

Solar medical Refrigerator

No.	Item Specifications	#B You Specifications
1	Description of Function	
1.1	This equipment is used primarily in areas without any electricity or where there is less than 8 hours of reliable electricity over a typical day.	
1.2	the refrigerator is used for medicine and other medical product	
2	Operational Requirements	
2.1	The battery solar powered refrigerator will work during the day directly from the solar panel, while during nights operating from storage battery.	
3	System Configuration	
3.1	The system consists of : <input type="checkbox"/> Solar PV Panels <input type="checkbox"/> Components for mounting the PV system <input type="checkbox"/> Earth Connection	
4	Technical Specifications	
	<input type="checkbox"/> Battery & Charge Regulators	
I	Solar PV Panels	
4.1	Technology: Based on Polycrystalline silicon solar cells.	
4.2	Power Rating: <input type="checkbox"/> 500 to 540 Watt peak <input type="checkbox"/> In modules of 100 to 135 Wp Solar Array Peak Power, in combination with the supplied battery capacity, must be guaranteed to power the refrigerator reliably during the months of minimal solar radiation and the months of maximum temperature respectively.	
4.3	Panel Surface: Panels to be covered by anti-reflecting glass.	
4.4	Panel frame: Aluminium with stainless steel/bronze screws for fixing.	
II	Components for mounting the PV system	
4.5	Panel Mounting Support Structure: Metallic frame preferably slotted anodized aluminium or stainless steel or steel angles with stainless steel screws and self-locking washers for mounting the solar panel on the rooftop or ground. Frame must allow adjustment to incline the panels towards the sun's path during mounting Array cables must be weather shielded in case of rooftop installations or of direct burial type, in case of ground installations.	
4.6	Array structures shall be designed to withstand loads of more than 200 Kg/m2 and shall be supplied with frangs for either ground or rooves mounting. Protection against the effect of lightning will be provided to protect the battery charge regulator and other components.	
4.7	Electrical Mounting Accessories: Electrical cables sufficient (16 to 20 meters long or as per requirements) to carry the panel currents to the system and battery without loss. Additional cables for connecting the Charge regulator to system and battery.	
4.8	Earth Connection: One complete earth connection kit.	
4.9	Quality Standard: Must comply with WHO/UNICEF E3/ PV01.	
4.10	Protection against theft: Must have provision to anti-theft mechanism.	
III	Battery & Charge Regulators	
4.11	Type of Battery: Maintenance free Sealed or Flooded / Gel or Tubular Lead Acid type - Deep discharge, and shall have low self-discharge.	
4.12	Total Battery Capacity: 280 Ah X 4 batteries or (420-500) Ah X 2 batteries of 6 Volt.	
4.13	Autonomy on fully charged battery: Minimum 5 days without sun (autonomous days) to run the refrigerator under the prevailing temperature conditions.	
4.14	Battery set housing: Plastic box with locking facility.	
4.15	Miscellaneous Additional cables, plugs, connectors, fuses and other materials for complete mounting of system. Battery safety kit equipment for protection of eye, hand, clothing etc.	
4.16	Charge regulator/ controller: Charge controller, as recommended 6V, 30A with LCD display of parameters like battery voltage, array amps status, load amps draw and system performance. Lightning surge protection shall be provided. They must be precisely set to meet the charge and temperature requirements of the selected battery They shall disconnect the load when the battery has reached a state of charge which can be repeated a minimum of 1000 cycles. The battery charge regulator must meet the WHO designed specifications and Bidders shall submit the documentary evidence of compliance	
4.17	Temperature Control / Holdover Time: The refrigerator shall without energy and without being opened hold a temperature in the range of +2 oC to +8oC for a period as per WHO PQS requirements and preferably higher hours in a continuous external temperature of +43 oC.	
4.18	Capacity: Refrigerator: <input type="checkbox"/> Net: 30 to 45 litres <input type="checkbox"/> Gross: 75 to 85 litres Bidders shall provide details of holdover time of their product.	
4.18	Refrigerants: The refrigerator shall utilize CFC (chlorofluorocarbon) free refrigerants preferably R134A.	
4.2	Insulation: Minimum 100 mm polyurethane foam.	
4.21	Corrosion Resistance: Internal and external cabinet, lid and frame shall be protected against corrosion to DIN 8985.	
5	Accessories, spares and consumables	
5.1	Accessories: <input type="checkbox"/> Lock with key or combination lock on door <input type="checkbox"/> External reading thermometer.	
5.2	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).	
6	Operating Environment	
6.1	Must be suitable for hot zones, up to 43 OC.	
7	Standards and Safety Requirements	
7.1	Must submit ISO 9001 or ISO13485:2003/AC:2007 AND	
7.2	Shall meet UNICEF/WHO standard E003 preferably WHO PQS certified product.	
8	User Training	
8.1	Must provide user training (including how to use and maintain the equipment).	
9	Warranty	
9.1	The minimum period of the comprehensive warranty shall be 10 years for the solar array, 5 years for the batteries and 2 years for the other components after acceptance.	
10	Maintenance Service During Warranty Period	
10.1	During the warranty period supplier must ensure preventive maintenance along with corrective/breakdown maintenance whenever required.	
11	Installation and Commissioning	
11.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.	
12	Documentation	
12.1	User (Operating) manual in English.	
12.2	Service (Technical / Maintenance) manual in English.	
12.3	List of important spare parts and accessories with their part numbers and costing.	
12.4	Certificate of calibration and inspection from factory.	