

## Delphi Freedom® Battery Automotive — North America

**Delphi** is a technology leader in energy storage chemistries, providing customers with systems capabilities, global engineering presence, and expertise in energy storage and electrical interfaces. Beyond the standard energy management functions of starting, lighting, and ignition, entirely new applications are emerging that demand improved fuel efficiency, lower environmental impact, and increased vehicle utility. Through ongoing development within its Freedom® family of maintenance-free batteries, Delphi is positioned to help original equipment manufacturers meet changing market needs for battery technology.

**Description** – The Delphi Freedom® battery is a maintenance-free lead-calcium design available in top post, side terminal, and dual terminal configurations. The wrought lead-calcium grid design provides excellent current conductivity and resists damage from overcharging, heat, thermal runaway, and vibration. High-density plates provide excellent reserve capacity and cycling capability to meet the increasing electrical accessory loads of today's vehicles.

**Typical Application** – To meet customer battery requirements, the Freedom® battery performs four key functions in the automotive electrical system. First, it supplies electrical energy for the accessories when the engine is not running. Second, it supplies energy to the cranking motor and ignition system or glow plugs as the engine is started. Third, it inter-



mittently supplies current for accessories when energy demand is greater than generator output. Fourth, it acts as a voltage stabilizer in the electrical system.

**Performance Advantages** – Freedom® batteries are manufactured worldwide to meet regional specifications and to provide freshness. Tailored programs, including testing to customer specifications and private branding, are available to original equipment manufacturers and aftermarket customers.

# DELPHI

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# Delphi Freedom<sup>®</sup> Battery

## Automotive — North America

Features	Benefits
Factory-sealed, maintenance-free	<ul style="list-style-type: none"> <li>– Battery never needs water or service</li> <li>– Lower electrolyte loss, ensuring longer life</li> <li>– Minimizes gassing and acid spewing</li> <li>– Greater durability and energy efficiency</li> </ul>
High-density plate paste/thicker plates	<ul style="list-style-type: none"> <li>– Highly efficient power source, longer life</li> <li>– Greater reserve capacity/cycling ability to support increasing accessory loads</li> </ul>
Wrought lead-calcium grid design with plastic bottom border	<ul style="list-style-type: none"> <li>– Improved vibration resistance</li> <li>– Less corrosion—more power/longer life</li> </ul>
No antimony in plates	<ul style="list-style-type: none"> <li>– Resists overcharge, heat, and thermal runaway</li> <li>– Reduces self-discharge and permits storage for one year or more</li> </ul>
Built-in hydrometer (state-of-charge indicator)	<ul style="list-style-type: none"> <li>– Instant state-of-charge indication</li> </ul>
Flexible manufacturing to meet all OEM and aftermarket requirements (wide variety of cases, handles, performances, and terminal configurations)	<ul style="list-style-type: none"> <li>– Top, side, and dual terminal designs available for ease of application</li> <li>– No routine service allows mounting flexibility (remote mounting)</li> </ul>
Flat-top design	<ul style="list-style-type: none"> <li>– Low underhood clearance—less space</li> </ul>
Leading technologies and processes	<ul style="list-style-type: none"> <li>– World-class maintenance-free battery</li> </ul>

### Service and Support

- Lab testing to specifications
- Tailored programs (service and support)
- Verification of design criteria (field and fleet testing)
- Delivery to meet customer demand
- High-volume manufacturing
- Batteries from raw material to finished product

### Standards—Tested to Meet

- BCI
- JIS
- SAE
- DIN

### Facilities (North America)

- Four manufacturing plants in the United States
- One manufacturing plant in Canada
- One manufacturing plant in Mexico

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### Battery Specifications

#### Side Terminal

BCI Group Size	Dimensions						Performance Ranges	
	in.			mm			CCA, <sup>(1)</sup> Amps	RC, <sup>(2)</sup> Minutes
	Length	Width	Height	Length	Width	Height	@ 0°F	@ 80°F
70	8-3/4	7	7-1/4	223	178	184	370-630	60-80
74	10-7/8	7	8	276	178	203	475-500	90-125
75	9-1/2	7	7-1/4	241	178	184	475	90-100
76	13-1/8	7-1/8	8-1/2	334	180	216	970-1075	150
78	10	7	7-1/4	276	178	184	550-770	95-115
79	12-1/8	7	7-1/4	306	178	184	880	140

#### Dual Terminal

70DT	8-3/4	7	7-7/8	223	178	200	450-675	70-80
78DT	10-7/8	7	7-3/4	276	178	197	875	115

#### Top Terminal

24	10-7/8	6-3/4	8-3/4	276	173	223	400-950	90-125
24F	10-7/8	6-3/4	8-3/4	276	173	223	475-950	90-120
25	9-1/8	6-3/4	8-3/4	230	173	223	525-725	105-110
26	8-3/4	6-3/4	8	223	173	203	370-630	60-80
26R	8-3/4	6-3/4	8	223	173	203	370-630	60-80
34	10	6-3/4	7-3/4	261	173	197	525-630	110-115
35	9-1/8	6-3/4	8-3/4	230	173	223	525-725	105-110
41	11-1/2	6-7/8	6-7/8	293	175	175	510-640	80-100
42	9-3/4	6-3/4	6-3/4	245	173	174	400-500	70
45	8-7/8	5-1/2	8-7/8	226	140	226	425-500	65-70
51	9-3/8	5-1/8	8-3/4	238	129	223	410	60
55	9-1/4	6-1/8	8-1/4	233	154	210	430-550	70-80
58	9-3/4	7-1/4	6-3/4	245	184	174	430-550	80-90
62	8-7/8	6-3/8	8-7/8	226	162	225	430-550	70-90
65	11-7/8	7-1/2	7-5/8	303	190	193	700-850	150-160
85	9-1/2	6-3/4	8	241	173	203	630	90-95

NOTE: Battery weight varies by performance.

(1)CCA (Cold Cranking Amps) – The current available from the battery to start an engine in the dead of winter. Current delivered by a fully charged 12V battery at 0° F while maintaining a terminal voltage of 7.2V or higher.

(2)RC (Reserve Capacity) – Indicates how many minutes a fully charged battery could keep the engine and electrical accessories running in the event the charging system fails.

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