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**Packaging — Steel drums —**

Part 2:

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

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*Emballages — Fûts en acier —*

*Partie 2: Fûts à ouverture partielle d'une capacité totale minimale de 212 l,  
216,5 l et 230 l*

[ISO 15750-2:2002](#)

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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 15750-2 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 and B form a normative part of this part of ISO 15750.

## Introduction

Throughout the world a large number of steel drum types with different dimensions and characteristics are being used. The differences in location of the filling opening and outer dimensions result in differences in filling, handling and transportation.

This part of ISO 15750 gives uniform specifications for three main types of drums for use in international trade and the preferred target option is drum type A (see Table 1).

It specifies the characteristics and dimensions of steel drums which are of importance for the exchangeability and does not give detailed performance requirements and related test methods. The performance requirements depend on the specific application.

Where the drums are intended to be used for the transport of dangerous goods, attention is drawn to the regulatory requirements which govern the transport of those goods in the countries concerned, including capseals/overseals fitted in accordance with the certificate. Depending upon the mode of transport, this means meeting the requirements of:

- UN (United Nations): *Recommendations on the transport of dangerous goods. Model regulations*;
- ICAO (International Civil Aviation Organization): *Technical instructions for safe transport of dangerous goods by air*;
- IMO (International Maritime Organization): *International Maritime Dangerous Goods (IMDG) Code*.

This involves the certification and marking of the drums according to the regulations.  
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# Packaging — Steel drums —

## Part 2:

## Non-removable head (tight head) drums with a minimum total capacity of 212 l, 216,5 l and 230 l

### 1 Scope

This part of ISO 15750 specifies the characteristics and dimensions of non-removable head (tight head) drums, manufactured from steel sheet, having a total capacity of 212 l, 216,5 l and 230 l.

It also specifies a method for measuring the total capacity and brimful capacity, and a draining test method.

### 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 228-1:2000 *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 3573:1986, *Hot-rolled carbon steel sheet of commercial and drawing qualities*

ISO 3574:1986, *Cold-reduced carbon steel sheet of commercial and drawing qualities*

ISO 15750-3, *Packaging — Steel drums — Part 3: Inserted flange-type closure systems*

### 3 Terms and definitions

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

#### 3.1

##### **non-removable head (tight head) drum**

##### **TH**

cylindrical packaging made of steel, the ends of which are permanently fixed to the body, with openings for filling, emptying and venting in the head

#### 3.2

##### **round seam**

seam consisting of six or more layers of steel

**3.3 nominal capacity**  
capacity, in litres, which by convention is used to represent a class of drums of similar brimful capacities

**3.4 brimful capacity**  
volume of water, in litres, held by the drum when filled through the designed filling orifice to the point of overflowing

NOTE Annex A specifies the measuring method.

**3.5 total capacity**  
**TC**  
volume of water, in litres, held by the drum when filled completely, i.e. following the removal of any air trapped in the drum

NOTE Annex A specifies the measuring method.

## 4 Dimensions

The dimensions of the drum shall be as shown in Figure 1 and detailed in Table 1 for drum type A, B or C.

The steel thickness shall be between 0,6 mm and 1,6 mm, with tolerances according to ISO 3573 or ISO 3574 (normal tolerances).

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## 5 Material

Body and ends shall be of steel sheet CR1 (commercial quality) for cold-reduced steel, according to ISO 3574:1986, or of steel sheet HR1 (commercial quality) for hot-rolled steel according to ISO 3573:1986. Steel of higher strength is permitted.

Closure flanges shall be manufactured from metal, and closure plugs from metal or plastics material.

## 6 Construction

**6.1** Body and heads shall be constructed of steel of adequate thickness in relation to the intended use.

**6.2** The longitudinal seam of the body shall be welded.

**6.3** The body and ends shall be permanently fixed by round seaming as shown in Figure 1, details A and B, using a non-hardening seaming compound, or other joining methods (e.g. welding).

