BRITISH STANDARD

BS EN 12714:2009

Plastics drums — Removable head (open head) drums with a nominal capacity of 25 L to 60 L

ICS 55.140

BSI British Standards

National foreword

This British Standard is the UK implementation of EN 12714:2009. It supersedes BS EN 12714:2000 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PKW/0, Packaging.

A list of organizations represented on this committee can be obtained on request to its secretary.

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2009

ISBN 978 0 580 60973 2

Amendments/corrigenda issued since publication

Date	Comments

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12714

July 2009

ICS 55.140

Supersedes EN 12714:2000

English Version

Plastics drums - Removable head (open head) drums with a nominal capacity of 25 L to 60 L

Fûts en matière plastique - Fûts à ouverture totale d'une capacité nominale de 25 l à 60 l

Kunststofffässer - Deckelfässer mit einem Nennvolumen von 25 l bis 60 l

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 12714:2009) has been prepared by Technical Committee CEN/TC 261 “Packaging”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

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1 Scope

This European Standard specifies the characteristics and dimensions of removable head (open head) plastics drums with a nominal capacity of 25 l to 60 l. This standard is not applicable to injection moulded pails.

2 Terms and definitions

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

2.1
removable head (open head) drum (OH)
flat-ended or convex-ended circular cross-section packaging, the top end of which can be removed as a lid and is closed by means of a closing ring or other device

2.2
nominal capacity (NC)
capacity in litres which, by convention, is used to represent a class of drums of similar brimful capacities

2.3
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.

2.4
total capacity (TC)
volume of water in litres held by the drum, with its lid on, 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.

2.5
overall height (h_o)
height of the finished drum, including the lid, from the base to the highest point

NOTE See Figure 1.

2.6
overall diameter (d_o)
maximum diameter of the drum, where relevant

NOTE See Figure 1.

2.7
minimum opening (d_m)
minimum drum body opening size

NOTE See Figure 1.

2.8
drum mass
mass of the empty drum including all closures

3 Requirements

3.1 Dimensions

The dimensions and tolerances of the drum shall be as listed in Tables 1 and 2 and as shown in Figure 1. The measurements shall be conducted at ambient conditions but shall not be made within 48 h of manufacture.

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

3.2 Drum mass

For drums with the nominal capacities specified, the mass tolerances shall be as indicated in Table 1.

Table 1 — Drum mass tolerances

Nominal capacity l	**Mass tolerance** %
25	± 5
30	± 5
50	± 4
60	± 4

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

3.3 Material identification symbol

All the plastics components, excluding gaskets, shall be permanently marked with the relevant material identification symbol, i.e. the symbol identifying the material from which the component is made.

3.4 Closures

The closure system shall consist of a lid and a closing ring or other device.

NOTE For the purpose of transport and storage, the filled drum should be closed to the manufacturer's recommendations.

The closure system shall incorporate a facility for providing evidence of tampering.

3.5 Materials

The drum shall be manufactured from either high density polyethylene or other suitable plastics materials appropriate to the physical and chemical requirements of its intended use.

3.6 Handling

Provision for manual handling shall be provided.

Adaptations for mechanical handling may be added but, if so, their construction should be adequate for normal static and dynamic handling of filled drums.

3.7 Stacking

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

3.8 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.

NOTE 2 The preferred colour option for the drum body is blue. The use of any other colour should be agreed between the purchaser and the supplier.

4 Designation

A removable head (open head) drum (OH) manufactured in accordance with this Standard shall be designated in the following manner:

Plastics drum OH EN 12714 NC – *Nominal capacity*

EXAMPLE 1 A removable head (open head) drum (OH) manufactured in accordance with this Standard with a nominal capacity of 25 l to 60 l would be designated:

Plastics drum OH EN 12714 NC - 25 l to 60 l.

EXAMPLE 2 A removable head (open head) drum with a nominal capacity of 50 l would be designated:

Plastics drum OH EN 12714 NC - 50 l.

