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Internal combustion engines — Piston pins —

Part 2: Inspection measuring principles

Moteurs à combustion interne — Axes de pistons —
Partie 2: Principes de mesure pour le contrôle

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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 Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 34, *Propulsion, powertrain and powertrain fluids*.

This third edition cancels and replaces the second edition (ISO 18669-2:2020), which has been technically revised.

The main changes are as follows:

— the reference for material defects by eddy current inspection has been updated to align with ISO 18669-1.

A list of all parts in the ISO 18669 series can be found on the ISO website.

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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Internal combustion engines — Piston pins —

Part 2: Inspection measuring principles

1 Scope

This document defines the measuring principles used for measuring piston pins. It applies to piston pins with a nominal outer diameter from 8 mm up to and including 100 mm, for reciprocating internal combustion engines for road vehicles and other applications.

In certain applications, except road vehicles, and provided that the purchaser and the manufacturer agree, this document can be used with suitable modifications.

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 21920-1, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 1: Indication of surface texture*

ISO 21920-2, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 2: Terms, definitions and surface texture parameters*

ISO 21920-3, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 3: Specification operators*

ISO 9934 (all parts), *Non-destructive testing — Magnetic particle testing*

ISO 6506 (all parts), *Metallic materials — Brinell hardness test*

ISO 6507 (all parts), *Metallic materials — Vickers hardness test*

ISO 6508 (all parts), *Metallic materials — Rockwell hardness test*

ISO 8015, *Geometrical product specifications (GPS) — Fundamentals — Concepts, principles and rules*

ISO 12180-2, *Geometrical product specifications (GPS) — Cylindricity — Part 2: Specification operators*

ISO 12181-2, *Geometrical product specifications (GPS) — Roundness — Part 2: Specification operators*

ISO 14104:2017, *Gears — Surface temper etch inspection after grinding, chemical method*

ISO 14253 (all parts), *Geometrical product specifications (GPS) — Inspection by measurement of workpieces and measuring equipment*

ISO 15548 (all parts), *Non-destructive testing — Equipment for eddy current examination*

ISO 16810, *Non-destructive testing — Ultrasonic testing — General principles*

ISO 18203, *Steel — Determination of the thickness of surface-hardened layers*

ISO 18265, *Metallic materials — Conversion of hardness values*

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ISO 18669-1:2021, *Internal combustion engines — Piston pins — Part 1: General specifications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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/

3.1
outside diameter
OD
d_1
diameter of the outer surface measured at any point excluding areas of *edge drop-off (b)* (3.5)

Note 1 to entry: See ISO 18669-1:2021, Figure 12.

3.2
cylindricity of the outside diameter
CYLt
peak-to-valley cylindricity deviation; geometric form of the peripheral surface excluding areas of *edge drop-off (b)* (3.5)

Note 1 to entry: Characteristics measured in the axial direction are taper, convexity, concavity and waviness.

Note 2 to entry: See ISO 1101.

3.3
circularity of the outside diameter
peak-to-valley roundness deviation; deviations of the peripheral surface from circularity such as waviness, ovality and spherical-triangular forms

Note 1 to entry: See ISO 1101.

3.4
circumferential waviness
undulations of the peripheral surface from circularity in a waveform

3.5
edge drop-off
b
c
geometric form of the peripheral surface at the outside edges

3.6
inside diameter
ID
d_2
d_4
diameter of the bore measured at any point

3.7
concentricity of inside diameter relative to outside diameter
difference between the maximum and minimum dimensions of the wall thickness (*a*) as measured in a plane perpendicular to the peripheral surface

Note 1 to entry: See ISO 1101.

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