

Piston rings up to 200 mm diameter for reciprocating internal combustion engines: Specification for rectangular rings with narrow ring width

Committees responsible for this Draft for Development

The preparation of this Draft for Development was entrusted by the Machinery and Components Standards Policy Committee (MCE/-) to Technical Committee MCE/14, upon which the following bodies were represented:

- Association of Consulting Engineers
- British Railways Board
- Ministry of Defence
- Society of Motor Manufacturers and Traders Limited

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National foreword

This Draft for Development has been prepared under the direction of the Machinery and Components Standards Policy Committee and is identical with ISO/TR 6622-2:1988 “*Internal combustion engines — Piston rings — Part 2: Rectangular rings with narrow ring widths*” published by the International Organization for Standardization (ISO). It is envisaged that, when ISO 6622-2 is published, this Draft for Development will be withdrawn and ISO 6622-2 will be published as BS 5341-7.1.2.

Full requirements for piston rings for internal combustion engines are given in the following Parts and Sections of BS 5341, which are identical with ISO standards as indicated:

- *Part 6: Vocabulary, inspection methods and generic specifications;*
- *Section 6.1: Vocabulary;*
(Identical with ISO 6621-1)
- *Section 6.2: Inspection measuring principles;*
(Identical with ISO 6621-2)
- *Section 6.3: Material specifications;*
(Identical with ISO 6621-3)
- *Section 6.4: General specifications;*
(Identical with ISO 6621-4)
- *Section 6.5: Quality requirements.*
(Identical with ISO 6621-5)
- *Part 7: Designs, dimensions and designations for single piece rings;*
- *Section 7.1: Rectangular compression rings;*
- *Subsection 7.1.1: Specification for rectangular rings;*
(Identical with ISO 6622-1)
- *Subsection 7.1.2: Specification for rectangular rings with narrow ring width;¹⁾*
- *Section 7.2: Specification for scraper rings;*
(Identical with ISO 6623)
- *Section 7.3: Specification for keystone and half keystone compression rings;*
- *Subsection 7.3.1: Specification for keystone rings;*
(Identical with ISO 6624-1)
- *Subsection 7.3.2: Specification for half keystone rings²⁾;*
- *Section 7.4: Specification for oil control rings.*
(Identical with ISO 6625)
- *Part 8: Designs, dimensions and designations for multi-piece oil control rings;*
- *Section 8.1: Specification for coil-spring-loaded oil control rings;*
(Identical with ISO 6626)
- *Section 8.2: Specification for expander/segment oil control rings³⁾.*

BS 5341-6 to BS 5341-8 supersede BS 5341-1:1976, BS 5341-2:1977, BS 5341-3:1976 and BS 5341-4:1976 which are withdrawn.

¹⁾ It is envisaged that this Subsection will be identical with ISO 6622-2 when the International Standard is published.

²⁾ It is envisaged that this Subsection will be identical with ISO 6624-2 when the International Standard is published. The technical report ISO/TR 6624 is published in the UK as a Draft for Development, DD 209.

³⁾ It is envisaged that this Section will be identical with ISO 6627 when the International Standard is published. ISO/TR 6627 will shortly be published in the UK as a Draft for Development.

Cross-reference (additional to those listed above)

The Technical Committee has reviewed the provisions of ISO 1101 to which normative reference is made in the text and has decided that they are acceptable for use in conjunction with this Draft for Development.

This publication is not to be regarded as a British Standard

It is being issued in the Draft for Development series of publications and is of a provisional nature because certain requirements contained therein may need modification in the light of practical experience in its use. It should be applied on this provisional basis so that information and experience of its practical operation may be obtained.

It is expected that ISO will review the Technical Report with which this Draft for Development is identical before the end of 1992 and a request for the submission of comments from users of this Draft for Development will be made in an announcement in the appropriate issue of *BSI News*.

According to the replies received, the responsible BSI committee will judge whether the UK should support conversion of the ISO Technical Report into an ISO standard or what other action should be taken.

Observations which it is felt should receive attention before the official call for comments will be welcomed. These should be sent to the Secretary of BSI Technical Committee MCE/14 at BSI, 2 Park Street, London W1A 2BS.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 14, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope and field of application

This Technical Report specifies the essential dimensional features of R-, B- and M-rectangular piston ring types with narrow ring width.

