INTERNATIONAL STANDARD

ISO 6195

Second edition
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Fluid power systems and components — Cylinder-rod wiper-ring housings in reciprocating applications — Dimensions and tolerances

Transmissions hydrauliques et pneumatiques — Logements de joints racleurs pour tiges de piston à mouvement linéaire de vérins — Dimensions et tolérances

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 6195 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 7, *Sealing devices*.

This second edition cancels and replaces the first edition (ISO 6195:1986), which has been technically revised.

Introduction

In fluid power systems, power is transmitted and controlled through a fluid (or gas) under pressure within an enclosed circuit. Wiper rings are used to prevent ingress of contaminants and thereby to protect the seals and bearings within the equipment.

This International Standard is one of a series of standards covering the dimensions and tolerances of housings.

Fluid power systems and components — Cylinder-rod wiper-ring housings in reciprocating applications — Dimensions and tolerances

1 Scope

This International Standard specifies dimensions and tolerances of housings for wiper rings used in reciprocating rod applications for fluid power cylinders. The range of rod diameters is from 4 mm to 360 mm.

This International Standard is applicable to the following four housing designs.

— Type A: recessed housings with undercut or separate cover to retain elastomeric wipers (these are the preferred housings for single lip wipers without integral rigid enforcement).

— Type B: open recessed housings for wipers with integral rigid enforcement, that are a press-fit in the housing.

— Type C: recessed housings with undercut to retain elastomeric wipers (these are the preferred housings for double lip wipers without integral rigid enforcement).

— Type D: recessed housings with undercut to retain elastomer-energized, plastic-faced wipers.

This International Standard does not otherwise specify the style, configurations, materials, or performance ratings for the wiper ring.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 883, *Indexable hardmetal (carbide) inserts with rounded corners, without fixing hole — Dimensions*

ISO 3320, *Fluid power systems and components — Cylinder bores and piston rod diameters — Metric series*

ISO 5597, *Hydraulic fluid power — Cylinders — Housings for piston and rod seals in reciprocating applications — Dimensions and tolerances*

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

ISO 6020-1, *Hydraulic fluid power — Mounting dimensions for single rod cylinders, 16 MPa (160 bar) series — Part 1: Medium series*

ISO 6020-2, *Hydraulic fluid power — Mounting dimensions for single rod cylinders, 16 MPa (160 bar) series — Part 2: Compact series*

ISO 6020-3, *Hydraulic fluid power — Mounting dimensions for single rod cylinders, 16 MPa (160 bar) series — Part 3: Compact series with bores from 250 mm to 500 mm*

ISO 6022, *Hydraulic fluid power — Single rod cylinders — Mounting dimensions — 250 bar (25 000 kPa) series*

ISO 10762, *Hydraulic fluid power — Cylinder mounting dimensions — 10 MPa (100 bar) series*

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 5598 apply.

4 Letter symbols

The letter symbols used in this International Standard are as follows.

d	rod diameter
D_1	outside diameter of wiper housing
D_2	retainer diameter
C	axial length of the lead-in chamfer
L_1	axial length of the wiper housing
L_2	maximum length of the wiper
L_3	retainer width
$S = \frac{D_1 - d}{2}$	radial depth (cross-section) of the housing
r	radius

5 General

The wiper ring manufacturer should be consulted on the suitability of a particular type of wiper ring for the application.

Sharp edges and burrs shall be removed from corners of supporting surfaces and rounded.

Supporting surfaces are required to provide maximum support.

