

English version

**Fibreboard drums - Removable head (open head) drums with
slip on lids with a nominal capacity of 5 l to 600 l**

Fûts en carton - Fûts à ouverture totale et couvercle
emboîté d'une capacité nominale de 5 l à 600 l

Deckelbehälter aus Fiber (Fibertrommeln) - Deckelfässer
mit aufsetzbarem Deckel und einem Nennvolumen von 5 l
bis 600 l

This European Standard was approved by CEN on 3 February 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword	3
Introduction.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Dimensions	6
5 Materials	8
6 Requirements for material identification symbols.....	9
7 Designation	9
Annex A (normative) Fibreboard drum dimensions	11
Annex B (informative) Fibreboard drum preferred size – capacity relationship	16
Annex C (informative) Fitness for use	18
Annex D (normative) Fibreboard drum material identification symbols	19
Bibliography.....	21

Foreword

This document (EN 14768:2005) 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of an identical text or by endorsement, at the latest by September 2005, and conflicting national standards shall be withdrawn at the latest by September 2005.

The work was carried out in close cooperation with the European Association of Fibreboard Drum Manufacturers (S.E.F.F.I.) which prepared the draft proposal.

Efficient packaging is of great importance for the distribution and the protection of goods. Insufficient or inappropriate packaging can lead to damage or wastage of the contents of the package.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This document is limited to the specification of constructional details and the establishment of a preferred range of diameters and capacities for fibreboard drums, in recognition of the fact that one of the important characteristics of fibreboard drums is that they can be produced in various ranges of diameters and heights with constructions to suit specific products and market needs and can be fitted with a variety of bases and lids.

1 Scope

This document specifies the construction requirements for cylindrical fibreboard drums with slip on lids with a nominal capacity of 5 l to 600 l and the preferred range of diameters for drums with a circular cross-section and preferred dimensions for drums with a rectangular cross section.

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.

EN ISO 2233:2000, *Packaging – Complete, filled transport packages and unit loads – Conditioning for testing (ISO 2233:2000)*

3 Terms and definitions

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

3.1

fibreboard drum

rigid, container with a sidewall, made of multiple plies of virgin or recycled paper or board firmly bonded together, and a base, firmly connected to the sidewall. The drum may include a base chimb and a slip on lid which can be secured after filling

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

sidewall

body of the drum

3.4

lid

removable top of the drum

3.5

chimb

bottom rim of the drum

3.6

internal lining

fixed inner ply of material, other than that which is used for the general construction of the drum, used to give the drum specific properties

3.7

external lining

fixed outer ply of material, other than that which is used for the general construction of the drum, used to give the drum specific properties

3.8

barrier

multiple or single ply of material, other than that which is used for the general construction of the drum, incorporated into the sidewall, lid or base of the drum

3.9

liner

separate bag or semi-rigid container, used inside the drum to give the drum specific properties

3.10

internal coating

material applied to the inner surface of the drum, by spray, brush or other means to give the drum specific properties

3.11

external coating

material applied to the outer surface of the drum, by spray, brush or other means to give the drum specific properties

3.12

base

horizontal bottom wall of the drum

4 Dimensions

4.1 General

The drum description shall include the dimensions listed in 4.2, 4.3 and 4.4. In addition the description shall include the nominal capacity as determined in 4.5.1. Drum dimensions are shown in Annex A.

4.2 Dimensions for drums of circular cross-section

4.2.1 Nominal internal diameter

The nominal internal diameter is used only to provide a classification of drum diameters.

4.2.2 Internal diameter (d_1)

The internal diameter (d_1), in millimetres, is the internal measurement from the inner sidewall to the diametrically opposite inner sidewall.

4.2.3 Outside diameter (d_2)

The outside diameter (overall diameter) (d_2), in millimetres, is the measurement over the widest part of the drum.

4.3 Dimensions for drums of rectangular cross-section

4.3.1 Internal section (d_3 and d_5)

The internal dimension (d_3) or (d_5), in millimetres, is the internal measurement taken from inner face to inner face of opposite sidewalls.

4.3.2 Outside section (d_4 and d_6)

The outside dimension, (d_4) or (d_6) in millimetres, is the measurement over the widest part, between opposite outer faces of the drum.

4.4 Height and depth

4.4.1 Internal height (h_1)

The internal height (h_1), in millimetres, is the height from the inner surface of the drum base to the top of the drum sidewall.

4.4.2 Stacking height (h_2) for drums with interstacking feature

The external height (h_2), in millimetres, is the height from the lowest point of the drum to the top surface of the lid on which a base chimb or base of a stacked drum is located.

4.4.3 Overall height (h_3)

The overall height (h_3), in millimetres, is the height of a drum closed for despatch, measured from the lowest point of the drum to the highest point of the lid.

4.4.4 Chimb depth (h_4)

The chimb depth (h_4) in millimetres is the measurement from the lowest point of the chimb to the underside of the base.

4.4.5 Total stack height

The total stack height, in millimetres, of the drum is calculated by:

$$\text{Height of stack of } N \text{ drums} = (N-1)h_2 + h_3$$

4.5 Capacity calculations

4.5.1 Nominal capacity (NC)

The nominal capacity (see 3.2) is calculated from dimensions d_1 and h_1 for drums of circular cross-section and dimensions d_3 and h_1 for drums of rectangular cross section.

4.5.2 Shipping cube

For drums of circular cross section dimensions d_2 and h_3 are used to calculate the shipping cube.

For rectangular section drums dimensions d_4 and h_3 are used to calculate the shipping cube.

4.6 Tolerances

4.6.1 Conditioning

As drums are manufactured from materials which are subject to dimensional and weight variations according to changes in atmospheric conditions, all dimensions and tolerances are quoted on completed drums which have been conditioned for 24 h at $23\text{ °C} \pm 2\text{ °C}$ and $50\text{ \% rh} \pm 2\text{ \% rh}$, in accordance with EN ISO 2233:2000, Condition 7.

EN 14768:2005 (E)

NOTE Short term fluctuations and measurement limitations may cause individual measurements to vary up to ± 5 % relative humidity.

4.6.2 Mass tolerance

The mass tolerance is ± 5 % of the mass, in kilograms, of a complete drum.

4.6.3 Manufacturing tolerances

The manufacturing tolerances applicable to dimensions shall be:

- a) all diameters $\pm 2,0$ mm;
- b) all heights $\pm 5,0$ mm.

4.7 Capacity requirements

4.7.1 General

As fibreboard drums provide numerous variations in size, construction and design type, they can be adapted to suit the purchaser's packaging and capacity requirements.

4.7.2 Preferred range of nominal capacities

The preferred range of nominal capacities is 5 l, 10 l, 15 l, 20 l, 25 l, 30 l, 40 l, 50 l, 60 l, 80 l, 100 l, 120 l, 150 l, 200 l, 220 l, 250 l and 600 l for drums of circular cross section and 15 l, 20 l, 30 l, 40 l, 50 l, 60 l, 80 l, 100 l, 120 l, 150 l, 200 l, 220 l and 250 l for drums of rectangular cross section.

NOTE Annex B shows the preferred relationship between drum sizes and nominal capacity.

4.7.3 Other capacities

Other capacities are available by arrangement between purchaser and supplier.

5 Materials

5.1 Sidewall

The sidewall of the drum shall consist either of convolutely or spirally wound plies of virgin or recycled paper or fibreboard, firmly bonded together.

NOTE The sidewall may incorporate one or more layers of protective material (internal or external - lining / barrier) the type and number of which are determined by specification details.

5.2 Base and lid

The base and lid shall be manufactured from any single or composite material.

NOTE The base and lid may incorporate protective linings or barriers to meet specification requirements.

The base and lid shall be connected to the sidewall in such a way as to give adequate protection to the contents of the drum.

5.3 Base chimb

The base chimb shall be manufactured from any single or composite material and shall be secured to the sidewall by pressing, rolling or other means.

5.4 Internal and external treatments

Any internal or external treatment such as a lining, a liner, or coating, shall be made of a material compatible with the contents of the drum and suitable for the intended use of the drum as notified by the purchaser (see Annex C).

5.5 Barrier

A barrier shall be made of multiple or single ply material, incorporated into the sidewall, lid and base of the drum to resist the transmission of gas or vapour into, or out of the drum.

6 Requirements for material identification symbols

All drums shall carry the relevant material identification code printed on to the lowest possible point of the external sidewall, i.e. the code identifying the material from which the drum is made. Fibreboard drum material identification symbols are given in Annex D.

7 Designation

7.1 Drums of circular cross-section (C)

A removable head (open head) drum (OH) manufactured in accordance with this document with a nominal capacity (NC) of 5 l to 600 l and an internal diameter (d_1) of 230 mm to 675 mm shall be designated:

Fibreboard drum OHC EN 14768 NC - 5 l to 600 l. d_1 - 230 mm to 675 mm.

For example, a fibreboard drum with a nominal capacity of 100 l, having an internal diameter of 450 mm would be designated:

Fibreboard drum OHC EN 14768 NC - 100 l. d_1 - 450 mm.

7.2 Drums of rectangular cross-section (R)

A removable head (open head) drum (OH) manufactured in accordance with this document with nominal capacity (NC) of 15 l to 250 l and internal dimension d_3 of 286 mm to 514 mm shall be designated:

Fibreboard drum OHR EN 14768 NC - 15 l to 250 l. d_3 - 286 mm to 514 mm

For example, a fibreboard drum with a nominal capacity of 100 l, having an internal dimension of 356 mm would be designated:

Fibreboard drum OHR EN 14768 NC - 100 l. d_3 - 356 mm.

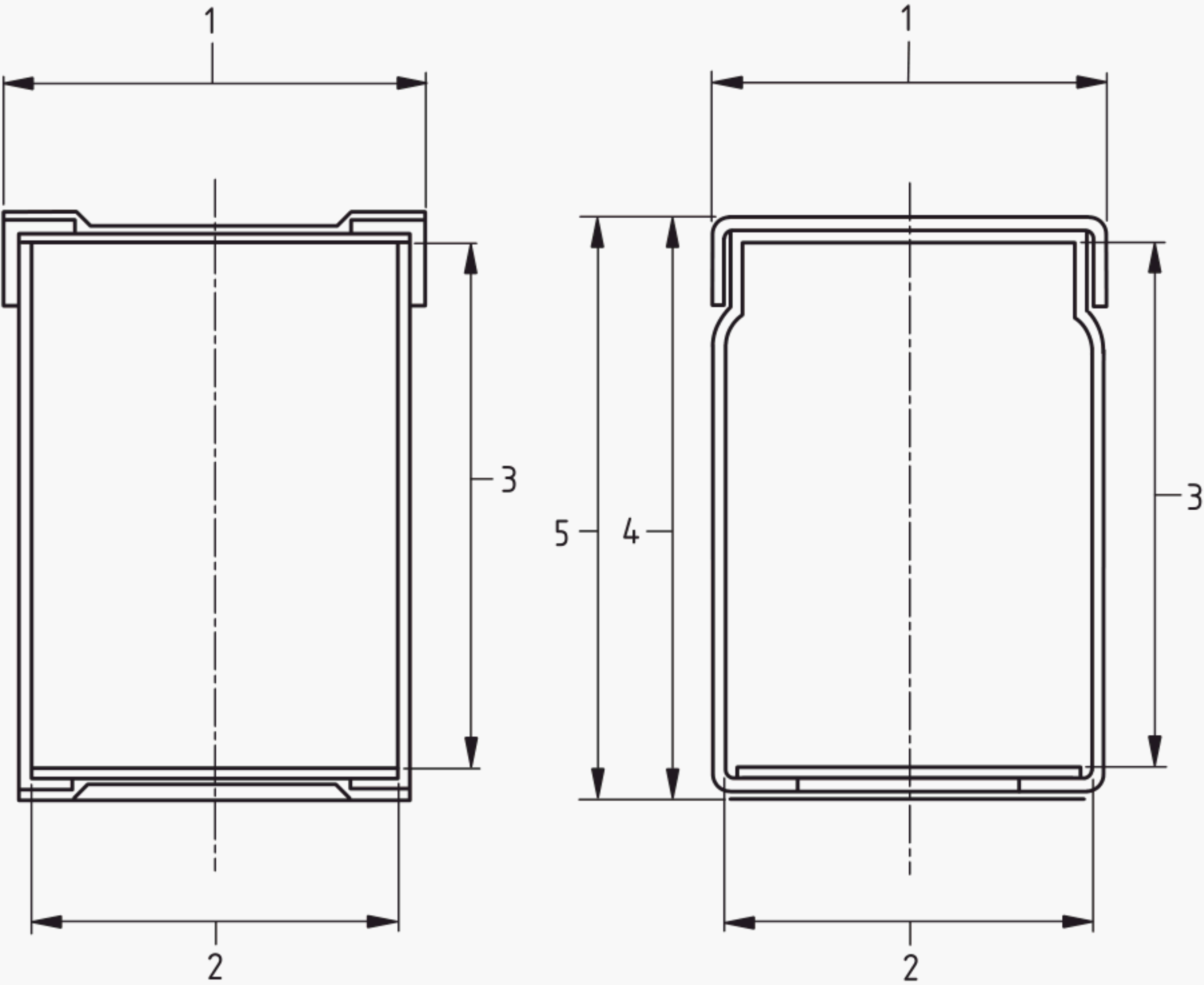
NOTE Where the drums are intended to be used for the transport of dangerous goods, attention is drawn to the regulatory requirements which govern the transport of those goods in the countries concerned. In Europe, depending upon the mode of transport, this means meeting the requirements of:

EN 14768:2005 (E)

- [1] European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR);
- [2] regulations concerning the International Carriage of Dangerous Goods by Rail (RID);
- [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] The International Maritime Dangerous Goods Code (IMDG-CODE) published by the International Maritime Organization (IMO).

Annex A
(normative)

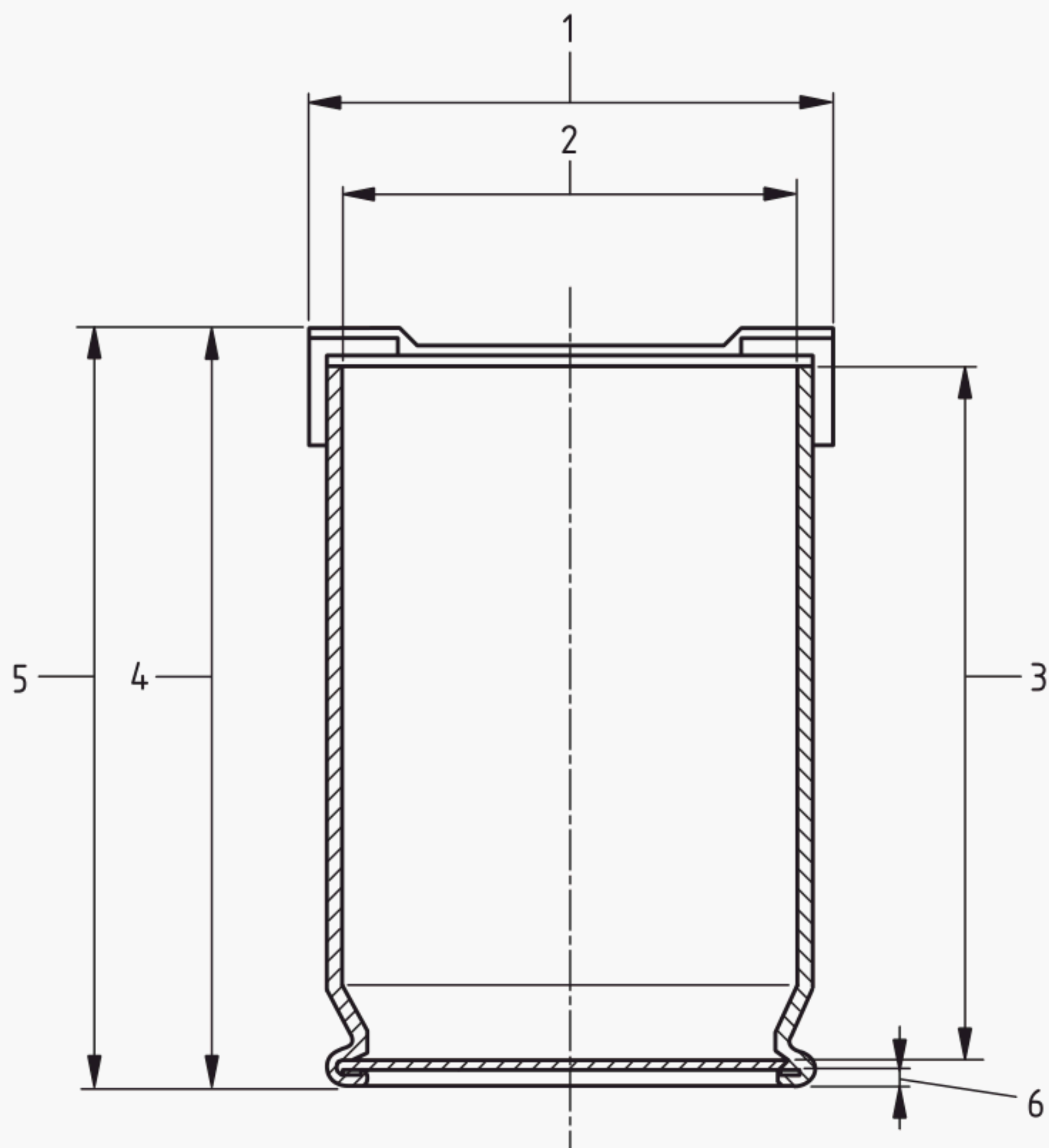
Fibreboard drum dimensions



Key

- 1 outside diameter, d_2
- 2 internal diameter, d_1
- 3 internal height, h_1
- 4 stacking height, h_2
- 5 overall height, h_3

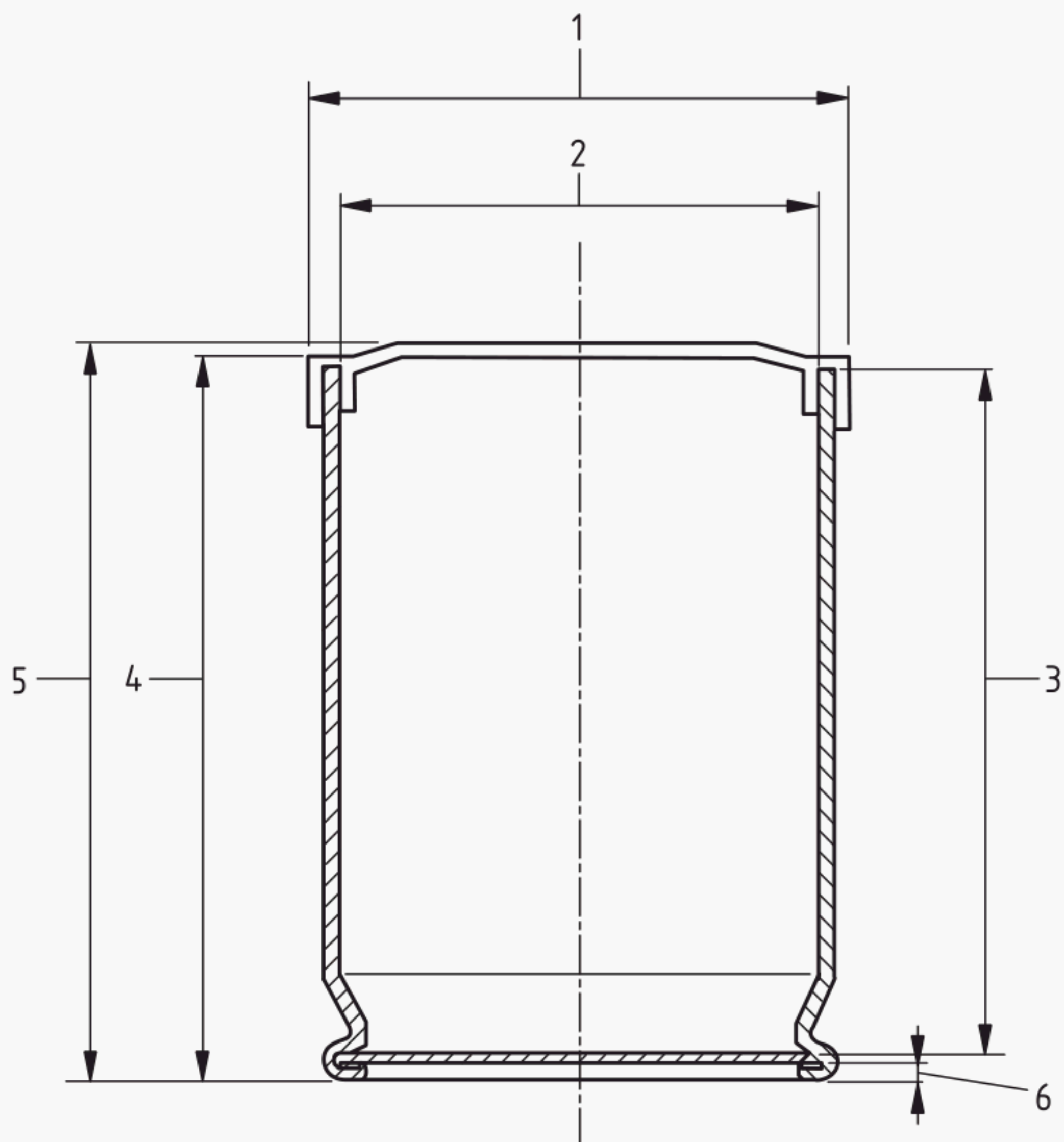
Figure A.1 — Dimensions – drum of circular cross section with fibreboard lid and right-angled profile base



