BRITISH STANDARD

BS EN
12627:1999

Industrial valves — Butt welding ends for steel valves

The European Standard EN 12627:1999 has the status of a British Standard

ICS 23.060.01

National foreword

This British Standard is the English language version of EN 12627:1999. Together with BS EN 558-1:1996 and BS EN 558-2:1996 it supersedes BS 2080:1989, which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee PSE/7, Valves, to Subcommittee PSE/7/1, Valves — Basic standards, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 9 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

This British Standard, having been prepared under the direction of the Engineering Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 October 1999

ISBN 0 580 32675 6

Amendments issued since publication

Amd. No.	Date	Comments

EUROPEAN STANDARD **EN 12627**

NORME EUROPÉENNE

EUROPÄISCHE NORM May 1999

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 16 April 1999.

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, Czech Republic, 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

 Ref No. EN 12627:1999 E

Contents

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 standardized pipes.

NOTE For the outside diameters and wall thickness of standardized 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 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.

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:

∅A is the outside diameter of the valve butt welding end (see Table 1);

∅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^o maximum angle can be increased to 20^o 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 ∅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, ØA, 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**
ØA in mm	14	18	22	28	35	44	50	62	77	91	117	144	172	223
Tolerance in mm	+2,5 −1			+2,5 −1,5		+2,5 −2			+2,5 −2,5			+4 −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**
ØA 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 $T \leq 4$mm