NOTE 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. In Europe, depending upon the mode of transport, this means meeting the requirements of:

— European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR);

— Regulations concerning the International Carriage of Dangerous Goods by Rail (RID);

— Technical Instructions for the Safe Transport of Dangerous Goods by Air, Document 9284-AN/905 published by the Council of the International Civil Aviation Organization (ICAO);

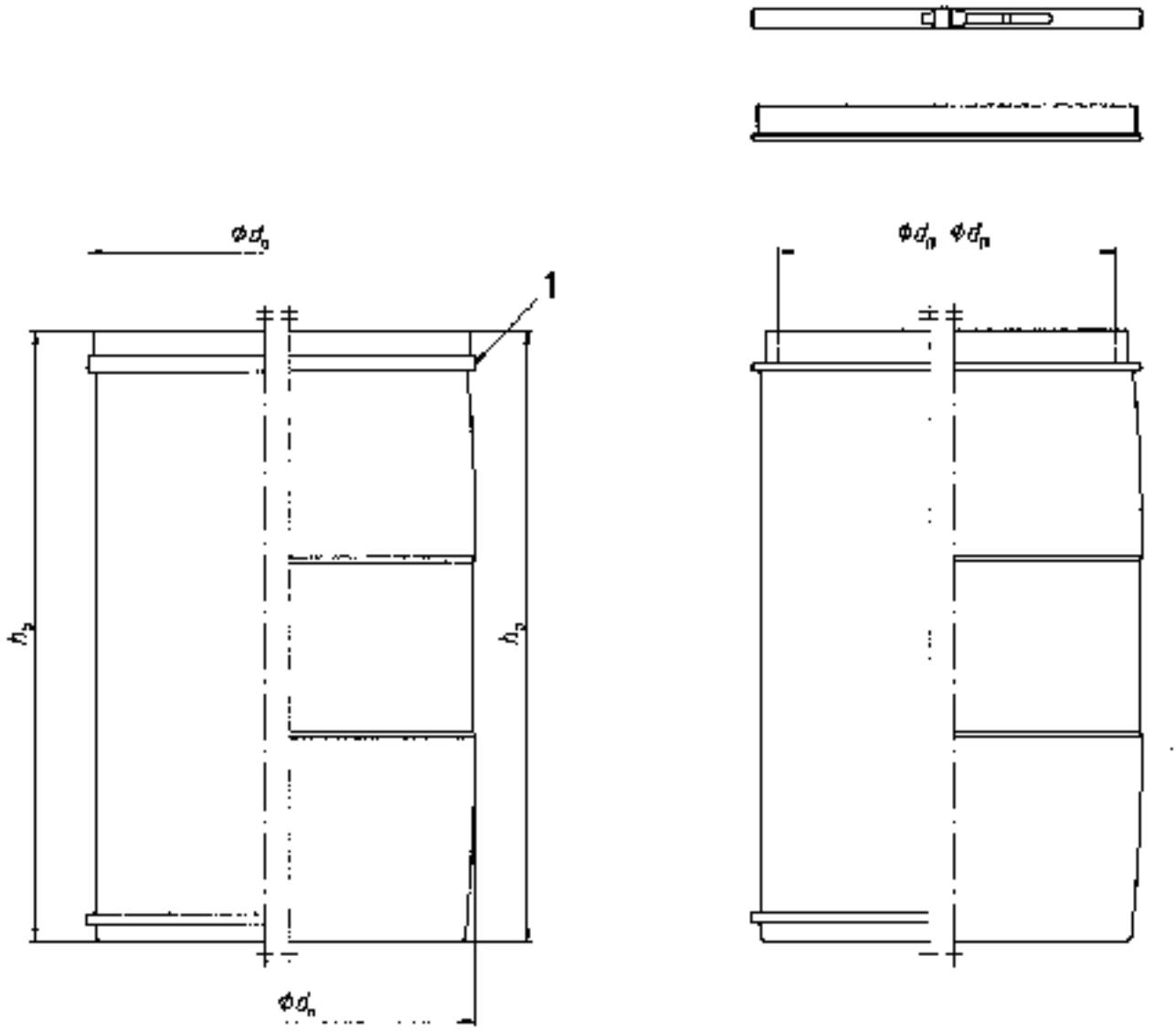
— The International Maritime Dangerous Goods Code (IMDG-CODE) published by the International Maritime Organization (IMO).

Table 2 — Dimensions of removable (open head) drums with a nominal capacity of 25 l to 60 l

Nominal capacity (NC) l	Minimum total capacity (TC) l	Overall diameter (d_o) mm	Minimum opening (d_m) mm	Overall height [a] (h_o) mm
25	26,5	305 ± 5	250	435 ± 6 [a]
30	31	316 ± 5	250	515 ± 6 [a]
50	52	380 ± 5	250	590 ± 10 [a]
60	62	397 ± 5	310	625 ± 10 [a]

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

[a] It is intended that these tolerances will be reduced to ± 5 mm at the five year review period.



Key

d_m Minimum opening

d_o Overall diameter

h_o Overall height

1 Closing ring

Figure 1 — Removable head (open head) drum with a nominal capacity of 25 l to 60 l

Annex A
(normative)

Capacity measurement method for removable head (open head) plastics drums

A.1 Principle

The capacity is determined by a gravimetric method i.e. by the measurement of the mass of water in the filled drum and its conversion to a capacity. A correction factor (see 4.1.1 of EN ISO 90-2:1999) may be applied according to Table A.1, but only if the weighing scale used is of a higher precision than the correction.

NOTE For plastics drums the water temperature should not exceed 18 °C.

Table A.1 — Correction factors

Water temperature °C	Correction factor (*F*)
12	1,000 5
14	1,000 8
16	1,001 1
18	1,001 4

A.2 Apparatus

Weighing scale, with an accuracy of at least 0,1% of the weight being measured.

A.3 Procedure for determination of total capacity

A.3.1 For removable head (open head) drums, place the lid, fitted with a closure for filling purposes, on the drum and close it using the recommended method.

A.3.2 Drill a hole of diameter 5 mm to 10 mm for venting at the highest point of the closed drum.

NOTE The position of the hole depends on the profile of the top.

A.3.3 Weigh the empty drum and record its mass, m_1, in grams.

A.3.4 Measure the temperature of the tap water to be used to fill the drum.

A.3.5 Fill the drum 100 % with water through the filling closure and make sure that air is vented through the drilled hole.

NOTE For certain drums, the drum needs to be inclined or tilted, so that the filling hole is at the highest position.

A.3.6 Fit and secure the drum closure and remove any surplus water from the outside.

A.3.7 Weigh the filled drum and record its mass, m_2, in grams.

A.4 Procedure for determination of brimful capacity

Follow the same procedure as for the determination of total capacity (see A.3) with the exception that no hole is drilled to vent entrapped air. Fill the drum, with the drum in the normal position for filling, until water overflows at the closure.

A.5 Expression of results

The difference between the mass of the filled drum, m2, and the mass of the empty drum, m1, (m2 - m1), if necessary multiplied by the correction factor (*F*), represents the capacity of the drum as determined by the procedure used.

Bibliography

[1] *European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)*, United Nations Economic Commission for Europe (UNECE)

[2] *Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)*, Intergovernmental Organization for International Carriage by Rail (OTIF)

[3] *Technical Instructions for the Safe Transport of Dangerous Goods by Air*, Document 9284-AN/905 published by the Council of the International Civil Aviation Organization (ICAO)

[4] *International Maritime Dangerous Goods Code (IMDG-CODE)*, International Maritime Organization (IMO)

[5] EN ISO 90-2:1999, *Light gauge metal containers – Definitions and determination of dimensions and capacities – Part 2: General use containers (ISO 90-2:1997)*

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