
**Internal combustion engines —
Piston rings —
Part 1:
Keystone rings made of cast iron**

*Moteurs à combustion interne — Segments de piston —
Partie 1: Segments trapézoïdaux en fonte*
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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 3.

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 part of ISO 6624 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 6624-1 was prepared by Technical Committee ISO/TC 22, *Road vehicles*.

This second edition cancels and replaces the first edition (ISO 6624-1:1986), which has been technically revised.

ISO 6624 consists of the following parts, under the general title *Internal combustion engines — Piston rings*:

- Part 1: *Keystone rings made of cast iron*
- Part 2: *Half keystone rings made of cast iron*
- Part 3: *Keystone rings made of steel*
- Part 4: *Half keystone rings made of steel*

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Introduction

ISO 6624 is one of a number of series of International Standards dealing with piston rings for reciprocating internal combustion engines. Others are ISO 6621, ISO 6622, ISO 6623, ISO 6625, ISO 6626 and ISO 6627 (see Bibliography for details).

The common features and dimensional tables presented in this part of ISO 6624 constitute a broad range of variables and, in selecting a particular ring type, the designer must bear in mind the conditions under which it will be required to operate.

It is also essential that the designer refer to the specifications and requirements of ISO 6621-3^[4] and ISO 6621-4 before completing a selection.

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Internal combustion engines — Piston rings —

Part 1: Keystone rings made of cast iron

1 Scope

This part of ISO 6624 specifies the essential dimensional features of keystone rings made of cast iron, types T, TB, TBA, TM, K, KB, KBA and KM, having diameters of from 70 mm up to and including 200 mm, used in reciprocating internal combustion piston engines.

2 Normative reference

The following normative document contain provisions which, through reference in this text, constitute provisions of this part of ISO 6624. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 6624 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 6624-1:2001

ISO 6621-4:—¹⁾, *Internal combustion engines — Piston rings — Part 4: General specifications.*

3 Overview

The keystone ring types are specified in Tables 1 to 3 and Figures 1 to 8. Their common features and the dimensions of those features are specified in Tables 4 to 7 and Figures 9 to 16. Tables 8 and 9 give the force factors for the different types of ring, while Table 10 and Table 11 give the dimensions and forces of keystone rings 6° and 15°, respectively.

