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**Internal combustion engines — Piston  
rings —**

Part 2:

**Coil-spring-loaded oil control rings of  
narrow width made of cast iron**

*Moteurs à combustion interne — Segments de piston —*

*(Partie 2: Segments racleurs régulateurs d'huile étroits, en fonte, mis en charge par ressort hélicoïdal)*

ISO 6626-2:2003

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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 6626-2 was prepared by Technical Committee ISO/TC 22, *Road vehicles*.

ISO 6626 consists of the following parts, under the general title *Internal combustion engines — Piston rings*:

— *Part 2: Coil-spring-loaded oil control rings of narrow width made of cast iron*

Coil-spring-loaded oil control rings is to form the subject of a future part 1, revising and replacing ISO 6626:1989.

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This corrected version of ISO 6626-2:2003 incorporates the following corrections:

- bibliographical information has been added;
- in Figures 10 and 11, item 2 of the legend to each figure has been corrected from “8 times” to “0,8 times” the diameter of the wire;
- Tables 5 to 8 have been corrected and clarified.

## Introduction

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

The common features and dimensional tables presented in this part of ISO 6626 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 and ISO 6621-4 before completing a selection.

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# Internal combustion engines — Piston rings —

## Part 2: Coil-spring-loaded oil control rings of narrow width made of cast iron

### 1 Scope

This part of ISO 6626 specifies the essential dimensional features of coil-spring-loaded oil control rings made of cast iron, types DSF-C, SSF, GSF, DSF and SSF-L. It is applicable to those piston rings in sizes 60 mm to 110 mm, inclusive, for reciprocating internal combustion engines, as well as to those for compressors working under analogous conditions.

### 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 6621-3, *Internal combustion engines — Piston rings — Part 3: Material specifications*  
ISO 6621-4, *Internal combustion engines — Piston rings — Part 4: General specifications*  
ISO 6621-5, *Internal combustion engines — Piston rings — Part 5: Quality requirements*

### 3 Overview

The coil-spring-loaded oil control ring types are specified in Figures 1 to 6. Their common features and the features' dimensions are specified in Tables 1 and 2 and shown in Figures 7 and 8. Essential features of coil-springs are shown in Figures 9 to 13. Tables 3 and 4 specify different classes of contact pressure, while Tables 5 to 8 give the dimensions and forces of coil-spring-loaded oil control rings.

For the cast iron part the recommended material is Class 10 in accordance with ISO 6621-3. For special applications, material Classes 20 to 50 may be used.

Variation from these in face design and spring groove may be used, as recommended by individual manufacturers, in plain or chromed versions.

The tangential forces of coil-spring-loaded control rings can be varied over a wide range. For explanations and recommendations, see Clause 7.

## 4 Piston ring types and designation

### 4.1 Types DSF-C, SSF, GSF, DSF and SSF-L

#### 4.1.1 General features and dimensions

See Figure 1 and Tables 5, 6, 7 and 8.