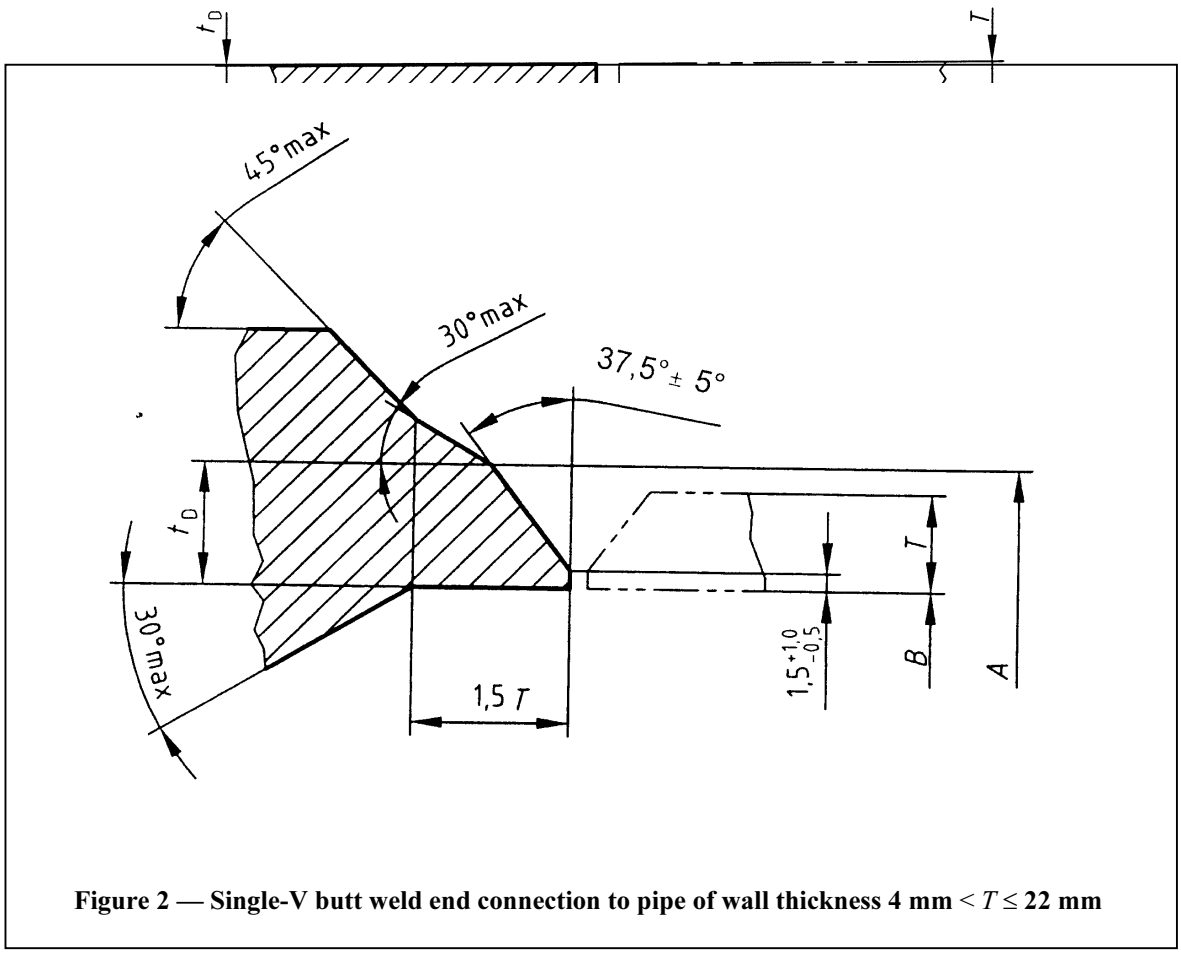


Figure 2 — Single-V butt weld end connection to pipe of wall thickness 4 mm < T ≤ 22 mm

