

Industrial valves
Butt welding ends for steel valves
English version of DIN EN 12627

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EN 12627

ICS 23.060.01

Supersedes DIN 3239-1,
October 1988 edition.

Industriearmaturen – Anschweißenden für Armaturen aus Stahl

European Standard EN 12627 : 1999 has the status of a DIN Standard.

A comma is used as the decimal marker.

National foreword

This standard has been prepared by CEN/TC 69.

The responsible German body involved in its preparation was the *Normenausschuß Armaturen* (Valves Standards Committee), Technical Committee *Grundnormen*.

Amendments

DIN 3239-1, October 1988 edition, has been superseded by the specifications of EN 12627.

Previous editions

DIN 3239-1: 1974-08, 1980-10, 1988-10.

EN comprises 9 pages.

ICS 23.060.01

English version

Industrial valves
Butt welding ends for steel valves

Appareils de robinetterie – Extrémités à souder en bout pour appareils de robinetterie en acier Industriearmaturen – Anschweißenden für Armaturen aus Stahl

This European Standard was approved by CEN on 1999-04-16.

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.

The European Standards exist 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.

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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

This European Standard has been prepared by Technical Committee CEN/TC 69 "Industrial valves", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 1999, and conflicting national standards shall be withdrawn at the latest by November 1999.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association. This European Standard is considered to be a supporting standard to those application and product standards which in themselves support an essential safety requirement of a New Approach Directive and which make reference to this European Standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the dimensions of butt welding ends of steel valves DN 8 to DN 1400 designed to be butt welded to standardised pipes.

NOTE: For the outside diameters and wall thickness of standardised pipes in accordance with ISO 4200.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the test 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.

EN 736-1:	Valves - Terminology - Part 1: Definition of types of valves
EN 736-2:	Valves - Terminology - Part 2: Definition of components of valves
EN 736-3	Valves - Terminology - Part 3: Definition of terms
ISO 4200:	Plain end steel tubes, welded and seamless - General tables of dimensions and masses per unit length.

3 Definitions

For the purposes of this standard the definitions of EN 736-1, EN 736-2 and prEN 736-3 apply.

4 Symbols

The symbols used in this standard are as follows:

$\varnothing A$ is the outside diameter of the valve butt welding end (see table 1);

$\varnothing B$ is the inside diameter of the pipe;

T is the wall thickness of the pipe;

t_D is the thickness of the valve butt welding end.

5 Requirements

- 5.1** Butt welding ends of steel valve bodies shall have the form and dimensions as shown in figures 1, 2, 3, 4 or 5 unless the contract states that the weld to the pipe is to be ultrasonically tested.
- 5.2** Where the weld to the pipe is to be ultrasonically tested, butt welding ends of steel valve bodies shall have the form and dimensions as shown in figures 4 and 5 except that for globe valves of "Z" form the 10° maximum angle can be increased to 20° maximum.
- 5.3** For pipe wall thickness, T , greater than 4 mm and less than or equal to 22 mm, figures 2 or 4 shall be used. For valves having a wall thickness, t_D , of less than or equal to 4 mm, the butt welding ends can be cut square as shown in figure 1.
- 5.4** For pipe wall thickness of more than 22 mm figures 3 or 5 shall be used.
- 5.5** The inside and outside surfaces of the butt welding end shall be machined all over. The internal profile of the body is at the option of the manufacturer unless otherwise specified by the purchaser.
- 5.6** The outside diameter of $\varnothing A$ of the butt welding end shall have the dimensions and tolerances as shown in table 1 when the allowable stress of the valve butt welding end material is greater than or equal to that of the pipe material.

