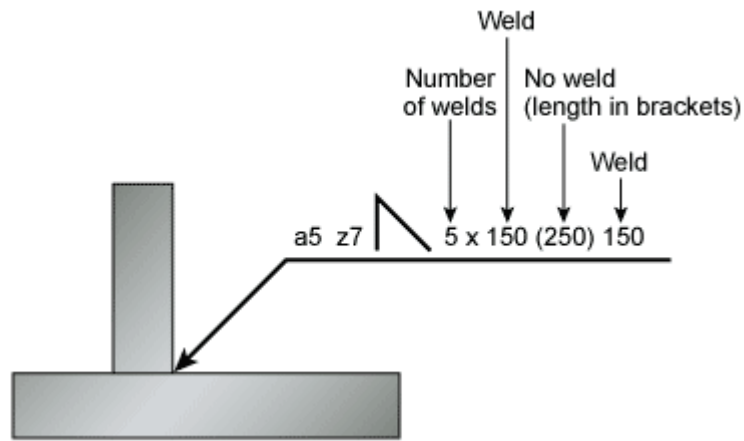


Figure 16:

Symbolization of a weld realized on-site:

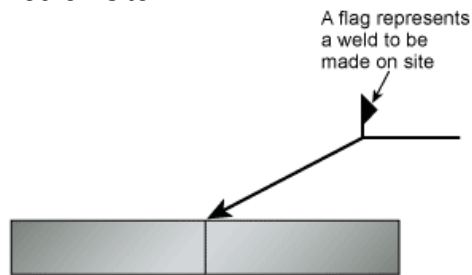


Figure 17:

Symbolization of a weld examined by means of NDT processes (Fig. 18).

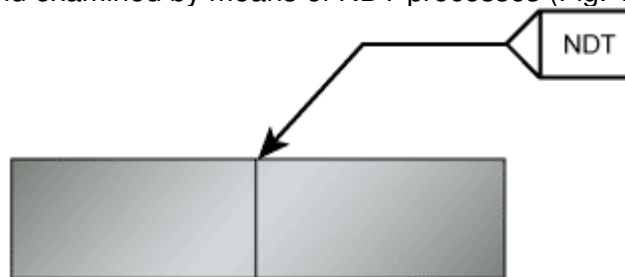


Figure 18:

Welding process type

ISO 4063 gives each welding processes a specific reference numbers. As shown in *Fig.19* the appropriate process number is placed in the tail of the arrow. Other processes are given a unique number. In this example, 135 refers to MAG welding.

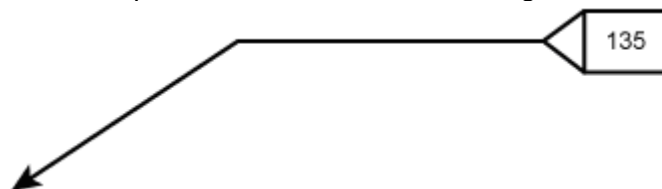


Figure 19:

There are a number of additional symbols given in the Standards (*eg* EN 22553) which refer to additional welding or joint requirements. *Figure 20* shows the requirement for a sealing run.

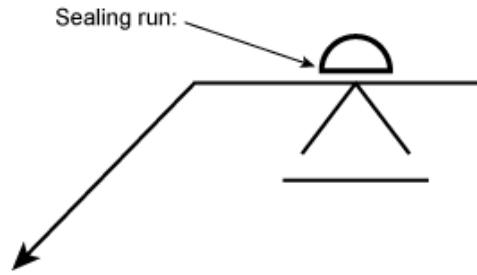


Figure 20:

Compound joints/welds

A compound weld could be a 'T' butt weld which requires fillet welds to be added to increase the throat thickness as shown in *Fig.21*.

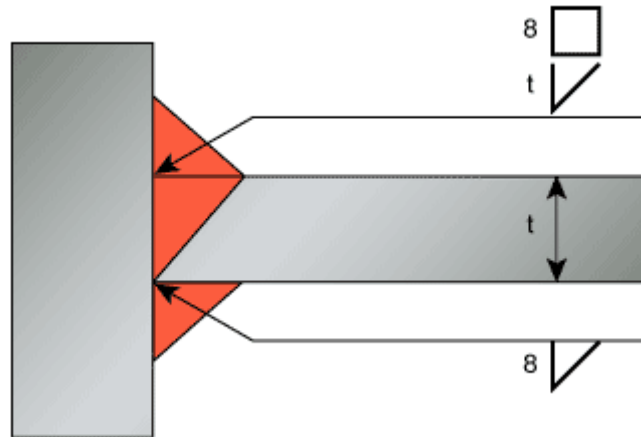


Figure 21:

Summary

A welded joint may be represented in different ways, depending on the drawing (figure):

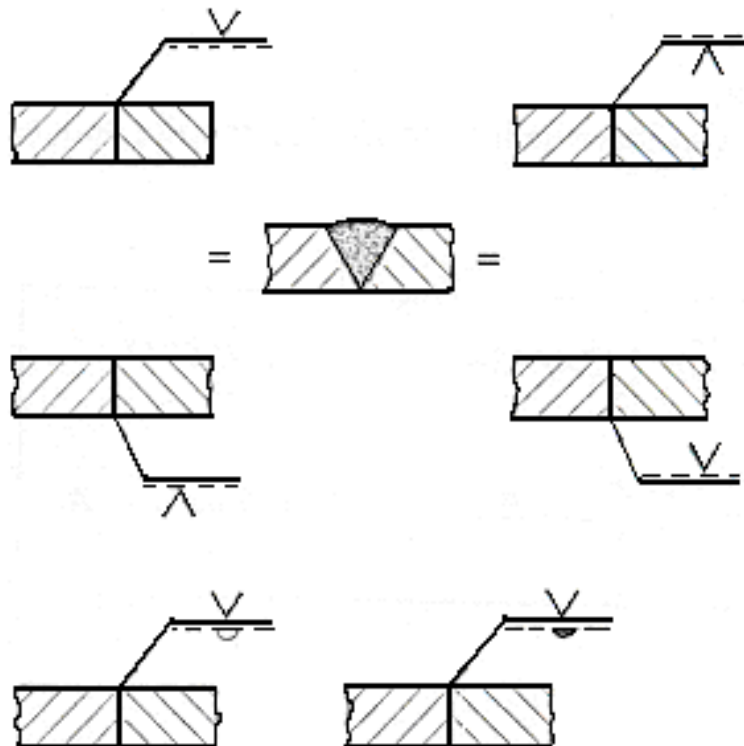
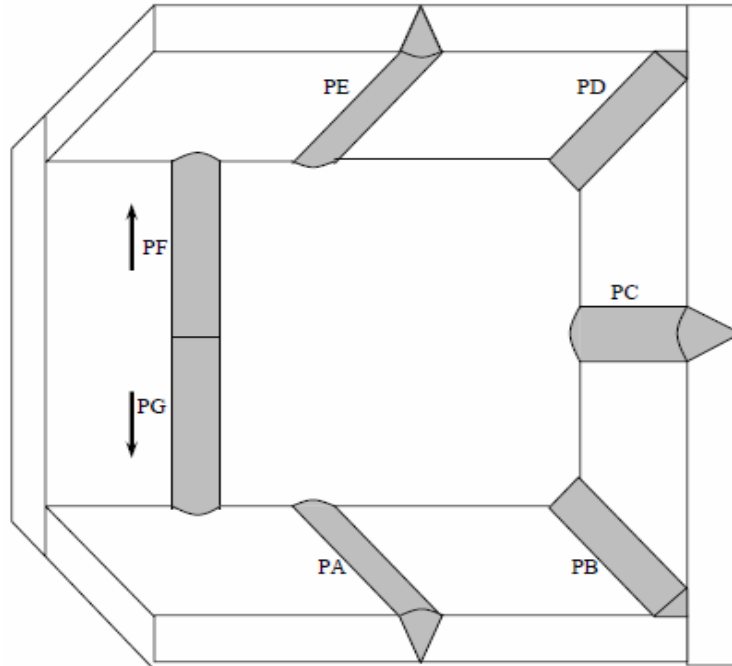


Figure 22:

WELDING POSITIONS: are defined according to EN ISO 6947:2001 (Welds - Working positions - Definitions of angles of slope and rotation)



- PA Flat.
- PB Horizontal vertical.
- PC Horizontal.
- PD Horizontal overhead.
- PE Overhead.
- PF Vertical up.
- PG Vertical down:

Figure 23: welding positions

Examples of weld symbolizations:

The examples below which show the weld required and their symbolization.