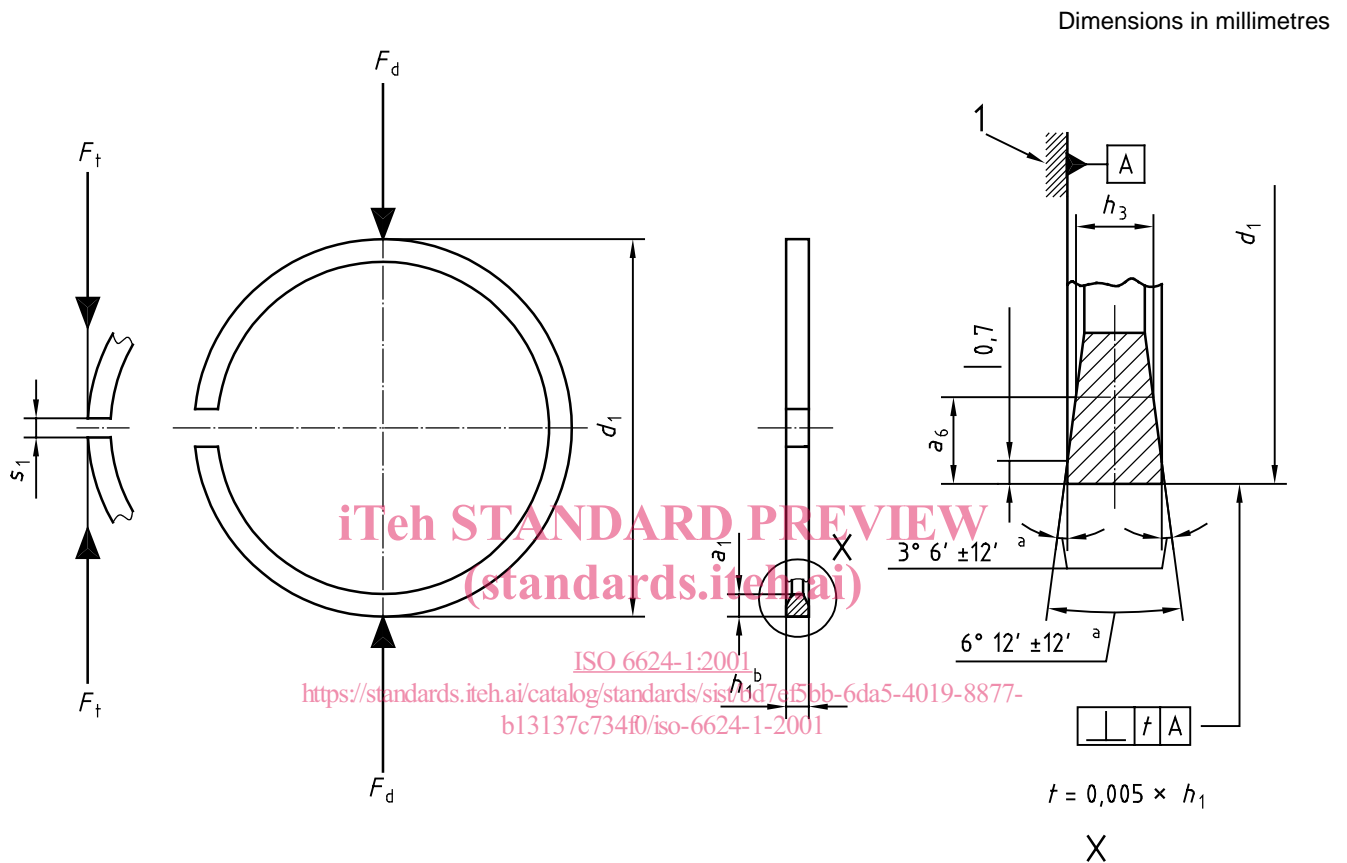
1) To be published. (Revision of ISO 6621-4:1988)

4 Ring types and designation examples

4.1 Type T — Straight faced keystone ring 6°

4.1.1 General features

See Table 10 for dimensions and forces.



Key

- 1 Reference plane
- a Due to manufacturing processing, side angle tolerances are not cumulative.
- b Nominal.

Figure 1 — Type T

4.1.2 Designation

EXAMPLE Designation of a piston ring complying with the requirements of ISO 6624-1, being a cast iron, 6° keystone ring with a straight faced peripheral surface (T), of nominal diameter $d_1 = 90$ mm (90) and nominal width $h_1 = 2,5$ mm (2,5), made of grey cast iron, subclass 12 (MC12), and having a chromium plated peripheral surface with a minimum thickness of 0,1 mm (CR2):

