Printed: 03/16/2021

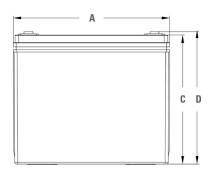


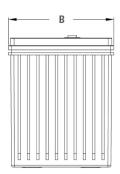
DRY CELL Traction Industrial Battery

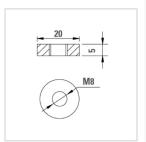
Discover® DRY CELL Traction Industrial batteries outperform traditional Flooded, AGM, and Gel deep-cycle batteries in demanding traction and industrial applications. These batteries are designed to deliver long runtimes, high operating current, and withstand deep discharges, which is ideal to power equipment that is used multiple times a day.

DRY CELL Traction Industrial batteries have been used and trusted for more than 10 years by the world's largest industrial Original Equipment Manufacturers. Specific charge algorithms are available to support optimal battery performance and longevity.

MECHANICAL DRAWINGS



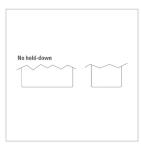




TERMINAL



LAYOUT



HOLD-DOWN

MECHANICAL SPECIFICATIONS

Industry Reference	BCI: 24 JIS: D26R OLD JIS: NS70	
Length A (in/mm)	10.2	258
Width B (in/mm)	6.8	172
Height C (in/mm)	8.4	214
Total Height D (in/mm)	8.5	216
Weight (lbs/kgs)	51.7	23.5
Terminal *	F10M8	
Technology	DRY CELL	AGM, VRLA

NOTE: There is a tolerance of +/-2% in dimensions. Weights may vary *TERMINAL TORQUE: Please refer to our document, located in the Resources webpage Click here.

ELECTRICAL SPECIFIC ATIONS

Voltage (V)	12
Voltage Cutoff (80% DOD)	11.40
Internal Resistance (mΩ)	5
Short Circuit (A) (20°C / 68°F)	2400
Self-Discharge (20°C / 68°F)	2-3% per month
Charge Temperature	Min: -10°C (14°F) Max: 50°C (122°F)
Discharge Temperature	Min: -40°C (-40°F) Max: 50°C (122°F)
Storage Temperature	Min: -20°C (-4°F) Max: 60°C (140°F)

CAUTION: Extra considerations must be given to depths of discharge, operating voltages and currents when designing systems for use at maximum temperatures

PERFORMANCE SPECIFICATION S

Amp Hours (AH)		
3 HR	5 HR	20 HR
66	72	85

Minutes of Discharge @56A @75A @85A @100A 160 57 38 32 27

FEATURES

HYDRO POLYMER

- Organic capillary separators with hydropolymer electrolytes resist dry-out and prevent thermal
- Maintains performance characteristics over operational life

ENHANCED ALLOYS

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

CARBON BOOST

· Carbon additives 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 models)
- Supports high-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 prevent fire and explosion

BE NEFITS

ENHANCED RUNTIME

- High amp hour capacity
- High operational voltage over lifetime
- Delivers 80% DoD above 1.9 VPC

EXTENDED SERVICE LIFE

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

RESILIENCE

- Partial stage of charge operation superior to AGM
- Intense duty cycling superior to AGM/Gel
- Overcharge and over-discharge resilience superior to AGM
- Compatible with AGM/Gel semi-traction charge profile

EXTREME TEMPERATURES

- High temperature life superior to AGM
- Low temperature operation superior to flooded/AGM/Gel

EXTREME VIBRATION RESISTANCE

- Vibration resistance superior to AGM/Gel
- Vibration shock tested (IEC 61373, DIN EN 61373, SAE J537)

OEM TRUSTED

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

RELIABLE AND SAFE

- Valve Regulated Lead-Acid, Dry Cell AGM
- Maintenance-free, nonspillable, no-gassing
- Spark and explosion tested (SAE J1495)

CERTIFIED QUALITY

Discover® 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
- SAE J537. Storage
- UL, CE Health Safety Certified

- 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)















IUI with Pulse Termination algorithm uses a pulse termination criterion. As a safety precaution during the Finish phase, if the average cell voltage, or volts per cell (vpc), exceeds U31 and the charger output has been on for more than 30 seconds, the output is shut off until the vpc falls to U32. The finish phase then resumes and this "pulsing" continues until the target overcharge (108% - 112%) is reached.

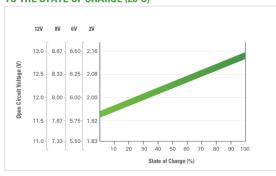
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- I = Current (Amps)
- VPC = Volts per Cell
- U = Voltage (V)

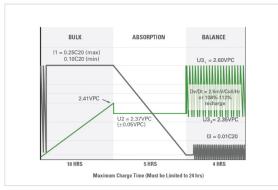
TEMPERATURE EFFECTS ON CAPACITY



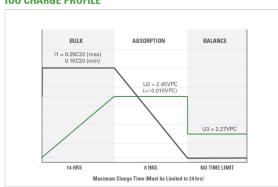
OPEN CIRCUIT VOLTAGE IN RELATION TO THE STATE OF CHARGE (20°C)



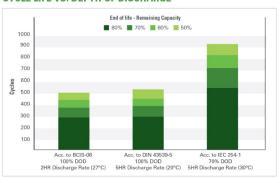
IUI WITH PULSE TERMINATION CHARGE PROFILE



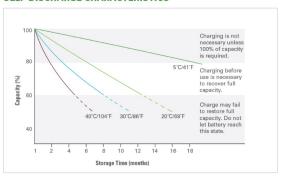
IUU CHARGE PROFILE



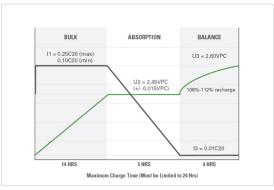
CYCLE LIFE VS. DEPTH OF DISCHARGE



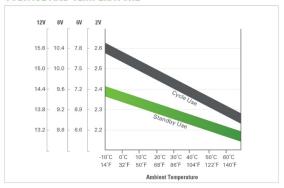
SELF-DISCHARGE CHARACTERISTICS



IUI CHARGE PROFILE An indefinite float phase may be added at 2.27VPC



RELATION BETWEEN CHARGING, VOLTAGE AND TEMPERATURE



IGR P心WER

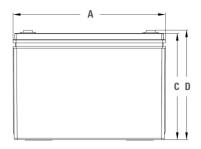


DRY CELL Traction Industrial Battery

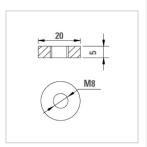
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MECHANICAL DRAWINGS







TERMINAL

LAYOUT



HOLD-DOWN

MECHANICAL SPECIFICATIONS

Industry Reference	BCI: 27 JIS: D31R OLD JIS: N70	
Length A (in/mm)	12.1	308
Width B (in/mm)	6.8	172
Height C (in/mm)	8.3	212
Total Height D (in/mm)	8.4	214
Weight (lbs/kgs)	62.7	28.5
Terminal * F10M8		M8
Technology DRY CELL AGM, VRLA		
NOTE: There is a tolerance of +/-2% in dimensions. Weights may vary		

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FLECTRICAL SPECIFICATIONS

12
11.40
5
2900
2-3% per month
Min: -10°C (14°F) Max: 50°C (122°F)
Min: -40°C (-40°F) Max: 50°C (122°F)
Min: -20°C (-4°F) Max: 60°C (140°F)

CAUTION: Extra considerations must be given to depths of discharge, operating voltages and currents when designing systems for use at maximum temperatures

PERFORMANCE SPECIFICATIONS

Amp Hours (AH)			
3 HR 5 HR 20 HR			
80	90	100	

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

Minutes of Discharge @75A @85A @100A @56A @25A 205 73 45 35

FEATURES

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- Organic capillary separators with hydropolymer electrolytes resist dry-out and prevent thermal
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BE NEFITS

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- 550+ cycles 70% DoD (IEC 254-1 Traction Lead-Acid)
- 350+ cycles 100% DoD (DIN 43 539 VRLA)

RESILIENCE

- Partial stage of charge operation superior to AGM
- Intense duty cycling superior to AGM/Gel
- Overcharge and over-discharge resilience superior to AGM
- Compatible with AGM/Gel semi-traction charge profile

EXTREME TEMPERATURES

- High temperature life superior to AGM
- Low temperature operation superior to flooded/AGM/Gel

EXTREME VIBRATION RESISTANCE

- Vibration resistance superior to AGM/Gel
- Vibration shock tested (IEC 61373, DIN EN 61373, SAE J537)

OEM TRUSTED

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

RELIABLE AND SAFE

- Valve Regulated Lead-Acid, Dry Cell AGM
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- DIN 43 539, VRLA
- SAE J537. Storage
- UL, CE Health Safety Certified

- Classified as a nonspillable battery
- Without restriction for transport by Sea (IMDG amendment 27)
- Without restriction for transport by Air (IATA/ICAO) provision 67)
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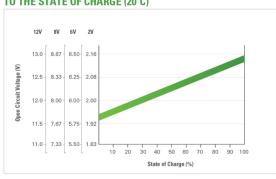
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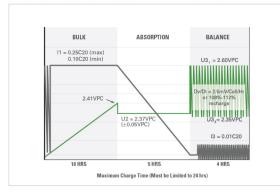
TEMPERATURE EFFECTS ON CAPACITY



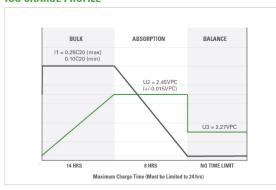
OPEN CIRCUIT VOLTAGE IN RELATION TO THE STATE OF CHARGE (20°C)



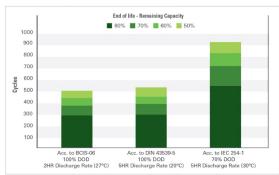
IUI WITH PULSE TERMINATION CHARGE PROFILE



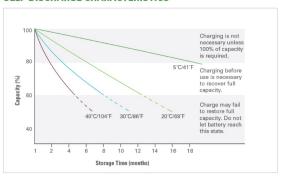
IUU CHARGE PROFILE



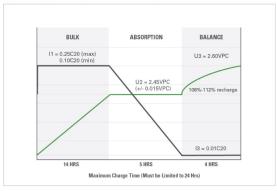
CYCLE LIFE VS. DEPTH OF DISCHARGE



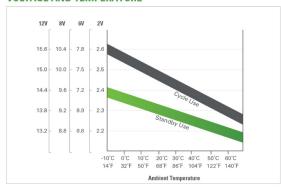
SELF-DISCHARGE CHARACTERISTICS



IUI CHARGE PROFILE An indefinite float phase may be added at 2.27VPC



RELATION BETWEEN CHARGING, VOLTAGE AND TEMPERATURE



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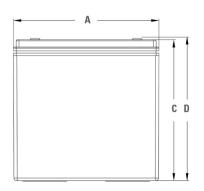


DRY CELL Traction Industrial Battery

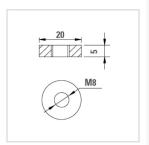
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MECHANICAL DRAWINGS

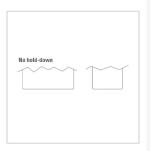






TERMINAL

LAYOUT



HOLD-DOWN

MECHANICAL SPECIFICATIONS

Industry Reference	BCI: GC6	
Length A (in/mm)	10.2	260
Width B (in/mm)	7.1	180
Height C (in/mm)	10	254
Total Height D (in/mm)	10.1	256
Weight (lbs/kgs)	64.9	29.5
Terminal *	F10	M8
Technology DRY CELL AGM, VRLA		AGM, VRLA
NOTE: There is a tolerance of +/-2% in dimensions. Weights may vary		

*TERMINAL TORQUE: Please refer to our document, located in the Resources webpage Click here

ELECTRICAL SPECIFIC ATIONS

V-100	0
Voltage (V)	6
Voltage Cutoff (80% DOD)	5.70
Internal Resistance (m Ω)	2
Short Circuit (A) (20°C / 68°F)	4000
Self-Discharge (20°C / 68°F)	2-3% per month
Charge Temperature	Min: -10°C (14°F) Max: 50°C (122°F)
Discharge Temperature	Min: -40°C (-40°F) Max: 50°C (122°F)
Storage Temperature	Min: -20°C (-4°F) Max: 60°C (140°F)

CAUTION: Extra considerations must be given to depths of discharge, operating voltages and currents when designing systems for use at maximum temperatures

PERFORMANCE SPECIFICATIONS

Amp Hours (AH)		
3 HR	5 HR	20 HR
170	190	220

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

Minutes of Discharge @75A @85A @100A @56A @25A 475 125 107 88

FEATURES

HYDRO POLYMER

- Organic capillary separators with hydropolymer electrolytes resist dry-out and prevent thermal
- Maintains performance characteristics over operational life

ENHANCED ALLOYS

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

CARBON BOOST

· Carbon additives 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 models)
- Supports high-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 prevent fire and explosion

BE NEFITS

ENHANCED RUNTIME

- High amp hour capacity
- High operational voltage over lifetime
- Delivers 80% DoD above 1.9 VPC

EXTENDED SERVICE LIFE

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

RESILIENCE

- Partial stage of charge operation superior to AGM
- Intense duty cycling superior to AGM/Gel
- Overcharge and over-discharge resilience superior to AGM
- Compatible with AGM/Gel semi-traction charge profile

EXTREME TEMPERATURES

- High temperature life superior to AGM
- Low temperature operation superior to flooded/AGM/Gel

EXTREME VIBRATION RESISTANCE

- Vibration resistance superior to AGM/Gel
- Vibration shock tested (IEC 61373, DIN EN 61373, SAE J537)

OEM TRUSTED

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

RELIABLE AND SAFE

- Valve Regulated Lead-Acid, Dry Cell AGM
- Maintenance-free, nonspillable, no-gassing
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CERTIFIED QUALITY

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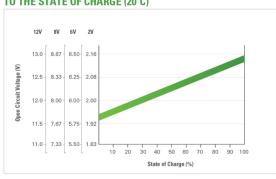
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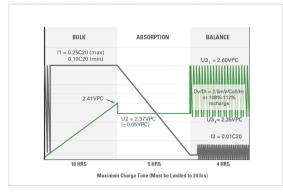
TEMPERATURE EFFECTS ON CAPACITY



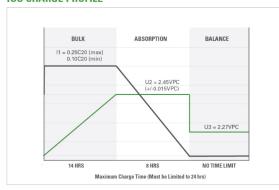
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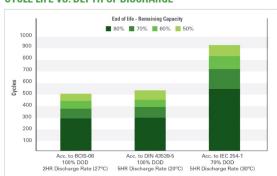
IUI WITH PULSE TERMINATION CHARGE PROFILE



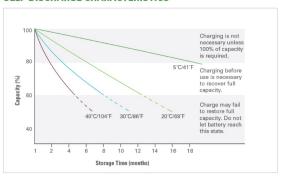
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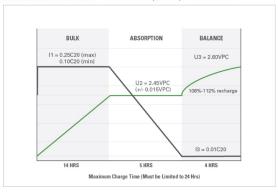
CYCLE LIFE VS. DEPTH OF DISCHARGE



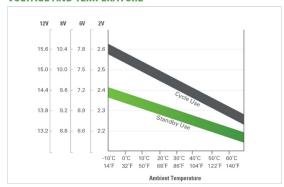
SELF-DISCHARGE CHARACTERISTICS



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RELATION BETWEEN CHARGING, VOLTAGE AND TEMPERATURE



IGR PŮWER

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MECHANICAL SPECIFICATIONS

Industry Reference	BCI: 902-305	
Length A (in/mm)	11.6	295
Width B (in/mm)	7.1	180
Height C (in/mm)	13.6	345
Total Height D (in/mm)	13.7	347
Weight (lbs/kgs)	101.2	46
Terminal *	F10M	8
Technology	DRY CELL AG	M, VRLA

NOTE: There is a tolerance of +/-2% in dimensions. Weights may vary *TERMINAL TORQUE: Please refer to our document, located in the Resources webpage Click here.