Table 1 : Dimensions and tolerance of outside diameter, $\varnothing A$, of butt welding ends

Valve DN (nominal size)	DN 8	DN 10	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150	DN 200
$\varnothing A$ in mm	14	18	22	28	35	44	50	62	77	91	117	144	172	223
Tolerance in mm	+2,5			+2,5			+2,5			+2,5			+4	
	-1			-1,5			-2			-2,5			-2,5	

Valve DN (nominal size)	DN 250	DN 300	DN 350	DN 400	DN 450	DN 500	DN 600	DN 700	DN 750	DN 800	DN 900	DN 1000	DN 1200	DN 1400
$\varnothing A$ in mm	278	329	362	413	464	516	619	721	772	825	927	1029	1235	1440
Tolerance in mm	+4													
	-2,5													

- 5.7** When the allowable stress of the valve butt welding end material is less than that of the pipe material the thickness of the valve butt welding end shall be increased to compensate as shown in figure 6. The thickness of the valve butt welding end shall be determined according to the equation:

$$t_D = T \times \frac{\text{Allowable stress of pipe material}}{\text{Allowable stress of valve butt welding end material}}$$

but limited to $t_D \leq 1,5 \times T$

5.8 The inside diameter of the butt welding end shall be equal to the inside diameter of the pipe to which it is to be welded to within the tolerance stated in table 2.

Table 2: Tolerance of inside diameter of butt welding ends

Valve DN (nominal size)	DN 8 to DN 250	DN 300 to DN 450	DN 500 to DN 1400
Tolerance in mm	+1 -1	+2 -2	+3 -2

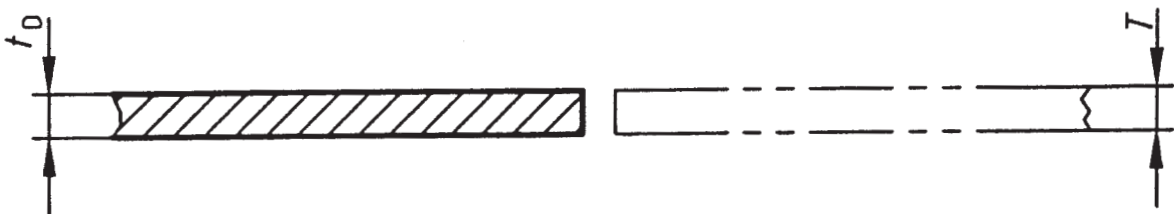


Figure 1: Square butt welding end connection to pipe of wall thickness $T \leq 4\text{mm}$

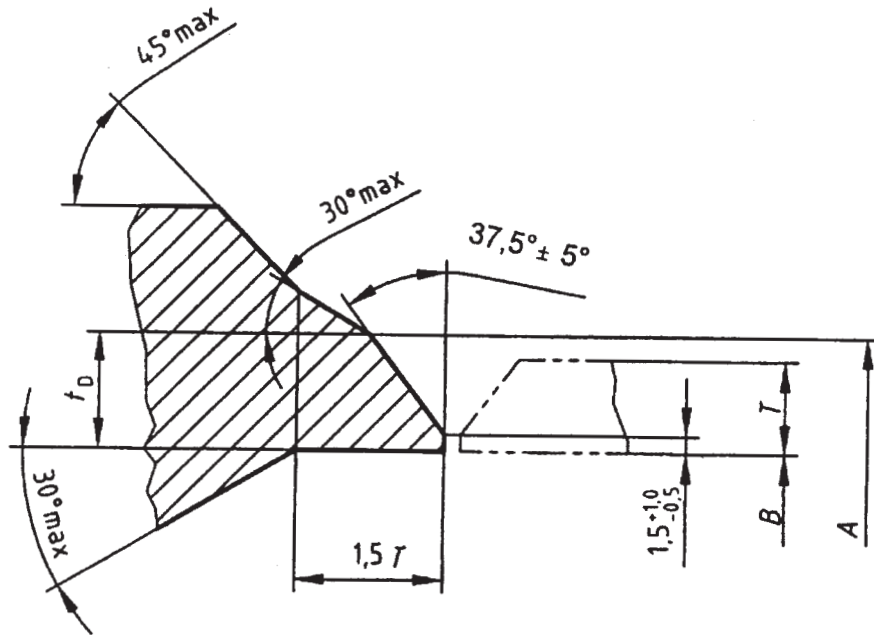


Figure 2 : Single-V butt weld end connection to pipe of wall thickness $4 \text{ mm} < T \leq 22 \text{ mm}$

