INTERNATIONAL STANDARD

ISO 6621-1

Second edition
2007-11-01

Internal combustion engines — Piston rings —

Part 1: Vocabulary

Moteurs à combustion interne — Segments de piston —

Partie 1: Vocabulaire

Reference number
ISO 6621-1:2007(E)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6621-1 was prepared by Technical Committee ISO/TC 22, *Road vehicles*.

This second edition cancels and replaces the first edition (ISO 6621-1:1986), which has been technically revised.

ISO 6621 consists of the following parts, under the general title *Internal combustion engines — Piston rings*:

— *Part 1: Vocabulary*

— *Part 2: Inspection measuring principles*

— *Part 3: Material specifications*

— *Part 4: General specifications*

— *Part 5: Quality requirements*

Introduction

ISO 6621 is one of a series of International Standards dealing with piston rings for reciprocating internal combustion engines. Others are ISO 6622 [1],[2], ISO 6623 [3], ISO 6624 [4],[5],[6],[7], ISO 6625 [8], ISO 6626 [9],[10],[11] and ISO 6627 [12].

Internal combustion engines — Piston rings —

Part 1: Vocabulary

1 Scope

This part of ISO 6621 defines the most commonly used terms for piston rings. These terms designate either types of piston rings or certain characteristics and phenomena of piston rings.

The terms and definitions in this part of ISO 6621 apply to piston rings for reciprocating internal combustion engines. They may also be used for piston rings of compressors working under analogous conditions.

NOTE 1 Further terms and definitions covering measuring principles are given in ISO 6621-2.

NOTE 2 In addition to terms given in the three official ISO languages (English, French and Russian), this part of ISO 6621 gives the equivalent terms in the German, Spanish, Portuguese, Italian and Japanese languages. However, only the terms given in the official languages can be considered as ISO terms.

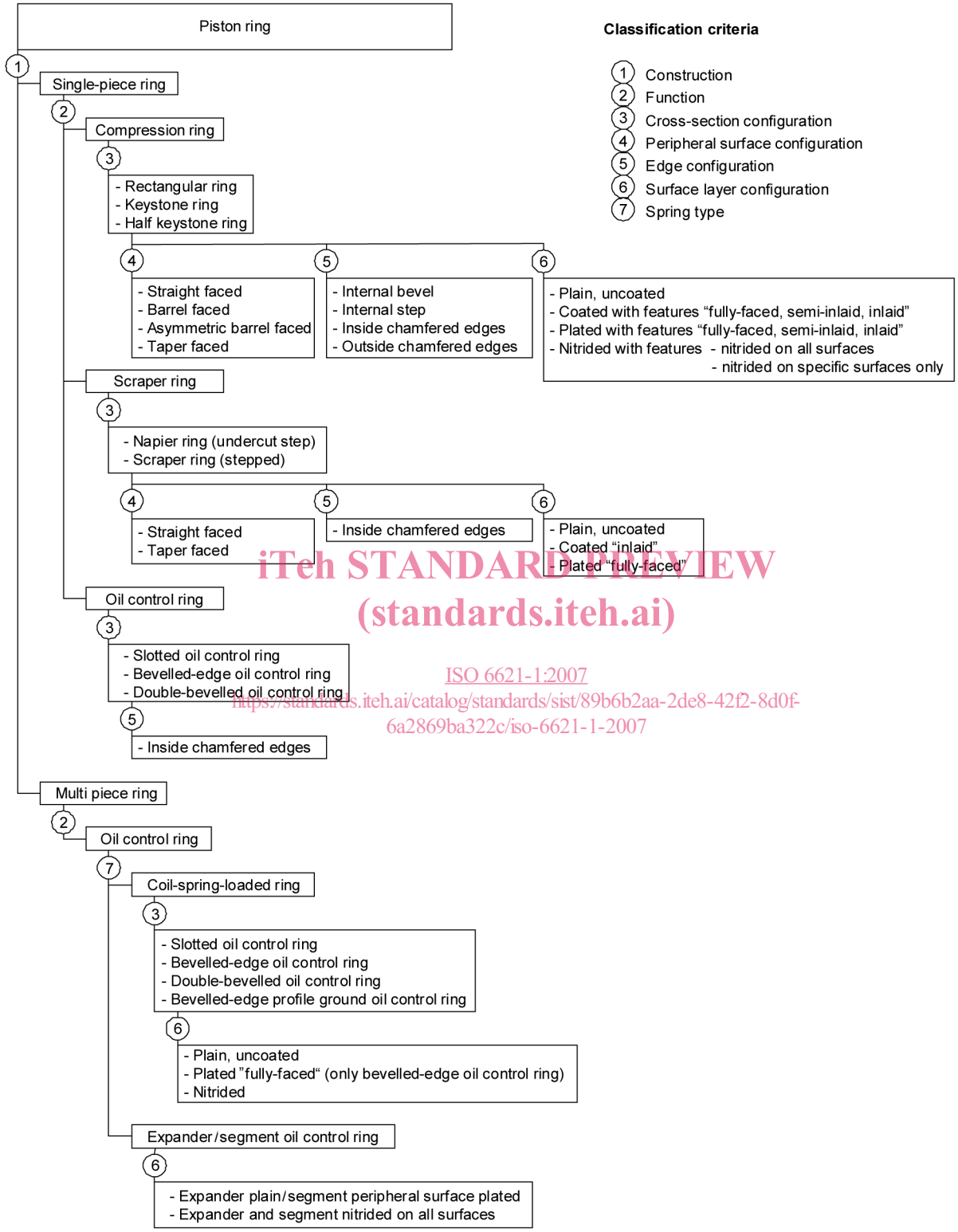
These have been included at the request of Technical Committee ISO/TC 22 and are published under the responsibility of the member bodies for Germany (DIN), Spain (AENOR), Portugal (IPQ), Italy (UNI) and Japan (JIS).

