 GUAM POWER AUTHORITY	SPECIFICATION No. E-041	Page 1 of 8
		January 9, 2023
PREPARED BY THE ENGINEERING DEPARTMENT		REV. 2


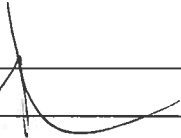
GUAM POWER AUTHORITY
 P.O. Box 2977
 Agana, Guam 96932


TRANSMISSION & DISTRIBUTION SPECIFICATION

Specification No. E-041

FOR


STATION BATTERY BANK

EFFECTIVE DATE: 1-9-23	ISSUED: 	APPROVED: 
------------------------	---	---

 GUAM POWER AUTHORITY	SPECIFICATION No. E-041	Page 2 of 8
		January 9, 2023
PREPARED BY THE ENGINEERING DEPARTMENT		REV. 2

STATION BATTERY BANK

	Table of Contents	Page
1.0	Scope.....	3
2.0	Conformance to Specification Requirements.....	3
	2.1 Applicable Standards.....	3
	2.2 Deviations and Non-Conformance Requirements.....	3
3.0	Data to Be Furnished.....	4
4.0	Design and Construction.....	4
	4.1 Construction.....	4
	4.2 Rating.....	4
	4.3 Rack.....	5
	4.4 Accessories.....	6
5.0	Drawing Approval.....	6
6.0	Certified Reproduces.....	6
7.0	Instruction Books.....	7
8.0	Warranty.....	7
9.0	Test Reports.....	7

 GUAM POWER AUTHORITY	SPECIFICATION No. E-041	Page 3 of 8
		January 9, 2023
PREPARED BY THE ENGINEERING DEPARTMENT		REV. 2

STATION BATTERY BANK

1.0 SCOPE

This specification covers the requirements for furnishing, installing, checking, and testing of station battery bank and accessories.

2.0 CONFORMANCE TO SPECIFICATION REQUIREMENTS

2.1 Applicable Standards

The station battery bank shall meet the requirements of the IEEE, NEC, ANSI, and the Federal "Occupational Safety and Health Standards" specifications and guidelines including latest revisions with respect to material, design, and tests.


2.2 Deviations and Non-Conformance Requirements

2.2.1 Deviations from this specification or changes in the material or design after the purchase order has been placed must be approved by the Guam Power Authority's Engineering Department and acknowledged by a Purchase Order Amendment.

2.2.2 Units received with deviations or non-conformance, which are not acknowledged as specified in sub-paragraph 2.2.1, are subject to rejection. The supplier of units rejected in this paragraph is responsible for any corrective action including but not limited to materials, labor, and transportation necessary to dispose of, or make the units conform to the specification.

2.2.3 Notification of defective units discovered before or after installation that are believed to be inherent to manufacturing problems or workmanship shall be forwarded to the supplier. The description of the item, documentation of the problem and the desired information, disposition and/or follow-up (as appropriate) that GPA expects from the supplier will be specified. The supplier's response shall be made within thirty (30) days unless otherwise noted or an extension is acknowledged and approved in writing by the Guam Power Authority's Engineering Department.

EFFECTIVE DATE: 1-9-23	ISSUED: 	APPROVED: 
------------------------	---	---

 GUAM POWER AUTHORITY	SPECIFICATION No. E-041	Page 4 of 8
		January 9, 2023
PREPARED BY THE ENGINEERING DEPARTMENT		REV. 2

3.0 DATA TO BE FURNISHED

The following data shall be provided:


- 3.1. Manufacturer’s catalog data with size and type.
- 3.2. Physical arrangement drawings with elevation, plan view, and mounting details.
- 3.3. Wiring schematics and diagrams complete with interconnection requirements and capabilities.
- 3.4. Outline drawings with dimensions and other physical properties such as weight(s).
- 3.2 Two (2) hardcopies and one (1) soft file copy of complete instruction books containing the following:
 - a. Instruction and data for ordering of all parts and accessories
 - b. Instructions covering installation, assembly, operation, and maintenance.
 - c. Copies of recommended spare parts lists.

4.0 DESIGN AND CONSTRUCTION

4.1 Construction

- 4.1.1 Each battery cell shall be lead-calcium alloy grid with micro-porous plastic separator construction, and use Absorbed Glass Mat (AGM) technology. The battery shall be a valve regulated lead acid requirement. Battery System shall be EnerSys PowerSafe DDm50-17.
- 4.1.2 Cell containers shall be sealed, clear, shock absorbing, heat resistant plastic, explosion proof with pressure relief valves and post seals to eliminate leaking, and certified to UBC Zone 4 requirements.
- 4.1.3 Battery configuration shall be horizontal/side termination (front faced) for easy access to terminals for testing.

EFFECTIVE DATE: 1-9-23	ISSUED: 	APPROVED: 
------------------------	---	---

 GUAM POWER AUTHORITY	SPECIFICATION No. E-041	Page 5 of 8
		January 9, 2023
PREPARED BY THE ENGINEERING DEPARTMENT		REV. 2

4.1.4 Battery cells shall have connections that are individually insulated, with means to test without disconnecting connection.

4.1.5 Cell numbering labels shall be provided one for each cell. Labels shall be uniform, clearly visible, and consecutive with electrical connections. Labels shall be located on the front face of each cell without obstructing connections or vents.

4.2 Rating

The battery shall be rated in accordance with the following:


Nominal System Voltage	125 Vdc
System Description	2-wire, ungrounded
Minimum Ambient Temperature	40 degrees F
Quantity of Cells	60
Specific Gravity of Electrolyte, Fully Charged, Corrected to 77 degrees F	1.220
Voltage, volts per cell	
Floating	2.20
Final	1.75
Maximum during equalizing or recharging following during discharge	2.33
Ampere Hour Rating	400 (Minimum)

4.3 Rack

4.3.1 Each battery shall be furnished with two or multi-tier structural steel battery rack, earthquake type for seismic zone 4.

4.3.2 Before application of paint, all surfaces shall be carefully cleaned of all dirt, moisture, rust, scale, lubricants, and other substances. Lubricants

EFFECTIVE DATE: 1-9-23	ISSUED: 	APPROVED: 
------------------------	---	---

 GUAM POWER AUTHORITY	SPECIFICATION No. E-041	Page 6 of 8
		January 9, 2023
PREPARED BY THE ENGINEERING DEPARTMENT		REV. 2

shall be removed by suitable solvents. Rust and scale shall be removed by sandblasting, power sanding, power grinding or power wire brushing.

- 4.3.3 All steel shall have two or more finish coats of acid resistant ANSI 61 gray paint or electrostatically applied epoxy coating finish.
- 4.3.4 Paint films which show sags, checks, blisters, teardrops or fat edges will not be accepted.
- 4.3.5 Battery supporting rails shall be covered with a protective vinyl runner plate not less than 1/16 inch thick.
- 4.3.6 Clear flame retardant front safety shield shall be provided, allowing for visual inspection without removal.
- 4.3.7 Front and rear runners shall include securing plates or other means to secure battery cells in place, non-damaging to battery cells and clear of any and all electrical or cable connections.

4.4 Accessories


Each battery shall be furnished with the following accessories:

- Flame arrester vents.
- Lead coated intercell connectors to provide not less than 1/2 inch between cells.
- Lead coated intertier connectors.
- Connector bolts with acid resistant nuts.
- Solderless terminal lugs for one 250 MCM copper and one #4 AWG copper cable per polarity.
- Cell lifting facility.
- Vinyl coated assembly wrenches.
- No-Ox-I-d grease.
- One portable acid electrolyte thermometer.
- One portable acid electrolyte hydrometer syringe.

5.0 DRAWING APPROVAL

- 5.1 GPA shall be allowed one (1) week to review and approve drawings without affecting the shipping date.

EFFECTIVE DATE: 1-9-23	ISSUED: 	APPROVED: 
------------------------	---	---

 GUAM POWER AUTHORITY	SPECIFICATION No. E-041	Page 8 of 8
		January 9, 2023
PREPARED BY THE ENGINEERING DEPARTMENT		REV. 2

8.0 WARRANTY

The Supplier shall warrant the satisfactory and successful operation of the apparatus furnished under this specification at the rating, under the conditions, and for the service specified. The Supplier shall further warrant the apparatus against defects of design, material and workmanship. All workmanship and parts shall have a warranty of at least 1 year from the date of equipment commissioning.

The Supplier shall supply two (2) hardcopies and one (1) soft file of prints of the above requirements. In addition, a list indicating the drawing number and title of each drawing shall be provided.

9.0 TEST REPORTS

Two (2) hardcopies and one (1) soft file of certified test reports shall be supplied to GPA.

EFFECTIVE DATE: 1-9-23	ISSUED: 	APPROVED: 
------------------------	---	---