المواصفات الفنية الخاصة بالمناقصة العامة

رقم (2015/18) الخاصة بشراء وتوريد

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المؤسسة العامة للاتصالات السلكية واللاسلكية

الإدارة العامة للمشتريات والمخازن

إدارة المشتريات - قسم العقود والمناقصات

Technical specification of the
" Stationary lead acid - vented type batteries"
OPEN TYPE

Battery Type : floating operation.
Battery Capacity (1500 AH + 2000AH + 3000AH)

1 Scope:

This specification defines and covers the Technical requirements of the: single cell "Stationary - Lead Acid - flooded type Batteries"
Complete with Battery Racks, Internal and external cell connectors, terminal lugs and Maintenance Accessories.
The batteries shall be with distilled water, acid and electrolyte components.
The Required Batteries shall power and feed the telecommunication equipments, And Will be Charged By The mains and generator set through AC/DC rectifier.
The battery shall be designed for Floating operation purposes.
The battery shall handle works for at least 15 years in floating operation.
Electrolyte shall be flooded type (liquid), which is better floating operation.
The Batteries should be single cell type (2 Vdc), (The container is only for one cell).

Quotations shall meet all requirements of this technical specification, unless, specific exception shall be clarify for each point by point.
Tenderer shall answer by compliance statements (Comply/Partially Comply/ Not Copley) for each point of this specifications.

2 Application:

Under Normal Condition of work, The AC/DC Rectifier Equipment supply the DC Power to the Telecommunication equipments- and charge the battery bank(s).
One Battery set (48 Vdc) are connected across the output terminal of the AC/DC Rectifier Equipment to be charged during Mains or Generator set availability, and to feed the telecommunication equipments when the Mains, and Generator set absence.

3 Environments:

The sites which the batteries required, are varies in altitude, temperature, and humidity.
So, the required batteries shall be designed and manufactured to be suitable for continuous operation at the following environments conditions:

Altitude:	from sea level up to 2500 masl.
Temperature:	from 0 centigrade up to 45 centigrade.
Humidity:	Up to 90%.

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4 Operation requirements:

The Batteries shall be suitable for the following operations:

- For long period (days - weeks - months) in floating charged, when Mains and/or Generator set are available.
- For deep discharged up to 100% of it's capacity when Mains and the generator set are not available, and to be fully charged after that.

The system voltage is -48 Vdc, the battery set shall consist of 24 cells 2Vdc/cell.
The Nominal battery's terminal voltage under floating conditions is - 52.8 Vdc/set, 2.2 Volts/cell.
The Boosting charge - after battery deep discharge- may goes up to 57.6 Vdc/set 2.4 Volts/cell.
The lowest battery set voltage (load disconnect) is - 43.2 Vdc/set, 1.8 Vdc/ cell.
The highest battery set voltage (AC/DC Rectifier cut off) may goes up to58 Vdc/set, 2.42 Volts/cell.
In actual operation, the discharge time may goes up to 48 hours

The battery set shall be suitable for floating operation, rarely fully discharged,

5 Cell's (Battery's) General specifications:

The cell (battery) shall be designed and manufacturer for floating operation, (long period of floating charging).
The battery container shall consist of one cell only (2v),
The battery shall be flooded open type.
The cell (battery) internal resistance shall be as minimum as possible.
The battery's self discharge should be as minimum as possible, less than 3% a month.
Cell (positive and negative) plates shall be designed and manufacture according to the newts technical methods.
Plate connectors and posts shall be designed to contribute maximum effective surface area, maximum electrical conductivity, and superior voltage characteristic throughout battery service life.

6 Container and cover:

The cell container and cover shall be strong, rigid, high insulating quality, it should be high resistant to heat, shook and chemical attack.
the cell cover shall be permanently sealed to the cell container, to make high resistant to leakage and explosions.
The container shall be made of the high quality of transparent material.
The terminals and the inter-connecting links shall be of lead plate or better material.
Cell terminal posts shall be heavy duty, manufacturing using lead alloy, or lead alloy reinforces with copper core inserts, and shall have adequate current carrying capacity for hall battery life.

7 **Mounting Arrangements**:

The batteries shall not require any special arrangement for mounting,
Normally, the cells (Batteries) are mounted in shelves and racks,
Very strong racks shall be provided, for each set (24 cells).
To minimize the battery space, racks may be multi-layers vertically.
The tenderer shall provide complete rack specifications, material, components, and dimensions,

8 **Warranty**:

The supplier shall warrant that : the batteries are free of manufacturing and designing defect,
If any failure due to manufacturing/designing defect is noticed within 18 months from the date of battery receipt at site, the supplier shall provide the same at his cost.
The supplier shall warrant that: the batteries shall deliver at least 80% of the rated capacity of power for at least 15 years after the date of receipt at site when operated in accordance with the battery instructions.

9 Information to be furnished by the tenderer:

The tenderer shall provide the following information and technical data along with his offer:

1- The tenderer shall answer to the all technical points, by compliance statement: (Comply/Partially Comply/ Not Comply) Point by Point.
2- The tenderer shall fill the attached technical tables by his technical data.
3- Type and technique of the cell positive plates and negative plates, plates no., plate dimensions, and plates interconnection.
4- Type and technique of the electrolyte, separator....etc,
5- Type of cell container, cover and internal pressure that container can stands.
6- DC internal resistance of the battery, self discharge and battery storage conditions.
7- Temperature effects on the performance of the battery.
8- Charge and discharge characteristics and curves
9- Estimated useful life in years in floating operation.
10- Battery manufacturing international standers.
12- Cell (Battery) dimensions and weight.
13- Manufacturer certificate (actual) of origin.
14- list of the battery accessories and installation materials.
15- The tenderer shall provide complete specification of the Battery set Rack, list of components, diagrams, dimensions, and type of materials.

15- The cell (battery), shall be delivered with all installation materials, components of the electrolytes, all devices to make and combined the electrolyte, ...etc.

10 **Items to be supplied with the battery:**

The batteries shall be supplied with distilled water, acids, in drums (20-30 litters/drum), and all electrolyte compound making devices.
The battery racks should be provided according the BOQ,
One rack for one battery set(24 cells).
The battery shall be supplied with all cells interconnections accessories, and all other necessary accessories.
Batteries distilled water, acids and battery accessories should be provided from the battery Manufacturer.
Tenderer shall provide complete set of documents, among of them:

- Battery technical document.
- Installation and drawing documents,
- Maintenance manual document,
- Battery factory test certificates.
- Battery certificate of origin.

"Technical Table for:
"Lead Acid-Flooded Type- floating operation Battery"

Type : floating operation.
OPEN TYPE

No.	Description	PTC Requirements	Tenderer Specifications
1	Brand Name of the Battery		
2	Model no. of the Battery		
3	Manufacturer Company		
4	Country of Origin		
5	Date of Manufacturing	The Year of delivery.	
6	Manufacturer Experience (years)	10 Years	
7	Tenderer Experience in Battery Trade	5 years	
8	Battery's manufacturing standerds:		
9	Battery nominal voltage/cell	2 Volts/cell	
10	Battery floating voltage/cell	2.2 - 2.25 Volts/cell	
11	Battery Boosting charge voltage/cell	up to 2.5 Volts/cell	
12	Equalizing voltage/cell		
13	Maximum charge current		
14	Maximum discharge current		
15	positive plate material		
16	Positive plates type		
17	Positive plates no./cell		
18	Positive plates size mm		
19	Negative plate material		
20	Negative plate type		
21	Negative plates no./cell		
22	Negative plate size mm		
23	Battery Capacity AH C10		
24	No. of Cycling life at 100% DOD.		
25	No. of Cycling life at 50% DOD.		
26	No. of cycling life at 10% DOD.		
27	Estimated life (years) in floating opera.	> 15 years	
28	Internal resistance m Ohm.		
29	Battery size (w x l x h) mm		
30	Battery weight kg		
31	Battery set list of accessories	should be provided	
32	Rack's specifications and list of components	should be provid	

Basic criteria for Open type Batteries

Floating operation Parameters.

OPEN TYPE

1- **Batteries shall be Heavy duty, high quality and industrial purposes.**
2- **Lead acid, flooded vented type batteries.**
3- **Single cell container with voltage 2 Volts/cell.**
4- **Designed for floating operations.**
5- **Minimum life time 15 years for floating.**
6- **High quality transparences container.**
7- **Date of manufacturing to be the delivery year.**
8- **Battery design and manufacture shall be according to well known international standards, and should be specified.**
9- **Batteries distilled water, acid and accessories should be provided from the battery Manufacturer**

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Tender no..... ../ 2015 List Of Material (B O Q).

No.	Item Description	Capacity	Unit	Qty	Unit Price DDP $	Total Price DDP $
		AH/C10				
1	Stationary Lead Acid, Vented Open Type Batteries Sets, 24 cells/set , 2v/ cell, 48V /set , 3000 AH/C10 Each set, Complete with all installation materials (Acid and distilled water drums, cell's interconnecting devices, Electrolyte making devices..etc.),(Technical specification part 1), (list of each Battery Set installation materials and accessories should be provided.).	3000	Battery set (24 cells)	8 sets		
	Metal rack (2-levels) for each set, (Diagrams, dimension, list of the components for each set' rack should be provided with the offer)	For 3000AH Battery set	Metal Rack	8		
2	Stationary Lead Acid, Vented Open Type Batteries Sets, 24 cells/set , 2v/ cell, 48V /set , 2000 AH/C10 Each set, Complete with all installation materials (Acid and distilled water drums, cell's interconnecting devices, Electrolyte making devices..etc.),(Technical specification part 1), (list of each Battery Set installation materials and accessories should be provided.).	2000	Battery set (24 cells)	10 sets		
	Metal rack (2-levels) for each set, (Diagrams, dimension, list of the components for each set' rack should be provided with the offer)	For 2000AH Battery set	Metal Rack	10		
3	Stationary Lead Acid, Vented Open Type Batteries Sets, 24 cells/set , 2v/ cell, 48V /set , 1500 AH/C10 Each set, Complete with all installation materials (Acid and distilled water drums, cell's interconnecting devices, Electrolyte making devices..etc.),(Technical specification part 1), (list of each Battery Set installation materials and accessories should be provided.).	1500	Battery set (24 cells)	8 sets		
	Metal rack (2-levels) for each set, (Diagrams, dimension, list of the components for each set' rack should be provided with the offer)	For 1500AH Battery set	Metal Rack	8		
Total Cost For the Above materials DDP up to PTC Stores in Sana'a Including All Costs:						

The rack shall be designed for the battery weight

Two Levels