6 Dimensions and tolerances

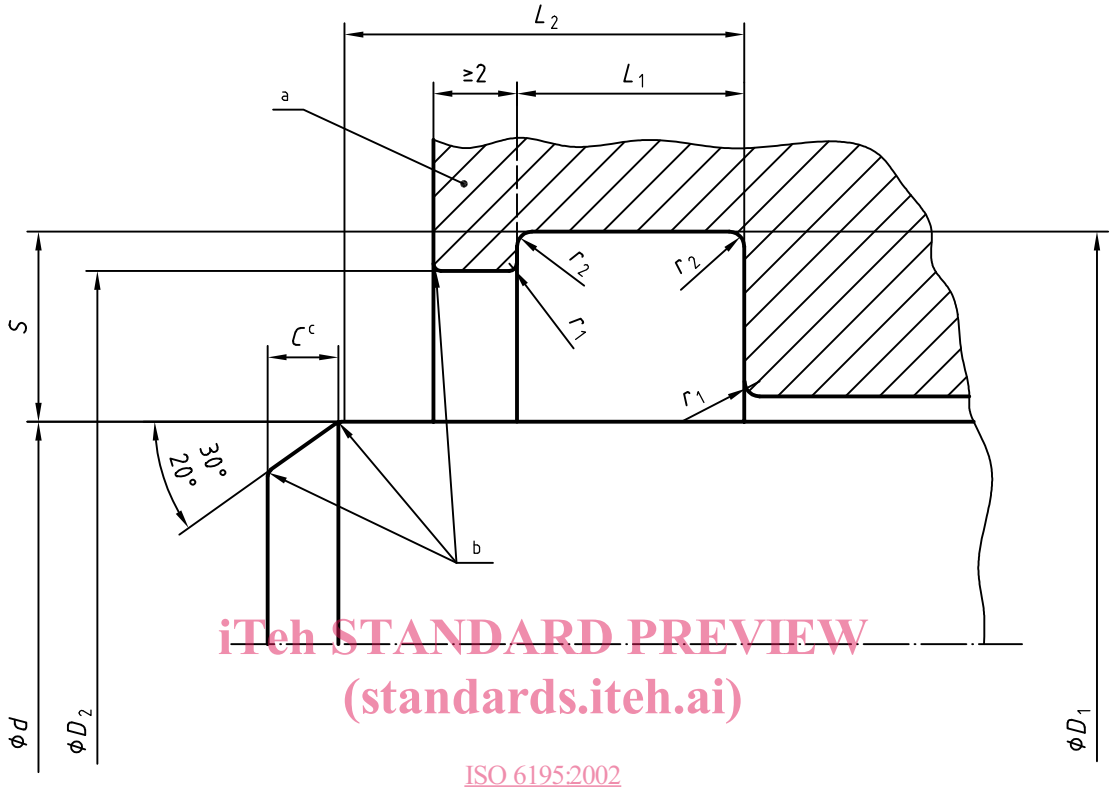
6.1 Type A housing

6.1.1 An example of a type A housing is shown in Figure 1.

6.1.2 Type A housing dimensions and tolerances shall conform to Table 1.

6.1.3 Type A wiper rings are recommended for use with cylinders conforming to ISO 6020-1 and to ISO 6022.

Dimensions in millimetres



a May be integral or with separate retaining plate.

b Rounded and burr free.

c See Table 5 for dimensions.

Figure 1 — Example of type A wiper housing

Table 1 — Dimensions for type A wiper housings

Dimensions in millimetres

Rod diameter [a, b] d	Radial depth S	Outside diameter D_1 H11	Axial length L_1	Wiper length L_2 max.	Retainer diameter D_2 H11	r_1 max.	r_2 [c] max.
4	4	12	$5\ ^{+0,2}_{0}$	8	9,5	0,3	0,5
5		13			10,5		
6		14			11,5		
8		16			13,5		
10		18			15,5		
12		20			17,5		
14		22			19,5		
16		24			21,5		
18		26			23,5		
20		28			25,5		
22		30			27,5		
25		33			30,5		
28		36			33,5		
32		40			37,5		
36		44			41,5		
40		48			45,5		
45		53			50,5		
50		58			55,5		
56	5	66	$6,3\ ^{+0,2}_{0}$	10	63	0,4	
63		73			70		
70		80			77		
80		90			87		
90		100			97		
100	7,5	115	$9,5\ ^{+0,3}_{0}$	14	110	0,6	
110		125			120		
125		140			135		
140		155			150		
160		175			170		
180		195			190		
200		215			210		
220	10	240	$12,5\ ^{+0,3}_{0}$	18	233,5	0,8	0,9
250		270			263,5		
280		300			293,5		
320		340			333,5		
360		380			373,5		

[a] See ISO 3320 and ISO 5597.

