



## Recommended Charging Information:

**Alternator:** 13.3 to 15.0 volts  
**Battery Charger (Constant Voltage):** 13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate  
**Float Charge:** 13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)  
**Rapid Recharge:  
(Constant voltage charger)** Maximum voltage 15.6 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp.  
**All limits must be strictly adhered to.**

**Recharge Time:** (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	35 minutes
50 amps	75 minutes
25 amps	140 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

## Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

BCI = Battery Council International

OPTIMA Batteries  
Product Specifications: Model 34M  
December 2008



**Battery Model:** D27M  
**Part Number:** 8027-127  
**Nominal Voltage:** 12 volts  
**NSN:** Number applied for, product currently available  
**Description:** High power, dual purpose engine start and deep cycle, sealed lead acid battery

### Physical Characteristics:

**Plate Design:** High purity lead-tin alloy. Wound cell configuration utilizing proprietary *SPIRALCELL*<sup>®</sup> technology.  
**Electrolyte:** Sulfuric acid, H<sub>2</sub>SO<sub>4</sub>  
**Case:** Polypropylene  
**Color:** Case: Light Gray  
 Cover: "OPTIMA" Blue  
**Group Size:** BCI: 27

	Standard	Metric
<b>Length:</b>	12.160"	308.86 mm
<b>Width:</b>	6.762"	171.75 mm
<b>Height:</b>	8.700"	220.98 mm (Height at the top of terminals)
<b>Weight:</b>	53.8 lb	24.4 kg

Terminal Configuration: SAE / BCI automotive and 5/16"-18UNC-2A threaded stainless steel stud.

### Performance Data:

**Open Circuit Voltage (Fully charged):** 13.1 volts  
**Internal Resistance (Fully charged):** .0025 ohms  
**Capacity:** 66 Ah (C/20)  
**Reserve Capacity:** BCI: 140 minutes  
 (25 amp discharge, 80°F (26.7°C), to 10.5 volts cut-off)

### Power:

**CCA (BCI 0°F):** 800 amps  
**MCA (BCI 32°F):** 1000 amps

### Recommended Charging:

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

#### Model: D27M

These batteries are designed for starting and deep cycle applications and for use in vehicles with large accessory loads.

## Recommended Charging Information:

<b>Alternator:</b>	13.65 to 15.0 volts
<b>Battery Charger (Constant Voltage):</b>	13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate
<b>Float Charge:</b>	13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)
<b>Rapid Recharge: (Constant voltage charger)</b>	Maximum voltage 15.6 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp.
<b>Cyclic or Series String Applications:</b>	14.7 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). When current falls below 1 amp, finish with 3 amp constant current for 1 hour.

**All limits must be strictly adhered to.**

**Recharge Time:** (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	45 minutes
50 amps	98 minutes
25 amps	185 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

## Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

BCI = Battery Council International

OPTIMA Batteries  
Product Specifications: Model D27M  
December 2008



**Battery Model:** D31M  
**Part Number:** 8052-161  
**Nominal Voltage:** 12 volts  
**NSN:** 6140 01 502 4405  
**Description:** High power, dual purpose engine start and deep cycle, sealed lead acid battery

**Physical Characteristics:**

**Plate Design:** High purity lead-tin alloy. Wound cell configuration utilizing proprietary *SPIRALCELL*<sup>®</sup> technology.  
**Electrolyte:** Sulfuric acid, H<sub>2</sub>SO<sub>4</sub>  
**Case:** Polypropylene  
**Color:** Case: Light Gray  
 Cover: "OPTIMA" Blue  
**Group Size:** BCI: 31

	Standard	Metric
<b>Length:</b>	12.774"	324.46 mm
<b>Width:</b>	6.529"	165.84 mm
<b>Height:</b>	9.370"	238.00 mm (Height at the top of terminals)
<b>Weight:</b>	59.8 lb	27.1 kg

Terminal Configuration: SAE / BCI automotive and 5/16"-18UNC-2A threaded stainless steel stud.

**Performance Data:**

**Open Circuit Voltage (Fully charged):** 13.1 volts  
**Internal Resistance (Fully charged):** .0025 ohms  
**Capacity:** 75 Ah (C/20)  
**Reserve Capacity:** BCI: 155 minutes  
 (25 amp discharge, 80°F (26.7°C), to 10.5 volts cut-off)

**Power:**

**CCA (BCI 0°F):** 900 amps  
**MCA (BCI 32°F):** 1125 amps

**Recommended Charging:**

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

**Model: D31M**

These batteries are designed for starting and deep cycle applications and for use in vehicles with large accessory loads.

## Recommended Charging Information:

<b>Alternator:</b>	13.65 to 15.0 volts
<b>Battery Charger (Constant Voltage):</b>	13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate
<b>Float Charge:</b>	13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)
<b>Rapid Recharge: (Constant voltage charger)</b>	Maximum voltage 15.6 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp.
<b>Cyclic or Series String Applications:</b>	14.7 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). When current falls below 1 amp, finish with 3 amp constant current for 1 hour.

**All limits must be strictly adhered to.**

**Recharge Time:** (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	52 minutes
50 amps	112 minutes
25 amps	210 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

## Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

BCI = Battery Council International

OPTIMA Batteries  
Product Specifications: Model D31M  
December 2008



**Battery Model:** D34M  
**Part Number:** 8016-103  
**Nominal Voltage:** 12 volts  
**NSN:** 6140 01 475 9355  
**Description:** High power, dual purpose engine start and deep cycle, sealed lead acid battery

**Physical Characteristics:**

**Plate Design:** High purity lead-tin alloy. Wound cell configuration utilizing proprietary *SPIRALCELL*<sup>®</sup> technology.  
**Electrolyte:** Sulfuric acid, H<sub>2</sub>SO<sub>4</sub>  
**Case:** Polypropylene  
**Color:** Case: Light Gray  
 Cover: "OPTIMA" Blue  
**Group Size:** BCI: 34

	Standard	Metric
<b>Length:</b>	10.018"	254.46 mm
<b>Width:</b>	6.829"	173.46 mm
<b>Height:</b>	7.925"	201.30 mm (Height at the top of terminals)
<b>Weight:</b>	43.5 lb	19.7 kg

Terminal Configuration: SAE / BCI automotive and 5/16"-18UNC-2A threaded stainless steel stud.

**Performance Data:**

**Open Circuit Voltage (Fully charged):** 13.1 volts  
**Internal Resistance (Fully charged):** .0028 ohms  
**Capacity:** 55 Ah (C/20)  
**Reserve Capacity:** BCI: 120 minutes  
 (25 amp discharge, 80°F (26.7°C), to 10.5 volts cut-off)

**Power:**

**CCA (BCI 0°F):** 750 amps  
**MCA (BCI 32°F):** 870 amps

**Recommended Charging:**

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

**Model: D34M**

These batteries are designed for starting and deep cycle applications and for use in vehicles with large accessory loads.

## Recommended Charging Information:

<b>Alternator:</b>	13.65 to 15.0 volts
<b>Battery Charger (Constant Voltage):</b>	13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate
<b>Float Charge:</b>	13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)
<b>Rapid Recharge: (Constant voltage charger)</b>	Maximum voltage 15.6 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp.
<b>Cyclic or Series String Applications:</b>	14.7 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). When current falls below 1 amp, finish with 2 amp constant current for 1 hour.

**All limits must be strictly adhered to.**

**Recharge Time:** (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	35 minutes
50 amps	75 minutes
25 amps	140 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

## Shipping and Transportation Information:

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