

# **Specification**

SSE/C&W/IC/BGB's Non-Stock Requisition No.: ER-023437-25-00278, Date-17.11.2025

Quantity: 01 (One) No.

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## TECHNICAL SPECIFICATION

### 1. PURPOSE FOR WHICH REQUIRED AND CAPABILITY

1.1 Specification apply for supply, installation, testing and commissioning of DG Set 250 KVA, 415V, 3 Phase, 4 Wire, 50 Hz.

Leading parameters for 250 KVA DG Set are as follows and no deviation in these parameters is permitted.

#### LEADING PARAMETER

SL. No.	Descriptions	Remarks
1	Continuous power rating	250 KVA
2	Noise level at 1 meter from the enclosure surface.	Maximum 75 dB
3	Conformation to the compliance of CPCB guidelines. (Yes/No)	Yes

### 2.1 DESCRIPTIONS AND SCOPE OF SUPPLY-

2.1.1 The work involves supply, installation, testing and commissioning of 250 KVA DG set complete in all respect as per this specification.

2.1.2 The work will involve on turnkey basis including designing and construction of foundation by firm including fixing of fuel piping, exhaust gas system and the connected civil engineering works involved during the erection i.e., breaking of walls, providing opening for exhaust piping, breaking of flooring, cabling with finishing touch etc. and restoring it to original condition. The work will also involve construction of 3 nos. earth pits (2 nos. GI Earthing & 1 no. Copper Earthing) and connection for proper earthing of individual DG Set as per 15 3043.

2.1.3 The supply and laying of power cable & control cable between DG Set and AMF Control panel will be within the scope of work of supplier. The size and no of runs of power cable will be as per Clause

2.1.4 Arrangement of all manpower including material and facilities required for installation and commissioning of DG set shall be made by the firm/supplier including unloading of DG set and placement at site.

2.2 The complete DG set shall conform to 150 8528 and the DG Set when fully installed and commissioned shall be completely functional and able to deliver 100% rated output at the conditions, mentioned in Clause

2.3 The DG set shall be capable of delivering rated output at continuous power working with 10% overload running capacity for one hour in each 12 hours basis, running under following ambient condition:

A Altitude	1000 meters above sea level
B Temperature of air	40 degrees Celsius at air intake
C Average relative humidity	98%

2.4 The DG set shall include:-

2.4.1 Diesel Engine

2.4.2 Residential type silencer unit fitted in the exhaust circuit

2.4.3 Fuel tank with fuel piping

2.4.4 Electronic Governor

2.4.5 Alternator

2.4.6 Engine Instrument Panel

2.4.7 Power Cable as per Clause 3.10

#### **2.4.8 AMF Panel with 4 pole Microprocessor based Air Circuit Breaker**

**2.4.10** Genset should be mounted on AVM's inside the enclosure and should not require special type of foundation other than plain cement concrete floor capable to bear the load of DG set when in operation.

#### **2.5 CONCOMITANT ACCESSORIES:-**

**2.5.1** The set shall be accompanied by following accessories whose cost shall be indicated separately.

**2.5.1.1** Acoustic enclosure 1 No. per DG set

**2.5.1.2** Auto-main failure panel (AMF) unit complete 1 No. per DG set

**2.5.1.3** Apart from the above concomitant accessories, any other accessory/ equipment essentially required to make the DG Sets fully operational functional when commissioned, shall also be included in Scope of supply and quoted by the bidder separately.

#### **2.6 OPTIONAL ACCESSORIES:**

**2.6.1** Contractor must also quote separately for supply and laying of PVC insulated, sheathed, armored power cable with aluminium conductor's per meter length of following sizes conforming to IS 1554 (P1) 1976.

For 250 KVA :3(1/2) Core cable of 400 sq.mm

**2.6.2** Recommended spares for 2 years. The list of spares with rate for each DG Set shall be quoted considering average 8 hours running per day for each DG Set.

**2.6.3** Recommended tools. Set of tools required for each diesel engine, alternator, exciter and switchboard for different sizes, bolts, nuts shall be quoted indicating the make of tools (rates for each item shall be quoted separately).

**2.6.4** Design and construction of foundation for all capacity DG Sets. Detailed foundation drawing to be submitted by the firm along with the offer.

**2.6.5** Any other accessory, which in the opinion of the tenderer, can contribute to better performance, should be explained in the offer and price should be quoted separately.

### **3 BASIC DESIGN FEATURES**

#### **3.1 Specific Characteristics**

**3.1.1** The Generator set shall be complete with accessories auxiliaries acoustic enclosures, AMF panel etc.

#### **3.2 Rated Power Output**

**3.2.1** The DG set shall be completely functional when fully installed and commissioned and shall be able to deliver 100% rated continuous power output at the conditions mentioned under Clause 2.3

#### **3.3. Diesel Engine:**

**3.3.1** The diesel engine shall be of suitable capacity and rating as per 150-8528 and shall be able to deliver required output at conditions mentioned under Clause 2.3. The engine will be 4 stroke cycle, water radiator cooled, cold starting, turbo charged, electric battery start, directly coupled to alternator, mounted on a common base frame through flexible coupling. The engine shall be required to operate on commercially available diesel fuel in India The engine shall be suitable for 10% overload for one hour in every 12 hours continuous running.

**Note:** The bidder shall furnish a certificate/calculation from the Principal Engine Manufacturer that the offered Engine model is suitable for the required application as mentioned under clause 1.1 and 2.3.

**3.3.2** The engine shall be complete with accessories and protective devices including following:

**3.3.2.1** Heavy duty dry type air filters with vacuum indicator

**3.3.2.2** Air-to-Air Charge air cooler for turbo charged after cooled engine.

**3.3.2.3** Turbo exhaust silencer (Residential)

**3.3.2.4** Expansion bellows (Stainless steel)

**3.3.2.5** Radiator/Heat exchanger and cooling tower (if needed).

**3.3.2.6** Radiator fan with guard and accessories.

**3.3.2.7** Lube Oil and fuel oil filters and bypass facilities.

**3.3.2.8** Fuel Injection equipment.

#### **3.3.2.9 Engine speed control unit.**

#### **3.3.2.10 Exhaust gas Turbo charger and after cooler.**

#### **3.3.2.11 Lube oil sump.**

#### **3.3.2.12 Thermostats with bypass facilities.**

#### **3.3.2.13 Flywheel unit with safety guard.**

#### **3.3.2.14 Lube oil cooler and water pump.**

#### **3.3.2.15 Lube oil heaters (if required):**

#### **3.3.2.16 Corrosion resistor/chemical dozer/corrosion inhibitor**

#### **3.3.2.17 Fuel pre-filter and water separator.**

#### **3.3.2.18 Torsional vibration damper if required.**

#### **3.3.2.19 Self-starter for electric start system with battery of adequate capacity**

#### **3.3.2.20 Battery charging alternator**

### **3.3.3 ENGINE CONTROL PANEL COMPRISING OF FOLLOWING**

#### **3.3.3.1 Lubricating oil Pressure Gauge**

#### **3.3.3.2 Battery Volt Meter**

#### **3.3.3.3 Coolant Water temperature gauge.**

#### **3.3.3.4 Battery Charging Ammeter**

#### **3.3.3.5 Electronic hour meter.**

#### **3.3.3.6 RPM indicator.**

#### **3.3.3.7 ON/OFF REMOTE start key:**

#### **3.3.4 Safety Equipment for engine:**

##### **3.3.4.1 Over speed tripping cum indication**

##### **3.3.4.2 Low lube oil pressure trip cum indication.**

##### **3.3.4.3 High water temp. trip cum indication**

##### **3.3.4.4 High lube, Oil temp, stop**

**3.3.5 Engine Speed Governor:** Engine shall be supplied with inbuilt electronic governor to maintain engine speeds within the rated speed under varying load conditions.

**3.3.6 FUEL TANK:** Fuel tank capacity shall be sufficient for daily 8 hours continuous running of DG set. Fuel tank of sheet metal fabricated from 14 SWG M.S. sheet steel suitable for continuous operation complete with drain valve, air vent, inlet and outlet connection. Fuel tank will be placed inside the enclosure in base. The above capacities are the minimum.

#### **3.3.7 Battery Charger:-**

**3.3.7.1** The battery charger of reputed make shall be provided. The battery charger shall be complete with the following indications and features:-

Battery charge/discharge current

Boost charge/trickle charge selector

On/Off switch

Fault indication

Protection auto put off feature to safeguard batteries from overcharging

**3.3.7.2** The Input voltage to battery charger may vary between 180 volts to 240 volts, Therefore, the battery charger should be capable of charging the battery to desired voltage level within the above input voltage range.

**3.3.7.3** The battery charger shall have a selector switch by which the rate of charging the batteries can be selected.

**3.3.7.4** The battery charger shall be provided with trickle/boost mode to keep battery fully charged.

### **3.4 ALTERNATOR:-**

Alternator shall be brush less type conforming to IEC 60034 with  $\pm 1.0\%$  voltage regulation under all load conditions shall be of self-exciting, self-regulating type in SPDP enclosure and suitable for 415 volt, 3 phase 4 wire 50 HZ, AC system with neutral point, it shall be directly coupled with engine by means of flexible coupling. The alternator shall be provided with:

Automatic Voltage Regulator and can deliver rated output at the conditions mentioned in clause 2.3.

Voltage Regulation:  $\pm 1.0\%$  of rated voltage from no load to full load.

Enclosure IP-23

Insulation: Class "H"

Permissible over load: 10% for one hour in 12 hours of duration.

Note: The bidder shall furnish a certificate/calculation from the Principal Alternator manufacturer that the offered Alternator model is suitable for the required application as mentioned under clause 1.1 and 2.3.

**3.5 BATTERIES:** "Heavy duty suitable capacity maintenance free lead acid battery with its leads shall be provided. The battery shall be of the size to give not less than six consecutive starts of the engine at 0 degree centigrade to 50 degree centigrade. "Minimum Capacity of batteries for 250 KVA DG set shall be 200 AH

**3.6 ACOUSTIC ENCLOSURE:** The acoustic enclosure shall be made of 14 gauges CRCA sheet. The salient features of the acoustic enclosure are:-

3.6.1 The enclosure shall be modular in construction with the provision to assemble and dismantle easily at site. The DG set, Fuel Tank, Batteries etc, shall be completely installed (Ready to use type) inside the enclosure.

3.6.2 The sheet metal components should be minimum NINE TANK pre-treated before powder coating

3.6.3 The enclosure shall be powder coated (inside as well outside) with special pure polyester based powder. All nuts and bolts external hardware are made from stainless steel.

3.6.4. The doors shall be gasketed with high quality EPDM gaskets to prevent leakage of sound.

3.6.5 The door handles shall be lockable type.

3.6.6 Sound proofing of the enclosure shall be done with high quality Rock Wool/ Mineral wool/Resin bonded fibre wool conforming to relevant IS 8183 and the same shall be further covered with fiber glass and perforated sheet.

3.6.7 Specially designed attenuators shall be provided to control sound at air entry and exit points.

3.6.8 Adequate ventilation shall be provided to meet total air requirement, if required, a blower is provided to meet total air requirement.

3.6.9. Temperature of enclosure shall not exceed beyond  $7^{\circ}\text{C}$  of ambient temperature of  $60^{\circ}\text{C}$  at full load.

3.6.10 There shall be a provision of emergency shut down from outside the enclosure.

3.6.11 Fuel Filling point on one of the side of the body of enclosure along with lockable type filling cap.

3.6.12 Enclosure shall have Florescent lighting arrangement complete in all respect.

3.6.13 Noise Level shall be less than 75 dB (A) at 1 mtr. distance.

3.6.14 Door hinges shall be made of anti-corrosive special alloy

3.6.15 Viewing window shall be fitted with toughened glass instead of acrylic sheet

3.6.16 Fuel tank shall be integral and fitted with fuel level gauge.

3.6.17 All enclosures shall have lifting facility for ease of handling.

**3.7 Emission related parameters:**

Emission of the exhaust gas should be in accordance with the norms of Central Pollution Control Board as applicable at the time of supply.

