

Technical drawings —

Seals for dynamic application —

Part 2. Detailed simplified representation

The European Standard EN ISO 9222-2 : 1995 has the status of a British Standard

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee TDE/4, Engineering drawing practice, upon which the following bodies were represented:

- Atomic Weapons Establishment
- British Gas plc
- British Standards Society
- Drawing Office Material Manufacturers' and Dealers' Association
- Electricity Association
- Gauge and Tool Makers' Association
- HEVAC Association
- Institution of Chemical Engineers
- Institution of Engineering Designers
- Power Generation Contractors' Association
- Society of British Aerospace Companies Ltd.
- University of Warwick

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National foreword

This British Standard has been prepared by Technical Committee TDE/4 and is the English language version of EN ISO 9222-2 : 1994 *Technical drawings — Seals for dynamic application — Part 2: Detailed simplified representation*, published by the European Committee for Standardization (CEN). It is identical with ISO 9222-2 : 1989 published by the International Organization for Standardization (ISO).

This Part of BS EN ISO 9222 partially supersedes BS 308 : Part 1. It is envisaged that when the full range of European Standards on technical drawing is implemented BS 308 will be withdrawn.

Cross-references

Publication referred to	Corresponding British Standard
ISO 5597 : 1987	BS 5751 : 1987 <i>Specification for dimensions of housings for hydraulic seals for reciprocating applications</i>
ISO 6194-1 : 1982	BS 7780 <i>Specification for rotary shaft lip type seals</i> Part 1 : 1994 <i>Nominal dimensions and tolerances</i>
ISO 6547-1 : 1981	BS 6241 : 1982 <i>Specification for dimensions of housings for hydraulic seals incorporating bearing rings for reciprocating applications</i>
ISO 9222-1 : 1989	BS EN ISO 9222 <i>Technical drawings — Seals for dynamic application</i> Part 1 : 1995 <i>General simplified representation</i>

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

ICS 01.100.20; 21.140

Descriptors: Drawings, technical drawings, seals (stoppers), graphic methods

English version

Technical drawings —
Seals of dynamic application —
Part 2: Detailed simplified representation

(ISO 9222-2 : 1989)

Dessins techniques —
Joints d'étanchéité pour application dynamique
Partie 2: Représentation simplifiée particulière
(ISO 9222-2 : 1989)

Technische Zeichnungen —
Dichtungen für dynamische Belastung —
Teil 2: Detaillierte, vereinfachte Darstellung
(ISO 9222-2 : 1989)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard was taken over by CEN from the work of ISO/TC 10 Technical drawings, product definitions and related documentation, of the International Standards Organization (ISO).

The Technical Board had decided to submit the final draft for Formal Vote. The result was positive.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 1995, and conflicting national standards shall be withdrawn at the latest by April 1995.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

Introduction

ISO 9222 provides rules for the simplified representation of seals.

The principle of drawing practice is to depict the object to scale using lines. In simplified representations, only essential features are shown, preferably in outline (in order to save time and effort).

The degree of simplification depends on the kind of object represented, the scale of the drawing and the purpose of the documentation. This means that either a general simplified representation or a detailed one may be used. A detailed representation shows more details of a seal, for example the configuration of lips.

In order to avoid misunderstandings, only one kind of simplification, either the general or the detailed simplified representation, should be used on a drawing.

Technical drawings — Seals for dynamic application —

Part 2: Detailed simplified representation

1 Scope

This part of ISO 9222 specifies a detailed simplified representation for various seals. This representation should be used in cases where it is not necessary to show the exact shape and details of the seals, for example in assembly drawings.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 9222. 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 9222 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 5597 : 1987, *Hydraulic fluid power — Cylinders — Housings for piston and rod seals in reciprocating applications — Dimensions and tolerances.*

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

ISO 6547 : 1981, *Hydraulic fluid power — Cylinders — Piston seal housings incorporating bearing rings — Dimensions and tolerances.*

ISO 9222-1 : 1989, *Technical drawings — Seals for dynamic application — Part 1: General simplified representation.*

3 Method of representation

3.1 General rules

See ISO 9222-1.