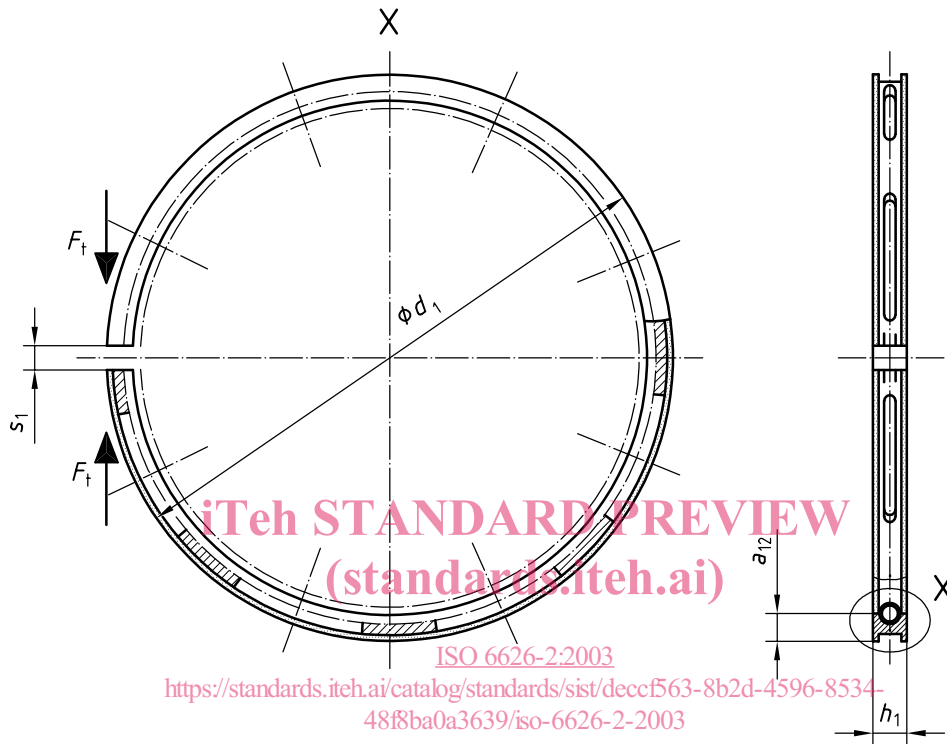


Figure 1 — Types DSF-C, SSF, GSF, DSF and SSF-L



## 4.2 Type DSF-C, coil-spring-loaded bevelled edge oil control ring, chromium plated and profile ground

### 4.2.1 General features and dimensions

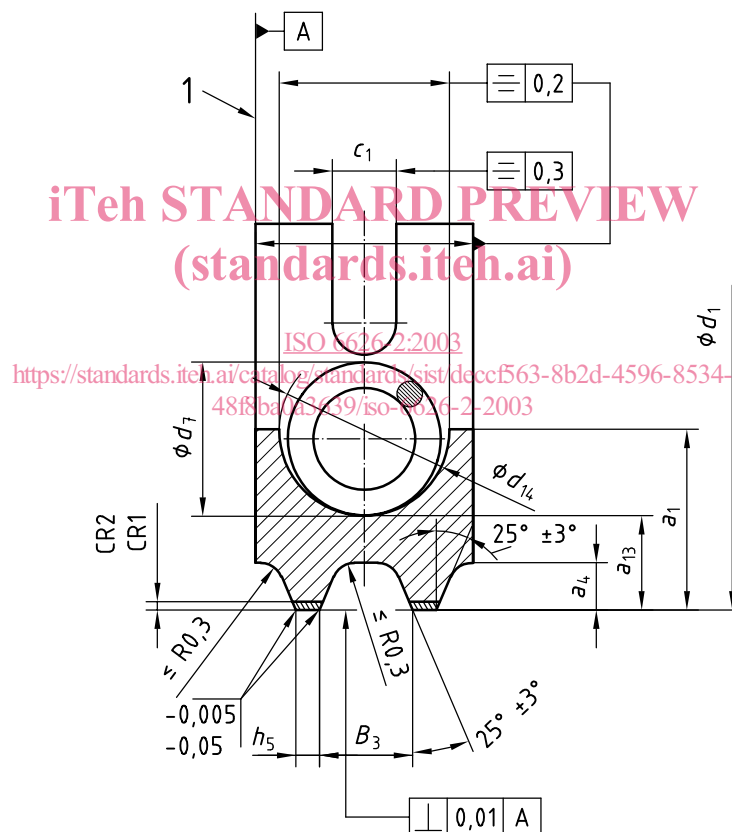
See Figure 2 and Table 5.

### 4.2.1 Designation of a Type DSF-C piston ring in accordance with ISO 6626-2

**EXAMPLE** Coil-spring-loaded bevelled edge oil control ring, chromium plated and profile ground (DSF-C), of nominal diameter  $d_1 = 80$  mm (80), nominal ring width  $h_1 = 2,5$  mm (2,5), made of grey cast iron, non-heat treated, material subclass 11 (MC11), having a selected closed gap of 0,20 mm min. (SO2), a chromium layer thickness on the lands of 0,10 mm (CR2), reduced slot length (WK), a coil spring with reduced heat set (WF), and a variable pitch with coil diameter  $d_7$  ground (CSE), with tangential force  $F_t$  in accordance with the medium nominal contact pressure class (PNM) and the ring marked with the manufacturer's mark (MM):