Piston ring ISO 6624-1 T- 90 × 2,5-MC12/CR2

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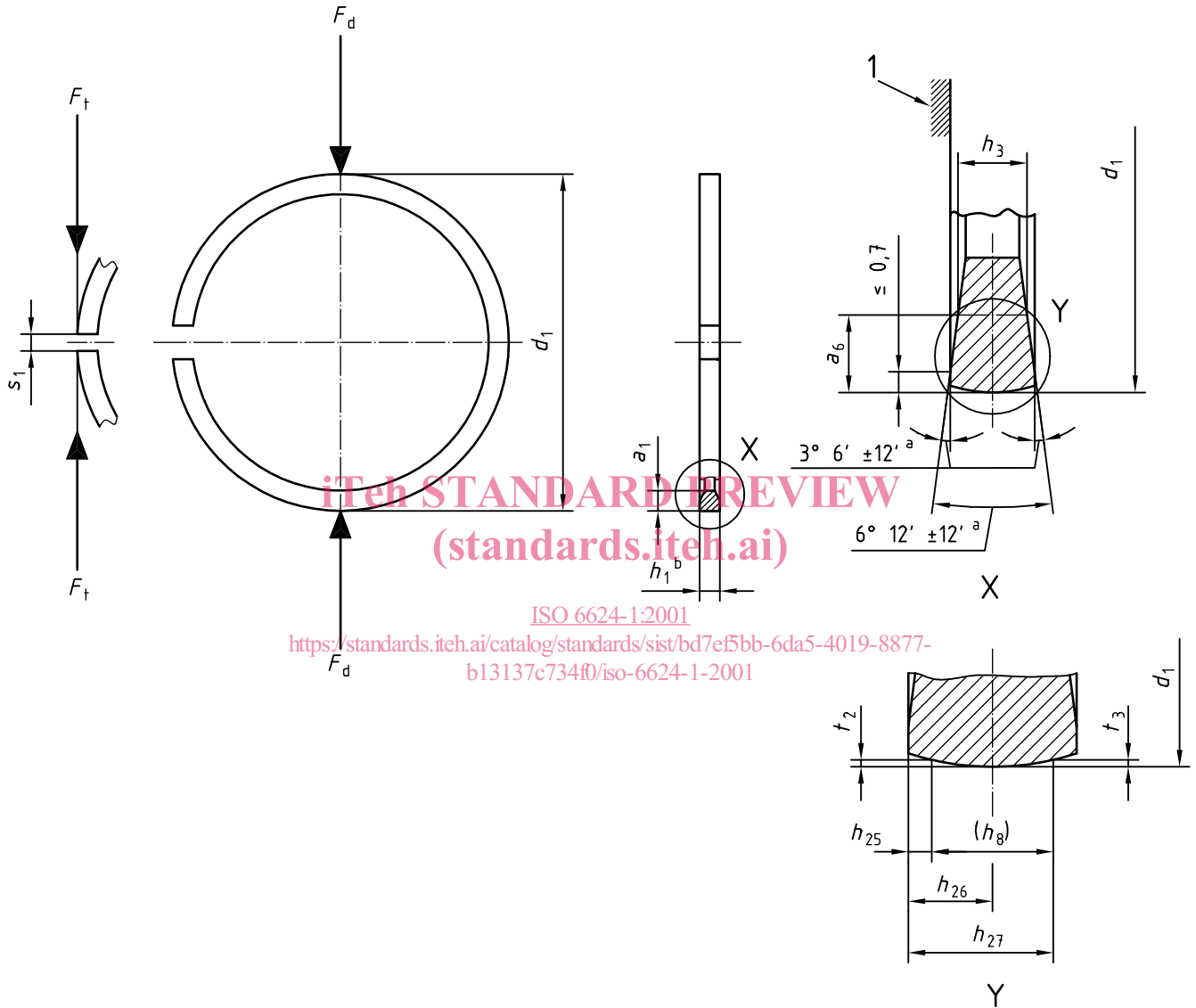
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4.2 Type TB — Symmetrical barrel faced keystone ring 6°

4.2.1 General features

See Table 10 for dimensions and forces.

Dimensions in millimetres



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Key

- 1 Reference plane
- a Due to manufacturing processing, side angle tolerances are not cumulative.
- b Nominal.

Figure 2 — Type TB

Table 1 — Symmetrical barrel dimensions

Dimensions in millimetres

h_1	h_{25}	h_{26}		h_{27}	t_2, t_3	h_8^a
			Tolerance			
2,0	0,40	1,00	$\pm 0,30$	1,60	0,003...0,015	1,2
2,5	0,45	1,25	$\pm 0,40$	2,05		1,6
3,0	0,50	1,50	$\pm 0,50$	2,50	0,005...0,020	2,0
3,5	0,55	1,75		2,95		2,4
4,0	0,60	2,00	$\pm 0,60$	3,40	0,005...0,023	2,8
4,5	0,65	2,25		3,85		3,2

^a Gauge width h_8 , informative only, shall be used only if agreed between manufacturer and client.

4.2.2 Designation

EXAMPLE Designation of a piston ring complying with the requirements of ISO 6624-1, being a cast iron, 6° keystone ring with a symmetrical barrel faced peripheral surface (TB), of nominal diameter $d_1 = 90$ mm (90) and nominal ring width $h_1 = 2,5$ mm (2,5), made of heat-treated martensitic spheroidal graphite cast iron, subclass 53 (MC53), and having a semi-inlaid spray coating on the peripheral surface with a minimum thickness of 0,2 mm (SC4E):

