

August 1994

Welded, brazed and soldered jointsSymbolic representation on drawings
(ISO 2553:1992)
English version of DIN EN 22553**DIN**
EN 22 553This standard incorporates the English version of **ISO 2553**

ICS 25.160.40; 01.100.20

Descriptors: Weld, soldered joint, brazed joint, drawing, symbol.

Schweiß- und Löt-nähte; symbolische Darstellung in Zeichnungen
(ISO 2553:1992)Supersedes DIN 1912-5 and
Supplement 1 to DIN 1912-5,
December 1987 editions.**European Standard EN 22553:1994 has the status of a DIN Standard.****National foreword**

This standard has been published in accordance with a decision taken by CEN/TC 121 to adopt, without alteration, International Standard ISO 2553 as a European Standard.

The responsible German body involved in its preparation was the *Normenausschuß Schweißtechnik* (Welding Standards Committee).

It should be noted that a major amendment has been made as regards the position of the symbol relative to the reference line. Hitherto, the symbol has to be placed on the continuous line, now it is to be placed on the dashed line.

The DIN Standards corresponding to the International Standards referred to in clause 2 of the EN are as follows:

ISO Standard	DIN Standard
ISO 128	DIN 5-10, DIN 6-1 and DIN 6-2, DIN 15-1 and DIN 15-2
ISO 544	DIN EN 20544
ISO 2560	DIN 1913-1
ISO 3098-1	DIN 6776-1
DIN 3581	DIN 8556-1
ISO 4063	DIN EN 24063
ISO 5817	DIN EN 25817
ISO 8167	DIN EN 28167
ISO 10042	DIN EN 30042

Standards referred to(and not included in **Normative References** and **Annex ZA**)

DIN 5-10	Engineering drawing practice; projections; concepts
DIN 6-1	Technical drawings; representation in normal projection; views and special representations
DIN 6-2	Technical drawings; representation in normal projection; sectional views
DIN 15-1	Technical drawings; lines; basic principles
DIN 15-2	Technical drawings; lines; general application
DIN 1913-1	Covered electrodes for the jointing of unalloyed and low alloy steel by welding; classification and technical delivery conditions
DIN 6776-1	Technical drawings; lettering; characters
DIN 8556-1	Filler metals for welding stainless and heat resisting steel; designation and technical delivery conditions
DIN EN 20544	Filler materials for manual welding; size requirements (ISO 544:1989)
DIN EN 24063	Welding, brazing, soldering and braze welding of metals; list of process names and reference numbers for use in technical documentation (ISO 4063:1990)
DIN EN 25817	Arc-welded joints in steel; guidance on quality levels for imperfections (ISO 5817:1992)
DIN EN 28167	Projections for resistance welding (ISO 8167:1989)
DIN EN 30042	Arc-welded joints in aluminium and its weldable alloys; guidance on quality levels for imperfections (ISO 10042:1992)

Continued overleaf.
EN comprises 53 pages.

Previous editions

DIN 1911: 1927-04, 1959-10; DIN 1912-1: 1927-04, 1932-05, 1937-05, 1956-05, 1960-07; DIN 1912-2: 1927-04, 1932-05, 1937-05; DIN 1912-3: 1961-03, 1982-08; DIN 1912-5: 1976-06, 1979-02, 1987-12; Supplement 1 to DIN 1912-5: 1987-12; DIN 1912-6: 1976-06, 1979-02.

Amendments

DIN 1912-5 and its Supplement 1, December 1987 editions have been superseded by the specifications of EN 22 553, which is identical to ISO 2553 (which conforms in substance with the specifications of DIN 1912-5).

International Patent Classification

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- B 23 K 031/00
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- B 23 K 035/00
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 22553

May 1994

UDC 621.791:744.44.003.62

Descriptors: Weld, soldered joint, brazed joint, drawing, symbol.

English version

Welded, brazed and soldered joints
Symbolic representation on drawings
(ISO 2553:1992)

Joints soudés et brasés; représentations
symboliques sur les dessins
(ISO 2553:1992)

Schweiß- und Lötnähte; symbolische
Darstellung in Zeichnungen
(ISO 2553:1992)

This European Standard was approved by CEN on 1994-05-12 and is identical to the ISO Standard as referred to.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Foreword

In 1993, International Standard

ISO 2553:1992 Welded, brazed and soldered joints; symbolic representation on drawings was submitted to the Unique Acceptance Procedure.

The result was positive.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by November 1994 at the latest.

This European Standard has been prepared under a Mandate given to CEN by the Commission of the European Communities and the European Free Trade Association and supports essential requirements of the relevant EC Directives.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of the International Standard ISO 2553:1992 was approved by CEN as a European Standard with the illustration in figure B.2 being modified.

NOTE: Normative references to international publications are listed in Annex ZA (normative).

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1 Scope

This International Standard prescribes the rules to be applied for the symbolic representation of welded, brazed and soldered joints on drawings.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 128:1982, *Technical drawings — General principles of presentation.*

ISO 544:1989, *Filler materials for manual welding — Size requirements.*

ISO 1302:1978, *Technical drawings — Method of indicating surface texture on drawings.*

ISO 2560:1973, *Covered electrodes for manual arc welding of mild steel and low alloy steel — Code of symbols for identification.*

ISO 3098-1:1974, *Technical drawings — Lettering — Part 1: Currently used characters.*

ISO 3581:1976, *Covered electrodes for manual arc welding of stainless and other similar high alloy steels — Code of symbols for identification.*

ISO 4063:1990, *Welding, brazing, soldering and braze welding of metals — Nomenclature of processes and*

reference numbers for symbolic representation on drawings.

ISO 5817:1992, *Arc-welded joints in steel — Guidance on quality levels for imperfections.*

ISO 6947:1990, *Welds — Working positions — Definitions of angles of slope and rotation.*

ISO 8167:1989, *Projections for resistance welding.*

ISO 10042:—¹⁾, *Arc-welded joints in aluminium and its weldable alloys — Guidance on quality levels for imperfections.*

3 General

3.1 Joints may be indicated with the general recommendations for technical drawings. However, for the purpose of simplification, it is advisable to adopt, for usual joints, the symbolic representation described in this International Standard.

3.2 The symbolic representation shall give clearly all necessary indications regarding the specific joint to be obtained without over-burdening the drawing with notes or showing an additional view.

3.3 This symbolic representation includes an elementary symbol which may be completed by

- a supplementary symbol;
- a means of showing dimensions;
- some complementary indications (particularly for workshop drawings).

3.4 In order to simplify the drawings as much as possible it is recommended that references be made to specific instructions or particular specifications giving all details of the preparation of edges to be

1) To be published.

welded, brazed and soldered and/or welding, brazing and soldering procedures, rather than showing these indications on the drawings of the welded parts.

If there are no such instructions, the dimensions relating to the preparation of the edges to be welded, brazed and soldered and/or welding, brazing and soldering procedures can be close to the symbol.

4 Symbols

4.1 Elementary symbols

The various categories of joints are characterized by a symbol which, in general, is similar to the shape of the weld to be made.

The symbol shall not be taken to prejudge the process to be employed.

The elementary symbols are shown in table 1.

If the joint should not be specified but only be represented that the joint will be welded, brazed or soldered, the following symbol shall be used:

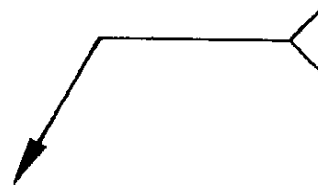




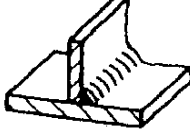



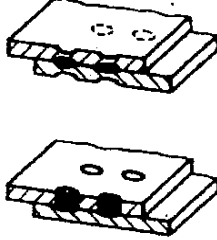

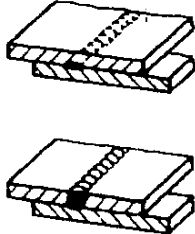



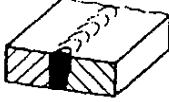





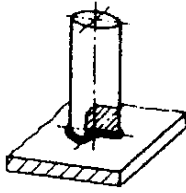








Table 1 — Elementary symbols

No.	Designation	Illustration	Symbol
1	Butt weld between plates with raised edges ¹⁾ ; edge flanged weld /USA/ (the raised edges being melted down completely)		
2	Square butt weld		
3	Single-V butt weld		
4	Single-bevel butt weld		
5	Single-V butt weld with broad root face		
6	Single-bevel butt weld with broad root face		
7	Single-U butt weld (parallel or sloping sides)		

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No.	Designation	Illustration	Symbol
8	Single-J butt weld		
9	Backing run; back or backing weld /USA/		
10	Fillet weld		
11	Plug weld; plug or slot weld /USA/		
12	Spot weld		
13	Seam weld		
14	Steep-flanked single-V butt weld		
15	Steep-flanked single-bevel butt weld		

No.	Designation	Illustration	Symbol
16	Edge weld		
17	Surfacing		
18	Surface joint		
			
19	Inclined joint		
20	Fold joint		
1) Butt welds between plates with raised edges (symbol 1) not completely penetrated are symbolized as square butt welds (symbol 2) with the weld thickness s shown (see table 5)			

4.2 Combinations of elementary symbols

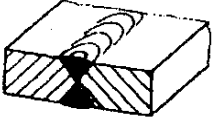
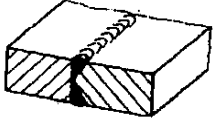
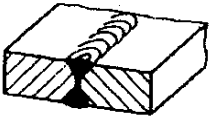
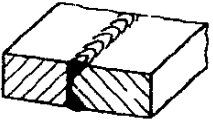
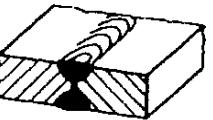
When required, combinations of elementary symbols can be used.

The elementary symbols are to be combined for welding from both sides in such a manner arranging the applicable elementary symbols symmetrical to the reference line. Typical examples are given in

table 2 and applications for symbolic representation in table A.2.

NOTE 1 Table 2 gives a collection of combinations of elementary symbols for symmetrical welds. For the symbolic representation the elementary symbols are arranged symmetrically at the reference line (see table A.2). For the use of symbols out of symbolic representation the symbols may be represented without the reference line.

Table 2 — Combined symbols for symmetrical welds (examples)

Designation	Illustration	Symbol
Double-V butt weld (X weld)		X
Double-bevel butt weld		K
Double-V butt weld with broad root face		X
Double-bevel butt weld with broad root face		K
Double-U butt weld		U

4.3 Supplementary symbols

Elementary symbols may be completed by a symbol characterizing the shape of the external surface or the shape of the weld.






The recommended supplementary symbols are given in table 3.

The absence of a supplementary symbol means that the shape of the weld surface does not need to be indicated precisely.