3.2 Elements of detailed simplified representation for seals

The elements of detailed simplified representation for seals are given in table 1.

Table 1 — Elements of detailed simplified representation for seals

No.	Element	Description	Application
1.1		Long continuous straight line (parallel to a generating line of the sealing surface)	The static (pressed in, fixed) element (seal or part of the seal or function)
1.2		Long continuous straight line (diagonal to the out-lines) ¹⁾	The dynamic sealing element (lip) or function (part of the seal) In conjunction with symbol No. 1.1, it shows the position of the dynamic sealing side directed against fluids, gases and solid media
1.3		Short continuous straight line (diagonal to the out-lines and at 90° to symbol No. 1.2) ¹⁾	In combination with symbol No. 1.2, dust lips, wipers, etc.
1.4.1		Short continuous angular line pointing to the centre point of the square ¹⁾	Sealing lips of U-cups, V-rings, packing sets, etc.

Table 1 (concluded)

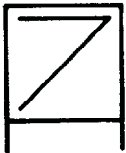
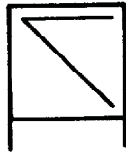
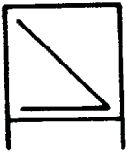
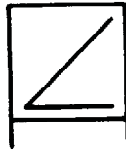
No.	Element	Description	Application
1.4.2		Short continuous straight line pointing to the centre point of the square ¹⁾	Like 1.4.1 for U-cups, V-rings, packing sets, etc.
1.5		T (male)	Contactless seals, for example labyrinth seals
1.6		U (female)	
1) An arrowhead may be added to show the sealing direction.			

3.3 Detailed simplified representation

The detailed simplified representations of seals are shown in tables 2 to 4.

NOTE — Seals shown in tables 2 to 4 are always depicted in the space above the axis.

Table 2 — Detailed simplified representation

No.	Detailed simplified representation	Application	
		Seals subject to rotation	Relevant International Standard
2.1		Rotary shaft lip type seals without dust lip Mechanical seals	ISO 6194-1
			
2.2		Rotary shaft lip type seals without dust lip Mechanical seals	ISO 6194-1
			

1) This type of illustration is not commonly used in technical drawings, but is used conventionally in catalogues, users' handbooks, prospectuses, etc.

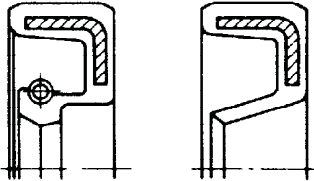
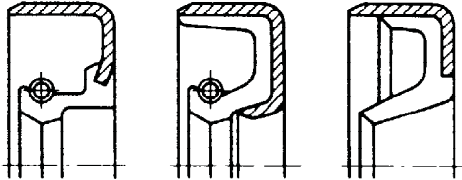
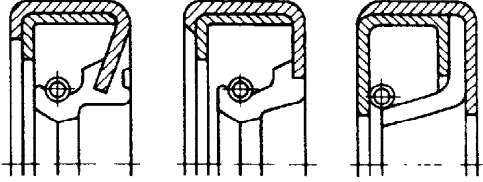
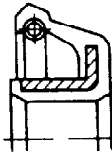
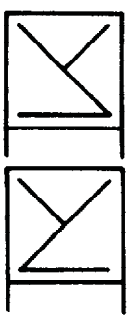
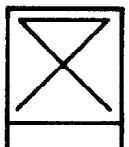
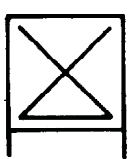
Application		Illustration ¹⁾
Seals subject to translation	Relevant International Standard	
Piston rod seals without wiper	ISO 5597	ISO 6194-1, type 1 — Rubber covered  ISO 6194-1, type 2 — Metal cased  ISO 6194-1, type 3 — Assembled 
Piston rod seals without wiper	ISO 5597	

Table 2 (concluded)

No.	Detailed simplified representation	Application	
		Seals subject to rotation	Relevant International Standard
2.3		Rotary shaft lip type seals with dust lip	ISO 6194-1
2.4		Rotary shaft lip type seals with dust lip	ISO 6194-1
2.5		Rotary shaft lip type seals without dust lip, double-acting Mechanical seals	—
2.6		Rotary shaft lip type seals without dust lip, double-acting Mechanical seals	—

1) This type of illustration is not commonly used in technical drawings, but is used conventionally in catalogues, users' handbooks, prospectuses, etc.

