



Type 25E taper thread for connection of valves  
to transportable gas cylinders  
Specification  
English version of DIN EN 629-1

**DIN**  
**EN 629-1**

ICS 23.020.30

Supersedes parts of DIN 477-1,  
May 1990 edition.

Descriptors: Gas cylinders, valves, taper threads, concepts, dimensions, requirements.

Ortsbewegliche Gasflaschen; 25E kegeliges Gewinde zum Anschluß von Ventilen an Gasflaschen. Teil 1: Spezifikation

**European Standard EN 629-1 : 1996 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 23.

The responsible German body involved in its preparation was the *Normenausschuß Druckgasanlagen* (Pressure Vessels Standards Committee).

**Amendments**

In comparison with DIN 477-1, May 1990 edition, a taper screw thread of nominal diameter 25,8 mm has been specified instead of thread size W 28,8 × 1/14.

**Previous edition**

DIN 477-1: 1990-05.

EN comprises 8 pages.



ICS 23.020.30

Descriptors: Gas cylinders, valves, taper threads, concepts, dimensions, requirements.

**English version**

Transportable gas cylinders

**25E taper thread for connection of valves to gas  
cylinders**

**Part 1: Specification**

Bouteilles à gaz transportables; filetages  
coniques 25E pour le raccordement des  
robinets sur les bouteilles à gaz. Partie 1:  
Spécifications

Ortsbewegliche Gasflaschen; 25E  
kegeliges Gewinde zum Anschluß von  
Ventilen an Gasflaschen. Teil 1:  
Spezifikation

This European Standard was approved by CEN on 1995-12-06.

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**

## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 23 'Transportable gas cylinders', the Secretariat of which is held by BSI.

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 December 1996 at the latest.

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.

## Introduction

This European Standard is a two part standard, belonging to a series of standards specifying thread dimensions and gauge requirements:

Part 1 : Specification;

Part 2 : Gauge inspection.

Cylinders intended to contain compressed, liquefied or dissolved gas under pressure are fitted with accessories (valves, straight or angle fittings) to allow release of and refilling with, gas. Hereinafter, the term "valve" will apply to such accessories.

The connection, between cylinder and valve, is obtained by assembly of two taper threads, an external one on the valve stem and an internal one in the cylinder neck, both having the same nominal taper, pitch and thread profile.

## 1 Scope

This European Standard, specifies definitions, dimensions and tolerances of a taper screw thread of nominal diameter 25,8 mm (Designated 25E), for the connection of valves to medical and industrial gas cylinders.

Gauge inspection is covered by EN 629-2.

This standard does not cover the connection requirements for:

- mechanical strength;
- gas tightness;
- capability of repeated assembly and dismounting operations.

## 2 Normative reference

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

EN 629-2      Transportable gas cylinders- 25E taper thread for connection of valves to gas cylinders - Part 2 : Gauge inspection

## 3 Definitions

For the purposes of this standard, the following definitions apply:

**3.1 valve stem:** Tapered end of the valve body, with a thread formed on the external surface of the truncated cone (see figure 1).

**3.2 cylinder neck thread:** Tapered axial hole in the cylinder neck, with a thread formed on the internal surface of the truncated cone (see figure 1).

**3.3 major cone:** Cone bounding the crests of the thread of the valve stem, or the roots of the cylinder neck thread.

**3.4 minor cone:** Cone bounding the roots of the thread, of the valve stem, or the crests of the cylinder neck thread.

**3.5 pitch cone:** Cone passing, coaxially and midway, between the major and minor cones.

**3.6 reference plane, A:** Reference plane coincident with the small end face, of the threaded valve stem and corresponding to diameters  $d_{1i}$ ,  $d_{1p}$ , and  $d_{1e}$  (see figure 1).

**3.7 reference plane, B:** Reference plane, at a distance  $l_1$  from reference plane A and corresponding to diameter  $d_{2p}$  (see figure 1).

**3.8 reference plane, F:** Reference plane coincident with the entry section face of the cylinder neck thread and corresponding to diameter  $D_{2p}$  (see figure 1).