Examples of combinations of elementary and supplementary symbols are given in tables 4 and A.3.

NOTE 2 Although it is not forbidden to associate several symbols, it is better to represent the weld on a separate sketch when symbolization becomes too difficult.















Table 3 — Supplementary symbols

Shape of weld surface or weld	Symbol
a) Flat (usually finished flush)	—
b) Convex	
c) Concave	
d) Toes shall be blended smoothly	
e) Permanent backing strip used	
f) Removable backing strip used	

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Table 4 gives examples of application of the supplementary symbols.

Table 4 — Examples of application of supplementary symbols

Designation	Illustration	Symbol
Flat (flush) single-V butt weld		
Convex double-V weld		
Concave fillet weld		
Flat (flush) single-V butt weld with flat (flush) backing run		
Single-V butt weld with broad root face and backing run		
Flush finished single-V butt weld		
Fillet weld with smooth blended face		

1) Symbol in accordance with ISO 1302; instead of this symbol the main symbol \surd can be used.

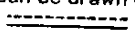
5 Position of the symbols on drawings

5.1 General

The symbols covered by these rules form only part of the complete method of representation (figure 1), which comprises in addition to the symbol (3) itself:

- an arrow line (1) per joint (see figure 2 and figure 3);
- a dual reference line, consisting of two parallel lines, one continuous and one dashed (2) (exception, see note 3);
- a certain number of dimensions and conventional signs.

NOTES

3 The dashed line can be drawn either above or beneath the continuous line  (see also 5.5 and annex B).

For symmetrical welds, the dashed line is unnecessary and should be omitted.

4 The thickness of lines for arrow line, reference line, symbol and lettering shall be in accordance with the thickness of line for dimensioning in accordance with ISO 128 and ISO 3098-1, respectively.

The purpose of the following rules is to define the location of welds by specifying

- the position of the arrow line;
- the position of the reference line;
- the position of the symbol.

The arrow line and the reference line form the complete reference mark. If details are given, e.g. for processes, acceptance levels, position, filler and auxiliary materials (see clause 7), a tail shall be added at the end of the reference line.

5.2 Relationship between the arrow line and the joint

The examples given in figure 2 and figure 3 explain the meaning of the terms

- "Arrow side" of the joint;
- "Other side" of the joint.

NOTE 5 The position of the arrow in these figures is chosen for purposes of clarity. Normally, it would be placed immediately adjacent to the joint.

NOTE 6 See figure 2.

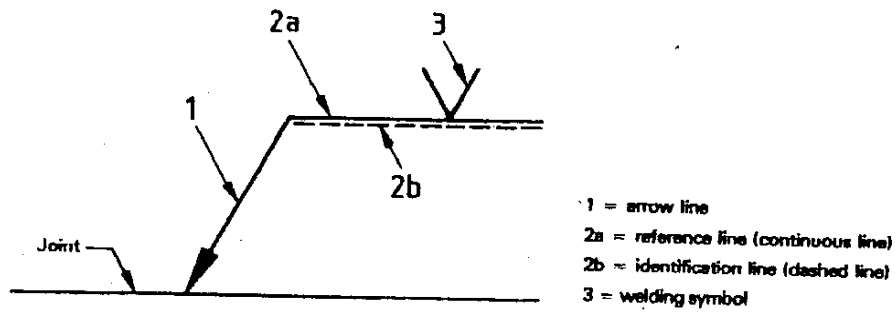


Figure 1 — Method of representation

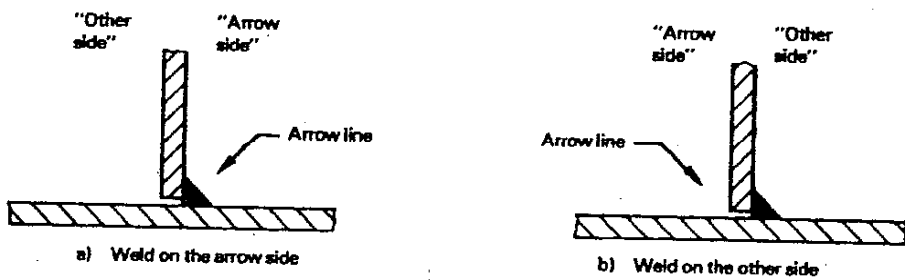


Figure 2 — T joint with one fillet weld

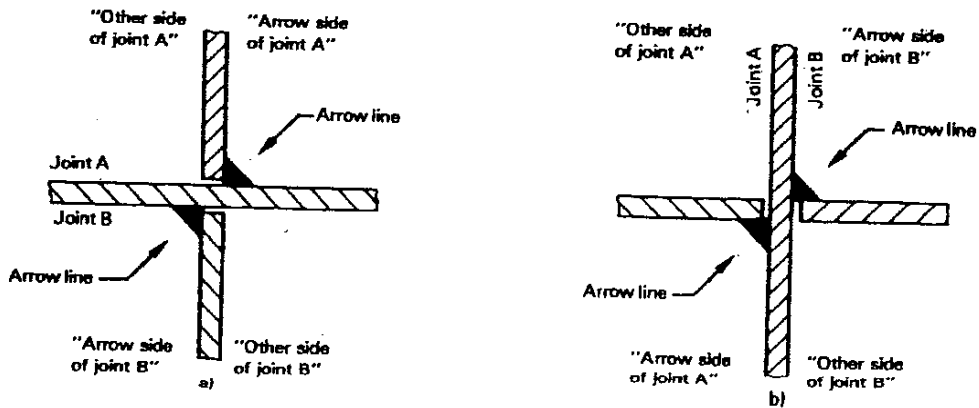


Figure 3 — Cruciform joint with two fillet welds

5.3 Position of the arrow line

The position of the arrow line with respect to the weld is generally of no special significance [see figures 4 a) and 4 b)]. However, in the case of welds of types 4, 6 and 8 (see table 1), the arrow line shall point towards the plate which is prepared [see figures 4 c) and 4 d)].

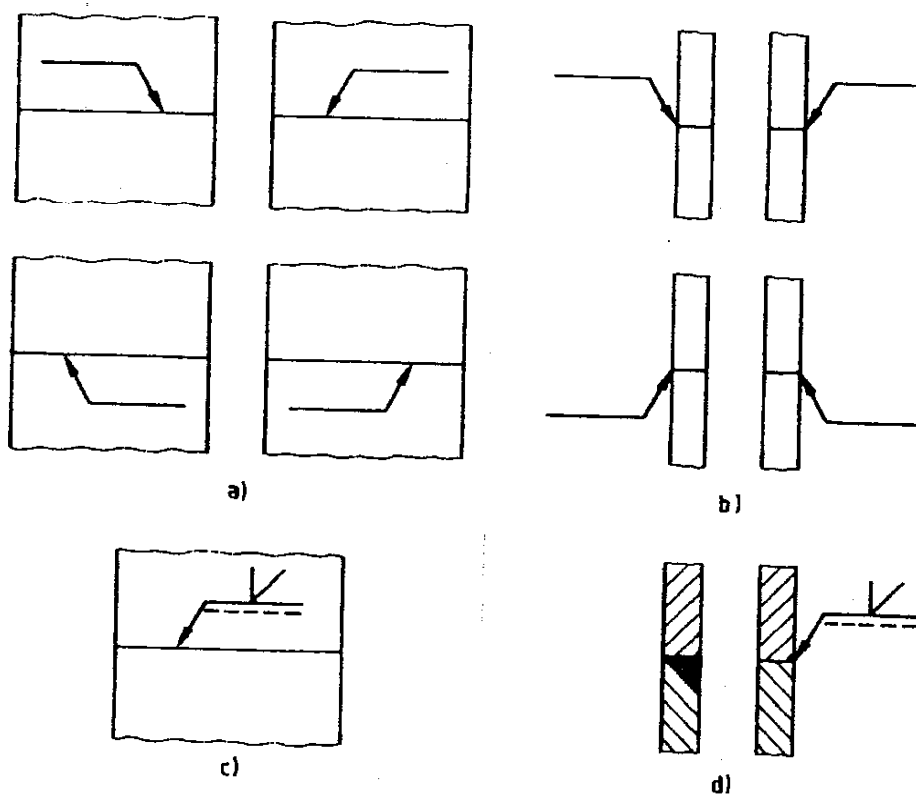


Figure 4 — Position of the arrow line

The arrow line

- joins one end of the continuous reference line such that it forms an angle with it;
- shall be completed by an arrow head.

5.4 Position of the reference line

The reference line shall preferably be drawn parallel to the bottom edge of the drawing, or if impossible perpendicular.

5.5 Position of the symbol with regard to the reference line

The symbol is to be placed either above or beneath the reference line, in accordance with the following regulation:

- The symbol is placed on the continuous line side of the reference line if the weld (weld face) is on the arrow side of the joint [see figure 5 a)].

- The symbol is placed on the dashed line side if the weld (weld face) is on the other side of the joint [see figure 5 b)].

NOTE 7 In the case of spot welds made by projection welding, the projection surface is to be considered as the external surface of the weld.

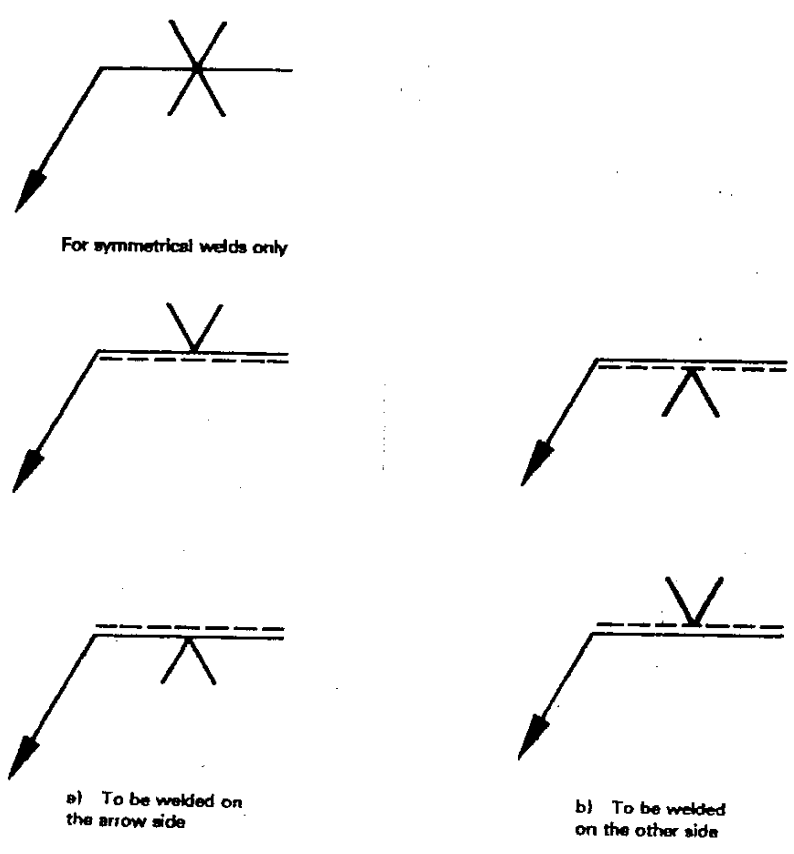


Figure 5 — Position of the symbol according to the reference line

6 Dimensioning of welds

6.1 General rules

Each weld symbol may be accompanied by a certain number of dimensions.

These dimensions are written as follows, in accordance with figure 6:

- a) the main dimensions relative to the cross-section are written on the left-hand side of (i.e. before) the symbol;
- b) longitudinal dimensions are written on the right-hand side of (i.e. after) the symbol.

The method of indicating the main dimensions is defined in table 5. The rules for setting down these dimensions are also given in this table.

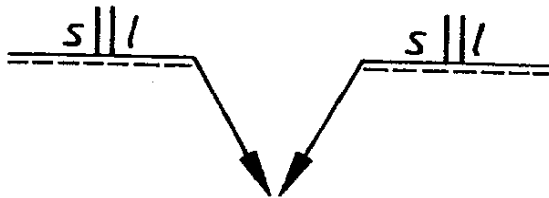


Figure 6 — Examples of the principle

Other dimensions of less importance may be indicated if necessary.

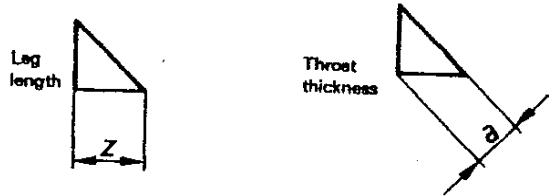
6.2 Main dimensions to be shown

The dimension that locates the weld in relation to the edge of the sheet shall not appear in the symbolization but on the drawing.

6.2.1 The absence of any indication following the symbol signifies that the weld is to be continuous over the whole length of the workpiece.

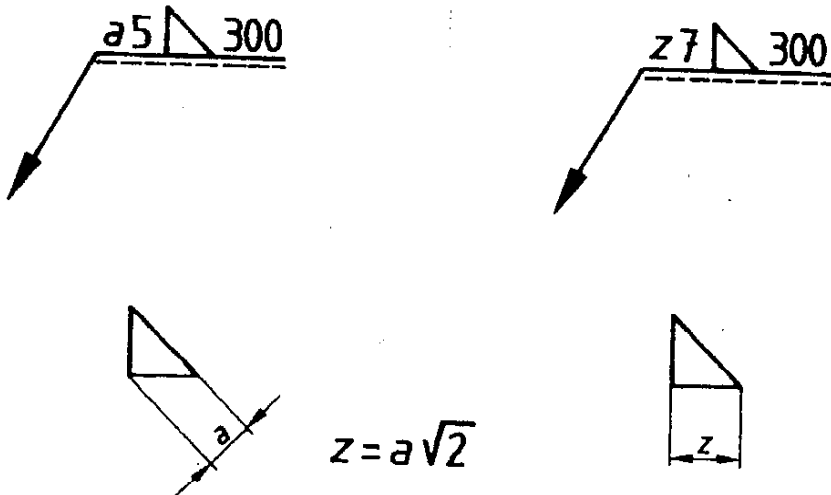
6.2.2 In the absence of any indication to the contrary, butt welds are to have complete penetration.

6.2.3 For the fillet welds there are two methods to indicate dimensions (see figure 7). Therefore, the letters *a* or *z* shall always be placed in front of the value of the corresponding dimension as follows:



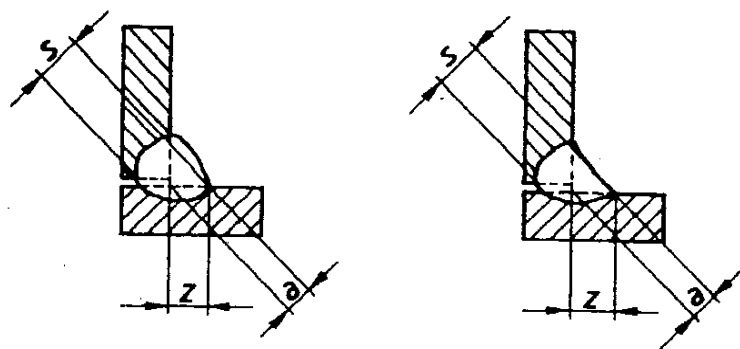
To indicate deep penetration of fillet welds the throat thickness is *r*, see figure 8.

6.2.4 In the case of plug or slot welds with bevelled edges, it is the dimension at the bottom of the hole which shall be taken into consideration.



$$z = a\sqrt{2}$$


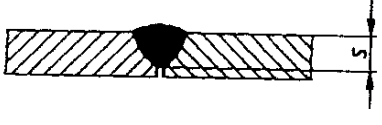


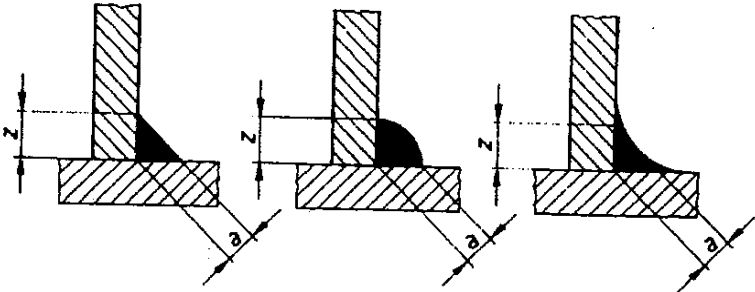
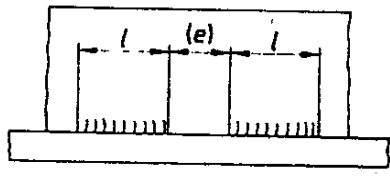
Figure 7 — Methods of indicating dimensions for fillet welds



NOTE — For deep penetration of fillet welds, the dimensions are indicated as $s\alpha z$, for example.

Figure 8 — Methods of indicating dimensions for deep penetration of fillet welds

Table 5 — Main dimensions

No.	Designation of welds	Illustration
1	Butt weld	
		
		
2	Butt weld between plates with raised edges	
3	Continuous fillet weld	
4	Intermittent fillet weld	







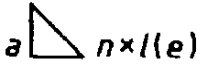
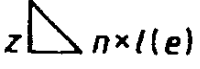
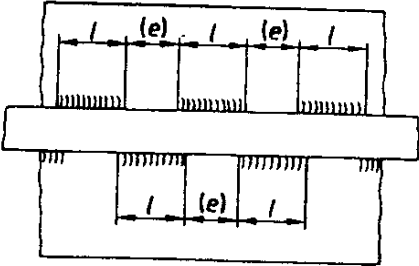
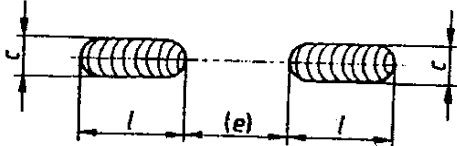
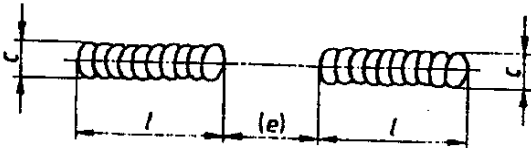
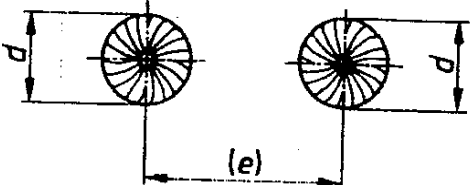
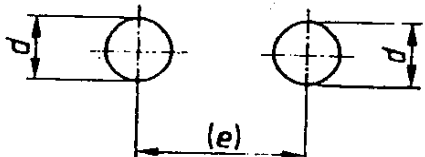
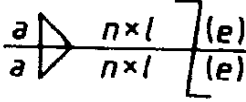
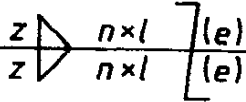
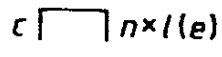
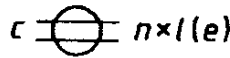


Definition	Inscription
<p><i>s</i> : minimum distance from the surface of the part to the bottom of the penetration, which cannot be greater than the thickness of the thinner part.</p>	 (see 6.2.1 and 6.2.2)
	 (see 6.2.1)
	 (see 6.2.1)
<p><i>s</i> : minimum distance from the external surface of the weld to the bottom of the penetration.</p>	 [see 6.2.1 and footnote 1) to table 1]
<p><i>a</i> : height of the largest isosceles triangle that can be inscribed in the section.</p> <p><i>z</i> : side of the largest isosceles triangle that can be inscribed in the section.</p>	  (see 6.2.1 and 6.2.3)
<p><i>l</i> : length of weld (without end craters).</p> <p>(<i>e</i>) : distance between adjacent weld elements.</p> <p><i>n</i> : number of weld elements.</p> <p><i>a</i> : } <i>z</i> : } (see No. 3)</p>	  (see 6.2.3)

Table 5 — Main dimensions (concluded)

No.	Designation of welds	Illustration
5	Staggered intermittent fillet weld	
6	Plug or slot weld	
7	Seam weld	
8	Plug weld	
9	Spot weld	

Definition	Inscription
$l :$ $(e) :$ $n :$	  (see 6.2.3)
$l :$ $(e) :$ $n :$	 (see 6.2.4)
$l :$ $(e) :$ $n :$	
$n :$ $(e) :$ $d :$	
$n :$ $(e) :$ $d :$	

7 Complementary Indications

Complementary indications may be necessary in order to specify some other characteristics of welds. For example:

7.1 Peripheral welds

When the weld is to be made all around a part, the symbol is a circle, as shown in figure 9.

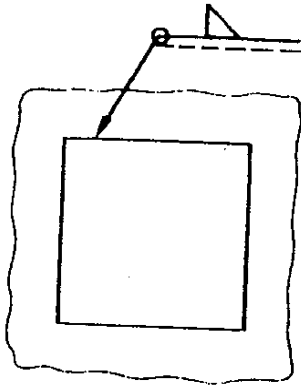


Figure 9 — Indication of peripheral weld

7.2 Field or site welds

A flag is to be used to indicate the field or site weld, as shown in figure 10.

