

D-44/1/NSSO/DPD(HQ)/Admn. IV/2013-14
Government of India
Ministry of Statistics & Programme Implementation
National Sample Survey Office
Data Processing Division (HQ)

Mahalanobis Bhavan .
164, G.L.T. Road
Kolkata-700 108

PART -I

Tender Notice No.D-44/1/NSSO/DPD(HQ)/Admn.IV/2013-14

Dated 18.02.2014

On behalf of the President of India, this office invites sealed tenders in two-bid system from the reputed and experienced firms for Supply, installation, testing and commissioning of one no. 250KVA 415V. 3 phase and neutral prime duty DG set with AMF panel, Breaker panel etc. for DPD(HQ), Kolkata .

Detailed tender documents with specification for the above can be obtained from the undersigned, paying Rs.500/= in cash or by DD drawn in favour of "Pay & Account Officer, Ministry of Statistics and Programme Implementation, Kolkata" on any working day upto 06-03-2014. It can be downloaded from www.mospi@gov.in in which case, the cost of the tender documents of Rs.500/= is required to be paid in DD drawn in favour of "Pay & Account Officer, Ministry Statistics and Programme Implementation, Kolkata" and enclosed with the filled in Tender Document. This office reserves the right to accept/reject any or all tenders without assigning any reason and will not be responsible for postal delay.

Time & date of submission of filled in tender: 1400 Hrs. of 07-03-2014

Time & date of opening of bid: 1530 Hrs. of 07-03-2014

Earnest Money Deposit (EMD) Rs.1,00,000/- (Rupees one lakh only)

Cost of the Tender Rs.20,00,000/- (approx.) (Rupees Twenty Lakh only)

All other terms and conditions in tender form will be binding on the Tenderers.


(DHARMVIR JHA)
Joint Director & HO
Tel:2578 6474

Date: 18-02-2014

Place: Kolkata

PART II
BID FORM

Reference :- Tender No. **D-44/1/NSSO/DPD(HQ)/Admn. IV/2013-14, dated 18-02-2010**

To,

The Addl. Director General,
Data Processing Division(HQ),
National Sample Survey Division(NSSO).

Dear Sir,

Having examined the conditions of contract & specification including all other related documents the receipt of which is here by duly acknowledged, we the undersigned, offer to execute the supply installation and commissioning of 250 KVA 415V, 3 phase and neutral prime duty with AMF panel, Breaker panel etc. DG set in Office of Data Processing Division(HQ), National Sample Survey Division(NSSO), 164 GLT Road, Kolkata-108 with conditions of contract & specification.

We undertake, if our bid is accepted, to execute the work in accordance with specifications, time limits, terms & conditions stipulated in the tender document.

If our bid is accepted, we shall submit the securities as per the conditions mentioned in the contract. We agree to abide by this bid for period of 180 days from the date fixed for bid opening and it shall remain binding upon us and, may be accepted at any time before the expiry of the period.

Until a formal agreement is prepared & executed, this bid together with your written acceptance thereof in your notification of award shall constitute a binding contract between us.

Bid submitted by us is properly sealed & prepared so as to prevent any subsequent alternation & replacement.

Dated this..... day of.....2014

Signature of Authorized signatory.....

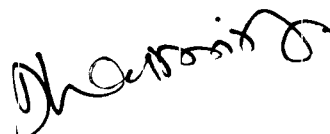
In the Capacity of.....

Duly authorized to sign the Bid for and on behalf

of

Witness.....

Address.....



PART III

TENDERER'S PROFILE

1. Name of the tenderer/ firm (In block letters)
.....
.....

2. Name of the person submitting the tender
Shri/Smt.....

3. Address of the tenderer :

4. Tel No. (with STD code) (Off).....(Fax).....(Mobile).....

5. PAN No (Permanent Income TAX No)
.....

6. a. Service Tax Registration No./VAT Registration

7. Experience: Whether supplied/installed to the Govt organizations/PSUS in the recent past, if yes, copies of work order/purchase order may be enclosed. :

8. Turn over in last three years (from 2010-11 onwards) of Average Annual Turnover (in Rs.)

I/We hereby declare that the information furnished above is true & correct.

Place:

Date:

Signature of tenderer /Authorized signatory.....

Name of the tenderer.....

[Note: Items 5, 6, 7 (Photo copies of original documents are to be enclosed)]

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PART IV

Terms and Conditions

“**The Office**” means the Data Processing Division(HQ), National Sample Survey Division(NSSO), Govt of India, Ministry of Statistics and Programme Implementation, which invites the tenders on behalf of the President of India and for Addl. Director General, Data Processing Division(DPD), National Sample Survey Division(NSSO), Kolkata.

