BRITISH STANDARD

BS ISO
6194-4:2009

# Rotary shaft lip-type seals incorporating elastomeric sealing elements

## Part 4: Performance test procedures

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# National foreword

This British Standard is the UK implementation of ISO 6194-4:2009. It supersedes BS ISO 6194-4:1999 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/11, Fluid seals and their housings.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

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# INTERNATIONAL STANDARD

# ISO 6194-4

Third edition
2009-03-15

# Rotary shaft lip-type seals incorporating elastomeric sealing elements —

## Part 4:
## Performance test procedures

*Bagues d'étanchéité à lèvres pour arbres tournants incorporant des éléments d'étanchéité en élastomère —*

*Partie 4: Méthodes d'essai de performance*

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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 6194-4 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 7, *Sealing devices*.

This third edition cancels and replaces the second edition (ISO 6194-4:1999), which has been technically revised.

ISO 6194 consists of the following parts, under the general title *Rotary shaft lip-type seals incorporating elastomeric sealing elements*:

— *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

Rotary shaft lip-type seals are used to retain fluid, e.g. lubricant, in equipment where the differential pressure is relatively low. Typically, the shaft rotates, and the housing is stationary, although in some applications the shaft is stationary, and the housing rotates.

Dynamic sealing is normally the result of a designed interference fit between the shaft and a flexible element incorporated in the seal.

Similarly, a designed interference fit between the outside diameter of the seal, and the diameter of the housing bore, retains the seal and prevents static leakage.

Careful storage, handling and proper installation of all seals are necessary to avoid hazards, both prior to and during installation, which would adversely affect service life.

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# Rotary shaft lip-type seals incorporating elastomeric sealing elements —

# Part 4: Performance test procedures

**WARNING — Persons using this part of ISO 6194 should be familiar with normal laboratory practice. Whilst this part of ISO 6194 does not purport to address all the safety problems, if any, associated with its application, attention is drawn to the need to employ sensible precautions while handling hot and cold fluids and equipment. It is the responsibility of the user of this part of ISO 6194 to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.**

## 1 Scope

ISO 6194 describes seals utilizing elastomeric sealing elements. They are considered suitable for use under low-pressure conditions (see ISO 6194-1:2007, 6.1).

This part of ISO 6194 specifies general test requirements for rotary shaft lip-type seals. The tests may be used for qualification purposes.

NOTE ISO 6194 is complementary to ISO 16589 which covers seals incorporating thermoplastic sealing elements.

## 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 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 812, *Rubber, vulcanized or thermoplastic — Determination of low-temperature brittleness*

ISO 815-1, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 1: At ambient or elevated temperatures*

ISO 815-2, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 2: At low temperatures*

ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*

ISO 2781, *Rubber, vulcanized or thermoplastic — Determination of density*

ISO 5598, *Fluid power systems and components — Vocabulary*

ISO 6194-1:2007, *Rotary shaft lip-type seals incorporating elastomeric sealing elements — Part 1: Nominal dimensions and tolerances*

ISO 6194-2, *Rotary-shaft lip-type seals incorporating elastomeric sealing elements — Part 2: Vocabulary*

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