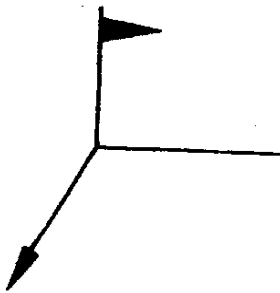


Figure 10 — Indication of field or site weld

7.3 Indication of the welding process

If required, the welding process is to be symbolized by a number written between the two branches of a

fork, at the end of the reference line remote from the reference line.

Figure 11 gives an example of its use.

The list giving the correspondance between the numbers and the process is given in ISO 4063.

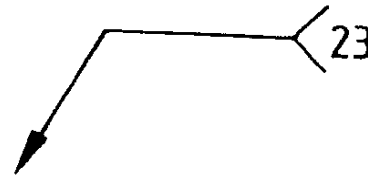


Figure 11 — Indication of welding process

7.4 Sequence of information in the tail of the reference mark

The information for joints and the dimensions can be supplemented by further information in the tail, in the following order:

- process (e.g. in accordance with ISO 4063);
- acceptance level (e.g. in accordance with ISO 5817 and ISO 10042);
- working position (e.g. in accordance with ISO 6947);
- filler materials (e.g. in accordance with ISO 544, ISO 2560, ISO 3581).

The individual items are to be separated by / (solidus).

In addition, a closed tail is possible which indicates specific instruction (e.g. procedure sheet) by a reference sign, see figure 12.



Figure 12 — Reference information

EXAMPLE

Single-V butt weld with backing run (see figure 13), produced by manual metal-arc welding (reference number 111 in accordance with ISO 4063), required acceptance level in accordance with ISO 5817, flat position PA in accordance with ISO 6947, covered electrode ISO 2560-E 51 2 RR 22.

8 Examples for application of spot and seam joints

In the case of seam and spot joints (welded, brazed or soldered), joints are made at the interface between the two lapped parts or by melt-through of one of the two parts (see figures 14 and 15).

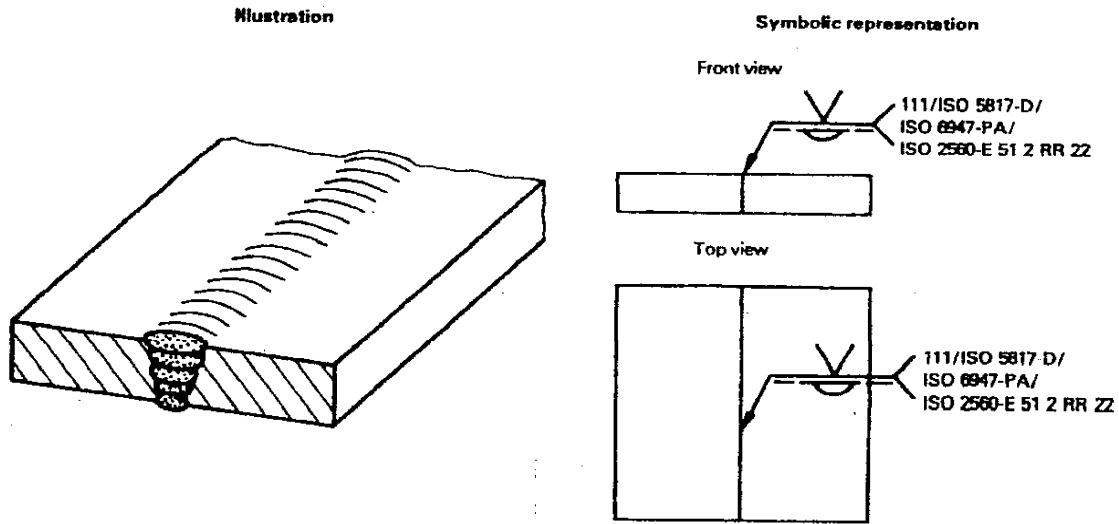


Figure 13 — Single-V butt weld with backing run

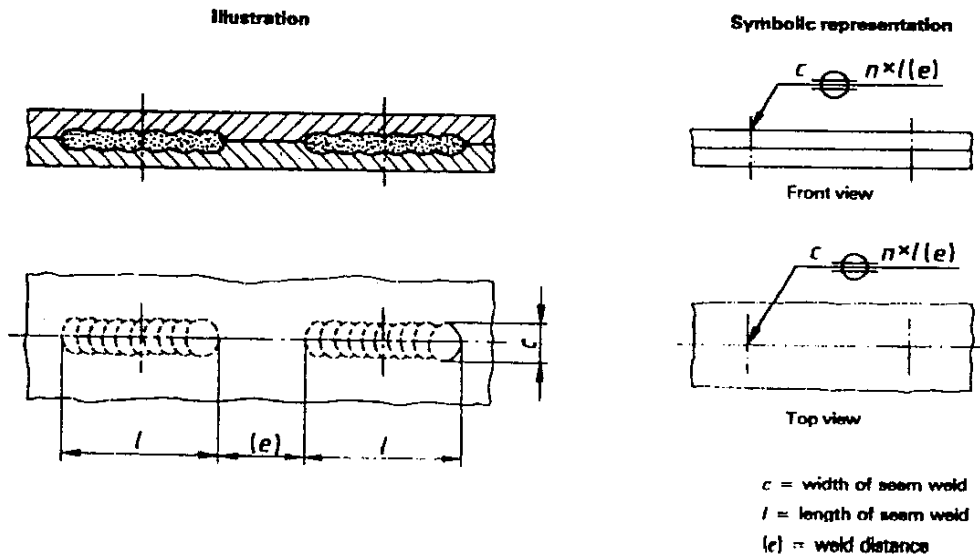


Figure 14 — Intermittent resistance seam welds

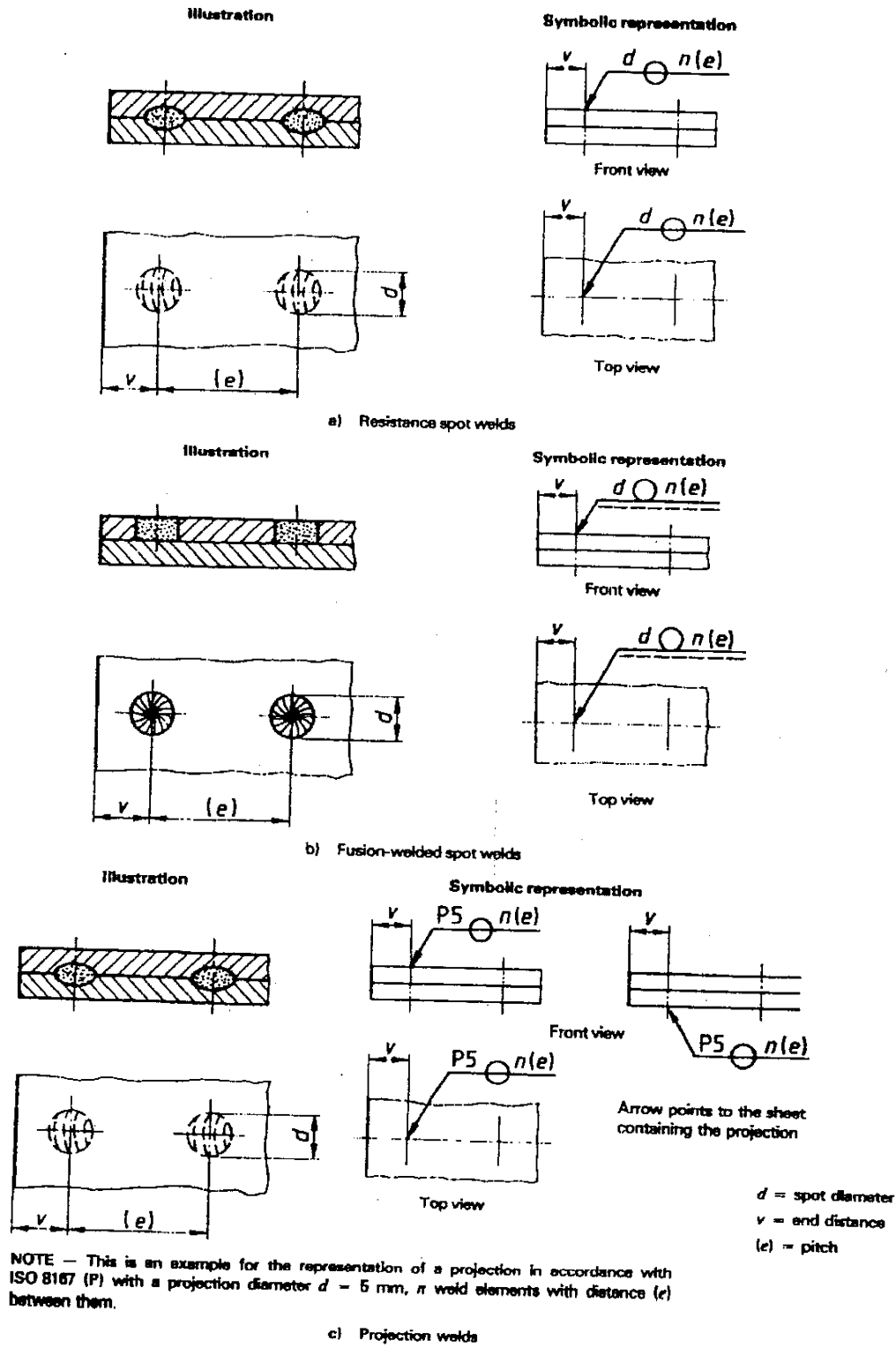




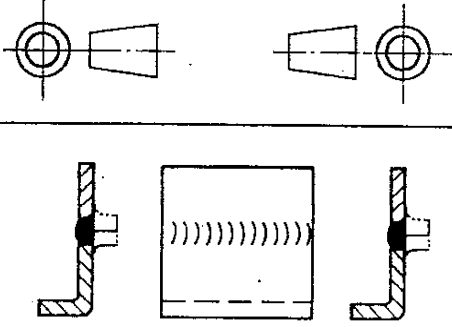
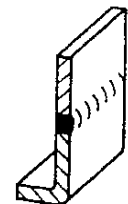
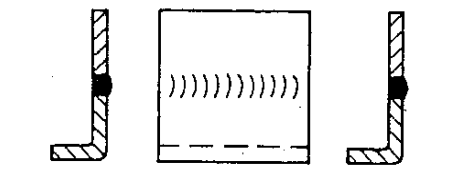

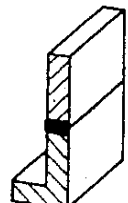

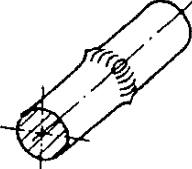
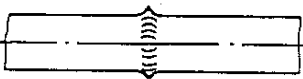
Figure 15 — Spot welds

Annex A
(informative)

Examples of use of symbols


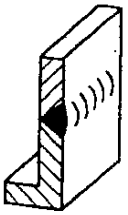

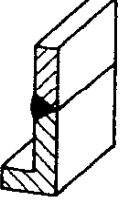
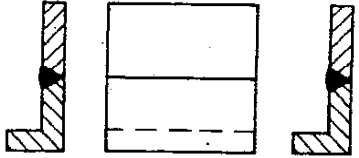

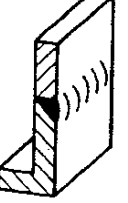
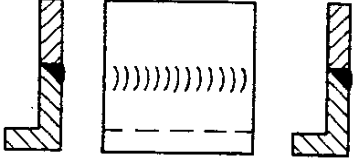
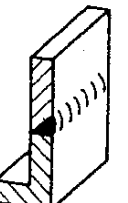
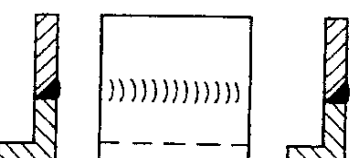
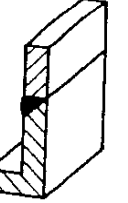
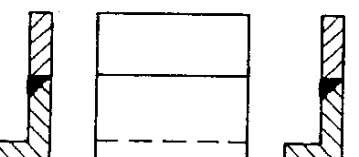
Tables A.1 to A.4 give some examples of the use of symbols. The representations shown are given simply for explanation.