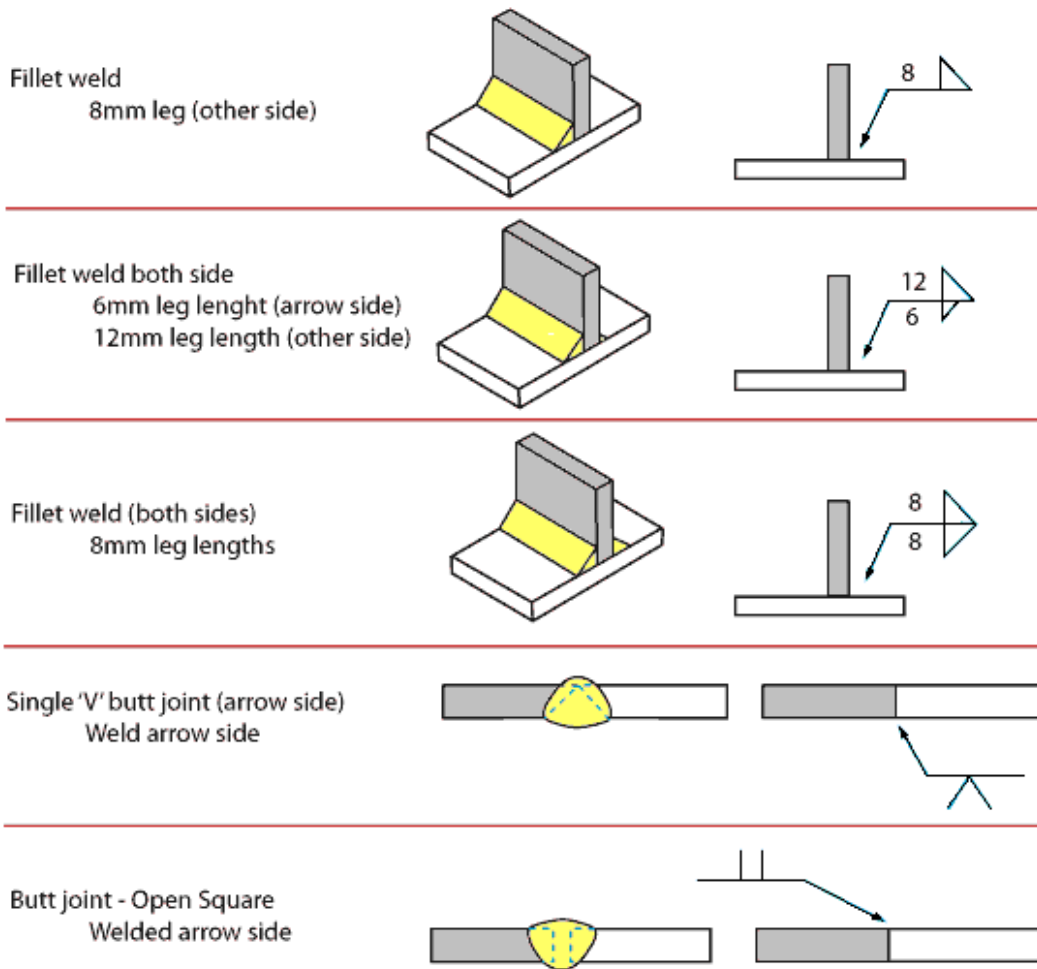


Figure 24:

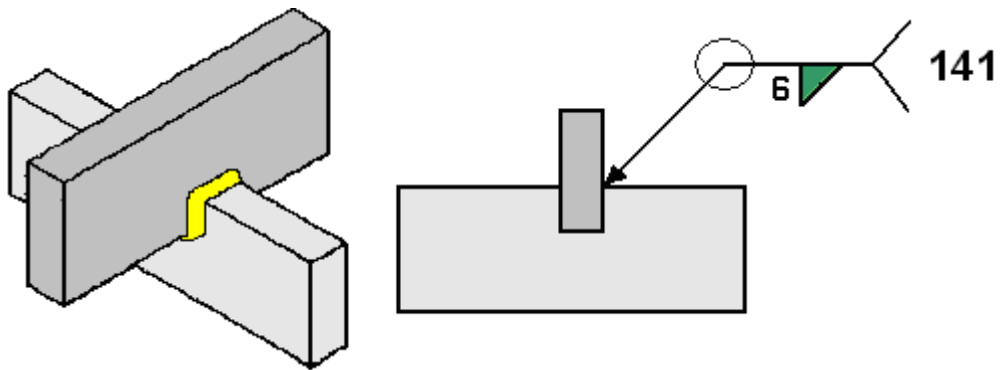


Figure 25: Contour welding symbolization

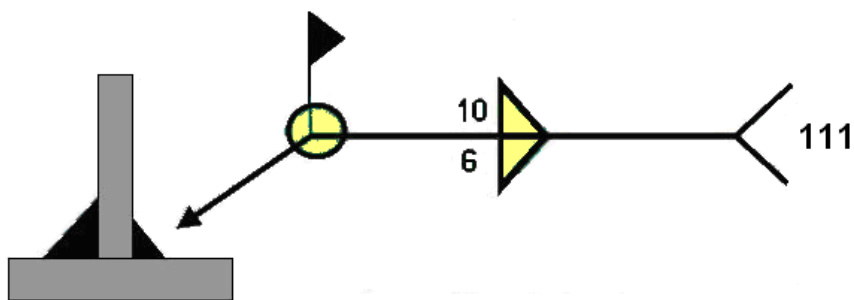
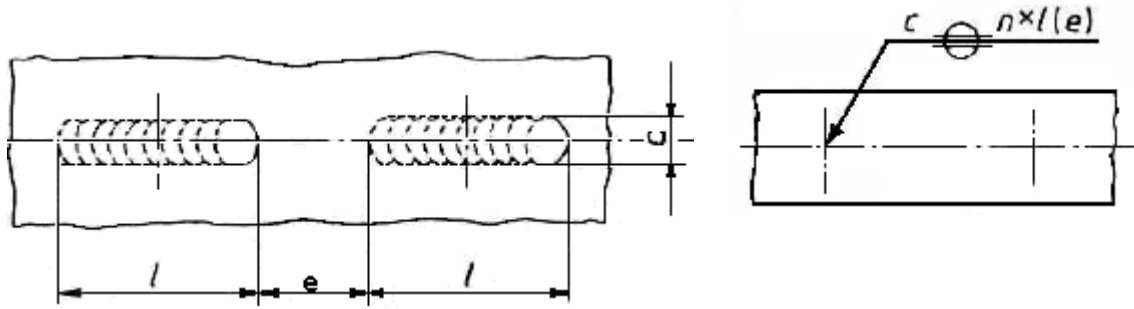


Figure 26: Contour weld realized on site



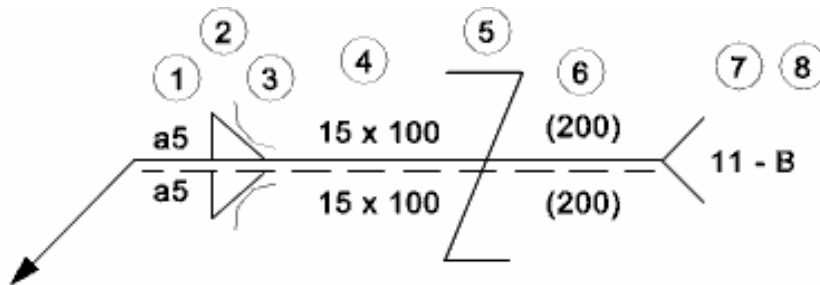
Where:

c – width of welded joint

l – length of welded joint

e – distance between welded joints

Figure 27: Symbolization of an interrupted resistance spot welding

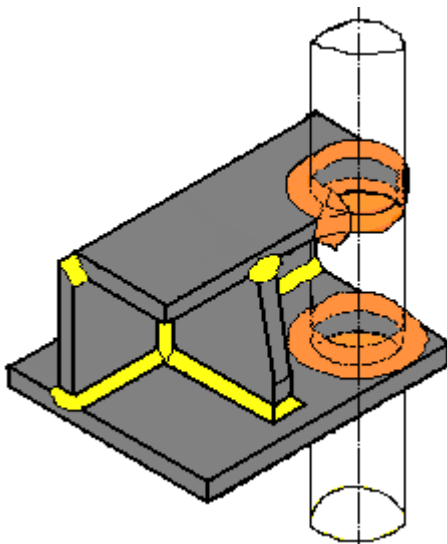


Information above reference line identifies weld on same side as symbolic representation

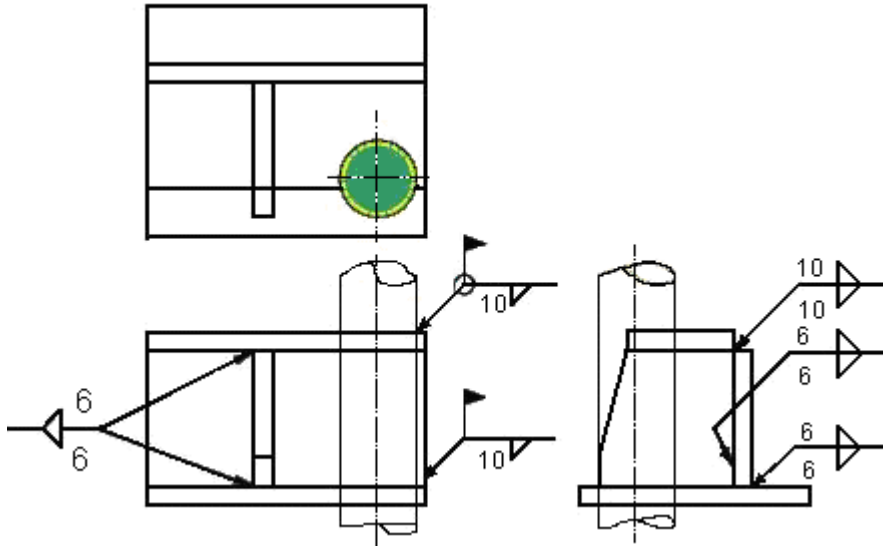
Information below reference line identifies weld on opposite side to symbolic representation.

- 1) Dimension referring to cross section of weld
- 2) Weld Symbol
- 3) Supplementary symbol
- 4) Number of weld elements x length of weld element
- 5) Symbol for staggered intermittent weld
- 6) Distance between weld elements
- 7) Welding process reference
- 8) Welding class

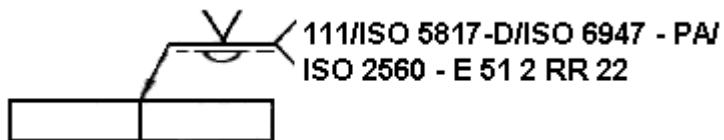
Establishing of the projections followed by the designation of the welds to be realized



Upper and lateral view of the final product:



Example of full designation of a welded joint:



Home work:

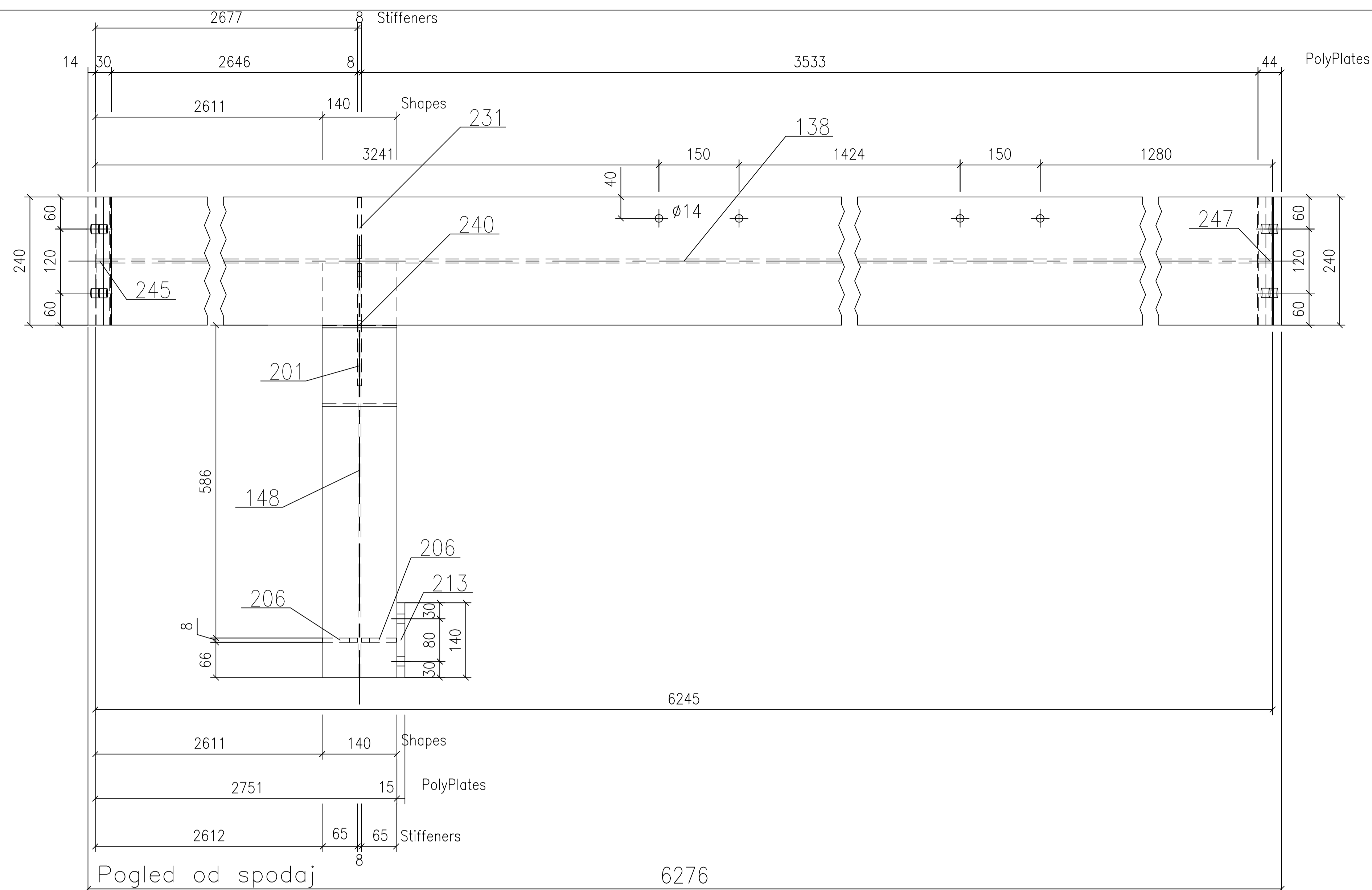
Please sketch and symbolize, using as referential EN 22553 and EN 9692, following welds:

1. Plates: 2 mm thickness, butt welded, TIG process, welded from one side
2. Plates: 5 mm thickness, butt welded, MAG process, welded from one side
3. Plates: 8 mm thickness, butt welded, E process, welded from one side
4. Plates: 8 mm thickness, fillet welded, E process, welded from one side
5. Plates: 12 mm thickness, fillet welded, E process, welded from both sides
6. Plates: 12 mm thickness, fillet welded, SAW process, welded from both sides
7. Plates: 16 mm thickness, butt welded, E process, welded from one side, K joint
8. Plates: 16 mm thickness, butt welded, E process, welded from one side, T joint
9. Plates: 20 mm thickness, butt welded, SAW process, welded from one side
10. Plates: 20 mm thickness, butt welded, SAW process, welded from one side
11. Plates: 24 mm thickness, butt welded, GMAW process, welded from one side
12. Plates: 24 mm thickness, butt welded, SAW process, welded from both side.

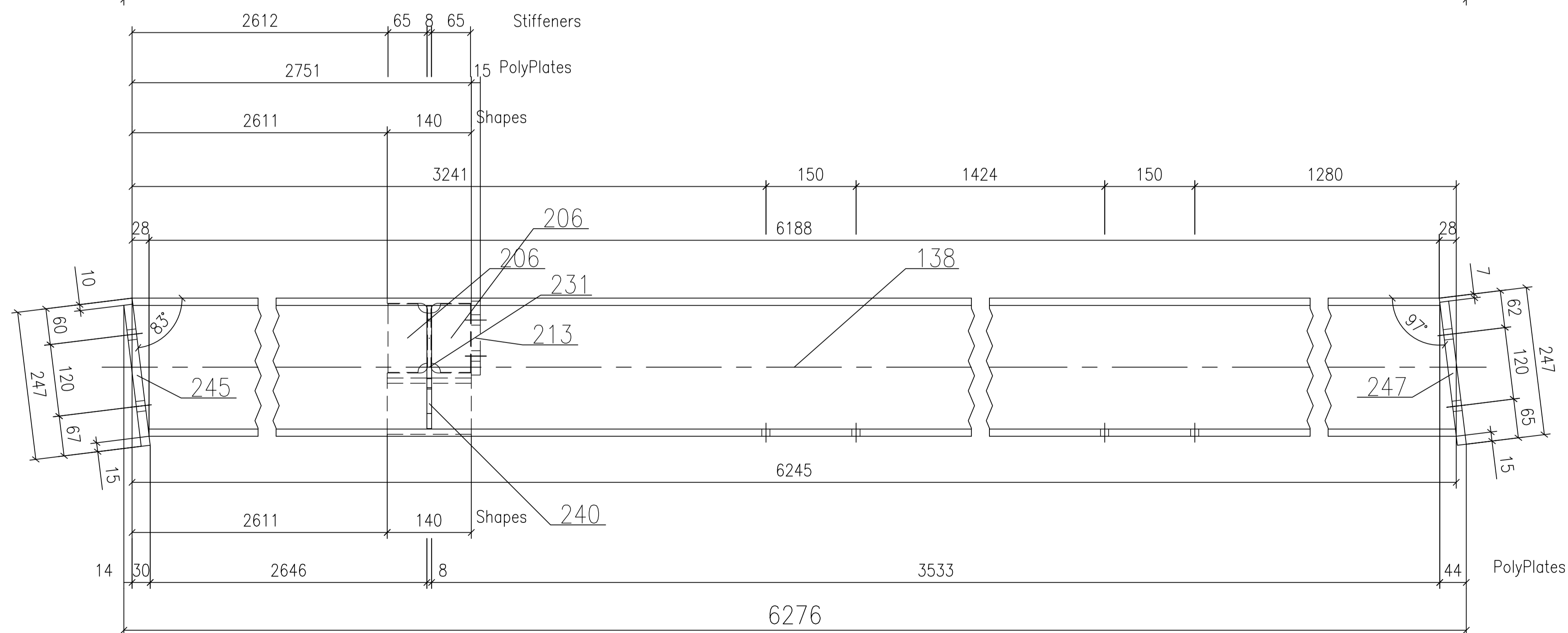
© QM Software		VERIFICATION OF CONTRACT REQUIREMENTS			Procedure No.: 4.2-1							
		Rev. no.:		Page: 6 of: 13								
Project:		Order:	Section:									
Target:	Ensure that all requirements for personnel are met.											
Purpose:												
Scope:												
Responsibility:							Welding Coordinator					
Reference:												
			OK/ NOK	Not rel.	Date sign.							
		1. Verify that personnel requirements can be met in due time before production starts.										
		2. Verify that requirements for welding coordination can be met.										
		3. Verify that the company has the necessary number of qualified welders.										
		4. Verify that the company has the necessary number of qualified plate workers.										
		5. Verify that the company has the necessary number of qualified pipe welders.										
		6. Verify that the company has qualified NDT management										
		7. Verify if it is required to have a visual inspector.										
		8. Verify that the company has the necessary number of qualified NDT operators.										
		9. Verify if it is required that an independent 3-party institution is required for verification, test and updates of welders certificate.										

Created by:	Approved by:	Date:	Manual no.:
-------------	--------------	-------	-------------

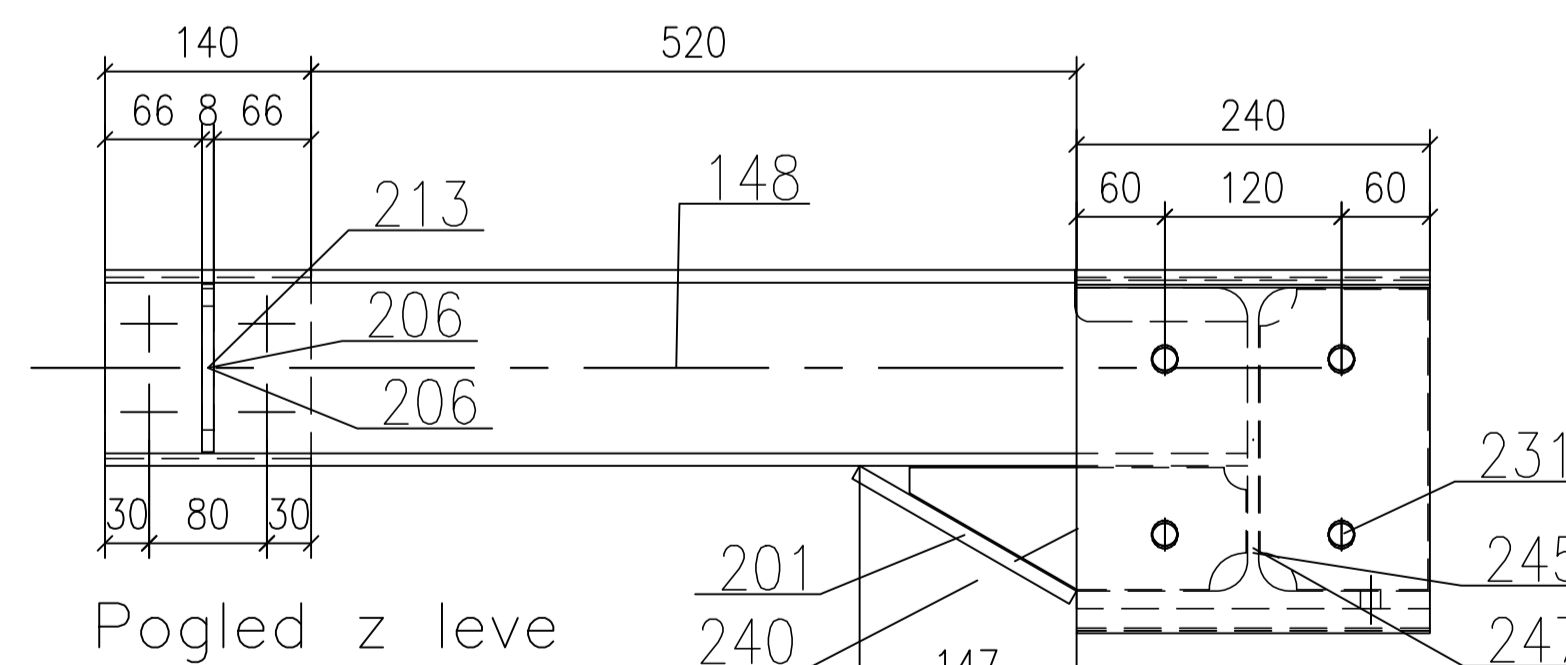
I:\FERD02\Use\Shares\oddo\ARHIV\DN 2019\DN ostalo 19\DN118 VEI.3\servis II.faza\Nacrti\Delovniška_VEI1_FAZA_2_odoc (2).dwg



Pogled od spodaj



Poz: 38 Pogled od spredaj (M1:10)
HE 240 A (1 kosov)
Dolžina 6276



Pogled z leve

IZVEDBENI RAZRED

EXC 2

POŽARNA ODPORNOST

- NI POŽARNE ODPORNOSTI

VARJENJE

- VARJENJE MORA BITI V SKLADU Z EXC

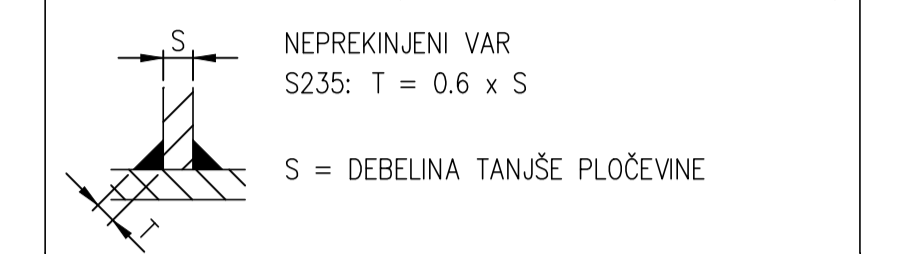
- EXC1: Kvaliteta izdelave D, EN 5817

- EXC3: Kvaliteta izdelave C, EN 5817

- EXC3: Kvaliteta izdelave B, EN 5817

- VSI NEOZNAČENI VARI SO NEPREKINJENI

TIPIČNI DETAIL VARJENJA (RAZEN ČE NI OZNAČENO DRUGAČE)



TOLERANCE

- EXC 1 - dimenzije toleranc v skladu z EN1090-2; Razred 1

- EXC 2 - dimenzije toleranc v skladu z EN1090-2; Razred 1

BARVANJE

- PRIPRAVA POVRŠINE: PESKANJE Sa 2½ (ISO 8501-1),

RAZRED ZAŠČITE C3 (SIST EN ISO 12944-2), TRAJNOST M

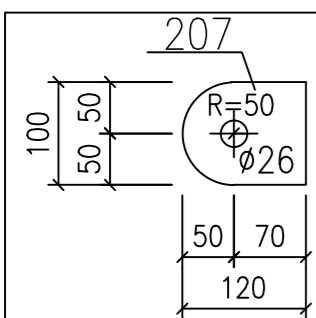
- KONČNI SLOJ: _____

Poz.	Kosov	Predmet in mere	Dolžina	Gradivo	Teža	Skupna teža
GR38	1	HE 240 A	6276		416.4	416.4
138	1	HE 240 A	6245	S235J0	376.6	376.6
148	1	HE 140 A	776	S235J0	19.2	19.2
201	1	FL 140x10	170	S355J2	1.9	1.9
213	1	PLATE 140x123x15	140	S235J0	2.0	2.0
240	1	PLATE 228.75x83x8	229	S235JR	0.9	0.9
245	1	PLATE 240x236.75x15	240	S235J0	6.7	6.7
247	1	PLATE 240x240x15	240	S235J0	6.8	6.8
S206	2	PLATE 114x65x8	114	S235JR	0.4	0.9
S231	1	PLATE 204x114x8	204	S235JR	1.4	1.4

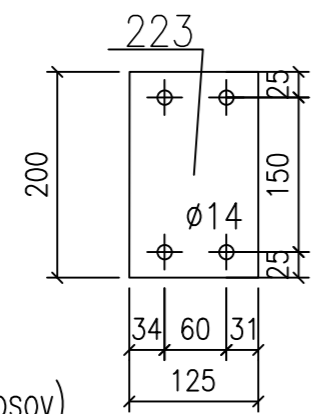
Total weight of 10 parts with 3 % addition 428.8

Poz.	Kosov	Predmet in mere	Dolžina	Material	Masa	Masa skupaj
Št.	Sprememba	Datum Podpis	Datum	Ime	Podpis	Investitor:
		Risal	maj 2019	Jože Štih	<i>[Signature]</i>	VEIT TEAM d.o.o.
		Konstruiral	maj 2019	Jože Štih		Čufarjeva ulica 24
		Pregledal	maj 2019			1230 Domžale
		Odobril	maj 2019			PRODAJNO SERVISNI OBJEKT- DOZIDAVI
Merilo:	Naslov risbe:					DN:
1:10	Strešni nosilec poz.:38					Št.risbe:
						38

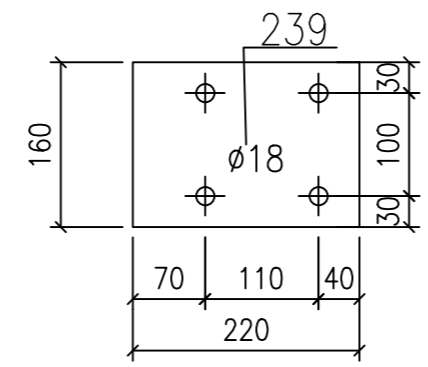
\\FERD02\user\shares\lodo\ARHIV\DN 2019\DN ostalo 19\DN118 VEIT_Servis II.faza\Nacrti\Delavniska_VEIT_FAZA 2_cood (2).dwg



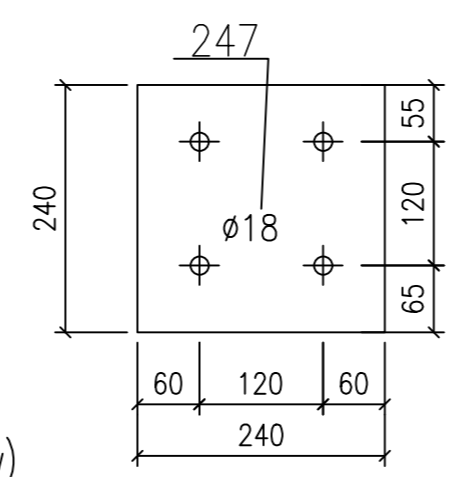
Poz 207 M1:10
PLATE 120x100x15 (3 kosov)
Dolžina 120



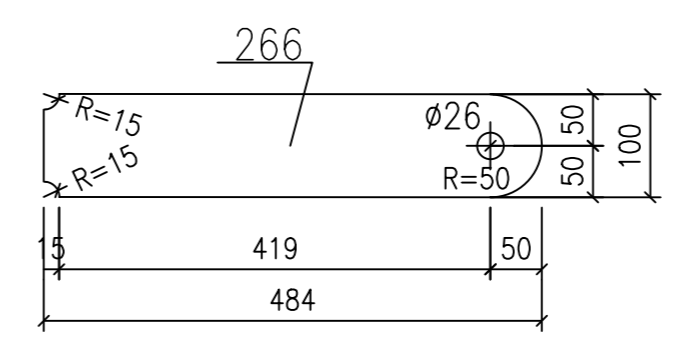
Poz 223 M1:10
PLATE 200x125x15 (32 kosov)
Dolžina 200



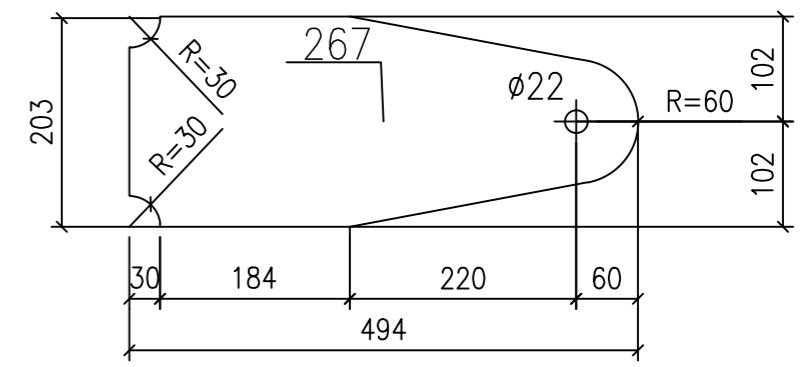
Poz 239 M1:10
PLATE 220x160x15 (1 kosov)
Dolžina 220



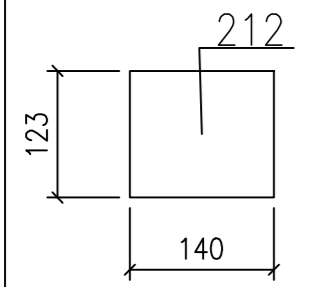
Poz 247 M1:10
PLATE 240x240x15 (6 kosov)
Dolžina 240



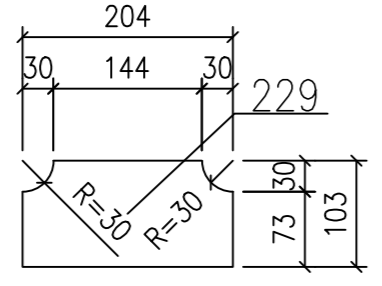
Poz 266 M1:10
PLATE 484x100x15 (3 kosov)
Dolžina 484



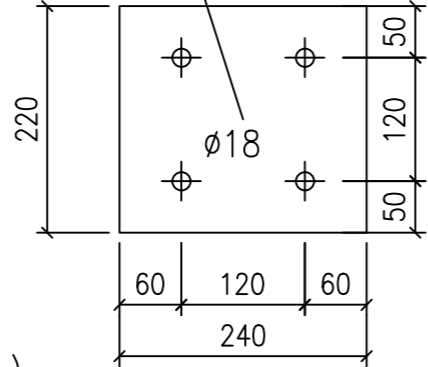
Poz 267 M1:10
PLATE 494x204x15 (3 kosov)
Dolžina 494



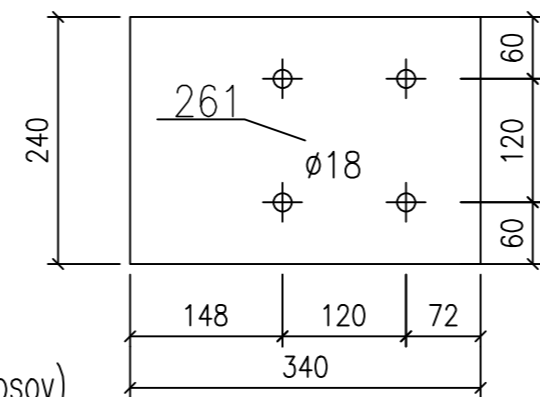
Poz 212 M1:10
PLATE 140x123x15 (3 kosov)
Dolžina 140



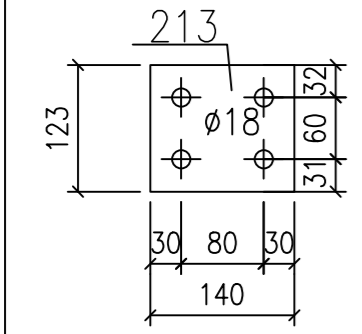
Poz 229 M1:10
PLATE 204x103x15 (3 kosov)
Dolžina 204



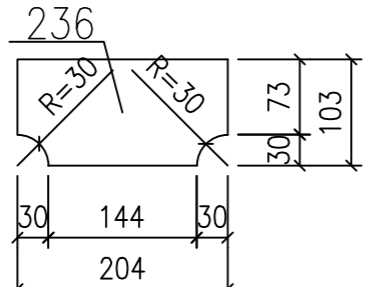
Poz 243 M1:10
PLATE 240x220x15 (12 kosov)
Dolžina 240



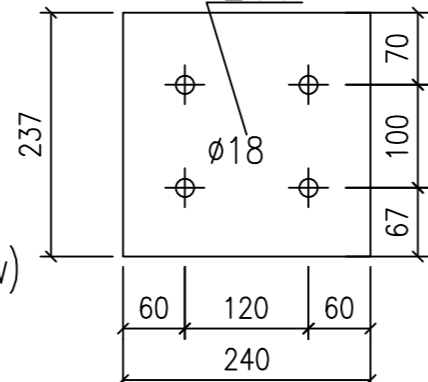
Poz 261 M1:10
PLATE 340x240x15 (12 kosov)
Dolžina 340



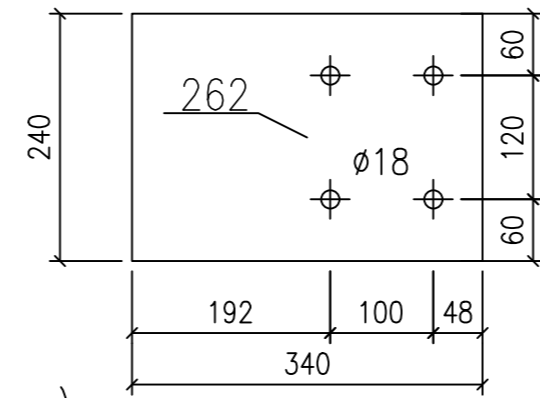
Poz 213 M1:10
PLATE 140x123x15 (2 kosov)
Dolžina 140



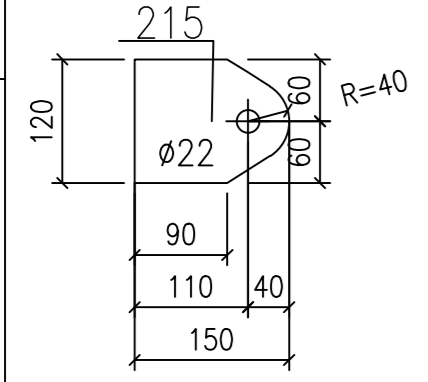
Poz 236 M1:10
PLATE 204x103x15 (1 kosov)
Dolžina 204



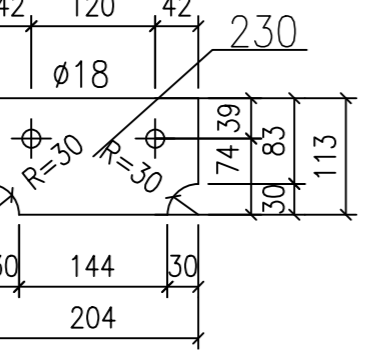
Poz 244 M1:10
PLATE 240x237x15 (12 kosov)
Dolžina 240



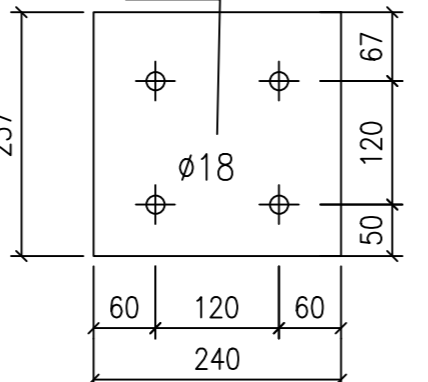
Poz 262 M1:10
PLATE 340x240x15 (12 kosov)
Dolžina 340



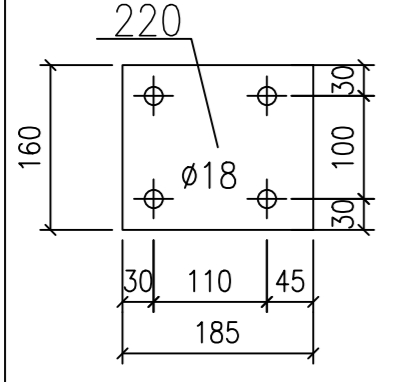
Poz 215 M1:10
PLATE 150x120x15 (3 kosov)
Dolžina 150



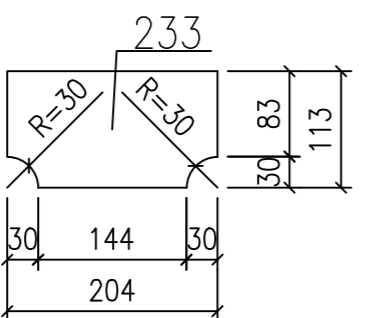
Poz 230 M1:10
PLATE 204x113x15 (4 kosov)
Dolžina 204



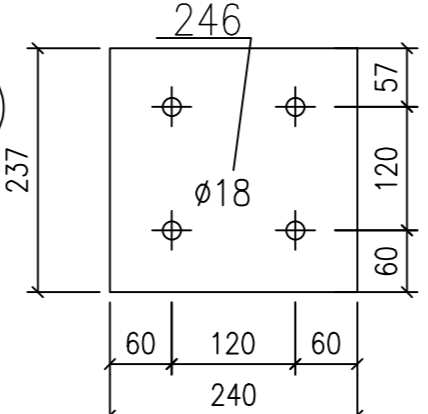
Poz 245 M1:10
PLATE 240x237x15 (12 kosov)
Dolžina 240



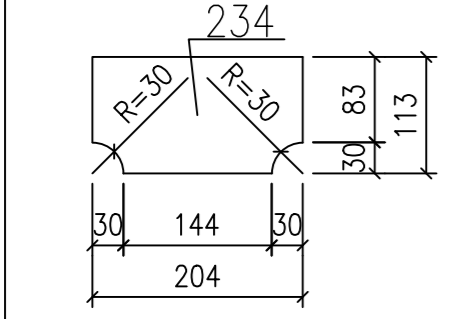
Poz 220 M1:10
PLATE 185x160x15 (1 kosov)
Dolžina 185



