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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

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Foreword

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The committee responsible for this document is ISO/TC22/SC34.

Introduction

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

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, SSF-L, DSF-NG and DSF-CNP. It is applicable to those piston rings in sizes 60 mm to 160 mm, inclusive for reciprocating internal combustion engines for road vehicles and other applications.

1 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 6621-2, *Internal combustion engines — Piston rings — Part 2: Inspection measuring principles*

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*

2 Overview

The coil spring loaded oil control ring types are specified in Figures 1 to 8. Their common features and the features' dimensions are specified in Tables 1 and 2 and shown in Figures 9 to 11. Essential features of coil springs are shown in Figures 12 to 16. Tables 4 to 9 give the dimensions of coil spring loaded oil control rings.

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 shall 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.

For the cast iron part the recommended material is Class 10 and shall be 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.

3 Piston ring types and designation

3.1 Types DSF-C, SSF, GSF, DSF, SSF-L, DSF-NG and DSF-CNP

3.1.1 General features and dimensions

See Figure 1 and Tables 4, 5, 6, 7, 8 and 9.

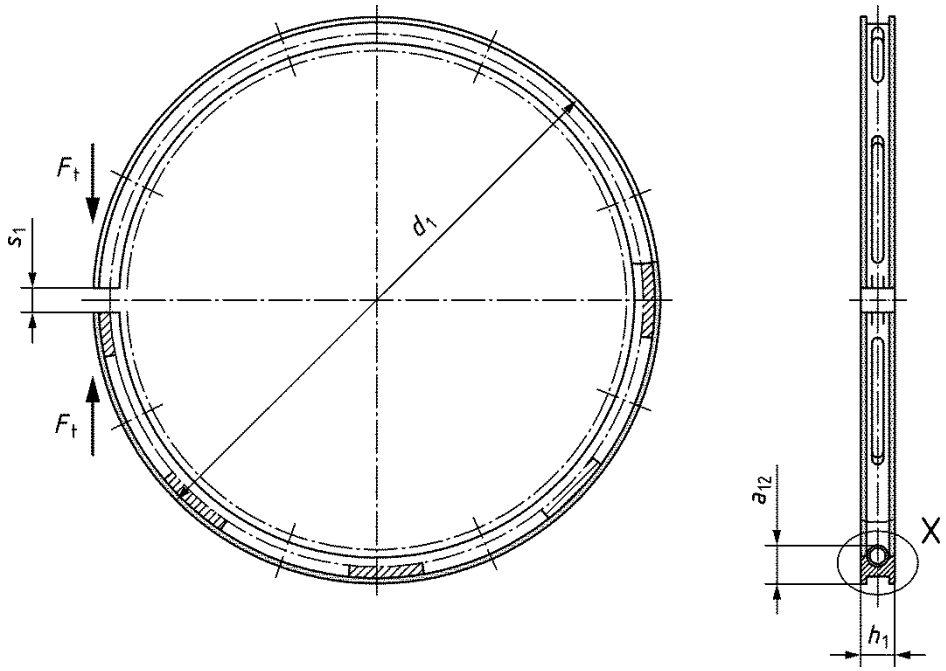


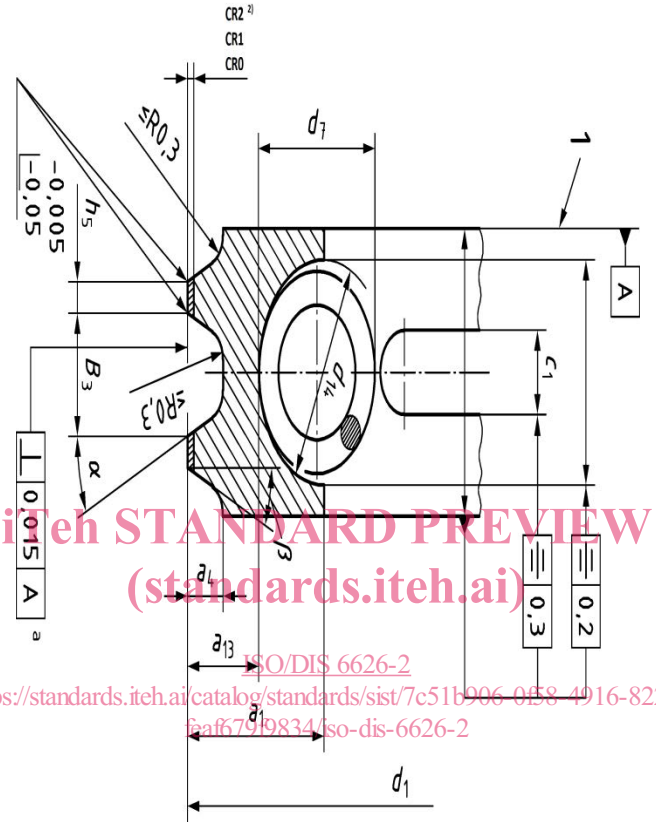
Figure 1 — Types DSF-C, SSF, GSF, DSF, SSF-L, DSF-NG and DSF-CNP