Table A.1 — Examples of the use of elementary symbols

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
1	Butt weld between plates with raised edges 		
2			
3	Square butt weld 		
4			


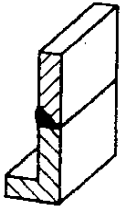
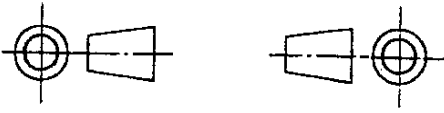

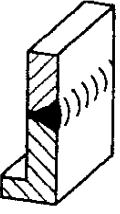
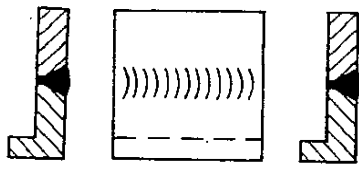

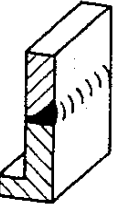
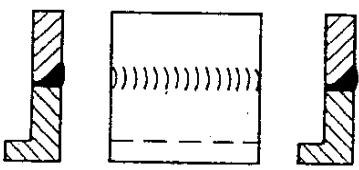

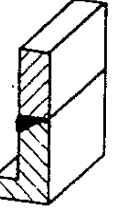
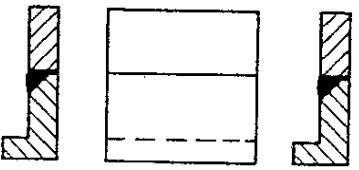

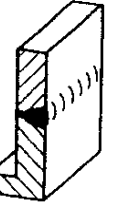
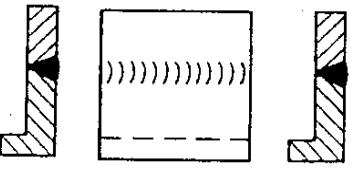
Symbolization	
either	or

Table A.1 — Examples of the use of elementary symbols (continued)

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
5	Single-V butt weld 		
6			
7	Single-bevel butt weld 		
8			
9			

Symbolization	
either	or

Table A.1 — Examples of the use of elementary symbols (continued)

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
10	Single-bevel butt weld 		
11	Single-V butt weld with broad root face 		
12	Single-bevel butt weld with broad root face 		
13	Single-V butt weld 		
14	Single-U butt weld 		

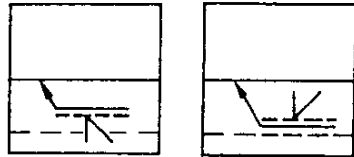
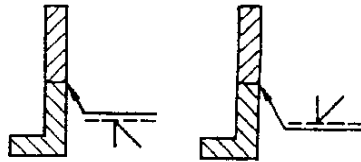
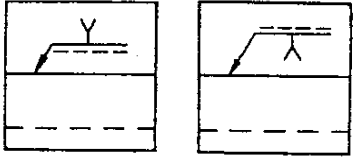
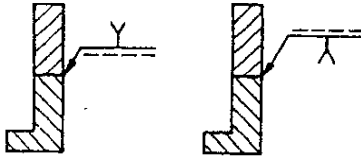
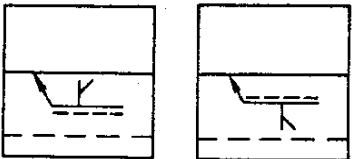
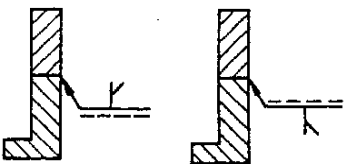

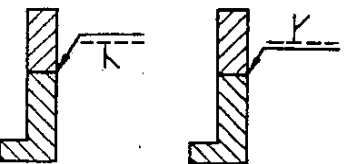
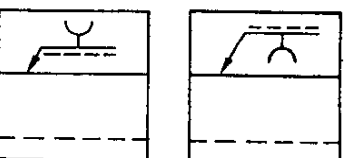
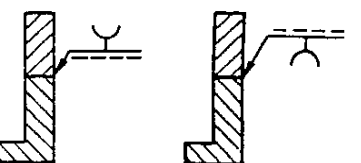

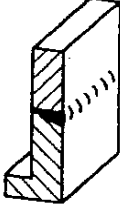
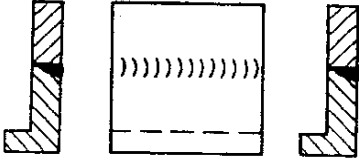
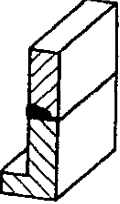
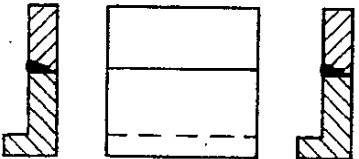

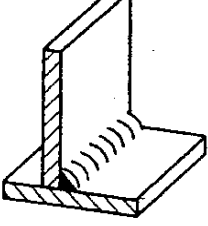
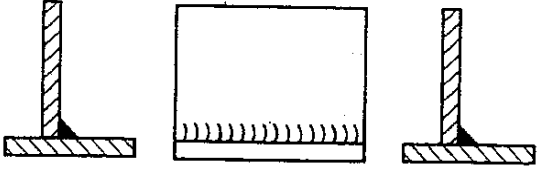
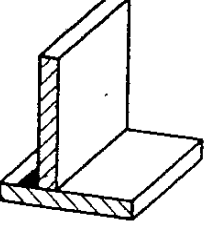
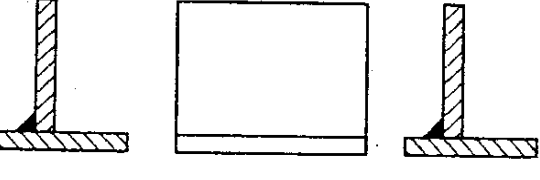
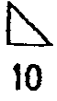
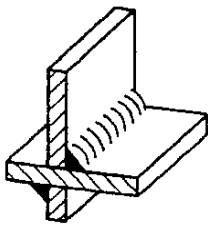
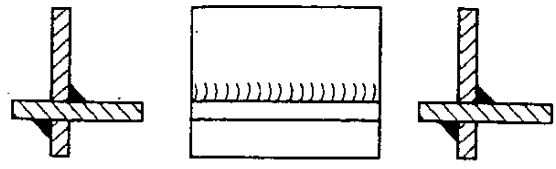
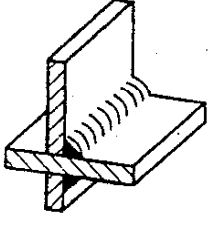
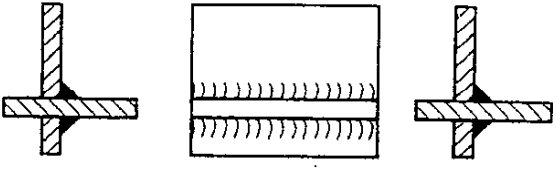
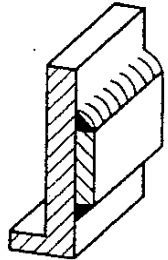
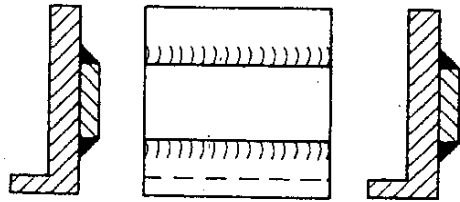
Symbolization	
either	or
	
	
	
	
	

Table A.1 — Examples of the use of elementary symbols (continued)

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
15	Single-J butt weld  8		
16			
17	Fillet weld  10		
18			

Symbolization	
either	or

Table A.1 — Examples of the use of elementary symbols (continued)

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
19	Fillet weld 		
20			
21			

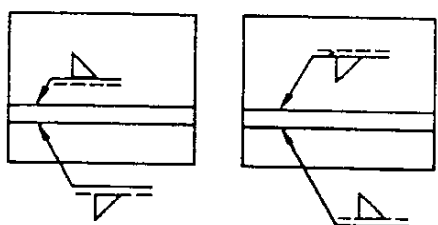
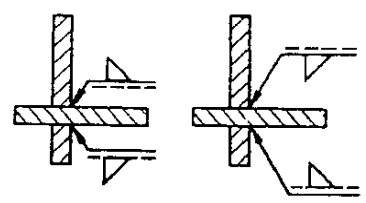
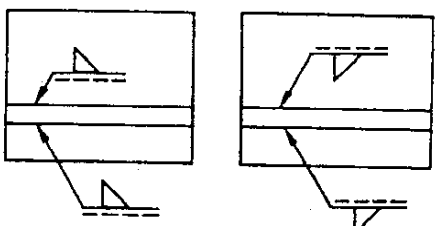
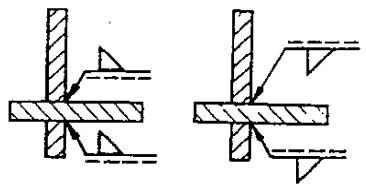
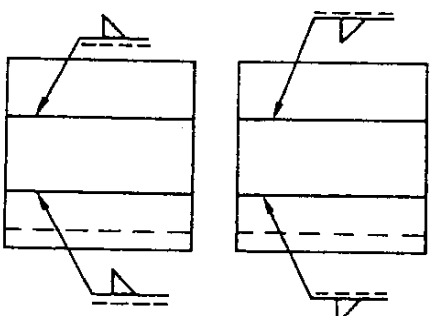
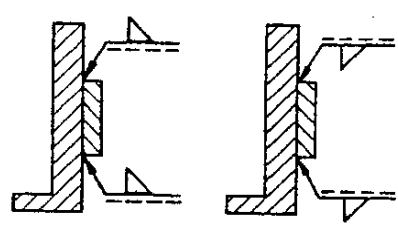