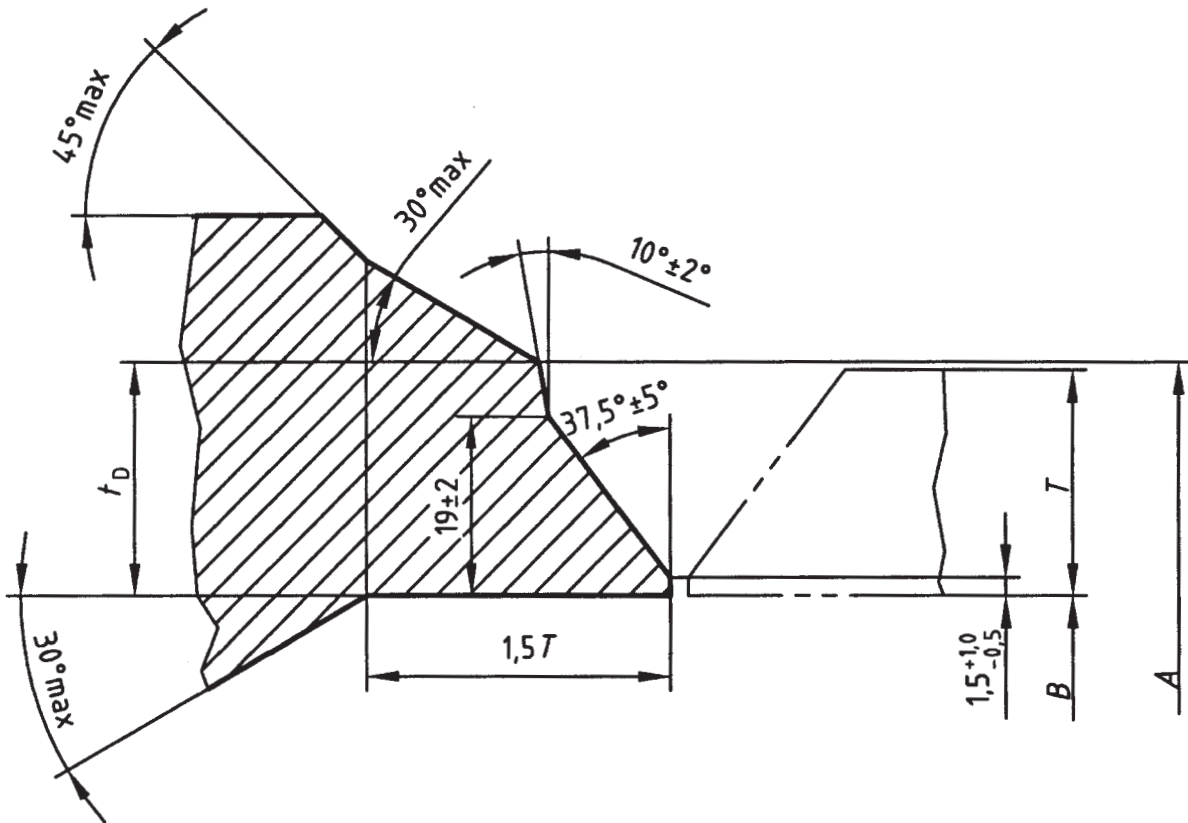
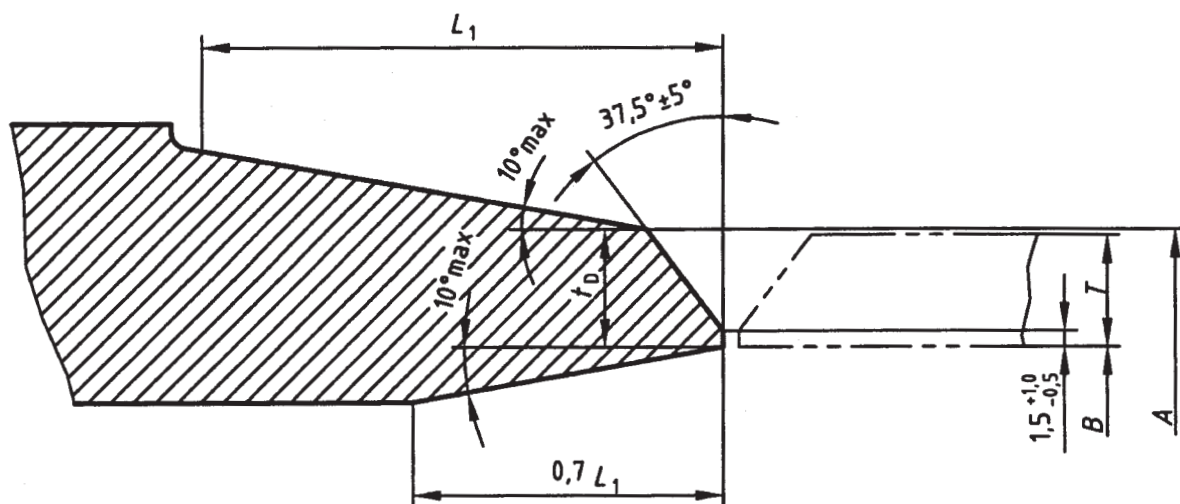


