

Alkaline secondary cells and batteries — Sealed nickel-cadmium cylindrical rechargeable single cells

The European Standard EN 60285:1994, with the incorporation of amendments A1:1995 and A2:1999, has the status of a British Standard

ICS 29.220.30

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee PEL/21, Secondary cells and batteries, upon which the following bodies were represented:

- Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd.)
- British Industrial Truck Association
- British Telecommunications plc
- Electricity Vehicle Association of Great Britain
- Electricity Association
- Health and Safety Executive
- Lighting Industry Federation Ltd.
- London Regional Transport
- Ministry of Defence
- Power Supply Manufacturers' Association (PSMA) (BEAMA Ltd.)
- Society of British Battery Manufacturers
- Society of Motor Manufacturers and Traders Ltd.

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- British Battery Manufacturers' Association

This British Standard, having been prepared under the direction of the Electrotechnical Sector Board, was published under the authority of the Standards Board and comes into effect on 15 July 1995

© BSI 03-2000

The following BSI references relate to the work on this standard:
Committee reference PEL/21
Announcement in *BSI News*
March 1995

ISBN 0 580 24189 0

Amendments issued since publication

Amd. No.	Date	Comments
8825	October 1995	See national foreword
10538	March 2000	See national foreword

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
Foreword	2
Text of EN 60285	5

National foreword

This British Standard has been prepared by Technical Committee PEL/21 and is the English language version of EN 60285:1994 *Alkaline secondary cells and batteries — Sealed nickel-cadmium cylindrical rechargeable single cells*, including amendments A1:1995 and A2:1999 published by the European Committee for Electrotechnical Standardization (CENELEC). It is identical with IEC 60285:1993 including corrigendum 1993, and amendments 1:1995 and 2:1998, published by the International Electrotechnical Commission (IEC).

This British Standard supersedes BS 5932:1980 which is withdrawn.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the changeover from one numbering system to the other, publications may contain identifiers from both systems.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by **A1** **A1**.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index” or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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 18, an inside back cover and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Descriptors: Alkaline batteries, nickel-cadmium batteries, specifications, tests, overload protection

English version

Alkaline secondary cells and batteries Sealed nickel-cadmium cylindrical rechargeable single cells

(includes amendments A1:1995 and A2:1999)
(IEC 60285:1993 + corrigendum 1993 + A1:1995 + A2:1998)

Accumulateurs alcalins
Éléments individuels cylindriques
rechargeables étanches au
nickel-cadmium
(inclut les amendements A1:1995 et A2:1999)
(CEI 60285:1993 + corrigendum 1993
+ A1:1995 + A2:1998)

Alkalische Sekundärzellen und Batterien
Gasdichte zylindrische wiederaufladbare
Nickel-Cadmium-Einzelszellen
(enthält Änderungen A1:1995 und A2:1999)
(IEC 60285:1993 + Corrigendum 1993
+ A1:1995 + A2:1998)

This European Standard was approved by CENELEC on 1994-03-08; amendment A1 was approved by CENELEC on 1995-03-06 and amendment A2 was approved by CENELEC on 1999-01-01. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

Foreword

The text of document 21A(CO)76, future edition 3 of IEC 60285, prepared by SC 21A, Alkaline secondary cells and batteries, of IEC TC 21, Secondary cells and batteries, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60285 on 1993-03-09.

As the published IEC 60285 also contained 21A(CO)74, which had not been submitted to the parallel vote, the 77th Technical Board of CENELEC decided to submit the contents of this document to the formal vote as prA11 to be combined with EN 60285.

The resulting EN 60285 was approved by CENELEC on 1994-03-08.

This European Standard supersedes HD 201 S2:1991 and HD 201/1 S1:1991.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1995-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1995-07-01

Annexes designated “normative” are part of the body of the standard. In this standard, Annex ZA is normative. Annex ZA has been added by CENELEC.

Foreword to amendment A1

The text of document 21A(CO)82, future amendment 1 to IEC 60285:1993, prepared by SC 21A, Alkaline secondary cells and batteries, of IEC TC 21, Secondary cells and batteries, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60285:1994 on 1995-03-06.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-03-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1996-03-01

Foreword to amendment A2

The text of document 21A/242/FDIS, future amendment 2 to IEC 60285:1993, prepared by SC 21A, Secondary cells and batteries, containing alkaline or other non-acid electrolytes, of IEC TC 21, Secondary cells and batteries, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60285:1994 on 1999-01-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-10-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2001-10-01

Contents

	Page	Page
Foreword	2	Table 5 — Endurance in cycles 10
Section 1. General		Table 5a — Endurance in cycles for cell categories H and X 10
1.1 Scope	5	Table 5b — Endurance in cycles for cell category X 10
1.2 Normative references	5	Table 6 — Permanent charge endurance 11
1.3 Definitions	5	Table 7 — Permanent charge endurance for LT, MT or HT cells 12
1.4 Measuring instruments	5	Table 8 — Overcharge at 0 °C 13
Section 2. Designation and marking		Table 9 — Charge and discharge at + 40 °C 13
2.1 Cell designation	6	Table 10 — Constant discharge currents used for measurement of d.c. resistance 14
2.2 Cell termination	6	Table 11 — Sequence of tests for type approval 16
2.3 Marking	7	Table 12 — Recommended test sequence for batch acceptance 17
Section 3. Dimensions		
3.1 Dimensions	7	
Section 4. Electrical tests		
4.1 Charging procedure for test purposes	9	
4.2 Discharge performance	9	
4.3 Charge retention	9	
4.4 Endurance	10	
4.5 Charge acceptance at constant voltage	12	
4.6 Overcharge	12	
4.7 Safety device operation	13	
4.8 Storage	13	
4.9 Charge efficiency at + 40 °C	13	
4.10 Internal resistance	13	
Section 5. Mechanical tests		
5.1 Bump test	14	
Section 6. Conditions for approval and acceptance		
6.1 Type approval	15	
6.2 Batch acceptance	15	
Annex ZA (normative) Other international publications quoted in this standard with the references of the relevant European publications	18	
Figure 1 — Connection free cells KR ... CF	6	
Figure 2 — Head-head configuration KR ... HH	6	
Figure 3 — Head-base configuration KR ... HB	7	
Figure 4 — Jacketed cylindrical cells interchangeable with primary batteries	7	
Table 1 — Sealed nickel-cadmium cylindrical rechargeable cells interchangeable with primary batteries	8	
Table 2 — Jacketed sealed nickel-cadmium cylindrical rechargeable single cells	8	
Table 3 — Discharge performance at 20 °C	9	
Table 4 — Discharge performance at – 18 °C	9	

