

BS ISO 6519:2015



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Diesel engines — Fuel injection pumps — Tapers for shaft ends and hubs

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National foreword

This British Standard is the UK implementation of ISO 6519:2015. It supersedes BS ISO 6519:2004 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/22, Engines for road vehicles.

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

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**Diesel engines — Fuel injection pumps
— Tapers for shaft ends and hubs**

*Moteurs diesels — Pompes d'injection de combustible — Cônes pour
bouts d'arbre et moyeux*



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Contents

Page

Foreword	iv
1 Scope	1
2 Dimensions and tolerances	1
2.1 General.....	1
2.2 Shaft ends with taper	1
2.3 Keyways of hub with taper	1

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 34, *Propulsion, powertrain, and powertrain fluids*.

This fourth edition cancels and replaces the third edition (ISO 6519:2004), which has been technically revised.

Diesel engines — Fuel injection pumps — Tapers for shaft ends and hubs

1 Scope

This International Standard specifies the dimensions of tapered shaft ends and hubs of fuel injection pumps and common-rail high pressure pumps for diesel (compression-ignition) engines.

The specified shaft ends and hubs may be used with or without Woodruff keys.

NOTE The specified shaft ends and hubs can also be used for other applications where no specific standards exist.

2 Dimensions and tolerances

2.1 General

To ensure satisfactory operation of the taper drive, it is necessary for manufacturers to provide such cone angle tolerances that the contact between the male and female cones commences at the major diameter.

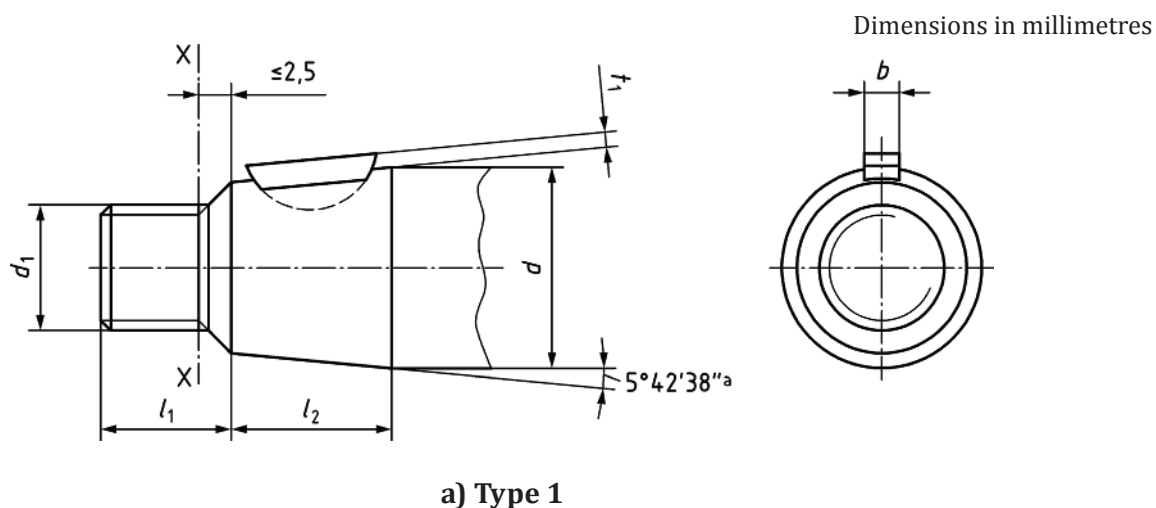
2.2 Shaft ends with taper

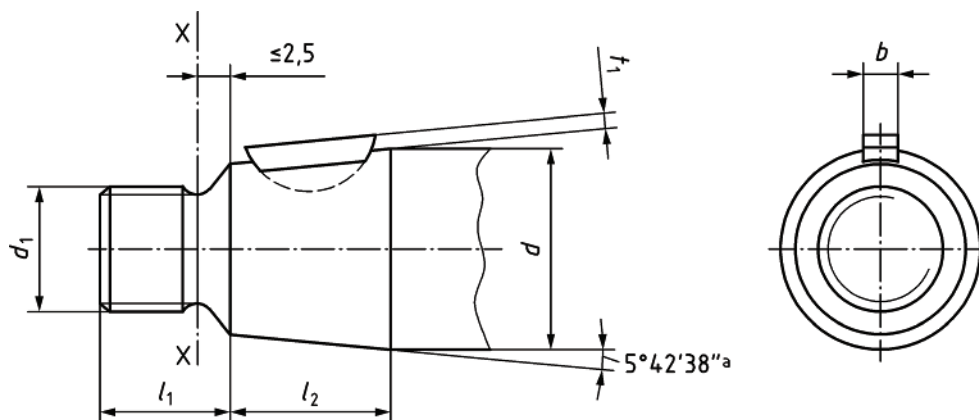
Shaft ends shall be as shown in [Figure 1](#) and [Table 1](#) or [Figure 2](#) and [Table 2](#). The shaft ends taper and thread ([Figure 1](#)) may be made optionally according to type 1 or 2. However, it shall be possible to screw the go-gauge for the thread up to the XX line for both these types.

Type 3 is a configuration with the thread inside of the taper. This configuration saves space and avoids the critical interface between the taper and the thread of the configuration type 1 or 2.

2.3 Keyways of hub with taper

Hub keyways shall be as shown in [Figure 3](#) and [Table 3](#). The length of the hub cone shall be such that, after assembling, the face at the smaller diameter of the hub cone lies so far in front of the XX line (see [Figure 1](#) and [Figure 2](#)) that the fixing nut can be correctly screwed up.





b) Type 2

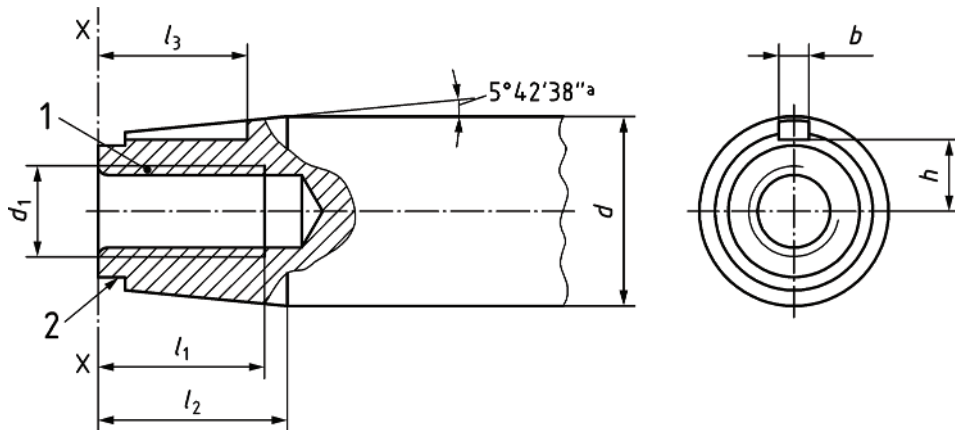
Figure 1 — Shaft ends type 1 and type 2

Table 1 — Shaft ends type 1 and type 2

Dimensions in millimetres

d^a nom.	d_1	l_1 max.	l_2 0 -1	t_1 max.	b (h9)
17	M12 × 1,75	14,5	18	1,6	$3^0_{-0,025}$
20	M14 × 1,5	12	15	2	$4^0_{-0,03}$
		16,5	20		
22	M14 × 1,5	16,5	20	2	$4^0_{-0,03}$
	M16 × 1,5 ^b	18			
23	M16 × 1,5	18	23	2	$4^0_{-0,03}$
25	M18 × 1,5	15	25	2,6	$5^0_{-0,03}$
		20			
30	M20 × 1,5	23	30	2,6	$5^0_{-0,03}$
35	M24 × 1,5	19	27	2,6	$5^0_{-0,03}$
		27			
		27	35		
40	M30 × 1,5	27	27	2,6	$5^0_{-0,03}$
			40		

^a The tolerance for dimension d depends on the type of shaft bearing.
^b The thread M16 × 1,5 is preferred for shaft ends with 22 mm diameter.



Key

- 1 internal thread
- 2 clamping collar (for manufacturing purposes only, no function at the engine)
- a Nominal.

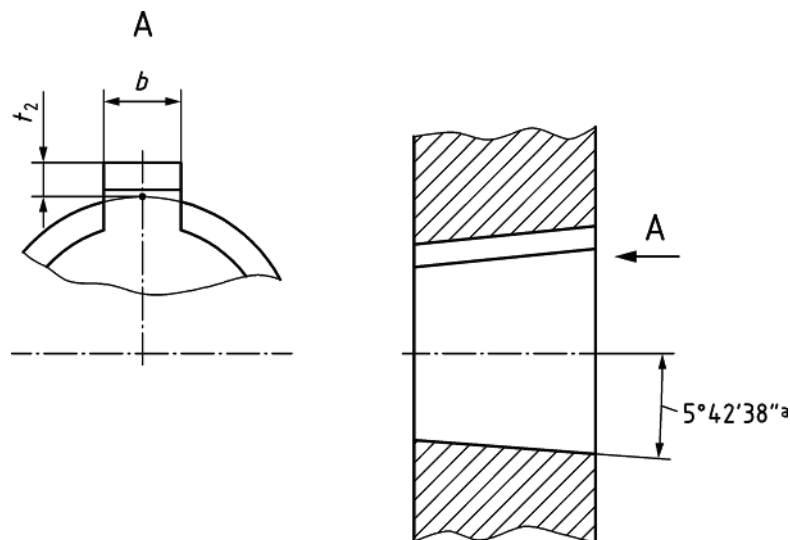
Figure 2 — Shaft end type 3

Table 2 — Shaft end type 3

Dimensions in millimetres

d^a nom.	d_1	l_1 min.	l_2 0 -1	l_3	b (h9)	h
25	M12 × 1	22	25	19,75	$4_{-0,03}^0$	9,45

^a The tolerance for dimension d depends on the type of shaft bearing.



- a Nominal.

Figure 3 — Hub

Table 3 — Hub

Dimensions in millimetres

d^a nom.	t_2 min.	b (D10)
17	1,8	$3^{+0,06}_{+0,02}$
20	2,2	$4^{+0,078}_{+0,030}$
22	2,2	$4^{+0,078}_{+0,030}$
23	2,2	$4^{+0,078}_{+0,030}$
25	2,8	$(4 \text{ or } 5)^{+0,078}_{+0,030}$
30	2,8	$5^{+0,078}_{+0,030}$
35	2,8	$5^{+0,078}_{+0,030}$
40	2,8	$5^{+0,078}_{+0,030}$
^a d is the nominal diameter of the shaft.		

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