INTERNATIONAL STANDARD

ISO 15750-3

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Packaging — Steel drums —

Part 3: Inserted flange-type closure systems

Emballages — Fûts en acier —

Partie 3: Systèmes de fermeture à collerette (filetée) sertie

Reference number
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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.

The main task of technical committees is to prepare International Standards. 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 part of ISO 15750 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15750-3 was prepared by Technical Committee ISO/TC 122, *Packaging*.

ISO 15750 consists of the following parts, under the general title *Packaging — Steel drums*:

— *Part 1: Removable head (open head) drums with a minimum total capacity of 208 l, 210 l and 216,5 l*

— *Part 2: Non-removable head (tight head) drums with a minimum total capacity of 212 l, 216,5 l and 230 l*

— *Part 3: Inserted flange-type closure systems*

Annexes A to C form a normative part of this part of ISO 15750. Annexes D and E are for information only.

Packaging — Steel drums —

Part 3: Inserted flange-type closure systems

1 Scope

This part of ISO 15750 specifies the characteristics, dimensions and finish of the inserted flange-type closure systems used for steel drums.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 15750. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 15750 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 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 228-2, *Pipe threads where pressure-tight joints are not made on the threads — Part 2: Verification by means of limit gauges*

ISO 301, *Zinc alloy ingots intended for casting*

ISO 3573, *Hot-rolled carbon steel sheet of commercial and drawing qualities*

ISO 3574, *Cold-reduced carbon steel sheet of commercial and drawing qualities*

ISO 5002, *Hot-rolled and cold-reduced electrolytic zinc-coated carbon steel sheet of commercial and drawing qualities*

ISO 11949, *Cold reduced electrolytic tinplate*

ISO 11950, *Cold reduced electrolytic chromium/chromium oxide-coated steel*

3 Terms and definitions

For the purposes of this part of ISO 15750, the following terms and definitions apply.

3.1
inserted flange-type closure
mechanical fixed steel insert with threads, closable with plugs made of steel, other metals or synthetic materials such as plastics, ensuring a leaktight closing in drums

3.2
elastomer
macromolecular material which returns rapidly to its initial dimensions and shape after substantial deformation by a weak stress and release of the stress

[ISO 472:1999]

3.3
thermoplastics
plastics that are capable of being repeatedly softened by heating and hardened by cooling through a temperature range characteristic of the plastics and, in the softened state, of being repeatedly shaped by flow into articles by moulding, extrusion or forming

4 Dimensions, materials and finish

4.1 The nominal pitch diameter and the pitch of the thread of the closures G 2 and G 3/4 shall conform to ISO 228-1.

These closures shall fit GO gauges conforming to ISO 228-2.

4.2 The dimensions and materials of the closure systems shall be in accordance with the relevant annexes for the closure type, i.e.:

— annex A: octagonal base closure system (type A closure);

— annex B: serrated base closure system (type B closure);

— annex C: octagonal (G 2)/hexagonal (G 3/4) base closure system (type C closure).

4.3 The finish of the flanges, steel plugs, label rings and protection rings shall be electrolytically zinc plated.

If for reasons of compatibility another finish of the closure system is required, the nature of the internal and external finish should be agreed upon between the purchaser and supplier.

5 Design and construction

5.1 Flanges

The flanges shall be the mechanical inserted type and shall make a leaktight fit when inserted.

5.2 Plugs

The plugs shall be designed so that they can be inserted or removed by means of a simple tool.

The plugs shall have a wrenching insert projection welded to the bottom of the sump of the plug or have a wrenching device formed as part of the plug.

The dimensions of the wrenching insert shall be such that the plugs can be operated by a universal tool for steel and plastics plugs. Examples are shown in annex D.

NOTE For recommended closing torques, see annex E.

5.3 Capseals and overseals

Capseals or overseals, when fitted, shall be the manual or pneumatic crimping type and shall have provisions for customs sealing and evidence of tampering.

Capseals/overseals shall be so designed that they can be removed by means of a simple tool.

5.4 Label rings and protection rings

Label rings and/or protection rings shall be designed so that, when fitted, they can be mechanically inserted simultaneously with the flanges. Label rings shall have provisions for customs sealing.