**Piston ring ISO 6626-2 DSF-C - 80 × 2,5 - MC11 / S02 CR2 WK WF CSE PNM MM**

Dimensions in millimetres



### Key

1 reference plane

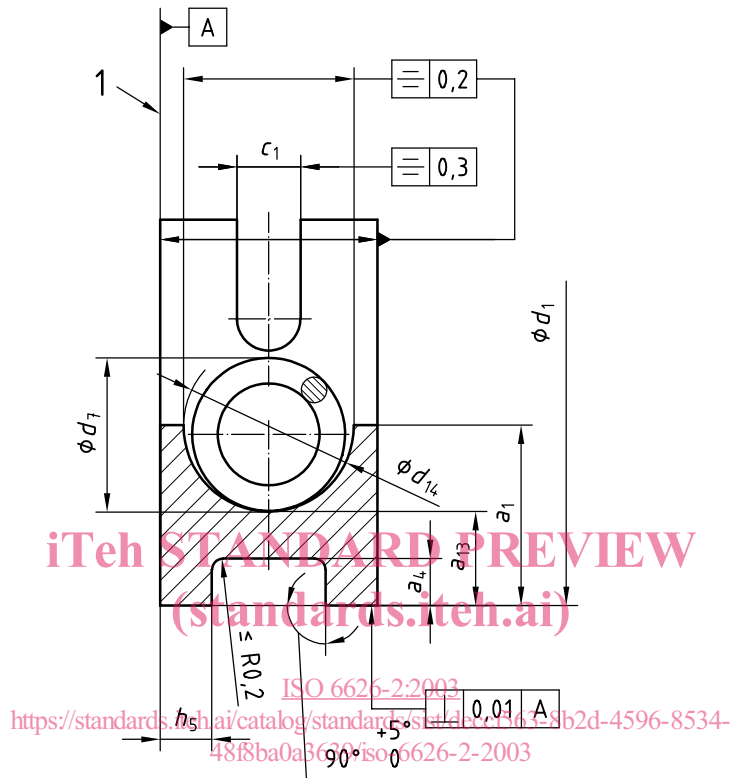
**Figure 2 — Type DSF-C**

4.3 Type SSF, coil-spring-loaded slotted oil control ring

4.3.1 General features and dimensions

See Figure 3 and Table 6.

Dimensions in millimetres



Key

1 reference plane

Figure 3 — Type SSF

4.3.2 Designation of a Type SSF piston ring in accordance with ISO 6626-2

EXAMPLE Coil-spring-loaded slotted oil control ring (SSF) of nominal diameter  $d_1 = 80$  mm (80), nominal ring width  $h_1 = 2,5$  mm (2,5), made of grey cast iron, non-heat treated, material subclass 12 (MC12), constant spring pitch (CSN) and tangential force  $F_1$  in accordance with the low nominal contact pressure class (PNL):

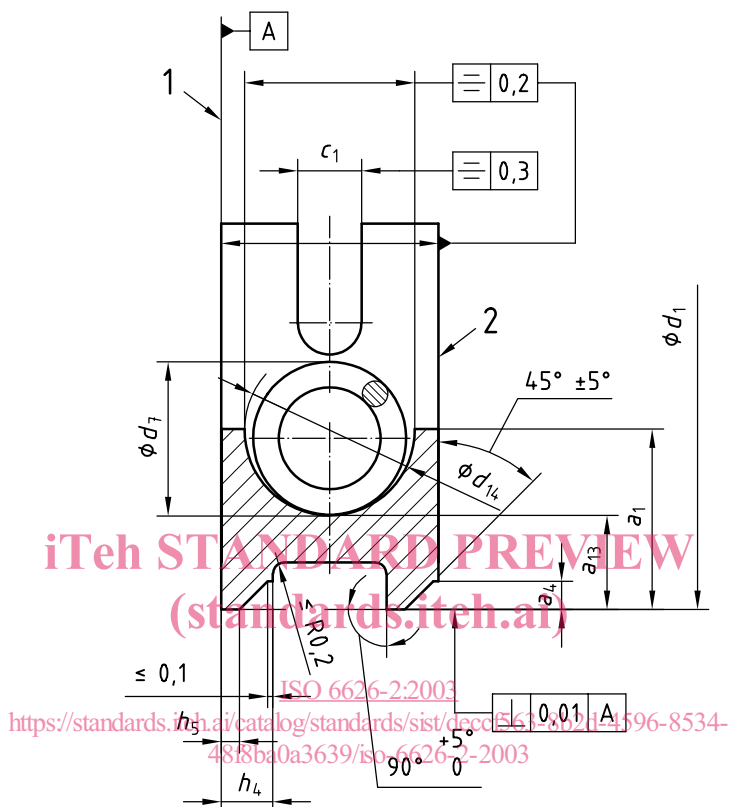
**Piston ring ISO 6626-2 SSF- 80 × 2,5 - MC12 / CSN PNL**

