

## Mallory Zinc Extra Life Range

279-407, 279-419,

Mallory Zinc Extra Life batteries are constructed using a manganese dioxide cathode electrode separated from the anode zinc can by an absorbent layer.

The electrolyte is a mixture of ammonium chloride and zinc chloride. This combination produces a superior, yet economic battery capable of operating efficiently at high as well as low rates and over a wide range of duty cycles.

In particular, these batteries offer longer life and better performance on heavier loads when compared with ordinary zinc carbon batteries. There is no distinct upper load limit, and the system is typically capable of supplying up to 2A at room temperature.

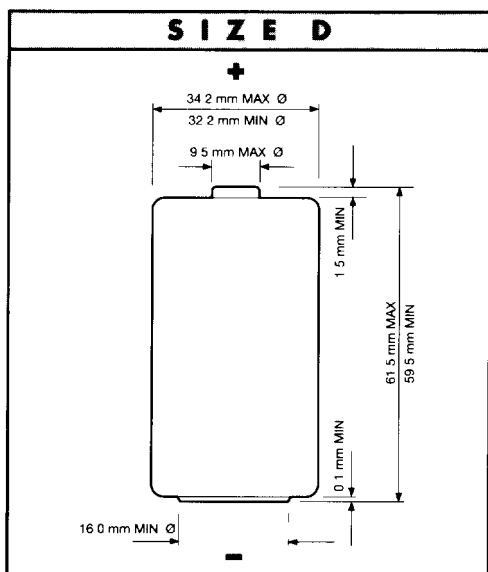
The nominal cell voltage is 1.5V and can operate down to an end point voltage of 0.8V under most conditions of load and temperature. Maximum open circuit voltage is typically 1.56V per cell. The recommended end voltage for single cell operation at room temperature is 0.8V increasing to 0.9V per cell when 6 or more series cells are used.

Zinc cells may be series or parallel connected subject to the usual observations which can be outlined by Duracell technical personnel upon request.

The Zinc system operates efficiently between -10°C and +50°C subject to load and duty cycles. The battery is fully sealed and tolerant to high vacuum, and is leakproof under all normal conditions. High humidity may eventually cause external corrosion and should be avoided.

Typical retained life is 70% after 2.5 years of storage at 20°C. Short term exposure to 45°C is permissible. Long term storage at elevated temperatures causes a progressive deterioration in both capacity and high rate properties.

Mallory Zinc Extra Life batteries are available in D, C, AA and 9V sizes and are electrically and mechanically interchangeable with the corresponding ordinary zinc carbon batteries. They conform to the requirements of the IEC 86-1 specification.



### SPECIFICATION

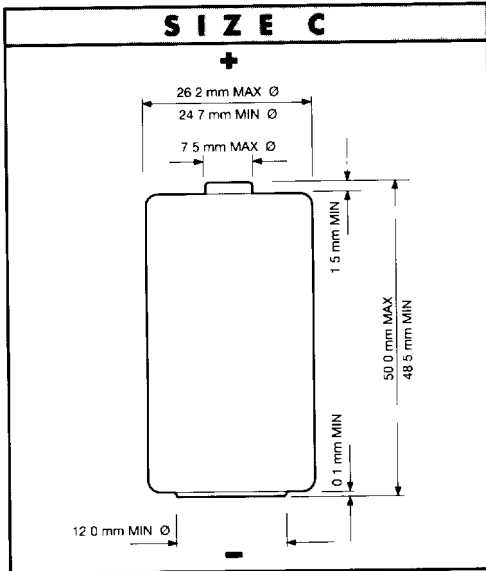
Chemical System	Manganese dioxide - ammonium/zinc chloride - zinc
Nominal Voltage	1.5V
Life	19h on 3.9 Ohms for 1h/day to 0.9V at 20°C
IEC Designation	R20P
Weight	87g
Environmental	Mercury Free No added Cadmium

### Typical discharge characteristics

Load Ohms	Daily Period	End Voltage V	Temperature °C	Life h	Application
2.2	1h	0.8	20	10	IEC Toy
3.9	30 min	0.9	20	17	IEC Torch
3.9	1h	0.9	20	19	IEC Cassette Recorder
39	4h	0.9	20	230	IEC Radio