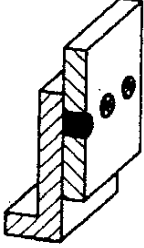
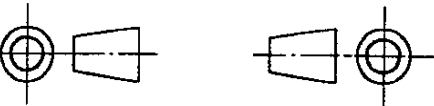

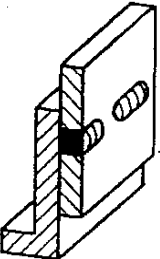
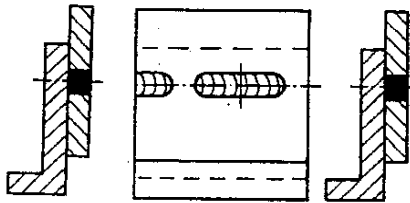

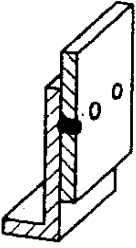
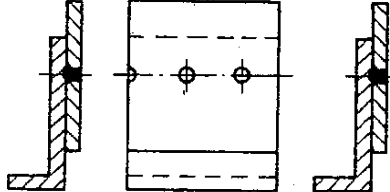

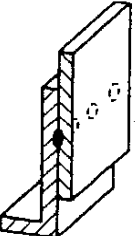
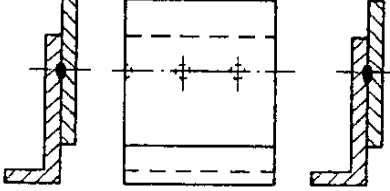
Symbolization	
either	or
	
	
	

Table A.1 — Examples of the use of elementary symbols (continued)

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
22	Plug weld 		
23			
24	Spot weld 		
25			

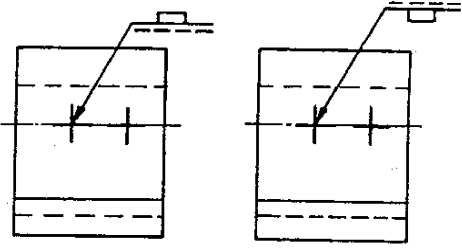
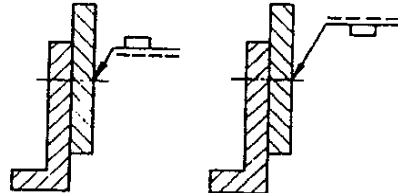
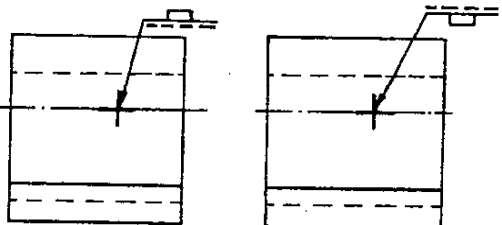
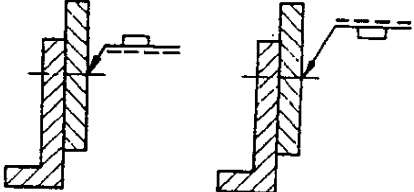
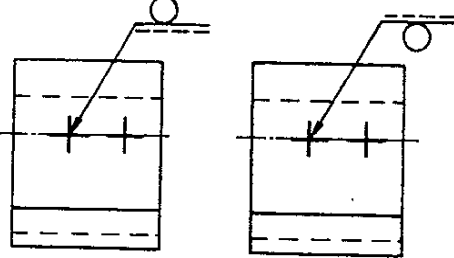
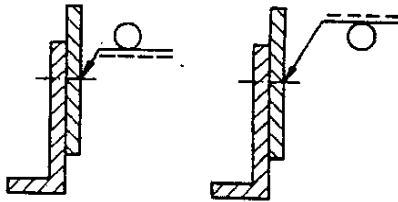
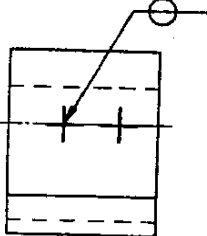
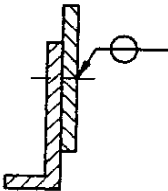

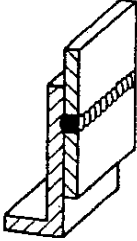
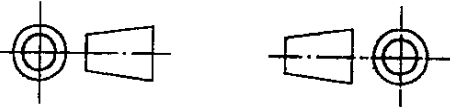
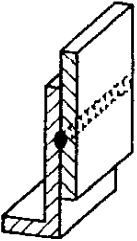
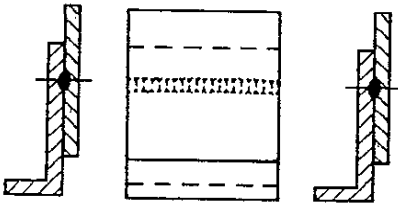
Symbolization	
either	or
	
	
	
	

Table A.1 — Examples of the use of elementary symbols (concluded)

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
26	Seam weld 		
27	13		

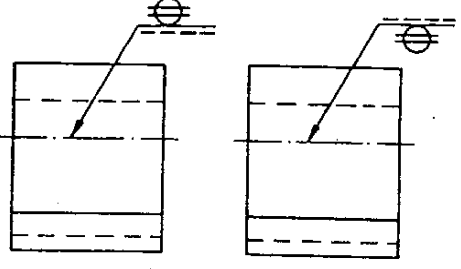
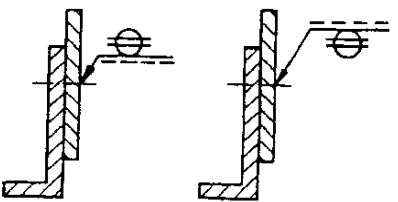
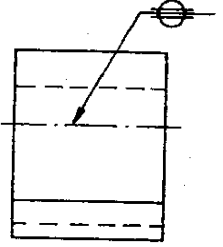
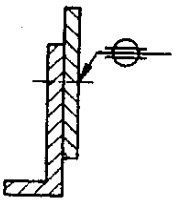


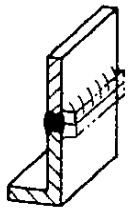
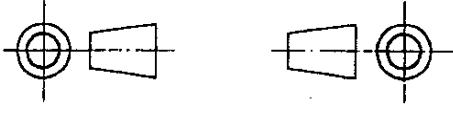

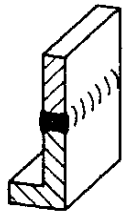
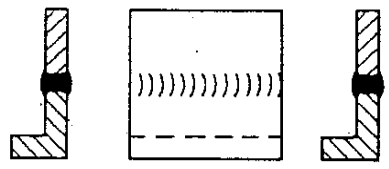

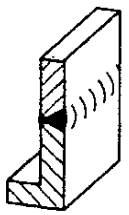
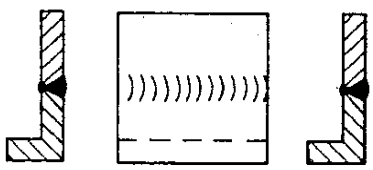

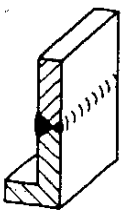
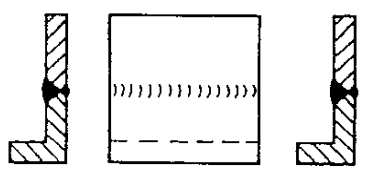

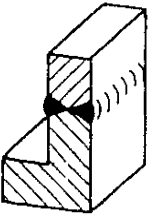
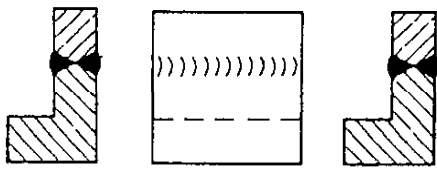
Symbolization	
either	or
	
	

Table A.2 — Examples of combinations of elementary symbols

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
1	Butt weld between plates with raised edges  1 and backing run  9 1-9		
2	Square butt weld  2 welded from both sides 2-2		
3	Single-V butt weld  3 and backing run		
4	 9 3-9		
5	Double-V butt weld  3 (X weld) 3-3		

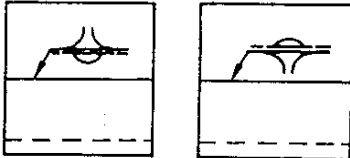
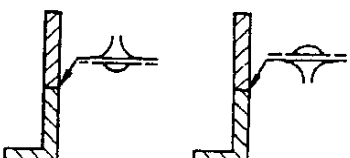
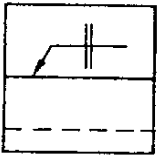
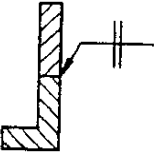
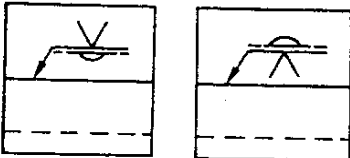
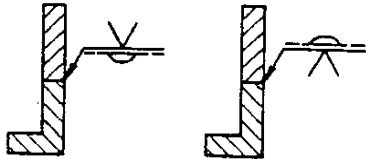
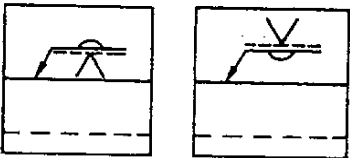
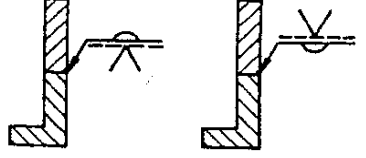
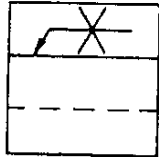
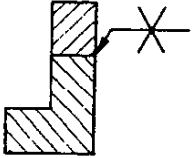
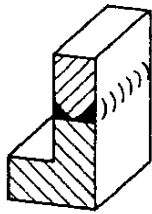
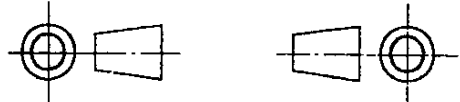
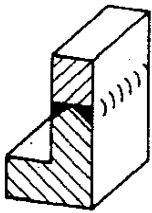
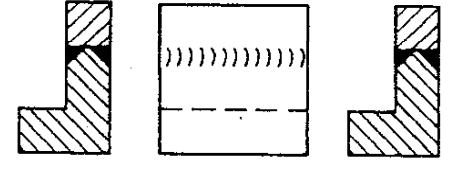
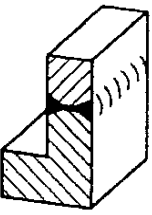
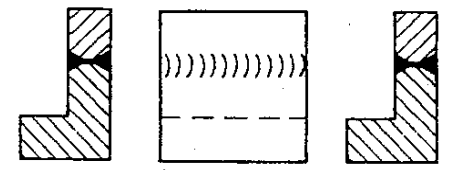
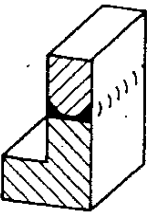
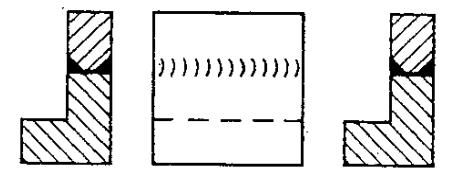
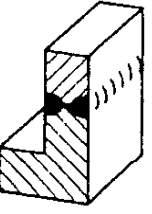
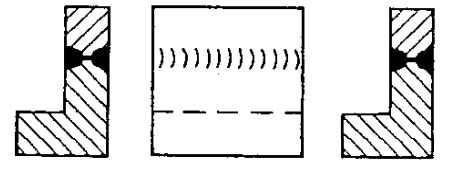
Symbolization	
either	or
	
