

INCH-POUND

MIL-PRF-32271/3

30 October 2008

PERFORMANCE SPECIFICATION SHEET

BATTERY, NON-RECHARGEABLE, LITHIUM

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the product herein shall consist of this specification and MIL-PRF-32271.

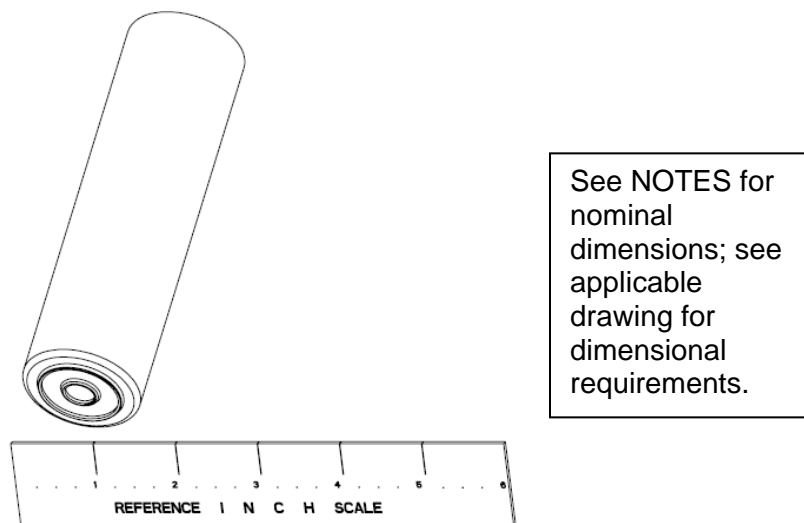


Figure 1 – General View, M32271/3 Battery Shape

REQUIREMENTS (see 1.2 for Type, Class, and Features descriptions):

Type – I

Class – 2

Features – C

PIN – M32271/3-12C

Approved chemistry: Lithium manganese dioxide (Li/MnO_2)

Specification requirements: The following requirements of MIL-PRF-32271, identified therein as “when specified”, are applicable as indicated below:

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Requirement	Specification Reference	Applicability
Parallel cell arrangements	3.4	No
Connectors	3.4.5	No
Battery charger connection	3.4.5.1	No
Connection integrity	3.4.5.2	No
Terminal integrity	3.4.6	Yes
Socket strength	3.4.6.1	No
Terminal strength	3.4.6.2	Yes
Complete discharge device	3.4.7	Yes
State of charge device	3.4.8	No
State of charge data output	3.4.8e	No
Cell charging	3.5.3	Yes
Nail penetration	3.5.4	Yes
Cell series string short circuit	3.5.6	No
Parallel string charge protection	3.5.6.1	No
Charge protection	3.5.11	Yes
Over-current protection	3.5.13.1	Yes
Over-temperature protection	3.5.14	Yes
Surface temperature	3.6h	Yes
Capacity tests LR and LRT		No
Immersion	3.7.8	Yes
Watertight integrity	3.7.9	No
DO NOT CHARGE! marking	3.8.1.2b	No
Complete discharge device marking/label	3.8.4	Yes
State of charge marking	3.8.5	No

Dimensions, marking and configuration

Battery - Drawing A3315880
 Battery Connector – Not Applicable
 Mating Connector – Not Applicable
 Battery Charger Connector – Not Applicable

Battery voltages (3.4.4 & 4.6.1.5):

Battery open-circuit voltage (3.4.4.1 & 4.6.1.5.1):

Maximum – 6.6 volts

Minimum – 6.0 volts

Battery closed circuit voltage (3.4.4.2 & 4.6.1.5.2):

For capacity, initial voltage delay, and closed circuit voltage test:

Minimum – 4.0 volts

Cell closed circuit voltage test (3.4.4.3 & 4.6.1.3): Minimum - 2.0 volts per cell

Maximum weight (3.1 & 4.6.1.6): 0.72 lbs. (327 g)

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Capacity test requirements (3.6 & 4.6.4):

Test	Initial voltage delay		Minimum Capacity	Cut-off Volts	
	Time (MAX) to	Volts			
I	1 second	4.0	5.00 hours	4.0	
L	1 second	4.0	2.75 hours	4.0	
H	1 second	4.0	8.3 hours	4.0	
Storage Period					
			<u>1-Week</u>	<u>4-Week</u>	
IT	1 second	4.0	4.7 hours	4.5 hours	4.0
LT	1 second	4.0	2.6 hours	2.5 hours	4.0
HT	1 second	4.0	7.7 hours	7.5 hours	4.0

Abuse test pulse discharge capacity requirement (3.5.12 & 4.6.2.12i): 9.4 ampere-hours.

METHODS OF EXAMINATION AND TEST:

Verification requirements. The following verification requirements of MIL-PRF-32271, identified therein by the phrase "when specified," are applicable as indicated below:

Test Requirement	Specification Reference	Applicability
Parallel discharges	Tables III, IV, IX, & XI	No
Connector	4.6.1.7	No
Battery charger connection test	4.6.1.7.1	No
Static connection integrity	4.6.1.7.2	No
Dynamic connection integrity	4.6.1.7.3	No
Terminal integrity	4.6.1.8	Yes
Socket strength	4.6.1.8.1	No
Terminal strength	4.6.1.8.2	Yes
Complete discharge device	4.6.1.9	Yes
State of charge device	4.6.1.10	No
Cell charging	4.6.2.3	Yes
Nail penetration	4.6.2.4	Yes
Cell series string short	4.6.2.6	No
Parallel cell charge protection	4.6.2.6.1	No
Charge protection test	4.6.2.11	Yes
Battery over-current protection	4.6.2.13	Yes
Battery over-temperature protection	4.6.2.14	Yes
Surface temperature	4.6.4.1	Yes
Capacity test LR	4.6.4.1.5	No
Capacity test LRT	4.6.4.1.9	No
Immersion	4.6.5.8	Yes
Watertight integrity	4.6.5.9	No

Cell closed-circuit voltage test: When cells are tested as specified in 4.6.1.3, load each cell with 2 amperes constant current, 1 ohm constant resistance, or 4 watts constant power.