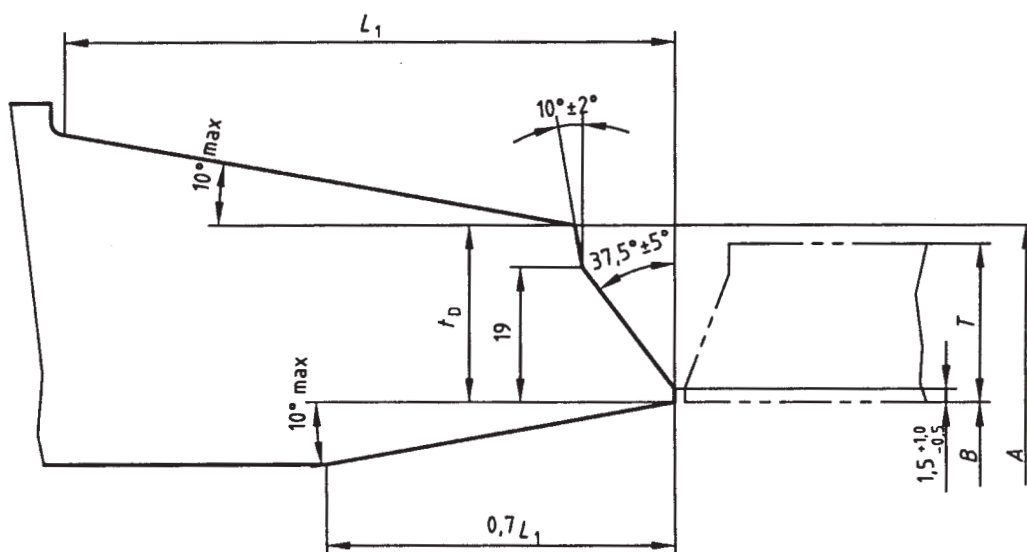
Figure 3 : Single-V butt weld end connection with V root to pipe of wall thickness $T > 22 \text{ mm}$