### **3.8 Anti Vibration Mounting and Base Frame**

Engine and alternator shall be mounted, coupled and aligned on a common channel iron fabricated Base Frame with pre-drilled holes. The mountings of the DG set shall be liberally designed

### **3.9 AMF Control panel**

3.9.1 The AMF operation shall automatically start normally within 10 seconds after interruption of mains supply. Also DG set shall automatically stop within 3 minutes after changeover from DG set to main supply. However, it should positively start within 3 attempts hence starting time should not exceed 30-40 seconds in normal condition. The AMF panel shall also be capable of starting DG set in the event of voltage below the specified values. The AMF panel shall be complete with auto shifting of load facilities and the panel shall include the following:

- (i) Status Indicating load on mains, load on DG set and DG set failed to start.
- (ii) DC control relay and timer for start/stop/three attempt start feature
- (iii) Voltage Sensing Unit with Time Relay: AMF panel shall be provided with this sensing unit with adjustable settings, which should ensure that AMF does not come into operation in the event of voltage variation of limited duration.
- (iv) Provision should be made to operate the DG sets both in auto mode and manual mode.
- (v) Battery charger working on mains supply.

### **3.9.2 AMF CONTROL PANEL BODY SECTION**

The AMF control panel body will be fabricated out of 14 SWG-CRCA Sheet Panel will be suitable for floor mounting, indoor installation, rust proof, dust and vermin proof. The control panel shall be provided with removable side panels and with hinged front panel for easy accessibility complete with suitable lock and key arrangement. Control cables are ferruled for proper maintenance/checking/wiring of panel. Detachable cable gland plates are provided.

Type: Free standing, floor mounting, outdoor type, compartmentalized Bolted construction, dust proof.

SYSTEM: (i) Rated Voltage :415 Volts, 3 Phase, 4 wire, 50 Hz.

(ii) Insulation Voltage :2000 Volts for 60 Seconds.

FABRICATION: (i) Base Frame : 3 mm. thick Mild Steel Sheet

(ii) Main Frame : 2 mm thick C.R.C.A Mild Steel Sheet.

(iii) Covers & Doors: 1.5 mm thick C.R.C.A. Mild Steel Sheet.

DEGREE OF PROTECTION: Enclosure designed for IP-55 degree of protection.

PRE-TREATMENT: Fabricated Parts should be Pre-treated for Degreasing. Pickling, Phosphate & Passivation through minimum 9 Tank Process' before painting.

PAINTING: Powder Coating: Thickness 50 microns (minimum). Paint Shade: Siemens Grey.

BUS BARS: Electrolytic grade Copper Bus Bars insulated with coloured Heat Shrinkable PVC Sleeves & duly "supported on SMC/DMC moulded supports. The bus bars shall be rated with double the rated current capacity of alternator.

WIRING: (i) A.C. Voltage Circuit: 1.5 Sq.mm. Cu. Flexible Wire

(ii) D.C. Voltage Circuit 2.5 Sq.mm. Cu. Flexible Wire (grey).

(iii) Current Transformer Secondary: 2.5 Sq mm. Cu. Flexible Wire

### **3.9.3 SWITCH GEAR SECTION with AMF panel :-**

3.9.3.1 Two Nos. 4 pole Microprocessor based Air Circuit Breakers shall be provided, one for DG Set and other for incoming power supply. Rating of ACB shall be at least 1.2 times the rated current of alternator. ACB shall have adequate breaking capacity to clear dead short circuit fault current at the output of ACB, complete with under voltage release, overload release Instantaneous magnetic short circuit/earth fault release. The ACB shall be draw out type. ACB shall have hand-operated lever and drive arrangement for front-end operation.

Note: Offers with contactor/MCCB in place of ACB will be summarily rejected.

