

Primary batteries —

Part 3: Specification for batteries not included in Parts 1 and 2

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- Consumer Standards Advisory Committee of BSI
- Consumers' Association
- Department of Health and Social Security
- Department of Trade and Industry (Consumer Safety Unit, CA Division)
- Hearing Aid Industry Association
- Hong Kong Standards and Testing Centre
- Ministry of Defence
- together with representatives of the battery manufacturing industry

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Foreword

This Part of BS 397 has been prepared under the direction of the Light Electrical Engineering Standards Committee. It gives specifications for batteries not included in Parts 1 and 2 and includes a section dealing with air depolarized batteries.

It comprises:

- *Section 1: General;*
- *Section 2: Specifications for batteries not included in Parts 1 and 2 of BS 397;*
- *Section 3: Air depolarized batteries.*

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 42, 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.

Section 1. General

1 Scope

Section 1 of BS 397-3 specifies requirements particular to the batteries in this Part that are additional to those general requirements given in Part 1 of BS 397.

Sections 2 and 3 give specification sheets for important primary batteries manufactured in the United Kingdom but not included in Parts 1 and 2 of BS 397, i.e. not internationally standardized. Section 3 covers air depolarized batteries, section 2 batteries with other types of depolarization.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 397, the definitions given in BS 397-1 apply together with the following.

2.1

air depolarized cell

a primary cell in which depolarization is mainly effected by air

2.2

inert cell

a cell which cannot supply sustained electrical energy without activation. The "activation" is achieved by adding the whole or part of the electrolyte

3 Nomenclature

Table 1 gives the designations used to denote the size of square batteries.

In order to avoid confusion with battery types specified by the IEC, certain types have been renumbered as detailed in Table 2 and Table 3.

Table 1 — Size designations for square batteries

Designation	Maximum dimensions		
	Length	Width	Height
	mm	mm	mm
S12	72	72	171
S13	53	53	140
S14	38	38	113
S15	115	115	213
S16	213	213	280
S17	143	143	279
S18	172	172	213
S19	33.5	33.5	93.7

The requirements of clause 3 of BS 397-1:1985 apply with the following addition concerning the electrochemical system.

Where the first letter is I, it denotes an oxygen depolarization-alkali metal hydroxide-zinc-inert electrochemical system.

4 Dimensions

Dimensions shall be as shown on the individual battery specification sheets.

5 Terminals

The requirements of clause 5 of BS 397-1:1985 apply with the following additions.

a) *Test of sockets.* To prove compliance with the requirements of this specification, sizing tools and measuring plugs shall be used. They shall be constructed to engage with all the contacts of the socket to be tested.

Measuring plug pins shall be made of hardened steel or beryllium copper, rhodium plated to a thickness of 0.005 mm, and be of the minimum diameter specified for the pins of the plug.

Sizing tools shall be made of polished stainless steel and shall be of the maximum diameter specified for the pins of the plug.

Measuring plugs and sizing tools shall have their pins situated within 0.013 mm of the true geometric positions of the socket contacts.

The sizing tool shall be inserted and withdrawn from the socket five times and the measuring plug shall then be inserted. A direct current of 1 A, derived from a source not exceeding 2.5 V, shall, be passed through the plug and socket and the contact resistance measured between plug and socket shall not exceed 10 mΩ.

b) *Connecting wires.* Connecting wires for batteries shall consist of insulated high conductivity, annealed copper conductors to comply with BS 6360 plain or tinned, of the number and diameter of strands and of the lengths given in the individual battery specification sheets.

Where optional negative connecting wires are used, they shall be insulated with the insulation material coloured black.

NOTE Flexible connecting wires of an equivalent or greater cross-sectional area may be used.

c) *Terminals and terminal fittings.* Terminals and terminal fittings for dry and inert batteries shall comply with the dimensions given in the individual battery specification sheets.

6 Marking

The requirements of clause 6 of BS 397-1:1985 apply with the following addition.

In the case of inert batteries, instructions for activation shall also be marked on each battery.

7 General design conditions

The requirements of clause 7 of BS 397-1:1985 apply.

8 Conditions of tests

The requirements of clause 8 of BS 397-1:1985 apply with the following additions.

- a) *Ventilation*. The batteries shall be discharged in a situation in which fresh air circulates freely around and over them.
- b) *Preparation of batteries for tests*. Inert batteries shall be activated by the addition of water or electrolyte in accordance with the manufacturer's instructions.

Section 2. Specifications for batteries not included in Parts 1 and 2 of BS 397

Table 2 — List of individual specification sheets in section 2

Battery	Formerly known as
NR1	NC ^a
NR6	NC
NR43	NC
LR50	NC
S12	DS3
S13	DS5
S14	DS6
S15	DS1
S19	DS7
6F90	NC
^a NC = No change.	

Battery NR1 Nominal voltage 1.4 V				System specification
Discharge conditions			Minimum duration	
Resistance	Daily period	End point	Initial	After 24 months storage
Ω	h	V	h	h
1 200	Continuous	0.9	800	640
300	12	0.9	180	144
NOTE The physical specification for battery R1 of BS 397-2:1985 applies.				

Battery NR6 Nominal voltage 1.4 V			System specification	
Discharge conditions			Minimum duration	
Resistance	Daily period	End point	Initial	After 24 months storage
Ω		V	h	h
51	Continuous	0.9	90	72
NOTE The physical specification for battery R6 of BS 397-2:1985 applies.				

Battery NR43 Nominal voltage 1.4 V				System specification
Discharge conditions			Minimum duration	
Resistance	Daily period	End point	Initial	After 12 months storage
Ω	h	V	h	h
625	12	0.9	60	48
NOTE The physical specification for battery R43 of BS 397-2:1985 applies.				

Battery LR50 Nominal voltage 1.5 V				System specification
Discharge conditions			Minimum duration	
Resistance	Daily period	End point	Initial	After 12 months storage
Ω	h	V	h	h
75	4	0.9	28	20
NOTE The physical specification for battery R50 of BS 397-2:1985 applies.				