Piston ring ISO 6624-1 TB - 90 x 2,5-MC53/SC4E

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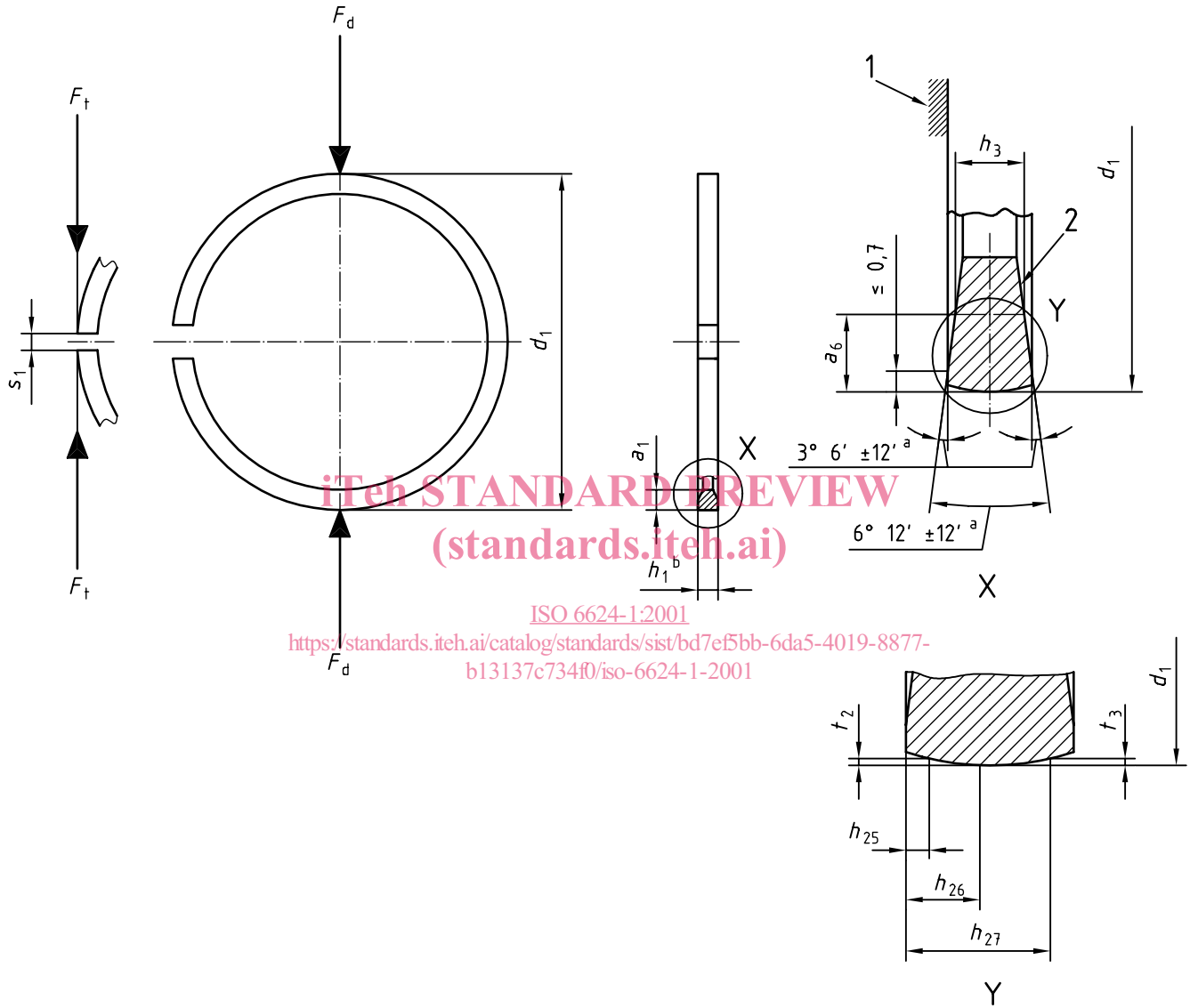
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4.3 Type TBA — Asymmetrical barrel faced keystone ring 6°

4.3.1 General features

See Table 10 for dimensions and forces.

Dimensions in millimetres



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Key

- 1 Reference plane
- 2 Mark
- ^a Due to manufacturing processing, side angle tolerances are not cumulative.
- ^b Nominal.

Figure 3 — Type TBA