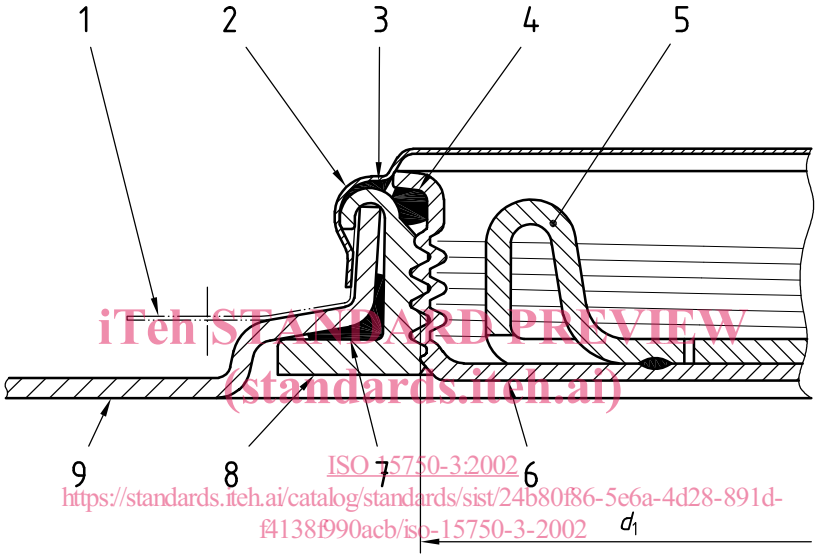
NOTE Label rings and/or protection rings can provide adequate reinforcement for the flange insertion and can protect the drum stock neck against corrosion.

Annex A
(normative)

Octagonal base closure system (type A closure)

A.1 Nomenclature for closure system

Closure components of the closure system may deviate from those shown in Figures A.1 and A.2. However the specified dimensions shall be followed.

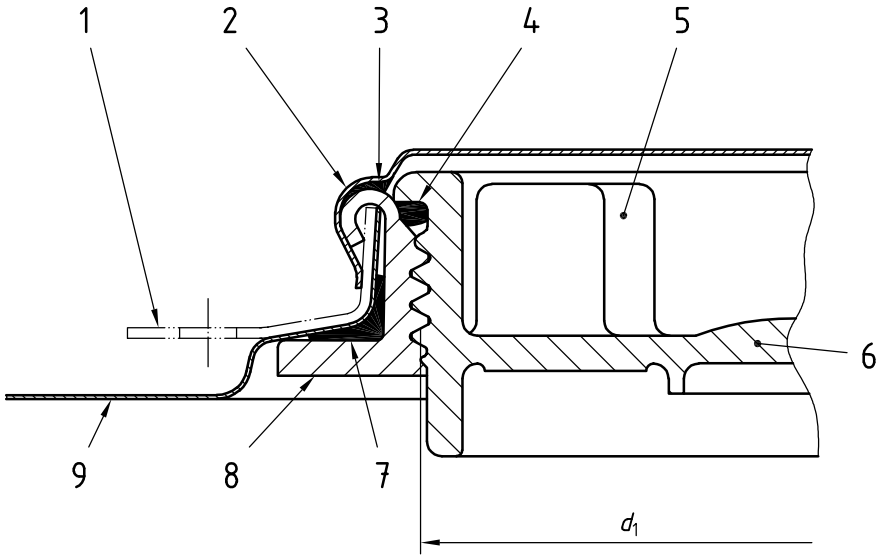


d_1 is the nominal pitch diameter.

Key

1 Optional label ring/protection ring
2 Capseal
3 Gasket
4 Plug washer
5 Wrenching insert
6 Example with steel plug
7 Elastomer flange washer
8 Flange
9 Drum stock

Figure A.1 — Assembly in medium- and heavy-gauge stock



d_1 is the nominal pitch diameter.

Key

1	Label ring/protection ring	6	Example with plastic plug
2	Capseal	7	Elastomer flange washer
3	Gasket	8	Flange
4	Plug washer	9	Drum stock
5	Wrenching insert		

Figure A.2 — Assembly in light-gauge drum stock

A.2 Flanges and elastomer flange washer

A.2.1 Dimensions

Specific dimensions for flanges and elastomer flange washers shall be as shown in Figures A.3 and A.4 and specified in Table A.1.

