SPEC. NO.	#46291 CR 123 AR	ISSUE DATE		2007-1-24	
DESCRIPTION	Lithium Ion Battery	EDITION	0	PAGE	1/4

1. Applicability

The specification is applicable to PortaPower Lithium Ion Rechargeable batteries (PortaPower model no. : #46291).

2. Ratings

2.1 Cell

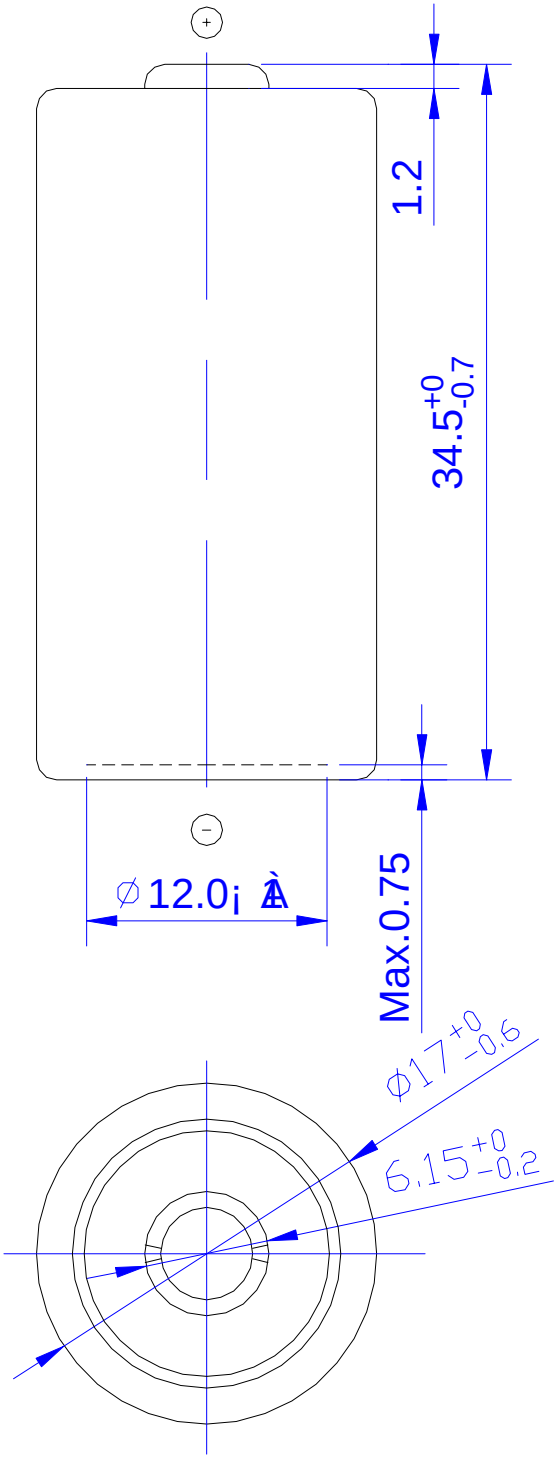
2.1.1 Type of Cell : Sealed Lithium-ion cylindrical Recharge battery
2.1.2 Cell Model : IFR16340A40
2.1.3 Cell Size : 16340
2.1.4 Cell Typical capacity : 500 mAh
2.1.5 Number of cell used : 1PC

2.2 Pack

2.2.1 Rated voltage : 3.2V
2.2.2 Typical capacity : 500 mAh.
2.2.3 Minimum capacity : 450 mAh (0.5C charging & discharging)
2.2.4 Standard charge : 200mA x 5hrs to 3.6V±0.1V
2.2.5 Rapid charge : 500mA x 2.5hrs to 3.6V±0.1V
2.2.6 Discharge end voltage : 2.0V
2.2.7 Maximum charge current : 500mA
2.2.8 Maximum discharge current : 2500mA.
2.2.9 Replace No. : CR123, CR123A
2.2.10 Battery Pack Color : Dark Blue
2.2.11 Running time on QUANTUM_TM91X (LED Flash light) : Approx 90 Min
2.2.12 Running time on QUANTUM_TM93X (LED Flash light): Approx 220 Min
2.2.13 Operating temperature : 0 – 45℃ (charge).
-10 - 50℃ (discharge).
2.2.14 Storage temperature : -20 - 45℃.

3. Configuration and dimensions(Unit: mm)

SPEC. NO.	#46291 CR 123 AR	ISSUE DATE		2007-1-24	
DESCRIPTION	Lithium Ion Battery	EDITION	0	PAGE	2/4



4. Test conditions

Unless otherwise specified, all tests should be conducted within one month of delivery under the following conditions :

Ambient temperature : 20 +/- 5℃.

Relative humidity : 65 +/- 20%.

SPEC. NO.	#46291 CR 123 AR	ISSUE DATE		2007-1-24	
DESCRIPTION	Lithium Ion Battery	EDITION	0	PAGE	3/4

5. Performance

Item	Criteria	Test conditions
Capacity	Above 450mAh	Standard charge and standard discharge
Internal impedance	Less than 120mohm	Measure AC impedance at 1kHz
Cycle life **	Above 280mAh	500 cycles charging/discharging is repeated in the below condition. ● Charging: 200mA to 3.6V±0.1V ● Rest time: 20min ● Discharging: 350mA up to 2.0V ● Temperature: 20±2℃
Leakage resistance	No leakage	Visually inspect battery pack after standard charge and storage at 25ºC for 14 days.
Drop test	No fire, no explosion, no leakage (max. weight loss 0.1%)	Drop battery pack after standard charged onto a bakelife floor from a height of 1 m for 6 times.
Vibration test	No fire, no explosion, no leakage (max. weight loss 0.1%)	The battery pack is vibrated in triaxial direction with 4 mm amplitude of frequency 30 Hz (1 Hz per minute) for 1 minute in triaxial direction.
Short circuit test	No fire, no explosion, cell temperature shall not exceed 150℃	External short circuit
Dimensions	Refer to drawing of FR123	Measured by calipers
Battery weight	Approx. 17g	Measured by balance
Appearance	No crack, no leakage, no deformation	Visual inspection

Note: ** Data provided under “Cycle Life” in this document is our best estimate based on the technical data supplied by battery cell manufacturer in the Product Specification Form.

6. Warranty

One year limited warranty against workmanship and material defects.
Manufacturer reserves the right to alter, amend the design, model and specification without prior notice.

7. Charge state of cell before shipment

Charge from 10% to 50% according to delivery condition.

8. Safety precaution

Please follow the safety precaution carefully as improper handling of lithium ion batteries may result in injury or damage from electrolyte leakage, heating ignition or explosion. To ensure safety, consult with Wentronic GmbH Limited regarding the charge and discharge specifications,

equipment structure, warning labels and other important details when designing equipment to use Wentronic GmbH Limited rechargeable lithium ion batteries.

Never charge the battery above 3.7V.
Never reverse charge the battery.
Never heat or incinerate the battery.
Never pierce, crush or cause mechanical damage to the battery.
Never charge a battery at high temperature condition, such as at or near a fire.
Never short circuit the battery.
Never discharge a battery to below 2.0V per cell.
Never allow the battery to get wet or be immersed in water.
For long period of storage, temperature should be below 45℃.
After long period of storage, battery may required some cycling to recover capacity.