**3.9.3.2 METERING-Following metering shall be provided:**

- 1 No. Ammeter with selector switch near 1.2 times rated current of Alternator**
- 1 No. Voltmeter with selector switch 0-500 volts**
- 1 No. Frequency meter**
- 1 No. Combined digital KW/ PF meter**
- 1 No. KWH meter**

**3.9.3.3 PROTECTION - Following protection shall be provided**

**Under/Over Voltage**

**Under/Over Frequency**

**Over Current [Make: electronic type MIT/AREVA or any reputed brand] Earth Fault [Make: electronic type MIT/AREVA or any reputed brand]**

**MECHANICAL/ELECTRICAL Interlocking**

**3.9.3.4 CONTROLS/ INDICATIONS: Following controls/protections shall be provided**

**Circuit breaker On indication**

**Circuit breaker Off indication**

**Battery charger ON indication**

**1 No. Engine Start Push Button**

**1 No. Engine Stop Push Button**

**1. No. Fault Accept/Reset Push Button**

**Note: If any of the above protection/control/indication is covered & achieved through Microprocessor based AMF Controller then separate protection relays & control/ Indication is not required.**

**3.10 POWER CABLE: Main power cable PVC insulated, sheathed, armoured with aluminium conductors of following sizes conforming to IS 1564 (Pt.1) 1976 from Engine to Control panel, Size of the cable proposed to be used may be specified in the offer but shall not be less than as mentioned below: For 250 KVA: 3% Core cable of 400 sq.mm of 1. run (total length 10 mtrs.)**

**3.11 Make of bought out items:-**

**3.11.1 Diesel Engine :CUMMINS/GREAVES/KIRLOSKAR/PERKINS or any reputed brand.**

**3.11.2 ALTERNATOR :LEROY SOMER/KIRLOSKAR/COL/STAMFORD/TDPS or any reputed brand.**

**3.11.3 ACBS :ABB/Schneider/Siemens or any reputed brand.**

**3.11.4 Power cable & Control Cables: Fort Gloster, Nicco, Havells, RPG, Reliance or any reputed brand.**

**3.11.5 AVM :Polybond/Resistoflex/Dunlop or any reputed brand.**

**3.11.6 Battery :Amron/Standard Furukawa/Exide/Prestolite/HBI.nife or any reputed brand.**

**3.11.7 Meters :AE/MECO or any reputed brand.**

**3.11.8 Selector Switches :KAYCEE/SALZER or any reputed brand**

#### 4. TECHNICAL LITERATURE

4.1 One copy of the printed illustrative catalogue showing features of the machine and its elements must be enclosed with each copy of the bid. Tenderer shall submit the following technical literatures and drawing along with each of the generating set to the consignee within 3 months from the placement of LOA/P.O.

- a) Three copies of maintenance and operation instruction manual
- b) Three copies of dimensional and detailed drawing of DG set and anti-vibration arrangement drawings for generating sets.
- c) Three copies of schematic wiring diagrams, wiring layout and dimensional drawings of the AMF control panel.
- d) Three copies of wiring between AMF/Switchgear and control panel to DG sets.
- e) Three copies of spare part catalogue giving part list no of each component with exploded view and assembly drawing
- f) Three copies of dimensioned drawing showing overall size of the generating set and switch board.
- g) Trouble shooting guide.

5. SPARES: Two lists of recommended perishable and non-perishable spares required for normal maintenance to cover complete range of mechanical, hydraulic and electrical equipment including controls and double shift working basis should be furnished and quoted separately. The quantities should relate to, in case of non-perishable spares, to two years normal maintenance, and in case of perishable spares to the duration of its shelf life or two years whichever is less. Shelf life should be indicated with the quotation for spares.

6. SPECIAL FEATURES: Special features if any, incorporated into the plant shall be indicated separately by the tenderer, clearly indicating the advantages of the features.