Leakproofness: Conforms to IEC 86-1 Jacket: Plastic

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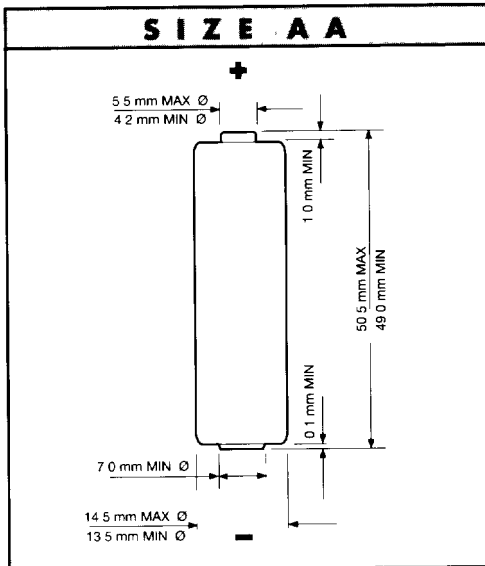
## SPECIFICATION

Chemical System	Manganese dioxide - ammonium/zinc chloride - zinc
Nominal Voltage	1.5V
Life	9.5h on 3.9 Ohms for 1h/day to 0.8V at 20°C
IEC Designation	R14P
Weight	43g
Environmental	Mercury Free No added Cadmium

## Typical discharge characteristics

Load Ohms	Daily Period	End Voltage V	Temperature °C	Life h	Application
3.9	1h	0.8	20	10	IEC Toy
3.9	10 min	0.9	20	7	IEC Torch
6.8	1h	0.9	20	17	IEC Cassette Recorder
39	4h	0.9	20	110	IEC Radio

Leakproofness: Conforms to IEC 86-1 Jacket: Plastic



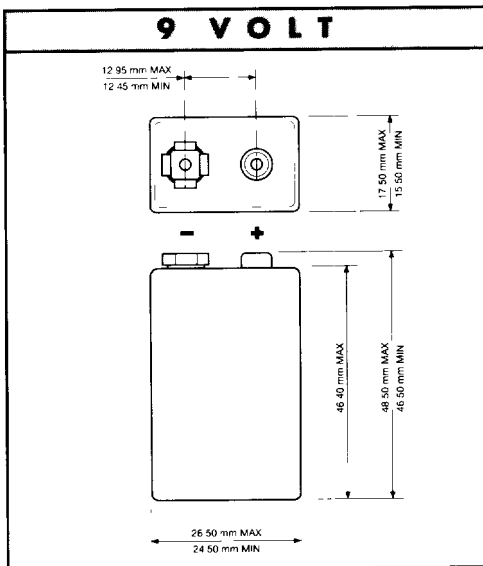
## SPECIFICATION

Chemical System	Manganese dioxide - ammonium/zinc chloride - zinc
Nominal Voltage	1.5V
Life	6.5h on 10 Ohms for 1h/day to 0.9V at 20°C
IEC Designation	R6P
Weight	14.5g
Environmental	Mercury Free No added Cadmium

## Typical discharge characteristics

Load Ohms	Daily Period	End Voltage V	Temperature °C	Life h	Application
3.9	1h	0.8	20	2.3	IEC Toy
3.9	5 min	0.9	20	2.5	IEC Torch
10	1h	0.9	20	7	IEC Personal Stereo
75	4h	0.9	20	66	IEC Radio

Leakproofness: Conforms to IEC 86-1 Jacket: Plastic



## SPECIFICATION

Chemical System	Manganese dioxide - ammonium/zinc chloride - zinc
Nominal Voltage	9V
Life	8h on 180 Ohms for 30mins/day to 4.8V at 20°C
IEC Designation	6F22
Weight	34g
Environmental	Mercury Free No added Cadmium

## Typical discharge characteristics

Load Ohms	Daily Period	End Voltage V	Temperature °C	Life h	Application
180	1h	5.4	20	6.5	IEC Dictating Machine
180	30 min	4.8	20	8	IEC Calculator
620	2h	5.4	20	29	IEC Radio

Leakproofness: Conforms to IEC 86-1 Jacket: Metal Termination: Miniature Snap Fastener

# DURACELL®

## INDUSTRIAL PRODUCTS

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