**3.9 reference plane, G:** Reference plane, at a distance  $L_1$  from reference plane F and corresponding to diameter  $D_{1e}$ ,  $D_{1p}$ , and  $D_{1i}$  (see figure 1).

**3.10 major diameter,  $d_{1e}$ :** Diameter of the major cone, at the valve stem thread reference plane A, (before any chamfer is cut) (see figure 1).

**3.11 pitch diameter,  $d_{1p}$ :** Diameter of the pitch cone, at the valve stem thread, reference plane A, (before any chamfer is cut) (see figure 1).

**3.12 minor diameter,  $d_{1i}$ :** Diameter of the minor cone at the valve stem thread reference plane A, (before any chamfer is cut) (see figure 1).

**3.13 pitch diameter,  $d_{2p}$ :** Diameter of the pitch cone at reference plane B (see figure 1).

**3.14 major diameter,  $D_{1e}$ :** Diameter of the major cone at reference plane G (see figure 1).

**3.15 pitch diameter,  $D_{1p}$ :** Diameter of the pitch cone at reference plane G (see figure 1).

**3.16 minor diameter,  $D_{1i}$ :** Diameter of the minor cone at reference plane G (see figure 1).

**3.17 pitch diameter,  $D_{2p}$ :** Diameter of the pitch cone at reference plane F (before any chamfer is cut) (see figure 1).

**3.18 reference length,  $l_1$ :** Reference dimension being the distance between the parallel reference planes A and B (see figure 1).

**3.19 reference length,  $L_1$ :** Reference dimension being the distance between the parallel reference planes F and G (see figure 1).

**3.20 length of external thread,  $l_2$ :** Length of full form thread, on the valve stem, measured along the cone axis from the reference plane A (see figure 1 and table 1).

**3.21 length of internal thread,  $L_2$ :** Length of full form thread, in the cylinder neck, measured along the cone axis from the reference plane F (see figure 1 and table 2).

**3.22 taper:** Ratio of the difference of two diameters corresponding to planes, normal to the axis of the reference cone, and the axial distance between the same planes. It can be expressed as a ratio, as an angle or as a percentage.

**3.23 thread profile:** Thread shape obtained, by the intersection of a plane, through the thread axis and the threaded surface.

**3.24 basic profile:** Theoretical profile, when the profile of the external thread, coincides with the profile of the internal thread.

**3.25 design profile:** Design profile differs from the basic profile due to the radius of the root, necessary for manufacturing and strength requirements. Manufacturing tolerances are taken into account, for such a profile.

**3.26 pitch,  $P$ :** Distance, measured parallel to the cone surface, between two homologous points of two parallel consecutive flanks of the same thread (see figure 2).

## **4 Requirements**

### **4.1 Thread rotation**

The thread shall be a right hand thread, such that it moves away from an observer, when rotated clockwise.

### **4.2 Taper**

- Taper ratio: 3 / 25;
- Taper angle:  $6^\circ 52'$ ;
- Taper slope: 12%.

### **4.3 Thread profile**

The thread profile is a standard Whitworth form, with a  $55^\circ$  angle. The form and thread height measurements are perpendicular to the cone surface (see figure 2).

### 4.4 Pitch P

The pitch is 1,814 mm (derived from  $\frac{25,4}{14}$  mm ) (see figure 2).

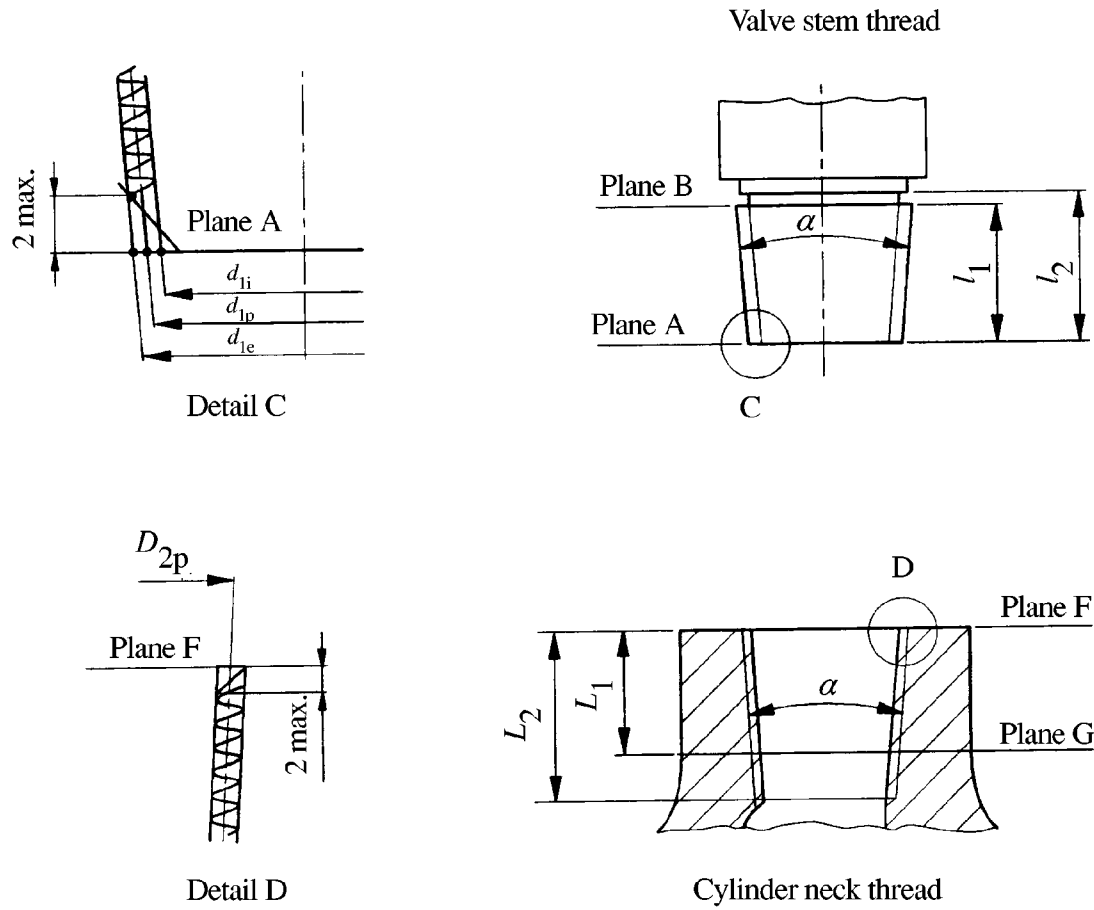


Figure 1: Thread reference planes and diameters



**Table 1: Valve stem dimensions**

Dimensions in millimetres

| Valve stem | Major diameter<br>$d_{1e}$ | Pitch diameter<br>$d_{1p}$ | Minor diameter<br>$d_{1i}$ | Pitch diameter<br>$d_{2p}$ | Reference length<br>$l_1$ | Full threads length<br>$l_2$ |
|------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------|------------------------------|
| Dimension  | 25,68                      | 24,518                     | 23,356                     | 27,638                     | 26                        | $\geq 26$                    |
| Tolerance  | + 0,12<br>0                | + 0,12<br>0                | + 0,12<br>0                | + 0,12<br>0                | -                         | -                            |

