

Care and handling of seals for fluid power applications — Guide

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Committees responsible for this British Standard

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- British Fluid Power Association
- British Hydromechanics Research Group
- British Rubber Manufacturers' Association Ltd.
- Gasket Cutters Association
- Society of British Aerospace Companies Ltd.

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Foreword

This British Standard has been prepared by Technical Committee MCE/11 to give guidance on the care and handling of seals used in hydraulic and pneumatic fluid power applications. It supersedes BS 7714:1993, which is withdrawn. This new edition of BS 7714 incorporates technical changes only. It does not reflect a full review or revision of the standard, which will be undertaken in due course.

This British Standard makes reference to BS ISO 2230, *Rubber products — Guidelines for storage*, from which further details can be obtained.

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 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 11 and a back cover.

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1 Scope

This British Standard provides guidance on the storage of seals used in hydraulic and pneumatic fluid power applications, both before use and when stored within fluid power components.

It gives guidance on the identification of seal materials and the care to be exercised when fitting seals to components and systems.

Annex A describes the various seal materials in general fluid power use, and gives their compatibility with a range of fluids and solvents.

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.

BS ISO 2230:2002, *Rubber products — Guidelines for storage*.

3 Materials

Seals for the fluid power industry are available in a wide range of individual materials and combinations of materials. They are principally elastomeric in nature, in either solid form or as proofing on various textiles, but plastics materials are also used.

The materials of major interest to the fluid power industry are:

- Acrylonitrile butadiene rubber (NBR);
- Fluorocarbon rubber (FKM);
- Polyurethane elastomers (AU, EU);
- Silicone rubbers: Fluorosilicone (FMQ);
- Ethylene propylene diene rubber (EPDM);
- Polyether polyester elastomers;
- Thermoplastics:
 - polytetrafluoroethylene (PTFE);
 - polyamides (PA);
 - polyacetal (POM).

Annex A describes all these materials in greater detail and gives details of their particular features as well as their compatibility with a range of fluids and solvents. Annex A can help users to select the correct seal material for a particular application.

4 Storage

4.1 General

The following extract concerning the storage of vulcanized rubber is taken from BS ISO 2230:2002 and should be noted as being applicable to any of the elastomeric materials referred to in Clause 3.

“Many rubber products and components are stored for long periods before being put into service, and thus it is important they are stored in conditions that minimize unwanted changes in properties. Such changes may result from degradation, in which case they may include excessive hardening, softening, cracking, crazing and other surface effects. Other changes may be caused by deformation, contamination or mechanical damage.

It is recognized that some rubbers are more susceptible than others to deterioration by such factors as heat, light, ozone, oxygen and humidity. Exposure to these factors should therefore be minimized in order to extend storage life and to do so a system of storage control, proper packaging and periodic inspection becomes necessary.”

The damaging effect of these factors can be minimized by careful choice of storage conditions; however, elastomeric materials should always be considered to have a finite shelf life, after which they should be discarded.

NOTE Additional requirements for storage and for periodic inspection of vulcanized rubbers might exist, such as those specified by the aerospace industry and which can be obtained, for example from BS 4F 68.