#### 7. DEVIATIONS:

7.1 The tenderer shall certify that the offered machine fully meets the specification. Various design features incorporated in the machine to fulfil different technical performance requirements shall be fully explained in the offer. However, minor deviations from these specifications which do not affect or in any way interfere with the stipulated performance standards or would result in improved safety/ reliability or would reduce recurring maintenance/operating cost of the machine, can be considered for acceptance. The tenderer in such eventuality shall clearly indicate the details of these deviations and their implications as per the following format:

Sl. No.	Clause/Item	Brief description of Deviation	Justification for deviation

All deviation Major/Minor shall be clearly indicated in deviation statement as per annexure Vi explaining reason and their implication



## **8. INSPECTIONS & TESTING:-**

**8.1 INSPECTION OF EQUIPMENT & TESTING AT MANUFACTURER'S WORKS** 8.1.1. The railway will depute authorized representative for witnessing the testing of DG set at manufacturer work on receipt of inspection call from contractor/supplier the following performance test as per ISO 8528:6:2005(e) shall be carried out

### **(a) 8 Hours Rating Test**

The full load test shall be carried out on prevailed ambient condition available at the place of test. The DG set shall be gradually loaded from no load to 25% of rated power. 75% of rated power and then 100% of rated power. For each such partial rating, after stabilization of load, DG set shall run for that rating at least for 1% hour. This shall be followed load running of DG set for 100% rating for 7 hrs. and followed by one hour run at 10% overload.

The bidder shall confirm that the Generator manufacturer shall be able to make suitable Testing arrangement at their mig, works & conduct testing of offered DG set installed inside the Acoustic Enclosure.

**(b) Fuel consumption test of Diesel Generator Set.** The Diesel Generator set shall run at full rated load (in KW) continuously for one hour. This shall be followed by 1-hour fuel consumption test as described.

"The alternator shall be loaded with rated load in KW. The fuel consumed during the test shall be measured in grams and the generated electrical unit shall be measured in KWH. The ratio of both shall be calculated and compared with declared value."

**(c) Voltage regulation test:** Voltage Regulation as per clause 3.4 shall be within 1.0% of rated voltage from no load to full load

**(d) High Voltage Test at 1.6KV** for one minute after the load test as per IS 4722

**(e) Vibration Test:** Vibration below AVMs as per IS 12075 should not exceed 100 microns

8.1.2 The tenderer shall provide free of cost all consumable items for testing of DG set at Firms premises operation of all safety devices are to be tested at firm premises for satisfactorily operation.

8.1.3 Manufacturer must have suitable facilities at their works for carrying various performance tests on the plant and shall be made available to the inspecting authority:

## **8.2 SITE TEST AFTER INSTALLATION:-**

The Diesel Generator set shall run at maximum available load up to the rated load as per prevailed ambient condition at site for 8 hours. During this test, operation of all safety devices and overall operation of system are to be tested at site. This test will be witnessed Representative of the Contractor/Supplier.

All consumable items like diesel mobile oil, grease, water, electricity, cotton waste eta. for testing the DG set should be provided by firm.

## **9. TRAINING:-**

Technical experts of the manufacturer during commissioning of plant will fully and adequately train operators/maintenance staff nominated by the consignee.

## **FOUNDATION AND RELATED DRAWINGS:-**

The supplier shall furnish to consignee direct 3 copies of foundation drawings and related diagrams giving machine weight overall dimensions, foundation details within 4 weeks of the receipt of Advance Acceptance of Tender for approval before commencing the foundation work, installation and commissioning of the plant Foundation and other related works to be completed before DG set reaches the site.

## **11. ERECTION, COMMISSIONING AND PROVING TESTS:-**

The contractor or his agent would be required to carry out a joint check at the consignee's end, along with the consignee, before unpacking is done to avoid subsequent complaints regarding short shipment/transit damages it is necessary that this joint inspection be done immediately on receipt of the plant by consignee to avoid commissioning delays due to shortages/transit damages. The authorized Manufacturer representative must be present during joint inspection and they should certify that items supplied are from OEM, based on visual or any other suitable check as applicable. The original manufacturers test certificate MUST be supplied along with the D. G. Set. The date of manufacture of the engine and alternator must be within, ONE year of the date of supply. Installation of plant on turnkey basis with foundation but including the related civil engineering works as per clause shall be done by the contractor. The contractor shall arrange commissioning of the plant in the presence of Railways Staff. Adequate number of teams of technical experts will be made available so that the commissioning delays are eliminated. These personnel will be required to be present as soon as the foundation is ready.