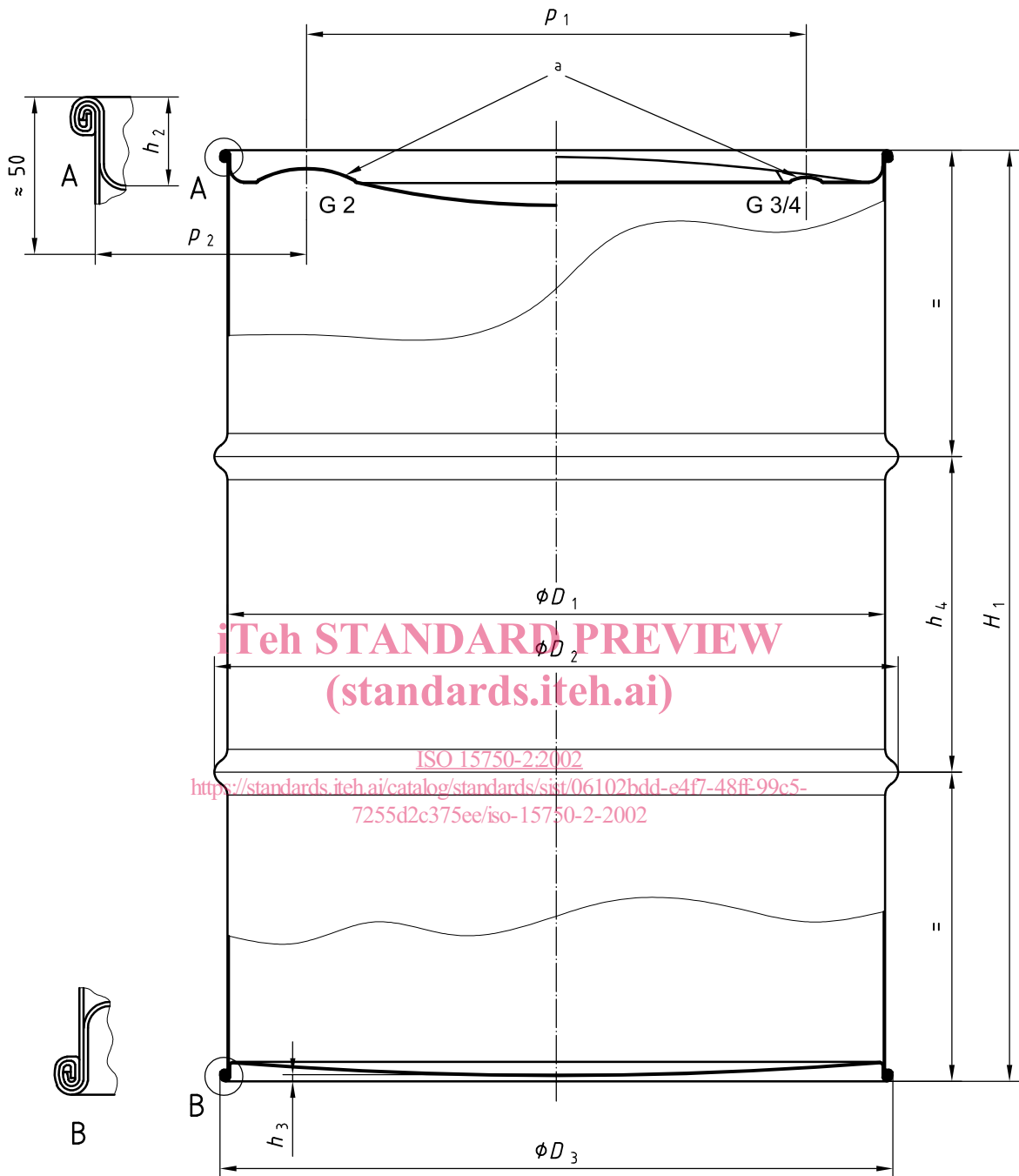
**6.4** Two rolling hoops (beads) expanded or rolled into the body shall be located as shown in Figure 1. Constructions of rolling hoops other than those shown are allowed and the drum body may be reinforced with corrugations.

NOTE The preferred drum type is the drum with two rolling hoops only.

**6.5** The closures shall be positioned in the top end, diametrically opposed as indicated in Figure 1.

**6.6** The nominal pitch diameter and pitch of the closures shall be as defined in ISO 228-1, threads G 3/4 and G 2.

**6.7** The closures should be as specified in ISO 15750-3, unless otherwise agreed between the purchaser and manufacturer.