#### 4.4 Type GSF coil-spring-loaded double bevelled oil control ring

##### 4.4.1 General features and dimensions

See Figure 4 and Table 7. Top-side marking is mandatory in accordance with ISO 6621-4.

Dimensions in millimetres



##### Key

- 1 reference plane
- 2 mark

Figure 4 — Type GSF

##### 4.4.2 Designation of a Type GSF piston ring in accordance with ISO 6626-2

**EXAMPLE** Coil-spring-loaded double bevelled oil control ring (GSF) of nominal diameter  $d_1 = 75$  mm (75), nominal ring width  $h_1 = 2,5$  mm (2,5), made of grey cast iron, non-heat treated, material subclass 12 (MC12), with constant spring pitch (CSN) and tangential force  $F_t$  in accordance with the low nominal contact pressure class (PNL):

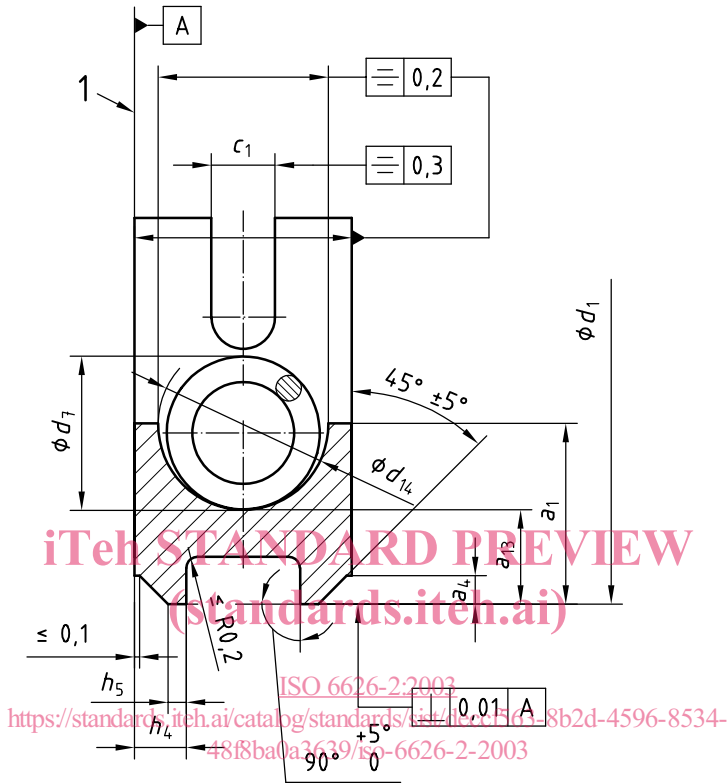
**Piston ring ISO 6626-2 GSF- 75 × 2,5 - MC12 / CSN PNL**

4.5 Type DSF coil-spring-loaded bevelled edge oil control ring

4.5.1 General features and dimensions

See Figure 5 and Table 7.

Dimensions in millimetres



Key  
1 reference plane

Figure 5 — Type DSF

4.5.2 Designation of a Type DSF piston ring in accordance with ISO 6626-2

EXAMPLE Coil-spring-loaded double bevelled oil control ring (DSF) of nominal diameter  $d_1 = 90$  mm (90), nominal ring width  $h_1 = 2,5$  mm (2,5), made of grey cast iron, non-heat treated, material subclass 12 (MC12), with constant spring pitch (CSN) and tangential force  $F_t$  in accordance with the reduced nominal contact pressure class (PNR):

**Piston ring ISO 6626-2 DSF- 90 × 2,5 - MC12 / CSN PNR**