[b] One-piece housings can be used with rod diameters greater than 14 mm.

[c] These specific dimensions permit the use of tools conforming to ISO 883.

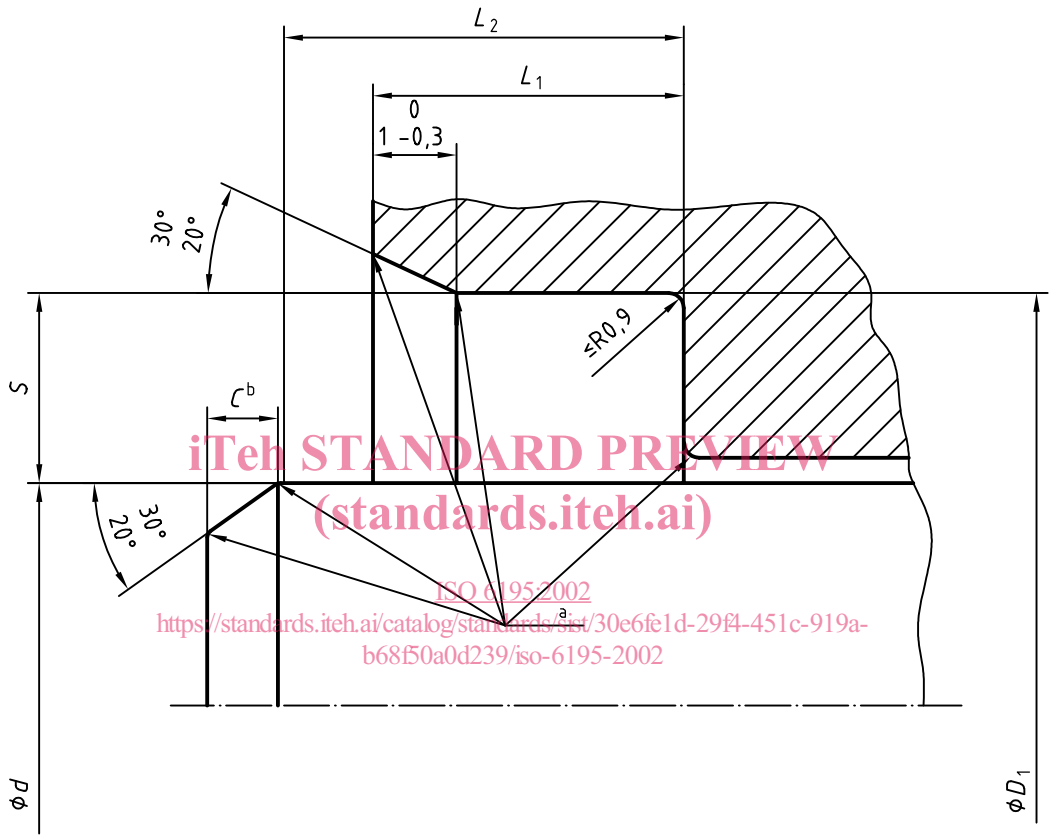
6.2 Type B housing

6.2.1 An example of a type B housing is shown in Figure 2.

6.2.2 Type B housing dimensions and tolerances shall conform to Table 2.

6.2.3 Type B wiper rings are recommended for use with cylinders conforming to ISO 6020-1 and to ISO 6022.

Dimensions in millimetres



[a] Rounded and burr free.

[b] See Table 5 for dimensions.

Figure 2 — Example of type B wiper housing