NOTE Figure 1 shows three possibilities for the shape of the top: convex, flat and concave.

<sup>a</sup> The complete closure (plug and capseals/overseals) shall not protrude above the top of the seam.

**Figure 1 — Non-removable head (tight head) drum**

Table 1 — Dimensions of non-removable head (tight head) steel drums

Dimensions in millimetres

Dimension (see Figure 1)	Description	Drum Type A		Drum Type B		Drum Type C
		216,5 l min.	230 l min.	216,5 l min.	230 l min.	212 l min.
$D_1$	Internal diameter	$571,5 \pm 2$	$571,5 \pm 2$	$571,5 \pm 2$	$571,5 \pm 2$	$566 \pm 2$
$D_2$	External diameter	585 max.	585 max.	596 max.	596 max.	585 max.
$D_3$	Diameter over chimb	585 max.	585 max.	593 max.	593 max.	585 max.
$H_1$	Total drum height	$878 \pm 5$	$932 \pm 5$	$878 \pm 5$	$932 \pm 5$	$890 \pm 5$
$h_2$	Depth of top	a	a	a	a	a
$h_3$	Clearance from floor	4 min.	4 min.	4 min.	4 min.	4 min.
$h_4$	Distance between beads	$280 \pm 3$	$280 \pm 3$	$280 \pm 3$	$280 \pm 3$	$300 \pm 3$
$p_1$	Centre-to-centre distance closures	b	b	b	b	b
$p_2$	Location of G 2 (50 mm) closure to outside body, measured approximately 50 mm from the top	$72 \pm 3$	$72 \pm 3$	$72 \pm 3$	$72 \pm 3$	$94 \pm 3$
<p>The total capacity shall be as indicated when measured in accordance with annex A.</p> <p>The insertion of the closure with the G 2 thread according to ISO 15750-3 shall be such that its centreline is as close as possible to the vertical.</p> <p>NOTE 1 For drums produced with a concave top, the total drum height <math>H_1</math> may be increased by 4 mm in order to reach the specified volume.</p> <p>NOTE 2 Of the three drum types shown, types A and C have the optimal outside diameter required for stacking drums four abreast in ISO containers as per ISO 668:1995, <i>Series 1 freight containers — Classification, dimensions and ratings</i>.</p> <p><sup>a</sup> The depth of the top shall be such that the closures do not protrude above the chime.</p> <p><sup>b</sup> For the centre-to-centre distance the dimensions shall be:</p> <ul style="list-style-type: none"> <li>— drum type A and type B: <math>444 \text{ mm} \pm 6 \text{ mm}</math> or <math>451 \text{ mm} \pm 1 \text{ mm}</math>;</li> <li>— drum type C: <math>400 \text{ mm} \pm 6 \text{ mm}</math>.</li> </ul>						

**6.8** Gaskets/washers or other sealing elements shall be used with the closures unless the fittings are inherently leakproof.

**6.9** The metal or plastic plugs shall be fitted with washers/gaskets of suitable material.

## 7 Finish

**7.1** The nature of the internal and external finish shall be agreed between the purchaser and manufacturer.

**7.2** If materials used for the body, heads and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments shall be applied. These coatings or treatments shall retain their protective properties under normal conditions of transport.



## 8 Draining

The design of the drum shall be such as to minimize the residual volume of the liquid left in the drum after drainage. The residue shall be not more than 100 ml when tested according to procedure A of annex B, or not more than that agreed between the purchaser and supplier when tested in accordance with procedure B of annex B.

NOTE The residue according to procedure B is more dependent on the area and condition of the internal surface of the packaging than procedure A and therefore may be in excess of that for procedure A.

## 9 Designation

A non-removable head (tight head) drum manufactured to this part of ISO 15750 shall be designated as follows:

**Tight head steel drum ISO 15750-2-(total capacity)TC-Type**

EXAMPLES

**Tight head steel drum ISO 15750-2-216,5TC-A**

**Tight head steel drum ISO 15750-2-230TC-B**

**Tight head steel drum ISO 15750-2-212TC-C**

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