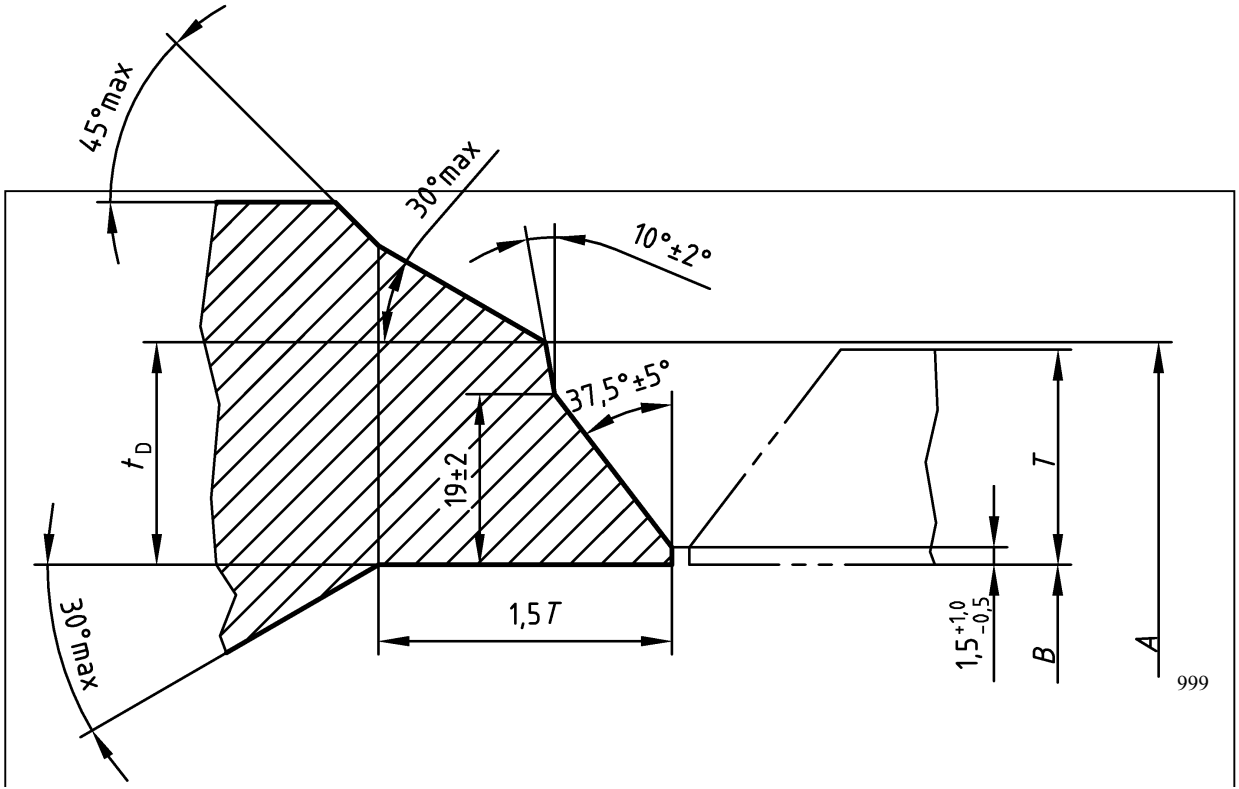
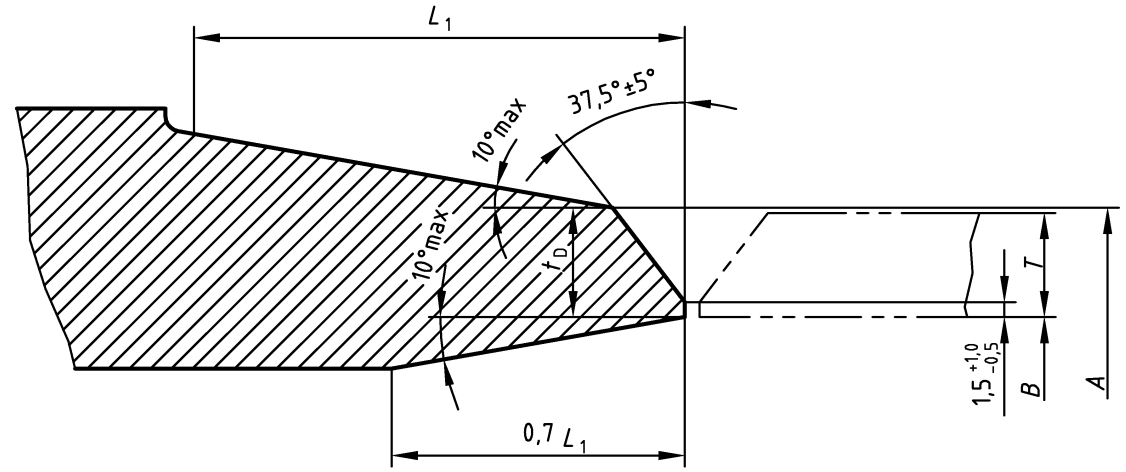
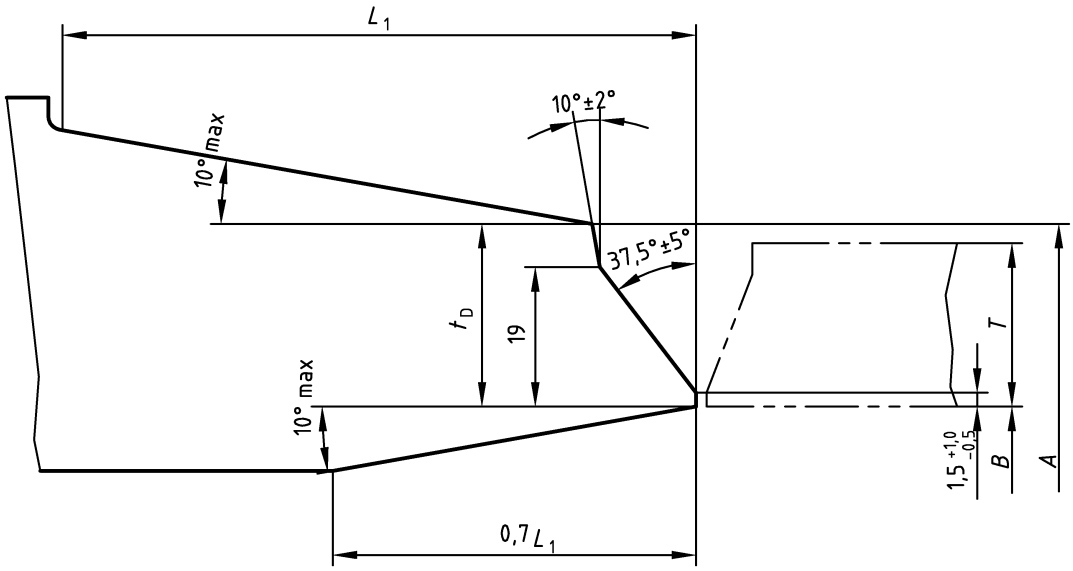