**Table 2: Cylinder neck thread dimensions**

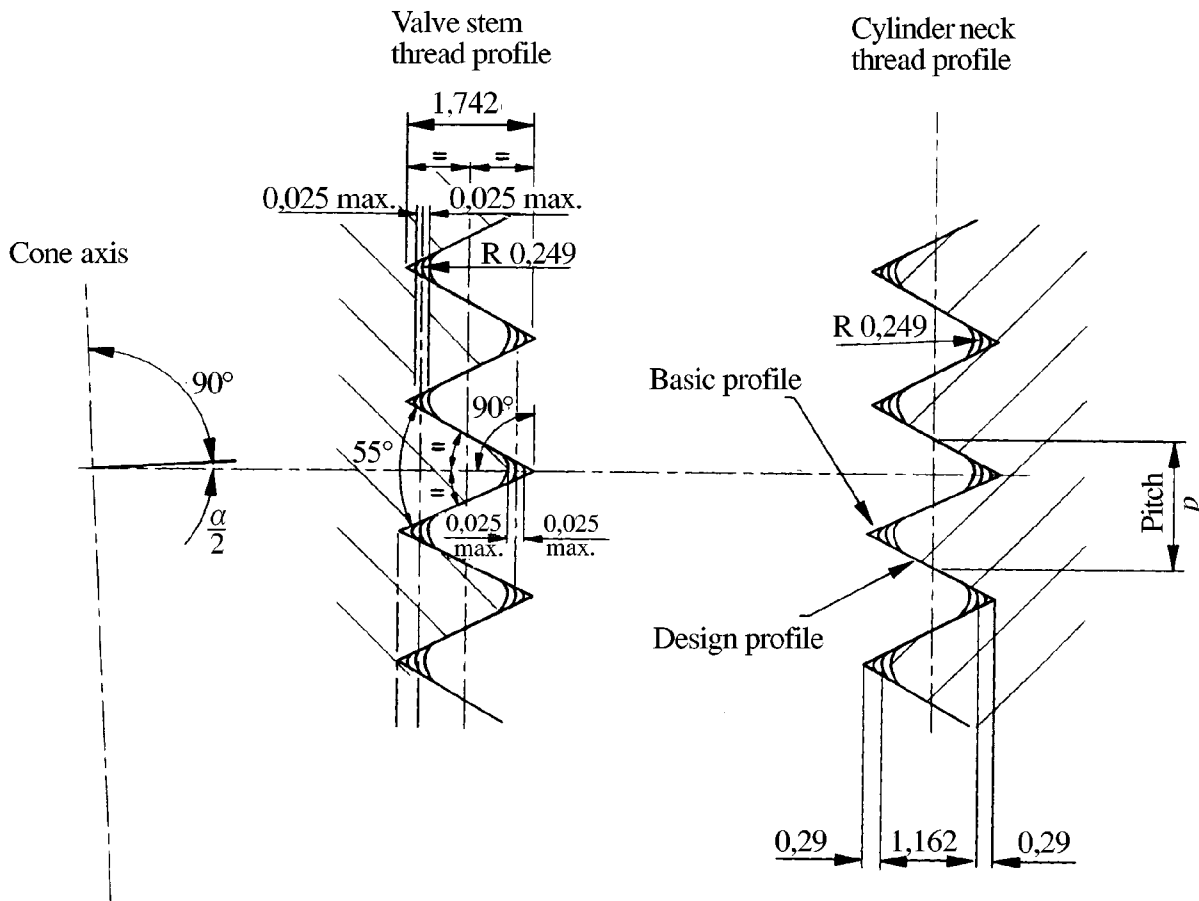
Dimensions in millimetres

| Cylinder neck thread | Major diameter<br>$D_{1e}$ | Pitch diameter<br>$D_{1p}$ | Minor diameter<br>$D_{1i}$ | Pitch diameter<br>$D_{2p}$ | Reference length<br>$L_1$ | Full threads length<br>$L_2$ |
|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------|------------------------------|
| Dimension            | 25,16                      | 23,998                     | 22,836                     | 26,638                     | 22                        | $\geq 22$                    |
| Tolerance            | 0<br>+ 0,12                | 0<br>+ 0,12                | 0<br>+ 0,12                | 0<br>+ 0,12                | -                         | -                            |

## 5 Thread end finish

The thread, of the valve stem, may have a chamfer of 2 mm maximum, from plane A, at the bottom part and a groove at the top (see figure 1).

The thread, of the cylinder neck may have a chamfered opening of 2 mm maximum, from plane F (see figure 1).



**Figure 2: Thread profiles**

## 6 Identification

Valves and cylinders, threaded in accordance with this standard, shall be identified by the symbol "25E".