The contractor or his agent will commission the plant within 60 days from the date of information by the consignee in respect of readiness of site. The plant performance shall be demonstrated by the contractor or agent after successful installation works for a period of two 8 hrs. Shift. Thereafter the plant performance condition shall be watched by the consignee for a period of one month (each working day having two shift of 8 hrs. before the final proving test certificate is issued.

The consignee shall arrange following before the dispatch of consignment.

- (i) Clear site of DG Set with the condition that AMF Control panel should preferably be within 10 meters from DG Set.
- (ii) Provision of Power cable from main distribution board to AMF control panel.

The M&P shall be deemed to be "Commissioned at consignee premises on the date when it is tested and meets with the specified capabilities/functions according to the technical specifications

Any delay in providing the "raw material or any other input" for proving out shall not be logged on supplier's account.

## **12. PACKING AND TRANSPORTATION:-**

12.1 The DG set and other accessories shall be properly packed to withstand rough handling during transit. The electrical equipment and finished surfaces should be properly protected from damages by rain and moisture.

12.2 The DG set should be sent to destination preferably by road transport at supplier's risk and responsibility.

## **13. WARRANTY:**

The complete system shall have a warranty of 24 months as per terms and conditions.

**GUARANTEED TECHNICAL SPECIFICATION FOR DIESEL GENERATING SET WITH AMF PANEL**

Sl. No.	Description	Value/Information
1	Make	
2	Model No.	
3	No. of Cylinders	
4	Compression Ratio	
5	BHP as per clause 2.3	
6	RPM normal	
7	Lube Oil Consumption(Liters/Hr) with 0.89sp.gr at 100% Load	
8	Bore/Stroke	
9	Total coolant capacity	
10	Total lubricant capacity	
11	Max continuous power at flywheel	_____KW
12	Maximum time to start from cold & attain rated Speed Ready to take load	_____Sec
13	Method of Jacket cooling	
14	Heat Removal system	
<b>Fuel Oil System</b>		
Sl. No.	Description	Value/Information
1	Fuel oil	High speed diesel
2	Fuel tank level indication	
3	Low fuel lever limit switch: To be provided	
4	Fuel tank gauge glass	
5	Fuel flow meter	
6	Fuel tank (Day tank) capacity	_____Liters
<b>Alternator:</b>		
Sl. No.	Description	Value/Information
1	Make	
2	Model no.	
3	Rated Output	
4	Enclosure	_____IP
5	Terminal voltage & frequency	
6	Time permitted to build up rated voltage	
7	Permissible voltage dip	
8	Insulation class-Armature	
9	Short circuit withstand time	
10	Efficiency of Alternator at FL at 0.8 pf	
11	Auxiliary Power consumption when generator is loaded; 100% 75%	
<b>AVR</b>		
Sl. No.	Description	Value/Information
1	Type of AVR	
2	Voltage regulation:	
3	Dead band	_____%
4	Response time	
5	Range of voltage adjustment	

GOVERNOR DATA		
Sl. No.	Description	Value/Information
1	Type	
2	Type	
3	Whether adjustable droop provided	
4	Response time	
5	Recovery time	
BATTERY		
Sl. No.	Description	Value/Information
1	Make	
2	Type	
3	AH Capacity	_____AH
4	Battery voltage	_____V
5	End cell voltage	_____V
6	Nos. of starts without recharging	
BATTERY CHARGER		
Sl. No.	Description	Value/Information
1	Make	
2	Charger rating	
ACB		
Sl. No.	Description	Value/Information
1	Type	
2	Make	
3	Model	
4	Overload current breaking capacity	
SET SYSTEM-GENERAL DATA		
Sl. No.	Description	Value/Information
1	MG Set Model no.	
2	Efficiency	
3	DG set prime power rating as per ISO 8528 at ISO reference condition	_____KW at 1.0 power factor
4	DG set prime power rating as per ISO 8528 at ambient condition as given in clause 2.3	_____KW at 1.0 power factor
5	Specific fuel consumption of DG set as ISO reference condition	_____g/KWH
6	Specific fuel consumption of DG set at ambient condition as given in Cause 2.3 (+/-5 % tolerance).	_____g/KWH

