



# EaglePicher<sup>®</sup> Carefree<sup>®</sup> Rechargeable Batteries

EAGLEPICHER<sup>+</sup>  
TECHNOLOGIES

# Carefree® Batteries

## Long-Lasting and Maintenance-Free Batteries

EaglePicher's Carefree rechargeable batteries are designed to provide extended operation and maintenance-free service, marking them well-suited for use in a variety of commercial applications.

Active in battery development since 1922, EaglePicher is the most diversified battery manufacturer in the world. We apply our cutting-edge technology and broad range of electrochemistries to applications in the space, defense, medical and commercial industries—not just for convenience—but when it is a matter of life and death.

Carefree batteries meet today's expanding requirements for rechargeable power. EaglePicher has more than 50 years of experience

in building and distributing high quality sealed lead acid batteries. These batteries require no maintenance and are ideal for applications demanding long-service life with no active management. The batteries are configurable in broad range of package sizes to accommodate diverse requirements.

Carefree's Deep Cycle Series is designed for applications in which extended battery cycle life is required, including discharges up to 100%.

## Carefree Stationary Power and UPS Batteries

### Features

- Flame retardant cases
- UL-recognized component
- Absorbent glass mat (AGM) Technology for efficient gas recombination and maintenance-free operation
- Approved for air transportation, compliance with IATA/ICAO Special Provision A67
- Operates in any orientation
- 10-year design life
- Wide temperature range
- Computer-designed lead/calcium tin-alloy grid for high power density
- Low self-discharge rate

### Typical Applications

- Telecommunication
- Uninterruptible power supply (UPS)
- Cell tower
- Emergency lighting
- Medical
- Back-up power
- Engine starting

Part Number	Nominal Voltage (V)	Nominal Amp Hour (Ah)	(A) Length (in.)	(B) Width (in.)	(C) Height (in.)	(D) Height with Terminals (in.)	Weight (lb)	Terminal Type
CFR-6V58	6	58.0	7.30	4.39	8.06	8.06	25.00	F4
CFR-6V58-S9	6	58.0	7.30	4.39	8.06	8.06	25.00	Connector
CFR-12V29	12	29.0	6.51	4.91	7.39	7.39	21.20	F4
CFR-12V29S10	12	29.0	6.51	4.91	7.39	7.39	21.20	Connector
CF-12V40FR	12	37.0	10.00	3.80	8.00	8.00	33.00	F11

# Carefree Standard AGM Batteries

## Features

- UL-recognized component
- Absorbent glass mat (AGM) technology for efficient gas recombination and maintenance-free operation
- Approved for air transportation, compliance with IATA/ICAO Special Provision A67
- Operates in any orientation
- Long-service life in both float and cyclic applications
- 10-year design life
- Computer-designed lead/calcium tin-alloy grid for high power density

## Typical Applications

- Fire and security
- Electric fencing
- Medical
- Emergency lighting
- Toys
- Uninterruptible power supply (UPS)
- Wheelchairs
- Back-up power
- Engine starting
- Electric vehicles

Part Number	Nominal Voltage (V)	Nominal Amp Hour (Ah)	Length (in.)	Width (in.)	Height (in.)	Height with Terminals (in.)	Weight (lb)	Terminal Type
CF-6V4.5	6	4.5	2.76	1.85	3.98	4.21	1.87	F1
CF-6V7	6	7.0	5.94	1.34	3.70	3.94	3.00	F1
CF-6V12	6	12.0	5.954	1.97	3.70	3.94	4.63	F1/F2
CF-6V14	6	14.0	4.25	2.80	5.51	5.51	5.22	F1/F2
CF-6V33	6	33.0	6.25	3.35	6.50	6.75	12.20	F2
CF-12V1.3	12	1.2	3.82	1.69	2.05	2.26	1.25	F1
CF-12V2.3	12	2.3	7.01	1.38	2.40	2.64	2.18	F1
CF-12V4.5	12	4.5	5.94	2.56	3.74	3.98	5.86	F1/F2
CF-12V7.2	12	7.2	5.94	2.56	3.74	3.98	5.86	F1/F2
CF-12V9	12	9.0	5.94	2.56	3.70	3.94	6.17	F2
CF-12V12	12	12.0	5.95	3.86	3.74	3.97	9.25	F1/F2
CF-12V14	12	14.0	8.50	2.75	5.50	5.75	10.60	F1/F2
CF-12V14L	12	14.0	8.50	2.80	5.51	5.51	10.60	F1/F2
CF-12V17	12	17.0	7.12	3.03	6.57	6.57	12.55	F3
CF-12V18.0	12	18.0	7.12	3.03	6.57	6.57	12.55	F2
CF-12V26	12	26.0	6.50	6.90	4.90	4.90	20.30	F3
CF-12V33-C	12	33.0	6.72	6.25	6.50	6.75	24.50	F2
CF-12V33L-C	12	33.0	13.50	3.35	6.50	6.75	24.50	F2
CF-12V33U1	12	33.0	7.68	5.12	6.26	7.09	22.50	F7





# Battery Charging

## Charging

To obtain the maximum life from any valve regulated lead acid (VRLA) battery, voltage-controlled charging is required. In general, the conditions of the usage fall into two basic classifications: cyclic and float applications. Each classification requires different voltage control.

## Float Applications

A battery in float service is being subjected to continuous charging and is called upon to deliver power at infrequent intervals or in case of a power outage. Under this condition, the battery charging should be:

- **Constant potential:** 2.27-2.30 volts per cell
- **Limiting current:** 30% of rated capacity in amps
- **Charge time:** Continuous

## Cyclic Applications

A battery in cyclic service is normally being discharged at a more frequent interval than when it is in float service. In cyclic service, it has less time to recharge. Under this condition the battery charging should be:

- **Constant potential:** 2.41-2.48 volts per cell at 25°C (77°F)
- **Limiting current:** 20% of rated capacity in amps
- **Charge time:** approximately 10-24 hours

## Charging Temperature

VRLA batteries store electrochemical energy and are dependent upon temperature sensitive chemical reactions. Elevated temperature accelerates reactivity, providing immediate performance benefits through improved efficiency. This improved

efficiency is at the expense of a cumulative reduction in overall useful life due to accelerated activity of unwanted side reactions. Reduced temperature produces the opposite effects. Thus, the projected useful life of a battery must take into account the expected temperature excursions of the installed ambient environment.

For applications over a wide temperature range, charge voltage must be changed as a function of temperature. Determine upper and lower temperature points and set temperature compensating charge voltage range per Charge Voltage per Cell vs. Temperature chart.

For applications where a wide temperature range does not apply, simply determine average ambient temperature and set charge voltage per Charge Voltage per Cell vs. Temperature chart.

For more technical information, please contact our engineers.