Poz 233 M1:10
PLATE 204x113x15 (3 kosov)
Dolžina 204



Poz 246 M1:10
PLATE 240x237x15 (6 kosov)
Dolžina 240



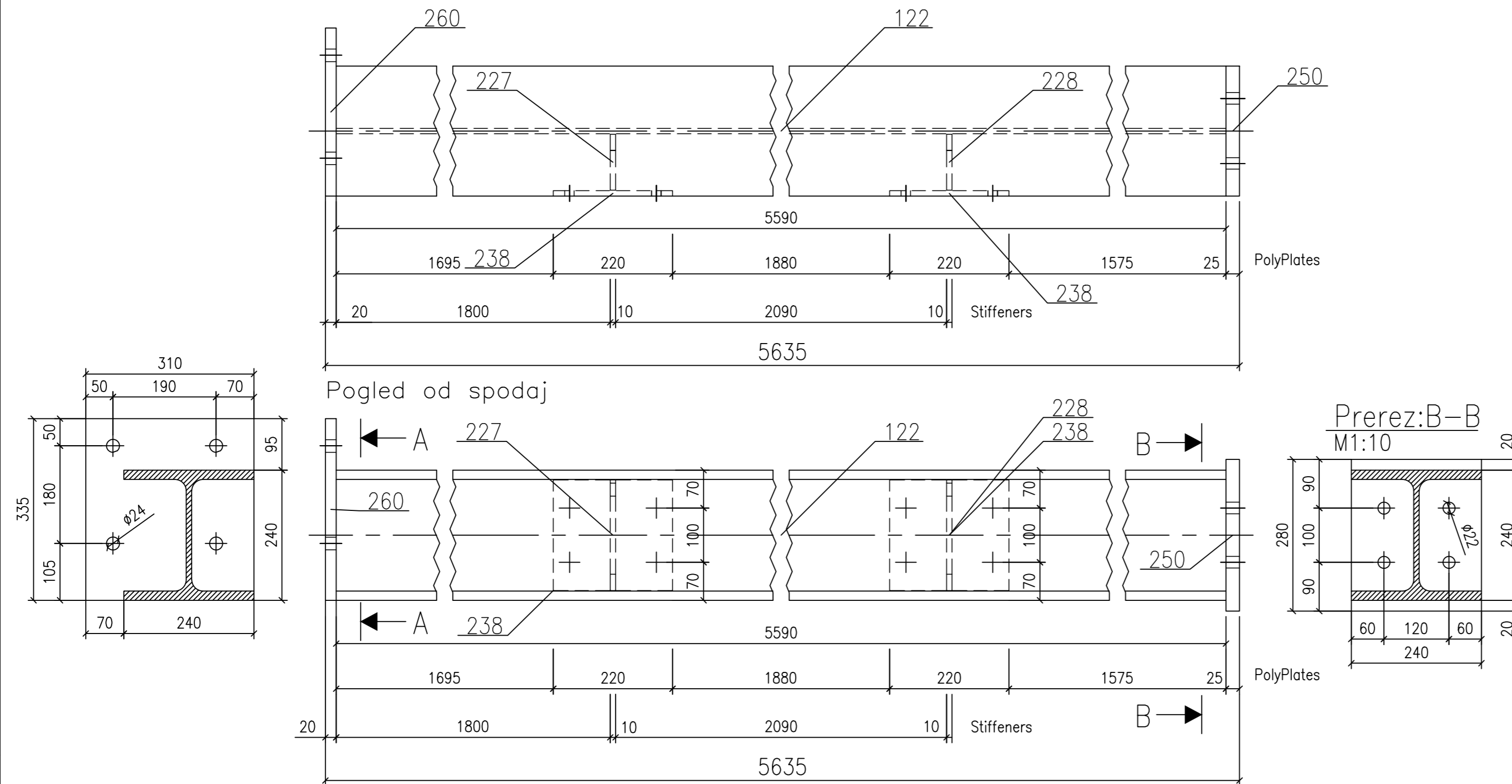
Poz 234 M1:10
PLATE 204x113x15 (15 kosov)
Dolžina 204

Poz.	Kosov	Predmet in mere	Dolžina	Gradivo	Teža	Skupna teža
207	3	PLATE 120x100x15	120	S235J0	1.3	1.3
212	3	PLATE 140x123x15	140	S235J0	2.0	2.0
213	2	PLATE 140x123x15	140	S235J0	2.0	2.0
215	3	PLATE 150x120x15	150	S235J0	1.8	1.8
220	1	PLATE 185x160x15	185	S235J0	3.5	3.5
223	32	PLATE 200x125x15	200	S235J0	2.9	2.9
229	3	PLATE 204x103x15	204	S235J0	2.3	2.3
230	4	PLATE 204x113x15	204	S235J0	2.6	2.6
234	15	PLATE 204x113x15	204	S235J0	2.6	2.6
239	1	PLATE 220x160x15	220	S235J0	4.2	4.2
243	12	PLATE 240x220x15	240	S235J0	6.2	6.2
244	12	PLATE 240x237x15	240	S235J0	6.7	6.7
245	12	PLATE 240x237x15	240	S235J0	6.7	6.7
246	6	PLATE 240x237x15	240	S235J0	6.7	6.7
247	6	PLATE 240x240x15	240	S235J0	6.8	6.8
261	12	PLATE 340x240x15	340	S235J0	9.6	9.6
262	12	PLATE 340x240x15	340	S235J0	9.6	9.6
266	3	PLATE 484x100x15	484	S235J0	5.5	5.5
267	3	PLATE 494x204x15	494	S235J0	9.9	9.9
233	3	PLATE 204x113x15	204	S235JR	2.6	2.6
236	1	PLATE 204x103x15	204	S235JR	2.3	2.3

Total weight of 21 parts with 3 % addition 100.8

Poz.	Kosov	Predmet in mere	Dolžina	Material	Masa	Masa skupaj
Št.	Sprememba	Datum Podpis	Datum	Ime	Podpis	Investitor:
		Risal	maj 2019	Jože Štih		VEIT TEAM d.o.o.
		Konstruiral	maj 2019	Jože Štih		Čufarjeva ulica 24
		Pregledal	maj 2019			1230 Domžale
		Odobril	maj 2019			PRODAJNO SERVISNI OBJEKT- DOZIDAVI
Merilo:		Naslov risbe:		DN:		
1:10		Razrez pločevine s= 15 mm		Št.risbe: R5		

\\FERD02\serShares\odo\ARHIV\DN 2019\DN ostalo 19\DN118 VEIT Servis II.faza\Nacrti\Delavniška_VEIT_FAZA 2_ocod (2).dwg



Pogled od spodaj

Poz: 22 Pogled od spredaj (M1:10)
HE 240 B (1 kosov)
Dolžina 5635

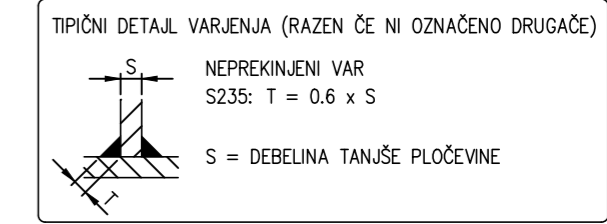
IZVEDBENI RAZRED EXC 2

POŽARNA ODPORNOST

- NI POŽARNE ODPORNOSTI

VARJENJE

- VARJENJE MORA BITI V SKLADU Z EXC
- EXC1: Kvaliteta izdelave D, EN 5817
- EXC3: Kvaliteta izdelave C, EN 5817
- EXC3: Kvaliteta izdelave B, EN 5817
- VSI NEOZNAČENI VARI SO NEPREKINJENI



TOLERANCE

- EXC 1 - dimenzije toleranc v skladu z EN1090-2; Razred 1
- EXC 2 - dimenzije toleranc v skladu z EN1090-2; Razred 1

BARVANJE

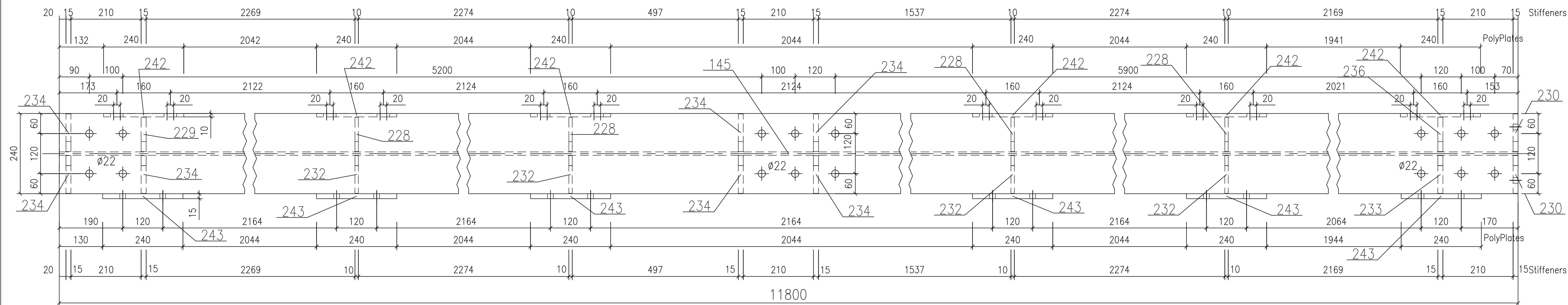
- PRIPRAVA POVRŠINE: PESKANJE Sa 2½ (ISO 8501-1),
- RAZRED ZAŠČITE C3 (SIST EN ISO 12944-2), TRAJNOST M
- KONČNI SLOJ: _____

Poz.	Kosov	Predmet in mere	Dolžina	Gradivo	Teža	Skupna teža
GR22	1	HE 240 B	5635		504.8	504.8
122	1	HE 240 B	5590	S235J0	465.1	465.1
228	1	PLATE 204x103x10	204	S235J0	1.5	1.5
238	2	PLATE 220x204x10	220	S235J0	3.5	7.1
250	1	PLATE 280x240x25	280	S235J0	13.2	13.2
260	1	PLATE 335x310x20	335	S235J0	16.3	16.3
S227	1	PLATE 204x103x10	204	S235JR	1.5	1.5

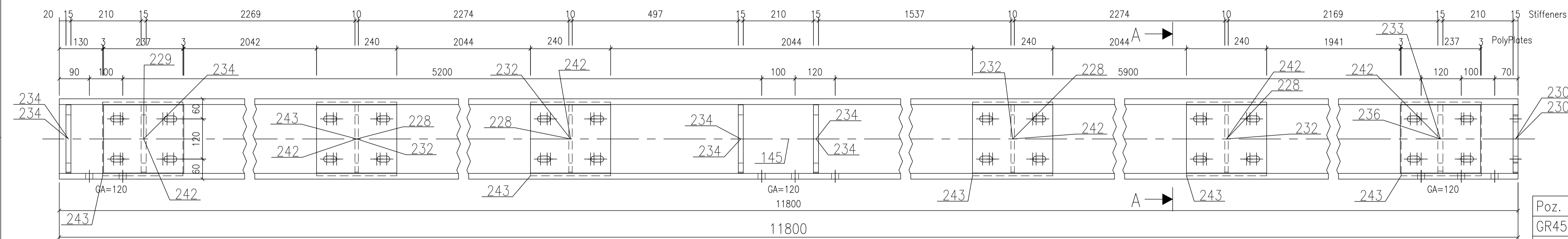
Total weight of 7 parts with 3 % addition 519.9

Poz.	Kosov	Predmet in mere	Dolžina	Material	Masa	Masa skupaj
Št.	Sprememba	Datum Podpis	Datum	Ime	Podpis	Investitor:
		Risal	maj 2019	Jože Štih	<i>Jože Štih</i>	VEIT TEAM d.o.o.
		Konstruiral	maj 2019	Jože Štih		Čufarjeva ulica 24
		Pregledal	maj 2019			1230 Domžale
		Odobril	maj 2019			PRODAJNO SERVISNI OBJEKT- DOZIDAVI
Merilo:		Naslov risbe:				DN:
1:10		Steber poz.:22				Št.risbe:
						22

