
Packaging — Plastics drums —

Part 2:

**Non-removable head (tight head)
drums with a nominal capacity
of 208,2 l and 220 l**

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Emballages — Fûts en matière plastique —

*Partie 2: Fûts à ouverture non amovible (ouverture partielle)
d'une capacité nominale de 208,2 l et 220 l*

ISO 20848-2:2006

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Published in Switzerland

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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 2.

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

ISO 20848-2 was prepared by Technical Committee ISO/TC 122, *Packaging*.

ISO 20848 consists of the following parts, under the general title *Packaging — Plastics drums*:

- *Part 1: Removable head (open head) drums with a nominal capacity of 113,6 l to 220 l*
- *Part 2: Non-removable head (tight head) drums with a nominal capacity of 208,2 l and 220 l*
- *Part 3: Plug/bung closure systems for plastics drums with a nominal capacity of 113,6 l to 220 l*

Introduction

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

ISO 20848 specifies the characteristics and dimensions of plastics drums which are of importance for the worldwide safe handling and transport of substances and for the continued reuse of the drums during their life cycle. Detailed performance requirements and the related test methods are not included as they depend upon 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*,
- **ICAO** (International Civil Aviation Organization) — *Technical Instructions for the 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 — Plastics drums —

Part 2:

Non-removable head (tight head) drums with a nominal capacity of 208,2 l and 220 l

1 Scope

This part of ISO 20848 specifies the characteristics and dimensions of non-removable head (tight head) plastics drums with a nominal capacity of 208,2 l and 220 l.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 20848-3, *Packaging — Plastics drums — Part 3: Plug/bung closure systems for plastics drums with a nominal capacity of 113,6 l to 220 l*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

non-removable head (tight head) drum

TH

flat-ended or convex-ended circular cross-section packaging with openings for filling and emptying in the head not exceeding 70 mm in diameter

3.2

nominal capacity

NC

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

3.3

brimful capacity

BC

volume of water in litres held by the drum when filled through the filling orifice to the point of overflowing

NOTE Annex A specifies the method for measuring brimful capacity.

3.4

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 method for measuring total capacity.

3.5

overall height, h_o
height of the finished drum from the base to the highest point

NOTE See Figure 1.

3.6

overall diameter, d_o
maximum diameter of the drum, where relevant

NOTE See Figure 1.

3.7

bung housing position, p_b
distance from the centre of the bung housing to the outside of the drum body 50 mm vertically below the top edge of the top handling ring

NOTE See Figure 1.

3.8

drum mass
mass of the empty drum including all closures

4 Requirements

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4.1 Dimensions

The dimensions and tolerances of the drum shall be as listed in Table 1 and as shown in Figure 1. The measurements shall be conducted at ambient conditions but shall not be made within 48 h of manufacture.

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NOTE Apart from the dimensions specified, there are no restrictions on drum shape.

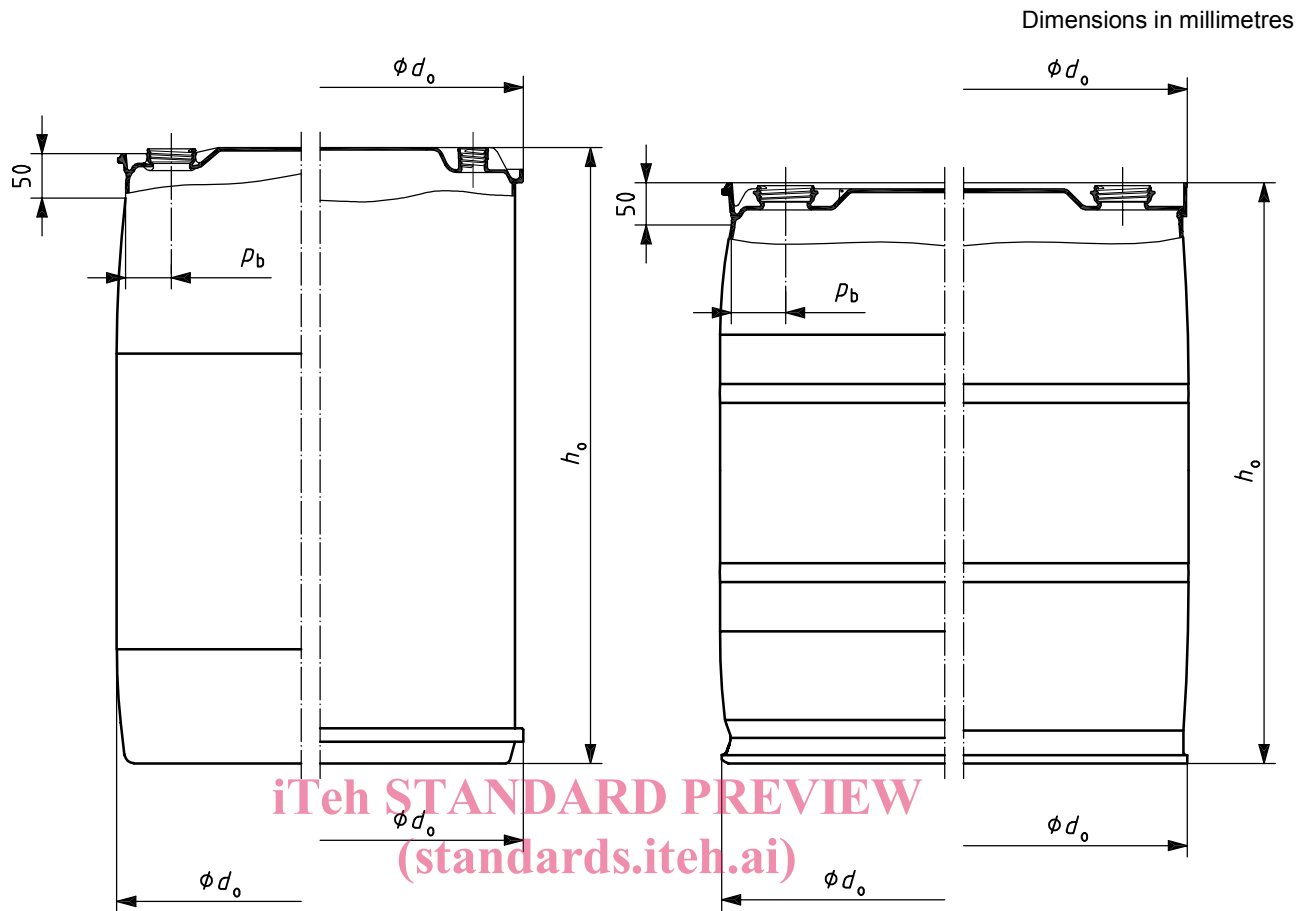
Table 1 — Dimensions of non-removable (tight head) drums with a nominal capacity of 208,2 l and 220 l (55 US gal and 58,1 US gal)