Figure 3 — Single-V butt weld end connection with V root to pipe of wall thickness $T > 22$ mm



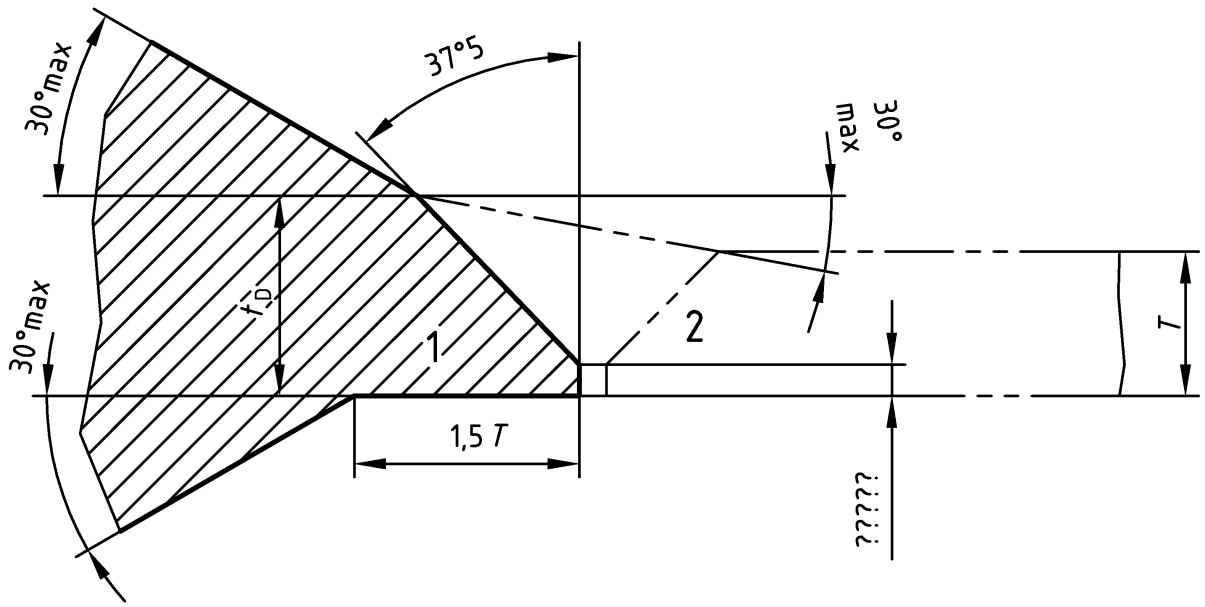
$L_1 = 48$ for $T \leq 16$
$L_1 = 3\ T$ for $16 < T \leq 50$

Figure 4 — Single-V butt weld end connection to pipe of wall thickness 4 mm $< T \leq$ 22 mm



$L_1 = 3\ T$ for $16 < T \leq 50$
$L_1 = 2\ T + 50$ for $T > 50$

Figure 5 — Single-V butt weld end connection with V root to pipe of wall thickness $T > 22$ 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 – DN 50

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).

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL