MADE IN USA

NATIONWIDE BATTERY

MARINE | GOLF | INDUSTRIAL | AUTO | SPECIAL APPLICATIONS | SOLAR

SOLAR INDUSTRIAL LINE FLOODED

SIND 02 1990

2800 CYCLES @ 50 % DOD

- **TRULY DEEP CYCLE – MAXGUARD T2**
  - BCI Group N/A, 2V
  - Reserve Capacity [Ah@20hr rate]: 1547
  - Reserve Capacity [Ah@100hr rate]: 1990
  - Energy [kWh]: 3.98
  - Weight: 235 lbs.
  - Length: 15.33 in (389 mm)
  - Width: 10.22 in (260 mm)
  - Height: 24.01 in (610 mm)
  - IND
  - BAYONET / FLIP TOP / SINGLE POINT

T2 Technology™

TRUE DEEP CYCLE

Industrial Line Flooded

Premium Line features:

Alpha Plus® Paste with T2 Technology™ which optimizes porosity development in the active material enabling the active material to be used more effectively. This results in sustained battery performance over a longer period of time.

DuraGrid™ Design provides a thick grid structure that resists corrosion, and when combined with the Alpha Plus Paste with T2 technology, increases overall battery life.

Reinforced Protection Wrap which is a five component wrapping and insulating system that includes an edge-protecting Koroseal with a plastic boot to protect the bottom of the plate. This advanced plate construction safeguards against shedding, and assures the electrochemical performance of the battery's active materials improving the battery's overall performance.

Maxguard® XL Separator is exclusively available in Trojan's Industrial and Premium lines. It features a wide- channel design which increases acid flow for optimum battery performance and provides greater resistance to stratification, a typical mode of failure in batteries used in renewable energy systems.

Rugged Construction and Intelligent Design includes removable 2-volt cell components assembled in a rugged polypropylene housing, which are then bundled in a secondary polyethylene containment case to form single, high-capacity 4-volt and 6-volt battery solutions. The intelligent design protects against damage caused by harsh environmental conditions such as moisture and dirt buildup, safeguards against potential acid leaks, and provides for easier maintenance.

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DATA SHEET

MODEL **SIND 02 1990**
VOLTAGE **2V**
CAPACITY **1990Ah @ 100Hr**
MATERIAL **Polypropylene (Internal container) Polyethylene (External Container)**
BATTERY TYPE **Deep Cycle Flooded / Wet Lead Acid Battery**

2V

PRODUCT + PHYSICAL SPECIFICATIONS

BCI Group Size	Type	Voltage	Cell(s)	Terminal Type [G]	Dimensions [C] Inches (mm)			Weight Lbs. (kg)
					Length	Width	Height [F]	
N/A	SIND 02 1990	2	1	14	15.33 (389)	10.22 (260)	24.01 (610)	235 (104)

ELECTRICAL SPECIFICATIONS

Cranking Performance		Capacity [A] Minutes		Capacity [B] Amp-Hours (AH)							Energy (kWh)	Internal Resistance (mΩ)	Short Circuit Current (amps)
C.C.A.[D] @ 0°F (-18°C)	C.A.[E] @ 32°F (0°C)	@ 25 Amps	@ 75 Amps	2-Hr	5-Hr	10-Hr	20-Hr	48-Hr	72-Hr	100-Hr	100-Hr	—	—
—	—	—	—	—	1215	1368	1547	1784	1899	1990	3.98		

CHARGING INSTRUCTIONS

Charger Voltage Settings (at 77°F/25°C)						
System Voltage	2V	6V	12V	24V	36V	48V
Bulk Charge		**7.20**	**14.40**	**28.80**	**43.20**	**57.60**
Float Charge		**6.75**	**13.50**	**27.00**	**40.50**	**54.00**
Equalize Charge		**8.10**	**16.20**	**32.40**	**48.60**	**64.80**

Do not install or charge batteries in a sealed or non-ventilated compartment. Constant under or overcharging will damage the battery and shorten its life as with any battery.

CHARGING TEMPERATURE COMPENSATION

Add	Subtract
0.005 volt per cell for every 1°C below 25°C **0.0028 volt per cell for every 1°F below 77°F**	**0.005 volt per cell for every 1°C above 25°C** **0.0028 volt per cell for every 1°F above 77°F**

OPERATIONAL DATA

Operating Temperature	Self Discharge
-4°F to 122°F (-20°C to 50°C) **At temperatures below 32°F (0°C)** **maintain a state of charge greater than 60%**	**Less than 3% per month depending on storage temperature conditions**

STATE OF CHARGE MEASURE OF OPEN-CIRCUIT VOLTAGE

Percentage Charge	Specific Gravity	Cell	2 Volt
100	1.260	2.11	2.11
90	1.246	2.09	2.09
80	1.227	2.07	2.07
70	1.207	2.05	2.05
60	1.187	2.03	2.03
50	1.165	2.01	2.01
40	1.142	1.99	1.99
30	1.119	1.96	1.96
20	1.096	1.94	1.94
10	1.072	1.92	1.92

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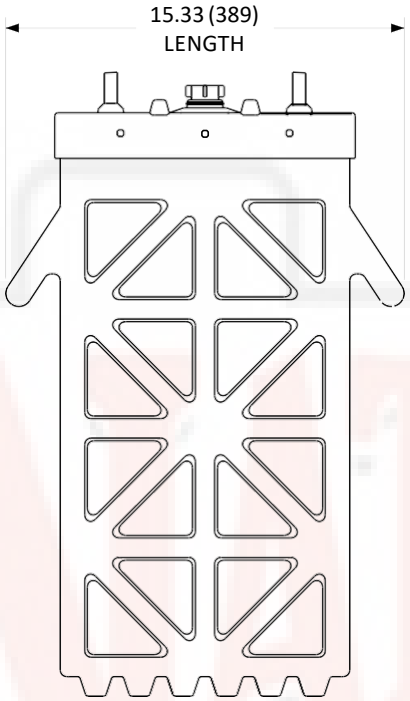
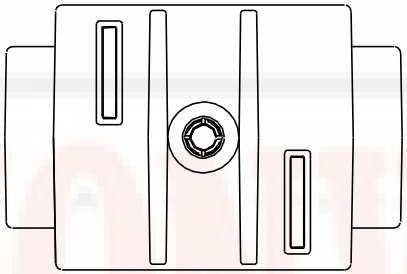
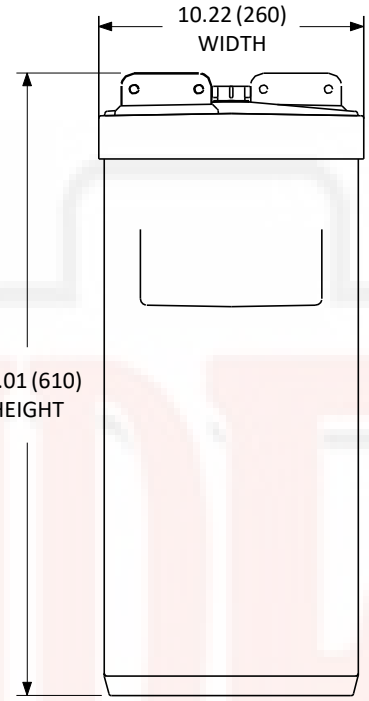
MADE IN USA · C-MAX TECHNOLOGY · TRUE DEEP CYCLE · TROJAN SINCE 1925 QUALITY

Designed in compliance with applicable BCI, DIN, BS and IEC standards. Tested in compliance to BCI and IEC standards.

NATIONWIDE BATTERY







TERMINAL CONFIGURATION

14 IND	IND Terminal
	**Terminal Height Inches (mm)** 1.75 (44) **Torque Values in-lb (Nm)** 95 – 105 (11 – 12) **Bolt** 5/16”

VENT CAP OPTIONS

Flip Top	Bayonet
	

A. The amount of amp-hours (Ah) a battery can deliver when discharged at a constant rate at 86°F (30°C) for all rates and maintain a voltage above 1.75 V/cell. Capacities are based on peak performance.
B. Dimensions may vary depending on type of handle or terminal. Batteries should be mounted with 0.5 inches (12.7 mm) spacing minimum.
C. Height taken from bottom of the battery to the highest point on the battery. Heights may vary depending on type of terminal.
D. Terminal images are representative only.
E. A boost charge should be performed every 6 months when batteries are in storage.
F. Weight may vary.

