BRITISH STANDARD

BS EN
22872:1993
ISO 2872:1985

Complete, filled transport packages — Method for determination of resistance to compression

The European Standard EN 22872:1992 has the status of a British Standard

UDC 621.798.1:620.173

Cooperating organizations

The European Committee for Standardization (CEN), under whose supervision this European Standard was prepared, comprises the national standards organizations of the following countries:

Austria	Oesterreichisches Normungsinstitut
Belgium	Institut belge de normalisation
Denmark	Dansk Standardiseringsraad
Finland	Suomen Standardisoimisliito, r.y.
France	Association française de normalisation
Germany	Deutsches Institut für Normung e.V.
Greece	Hellenic Organization for Standardization
Iceland	Technological Institute of Iceland
Ireland	National Standards Authority of Ireland
Italy	Ente Nazionale Italiano di Unificazione
Luxembourg	Inspection du Travail et des Mines
Netherlands	Nederlands Normalisatie-instituut
Norway	Norges Standardiseringsforbund
Portugal	Instituto Português da Qualidade
Spain	Asociación Española de Normalización y Certificación
Sweden	Standardiseringskommissionen i Sverige
Switzerland	Association suisse de normalisation
United Kingdom	British Standards Institution

This British Standard, having been prepared under the direction of the Packaging and Freight Containers Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 February 1993

The following BSI references relate to the work on this standard:
Committee reference PKM/4
Draft for comment 84/42101 DC

ISBN 0 580 21321 8

Amendments issued since publication

Amd. No.	Date	Comments

Contents

National foreword

This British Standard has been prepared under the direction of the Packaging and Freight Containers Standards Policy Committee and is the English language version of EN 22872:1992 *Packaging — Complete, filled transport packages — Compression test,* published by the European Committee for Standardization (CEN).

It supersedes BS 4826-7:1986 which is withdrawn.

EN 22872 was produced as a result of international discussion in which the UK took active part.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 4, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 22872

November 1992

UDC 621.798.1:620.173

Descriptors: Packing, transport packing, complete- and filled packages, impact tests, drop tests

English version

Packaging — Complete, filled transport packages — Compression test

(ISO 2872:1985)

Emballages — Emballages d'expédition complets et pleins — Essai de compression
(ISO 2872:1985)

Verpackung — Versandfertige Packstücke Stauchprüfung
(ISO 2872:1985)

This European Standard was approved by CEN on 1992-10-30. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Ref. No. EN 22872:1992 E

Foreword

In 1991, ISO 2872:1985 "*Packaging — Complete, filled transport packages — Compression test*" was submitted to the CEN Primary Questionnaire procedure.

Following the positive result of the CEN/CS Proposal ISO 2872:1985 was submitted to the Formal Vote.

The result of the Formal Vote was positive.

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 May 1993, and conflicting national standards shall be withdrawn at the latest by May 1993.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

1 Scope and field of application

This International Standard specifies two methods for testing complete, filled transport packages for compression resistance. The test may be used to assess the performance of a package in terms of its strength or of the protection it offers to its contents when it is subjected to compressive forces. It may be performed either as a single test to investigate the effects (deformation, collapse or failure) of compression or as part of a sequence of tests designed to measure the ability of a package to withstand a distribution system that includes a compression hazard.

NOTE A test method using a compression tester to determine the stacking resistance of a package is given in ISO 2874.

2 References

ISO 2206, *Packaging — Complete, filled transport packages — Identification of parts when testing.*

ISO 2233, *Packaging — Complete, filled transport packages — Conditioning for testing.*

ISO 2874, *Packaging — Complete, filled transport packages — Stacking test using compression tester.*

3 Principle

Placing of the test package between the platens of a compression tester, and compression, the load and platen displacement being recorded until failure occurs or predetermined values for load or displacement are reached.

4 Apparatus

4.1 *Compression tester,* motor-driven, mechanical or hydraulic, platen-type, capable of applying load through uniform movement of one or both platens at a relative speed of 10 ± 3 mm/min.