Key

- 1 outside diameter, d_2
- 2 internal diameter, d_1
- 3 internal height, h_1
- 4 stacking height, h_2
- 5 overall height, h_3
- 6 chimb depth, h_4

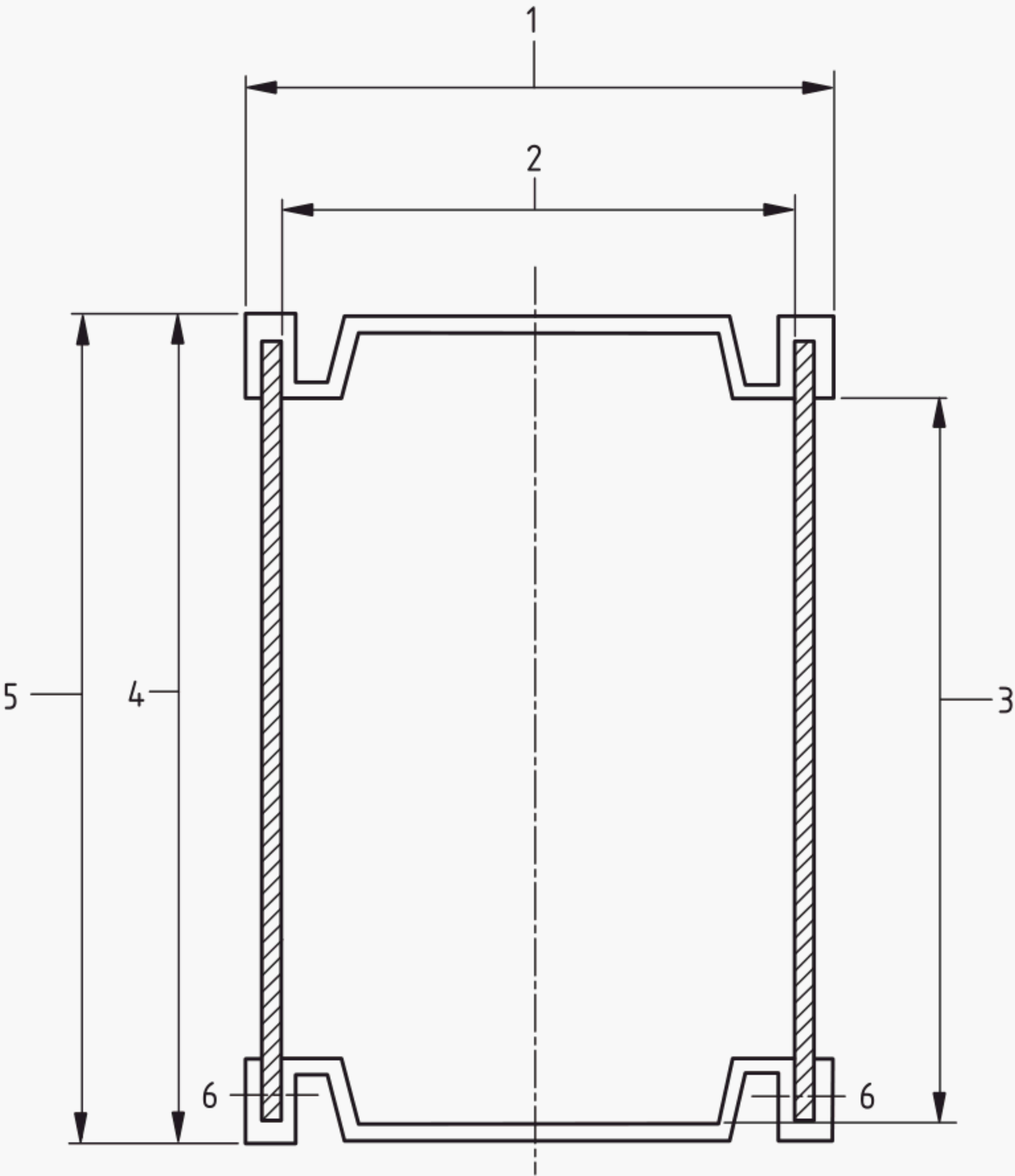
Figure A.2 — Dimensions – drum of circular cross section with fibreboard lid and curled profile base



Key

- 1 outside diameter, d_2
- 2 internal diameter, d_1
- 3 internal height, h_1
- 4 stacking height, h_2
- 5 overall height, h_3
- 6 chimb depth, h_4

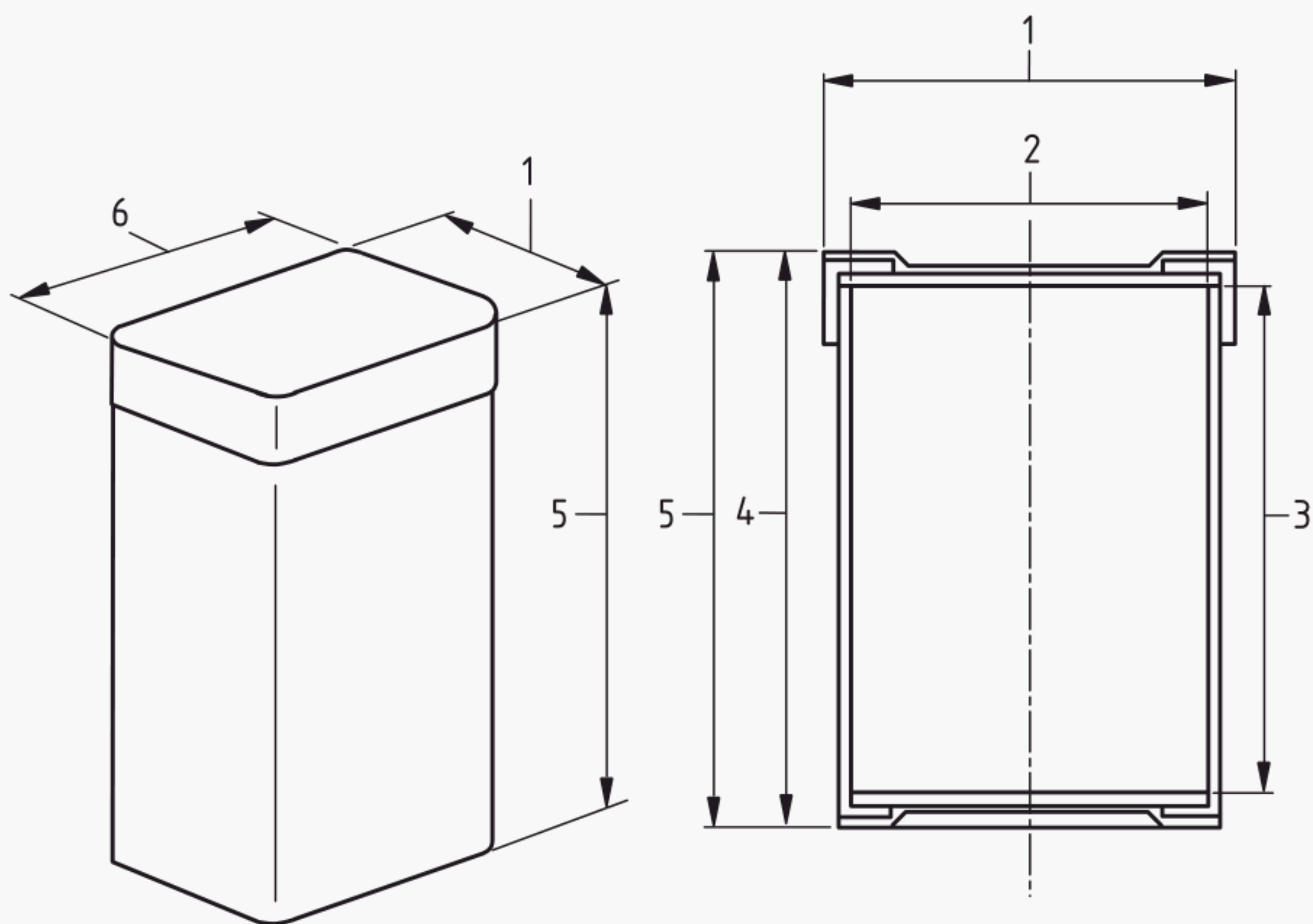
Figure A.3 — Dimensions – drum of circular cross section with slip on plastics or metal lid and curled profile base



Key

- 1 outside diameter, d_2
- 2 internal diameter, d_1
- 3 internal height, h_1
- 4 stacking height, h_2
- 5 overall height, h_3
- 6 circumferential staples

Figure A.4 — Dimensions – drum of circular cross section with slip on plastics or metal lid and stapled base



Key

- 1 outside dimension, d_4
- 2 internal dimension, d_3 or d_5
- 3 internal height, h_1
- 4 stacking height, h_2
- 5 overall height, h_3
- 6 outside dimension, d_6

Figure A.5 — Dimensions —drum of rectangular cross section with fibreboard lid and right angled profile base

Annex B
(informative)

Fibreboard drum preferred size – capacity relationship

Table B.1 Preferred diameter - capacity relationship for fibreboard drums of circular cross section

Dimension Range		Nominal Capacities (l)																
Minimum Internal Diameter (mm)	Maximum Outside Diameter (mm)	3	5	10	15	20	30	40	50	60	80	100	120	150	200	220	250	600
200	235	x	x	x	x	x	x											
230	255	x	x	x	x	x	x											
250	285				x	x	x	x										
300	335					x	x	x	x									
350	385						x	x	x	x	x							
375	410							x	x	x	x	x	x					
400	435								x	x	x	x	x					
420	455									x	x	x	x	x				
450	485										x	x	x	x				
500	535											x	x	x	x	x		
545	580											x	x	x	x	x	x	
570	605											x	x	x	x	x	x	
630	665											x	x	x	x	x	x	x
675	700											x	x	x	x	x	x	x

NOTE For a selected capacity and dimension range, the drum dimensions will be in the range specified. The height dimension will vary according to the diameter selected in the range.

Table B.2 — Preferred dimension - capacity relationship for drums of equal-sided rectangular cross section

Dimension Range		Nominal Capacities (l)														
-----------------	--	------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Minimum Internal Dimension (mm)	Maximum Outside Dimension (mm)	3	15	20	30	40	50	60	80	100	120	150	200	220	250	280
200	235	x	x	x	x											
286	318		x	x	x	x	x									
346	381				x	x	x	x	x	x	x					
427	467							x	x	x	x	x	x			
514	565									x	x	x	x	x	x	
540	590									x	x	x	x	x	x	x

NOTE 1 For a selected capacity and dimension range, the drum dimensions will be in the range specified. The height dimension will vary according to the internal/external dimensions selected in the range.

NOTE 2 At the time of publication there are no preferred dimension-capacity relationships for drums of unequal-sided rectangular cross-section.

Annex C
(informative)

Fitness for use

The correct drum specification needs to be established by the purchaser to secure compatibility between the container and the filling goods. The specification should include reference to:

- a) the nature of the filling goods, including the packaging group if classified as hazardous;
- b) the internal coating/lining of the drum;
- c) the external coating/lining of the drum;
- d) the type of lid and method of closure.

Annex D
(normative)

Fibreboard drum material identification symbols

The material identification symbols for the body and base of fibreboard drums are as given in Table D.1 and Table D.2 and as shown in the example in Figure D.1. The minimum height of the symbol shall be 12 mm.

Table D.1 — Body identification symbols

Code	Material	Adhesive
S1	100 % virgin paper or board	Silicate, starch, polyvinyl alcohol
S2	100 % virgin paper or board with polyolefine layer(s) with a minimum thickness of 10 g/m ²	Silicate, starch, polyvinyl alcohol, polyolefine
S3	100 % virgin paper or board with or without polyolefine coating	Hot melt
S4	Recycled paper or board with or without a polyolefine coating	Silicate, starch, polyvinyl alcohol
S5	Paper or board laminated with aluminium foil	Hot melt, silicate, starch, polyvinyl alcohol, polyolefine
S6	All other materials	

Table D.2 — Base identification symbols

Code	Material
S	Steel
P	Plastic
F	Fibre
W	Plywood
H	Hardboard
O	Other



NOTE 1 Signifies: 100 % virgin paper or board, silicate, starch or polyvinyl alcohol glue with fibre base.

NOTE 2 Where possible include the manufacturer's name or mark.

Figure D.1 — Example of fibreboard drum material identification symbols

Bibliography

- [1] European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)
- [2] Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)
- [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] The International Maritime Dangerous Goods Code (IMDG-CODE) published by the International Maritime Organization (IMO)