	
	
	
	

Table A.2 — Examples of combinations of elementary symbols (continued)

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
6	Double bevel butt weld $\nabla 4$ (K weld)		
7	$4-4$		
8	Double V butt weld with broad root face $\Upsilon 5$ $5-5$		
9	Double bevel butt weld with broad root face $\nabla 6$ $6-6$		
10	Double U butt weld $\Upsilon 7$ $7-7$		

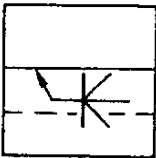
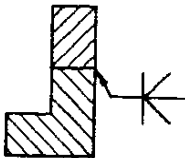
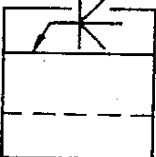
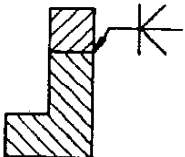
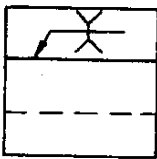
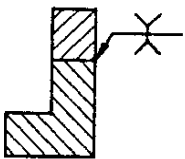
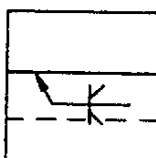
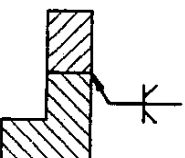
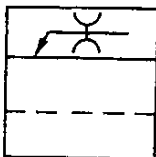
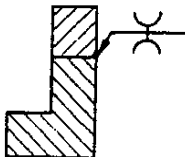

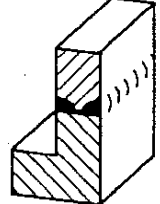
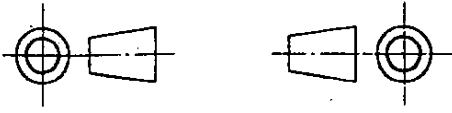


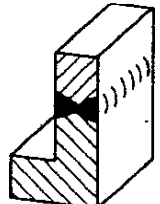
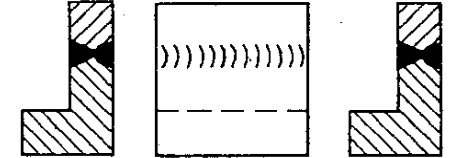

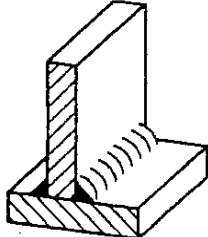
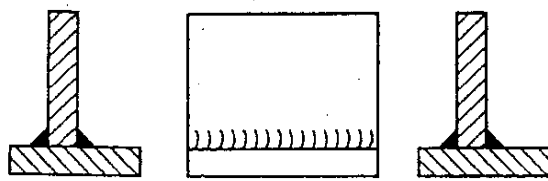

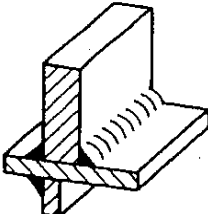
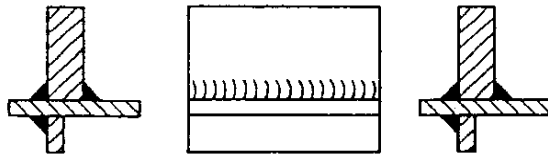
Symbolization	
either	or
	
	
	
	
	

Table A.2 — Examples of combinations of elementary symbols (concluded)

No.	Designation Symbol (Numbers refer to table 1)	Illustration	Representation
11	Double J butt weld  8-8		Representation 
12	Single V butt weld and single U butt weld   3-7		
13	Fillet weld  10 and fillet weld		
14	 10-10		

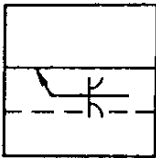
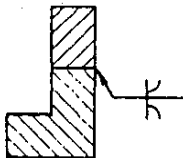
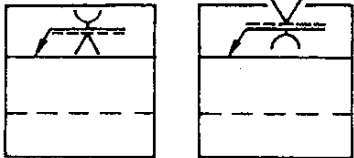
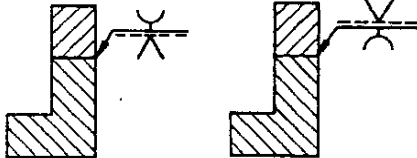
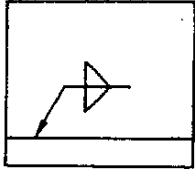
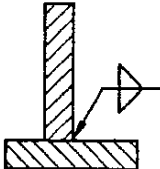
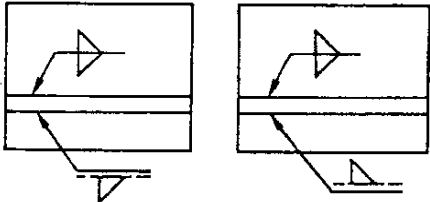
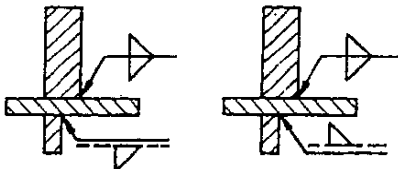

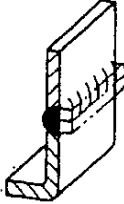
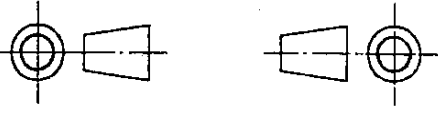

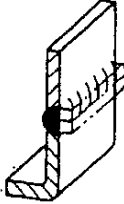
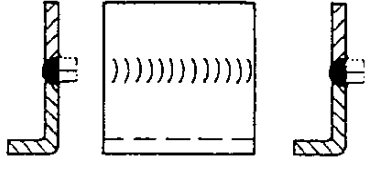

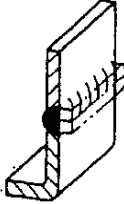
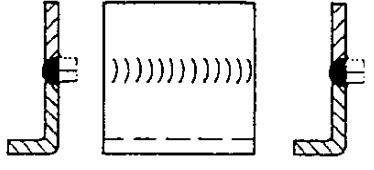

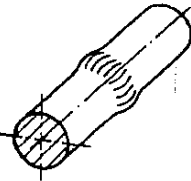


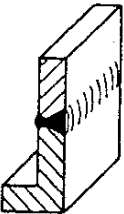
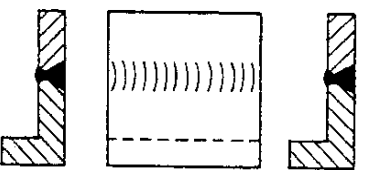

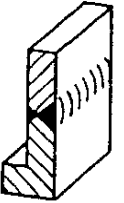
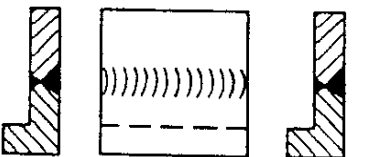
Symbolization	
either	or
	
	
	
	

Table A.3 — Examples of combinations of elementary and supplementary symbols

No.	Symbol	Illustration	Representation
			
1			
2			
3			
4			
5			

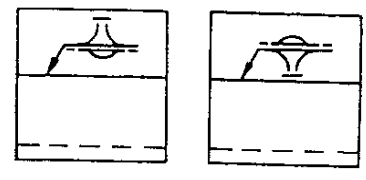
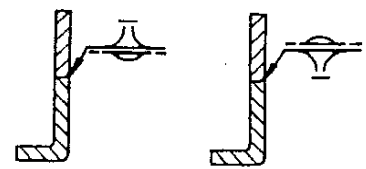
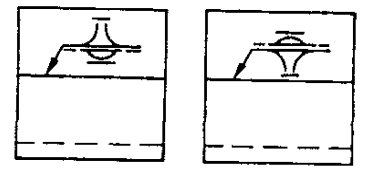
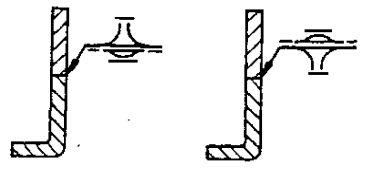
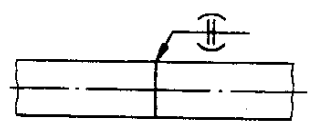
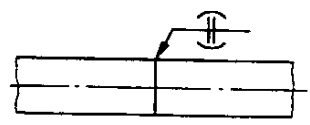
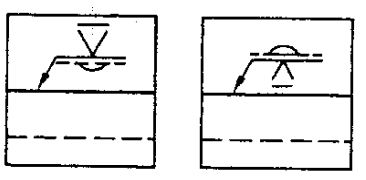
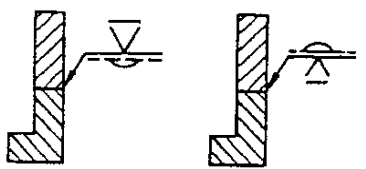
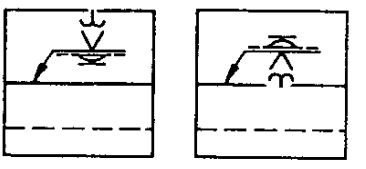
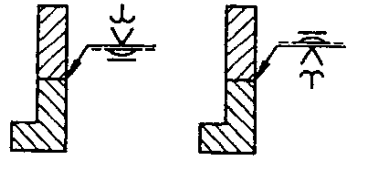
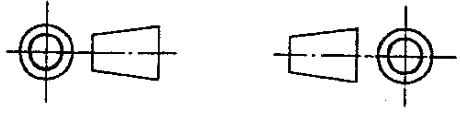

