

INTERNATIONAL STANDARD

ISO
6194-5

First edition
1990-12-01

Rotary shaft lip type seals —

Part 5:

Identification of visual imperfections

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Bagues d'étanchéité à lèvres pour arbres tournants —

Partie 5: Identification des imperfections visuelles

ISO 6194-5:1990

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Reference number
ISO 6194-5:1990(E)

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.

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.

International Standard ISO 6194-5 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*.

ISO 6194 consists of the following parts, under the general title *Rotary shaft lip type seals*:

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- *Part 1: Nominal dimensions and tolerances*
- *Part 2: Vocabulary*
- *Part 3: Storage, handling and installation*
- *Part 4: Performance test procedures*
- *Part 5: Identification of visual imperfections*

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Introduction

Lip type seals are used for retaining fluid or grease in equipment employing rotating shafts. In some instances, the shaft is stationary and the housing rotates. Sealing of a lip type seal with low differential pressure is normally a result of a designed interference fit between the shaft and the flexible sealing element, which is usually fitted with a garter spring. An interference fit between the outside surface of the seal and the housing bore surface retains the seal in the housing and prevents leakage at the outer diameter.

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Rotary shaft lip type seals —

Part 5: Identification of visual imperfections

1 Scope

This part of ISO 6194 shows and identifies visual imperfections on typical rotary shaft lip type seals, dimensionally standardized in ISO 6194-1, as a convenience for purchasers and manufacturers of rotary shaft lip type seals in their discussions about the importance of imperfections in different applications.

It defines and classifies typical surface imperfections that often impair the function of the rotary shaft lip type seal.

3 Definitions

For the purposes of this part of ISO 6194, the definitions given in ISO 5598 and ISO 6194-2 apply.

4 Characteristic imperfections

4.1 Imperfections of configuration

4.1.1 Definition of area of sealing edge (see figure 1 and table 1)

2 Normative references

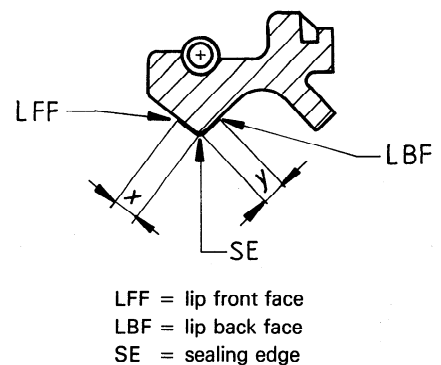
The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6194. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 6194 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5598:1985, *Fluid power systems and components — Vocabulary*.

ISO 6194-1:1982, *Rotary shaft lip type seals — Part 1: Nominal dimensions and tolerances*.

ISO 6194-2:—¹⁾, *Rotary shaft lip type seals — Part 2: Vocabulary*.

1) To be published.



NOTE — Dimensions x and y were chosen because, in case of wear, imperfections in this area impair the function of the rotary shaft lip type seal during its lifetime.

Figure 1 — Area of sealing edge

Table 1

Dimensions in millimetres

Shaft diameter d_1	x	y
$d_1 \leq 50$	0,6	1,2
$50 < d_1 \leq 120$	0,8	1,5
$d_1 > 120$	1	2

4.1.2 Type and name of imperfections (see figure 2)

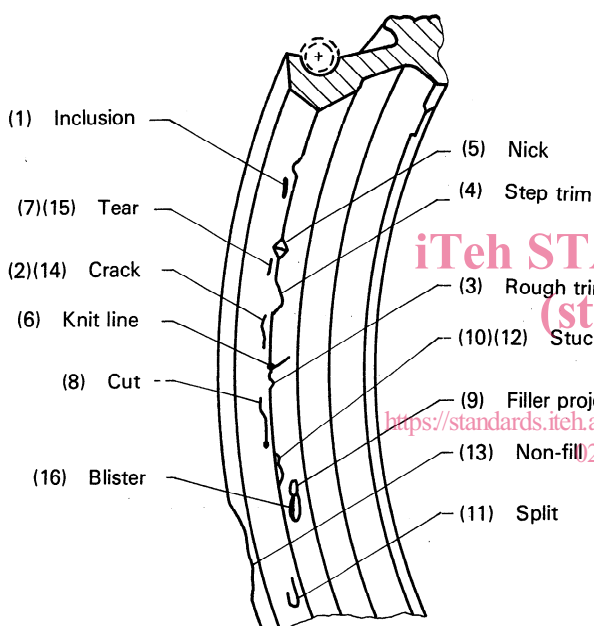


Figure 2 — Type and name of imperfections

4.1.3 Sealing edge imperfections

- (1) Inclusion (see figure 3, figure 4 and figure 5)
- (2) Crack (see figure 6)
- (3) Rough trim (see figure 7)
- (4) Step trim (see figure 8)