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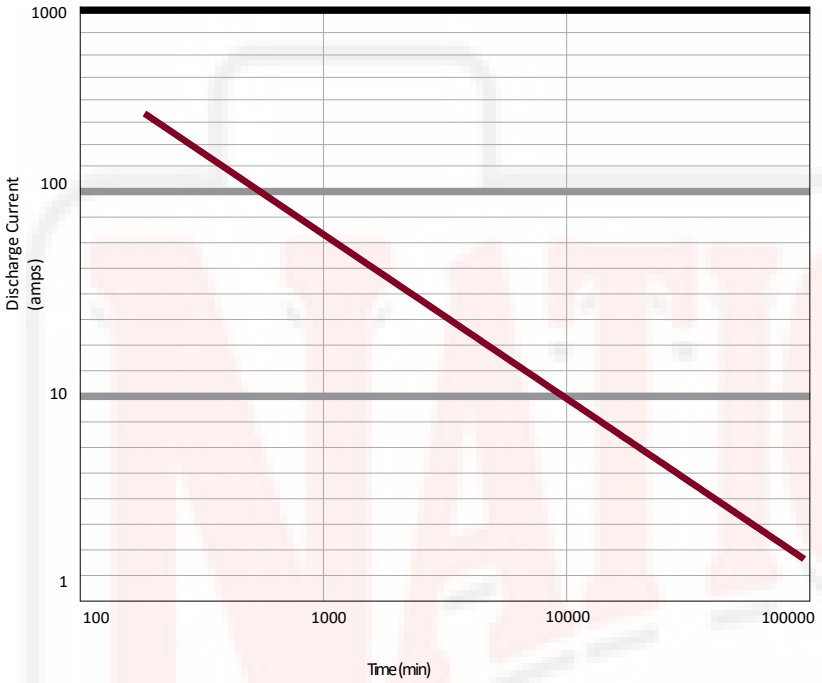
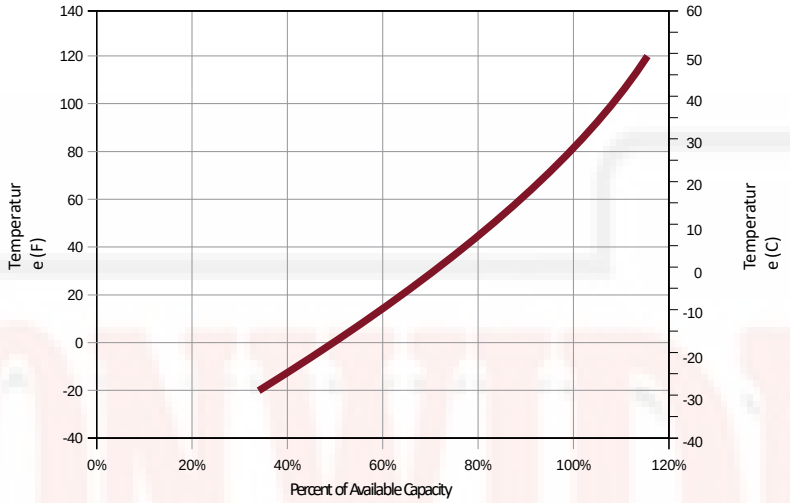
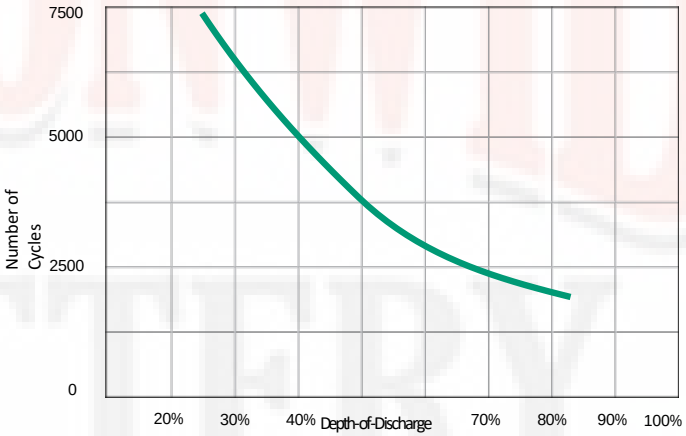
TROJAN SIND 02 1990 PERFORMANCE



PERCENT CAPACITY VS. TEMPERATURE



TYPICAL CYCLE LIFE IN A STATIONARY APPLICATION



EXPECTED LIFE VS. TEMPERATURE

Chemical reactions internal to the battery are driven by voltage and temperature. The higher the battery temperature, the faster chemical reactions will occur. While higher temperatures can provide improved discharge performance the increased rate of chemical reactions will result in a corresponding loss of battery life. As a rule of thumb, for every 10°C increase in temperature the reaction rate doubles. Thus, a month of operation at 35°C is equivalent in battery life to two months at 25°C. Heat is an enemy of all lead acid batteries, FLA, AGM and gel alike and even small increases in temperature will have a major influence on battery life.

SMART CARBON™

Deep-cycle batteries used in off-grid and unstable grid applications are heavily cycled at partial state of charge (PSOC). Operating at PSOC on a regular basis can quickly diminish the overall life of a battery, which results in frequent and costly battery replacements.
To address the impact of PSOC on deep-cycle batteries in renewable energy (RE), inverter backup and telecom applications, Trojan Battery has now included Smart Carbon™ as a standard feature in its Industrial and Premium flooded battery lines.

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