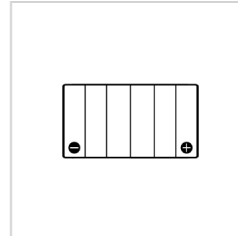




**GEL CELL Traction Industrial Battery**

Discover<sup>®</sup> GEL CELL Traction Industrial batteries incorporate a "true Gel" traction formula that meets aftermarket replacement and original equipment battery requirements. With a long history of safety, reliability, the batteries deliver exceptional longevity even under Partial State of Charge (PSOC) operation and high temperature conditions.

GEL CELL batteries outperform flooded and AGM batteries in deep discharge recovery making them ideal for demanding energy storage applications.



LAYOUT

**FEATURES**

**ENHANCED ALLOYS**

- Thick plates with graphite enhanced alloys deliver maximum runtime over operational life

**CARBON BOOST**

- Carbon additives to increase duty cycle performance, charge acceptance and partial state of charge operation

**AUTOMATED THROUGH-THE-PARTITION WELD**

- Improved intercell weld consistency, and less lead waste than manual welding process (key industry models)
- Supports higher current loads and lowers internal resistance

**POLYPROPYLENE CASE**

- High heat resistance and durability (key industry models)
- High precision pressure relief valves reduce water loss and extend life
- Integrated flame arrestors to prevent fire and explosion

**BENEFITS**

**ENHANCED RUNTIME**

- Consistent amp hour capacity over lifetime
- High operational voltage over lifetime

**EXTENDED SERVICE LIFE**

- Long life superior to deep-cycle FLA / AGM / Gel batteries
- 600+ cycles 70% DoD (IEC 254-1 Traction Lead-Acid)
- 450+ cycles 100% DoD (DIN 43 539 VRLA)

**EXTREME TEMPERATURES**

- High temperature life superior to AGM
- Low temperature operation superior to FLA batteries

**OEM TRUSTED**

- Exceeds OEM specifications
- Innovative technology
- Global service and support

**RELIABLE AND SAFE**

- Valve Regulated Lead-Acid, Gel
- Maintenance-free
- Nonspillable, no-gassing

**CERTIFIED QUALITY**

Discover<sup>®</sup> manufacturing facilities are fully certified to ISO 9001/14001 and OSHA 18001 standards.

Designed in accordance with and published in compliance with applicable standards, including:

- IEC 60254-1. Lead-Acid Traction
- DIN 43 539. VRLA
- UL, CE Health Safety Certified

**SHIPPING CLASSIFICATION**

- Classified as a nonspillable battery
- Without restriction for transport by Sea (IMDG amendment 27)
- Without restriction for transport by Air (IATA/ICAO provision 67)
- Without restriction for transport by Ground (STB, DOT-CFR-HMR49)

**MECHANICAL SPECIFICATIONS**

Industry Reference	BCI: 22R	
Length A (in/mm)	9	229
Width B (in/mm)	5.4	138
Height C (in/mm)	8.2	208
Total Height D (in/mm)	8.3	212
Weight (lbs/kgs)	38.5	17.5
Terminal *	M6	
Technology	Gel, VRLA Non-spill	

NOTE 1: Dimensions have a ±2 mm (0.08 in) tolerance. Weights may vary.

NOTE 2: Refer to [terminal guide](#) on website for torque values.

**ELECTRICAL SPECIFICATIONS**

Voltage (V)	12
Voltage Cutoff (80% DOD)	11.40
Internal Resistance (mΩ)	8.5
Short Circuit (A) (20°C / 68°F)	1400

NOTE 3: Extra considerations must be given when designing systems for use at maximum temperatures.

NOTE 4: Internal Resistance is approximate.

**PERFORMANCE SPECIFICATIONS**

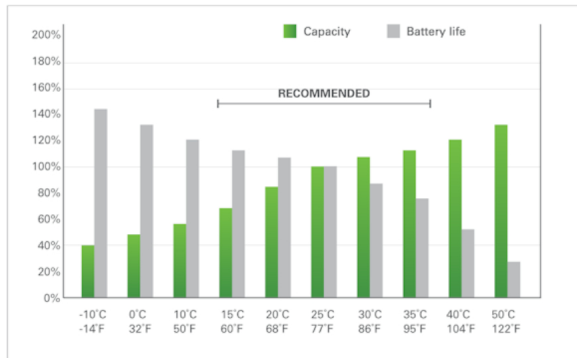
Amp Hours (AH)		
3 HR	5 HR	20 HR
42	45	55

3 HR: 1.70VPC; 5 HR: 1.75VPC; 20 HR: 1.80VPC. All at 25°C/77°F

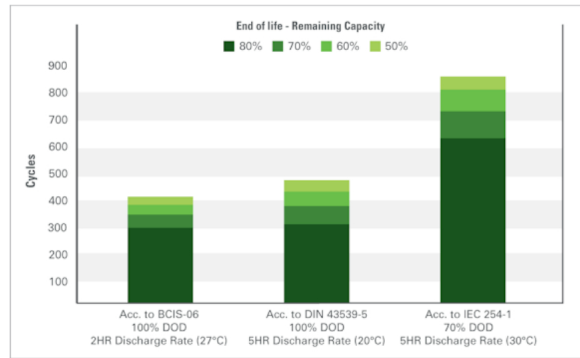
Minutes of Discharge				
@25A	@56A	@75A	@85A	@100A
90	34	22	18	14



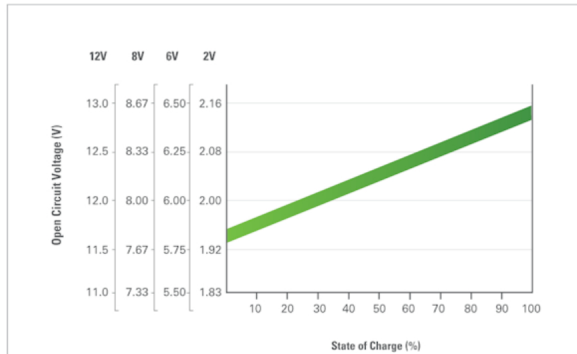
## Temperature Effects on Capacity



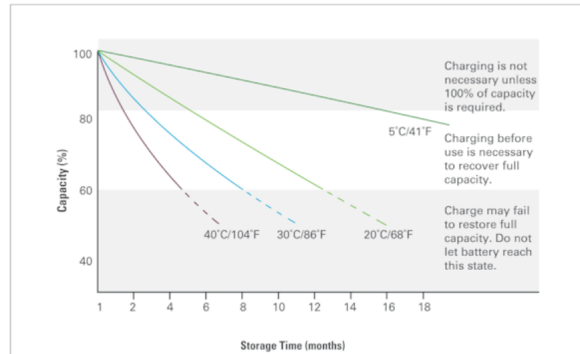
## Test Standards and Cycle Life



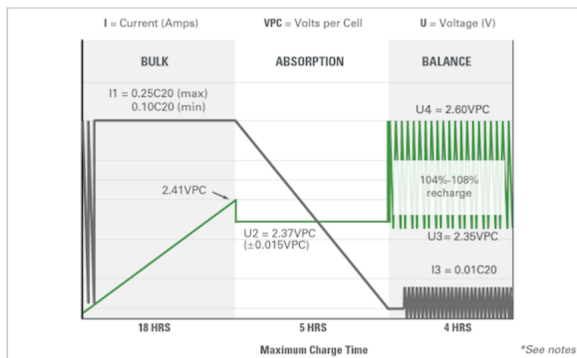
## Open Circuit Voltage in Relation to SOC (20°C)



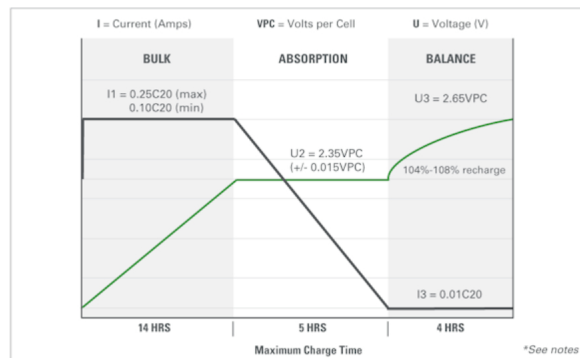
## Self-Discharge Characteristics



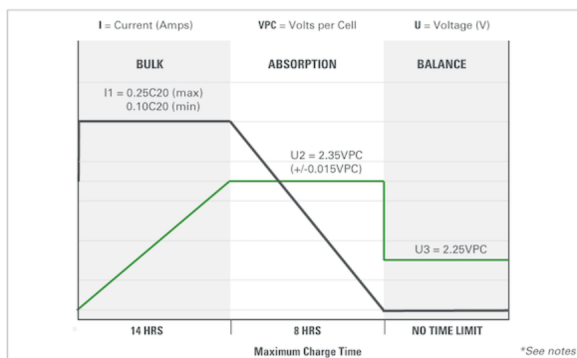
## IUI Pulse Charge Profile



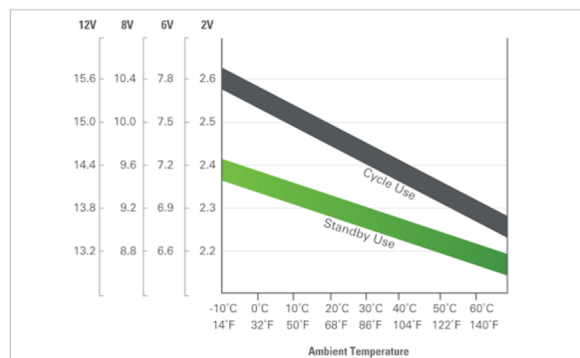
## Constant Current (IUI) Charge Profile



## Voltage Regulated (IUU) Charge Profile



## Relation between Charge, Voltage and Temperature



## NOTES

- Due to self-discharge characteristics of lead acid-battery technologies, batteries should be charged within top 6 months of storage to ensure optimum performance, prevent sulphation and permanent capacity loss.
- Charge profile recommendations correspond to battery voltages at 25°C (77°F). For temperatures below, adjust +5mVPC/°C (+3mVPC/°F). Temperatures above, adjust -5mVPC/°C (-3mVPC/°F). Temperature compensated charging helps ensure optimum battery runtime and life performance.
- Charge profile recommendations depend on application and charger. IUI (or IUI with Pulse) is appropriate for applications that require frequent and deep discharges. IUU is appropriate for applications that are on standby and cycled less frequently.
- IUI with Pulse algorithm uses a pulse termination criterion. The finish current is pulsed on and off in order to keep the battery voltage at a minimum while still reaching target overcharge. If average VPC exceeds U2 and the charger output has been on for more than 30 seconds, the output is shut off until VPC falls to U3.
- IUI Charge Profile (if applicable), may have a continuous float phase added (2.27VPC).

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