Dimension Table 8 and Table 9 allow for the use of cast iron (Table 8) or steel (Table 9). Since the modulus of elasticity of steel rings is higher than that of cast iron rings, the fluctuation in the surface pressure will become greater if the free gap is set as the reference for forces. Therefore forces are set using the surface pressure as the reference, in order to minimize the effect of the fluctuation.

The requirements of this Technical Report apply to rectangular piston rings of reciprocating internal combustion piston engines, up to and including 90 mm diameter for cast iron rings and up to and including 100 mm diameter for steel. It may also be used for piston rings of compressors working under similar conditions.

2 References

ISO 1101, *Technical drawings — Geometrical tolerancing — Tolerancing of form, orientation, location and run-out — Generalities, definitions, symbols, indications on drawings*.

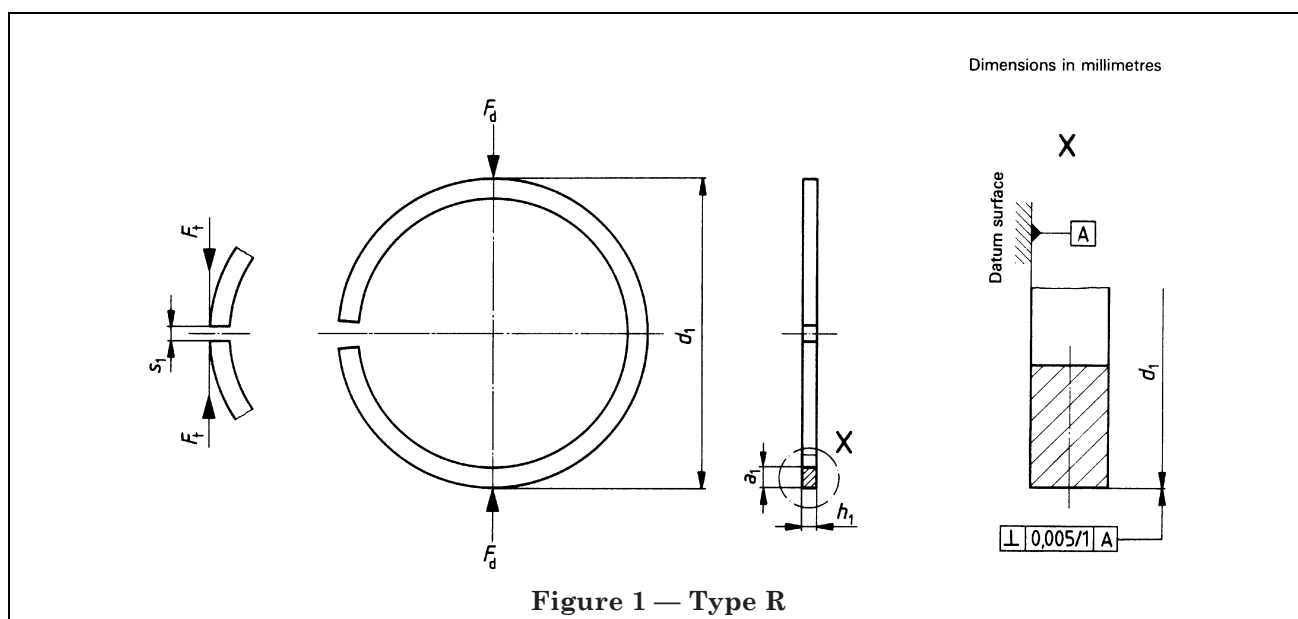
ISO 6621, *Internal combustion engines — Piston rings — Part 3: Material specifications — Part 4: General specifications*.

3 Ring types and designation examples

3.1 Type R — Straight-faced rectangular ring

3.1.1 General features

NOTE See Table 8 or Table 9 for dimensions and forces.



3.1.2 Designation example

Designation of a straight-faced rectangular ring with narrow ring width of $d_1 = 60$ mm nominal diameter, $h_1 = 1,2$ mm ring width, made of spheroidal graphite cast iron heat-treated (material subclass 51), general features as shown in Figure 1, and periphery chromium-coated fully faced design 0,1 mm minimum thickness:

Piston ring ISO/TR 6622-2 R – 60 × 1,2 – MC 51/CR2