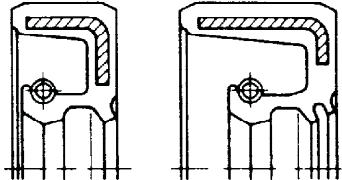
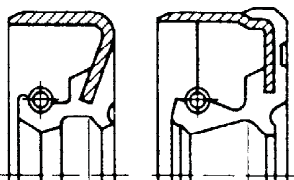
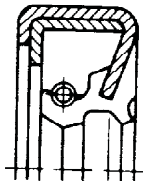
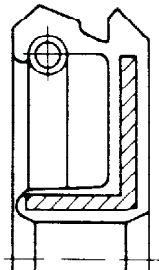
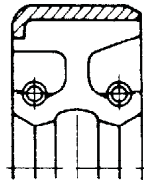
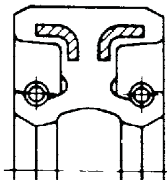
Application		Illustration ¹⁾
Seals subject to translation	Relevant International Standard	
Piston rod seals with wiper	—	ISO 6194-1, type 4 — Rubber covered with minor lip  ISO 6194-1, type 5 — Metal cased with minor lip  ISO 6194-1, type 6 — Assembled with minor lip 
Piston rod seals with wiper	—	
Double-acting piston rod seals	—	Metal cased, double lip  Rubber covered, double lip 
Double-acting piston rod seals	ISO 6547	

Table 3 — Detailed representation of U-cups, packing sets and V-rings

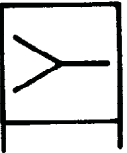
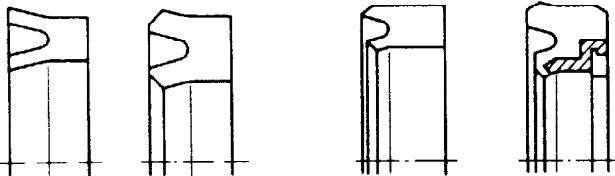
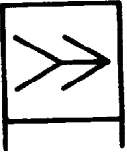
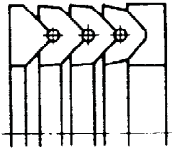
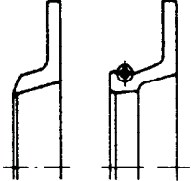
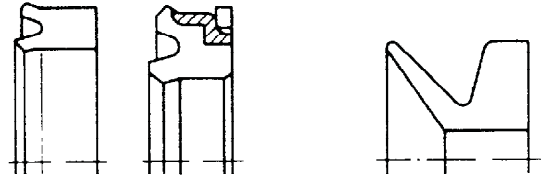
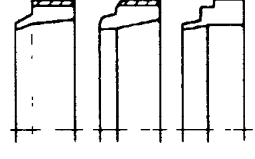
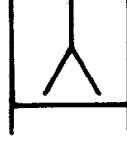
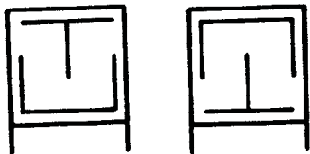
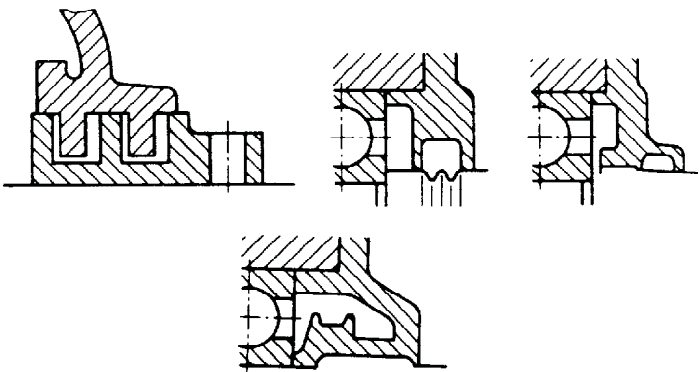
No.	Detailed simplified representation	Application
3.1		
3.2		
3.3		
3.4		
3.5		
3.6		
3.7		

Table 4 — Detailed simplified representation of labyrinth seals (irrespective of the number of labyrinths)

No.	Detailed simplified representation	Application
4.1		

4 Examples

Examples showing the simplified representation of seals are given in figures 1 to 5.

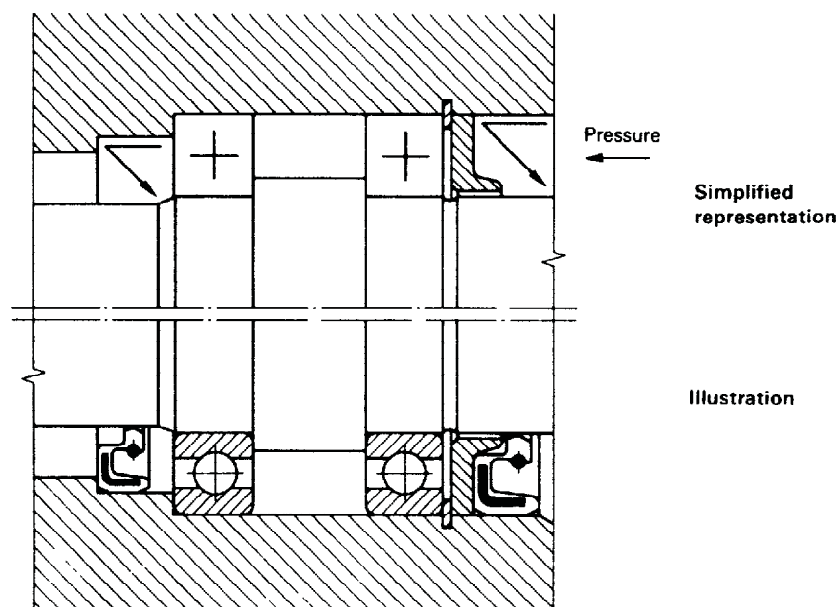


Figure 1 — Rotary shaft lip type seal (sealing against fluids)

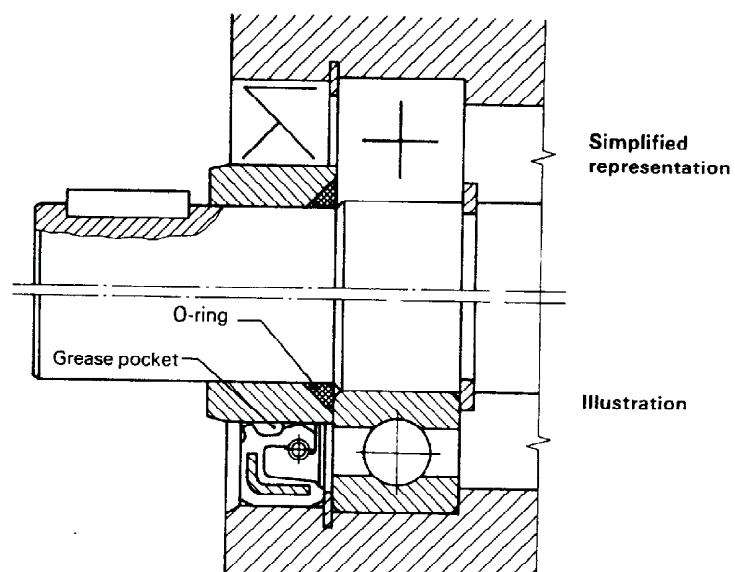


Figure 2 — Rotary shaft lip type seal with dust lip

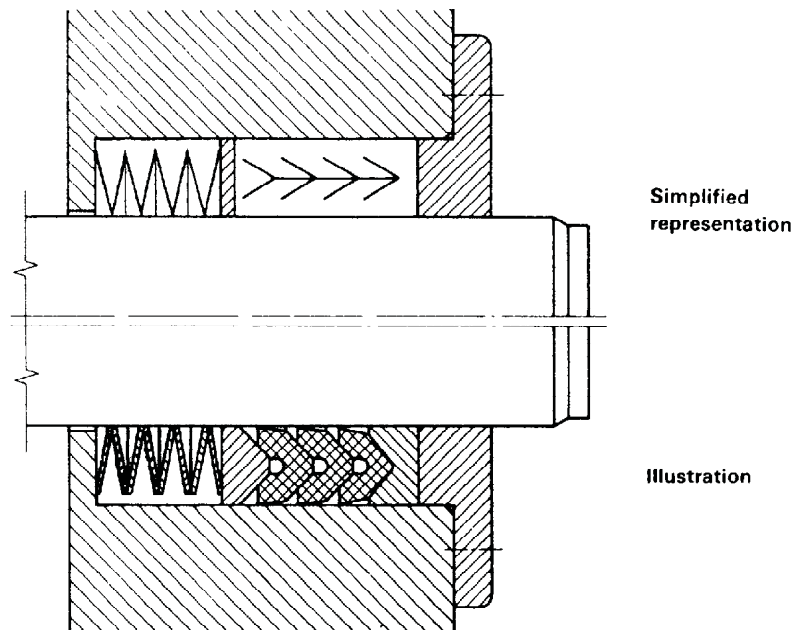


Figure 3 — Packing set

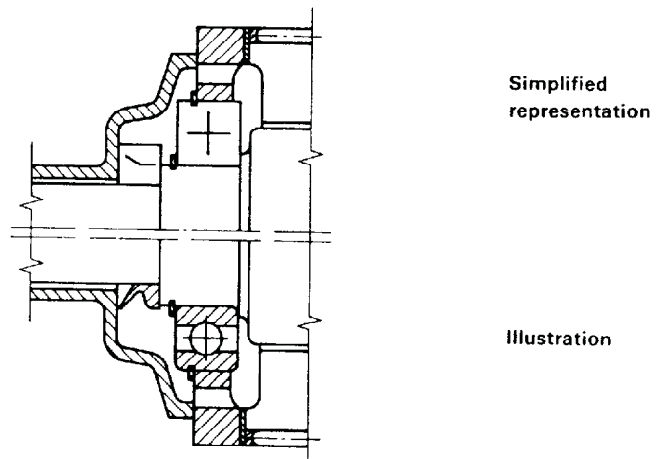


Figure 4 — V-ring

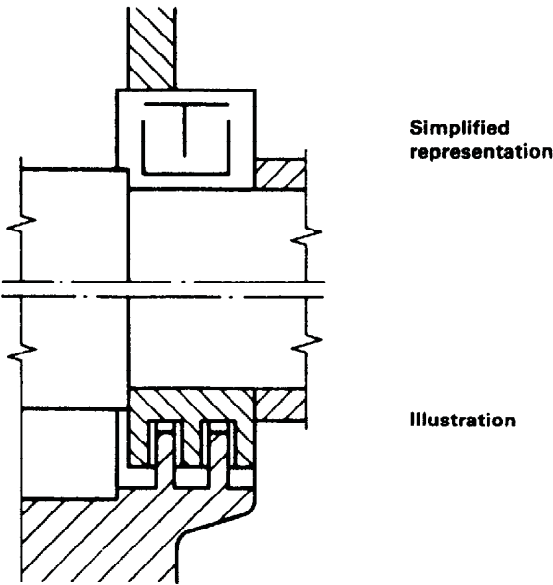


Figure 5 — Labyrinth seal

List of references

See national foreword.

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