ELECTRICAL SPECIFIC ATIONS

6		
5.70		
1		
5100		
2-3% per month		
Min: -10°C (14°F) Max: 50°C (122°F)		
Min: -40°C (-40°F) Max: 50°C (122°F)		
Min: -20°C (-4°F) Max: 60°C (140°F)		

CAUTION: Extra considerations must be given to depths of discharge, operating voltages and currents when designing systems for use at maximum temperatures.

PERFORMANCE SPECIFICATION S

Α	Amp Hours (AH)		
	3 HR	5 HR	20 HR
	260	290	330

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
775	315	220	190	160

FEATURES

HYDRO POLYMER

- Organic capillary separators with hydropolymer electrolytes resist dry-out and prevent thermal
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ENHANCED ALLOYS

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RELIABLE AND SAFE

- Valve Regulated Lead-Acid, Dry Cell AGM
- Maintenance-free, nonspillable, no-gassing
- Spark and explosion tested (SAE J1495)

CERTIFIED QUALITY

Discover® 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
- SAE J537. Storage
- UL, CE Health Safety Certified

- 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)















IUI with Pulse Termination algorithm uses a pulse termination criterion. As a safety precaution during the Finish phase, if the average cell voltage, or volts per cell (vpc), exceeds U31 and the charger output has been on for more than 30 seconds, the output is shut off until the vpc falls to U32. The finish phase then resumes and this "pulsing" continues until the target overcharge (108% - 112%) is reached.

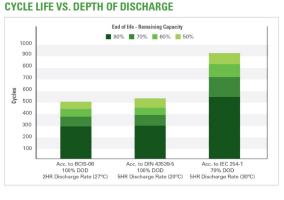
Please note the voltage settings displayed in the **IUI** with Pulse Termination Charge Profile graph, corresponds to the set points at 25°C (77°F). For temperatures below 25°C. adjust +0.005VPC/°C (or 0.003VPC per °F). For temperatures above 25°C, adjust -0.005VPC/°C (or 0.003VPC per °F).

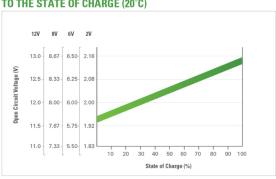
- VPC = Volts per Cell
- U = Voltage (V)

TEMPERATURE EFFECTS ON CAPACITY

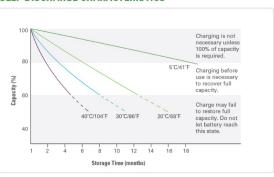


OPEN CIRCUIT VOLTAGE IN RELATION TO THE STATE OF CHARGE (20°C)

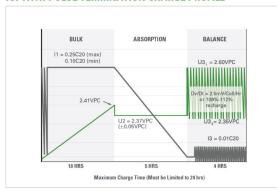




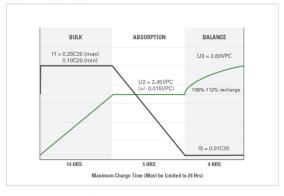
SELF-DISCHARGE CHARACTERISTICS



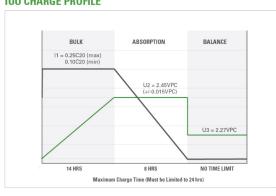




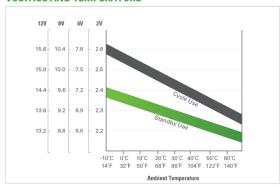
IUI CHARGE PROFILE An indefinite float phase may be added at 2.27VPC



IUU CHARGE PROFILE



RELATION BETWEEN CHARGING, **VOLTAGE AND TEMPERATURE**



IGR P**心WER**