Battery closed-circuit voltage test: When tested as specified in 4.6.1.5.2, load each battery with 2 amperes constant current, 2 ohms constant resistance, or 8 watts constant power.

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Abuse test, pre-discharge: When tested as specified in 4.6.2.12a, discharge with a load of 2.0 amperes for 2.5 hours.

Abuse test, pulse discharge: When tested as specified in 4.6.2.12i, discharge with a load of 2.5 amperes for 1 minute followed by 1.8 amperes for 4 minutes, cycled continuously to 4.0 volts.

Battery over-current protection: When tested as specified in 4.6.2.13, load batteries with either 4 amperes or 20 watts.

Immersion: When tested as specified in 4.6.5.8, apply a load of 350 milli-amperes during the storage and immersion time periods specified.

Capacity tests (4.6.4):

Test	Discharge Rate	Duty Cycle
I	2.0 amperes	Continuous discharge to cut-off volts, followed by 2.0 amperes To zero volts, then 2.0 amperes forced discharge for 5 minutes.
L	2.0 amperes	Continuous discharge to cut-off voltage
H	2.0 amperes	Discharge for 5 minutes at 2 amperes, followed by 5 minutes on open circuit; repeat cycle continuously to cut-off voltage
IT	2.0 amperes	Continuous discharge to cut-off voltage
LT	2.0 amperes	Continuous discharge to cut-off voltage
HT	2.0 amperes	Discharge for 5 minutes at 2 amperes, followed by 5 minutes on open circuit; repeat cycle continuously to cut-off voltage

NOTES:

(This section contains information of a general nature which may be helpful, but is not mandatory)

Intended use: This battery is intended for use in handheld land navigation sets. It is also used to power chemical agent monitors and some types of motor/blowers used in respiratory protection for aircraft pilots and aircrews.

¹Nominal ratings: The following are the nominal ratings for the battery described by this specification sheet. They are provided for information purposes.

¹ Capacity and energy delivered by a battery are significantly affected by usage conditions, such as temperature and loads applied. If you have any questions about use of this battery in a particular device or circumstance, please visit the following web site (contact info is posted): <http://www.cerdec.army.mil/c2d/armypower>.

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Battery PIN:	M32271/3-12C (Li/MnO₂)
<i>Overall Dimensions::</i>	5.059 in. L x 1.408 in. DIA
<i>MAX Weight:</i>	0.72 lbs (326 grams)
<i>Voltage Range:</i>	4.0-6.6
<i>Nominal Capacity: (in ampere-hours)</i>	10 Amp-hrs
<i>Nominal Energy: (in watt-hours)</i>	42 Watt-hrs
<i>MAX rated power output:</i>	15 watts
<i>MAX continuous load rating:</i>	2.0 amperes
<i>MAX pulse load rating:</i>	2.5 amperes
<i>Instantaneous trip rating:</i>	4.0 amperes
<i>Operating temperature range:</i>	-20 to 130°F (-29 to 55°C)
<i>Storage temperature range:</i>	-40 to 160°F (-40 to 71°C)
<i>MAX abusive temperature: (non-operating)</i>	195°F (91°C)

Other data:

Military Type Designations. The military type designation that relates to the PIN covered by this specification sheet is as follows: The BA-5380()/U designation has been used for the Type I PIN. It should be noted that the former Type II BA-5800()/U designation has been replaced by the BA-5380()/U.

This battery is subject to the transportation requirements of 49 CFR 173.185. The battery has solid cathodes and more than 2.0 grams of lithium content. See applicable Material Safety Data Sheet (MSDS) for the maximum lithium weight per cell and battery. It should be noted that all non-rechargeable lithium batteries are restricted from shipment as cargo aboard passenger aircraft within, entering, or leaving the US.

This battery includes a complete discharge device in order to render the battery non-reactive after use. If the battery is damaged, or if the device does not operate as indicated by an amber or yellow light, the battery is considered reactive waste. This battery may be recycled after use. Universal waste rules, where applicable, apply only when recycling is the chosen disposal method.

The US Army CECOM Life Cycle Management Command (LCMC) publishes guidelines for the design of battery compartments for devices using the battery covered by this specification sheet: Technical Bulletin CECOM-TB-7. Please contact the CECOM LCMC Directorate for Safety at monm-amselsfsec@conus.army.mil for further information.

Navy safety tests of NAVSEA S9310-AQ-SAF-010 are required for this battery during first article testing. The test data provided from the testing will be used to evaluate applications for specific using devices and Navy platforms. Devices using this battery will require US Navy Safety Approval prior to use by Department of Navy users unless such approval has already been granted. Please consult with NAVSEA Instruction 9310.1 for further information.

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Custodians:

Army – CR
Navy – NW
Air Force – 99
DLA – GS

Preparing activity:

Army – CR
(Project Number 6135-2006-006)

Review activities:

Navy – SH, AS, MC
Air Force – 71

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