International Standard

ISO 12251

Diesel engines — Clamp mounted CR fuel injectors — Mounting dimensions

Moteurs diesels — Injecteurs de combustible pour rampe commune fixée par patte — Dimensions de montage

Third edition
2026-01

Reference number
ISO 12251:2026(en)

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by ISO/TC 22 *Road vehicles*, Subcommittee SC 34 *Propulsion, powertrain, and powertrain fluids.*

This third edition cancels and replaces (ISO 12251:2017) which has been technically revised.

The main changes are as follows:

— the reference to ISO 1302 has been replaced with ISO 21920-1;

— d_6 outer diameter of sealing washer has been added;

— R_1 radius/transition from D_4 to sealing face on cylinder head has been added;

— s thickness of sealing washer has been added;

— Figure 4 and Figure 5 have been updated with d_6, s and R_1;

— Table 1 and Table 3 have been updated with d_6 and s;

— Table 2 and Table 4 have been updated with R_1;

— the bibliography has been modified.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The mainstream of fuel injection system for diesel engine has shifted from P-L-N (pump-line-nozzle) and unit injectors to CR fuel injection system.

The injector for CR fuel injection system has most of the functions for delicately injecting high pressure fuel inside the injector, and since they are easily affected by distortion or deformation of the injector body, it is necessary to pay close attention to the installation on the cylinder head.

This document provides design engineers with standard dimensions for installing the CR injector on the cylinder head.

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Diesel engines — Clamp mounted CR fuel injectors — Mounting dimensions

1 Scope

This document specifies dimensional requirements for clamp mounted CR fuel injectors and their corresponding cylinder head features in diesel engines.

According to the injector nozzle capnut, the clamp mounted CR fuel injectors can be divided into two types:

a) Type A, where the nozzle capnut is straight (see Figure 4);

b) Type B, where the nozzle capnut is stepped (see Figure 5).

Each clamp mounted CR fuel injector type is subdivided by a series of different sizes.

NOTE This differentiation corresponds to the relationship between the two guide diameters of the clamp mounted CR fuel injectors.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2974, *Diesel engines — 60° concave cones for high-pressure fuel injection components*

3 Terms, definitions and symbols

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

For the purposes of this document, the following symbols apply:

d_1 injector upper guide diameter

d_2 injector shaft diameter

d_3 capnut diameter

d_4 injector lower guide diameter

d_5 injector nozzle shaft diameter

d_6 sealing washer outer diameter

D_1 bore for upper guide diameter

D_3 bore for capnut space

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D_4 bore for lower guide diameter

D_5 bore for nozzle shaft

l_1 overall injector length

l_2 distance between sealing face and upper guide diameter of injector

l_3 overlapping (upper guide diameter/cylinder head)

l_4 injector clamping width

l_5 clamp width

l_6 injector clamping height

l_7 distance between sealing face and datum B on injector

l_8 distance between sealing face and datum C on injector

R_1 radius/transition D_4 to sealing face cylinder head

s sealing washer thickness

t concentricity of nozzle shaft

NOTE d_6, s, R_1, l_7 and l_8 are dependent on the cylinder head design as agreed between injector manufacturer and customer.

4 General requirements

4.1 Clamp mounting arrangement

A typical clamp mounting arrangement is shown in Figure 1 (schematically).

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