3.2 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 4.

Dimensions in millimetres



Key

1 reference plane

2 see table 2

a in accordance with ISO 6621-2, land offset

Figure 2 — Type DSF-C

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), land width h_5 = 0,25 mm (0,25), made of grey cast iron, non-heat treated, material subclass 11 (MC11), having a selected closed gap of 0,20 mm min. (S020), 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 nominal contact pressure p0 = 1,0 N/mm² (PN1,0) and the ring marked with the manufacturer's mark (MM). Parameters in parenthesis are used in the ISO ring designation:

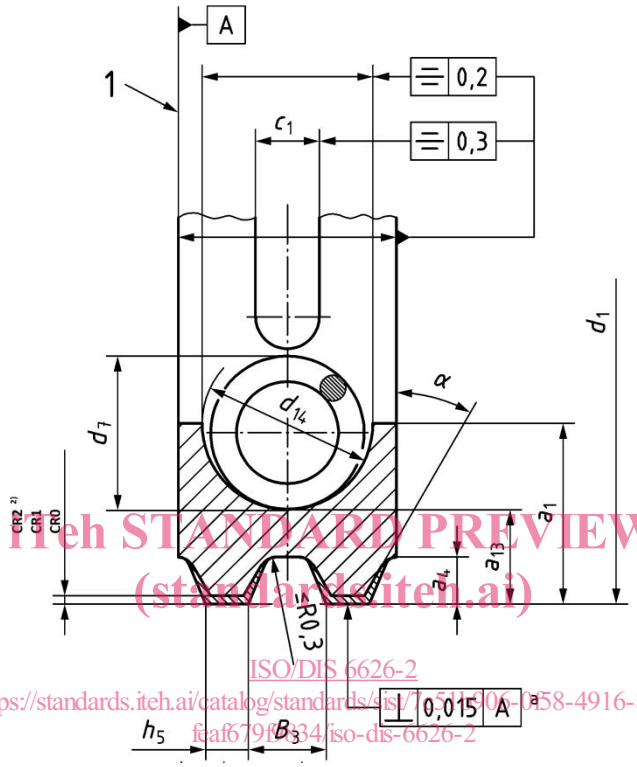
Piston ring ISO 6626-2 DSF-C - 80 × 2,5 x 0,25 - MC11 / S020 CR2 WK WF CSE PN1,0 MM

3.3 Type DSF-CNP — Coil spring loaded bevelled edge oil control ring, chromium plated not profile ground

3.3.1 General features and dimensions

See Figure 3 and Table 5.

Dimensions in millimetres



Key

1 reference plane

2 see table 2

a in accordance with ISO 6621-2, land offset

Figure 3 — Type DSF-CNP

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

EXAMPLE Coil spring loaded slotted oil control ring (DSF-CNP) of nominal diameter d_1 = 100 mm (100), nominal ring width h_1 = 2,0 mm (2,0), land width h_5 = 0,25 mm (0,25), made of grey cast iron, non-heat treated, material subclass 12 (MC12), constant spring pitch (CSN) and tangential force F_t in accordance with the nominal contact pressure p0 = 1,0 N/mm² (PN1,0). Parameters in parenthesis are used in the ISO ring designation:

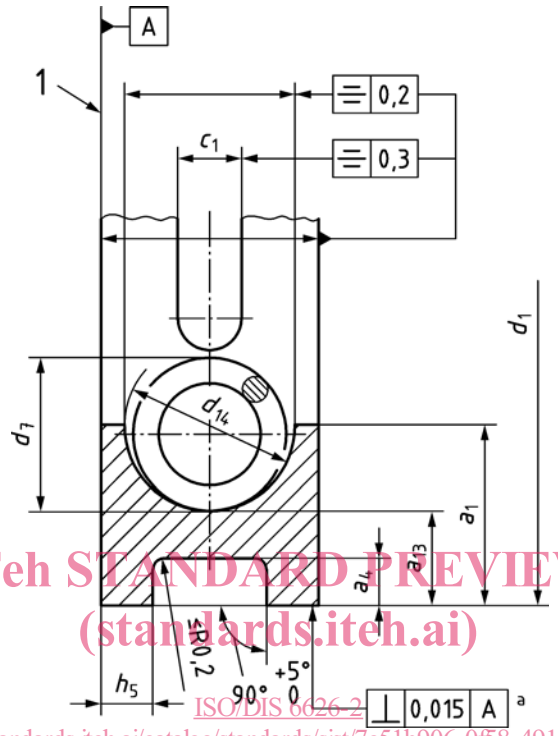
Piston ring ISO 6626-2 SSF- 100 × 2 x 0,25 - MC12 / CSN PN1,0

3.4 Type SSF — Coil spring loaded slotted oil control ring

3.4.1 General features and dimensions

See Figure 4 and Table 6.

Dimensions in millimetres



Key

1 reference plane

a in accordance with ISO 6621-2, land offset

Figure 4 — 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), land width h_5 = 0,50 mm (0,50), made of grey cast iron, non-heat treated, material subclass 12 (MC12), constant spring pitch (CSN) and tangential force F_t in accordance with the nominal contact pressure p0 = 1,0 N/mm² (PN1,0). Parameters in parenthesis are used in the ISO ring designation:

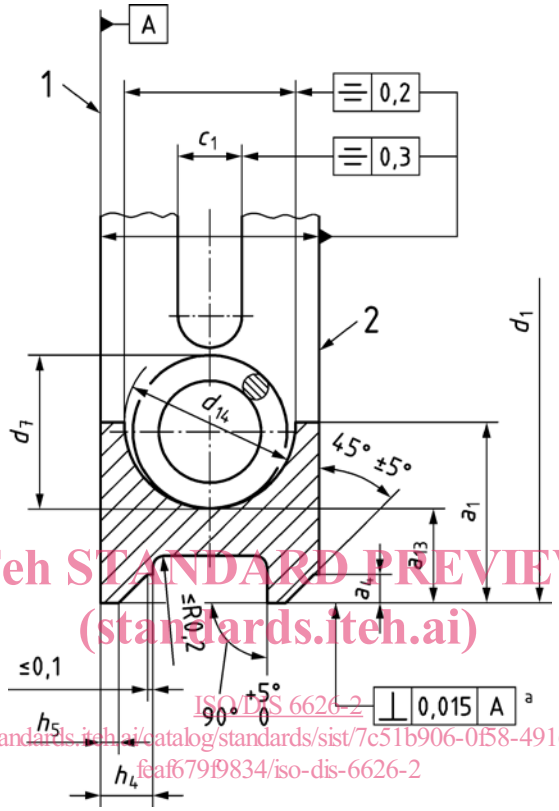
Piston ring ISO 6626-2 SSF- 80 × 2,5 x 0,50 - MC12 / CSN PN1,0

3.5 Type GSF — Coil spring loaded double bevelled oil control ring

3.5.1 General features and dimensions

See Figure 5 and Table 7. Top side marking is mandatory in accordance with ISO 6621-4.

Dimensions in millimetres



Key

1 reference plane
2 top side identification mark
a in accordance with ISO 6621-2, land offset

Figure 5 — 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), land width h_5 = 0,30 mm (0,30), 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 nominal contact pressure p0 = 1,0 N/mm² (PN1,0). Parameters in parenthesis are used in the ISO ring designation:

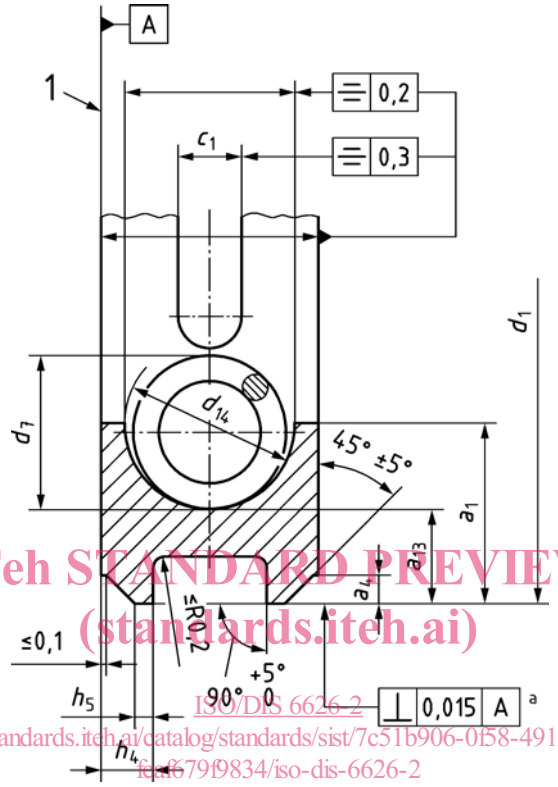
Piston ring ISO 6626-2 GSF- 75 × 2,5 x 0,30 - MC12 / CSN PN1,0

3.6 Type DSF — Coil spring loaded bevelled edge oil control ring

3.6.1 General features and dimensions

See Figure 6 and Table 7.

Dimensions in millimetres



Key

1 reference plane

a in accordance with ISO 6621-2, land offset

Figure 6 — 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), land width h_5 = 0,30 mm (0,30), 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 nominal contact pressure p0 = 1,0 N/mm² (PN1,0). Parameters in parenthesis are used in the ISO ring designation:

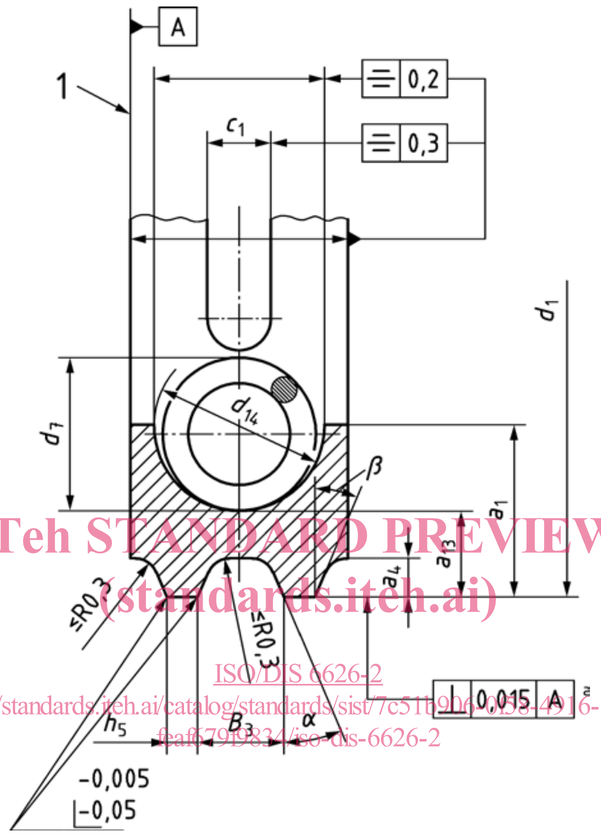
Piston ring ISO 6626-2 DSF- 90 × 2,5 x 0,30 - MC12 / CSN PN1,0

3.7 Type DSF-NG — Coil spring loaded bevelled edge oil control ring (face geometry similar to type DSF-C)

3.7.1 General features and dimensions

See Figure 7 and Table 8.

Dimensions in millimetres



Key

1 reference plane

a in accordance with ISO 6621-2, land offset

Figure 7 — Type DSF-NG

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

EXAMPLE Coil spring loaded slotted oil control ring (DSF-NG) of nominal diameter d_1 = 80 mm (80), nominal ring width h_1 = 2,0 mm (2,0), land width h_5 = 0,25 mm (0,25), made of grey cast iron, non-heat treated, material subclass 12 (MC12), constant spring pitch (CSN) and tangential force F_t in accordance with the nominal contact pressure p0 = 1,0 N/mm² (PN1,0). Parameters in parenthesis are used in the ISO ring designation:

Piston ring ISO 6626-2 DSF-NG - 80 × 2,0 x 0,25 - MC12 / CSN PN1,0