2 Normative references

The following referenced documents are indispensable for the application 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 286-1, *Geometrical product specifications (GPS) — ISO code system for tolerances of linear sizes — Part 1: Basis of tolerances, deviations and fits*

3 Piston ring classification



4 Piston ring types

4.1 Cross section configuration

The more common cross section configurations in general use are shown in Table 1. Combinations of configurations listed in Tables 2 to 5 along with those in Table 1 are shown as “common features” in the relevant ISO Standard referenced in each table.

Table 1 — Cross section configuration

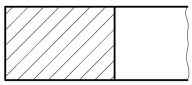
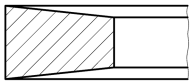
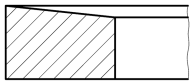
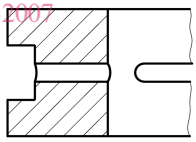
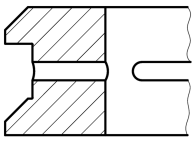
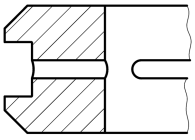
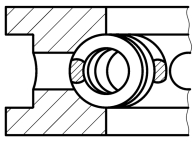
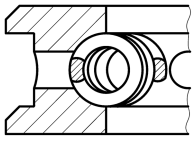
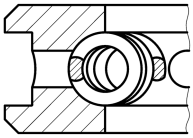
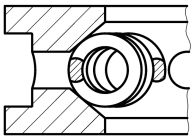
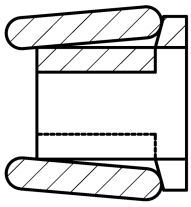
Type	Cross section	Relevant International Standard
Rectangular ring		6622-1 6622-2
Keystone ring		6624-1 6624-3
Half keystone ring		6624-2 6624-4
Scraper ring (stepped)		6623
Napier ring (undercut stepped)		6623
Slotted oil control ring		6625
Double-bevelled-edge oil control ring		6625
Bevelled-edge oil control ring		6625
Coil-spring-loaded slotted oil control ring		6626 6626-2
Coil-spring-loaded double-bevelled-edge oil control ring		6626 6626-2