Nominal capacity, NC l (US gal)	Brimful capacity, BC l (US gal)	Overall diameter, d_o mm	Bung housing position, p_b mm	Overall height, h_o mm
208,2 (55)	216,5 ⁺⁵ / ₀ (57,2 ^{+1,32} / ₀)	595 ⁺⁵ / ₋₇	84 ± 2	890 ± 7
220 (58,1)	222 ⁺³ / ₋₂ (58,6 ^{+0,8} / _{-0,5})	581 ± 5	72 ± 2	935 ± 5

NOTE 1 The bung housing position defined in this table only applies to that housing used for filling.

NOTE 2 Dimensions d_o , p_b and h_o are applicable to empty drums.

NOTE 3 1 US gal = 3,785 l.



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Key

- p_b bung housing position
 d_o overall diameter
 h_o overall height

The complete closure (plug and capseals/overseals) should not protrude above the overall height h_o .

NOTE Four possible designs are shown.

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

4.2 Drum mass

The mass tolerance of the drum shall be $\pm 3\%$.

NOTE The defined mass should be agreed between the purchaser and the supplier.

4.3 Material identification symbol

The drum shall be permanently marked with the relevant material identification symbol, i.e. the symbol identifying the material from which the drum is made, as shown in Annex C.

4.4 Closures

There shall be two closures in accordance with ISO 20848-3. When fitted, the closures shall not protrude above the overall height of the drum.

The preferred options are identified in Table 2.

The closure systems shall incorporate a facility for providing tamper evidence.

For the purpose of transport and storage, the filled drum should be closed, using the appropriate tooling, to the manufacturer’s recommended closure torque for each type of gasket.

NOTE 1 For closures in drums intended for dangerous goods, the tolerance on the torque figures are specified in ISO 16104.

NOTE 2 After tightening of plugs, torques will reduce over time. In particular, plastics components are subject to stress relaxation resulting in a reduced torque.

NOTE 3 Torque figures supplied by the manufacturer are valid for the tightening of plugs in a clockwise direction. The measurement of torques on releasing plugs, i.e. in an anticlockwise direction, are different.

Table 2 — Preferred closure system combinations

Draining side	Second side
BCS G2 × 11,5	BCS 70 × 6
BCS G2 × 11,5	BCS 56 × 4
BCS G2 × 11,5	BCS G2 × 5

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4.5 Materials

The drum shall be manufactured from high-density polyethylene or another suitable plastics material, or a combination thereof. Suitable non-plastics material may be used in conjunction with the plastics material.

NOTE Suitable additives may be included provided the specifications are identified.

4.6 Handling

Provision shall be made to enable the drum to be mechanically handled using one or two permanently fixed handling rings. The construction of the handling rings shall be adequate for normal static and dynamic handling of filled drums.

4.7 Stacking

The drum shall be capable of being stacked with or without pallets, according to the manufacturer’s recommendations.

4.8 Draining

4.8.1 The drum shall be designed so as to minimize the residual volume of liquid left in the drum after drainage. The residue shall be not more than 100 ml when tested according to B.3.

4.8.2 The residue obtained when the drum is tested according to B.4 is more dependent on the area and condition of the internal surface of the drum than when the drum is tested according to B.3 and, therefore, may be in excess of that obtained according to B.3.

NOTE The maximum permitted figure should be agreed between the purchaser and the supplier.

4.9 Finish

The external surface finish shall be suitable for the attachment of labels.

NOTE 1 The nature of the internal and external finish should be agreed between the purchaser and the supplier.

The drum body should be blue in colour. The use of any other colour and any durable marking should be agreed between the purchaser and the supplier.

5 Designation

A non-removable head (tight head) drum (TH) manufactured in accordance with this part of ISO 20848 with a nominal capacity of 220 l shall be so designated, e.g.

Plastics drum TH ISO 20848-2 NC - 220 l

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