**LIST OF CONCOMITANT ACCESSORIES  
(For 250 KVA)**

Sl. No..	Description	Qty.	Price (Rs) 250KVA
1	Acoustic	1 no per DG set	
2	Auto-main failure panel (AMF) complete	1 no per DG set	

**Note:** The above concomitant accessories shall be supplied along with the DG sets.

## LIST OF PERISHABLE SPARES-250 KVA DG SET FOR 5000 RUNNING HRS (2 YEARS)

Sl. No.	Item Description	Qty.	Unit rate in Rs.	Total price in Rs.
1	Coolant 10 ltrs.			
2	Lub oil 50 ltrs.			
3	Oil filter			
4	Fuel Filter primary			
5	Fuel filter secondary			
6	Fuel Filter 3 ltrs.			
7	Fan Belt Ax64			
8	Belts charging alternator			
9	Air Filter Element Inner			
10	Air Filter Element Outer			
11	Set of O-Rings			
12	Set of Gasket			
13	Set of flexible pipes			
14	Set of hoses			
15	Set of Sealing Rings			
16	Set of hose clips			
17	Tappet cover gesket			
18	Water temperature gauge			
19	Oil pressure gauge			
20	Digital tachometer			
21	Magnetic pick up			
22	Thermostate			
23	High temperature switch 96 degree			
24	Lub oil pressure switch			
25	Fresh water pump repair kit			
26	Oil seal end cover			
27	Oil seal flywheel end cover			
28	Diode sets			

## List of non-Perishable spares-250 KVA DG set for 5000 running HRS (2Years)

Sl. No.	Item Description	Qty.	Unit rate in Rs.	Total price in Rs.
1	Head gasket			
2	Liner O-rings			
3	Solenoid assembly			
4	CR. bearing top + bottom			
5	Piston rings set			
6	Set of H.P. pipe			
7	AVR			

## Optional accessories

Sl. No.	Description	Unit	Rate/Unit
<b>Cable</b>			
1	3x1/2 core cable of 400 Sq. mm of 1 run	Meter	
<b>PROVISION OF VENTILATION FAN</b>			
1	Provision of ventilation fan.	01 Nos.	

Note: The price list of above optional accessories are only for reference to consignee.

**PROFORMA FOR STATEMENT OF DEVIATIONS  
FROM TECHNICAL SPECIFICATION**

The following are the particulars of deviations from the requirements of the technical specification:-

CLAUSE	DEVIATION	REMARKS (Including Justification)
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Signature and seal of The manufacturer/Tenderer.

NOTE: Where there is no deviation, the statement should be returned duly signed with endorsement indicating "No deviation".



## DEVIATION CUM CONFIRMATION STATEMENT

SL. No.	Clause/Item	Brief description of deviation	Justification for deviation

I hereby confirm all the clauses of technical specification, including its Schedules, except the above mentioned clauses, for which clause wise brief description of deviation and justification thereof has been furnished by me. I further certify that in case of any contradiction between above information and information provided by me anywhere in the bid document, above information will override all other information provided by me.

I also confirm that suitable facilities exist at our works for carrying out various performance tests on the plant as per clause 8.1 and same shall be made available to the inspecting authority.

Signature of the bidder

All the above specifications (page no. 1 to 17) of 01 (One) No. 'Diesel Generating Set 250 KVA with AMF panel' of Non-Stock Requisition No.: ER-023437-25-00278, Date-17.11.2025 (Consignee: 023437) checked and verified by:

Shubhajit Mondal 17/11/25

JE/C&W/STORE/BGB/E.RLY.  
Junior Engineer  
C & W, BGB, SDAH  
Eastern Railway

17/11/25

SSE/C&W/IC/BGB/E.RLY.

अपर शाखा अभियन्ता (समाधि) इन्चार्ज  
Sr. Section Engineer (C&W) IC  
पूर्व रेलवे कोमागम्टा मारु, बज्बज्  
Eastern Railway.K/Budge-Budge

Haldar 24.11.25

JE/MM. CELL/SDAH/E.RLY.

Junior Engineer  
MM Cell, C & W, Sealdah  
Eastern Railway

Sr. DME(Co)/SDAH