- (5) Nick (see figure 9)
- (6) Knit line (see figure 10)
- (7) Tear (see figure 11)
- (8) Cut (see figure 12)
- (9) Filler projection (see figure 13)
- (10) Stuck flash (see figure 14)

4.1.4 Sealing lip imperfections (except sealing edge)

- (11) Split (see figure 15)
- (12) Stuck flash (see figure 16)
- (13) Non-fill (see figure 17)
- (14) Crack (see figure 18)
- (15) Tear (see figure 19)
- (16) Blister (see figure 20)

4.2 Spring imperfections

- (17) Deformed spring (see figure 21)
- (18) Spring with stretched coil portion (see figure 22)
- (19) Spring with incomplete joint portion (see figure 23)

4.3 Imperfections on outer circumference portion

- (20) Scratch (see figure 24)
- (21) Incorrect chamfer (see figure 25)
- (22) Incomplete bond (see figure 26)

4.4 Imperfections on minor lip

- (23) Tear (see figure 27)
- (24) Cut or nick (see figure 28)
- (25) Non-fill (see figure 29)
- (26) Flash (see figure 30)

5 Identification statement (Reference to this part of ISO 6194)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this part of ISO 6194:

“Visual imperfections identification in accordance with ISO 6194-5, *Rotary shaft lip type seals — Part 5: Identification of visual imperfections*”.

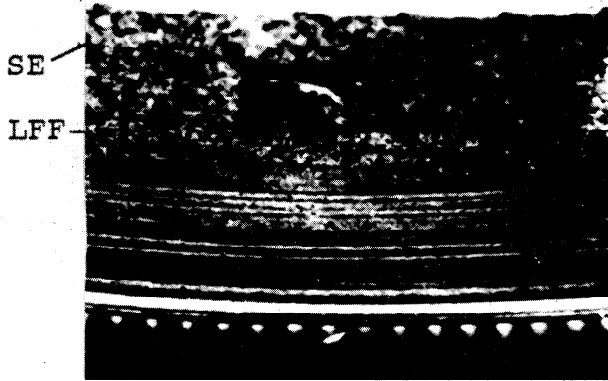


Figure 3 — (1) Inclusion: flash



Figure 6 — (2) Crack

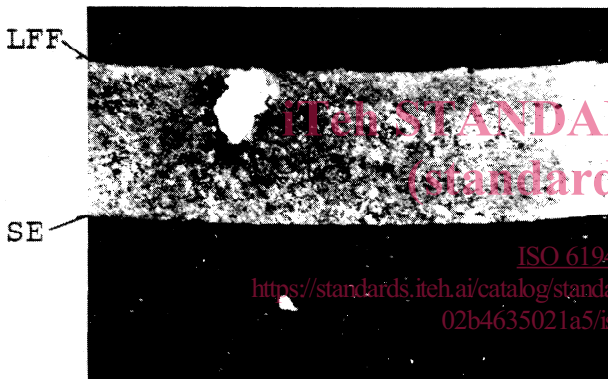


Figure 4 — (1) Inclusion: filler

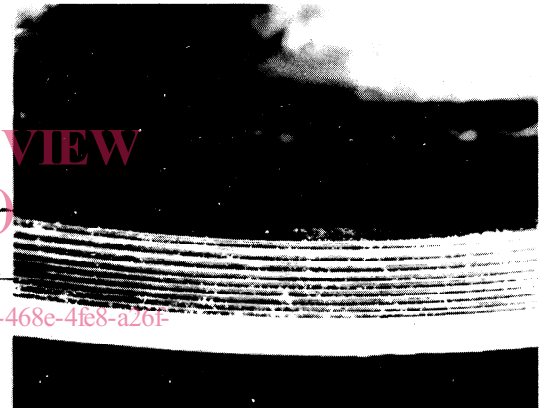


Figure 7 — (3) Rough trim

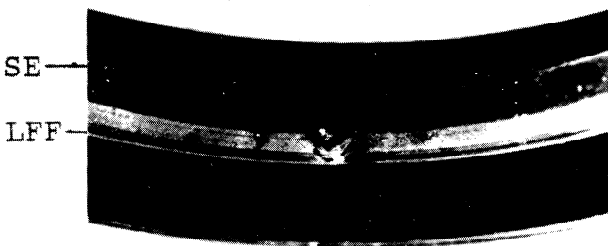


Figure 5 — (1) Inclusion: foreign material



Figure 8 — (4) Step trim

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Figure 9 — (5) Nick



Figure 12 — (8) Cut



Figure 10 — (6) Knit line



Figure 13 — (9) Filler projection



Figure 11 -- (7) Tear

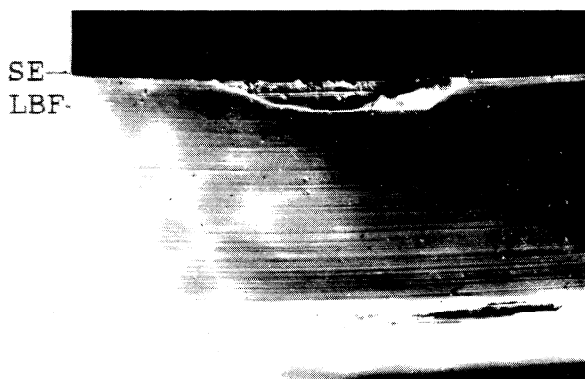


Figure 14 -- (10) Stuck flash

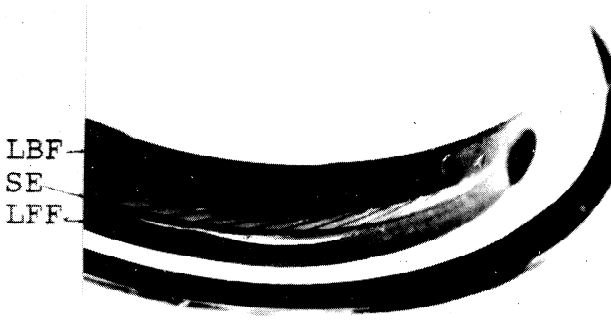


Figure 15 — (11) Split

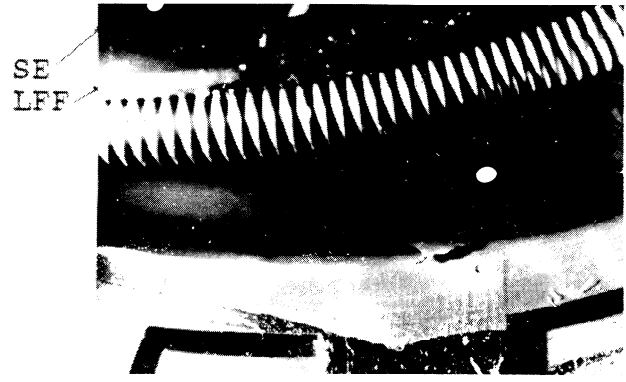


Figure 18 — (14) Crack



Figure 16 — (12) Stuck flash

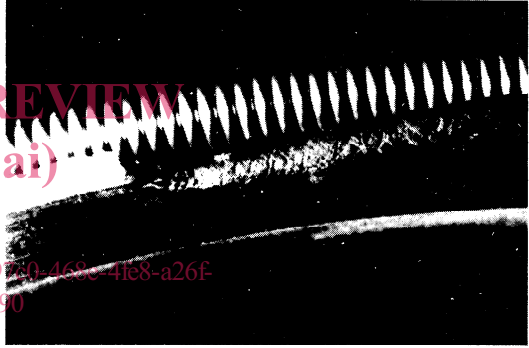


Figure 19 — (15) Tear

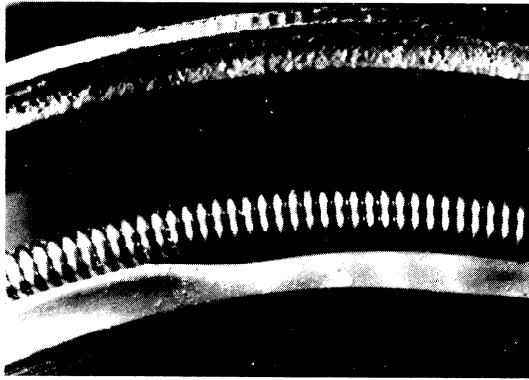


Figure 17 — (13) Non-fill

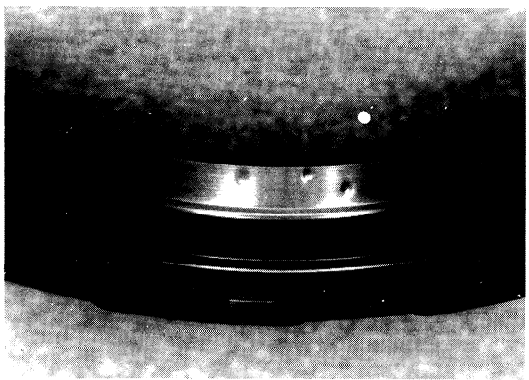


Figure 20 — (16) Blister

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