$$L_1 = 48 \text{ for } T \leq 16$$

$$L_1 = 3 T \text{ for } 16 < T \leq 50$$

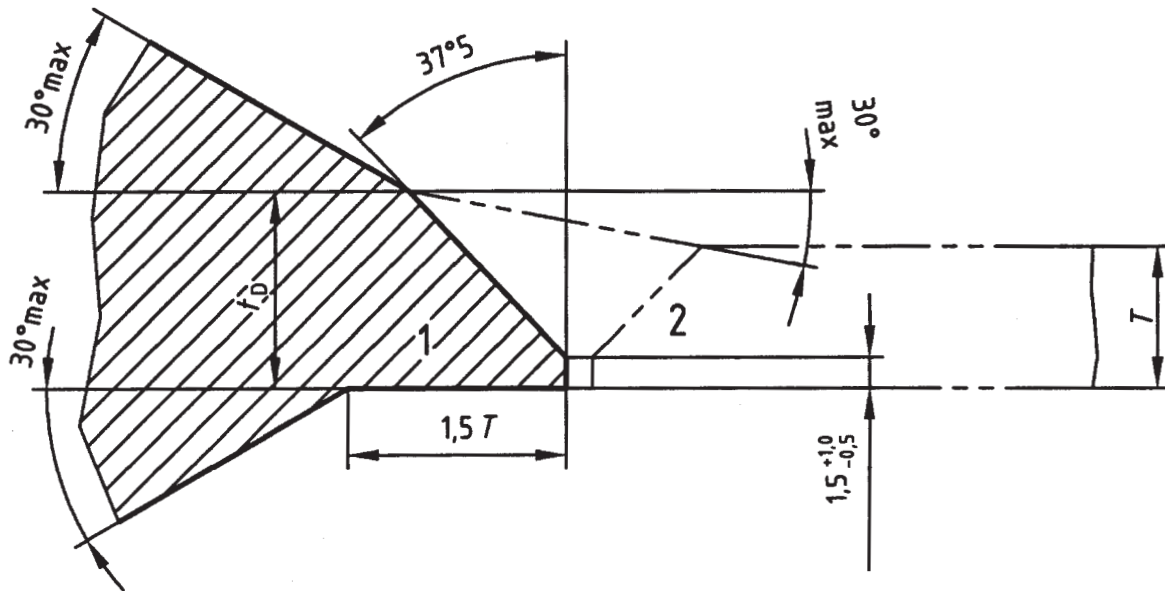
**Figure 4: Single-V butt weld end connection to pipe of wall thickness
4 mm $T \leq 22\text{ mm}$**



$$L_1 = 3 T \text{ for } 16 < T \leq 50$$

$$L_1 = 2 T + 50 \text{ for } T > 50$$

**Figure 5: Single-V butt weld end connection with V root to pipe
of wall thickness $T > 22\text{ mm}$**



1 Valve butt welding end
2 Pipe

**Figure 6: Acceptable design for unequal wall thickness
at the butt welding end of a valve**

6 Designation

A butt welding end shall be designated by:

- the wording "Butt welding end";
- the reference to this standard (EN 12627);
- the number of the corresponding figure of this standard (e.g. 3);
- the DN (nominal size) of the valve (e.g. DN 50)

Example:

Butt welding end EN 12627-3-DN50

Annex A (informative)

Basis for this standard

The butt weld end connections used have been taken from EN 29692, the appropriate references being given hereafter :

Figure 1: EN 29692 reference 1.2

Figures 2 and 3: EN 29692 reference 1.5

Figures 4 and 5: EN 29692 reference 1.3.3

Experience has shown that these butt weld end connections are the most appropriate for the welding of valve bodies to pipes and pipeline components.

EN 29692 relates only to butt weld end connections.

Moreover, this European standard considers the dimensions of the valve body in the welding area.

Annex B (informative)

Bibliography

EN 29692: Metal-arc welding with covered electrode, gas-shielded metal arc welding and gas welding - Joint preparations for steel (ISO 9692:1992)