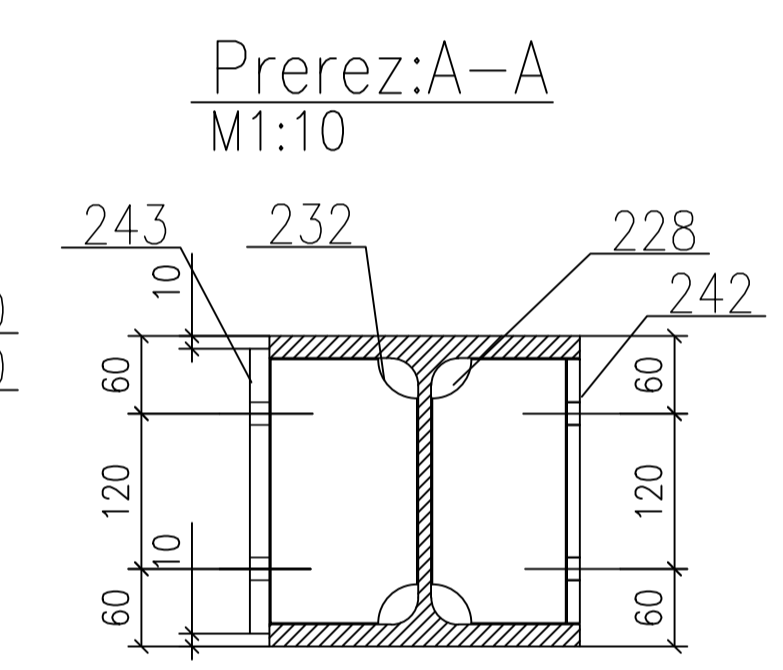
\\FERPO2\Users\Shares\ludo\ARHIV\DN 2019\DN ostalo 19\DN18 VEIT\3servis II.faza\Nočni\Delovniška_VEIT_FAZA_2_accad (2).dwg



Pogled od spodaj



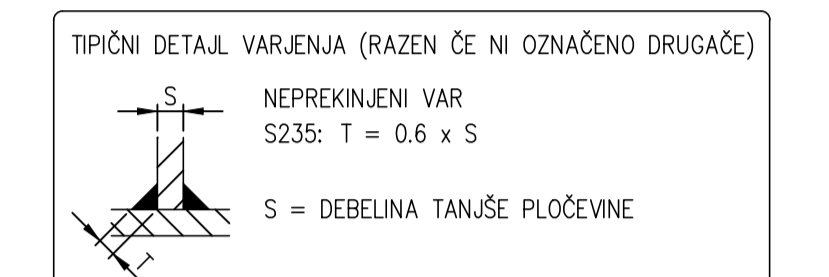
Poz: 45 Pogled od spredaj (M1:10)
HE 240 B (1 kosov)
Dolžina 11800



IZVEDBENI RAZRED EXC 2

POŽARNA ODPORNOST

- NI POŽARNE ODPORNOSTI
- VARJENJE
- VARJENJE MORA BITI V SKLADU Z EXC
- EXC1: Kvaliteta izdelave D, EN 5817
- EXC3: Kvaliteta izdelave C, EN 5817
- EXC3: Kvaliteta izdelave B, EN 5817
- VSI NEOZNAČENI VARI SO NEPREKINJENI



TOLERANCE

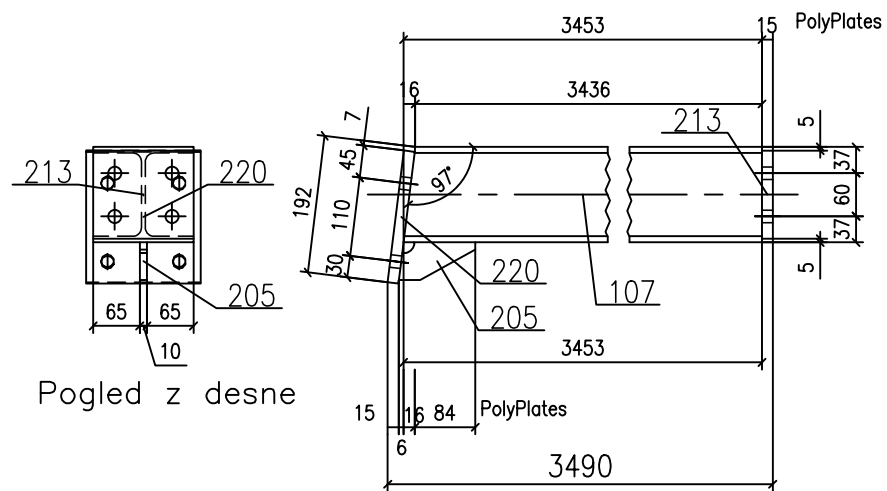
- EXC 1 - dimenzije toleranc v skladu z EN1090-2; Razred 1
- EXC 2 - dimenzije toleranc v skladu z EN1090-2; Razred 1

BARVANJE

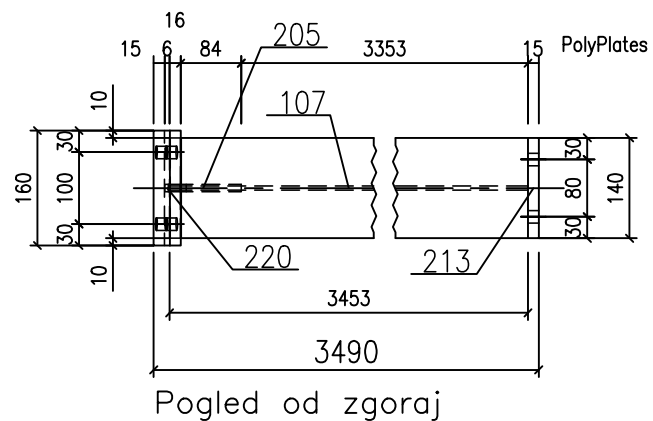
- PRIPRAVA POVRŠINE: PESKANJE Sa 2½ (ISO 8501-1),
- RAZRED ZAŠČITE C3 (SIST EN ISO 12944-2), TRAJNOST M
- KONČNI SLOJ: _____

Poz.	Kosov	Predmet in mere	Dolžina	Gradivo	Teža	Skupna teža
GR45	1	HE 240 B	11800		1085.4	1085.4
145	1	HE 240 B	11800	S235JO	981.8	981.8
228	4	PLATE 204x103x10	204	S235JO	1.5	6.2
229	1	PLATE 204x103x15	204	S235JO	2.3	2.3
230	2	PLATE 204x113x15	204	S235JO	2.6	5.1
232	4	PLATE 204x113x10	204	S235JO	1.7	6.8
234	7	PLATE 204x113x15	204	S235JO	2.6	17.9
242	6	PLATE 240x204x10	240	S235JO	3.9	23.1
243	6	PLATE 240x220x15	240	S235JO	6.2	37.4
233	1	PLATE 204x113x15	204	S235JR	2.6	2.6
236	1	PLATE 204x103x15	204	S235JR	2.3	2.3
Total weight of 11 parts with 3 % addition						1117.9

Poz.	Kosov	Predmet in mere	Dolžina	Material	Masa	Masa skupaj	
Št.	Sprememba	Datum Podpis	Datum	Ime	Podpis	Investitor: VEIT TEAM d.o.o. Čufarjeva ulica 24 1230 Domžale PRODAJNO SERVISNI OBJEKT- DOZIDAVI	
		Risal	maj 2019	Jože Štih	<i>[Signature]</i>		
		Konstruiral	maj 2019	Jože Štih			
		Pregledal	maj 2019				
		Odobril	maj 2019				
Merilo:		Naslov risbe:				DN:	
1:10		Nosilec poz.:45				Št.risbe:	45



Poz: 7 Pogled od spredaj (M1:10)
 HE 140 A (1 kosov)
 Dolžina 3490



Pogled od zgoraj

IZVEDBENI RAZRED

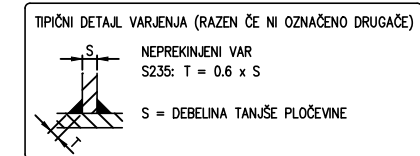
EXC 2

POŽARNA ODPORNOST

- NI POŽARNE ODPORNOSTI

VARJENJE

- VARJENJE MORA BITI V SKLADU Z EXC
- EXC1: Kvaliteta izdelave D, EN 5817
- EXC3: Kvaliteta izdelave C, EN 5817
- EXC3: Kvaliteta izdelave B, EN 5817
- VSI NEOZNAČENI VARI SO NEPREKINJENI



TOLERANCE

- EXC 1 - dimenzije toleranc v skladu z EN1090-2; Razred 1
- EXC 2 - dimenzije toleranc v skladu z EN1090-2; Razred 1

BARVANJE

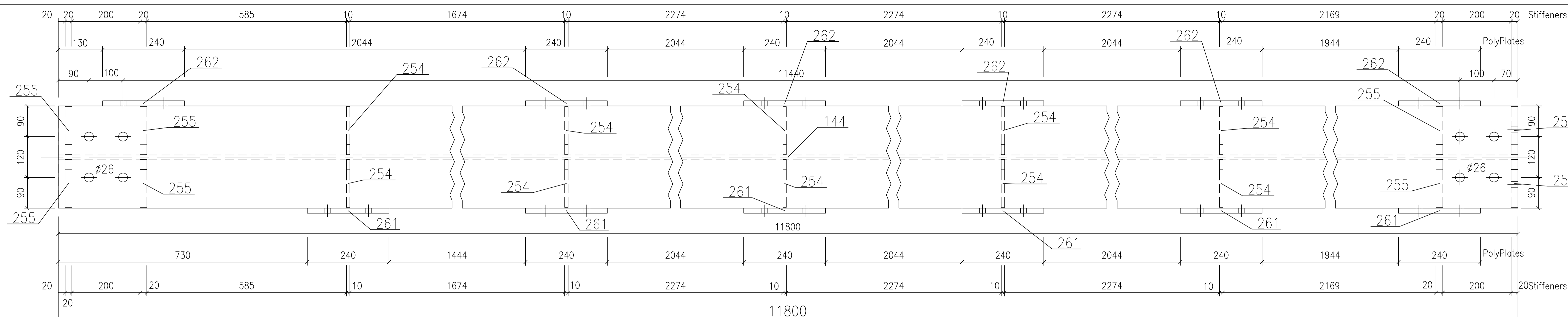
- PRIPRAVA POVRŠINE: PESKANJE Sa 2½ (ISO 8501-1), RAZRED ZAŠČITE C3 (SIST EN ISO 12944-2), TRAJNOST M
- KONČNI SLOJ: _____

