UDC 621.886.115 DEUTSCHE NORM December 1996 (October 1992)

# Unhardened taper pins with internal thread

(ISO 8736 : 1986)
English version of DIN EN 28 736

DIN
EN 28 736

This standard incorporates the English version of ISO 8736.

Kegelstifte mit Innengewinde, ungehärtet
(ISO 8736 : 1986)

Supersedes DIN 7978, February 1977 edition.

European Standard EN 28 736 : 1992 has the status of a DIN Standard.

*A comma is used as the decimal marker.*

## National foreword

The publication of this standard is in keeping with a decision made by CEN/TC 185 to adopt, without alteration, a series of ISO Standards covering parallel and taper pins as European Standards. The responsible German body involved in their publication is the *Normenausschuß Mechanische Verbindungselemente* (Fasteners Standards Committee).

As a consequence, all DIN Standards covering such pins have been superseded by the corresponding DIN EN Standards (see table below).

| EN Standard | DIN EN Standard | Title | Previous DIN Standard |
|---|---|---|---|
| 22 338 | 22 338 | Unhardened parallel pins | 7 |
| 22 339 | 22 339 | Unhardened taper pins | 1 |
| 28 733 | 28 733 | Unhardened parallel pins with internal thread | 7979 |
| 28 734 | 28 734 | Hardened parallel pins | 6325 |
| 28 735 | 28 735 | Hardened parallel pins with internal thread | 7979 |
| 28 736 | 28 736 | Unhardened taper pins with internal thread | 7978 |
| 28 737 | 28 737 | Unhardened taper pins with external thread | 7977 |

See National appendix for guideline values for the mass of taper pins not given in the European Standard.

It should be noted that ISO Standard ISO 965, to which reference has been made in clause 2, has been superseded by ISO 965-2.

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

| ISO Standard | DIN Standard |
|---|---|
| ISO 965 | DIN 13 Part 13 |
| ISO 2081 | DIN 50 961 |
| ISO 3269 | DIN ISO 3269 (at present at the stage of draft) |

The DIN 4000-9-1 tabular layout of article characteristics applies for pins as covered here.

Continued overleaf.
EN comprises 6 pages.



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## Standards referred to

(and not included in **References**)

| | |
|---|---|
| DIN 13 Part 13 | ISO metric screw threads; series of preferred sizes for screws, bolts and nuts from 1 mm to 52 mm diameter and limits of sizes |
| DIN 4000 Part 9 | Tabular layout of article characteristics for bolts, screws, pins, rivets, keys, and lock washers |
| DIN 50 961 | Chromating of zinc and cadmium coatings on iron and steel |

## Previous editions

DIN 7978: 08.56, 06.63, 02.77.

## Amendments

In comparison with DIN 7978, February 1977 edition, the following amendments have been made.

a) The nominal diameter of 14 mm has been dropped.

b) The specifications for the nominal lengths and their tolerances have been amended.

c) Some values of $l_1$ have been changed.

d) The material hardness has been specified.

e) The standard designation has been changed.

f) Guideline values for the mass of taper pins have been given in a National appendix.

## International Patent Classification

F 16 B 19/02

# EUROPEAN STANDARD
# NORME EUROPÉENNE
# EUROPÄISCHE NORM

EN 28 736

July 1992

UDC 621.886.115

Descriptors: Fasteners, pins, taper pins, specifications, dimensions, designation.

**English version**

## Taper pins with internal thread, unhardened
(ISO 8736 : 1986)

Goupilles de position coniques à trou taraudé, non trempées (ISO 8736 : 1986)

Kegelstifte mit Innengewinde, ungehärtet (ISO 8736 : 1986)

This European Standard was approved by CEN on 1992-07-17 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**

## Foreword

In 1992, CEN/TC 185 'Threaded and unthreaded fasteners and accessories', the Secretariat of which is held by DIN, decided to submit International Standard

ISO 8736 : 1986 Taper pins with internal thread, unhardened

to Formal Vote. The result was positive.

In the countries bound to implement this European Standard, a national standard identical to this European Standard shall be published, and conflicting national standards withdrawn, by 1993-01-31 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.

## Endorsement notice

The text of the International Standard ISO 8736 : 1986 was approved by CEN as a European Standard without any modification.

## 1 Scope and field of application

This International Standard specifies the characteristics of unhardened taper pins with internal thread, and metric dimensions and nominal diameters, $d_1$, from 6 to 50 mm inclusive.

## 2 References

ISO 965, *ISO general purpose metric screw threads — Tolerances.*

ISO 2081, *Metallic coatings — Electroplated coatings of zinc on iron or steel.*

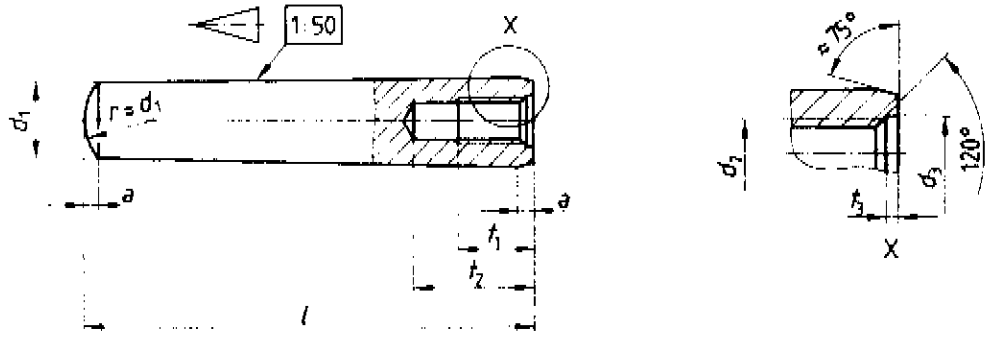
ISO 3269, *Fasteners — Acceptance inspection.*

ISO 4520, *Chromate conversion coatings on electroplated zinc and cadmium coatings.*

## 3 Dimensions

**Type A** (ground pins) : Surface finish $R_a$ = 0,8 µm

**Type B** (turned pins) : Surface finish $R_a$ = 3,2 µm




Dimensions in millimetres

| $d_1$ h10[1] | | | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 30 | 40 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $a$ ≈ | | | 0,8 | 1 | 1,2 | 1,6 | 2 | 2,5 | 3 | 4 | 5 | 6,3 |
| $d_2$ | | | M4 | M5 | M6 | M8 | M10 | M12 | M16 | M20 | M20 | M24 |
| $P$[2] | | | 0,7 | 0,8 | 1 | 1,25 | 1,5 | 1,75 | 2 | 2,5 | 2,5 | 3 |
| $d_3$ | | | 4,3 | 5,3 | 6,4 | 8,4 | 10,5 | 13 | 17 | 21 | 21 | 25 |
| $t_1$ | | | 6 | 8 | 10 | 12 | 16 | 18 | 24 | 30 | 30 | 36 |
| $t_2$ | | min. | 10 | 12 | 16 | 20 | 25 | 28 | 35 | 40 | 40 | 50 |
| $t_3$ | | | 1 | 1,2 | 1,2 | 1,2 | 1,5 | 1,5 | 2 | 2 | 2,5 | 2,5 |
| $l$[3] nom. | min. | max. | | | | | | | | | | |
| 16 | 15,5 | 16,5 | | | | | | | | | | |
| 18 | 17,5 | 18,5 | | | | | | | | | | |
| 20 | 19,5 | 20,5 | | | | | | | | | | |
| 22 | 21,5 | 22,5 | | | | | | | | | | |
| 24 | 23,5 | 24,5 | | | | | | | | | | |
| 26 | 25,5 | 26,5 | | | | | | | | | | |
| 28 | 27,5 | 28,5 | | | | | | | | | | |
| 30 | 29,5 | 30,5 | | | | | | | | | | |
| 32 | 31,5 | 32,5 | | | | | | | | | | |
| 35 | 34,5 | 35,5 | | | | | | | | | | |
| 40 | 39,5 | 40,5 | | | | | | | | | | |
| 45 | 44,5 | 45,5 | | | | | | | | | | |
| 50 | 49,5 | 50,5 | | | | | | | | | | |
| 55 | 54,25 | 55,75 | | | | | | | | | | |
| 60 | 59,25 | 60,75 | | | | | | | | | | |
| 65 | 64,25 | 65,75 | | | | | | | | | | |
| 70 | 69,25 | 70,75 | | | | | | | | | | |
| 75 | 74,25 | 75,75 | | | | | | | | | | |
| 80 | 79,25 | 80,75 | | | | | | | | | | |
| 85 | 84,25 | 85,75 | | | | | | | | | | |
| 90 | 89,25 | 90,75 | | | | | | | | | | |
| 95 | 94,25 | 95,75 | | | | | | | | | | |
| 100 | 99,25 | 100,75 | | | | | | | | | | |
| 120 | 119,25 | 120,75 | | | | | | | | | | |
| 140 | 139,25 | 140,75 | | | | | | | | | | |
| 160 | 159,25 | 160,75 | | | | | | | | | | |
| 180 | 179,25 | 180,75 | | | | | | | | | | |
| 200 | 199,25 | 200,75 | | | | | | | | | | |

Range of commercial lengths

1) Other tolerances, for example a11, c11, f8, as agreed between customer and supplier.

