

# DRY CELL TRACTION BATTERY TECHNOLOGY

Innovative Technology.

Proven Expertise.

Best in Class Solutions.



**Discover®**  
Innovative Battery Solutions

Dry Cell Traction Battery Technology

# HIGH PERFORMANCE COMES STANDARD

## RESPONSIBLE SOLUTION

- Non-gassing and non-spillable
- Maintenance-free
- Approved for environmentally sensitive areas
- Safeguards against spill related injuries and damage
- Eliminates corrosion due to off-gassing
- Does not require ventilated charging room
- Replacement sizes for all standard hazardous batteries

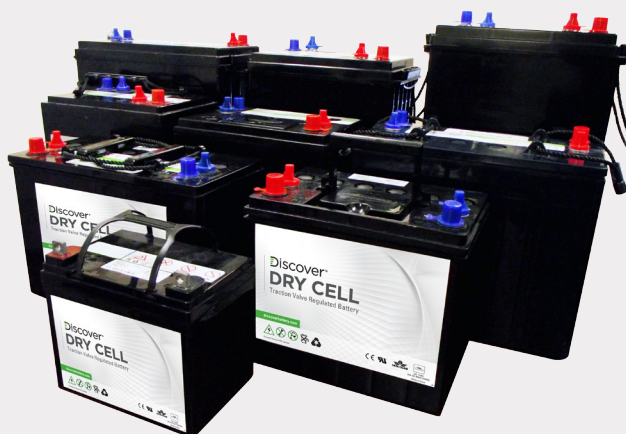
## SMART SAVINGS

- Designed for longer run times and longer life
- Designed for high-rate, long-duration discharges
- Shorter charging time and good charge retention
- Opportunity charging recommended
- Save costs on labor and battery maintenance
- Save replacement costs on poorly maintained batteries

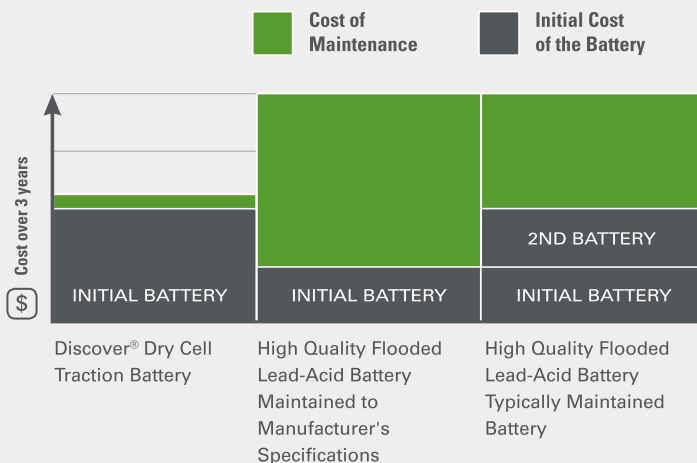
## ENVIRONMENTAL SUSTAINABILITY

- Recyclable and made with recycled products
- Exempt from HAZMAT shipping requirements
- Compliant with LEED (USGBC)
- Compliant with OSHA Occupational Health and Safety Regulations
- Comprehensive design to conserve resources, improve safety and reduce waste

Superior performance. Engineered to last.



## Total Cost of Ownership:

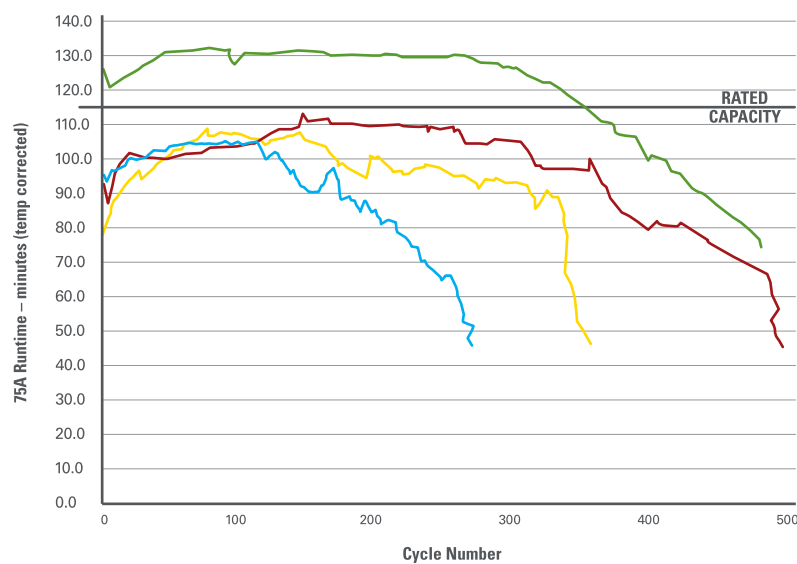


## Maintenance-free Technology:

Discover® Dry Cell Traction Products have a recognized gas recombination efficiency of greater than 99.9% and are sealed, non spillable and maintenance-free.

# Discover® Dry Cell Traction Batteries Outperforms Competitors

## 6V DEEP-CYCLE BATTERY CYCLE LIFE TEST



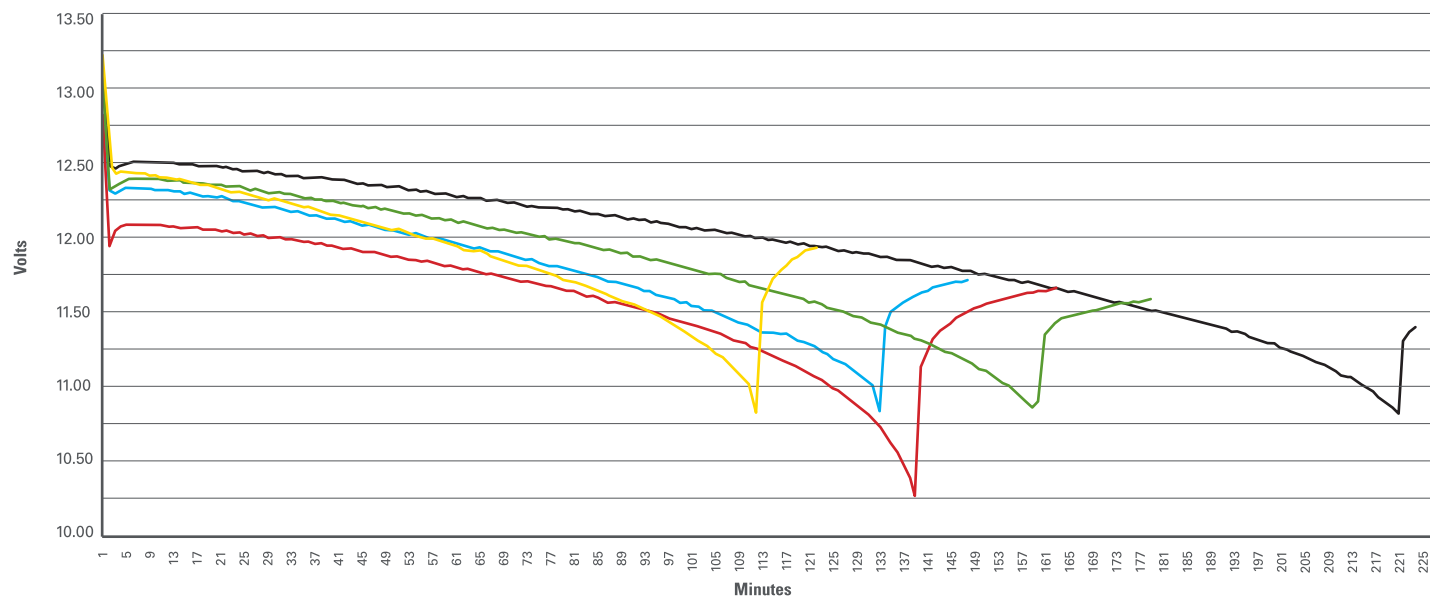
Capacity @75A	Capacity @ 20 Hour Rate	Cycle life to 80% of original capacity	Cycle life to 50% of original capacity
115 minutes	225 AH	180	235
114 minutes	216 AH	325	375
115 minutes	225 AH	375	520
125 minutes	220 AH	420	-

As tested in Accordance with BCI S-06 specification for cycle life testing of Electric Vehicle and Cycling Capacity.

Discover® Dry Cell Traction Batteries outperforms high quality Deep Cycle Competitors in peak capacity, sustained capacity and usable life to 80% of original capacity.

# Discover® outperforms high quality deep cycle competition in usable capacity at high sustained discharge currents

## 12 VOLT BATTERY RUN TIMES IN MINUTES @ 32.5 AMP DISCHARGE



### MANUFACTURERS PUBLISHED CAPACITIES:

- EV27A-A 12V 100AH / 20HR, 87AH / 5HR
- EV31A-A 12V 115AH / 20HR, 96AH / 5HR
- EV12A-A 12V 140AH / 20HR, 120AH / 5HR
- Competitor A Gel 12V 97AH / 20HR, 85AH / 6HR
- Competitor B Wet 12V 130AH / 20HR, 99AH / 5HR

# DRY CELL TRACTION SERIES

Type No.	Industry Reference	Electrical Characteristics									Mechanical Characteristics <sup>C</sup>								
		Amp Hours						Minutes of Discharge			Length		Width		Height <sup>D</sup>		Weight <sup>E</sup>		Terminal (Optional)
		100HR <sup>B</sup>	20HR <sup>A</sup>	10HR <sup>B</sup>	5HR <sup>B</sup>	3HR <sup>B</sup>	1HR <sup>B</sup>	@25A <sup>B</sup>	@56A <sup>B</sup>	@75A <sup>B</sup>	In	mm	In	mm	In	mm	lb	kg	
6 Volt Dry Cell Battery																			
EVGT6A-A	GC6H	288	260	240	222	200	150	575	225	155	10.2	260	7.1	180	11.1	282	79	36	M8 (AM)
EVGC6A-A*	GC6	240	220	200	190	170	130	475	185	125	10.2	260	7.1	180	10.8	274	66	30	AM (M8)
EV627A-A	6V 27	240	210	200	180	165	130	470	180	125	12.0	306	6.6	168	8.9	225	63	29	M8
EV506A-230*	DIN 6V	246	230	210	195	165	130	485	185	130	9.6	244	7.4	189	10.8	275	66	30	M8 (SAE)
EV305A-A	902-305	366	330	305	285	255	210	770	315	220	11.6	295	7.1	180	14.4	365	107	49	AM (M8)
EVL16A-A	903-L16	438	390	365	335	290	240	915	375	265	11.6	295	7.1	180	15.2	385	121	55	M8
8 Volt Dry Cell Battery																			
EVGC8A-A	GC8	180	160	150	130	115	90	320	115	80	10.2	260	7.1	180	11.3	286	66	30	AM (M8)
EVGT8A-A	GT8	216	185	180	156	140	115	410	160	110	10.2	260	7.1	180	11.8	300	82	37	M8 (AM)
EV805A-A	-	252	235	210	195	180	145	490	195	140	10.2	260	7.1	180	13.9	352	93	42	M8 (AM)
12 Volt Dry Cell Battery																			
EV512A-24	-	29	26	24	22	20	16	31	-	-	6.5	166	6.9	175	4.9	125	19	9	M5 (F4)
EVU1A-A	U1	37	33	31	28	25	20	45	17	12	7.7	195	5.1	130	7.1	180	23	11	F7 (M6)
EV512A-45	-	54	50	45	40	35	29	75	27	18	7.8	197	6.5	165	6.7	170	32	15	M6 (F4)
EV22A-A	22	66	58	55	50	44	35	105	37	25	9.0	229	5.4	138	8.4	214	39	18	M6 (F5)
EV34A-A	34	72	65	60	55	48	39	115	42	28	10.2	258	6.6	167	7.8	198	43	20	SAE (M6)
EV512A-55	47-L2	64	55	52	50	42	34	100	36	23	9.5	242	6.9	175	7.5	190	42	19	SAE (M6)
EV512A-70	48-L3	77	68	64	60	51	41	118	48	33	10.9	278	6.9	175	7.5	190	49	22	SAE (M8)
EV512A-90	49-L5	99	87	83	80	68	54	169	60	40	13.9	353	6.9	175	7.5	190	60	27	SAE (M8)
EV24A-A*	24 BCI	94	85	78	72	66	54	155	57	38	10.2	258	6.8	172	9.3	235	53	24	AM (M8)
EV512A-85	24 JIS	94	85	78	72	66	54	155	57	38	10.2	258	6.5	166	8.5	215	51	23	M8 (F9)
EV27A-A	27 BCI	114	100	95	87	78	65	195	73	50	12.1	308	6.8	172	9.1	232	64	29	AM (M8)
EV512A-100	27 JIS	114	100	95	87	78	65	195	73	50	12.0	306	6.7	169	8.5	217	64	29	M8
EV31A-A*	31 BCI	132	115	110	96	88	72	235	89	63	13.0	330	6.8	172	9.3	236	72	33	AM (M8)
EV512A-115	31 JIS	130	115	108	95	84	70	225	85	60	13.0	330	6.7	171	8.7	220	71	32	M8 (F5)
EVGT12A-A	GC12	132	120	110	95	86	76	220	88	57	10.2	260	7.1	180	11.8	300	77	35	M8 (AM)
EV12A-A*	31 Tall	156	140	130	120	108	90	300	110	80	12.9	327	7.1	180	10.8	274	87	40	AM (M8)
EV512A-150	31T-5SHP	168	150	140	130	117	92	320	120	88	13.4	341	6.8	173	11.3	288	88	40	M8
EV185A-A*	921-185	252	230	210	198	175	135	490	200	135	15.2	386	7.0	178	14.6	372	139	63	AM (M8)
EV4DA-A*	4D BCI	264	235	220	200	175	135	515	205	140	20.6	524	8.4	213	9.5	242	138	63	AT
EV8DA-A*	8D BCI	312	280	260	240	215	170	630	270	185	20.6	522	10.8	275	9.5	242	172	78	AT
EV512A-215	-	240	215	205	180	165	130	405	155	105	20.9	530	8.2	209	8.6	218	132	60	M8 (F16)
EV512A-235	-	258	235	215	200	185	145	515	200	150	20.6	522	9.4	238	9.4	240	137	62	M8 (F16)
EV512A-260	-	285	260	230	215	195	150	565	240	165	20.5	520	10.6	269	9.4	240	168	76	M8 (F16)
EV512A-210FT	-	216	205	180	165	150	125	435	165	120	21.5	546	4.9	125	12.7	323	132	60	M8

\* Lower capacity models (A-B) available upon request.

- A** The number of amp hours (AH) a battery can deliver when discharged at a constant rate to 1.75vpc at 27°C. Capacities are based on peak performance.
- B** The nominal capacity in amperes (AH - Amp Hours) or discharge time in minutes provided when discharged at a constant rate. Ratings are tested to and based on industry prescribed guidelines.

- C** Mechanical characteristics may vary depending upon terminal types and handles used, and are subject to change without notice. Please verify.
- D** Height from the bottom of the battery to the highest point with standard terminal option. May vary depending on actual terminal type.
- E** Weights are approx.

# BUILDING EXCELLENCE IN EVERY DETAIL

## EFFICIENT

- Increased performance within standard footprints
- Higher active material to acid ratio provides longer battery life than standard Deep Cycle technology
- Shorter charging time compared to standard flooded technology
- High charge retention rate of 97% to 99% per month
- No off-gassing with 99.9% efficient gas recombination
- Traction plate construction protects against premature deep discharge damage

## DURABLE

- 99.99% pure heavy-duty lead calcium grid design for extended grid life
- Built for tough applications and repeated deep discharges
- Reinforced cases that are shock and vibration resistant
- Durable copper and stainless steel terminals for high conductivity

## EASY TO USE

- Maintenance-free with low self discharge rates
- Operational in a wide range of environmental conditions
- Compatible with sensitive electronic equipment
- Easily shipped as Non-Hazardous goods without restriction

## DEPENDABLE Construction Features

- Multiple voltage options available within the same footprint
- High impact reinforced copolymer and polypropylene cases with flat top designs
- Thermally welded case-to-cover bonds
- Traction heavy-duty grid design (PbCaSn) gives consistent active material adhesion and corrosion resistance
- Tank formed plates ensure that all cells have equally matched capacity
- Double insulating microporous glass fiber separators for consistent performance and conductivity
- Tightly packed and compressed plates to prevent plate separation and guard against vibration damage
- Multiple terminal and configuration options
- Carrying handles with most models

## CERTIFICATIONS

Discover®, its facilities and products are certified to multiple standards:

- ISO, UL, QS, and TUV standards
- ETTS Germany
- Euro Bat classification for Environmental Stewardship Standards
- Not restricted for transport:
  - Air (IATA/ICAO - provision 67)
  - Ground (STB, DOT-CFR-HMR49)
  - Water (IMDG amendment 27)




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Discover has strategically located facilities around the globe, world leading OEM and after market customers, and is one of the largest providers of Dry Cell Traction Batteries for OEM solutions worldwide.

Discover engineers and manufactures innovative battery solutions and operates responsible product life cycle management and recycling programs.

# COMPARE FOR YOURSELF

	HIGH QUALITY DEEP CYCLE TECHNOLOGIES			
	FLOODED	GEL	AGM	
PERFORMANCE & VALUE				
Designed for longer run times	✓	-	-	✓
Designed for high-rate/long duration discharges	-	-	-	✓
Designed for long life	✓	-	-	✓
Good charge retention	-	✓	✓	✓
Shorter charging time	-	-	✓	✓
Maintenance Required: A. Inspection   B. Cleaning   C. Watering	OFTEN A, B, C	PERIODIC A	PERIODIC A	PERIODIC A
Initial purchase price	\$	\$\$	\$\$\$	\$\$\$
Lowest cost to own	-	-	-	✓
HEALTH & SAFETY				
Non-Gassing / Non-Spillable	-	✓	✓	✓
HVAC regulations compliant	-	✓	✓	✓
Eliminates corrosion due to off-gassing	-	✓	✓	✓
Does not require ventilated charging rooms	-	✓	✓	✓
Safeguards against spill-related injuries & damage	-	✓	✓	✓
Opportunity charging recommended	-	-	✓	✓
OSHA 1926.441 regulations compliant *	-	✓	✓	✓
CONSTRUCTION				
Designed with thickest plates	-	-	-	✓
Designed with the highest oxide densities	-	-	-	✓
Flame arrested venting system - Standard	-	-	-	✓
Vibration resistant	-	✓	✓	✓
Highest active material to acid ratio	-	-	-	✓
Widest selection – Deep Cycle/Traction footprints	-	-	-	✓
ENVIRONMENTAL SUSTAINABILITY				
Recyclable and made with recycled products	✓	✓	✓	✓
Designed for use in sensitive areas	-	✓	✓	✓
Exempt from HAZMAT Shipping requirements **	-	✓	✓	✓
Compliant with LEED (USGBC) ***	-	✓	✓	✓
Compliant with OSHA Occupational Health & Safety Regulations	-	✓	✓	✓
Delivers maximum Maintenance-Free life without additional service resources	-	-	-	✓
Comprehensive design to conserve resources, improve safety and reduce waste ****	-	-	-	✓

\* OSHA 1926.441 Refers to U.S. Department of Labor, Occupation Safety and Health Administration (visit [www.osha.gov](http://www.osha.gov)) .

\*\* Discover® conforms to the IATA non-spillable battery requirements in the code of federal regulations 49 (CFR 49) Section 173.159 (d).

\*\*\* USGBC - LEED Green Building Council - EQ 3.7 - Green Cleaning, Sustainable Cleaning Equipment referencing “non-gassing” battery product requirement.

\*\*\*\* For a copy of the Discover® Clean & Green® Statement and to calculate and compare your total cost of ownership visit [www.discoverbattery.com](http://www.discoverbattery.com).

# CHALLENGING SITUATIONS REQUIRE INSPIRED ACTIONS AND SOLUTIONS. **BATTERY INGENUITY IS WHAT WE DO.**

Our inventiveness and ingenuity are stimulated by the demands our customers face competing in an ever more productive, more competitive, lower-carbon, greener economy.

We work with equipment manufacturers and end users of Motive Equipment, Stationary Power and Renewable Energy Systems to eliminate user related issues, reduce maintenance costs, and provide measurable productivity and performance gains. Extensive field experience drives us to innovate, optimize and manufacture lead acid and lithium battery technologies for worldwide distribution through our knowledge based sales and service network.

This is how we meet the world demand for quality power within lower economic and environmental footprints.

## **Discover® Dry Cell Traction Batteries**

provide superior high integrity and reliability. The maintenance-free, traction plate construction, designed to deliver excellent run time and very good cycle life in hard, high rate discharging applications with repeated deep discharging, makes the Dry Cell series the definitive choice for robust Traction applications.

## **Discover® Gel Cell Traction Batteries**

provide superior integrity and reliability. The maintenance-free, thick plate construction, designed to deliver excellent cycle life and very good run times at high operating voltages in tough industrial use with regular discharges, makes the Gel Cell series an excellent choice for robust industrial applications.

## **Discover® Advanced Energy Systems**

provide excellent productivity gains through enhanced cycling, charge time, weight and volume improvements in stationary and mobile applications versus lead acid technology. Dramatic improvement in cycle and float life and greater than 95% charge efficiency, combined with nearly zero maintenance requirements provides end users with significant cost of ownership savings. Discover's battery management systems are combined with safe and robust lithium iron phosphate technology to deliver safety and reliability. Data logging, cell balancing, charge and discharge controls, communication and information management features are integrated within most models.

## **Discover® OPzS & OPzV (Flooded & Gel) Tubular Batteries**

batteries provide maximum efficiency per discharge-charge cycle, and proven reliability in remote, high temperature, or unstable power network installations. The proven cycle and float life of Discover Advanced Tubular Plate technology, combined with low maintenance needs, provides end users with the lowest overall cost of ownership versus other high quality lead acid batteries designed for stationary and renewable energy applications.





Innovative Battery Solutions

Discover® attempts to ensure the correctness of the product description and data contained herein. We reserve the right to change designs, specifications and pricing at any time without notice or obligation. It is the responsibility of the reader of this information to verify any and all information presented herein.