Flanges and elastomer washers may deviate from those shown in the figures.

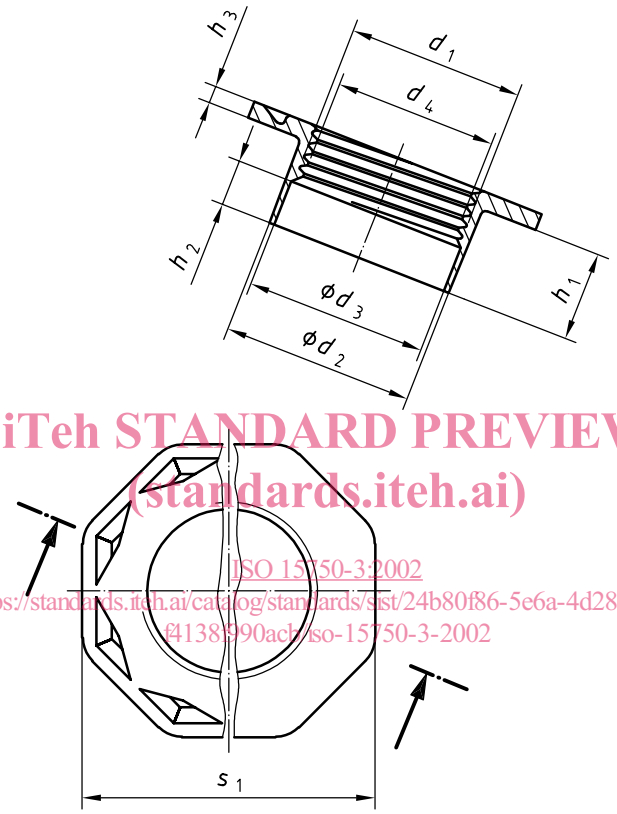


Figure A.3 — Flange

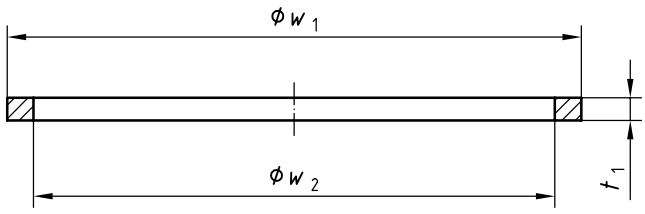


Figure A.4 — Elastomer flange washer

Table A.1 — Flanges and elastomer flange washers

Dimensions in millimetres

Thread	Nominal pitch diameter	Flange dimensions							Elastomer flange washer dimensions
	d_1	d_2	d_3	d_4	h_1	h_2	h_3	s_1	$w_1 \times w_2 \times t_1$
		± 0,3	± 0,3	± 0,3	± 0,5	± 0,5	± 0,4	± 0,3	± 1,0 × ± 1,0 × ± 0,5
G 3/4	a	29,0	27,2	24,5	12,9	7,2	2,7	43,7	32 × 27,2 × 2,6
G 2	a	62,4	60,4	57,1	15,8	7,9	2,8	77,9	67 × 60,5 × 2,6

[a] Conforming to ISO 228-1.

A.2.2 Materials and configuration

Flanges shall be made from either mild steel according to ISO 3573 or ISO 3574, or another material suitable for its intended use.

The specific type of elastomer shall be agreed between the purchaser and supplier.

Alternative configurations of the flange and flange washer(s) should be agreed between the purchaser and supplier.

A.3 Label rings and protection rings

A.3.1 Dimensions

Specific dimensions for label rings and protection rings shall be as shown in Figures A.5 and A.6 and specified in Table A.2.

Label rings and protection rings may deviate from those shown in the figures.