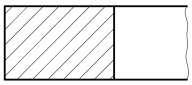
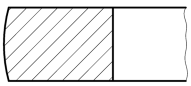
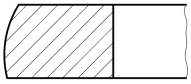
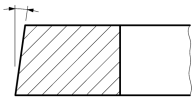
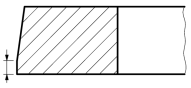
Table 1 (*continued*)

Type	Cross section	Relevant International Standard
Coil-spring-loaded bevelled-edge oil control ring		6626 6626-2
Steel oil control ring with V-groove		6626-3
Expander/segment oil control ring		6627

4.2 Peripheral surface configuration

The more common peripheral surface configurations in general use are shown in Table 2.

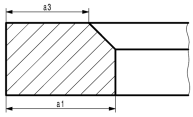
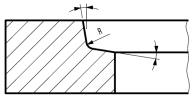
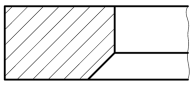
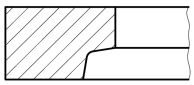
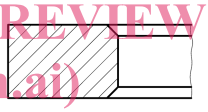
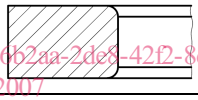
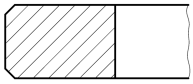
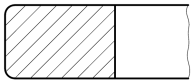
Table 2 — Peripheral surface configuration

Configuration	Cross section	Relevant International Standard
Peripheral surface straight faced		6622-1/6622-2 6623 6624-1/6624-2 6624-3/6624-4
Peripheral surface barrel faced		6622-1/6622-2 6624-1/6624-2 6624-3/6624-4
Peripheral surface asymmetrical barrel faced		6622-1/6622-2 6624-1/6624-3
Peripheral surface taper faced		6622-1/6622-2 6623/6624-1 6624-3
Peripheral surface taper faced partially cylindrical machined or lapped		6622-1/6622-2 6623/6624-1 6624-3

4.3 Edge configuration

The more common edge configurations in general use are shown in Table 3.

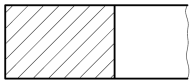
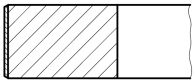
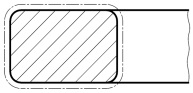
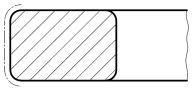
Table 3 — Edge configuration

Configuration	Cross section	Relevant International Standard
Internal bevel top side (positive twist type)		6622-1/6622-2 6624-1/6624-3
Internal step top side (positive twist type)		6622-1 6624-1
Internal bevel bottom side (negative twist type)		6622-1 6622-2
Internal step bottom side (negative twist type)		6622-1
Inside edges chamfered		6622-1/6623 6624-1/6624-2 6625
Inside edges rounded		6622-2 6624-3/6624-4
Outside edges chamfered		6622-1 6624-2
Outside edges rounded		6622-2 6624-3/6624-4

4.4 Coated, plated and nitrided surfaces configuration

The more common coated, plated and nitrided surface configurations in general use are shown in Table 4.

Table 4 — Surface layer configuration

Configuration	Cross section	Relevant International Standard
Peripheral surface plain, i.e., uncoated, unplated and not nitrided		6622-1/6623 6624-1/6624-2 6625 6626/6626-2
Peripheral surface coated or plated “fully-faced configuration”		6622-1/6622-2 6623/6624-1 6624-2/6624-3 6624-4/6626 6626-2/6627
Peripheral surface coated or plated “semi-inlaid configuration”		6622-1 6624-1/6624-2
Peripheral surface coated or plated “inlaid configuration”		6622-1/6622-2 6623/6624-1 6624-2/6624-3 6624-4
Piston ring nitrided on all surfaces		6622-2/6624-3 6624-4/6627/6626-3
Piston ring nitrided on specific surfaces only (e.g., “peripheral surface only”)		6624-3/6624-4

4.5 Joint configuration

The more common joint configurations in general use are shown in Table 5.