INTERNATIONAL STANDARD

ISO 8667

Second edition
1992-10-01

Commercial vehicles and buses — Cross-tooth gearbox flanges, type T

Véhicules utilitaires et autobus — Brides de boîtes de vitesses à dents croisées, type T

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Reference number
ISO 8667:1992(E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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International Standard ISO 8667 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Sub-Committee SC 15, *Interchangeability of components of commercial vehicles and buses*.

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This second edition cancels and replaces the first edition (ISO 8667:1986), of which it constitutes a technical revision.

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Introduction

0.1 Gearbox flanges of types A and S, as specified in ISO 7646:1986, *Commercial vehicles and buses — Gearbox flanges — Type A* and ISO 7647:1986, *Commercial vehicles and buses — Gearbox flanges — Type S* respectively, are designed for force-locking (friction) torque transmission, their capacity for transmission being determined by the size of the flange and the bolts. As static or dynamic torque loads increase, however, a point is reached when these are inadequate, and there is a need for form-locking components.

Increasing problems are being encountered with the flange joint in the assembly of drive shafts for heavy lorries, as power tools cannot be used because of space limitations, and because the large bolts, M16 type, have to be tightened steadily to a torque loading of about 300 N·m for example.

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With special vehicles it may also be necessary to replace the engine, transmission units or axles in the shortest possible time, but this can be impracticable with a conventional flange joint which has, for example, ten M16 bolts.

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0.2 This form-locking flange joint has been developed to avoid the need to increase the size of the flange or bolts while achieving the required performance or to simplify assembly.

Initially, a flange joint with spiral bevel-type teeth was developed but this is expensive to manufacture. The flange joint specified in this International Standard overcomes the problems described above. It requires only four bolts which are smaller than comparable flanges of conventional construction, and the alignment of the drive shaft is not dependent on them. The drive shaft flange and the transmission flange centre themselves through the groups of teeth which intersect at 70°; this improves alignment, and play, which occurs in conventional joints, is eliminated. As the drive is transmitted through the teeth, the axial force arising under torque loading, which must be carried by the bolts, is relatively low. A further feature is that jamming between flanges during dismantling is prevented.

0.3 The teeth can be produced on a universal milling machine with special cutters for short production runs, while for mass production the use of a surface broaching machine is envisaged. The simple tooth form can be measured easily, thus ensuring interchangeability between components made by different manufacturers.

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Commercial vehicles and buses — Cross-tooth gearbox flanges, type T

1 Scope

This International Standard specifies the nominal dimensions and tolerances which affect interchangeability between cross-tooth gearbox flanges, type T, and mating parts used on commercial vehicles and buses.

2 Dimensions and tolerances

Nominal dimensions and tolerances which affect the interchangeability of type T gearbox flanges shall be as shown in figure 1 and table 1.

Where the flange is formed by forging, an additional groove either side of the driving teeth is permissible. In this case the additional grooves do not form part of the drive.

Dimensions and tolerances of the mating parts, other than those occurring at the interface of the two flanges, are left to the discretion of the manufacturer of that component.

3 Designation

Gearbox flanges meeting the requirements of this International Standard shall be identified by a certain number of elements, to be given in the following order:

a) reference to this International Standard;

b) type code: T;

c) size: d_1.

EXAMPLE

Designation of a type T gearbox flange with $d_1 = 150$ mm:

Flange ISO 8667 - T 150

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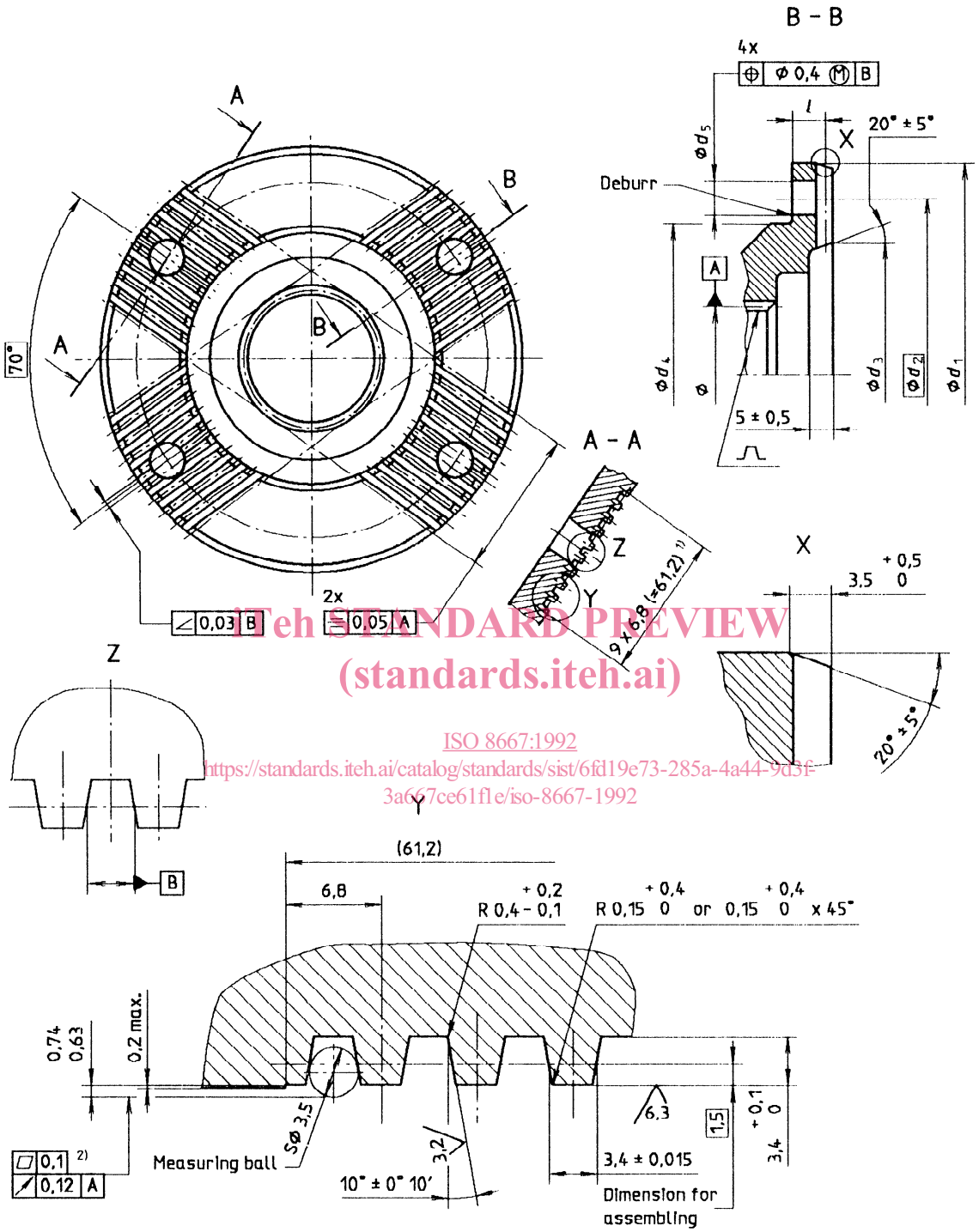
Dimensions in millimetres,
surface roughness values in micrometres



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Adjacent pitch error 0,02
Cumulative pitch error 0,04
Tooth to tooth pitch error 0,02

1) See table 1, footnote 2).

2) For comparative measurements, flatness shall be measured at a minimum distance of 5 mm from the diameter d_5 hole and at the outside edges for diameters d_1 and d_3. Run-out shall be measured on the diameter d_2 circle, at a minimum distance of 5 mm from the diameter d_5 hole.

Figure 1

Table 1

Dimensions in millimetres

Size d_1 $^{0}_{-1}$	d_2	d_3 $\pm$ 0,5	d_4 [1] $^{0}_{-0,2}$	d_5 $^{+0,2}_{0}$	l $^{0}_{0,5}$
120[2], [3]	100	82	83	11	10
150[3]	130	102	111	13	12
165	140	112	121	13	12
180	150	112	128	15	14
200	165	132	143	15	16

1) This dimension shall be applied when required to prevent bolt heads from rotating.

2) Seven grooves are optionally permitted for size 120. In this case, the width of the tooth segment shall be $7 \times 6,8 = 47,6$ mm instead of $9 \times 6,8 = 61,2$ mm.

3) For certain applications, diameters $d_1 = 122$ mm and 155 mm may be required subject to agreement between manufacturer and customer.

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Descriptors: road vehicles, commercial road vehicles, buses (vehicles), gear boxes, flanges, dimensions, designation.

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