2) $P$ = thread pitch.

3) For nominal lengths above 200 mm, steps of 20 mm.

## 4 Specifications and reference International Standards

| | |
|---|---|
| **Screw thread** | Metric screw thread with tolerance 6H to ISO 965. |
| **Material** | St = Free-cutting steel,<br>hardness 125 to 245 HV.<br>Other materials as agreed between customer and supplier. |
| **Surface finish** | Plain, i.e. pins to be supplied in natural finish, treated with rust-preventative lubricant, unless otherwise specified by agreement between customer and supplier.<br>Preferred coatings are black oxide, phosphate coating or zinc plating with chromate conversion coating (see ISO 2081 and ISO 4520).<br>Other coatings as agreed between customer and supplier.<br>All tolerances shall apply prior to the application of a plating or coating. |
| **Workmanship** | Parts shall be uniform in quality and free of irregularities or detrimental defects.<br>No burrs shall appear on any part of the pin. |
| **Taper** | The taper shall be inspected by use of an adequate optical comparator. |
| **Acceptability** | The acceptance procedure is covered in ISO 3269. |

## 5 Designation

Example for the designation of an unhardened steel taper pin, type A, with internal thread, nominal diameter $d_1$ = 6 mm and nominal length $l$ = 30 mm :

**Taper pin ISO 8736 - A - 6 × 30 - St**

## National appendix
(informative)

### Mass of taper pins

The values given are guideline values.

| Size / Nominal length | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 30 | 40 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Approximate mass (7,85 kg/dm³), in kg per 1000 units | | | | | | | | | |
| **16** | 2,77 | | | | | | | | | |
| **18** | 3,27 | 5,55 | | | | | | | | |
| **20** | 3,77 | 6,41 | | | | | | | | |
| **22** | 4,28 | 7,28 | 10,7 | | | | | | | |
| **24** | 4,79 | 8,12 | 12,0 | | | | | | | |
| **26** | 5,31 | 9,02 | 13,4 | 16,5 | | | | | | |
| **28** | 5,84 | 9,92 | 14,7 | 18,4 | | | | | | |
| **30** | 6,37 | 10,8 | 16,1 | 20,4 | | | | | | |
| **32** | 6,91 | 11,8 | 17,5 | 22,3 | 37,3 | | | | | |
| **35** | 7,73 | 13,1 | 19,6 | 25,3 | 42,5 | | | | | |
| **40** | 9,13 | 15,5 | 23,2 | 30,3 | 51,1 | 78,0 | | | | |
| **45** | 10,5 | 17,9 | 26,8 | 35,4 | 59,9 | 91,0 | | | | |
| **50** | 12,0 | 20,4 | 30,5 | 40,6 | 68,7 | 105 | 144 | | | |
| **55** | 13,5 | 22,9 | 34,2 | 45,8 | 77,7 | 118 | 165 | | | |
| **60** | 15,1 | 25,5 | 38,1 | 51,1 | 86,8 | 132 | 186 | 246 | | |
| **65** | | 28,1 | 42,0 | 56,5 | 95,8 | 146 | 208 | 276 | | |
| **70** | | 30,8 | 45,9 | 62,0 | 105 | 160 | 229 | 307 | | |
| **75** | | 33,5 | 49,9 | 67,6 | 115 | 174 | 251 | 337 | | |
| **80** | | 36,3 | 54,0 | 73,2 | 124 | 188 | 272 | 368 | 708 | |
| **85** | | | 58,2 | 78,9 | 134 | 203 | 294 | 399 | 762 | |
| **90** | | | 62,4 | 84,7 | 143 | 217 | 316 | 430 | 815 | |
| **95** | | | 66,7 | 90,6 | 153 | 232 | 338 | 461 | 869 | |
| **100** | | | 71,1 | 96,4 | 163 | 247 | 361 | 492 | 923 | 1396 |
| **120** | | | | 121 | 204 | 308 | 452 | 620 | 1143 | 1731 |
| **140** | | | | | 246 | 370 | 546 | 751 | 1366 | 2072 |
| **160** | | | | | 291 | 435 | 642 | 885 | 1594 | 2419 |
| **180** | | | | | | 502 | 741 | 1022 | 1826 | 2770 |
| **200** | | | | | | 572 | 843 | 1163 | 2062 | 3126 |