

# Rotary shaft lip type seals —

## Part 3: Storage, handling and installation

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# Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Engineering Sector Board to Technical Committee MCE/11, upon which the following bodies were represented:

- British Compressed Air Society
- British Fluid Power Association
- British Hydromechanics Research Association
- British Industrial Truck Association
- British Rubber Manufacturers' Association Ltd.
- Ministry of Defence
- Society of British Aerospace Companies Ltd.
- Society of Motor Manufacturers and Traders Ltd.

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# National foreword

This Part of BS 7780 has been prepared under the direction of the Engineering Sector Board and is a revision of BS 1399 *Specification for rotary shaft lip seals*, Part 3:1970 *Terminology and recommendations for handling*, which is superseded and withdrawn. The standard is one of a series which specify rotary shaft lip type seals. It is the third Part of a new standard which represents a complete revision and renumbering of BS 1399. This Part is identical with ISO 6194-3:1988 *Rotary shaft lip type seals — Part 3: Storage, handling and installation*, published by the International Organization for Standardization (ISO).

Other Parts of BS 7780 are as follows:

- *Part 1: Nominal dimensions and tolerances* (implementing ISO 6194-1:1982);
- *Part 2: Vocabulary* (implementing ISO 6194-2:1991);
- *Part 4: Performance test procedures*;
- *Part 5: Identification of visual imperfections* (implementing ISO 6194-5:1990).

## Cross-references

| International standard | Corresponding British Standard                                                                                                           |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| ISO 6194-1:1982        | BS 7780: <i>Specification for rotary shaft lip type and seals</i><br>Part 1:1994 <i>Nominal dimensions and tolerances</i><br>(Identical) |

The Technical Committee has reviewed the provisions of ISO 5598:1985, to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

There are no corresponding British Standards for ISO 5598.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

## Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

## 0 Introduction

**0.1** This International Standard on rotary shaft lip type seals will consist of the following parts:

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

**0.2** 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.

**0.3** Careful storage, handling and proper installation of rotary shaft lip type seals are necessary to avoid hazards both prior to and during installation which would adversely affect service life.

## 1 Scope and field of application

This part of ISO 6194 gives lip seal users guidance on the careful storage, handling and proper installation of rotary shaft lip type seals; attention is drawn to the hazards involved and ways of avoiding them are pointed out.

This part of ISO 6194 covers the storage and handling of lip seals, including the installation process, from the time they are received by the user.

## 2 References

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

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

## 3 Definitions

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

NOTE Terminology specific to rotary shaft lip type seals will be dealt with in ISO 6194-2.

## 4 General storage

**4.1** Rotary shaft lip type seals shall be stored with caution because the service life of bearings and/or other costly machined parts may depend on how well the lip seal performs. Hazards which may be encountered include:

- temperature (see 4.2);
- ozone (see 4.4);
- humidity (see 4.2);
- radioactive materials (see 4.5);
- fumes (see 4.5);
- insects (see 4.6);
- rodents (see 4.6);
- dust (see 4.7);
- grit (see 4.7);
- mechanical damage (see 4.7).

**4.2** The storage area shall be kept cool (below 30 °C) with an average relative humidity of 40 % to 70 %.

**4.3** Seals shall be stored on a “first in, first out” basis, since, even under ideal conditions, an unusually long shelf-life may cause deterioration of element materials.

**4.4** To retard ozone ageing, seals shall be kept away from direct or reflected sunlight and electrical equipment that may generate ozone. Excessive heat and/or exposure to ozone can cause premature ageing of the seal element thus reducing service life. Excessive humidity will deteriorate some seal element materials as well as cause corrosive damage to metal cases and springs.

**4.5** Seals shall be protected from radioactive materials and certain fumes which can also cause deterioration of the seal element.

**4.6** Seals shall be protected from insects and rodents, some of whom thrive on rubber products.

**4.7** Lip seals should preferably be stored in a place other than a work area to avoid possible mechanical damage by equipment or falling objects. A closed container will provide protection from mechanical damage, as well as from dust, grit and other contaminants.

**4.8** When cartons of lip seals are stacked, care shall be taken to avoid damage to the bottom parts due to excessive weight.

## 5 Packaging

**5.1** The product shall be protected from damage and foreign material en route from the manufacturer to the user and during storage.