Poz.	Kosov	Predmet in mere	Dolžina	Gradivo	Teža	Skupna teža
GR7	1	HE 140 A	3490		91.0	91.0
107	1	HE 140 A	3453	S235J0	85.3	85.3
205	1	PLATE 106.5x52.5x10	106	S235JR	0.2	0.2
213	1	PLATE 140x123x15	140	S235J0	2.0	2.0
220	1	PLATE 185x160x15	185	S235J0	3.5	3.5

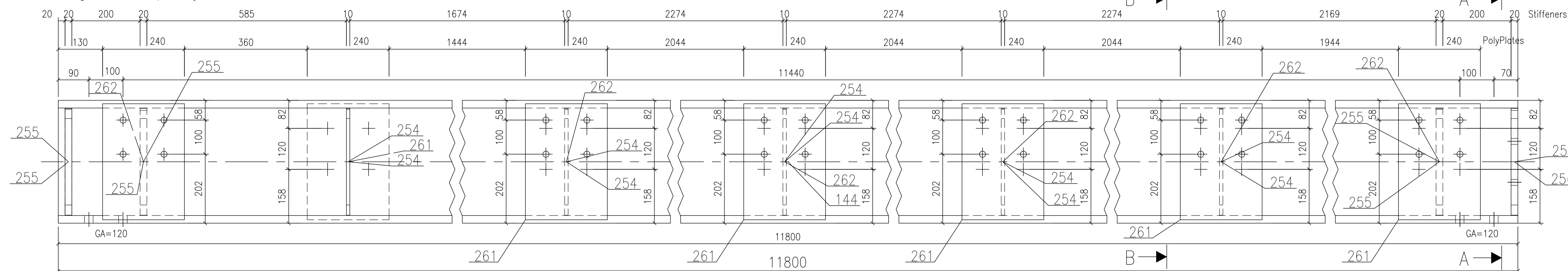
Total weight of 5 parts with 3 % addition 93.8

Poz.	Kosov	Predmet in mere	Dolžina	Material	Masa	Masa skupaj	
Št.	Sprememba	Datum	Datum	Ime	Podpis	Investitor: VEIT TEAM d.o.o. Čufarjeva ulica 24 1230 Domžale PRODAJNO SERVISNI OBJEKT- DOZIDAVI	
		Podpis	Risal	maj 2019	Jože Štih		
			Konstruiral	maj 2019	Jože Štih		
			Pregledal	maj 2019			
			Odobril	maj 2019			
Merilo:		Naslov risbe:				DN:	
1:10		Nosilec poz.:7				Št.risbe: 7	

\\FERD02\Users\shores\lodo\ARHIV\DN 2019\DN ostalo 19\DN118 VEIT_Servis II.faza\Nacrti\Delovniška_VEIT_FAZA_2_acod (2).dwg



Pogled od spodaj

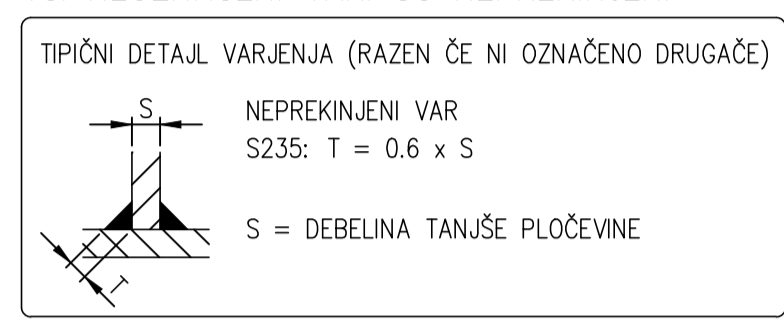


Poz: 44 Pogled od spredaj (M1:10)
HE 360 B (1 kosov)
Dolžina 11800

IZVEDBENI RAZRED EXC 2

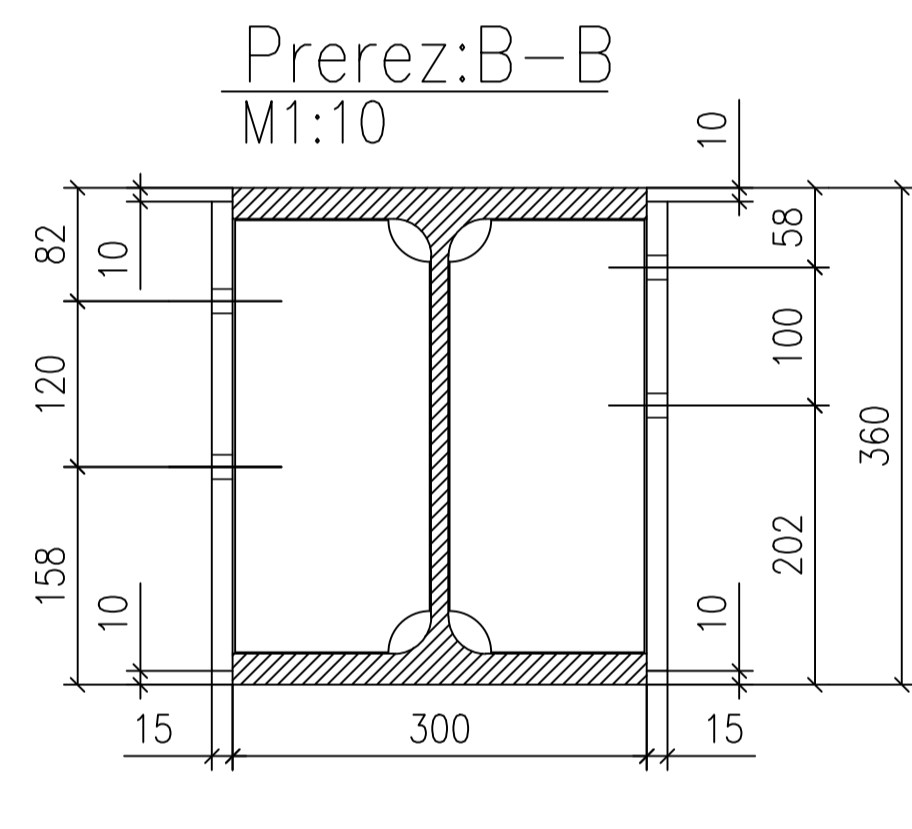
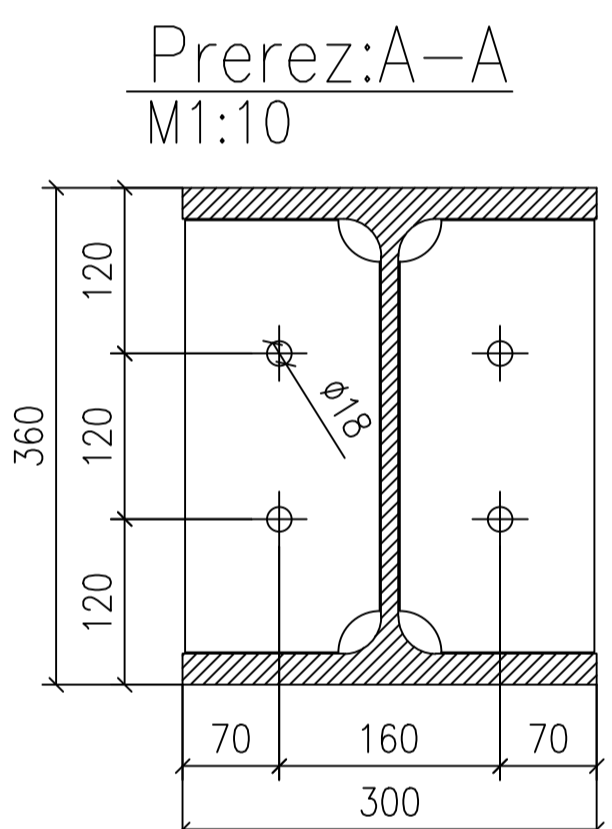
POŽARNA ODPORNOST
- NI POŽARNE ODPORNOSTI

VARJENJE
- VARJENJE MORA BITI V SKLADU Z EXC
- EXC1: Kvaliteta izdelave D, EN 5817
- EXC3: Kvaliteta izdelave C, EN 5817
- EXC3: Kvaliteta izdelave B, EN 5817
- VSI NEOZNAČENI VARI SO NEPREKINJENI



TOLERANCE
- EXC 1 - dimenzije toleranc v skladu z EN1090-2; Razred 1
- EXC 2 - dimenzije toleranc v skladu z EN1090-2; Razred 1

BARVANJE
- PRIPRAVA POVRŠINE: PESKANJE Sa 2½ (ISO 8501-1),
RAZRED ZAŠČITE C3 (SIST EN ISO 12944-2), TRAJNOST M
- KONČNI SLOJ: _____



Poz.	Kosov	Predmet in mere	Dolžina	Gradivo	Teža	Skupna teža
GR44	1	HE 360 B	11800		1878.5	1878.5
144	1	HE 360 B	11800	S235JO	1675.6	1675.6
254	10	PLATE 313x141x10	313	S235JO	3.4	33.6
255	6	PLATE 313x141x20	313	S235JO	6.7	40.3
261	6	PLATE 340x240x15	340	S235JO	9.6	57.8
262	6	PLATE 340x240x15	340	S235JO	9.6	57.8
256	2	PLATE 313x141x20	313	S235JR	6.7	13.4

Total weight of 7 parts with 3 % addition 1934.8

Poz.	Kosov	Predmet in mere	Dolžina	Material	Masa	Masa skupaj
Št.	Sprememba	Datum	Datum	Ime	Podpis	Investitor:
		Podpis	Risal	maj 2019	Jože Štih	VEIT TEAM d.o.o. Čufarjeva ulica 24 1230 Domžale PRODAJNO SERVISNI OBJEKT- DOZIDAVI
			Konstruiral	maj 2019	Jože Štih	
			Pregledal	maj 2019		
			Odobril	maj 2019		
Merilo:	Naslov risbe:					DN:
1:10	Nosilec poz.:44					Št.risbe: 44