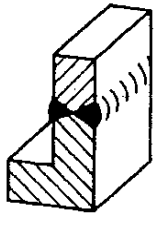
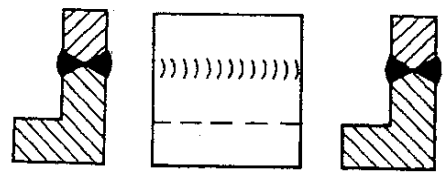

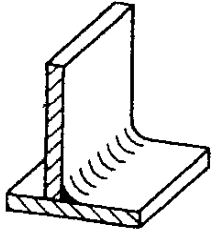
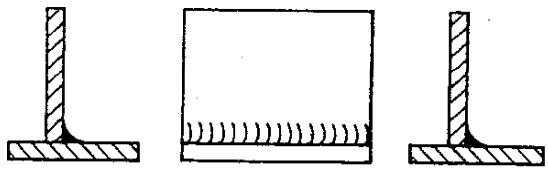

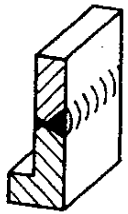
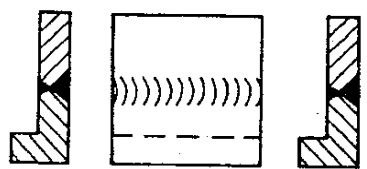
Symbolization	
either	or
	
	
	
	
	

Table A.3 — Examples of combinations of elementary and supplementary symbols (concluded)

No.	Symbol	Illustration	Representation
			<p style="text-align: center;">Representation</p> 
6			
7			
8			

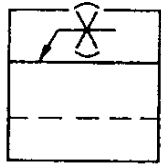
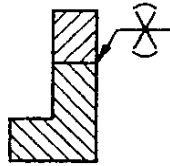
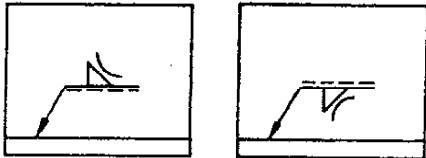
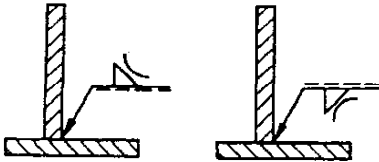
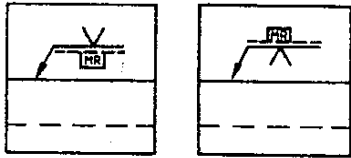
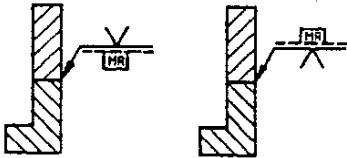
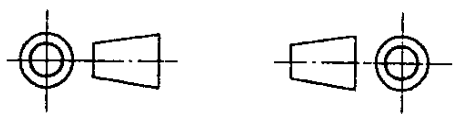
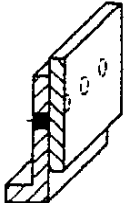
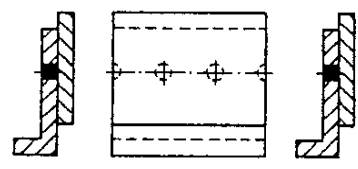
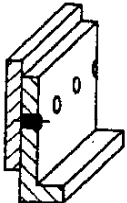
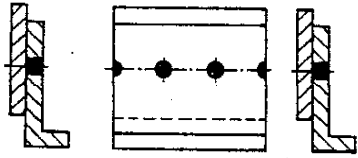
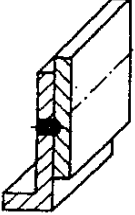
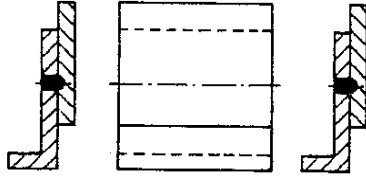
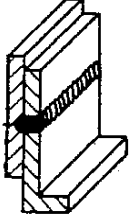
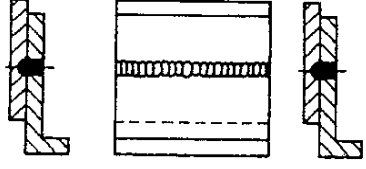
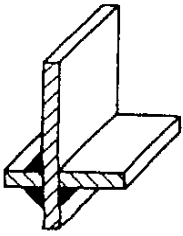
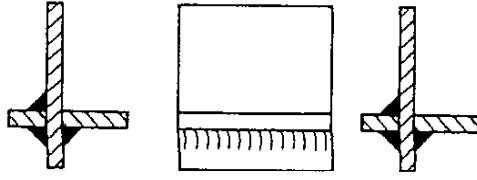
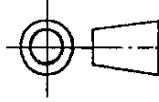
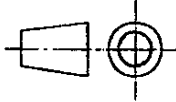
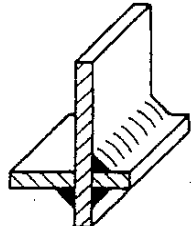
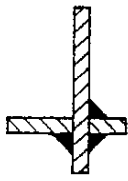
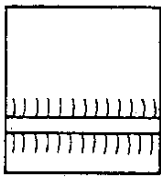
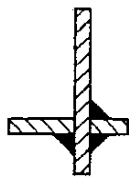
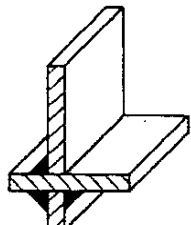
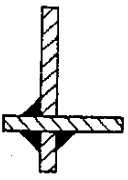
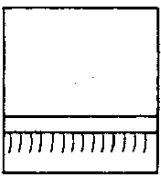
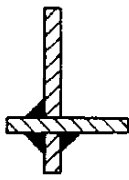
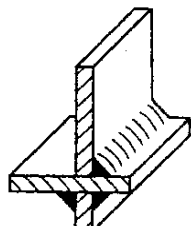
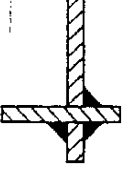
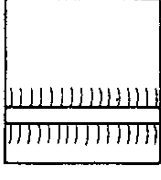
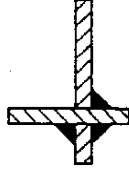
Symbolization	
either	or
	
	
	

Table A.4 – Examples of exceptional cases

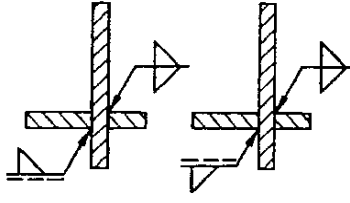
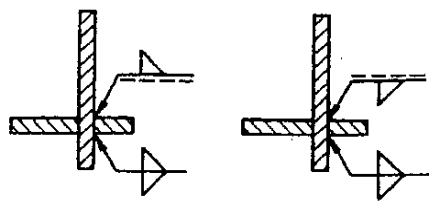
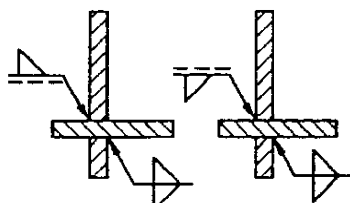
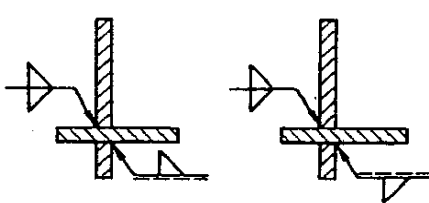
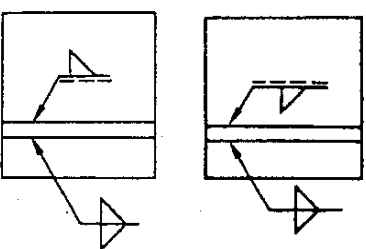
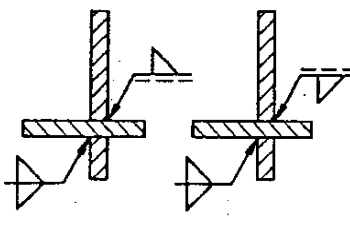
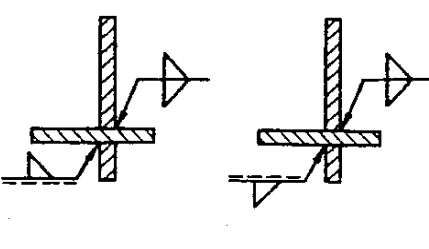
No.	Illustration	Representation
		
1		
2		
3		
4		
5		

Symbolization		
either	or	incorrect
-		
-		
not recommended		

Table A.4 — Examples of exceptional cases (concluded)

No.	Illustration	Representation		
				
6				
7				
8				


NOTE 1 When the arrow cannot point to a joint, symbolization cannot be used.

Symbolization			
either	or	incorrect	
not recommended			
not recommended			
			

Annex B (informative)

Guidance for converting drawings made in accordance with ISO 2553:1974 into the new system in accordance with ISO 2553:1991

As an interim solution for converting old drawings made in accordance with ISO 2553:1974, *Welds — Symbolic representation on drawings*, the following examples show acceptable methods. This shall, however, be considered as a provisional solution only during the change-over period.

For new drawings, the dual-reference line  shall always be used.

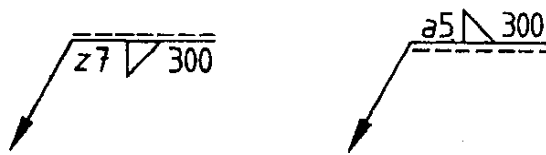


Figure B.1 — Weld on arrow side



Figure B.2 — Weld on other side

NOTE 8 When converting drawings made to one of the methods E or A in ISO 2553:1974 into this new system, it is especially important for fillet welds to add the letter *a* or *z* in front of that dimension as the use of dimensioning leg length (*z*) or throat thickness (*a*) has been connected with the position of weld symbol on the reference line.

Annex ZA (normative)
Normative references to international publications
with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 544	1989	Filler materials of manual welding-size requirements	EN 20544	1991
ISO 4063	1990	Welding, brazing, soldering, and braze welding of metals - Nomenclature of processes and reference numbers for symbolic representation on drawings	EN 24063	1991
ISO 5817	1992	Arc-welded joints in steel - Guidance on quality levels for imperfections	EN 25817	1992
ISO 8167	1989	Projections for resistance welding	EN 28167	1992
ISO 10042	1992	Arc-welded joints in aluminium and its weldable alloys - Guidance on quality levels for imperfections	EN 30042	1994