The platens shall be

— flat, so that when placed horizontally the difference in height between the lowest and highest points does not exceed 1 mm;

— dimensioned so as to extend over the whole area of the panels with which they are in contact;

— rigid, so as not to deform by more than 1 mm at any point when the tester applies a load of 75 % of its maximum rating, either to a centrally placed 100 mm × 100 mm × 100 mm block having sufficient strength to accept this load without failure, or to four similar blocks placed at the four corners, in the case of swivel-mounted platens.

One platen shall remain horizontal, within two parts per 1 000 at all times during the test.

The other platen shall be either rigidly mounted so as to remain horizontal within two parts per 1 000 at all times during the test, or be held by a universal joint at its centre and so be free to tilt in any direction.

The working surfaces of platens suitable for testing packages with a length or width or diameter greater than 1 000 mm may be locally recessed for fixing bolts, etc.

4.2 *Recording device or other means of measurement,* with a percentage of error for loads not exceeding ± 2 % of the load and an accuracy of platen displacement of ± 1 mm.

5 Package preparation

The test package shall normally be filled with its intended contents. However, simulated or dummy contents may be used, on condition that the dimensions and physical properties of such contents shall be as close as possible to those of the intended contents.

Ensure that the test package is closed normally, as if ready for distribution. If simulated or dummy contents are used, ensure that the normal method of closure is still employed.

6 Conditioning

The package shall be conditioned in accordance with one of the conditions described in ISO 2233.

7 Procedure

Whenever possible the test shall be carried out in the same atmospheric conditions as used for conditioning, where this is critical to the materials or application of the package. In other circumstances, the test shall be carried out in atmospheric conditions which are as near as practicable to those used for conditioning.

7.1 Method 1

7.1.1 Place the test package centrally on the lower platen of the test machine (**4.1**), in the predetermined attitude.

7.1.2 Apply the load by relative movement of the platens at 10 ± 3 mm/min until the predetermined value is reached or until premature collapse.

In measuring deformation, the datum zero point shall be taken as the reading corresponding to a load of 220 N.

7.2 Method 2

Where it is desired to measure the ability of a complete, filled transport package to resist external compressive loads applied to opposite edges or corners of the package, the procedure is the same as in Method 1, but it is essential to use a tester in which the platens are not free to tilt.

8 Test report

The test report shall include the following particulars:

a) reference to this International Standard;

b) number of replicate packages tested;

c) full description of the package, including dimensions, structural and material specifications of the package and its fittings, cushioning, blocking, closure or reinforcing arrangements;

d) description of contents — if simulated or dummy contents were used, full details shall be given;

e) gross mass of the package and mass of contents, in kilograms;

f) relative humidity, temperature and time of conditioning; temperature and relative humidity of test area at time of test; whether these values comply with the requirements of ISO 2233;

g) the attitude in which the package was tested, using the method of identification given in ISO 2206;

h) load imposed, in newtons, and the duration of time of the package under load;

j) location of points on packages and stage of test at which measurements were made;

k) type of apparatus used, including whether the tester was mechanically or hydraulically operated and whether or not both platens were rigidly mounted;

m) any deviations from the test methods described in this International Standard;

n) a record of the result, including load/platen displacement recording, with any observations which may assist in correct interpretation;

p) date of the test;

q) signature of tester.

National annex NA (informative)
Committees responsible

The United Kingdom participation in the preparation of this European Standard was entrusted by the Packaging and Freight Containers Standards Policy Committee (PKM/-) to Technical Committee PKM/12, upon which the following bodies were represented:

Association of Drum Manufacturers

British Fibreboard Packaging Association

British Glass Manufacturers' Confederation

Department of Trade and Industry (Laboratory of the Government Chemist)

EEA (The Association of Electronics, Telecommunications and Business Equipment Industries)

Ministry of Defence

Pira International

Society of Motor Manufacturers and Traders Limited

Timber Packaging and Pallet Confederation

Timber Research and Development Association

National annex NB (informative)
Cross-references

Publication referred to	Corresponding British Standard
ISO 2206	BS EN 22206:1992 *Complete, filled transport packages — Method for identifying parts when testing*
ISO 2233	BS EN 22233:1992 *Complete, filled transport packages — Method of conditioning for testing*
ISO 2874	BS EN 22874:1992 *Complete, filled transport packages — Method of test for stacking using compression tester*

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL