VP Engineering
Betta Batteries International Pty Ltd
B07 Floor 23
Hover industrial bldg
no. 26-38 Kwai Cheong rd
N.T. HONG KONG

Date: 2014/09/16
Subscriber: None
PartySite: 1126991
File No: MH59990
Project No: 14SR1958314
PD No: 14M41444
Type: R
PO Number:

Subject: **Procedure And/Or Report Material**

The following material resulting from the investigation under the above numbers is enclosed.

Issue

Date	Vol	Sec	Pages	Revised Date
2011/02/15	1	1	Cert of Compliance	
2011/02/15	1	1	Add New Volume	

Resending Document complete file MH59990

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to UL's Customer Service Professionals. Contact information for all of UL's global offices can be found at http://www.ul.com/global/eng/pages/corporate/contactus.

If you'd like to receive updated materials FASTER, UL offers electronic access and/or delivery of this material. For more details, contact UL's Customer Service Professionals as shown above.

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NBK File

Follow-Up Service Procedure

DO NOT DISCARD THIS PAGE

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PAGES (in content order)	FUNCTION	HOW TO UPDATE
Authorization Page	Displays the Product Category, the type of Follow-Up Service (Type R=Reexamination / Type L=Label), the File Number and the Volume Number associated with each Applicant's, Manufacturer's and Listee's company name and address.	Replace existing page by matching the UL File Number and Volume Number. Discard the older page (refer to "Issued" or "Revised" date).
Addendum to Authorization Page*	Lists the additional names and addresses of manufacturing locations, when multiple locations exist	Replace existing page by matching the UL File Number and Volume Number. Discard the older page (refer to "Issued" or "Revised" date).
Listing Mark Data (LMD), Classification Mark Data (CMD) or Recognized Component Mark Data (RCMD) Pages* #	Used only for products covered under Type R Service. Displays the correct LMD, CMD, or RCMD Mark, the Control Number for Listed and Classified categories and additional information regarding minimum size, application, procurement, and any other optional markings, in addition to the UL Mark.	Replace existing page by matching the UL File Number and Volume Number. Discard the older page (refer to "Issued" or "Revised" date).
Multiple Listing (ML) Correlation Sheet*	Correlates product model numbers between those products made by a Manufacturer for the Basic Applicant and those supplied to another company, the Multiple Listee.	Replace, add or delete page(s) with most current "Issued" or "Revised" date.
Index*	Catalogs the contents of the Procedure by some logical means, i.e. Section Number, Report Reference Number, or Issue Date.	Replace present page by matching the UL File Number, Volume Number, Page Number and most current "Revised" date.
Appendices* # (App.)	Contains instructions for the Manufacturer and UL Representative concerning specific responsibilities and required periodic tests. May also outline tests to be conducted on samples to be forwarded to UL's facilities.	Replace present page by matching the UL File Number, Volume Number, Appendix letter (eg. App. A), Page Number and most current "Revised" date.
	Standardized Appendix Pages are the same for all manufacturers within a particular product category.	Replace present page by matching the Appendix letter (eg. App. A), Page Number and most current "Revised" date.
Follow-Up Inspection Instructions (FUII) Pages*	Contains information similar to that in the Appendices. FUII Pages are issued as part of the Procedure when a UL Standard is used in conjunction with the Procedure, and are the same for all manufacturers within a particular category.	Replace present pages by matching the Page Number and most current "Issued" or "Revised" date.
Section General* # (Sec. Gen.)	Contains description, requirements, identifications and/or specifications that are common to all products covered by the entire volume and supplements the information provided in the Description Section.	Replace present page by matching the UL File Number, Volume Number, Page Number and most current "Revised" date.
Description, or Section (Sec.)*	Contains the specific description of one or more products or systems. This includes written text supplemented by photographs, drawings, etc., as necessary, to define features that affect compliance with the applicable requirements.	Replace present page by matching the UL File Number, Volume Number, Section Number, Page Number and most current "Issued" date.

***** The above page(s) may not appear in all UL Follow-Up Service Procedures; UL's Conformity Assessment Services staff determines their inclusion.
# These pages are combined in the **Generic Inspection Instructions** for International Style Reports, identified, as example by Vol. X1, X2, etc.

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FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

COMPONENT - BATTERIES, STANDBY
(BAZR2)

Manufacturer: SEE ADDENDUM FOR MANUFACTURER LOCATIONS

1126991 (Party Site)
Applicant: Betta Batteries International Pty Ltd
B07 Floor 23
Hover industrial bldg
no. 26-38 Kwai Cheong rd
N.T. HONG KONG

1126991 (Party Site)
Recognized Company: SAME AS APPLICANT

This Follow-Up Service Procedure authorizes the above Manufacturer(s) to use the marking specified by UL LLC, or any authorized licensee of UL LLC, including the UL Contracting Party, only on products when constructed, tested and found to be in compliance with the requirements of this Follow-Up Service Procedure and in accordance with the terms of the applicable service agreement with UL Contracting Party and any applicable Service Terms. The UL Contracting Party for Follow-Up Services is listed on addendum to this Follow-Up Service Procedure ("UL Contracting Party"). UL Contracting Party and UL LLC are referred to jointly herein as "UL."

UL further defines responsibilities, duties and requirements for both Manufacturers and UL representatives in the document titled, "UL Mark Surveillance Requirements" that can be located at the following web-site: http://www.ul.com/fus and in the document titled "UL and Subscriber Responsibilities" that can be located at the following website: http://www.ul.com/responsibilities. Manufacturers without Internet access may obtain the current version of these documents from their local UL customer service representative or UL field representative. For assistance, or to obtain a paper copy of these documents or the applicable Service Terms, please contact UL's Customer Service at http://www.ul.com/global/eng/pages/corporate/contactus, select a location and enter your request, or call the number listed for that location.

The Applicant, the specified Manufacturer(s) and any Recognized Company in this Follow-Up Service Procedure must agree to receive Follow-Up Services from UL Contracting Party. If your applicable agreement is a Global Services Agreement ("GSA") with an effective date of January 1, 2012 or later and this Follow-Up Service Procedure is issued on or after that effective date, the Applicant, the specified Manufacturer(s) and any Recognized Company will be bound to a Service Agreement for Follow-Up Services upon the earliest by any Subscriber of use of the prescribed UL Mark, acceptance of the factory inspection, or payment of the Follow-Up Service fees which will incorporate such GSA, this Follow-Up Service Procedure and the Follow-Up Service Terms which can be accessed by clicking here: http://www.ul.com/contracts/Terms-After-12-31-2011. In all other events, Follow-Up Services will be governed by and incorporate the terms of your applicable service agreement and this Follow-Up Service Procedure.

It is the responsibility of the Recognized Company to make sure that only the products meeting the aforementioned requirements bear the authorized Marks of UL LLC, or any authorized licensee of UL LLC.

This Follow-Up Service Procedure contains information for the use of the above Manufacturer(s) and representatives of UL and is not to be used for any other purpose. It is provided to the Manufacturer with the understanding that it will be returned upon request and is not to be copied in whole or in part.

This Follow-Up Service Procedure, and any subsequent revisions, is the property of UL and is not transferable. This Follow-Up Service Procedure contains confidential information for use only by the above named Manufacturer(s) and representatives of UL and is not to be used for any other purpose. It is provided to the Subscribers with the understanding that it is not to be copied, either wholly or in part unless specifically allowed, and that it will be returned to UL, upon request.

Capitalized terms used but not defined herein have the meanings set forth in the GSA and the applicable Service Terms or any other applicable UL service agreement.

UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages arising out of or in connection with the use or reliance upon this Follow-Up Service Procedure to anyone other than the above Manufacturer(s) as provided in the agreement between UL LLC or an authorized licensee of UL LLC, including UL Contracting Party, and the Manufacturer(s).

UL LLC has signed below solely in its capacity as the accredited entity to indicate that this Follow-Up Service Procedure is in compliance with the accreditation requirements.

William R. Carney
Director
North American Certification Program

LOCATION

631124 (Party Site)
(100553-983) ZHEJIANG EGE BATTERY MANUFACTURING CO LTD
No 15 Chuangye Ave
Shangqiang Industrial Zone
Wuxing District
Huzhou
Zhejiang 313023 CHINA
Factory ID: None
UL Contracting Party for above site is: UL AG

Recognized Component Marking Data Page (RCMDP)

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

RECOGNIZED COMPONENT MARKING

Products Recognized under UL's Component Recognition Service are identified by marking elements consisting of:

1. The Recognized Company's identification specified in this document.
2. A catalog, model or other applicable product designation specified in the descriptive sections of this document.
3. The UL Recognized Component Mark shown below.

Only those components, which actually bear the Marking, should be considered as being covered under the Recognition Program. The UL Listing or Classification Mark is not authorized for use on or in connection with Recognized Components.

Recognized Component Mark

Minimum size of the Recognized Component Mark is not specified as long as it is legible. Minimum height of the registered symbol ® shall be 3/64 inch but may be omitted if it is out of proportion to the Recognized Component Mark or not legible to the naked eye.

The manufacturer may reproduce the Mark electronically. Any decision regarding the acceptability of the manufacturer's Mark reproduction will be made at the Reviewing Office.

INDEX

UL REPRESENTATIVE:

General

At each inspection the Field Representative shall select one or more batteries from stock or current production and compare with the applicable features of the description contained in the appropriate section of the Procedure.

PROCEDURE IN CASE OF NONCONFORMANCE

The Field Representative shall record each item of nonconformance on a "Variation Notice", a copy of which shall be given to the manufacturer. This shall include:

Any deviation of the battery parts and components from the physical and/or material specifications given in the individual sections of the Procedure.

Any action taken with respect to the removal of UL Recognition Marks or the withholding from shipment (in lieu of removal of Recognition Marks) of batteries which do not comply with the requirements of the Procedure.

SAMPLES

Once each year, select the appropriate type and number of samples for each group as specified in Tables A or B as applicable, marked with the appropriate identification, and forward to:

[ ]	BRE – BREA	[ ]	CAM - CAMAS
[ ]	NKW – NORTHBROOK, WEST (Bldg. 6A)	[ ]	TPI – TAPEI, TAIWAN
[ ]	NWT – NEW TERRITORY, HONG KONG	[ ]	TKY – TOKYO, JAPAN
[X]	SUZ – SUAZHOU, CHINA		

Models in Table A (VRLA, Vented, Capacity Testing) are tabulated under a specific group based upon common construction of the pressure release valve or venting mechanism or upon common construction and ratings for the capacity testing. The number chosen per year for each test is outlined in Table A.

Models in Table B (lithium batteries) are tabulated under a specific group based upon common construction features. The number of models chosen reflects 1 model for every 4 models within each group. For example, if there are 8 models within a group, 2 models are chosen for follow up testing and examination each year. Records should be maintained to ensure that all models for each group are subjected to follow up testing within approximately every four years.

The UL Representative is responsible for selecting the quantity of samples at the stated frequency for Follow-Up testing in accordance with the Sample Selection criteria noted above. Samples shall be identified and tagged with the applicable information using a Sample Tag (Form 300-217). Unless otherwise stated, the UL Representative shall inform the manufacturer that the samples are to be forwarded to the Test Office(s) as designated on the specific Procedure Volume subscriber card.

The Pressure Release test may either be conducted at UL or witnessed at the factory by the UL Representative. If witnessed at the factory by the UL Representative, records of data showing results of the witnessed testing shall be forwarded by the UL Representative to the appropriate office as noted above.

CONFORMITY ASSESSMENT SERVICES:

GENERAL

The following tests shall be conducted as specified in Table A on samples received from the Field Representative.

Table A

Guide to Follow Up Testing and Sample Requirements for VRLA or Vented Batteries and Battery Capacity Testing

Group No.	No./Year	Section	Model Nos.	Key to No. of Pressure Release Test SamplesA	Key to No. of Vent Test SamplesB	Key to No. of Capacity Test SamplesC
I	1 out of every 4 recognized batteries	1	Models ELC600, 3-CNFJ-4, 3-CNFJ-7.2, 3-CNFJ-10, 3-CNFJ-12, 3-CNFJ-160, 3-CNFJ-200, 3-CNFT-180, 6-CNFJ-4, 6-CNFJ-12, 6-CNFJ-14, 6-CNFJ-18, 6-CNFJ-22, 6-CNFJ-24, 6-CNFJ-26, 6-CNFJ-28, 6-CNFJ-35, 6-CNFJ-40, 6-CNFJ-55, 6-CNFJ-65, 6-CNFJ-70, 6-CNFJ-90, 6-CNFJ-100, 6-CNFJ-120, 6-CNFJ-150, 6-CNFJ-180, 6-CNFJ-200, 6-CNFT-55, 6-CNFT-90, 6-CNFT-100, 6-CNFT-155, 6-CNFT-170, 3-EVFJ-180, 3-EVFJ-210, 4-EVFJ-135, 4-EVFJ-150, 6-EVFJ-27, 6-EVFJ-70, 6-EVFJ-80, 6-EVFJ-100, 6-EVFJ-120, 6-EVFJ-150 ELC1200, 6-CNFJ-7.2, 6-HCNFJ-7.2, 6-CNFJ-10 and ELC2000, CNFJ-50, CNFJ-100, CNFJ-200, CNFJ-300, CNFJ-400, CNFJ-500, CNFJ-600, CNFJ-800, CNFJ-1000, CNFJ-1200, CNFJ-1500, CNFJ-2000, CNFJ-2200, CNFJ-3000.	X	-	-

A – One complete production sample of the battery for pressure release testing
B – One production sample of vent assembly (thread-in type) or one production sample of the vent and battery cover assembly (built-in type) for the vent tests
C – Two complete production samples of the battery for capacity testing

PRESSURE RELEASE TEST: (VRLA batteries)

GENERAL

This test may be either conducted at UL or Witnessed by the UL Representative at the Factory as noted under SAMPLES above.

METHOD

One battery, with pressure release vent, that is covered by each section of this Follow-Up Service Procedure as outlined in Table A, shall be selected once each quarter from current production or stock and completely submerged in a container of mineral oil. The battery is to be subjected to a charging current at an increased rate specified by the manufacturer until bubbles are observed to rise from battery vent openings. Shielding shall be provided between the bath and operator for protection against explosion and acid spray.

[X] ALTERNATE METHOD

A cylinder is to be secured to each battery vent making a leakproof seal at the point of attachment. Each cylinder is to be partially filled with mineral oil and the battery subjected to an increasing charging rate until bubbles are observed rising from each vent.

[ ] ALTERNATE METHOD

An alternate pressure release method determined equivalent to the method noted above is conducted as follows:

_____

_____

COMPLIANCE

The battery gas shall release normally and the battery case or cover shall not crack or rupture.

VENT TESTS: (Vented lead acid or nickel batteries)

GENERAL

Once each quarter, select the following types of samples of models that are covered by each section of this Follow-Up Service Procedure as outlined in Table A, from current production or stock and mark with the appropriate identification as outlined above under SAMPLES.

One production sample of vent assembly (threaded-in vent types) or one production sample of vent and cover assembly (built-in vent types) for the models outlined in Table A.

The samples tested are to be conditioned and then subjected to the three vent tests in the order indicated below.

CONDITIONING:

Prior to testing, the samples are to be conditioned for 168 h at 70°C (158°F) in an air-circulating oven

VENT TEST EQUIPMENT

The test apparatus for the vent tests shall consist of the following:

a heavy wall Plexiglas hydrogen test fixture as shown in Fig. 7.2 of UL 1989
Equipment capable of supplying, monitoring and mixing hydrogen and oxygen in stoichiometric proportions
A spark ignition source produced across a 6.4 mm (1/4 inch) gap in the 10 kV, 23 mA secondary of a transformer
A test enclosure as shown in Fig. 7.3 of UL 1989
An outer test chamber as shown in Fig. 7.4 pf I: 1989 as needed for safety

Figure 7.2
Hydrogen Test Fixture

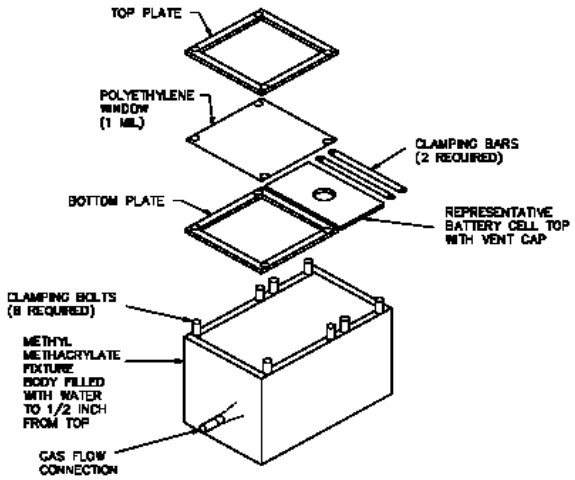


Figure 7.3
Test Enclosure
Clear Plastic with Ventilation Openings
Shown (1 in^2 opening area/500 in^3 volume)

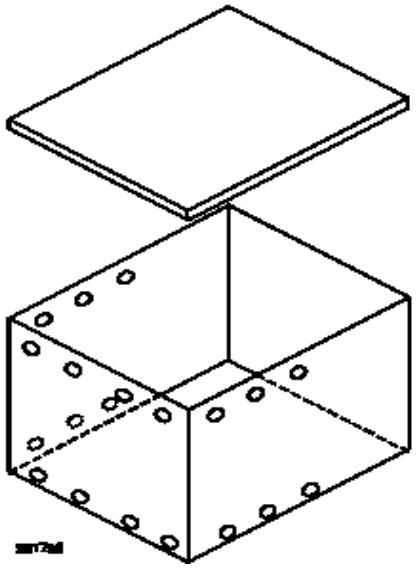
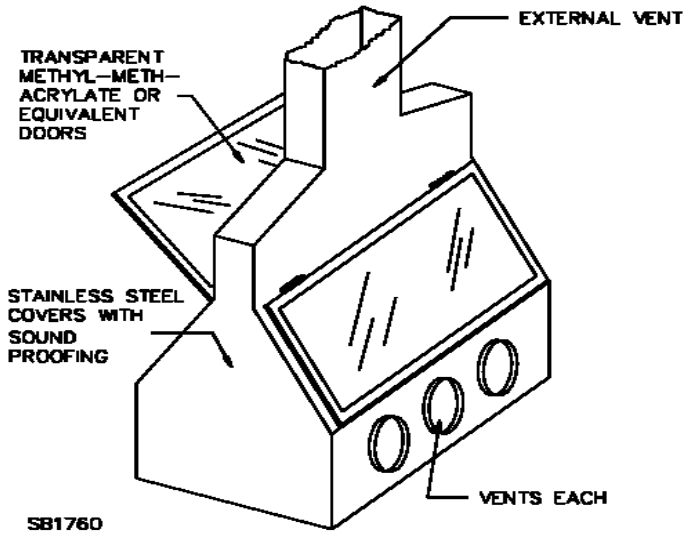


Figure 7.4
Outer Test Chamber



BACK PRESSURE TEST

METHOD

Air shall be vented through the vent at a rate (as noted in the Table below) equal in cubic centimeters per minute (cm3/min) to the Ah capacity of the battery divided by 13.5.

COMPLIANCE

The backpressure obtained shall be less than or equal to 15 millimeters of water (mmH20).

SUSTAINED BURNING TEST

METHOD

One sample of the hydrogen text fixture with vent sample attached shall be filled with water to 12.7 mm (0.5 inch) from the top. The assembly shall be located inside the test enclosure described in Fig. 7.3 of UL 1989 without the test enclosure cover in place.

The hydrogen test fixture and the test enclosure shall be located in the outer test chamber described in Fig. 7.4 of UL 1989 (Note: as considered necessary for safety purposes).

A mixture of hydrogen and oxygen gas shall be caused to flow through the fixture and vent cap and is to be adjusted to the appropriate maximum value as indicated in the Table below. Six attempts shall be made to ignite the gas mixture venting from the vent cap using the spark ignition source.

Sustained burning is to be determined by using paper as an indicator. (Note: hydrogen gas can burn without visible flame.)

COMPLIANCE

There shall be no sustained burning of vented gas that resulted in impairment to the vent assembly.

FLAME PROPAGATION TEST

METHOD

After the sustained burning test, the test enclosure cover shown in Fig. 7.3 of UL 1989 is to be installed on the assembly. A mixture of hydrogen and oxygen gas as outlined in the Table below is allowed to flow into the test fixture.

Six attempts are to be made to ignite the gas venting from the cap, approximately 12.7 mm (1/2 inch) from the vent opening, using a spark ignition source located in the path of the gas flow. There shall be a 10 second interval between each ignition attempt.

COMPLIANCE

There shall be no evidence of flame propagation through the vent cap to within the fixture as determined by rupture of the 0.025 mm (1 mil) polyethylene-film window in the top of the test fixture.

TABLE
AIR FLOW RATE for Back Pressure and Gas Flow Rates for Sustained Burning and Flame Propagation Tests

Section No.	Model No.	Air Flow Rate, cm3/min	H2 Flow Rate, cm3/min	O2 Flow Rate, cm3/min
N/A	N/A	N/A	N/A	N/A

MAXIMUM CAPACITIES FOR REFERENCED VENTS	
Vent Model No.	Vent Capacity
N/A	N/A

Gas flow rated for battery vent caps (from Table 7.1 of UL 1989)

	Flow Rate For hydrogen and oxygen, cc/min							
Battery Capacity	Flow Rate Number 1		Flow Rate Number 2		Flow Rate Number 3		Flow Rate Number 4	
	H_2	O_2	H_2	O_2	H_2	O_2	H_2	O_2
50	27	14	21	10.5	14	7	7	3.5
100	56	28	49	24.5	28	14	14	7
150	84	42	49	24.5	28	14	14	7
200	112	56	105	52.5	49	24.5	21	10.5
C[a]	C/1.8	C/3.6	C/2.5	C/5.0	C/5.0	C/10	**C/10**	**C/20**
[a] C is the capacity of the battery in amp-hour (use this row if C > 200)								

CAPACITY RATING TESTS:

GENERAL

One battery is to be tested in accordance with the Standard for Standby Batteries, UL 1989. The battery ratings, charging method, charging voltage and discharge current shall be as specified in the Table below.

TABLE
BATTERY RATINGS AND INFORMATION

Battery Model	Type	Sect. No.	Rated Voltage V	Rated Current **, A	Charging System*, CV, CC or CV/CC	Initial Open Circuit Voltage, V	Charge Voltage, V		Charge Current, A		Temp Rating, °C
							Max	Min	Max	Min	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
* - CV – Controlled Voltage CC – Controlled Current CV/CC – Combination Controlled Voltage and Controlled Current											
** - The current rating is a 1-1/2 hour constant discharge current that results in an end-of-discharge voltage no less than 87.5% and no greater than 100% of rated voltage.											
Note: The electrolyte maintenance instructions shall be provided for this testing.											

CONDITIONING OF SAMPLES

The batteries are to be subjected to conditioning prior to testing per the manufacturers specification. The conditioning period is not to exceed 168 hours and is not to recharge the battery in excess of the manufacturer's recommended minimum or maximum rates. The conditioning of samples is as shown in the following table:

TABLE
CONDITIONING FOR CAPACITY TESTING

Model	Section No.	Battery Temperature Rating, °C (°F)	Condition A Temperature, °C (°F)	Condition B Temperature Range, °C (°F)
N/A	N/A	N/A	N/A	N/A

Batteries rated for room ambient temperatures (25 ± 5°C (77 ± 9°F) as noted above are to be tested at 25 ± 5°C (77 ± 9°F) for all of the capacity testing.

Batteries intended to operate at temperatures other than room ambient are to be subjected to capacity testing after 24 hours of condition A and after 24 hours of condition B while maintained at the specified condition. The test temperatures for Conditions A and B are not to vary from the specified value by more than ±2°C (±3.6°F)

METHOD A - CONTROLLED CURRENT CHARGE TEST

The required test sequence from the Charge/Discharge Test Table is: I, II, III, IV, I, V, I, II.

The specified test sequence is repeated to collect data at the maximum and minimum manufacturer-specified battery charger voltages or currents or both.

METHOD B – CONTROLLED VOLTAGE CHARGE TEST

The required test sequence from the Charge/Discharge Test Table is: VI, II, VII, IV, VI, V, VI, II.

The specified test sequence is repeated to collect data at the maximum and minimum manufacturer-specified battery charger voltages or currents or both.

METHOD C – COMBINED CONTROLED CURRENT CHARGE AND CONTROLLED VOLTAGE CHARGE TEST

The required test sequence from the Charge/Discharge Test Table is: I, II, III, IV, VII, IV, VI, V.

The specified test sequence is repeated to collect data at the maximum and minimum manufacturer-specified battery charger voltages or currents or both.

Table
Charge/Discharge Tests

Test	Test Mode	Duration of Test (hour)	Load Current	Measurements to be taken d
I	Charge @ I (controlled current) c	168 a	--	I1, Tc, V1
II	Discharge (constant current)	1-1/2	I2	I2, Td, V2
III	Charge @ I (controlled current) c	24 b	- -	Ic, I1, Tc, Vc, V1
IV	Discharge (constant current)	1	I2	I2, Td, V2
V	Discharge (constant current)	24 c	I2	I2, Td
VI	Charge @ V (controlled voltage) c	168 a	--	I1, Tc, V1
VII	Charge @ V (controlled voltage)	24 b	--	I1, Tc, V1

a The charge period may be less than 168 hours if requested by the manufacturer.
b The charge period may be less than 24 hours if requested by the manufacturer.
c The 24-hour discharge period may be reduced if a sensing circuit is provided that disconnects the battery in a shorter time. The discharge period may be no less than 1-1/2 hours in any case.
d The measurements symbolized are:
Ic – Specified charge current range (maximum and minimum).
I1 – Battery charger current during battery charge cycle.
I2 – Battery current rating.
Tc – Temperature on battery case during charge cycle.
Td – Temperature on battery case during discharge cycle.
Vc – Specified charger voltage range (maximum and minimum).
V1 – Battery terminal voltage during charge cycle.
V2 – Closed circuit voltage at battery terminals at end of discharge cycle.

COMPLIANCE

The final open circuit battery voltage shall be greater than 87.5% of the nominal battery voltage as specified in the Table below:

TABLE
COMPLIANCE FINAL OPEN CIRCUIT VOLTAGE FOR CAPACITOR TEST

Model	Section No.	Nominal Battery Voltage, V	Minimum Battery Voltage for Compliance, V
N/A	N/A	N/A	N/A

MARKING INSTRUCTIONS:

TRADEMARK DESIGNATION:

The following trademark, trade name, or File Number may be used to identify products described in this Procedure in lieu of the Listee and/or Recognized Company name.

LEAD
CRYSTAL®
BATTERIES

CERTIFICATE OF COMPLIANCE

Certificate Number	20140912-MH59990
Report Reference	MH59990-20110215
Issue Date	2014-SEPTEMBER-12
Issued to:	Betta Batteries International Pty Ltd B07 Floor 23, Hover industrial bldg, no. 26-38 Kwai Cheong rd, N.T. HONG KONG
This is to certify that representative samples of	COMPONENT - BATTERIES, STANDBY Secondary Valve regulated lead-crystal battery, Models ELC600, ELC1200, and ELC2000.
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	Standby Batteries, UL1989
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Recognized Component Mark should be considered as being covered by UL's Recognition and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: , may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Recognized Component Mark on the product.

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

File MH59990
Project 4786182878

Issued: February 15, 2011
Revised: August 30, 2014

REPORT

On

COMPONENT - BATTERIES, STANDBY

***Betta Batteries International Pty Ltd**
N.T. Hong Kong

DESCRIPTION

PRODUCT COVERED:

Component – Secondary Valve regulated lead-crystal battery, Models ELC600, ELC1200, and ELC2000.

Electrical Ratings

Battery Model No.	Number of Cells	Nominal Voltage, V	Nominal Capacity, Ah
ELC600	3	6	12
ELC1200	6	12	100
ELC2000	1	2	300

GENERAL DESCRIPTION

These Valve regulated lead-crystal rechargeable batteries are provided with one pressure release vent per cell, designed to prevent excessive accumulations of gas pressure and battery/cell rupture.

Material Modification – There shall be no changes in the formulation or composition of any of the materials used in the construction of the batteries or the pressure relief means unless previously cleared through Underwriters Laboratories Inc.

TECHNICAL CONSIDERATION (NOT FOR FIELD REPRESENTATIVE'S USE):

Use – For use only in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of Acceptability – The use of these devices may be considered acceptable under the following conditions:

The batteries are identified in accordance with the markings outlined in this report.

1. These batteries in combination with their pressure release vents have been found to comply with the requirements of the pressure release test in the Standard for Standby Batteries, UL1989, Fourth Edition, dated March 30, 2010, including the revisions on June 7, 2010. No other performance related or flame arrestor tests for UPS applications have been conducted on these batteries.

2. The need for additional testing shall be determined in the end use application.

3. The capacity and voltage rating under Electrical Ratings were assigned by the manufacturer and has not been evaluated.

4. The suitability of the terminals and electrical connections shall be considered in the end use product.

5. The battery enclosure material flammability is rated HB for all Models. The suitability of the flame rating and the need for an enclosure shall be determined in the end-use application.

VALVE REGULATED LEAD-CRYSTAL BATTERIES, MODEL ELC2000 FIG.1, 2
(ALSO REPRESENTS ALL MODELS DESCRIBED IN TABLE A)

1. Battery Case and Cover – R/C(QMFZ2), made by NINGBO LG YONGXING CHEMICAL CO LTD. (E203955), ABS Type HI-121H, rated HB at minimum 1.5 mm thickness, 60°C. See Table A for dimensions detail.

2. Cells - Each nominal 2 V, lead-acid type.

3. Terminals - Positive and negative, Tab type, formed of copper or copper with silver coating.

   Alternate – Same as above except Plate type.

   Alternate – Same as above except Screw type.

4. Plates – Electrolytic lead and Lead-Calcium-Stannum-Aluminum Alloy for positive and negative plates.

5. Separator – Absorption Glass Mat and Ultra-fine glass fiber.

6. Electrolyte – SiO_2 and Diluted Sulfuric acid.

7. Pressure Release Vent - One vent per cell, constructed as follows.

   A. Vent Body - Integrally molded in top half of battery case, refer to Table B for dimensions of vent.

   B. Vent Cap - Molded of natural rubber or ceramic foam.

8. Markings – See Sec. Gen.

Table A
Overall dimensions and minimum thickness

Battery Model Designation	Overall Dimensions, mm			Case Minimum Wall Thickness, mm		Minimum Wall Thickness	
	Length	Width	Height	Bottom	Sides	Cell Cover, mm	Battery Top Cover, mm
ELC600	151	50	102	2.8	2.2	2	1.3
ELC1200	408	174	234	3.5	4	3	1.8
ELC2000	176	154	365	6.2	6.2	3.7	1.7

Table B

VENT DIMENSIONS OF BATTERIES

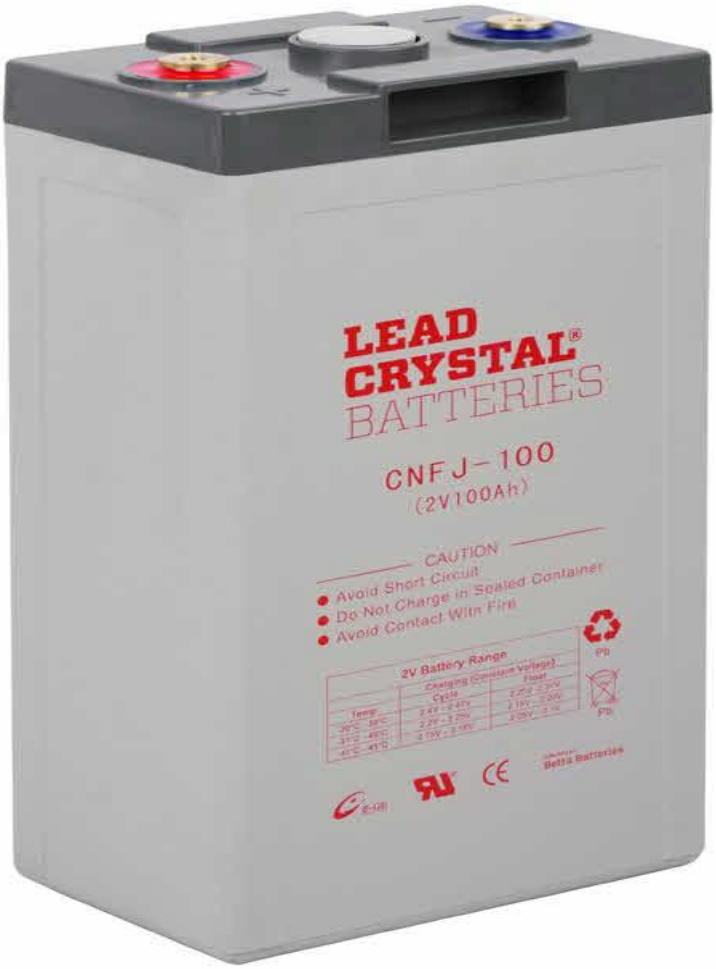
Battery Model No.	Vent Dimension, mm	
	ID	Height
ELC600	7.8	6
ELC1200	11.55	8.5
ELC2000	16	29.5

F110141916

F110141917


LEAD
CRYSTAL®
BATTERIES
CNFJ-3000
CAUTION
Avoid Short Circuit
Do Not Charge in Sealed Container
Avoid Contact With Fire

N141204256


LEAD
CRYSTAL®
BATTERIES
CNFJ-100
(2V100Ah)
CAUTION
Avoid Short Circuit
Do Not Charge in Sealed Container
Avoid Contact With Fire
2V Battery Range
Pb
Pb
Betta Batteries

N141204257


LEAD
CRYSTAL®
BATTERIES
LEAD CRYSTAL®
CNFJ-800
(2V800Ah)
CAUTION

N141204258

N141204259


LEAD
CRYSTAL®
BATTERIES
3-CNFJ-200
(6V200Ah)
6V Battery Range
Charging (Constant Voltage)
Temp
Cycle
Float
CAUTION
Avoid Short Circuit
Do Not Charge in Sealed Container
Avoid Contact With Fire
Pb
Pb
POWERED BY
Betta Batteries

N141204260


LEAD
CRYSTAL
BATTERIES
CAUTION
Avoid Short Circuit
Do Not Charge in Sealed Container
Avoid Contact With Fire
6-CNFJ-200
(12V200Ah)
12V Battery Range
Charging (Constant Voltage)
Temp
Cycle
Float
20°C - 30°C
14.4V - 14.8V
13.5V - 13.8V
31°C - 40°C
14.25V - 14.65V
13.7V - 13.9V
41°C - 49°C
14.1V - 14.5V
ISO 9001
ISO 14001
Betta Batteries

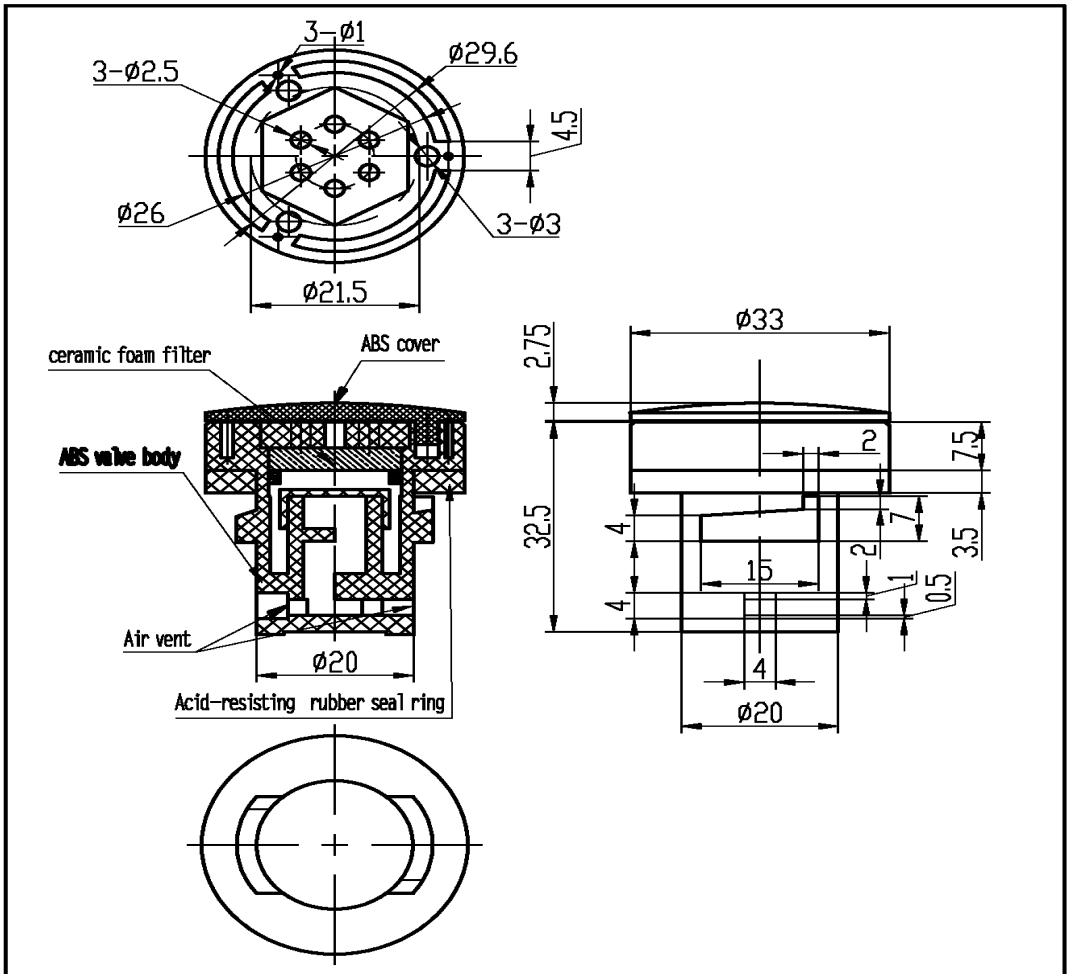
N141204261

N141204262

N141204254


LEAD
CRYSTAL
BATTERIES
CAUTION
Avoid Short Circuit
Do Not Charge in Sealed Container
Avoid Contact With Fire
6-EVFJ-150
(12V150Ah)
12V Battery Range
Charging (Constant Voltage)
Temp
Cycle
Float
Betta Batteries

N141204255



Technical requirements:

Apply to the following types of lead crystal battery:
CNFJ-200.CNFJ-300,CNFJ-400,CNFJ-500,CNFJ-600,CNFJ-800,CNFJ-1000,CNFJ-1500,
CNFJ-2000,CNFJ-3000.

标记	处数	分区	更改文件号	签字	日期

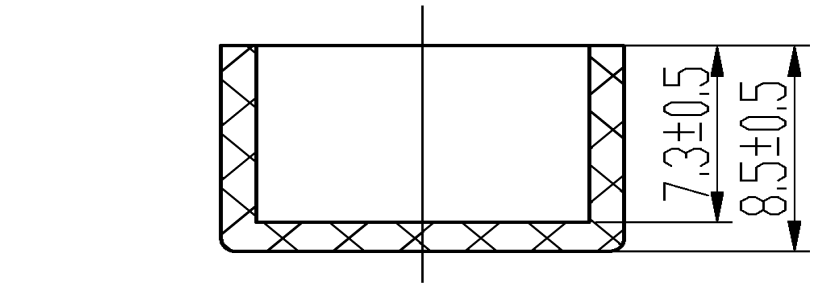
设计		标准化	
校对		批准	
审核		制图	
工艺		日期	

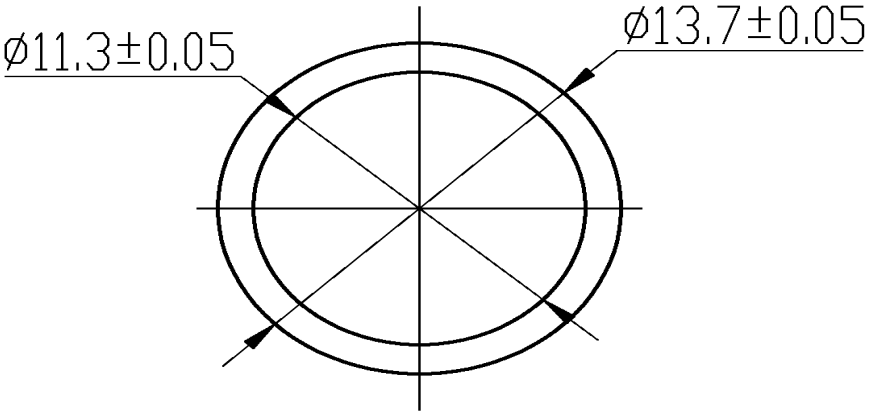
ABS			
图样标记	重量	比例	
共 张	第 张		

Zhejiang EGE battery manufacturing co., LTD.

Safety valve

SV-6





Technical requirements:

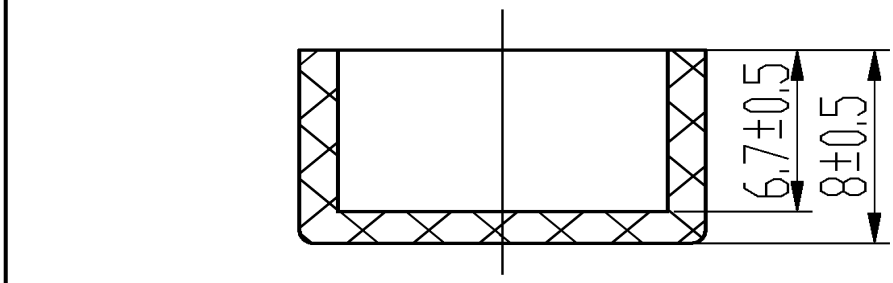
Apply to the following types of lead crystal battery:
3-CNFJ-180,6-EVFJ-120,6-CNFJ-120.

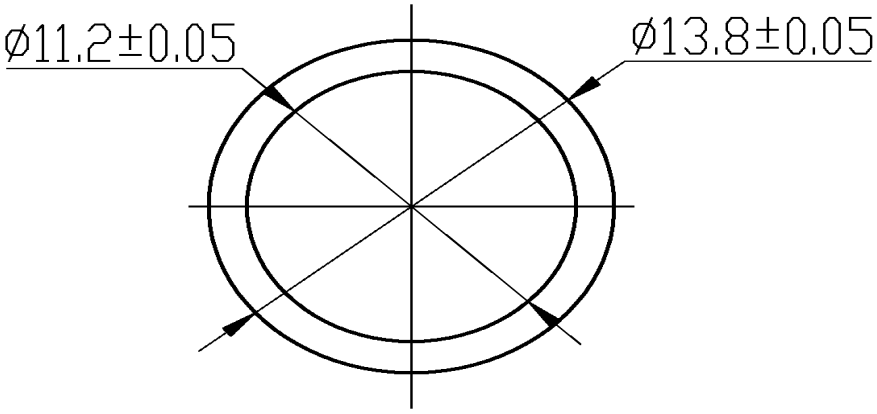
标记	处数	分区	更改文件号	签字	日 期

设 计		标准化	
校 对		批 准	
审 核		制 图	
工 艺		日 期	

Acid-resisting rubber			Zhejiang EGE battery manufacturing co., LTD.
图样标记	重 量	比 例	Safety valve
共 张	第 张		SV-1

N141204249



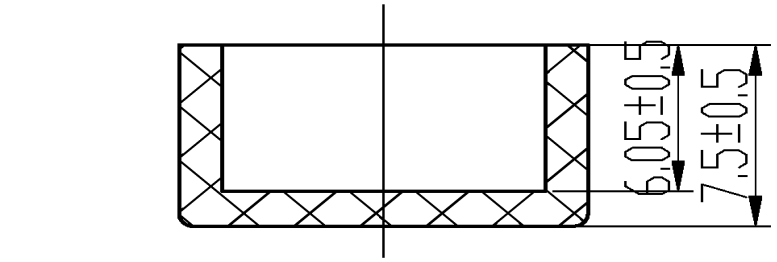


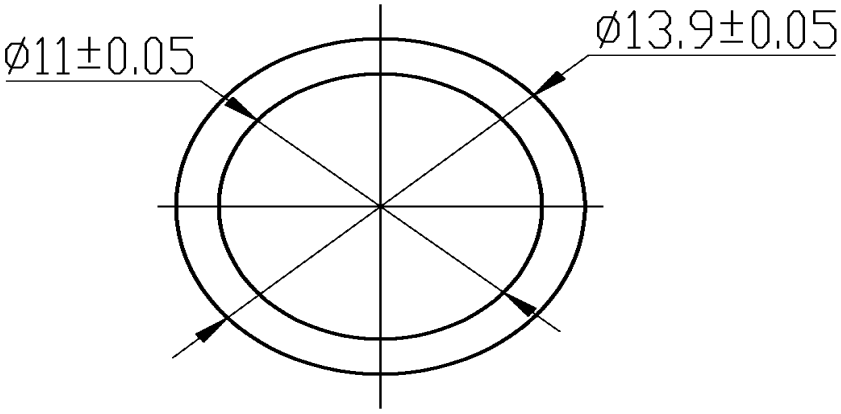
Technical requirements:

Apply to the following types of lead crystal battery:
3-EVFJ-180,3-EVFJ-210,4-EVFJ-135,4-EVFJ-150,6-CNFT-55,6-CNFJ-70,
6-EVFJ-70.

标记	处数	分区	更改文件号	签字	日 期	Acid-resisting rubber		Zhejiang EGE battery manufacturing co., LTD.
设 计		标准化		图样标记	重 量	比 例	Safety valve	
校 对		批 准						
审 核		制 图		共 张	第 张		SV-2	
工 艺		日 期						

N141204250



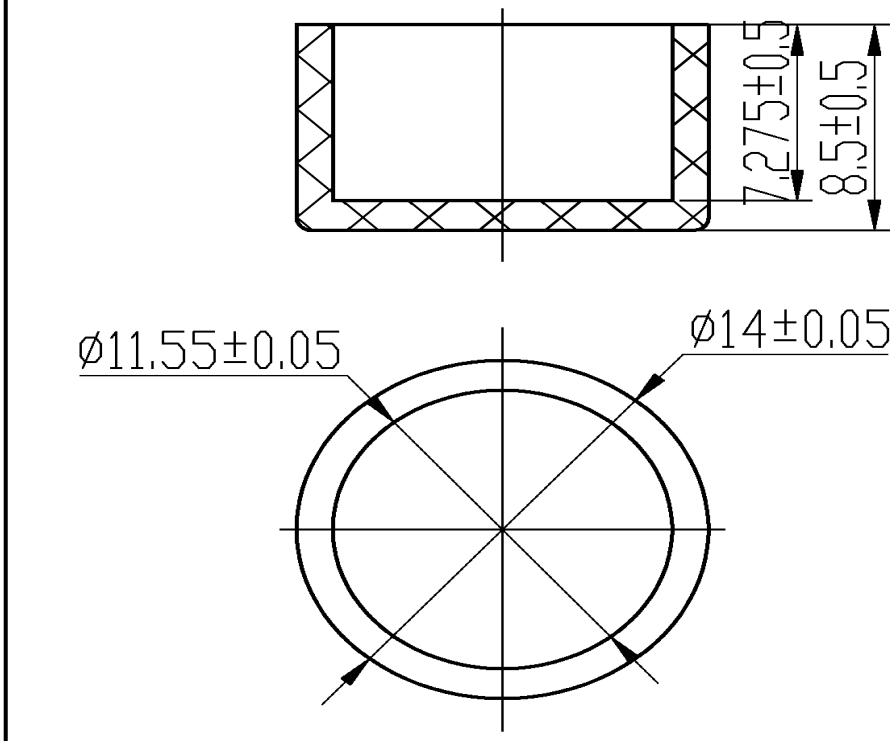


Technical requirements:

Apply to the following types of lead crystal battery:
3-CNFJ-160,3-CNFJ-200,6-CNFJ-55,6-CNFJ-65,6-CNFJ-90,6-CNFJ-100,
6-CNFT-100,6-CNFJ-160,6-CNFT-170,6-EVFJ-100.

						Acid-resisting rubber		Zhejiang EGE battery manufacturing co., LTD.
标记	处数	分区	更改文件号	签字	日 期			
设 计			标准化			图样标记	重 量	比 例
校 对			批 准					Safety valve
审 核			制 图					
工 艺			日 期			共 张	第 张	SV-3

N141204251



Technical requirements:

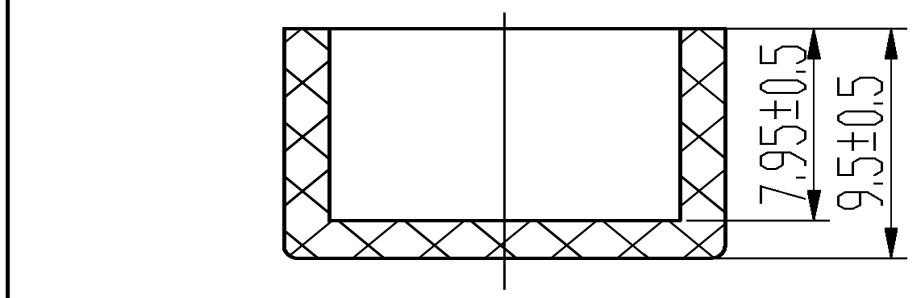
Apply to the following types of lead crystal battery:
CNF J-100.

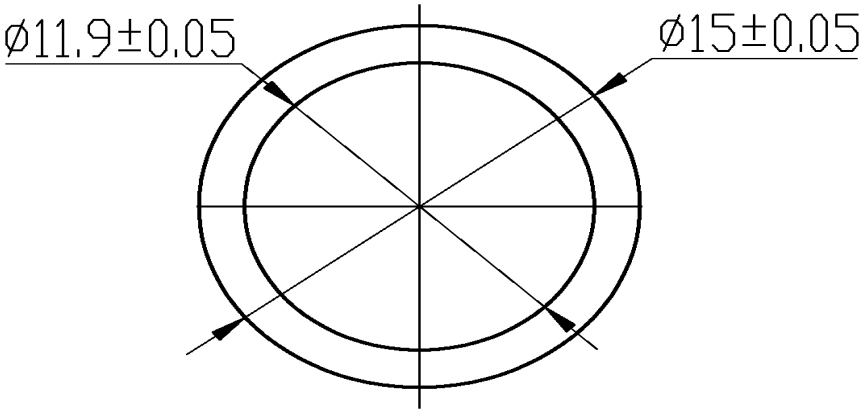
标记	处数	分区	更改文件号	签字	日 期

设 计		标准化	
校 对		批 准	
审 核		制 图	
工 艺		日 期	

Acid-resisting rubber			Zhejiang EGE battery manufacturing co., LTD.
图样标记	重 量	比 例	Safety valve
共 张	第 张		SV-4

N141204252





Technical requirements:

Apply to the following types of lead crystal battery:
6-CNFJ-150.6-CNFJ-180,6-CNFJ-200,6-EVFJ-150.

标记	处数	分区	更改文件号	签字	日 期

设 计		标准化	
校 对		批 准	
审 核		制 图	
工 艺		日 期	

Acid-resisting rubber			Zhejiang EGE battery manufacturing co., LTD.
图样标记	重 量	比 例	Safety valve
共 张	第 张		SV-5

TEST RECORD NO. 1

SAMPLES:

Samples of the Valve Regulated Lead Acid Batteries as indicated below and constructed as described herein were submitted by the manufacturer for examination and test.

Sealed Valve Regulated rechargeable Lead Acid Batteries, Models ELC600, ELC1200, and ELC2000.

GENERAL:

Test results relate only to the items tested.

The following test was conducted with acceptable result.

SEALED BATTERY/CELL PRESSURE RELEASE TEST 6.1

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in UL1989, Standard for Standby Batteries, Fourth Edition, dated March 30, 2010, including the revisions on June 7, 2010.

Test Record Summary:

The results of this investigation indicate that the products evaluated comply with the applicable requirements in Standby Batteries, UL1989, Fourth Edition, dated March 30, 2010, including the revisions on June 7, 2010. And, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

CONCLUSION

Samples of the components covered by this Report have been found to comply with the requirements covering the category and the components are found to comply with UL's applicable requirements. The description and test result in this Report are only applicable to the sample(s) investigated by UL and does not signify the product(s) described as being covered under UL's Follow-Up Service Program. When covered under UL's Follow-Up Service Program, the manufacturer is authorized to use the Recognized Marking on such products which comply with UL's Follow-Up Service Procedure and any other applicable requirements of Underwriters Laboratories Inc. The Recognized Component Mark of Underwriters Laboratories Inc. on the product, or the Recognized Marking symbol on the product and the Recognized Component Mark on the smallest unit container in which the product is packaged, is the only method to identify products investigated by UL to published requirements and manufactured under UL's Recognition and Follow-Up Service.

This Report is intended solely for the use of UL and the Applicant for establishment of UL certification coverage of the product under UL's Follow-Up Service. Any use of the Report other than to indicate that the sample(s) of the product covered by the Report has been found to comply with UL's applicable requirements is not authorized and renders the Report null and void. UL shall not incur any obligation or liability for any loss, expense, or punitive damages, arising out of or in connection with the use or reliance upon the contents of this Report to anyone other than the Applicant as provided in the agreement between UL and Applicant. Any use or reference to UL's name or certification mark(s) by anyone other than the Applicant in accordance with the agreement is prohibited without the express written approval of UL. Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

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