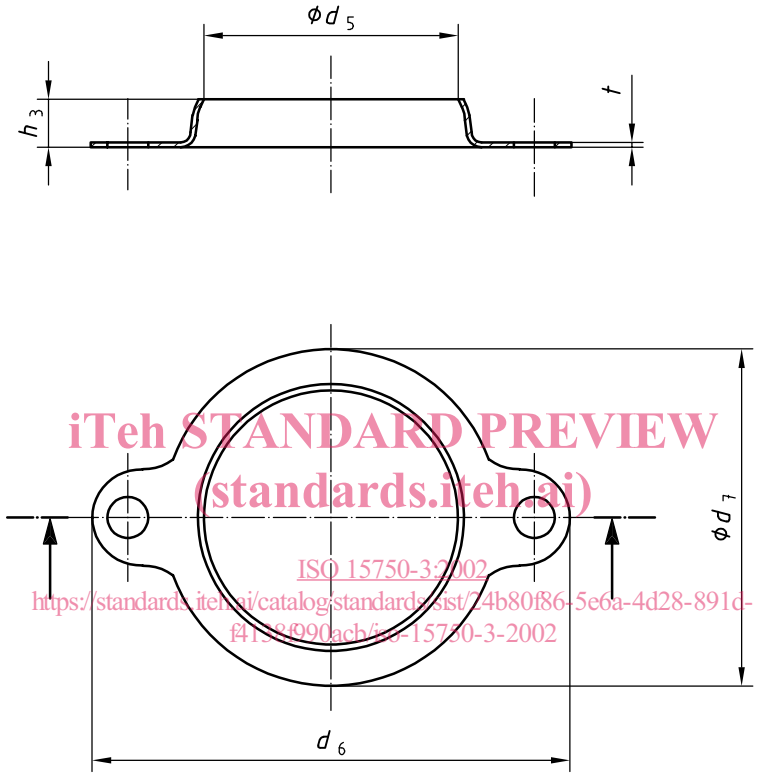


Figure A.5 — Label ring

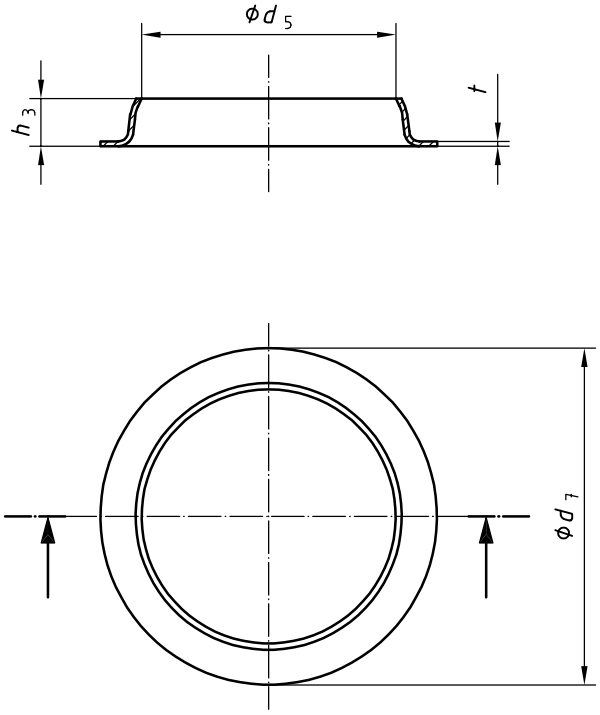


Figure A.6 — Protection ring

Table A.2 — Label rings and protection rings

Dimensions in millimetres

Thickness of end stock x	Thread	Dimensions				Thickness of label rings and protection rings t
		d_5 ± 0,4	d_6 ± 0,4	d_7 ± 0,4	h_3 ± 0,4	
Light gauge $0,5 \leqslant x < 0,8$	G 3/4	29,7	54,0	41,0	6,4	0,8
	G 2	62,3	98,5	74,5	8,4	
Medium gauge $0,8 \leqslant x < 1,5$	G 3/4	31,0	58,5	41,0	5,4	0,3 [a]
	G 2	63,5	99,5	74,5	8,2	
Heavy gauge $1,5 \leqslant x < 2,0$	G 3/4	31,3	58,5	41,0	5,7	0,3 [a]
	G 2	65,7	99,5	74,5	7,3	

[a] The use of label or protection rings is optional for medium- and heavy-gauge end stock.

A.3.2 Materials and configuration

Label and protection rings shall be made from mild steel according to ISO 5002 or another material appropriate to the requirements for its intended use.

Alternative configurations of label and protection rings should be agreed between the purchaser and supplier.