INTERNATIONAL STANDARD

ISO 6415

Second edition
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Internal combustion engines — Spin-on filters for lubricating oil — Dimensions

Moteurs à combustion interne — Filtres à huiles vissés — Dimensions

Reference number
ISO 6415:1990(E)

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.

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.

International Standard ISO 6415 was prepared by Technical Committee ISO/TC 22, *Road vehicles*.

This second edition cancels and replaces the first edition (ISO 6415:1981), of which it constitutes a technical revision.

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Internal combustion engines — Spin-on filters for lubricating oil — Dimensions

1 Scope

This International Standard specifies the essential dimensions necessary for interchangeability of spin-on filters of the full flow type for the filtration of lubricating oil for internal combustion engines. It also gives the designation and marking of these filters.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard 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 68:1973, *ISO general purpose screw threads — Basic profile.*

ISO 261:1973, *ISO general purpose metric screw threads — General plan.*

ISO 965-1:1980, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data.*

ISO 965-3:1980, *ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional threads.*

3 Requirements

3.1 Connection thread and sealing surface

NOTE 1 The use of filters with unified threads is discouraged to avoid the danger of mis-matching.

The dimensions of the male and female connection threads and of the sealing surface are specified in figure 1 and table 1. The thread shall conform to ISO 68, ISO 261, ISO 965-1 and ISO 965-3.

The sealing surface shall be continuous and free from porosity, scratches and nicks.

Dimensions in millimetres unless specified otherwise

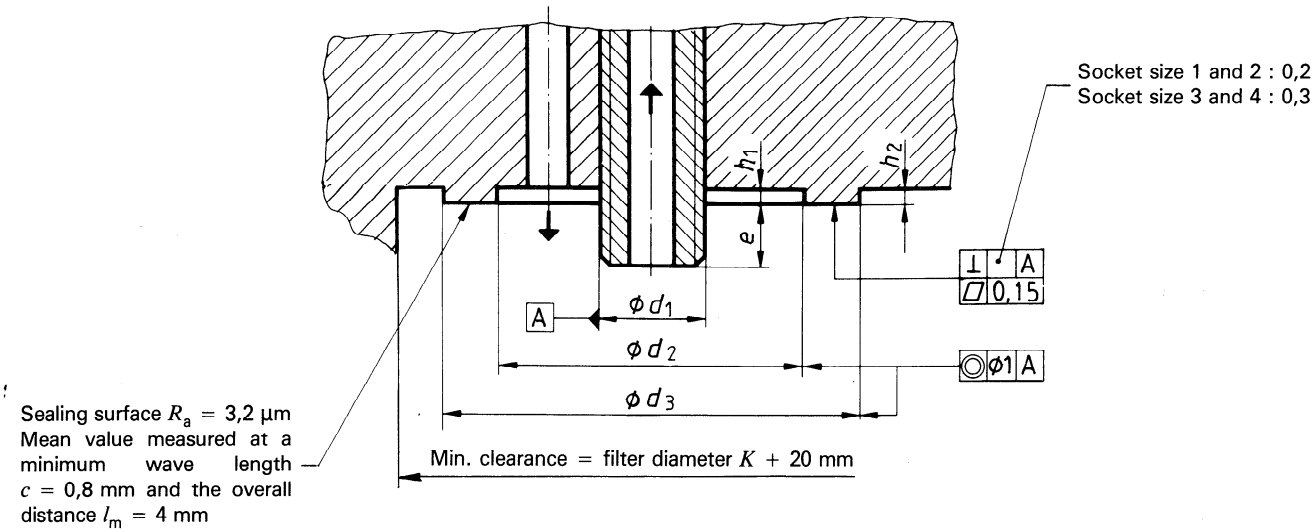


Figure 1 — Connection and sealing surface

Table 1 — Dimensions of connection threads and sealing surface

Values in millimetres

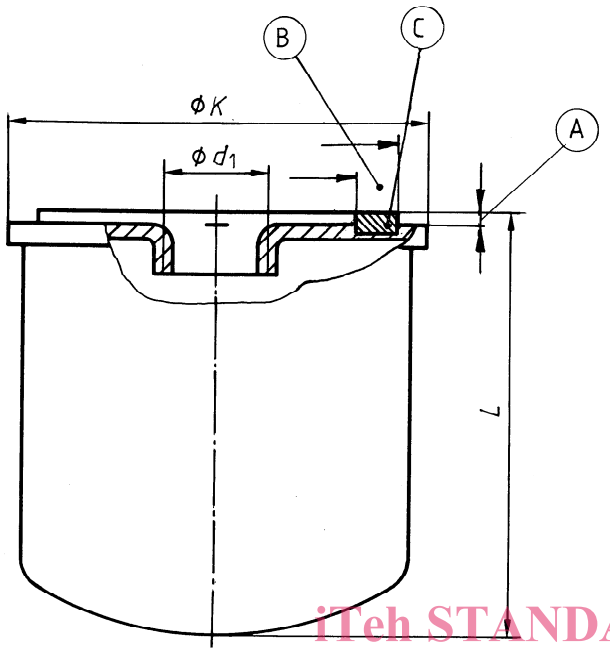
Socket size	Connection thread					Sealing surface			
	d_1	Tolerance		e		d_2	d_3	h_1	h_2
		stud thread[1]	filter thread	min.	max.	max.	min.	min.	min.
1	M20 × 1,5	6g	6H	14	20	58	76	2	2
2	M26 × 2	6g	6H	14	20	58	76	2	2
3	M30 × 2	6g	6H	16	22	90	113	4	2
4	M38 × 2	6g	6H	16	22	90	113	4	2

NOTE — M16 × 1,5 and M24 × 1,5 have been reserved for spin-on fuel filters.

1) The stud shall be threaded over the full distance e. When the filter has been tightened, at least three full threads shall be in contact.

3.2 Filter diameter and length

The maximum dimensions for filter diameter and length are specified in figure 2 and table 2.



(A) Free gasket height at discretion of manufacturer, depending on material and shape.

The gasket shall have sufficient compression to allow satisfactory fitting; once fitted, it shall provide a satisfactory seal during the life of the filter.

(B) The gasket diameter shall be included within the diameters d_2 / d_3.

(C) Filter and gasket shall be so joined as to necessitate the replacement of both parts simultaneously.

Figure 2 — Filter

Table 2 — Filter dimensions

Values in millimetres

Diameter K		⩽ 80	> 80 ⩽ 90	> 90 ⩽ 100	> 100 ⩽ 112	> 112 ⩽ 140
Length L max.		125	160	210	265	310
Socket size	1	X	X	X	X	—
	2	—	—	X	X	—
	3	—	—	X	X	X
	4	—	—	—	X	X

3.3 By-pass valve

For equipment protection, each spin-on filter type shall be fitted with a by-pass valve or an equivalent device unless a by-pass valve has been incorporated in the engine design. By-pass valves fitted to the spin-on filter shall operate at one of the following pressures:

100 kPa ± 20 kPa

160 kPa ± 30 kPa

250 kPa ± 40 kPa

3.4 Design of canister base

In order to facilitate removal and installation of the filter, the canister base shall incorporate one of the following features:

— a curved surface i.e. without any impressions as specified in figure 3 — type X;

— grooves as specified in figure 4 — type Y;

— flats as specified in figure 5 — type Z.

4 Designation

Spin-on filters for lubricating oil shall be designated in accordance with the following example.

Designation of a spin-on filter with metric thread M20 × 1,5:

Oil filter ISO 6415 M20 × 1,5

In order to use the ISO designation in the marking as specified in clause 5, the filter shall conform to all requirements given in this International Standard.

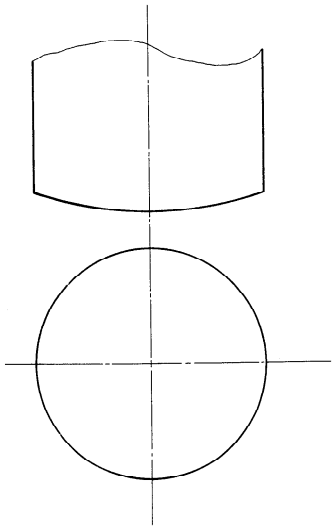


Figure 3 — Canister base type X — Without impressions

Dimensions in millimetres

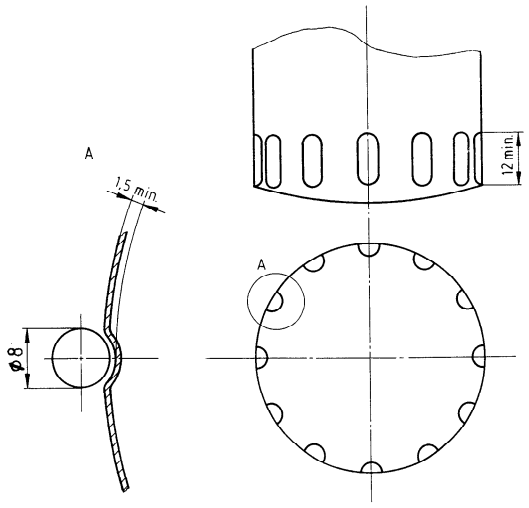


Figure 4 — Canister base type Y — With grooves — Number of grooves: 6 or multiple of 6

Dimensions in millimetres

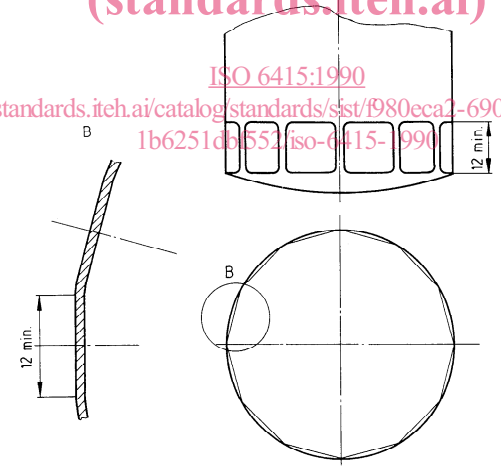


Figure 5 — Canister base type Z — With flats — Number of flats: 8, 10, 12, 14, 15 or more

5 Marking

Each spin-on filter shall be marked with the following information:

a) name of manufacturer or supplier;

b) type designation (for example catalogue number);

c) date or code of manufacture;

d) instructions for installation;

e) ISO designation (see clause 4).

The full marking shall appear on each filter body unless the engine manufacturer dictates otherwise.

WARNING — In view of the current wide use of unified threads, a note should be given in publicity literature, filter cartons and filter assemblies wherever metric threads are used, to avoid mis-matching.

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Descriptors: road vehicles, internal combustion engines, lubrification systems, filters, dimensions, designation, marking.

Price based on 4 pages