- 1.1 This office proposes to procure 250 KVA 415V, 3 phase and neutral prime duty DG set with AMF panel, Breaker panel etc. from the vendors who have experience in supplying such 250 KVA DG set.
- 1.2 Tenderers are advised to study all technical and commercial aspects, instructions, forms, terms and specifications carefully in the tender document. Failure to furnish all information required in the Tender Document or submission of a bid not substantially responsive to the Tender document in every respect will be at the tenderer's risk and may result in the rejection of the bid.
- 1.3 Sealed offers prepared in accordance with the procedure enumerated in this Tender document should be submitted to Data Processing Division(DPD), National Sample Survey Division(NSSO), 164, Gopal Lal Thakur Road, Kolkata -108 not later than the date and time laid down, at the address given in the schedule for invitation to Tender..
- 1.4 All bids must be accompanied by a Earnest Money Deposit(EMD) of Rs.1,00,000/-(Rupees one lakh)only in the form of Bank Draft drawn in favor of “Pay & Accounts Officer, Ministry of Statistics and Programme Implementation, 1, Council House Street, Kolkata” payable at Kolkata.
- 1.5 This tender document is not transferable.
- 1.6 The tenderer should indicate specifically the Basic Price, Taxes/Excise duty, other duties (if any), and levies chargeable quantitatively against the item. No additional information will be entertained after due date. The Data Processing Division(DPD) may reject tenders if they do not carry such information separately and specifically quantitatively.
- 1.7 The bids should indicate clearly that the rates are F.O.R. at DPD(Hq),164, GLT Road, Kolkata-700108 .
- 1.8 The tenderer should clearly indicate the delivery period and validity period of tender.
- 1.9 The tenderer should clearly indicate the **Warranty Period** and also the availability of service and maintenance facilities at Kolkata for the item quoted.
- 1.10 The Tender must be submitted along with the copies of :
 - (a)Manufacturers license or authority from the manufacturer
 - (b) Last 3 years turn over (2010-11 onwards)
- 1.11 The tenders will be opened on the date and time indicated in the presence of tenderers, if any, present on the occasion. If the date of opening is declared to be a holiday the tenders will be opened on the next working day.
- 1.12 No advance payment or payment against Pro-forma Invoice will be made. Payment will be made only after receipt of material in good condition, inspection, installation and testing.
- 1.13. 5% of the bid price is to be submitted by the successful bidder towards **Performance Security** in the form of DD/ Bank Gurantee from a commercial bank in favour of Pay & Accounts Officer, MOS&PI, 1, Council House Street, Kolkata.
- 1.14 All damaged or unapproved goods shall be returned at the Tenderer's risk and cost and the incidental expenditure there upon shall be recovered from the concerned party.

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1.15 Printed Terms and conditions of the firm sent along with the quotation, if any, shall not be binding on us.

1.16 On acceptance of tender, the date of delivery should be strictly adhered to otherwise, the Data Processing Division(DPD) reserves the right not to accept the delivery in full or in part. In case the order is not executed within the stipulated period, the Office will be at liberty to make purchases through other sources, and to forfeit the earnest money of the Tenderer.

1.17 Payment of bill will be made after successful supply, installation, testing and commissioning of the aforesaid 250 KVA DG set.

1.19 Schedule for Invitation to Tender :

a) Address at which tender is to be submitted:

**Joint Director & Head of Office,
DPD(HQ), NSSO,
MAHALANOBIS BHAWAN
164, Gopal Lal Thakur Road,
Kolkata-700108
Tel. No. 2578 6474.**

b) Last date and time for receipt of Tender: 07-03-2014 at 2.00 p.m.

c) Place, Time and Date of opening of bids:

Place: Mohalanobis Bhawan. 164, Gopal Lal Thakur Road, Kolkata -108..

Time & Date : 07-03-2014 at 3.30 p.m.

d) Date till which the tender is valid: 180 days from the opening of bid.

e) The office of Data Processing Division(DPD) shall not be responsible for any postal delay about non-receipt/non-delivery of the documents.

(B). Procedure for submission of Bids

1.1 It is proposed to have a Two bids System for this tender

a) Technical Bid in one cover(in format as per part –VI).

b) Commercial/Price bid in one cover(in format as per part –V).

1.2 Technical Bid of the Tender should be covered in a separate sealed cover superscribing the wordings "Technical Bid".

1.3 Commercial Bid of the Tender should be covered in a separate sealed cover superscribing the wordings "Commercial Bid". Commercial Bid should only indicate prices.

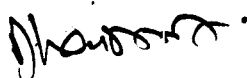
1.4 All the two documents viz. Technical Bid Cover and Commercial Bid Cover prepared as above are to be kept in a single sealed cover superscribed with "Tender for Supply of 250 KVA DG set"

1.5 The cover thus prepared should also indicate clearly the name and address of the contract order of the tenderer to enable the Bid to be returned unopened in case it is declared "late".

1.6 In case the Earnest Money is paid by Demand Draft, the draft must be in a separate sealed envelope indicating the amount, tender Notice Number and due date and enclosed with the bid.

2. Cost of submission of Tender :

The tenderer shall bear all costs associated with the preparation and submission of its Bid, including the cost of presentation for the purpose of clarification of the bid, if so desired by the Office and the



Office will in no case be responsible or liable for those costs regardless of the conduct or outcome of the Tendering Process.

3. Clarification on Tender Document :

Joint Director & Head of Office may be contacted in case of any clarification(s) before submission of the Bid.

4. Amendment of Tender Document :

4.1 At any time prior to the last date for receipt of bids, the Office may for any reason, whether at its own initiative or in response to a clarification requested by a prospective Tenderer, modify the Tender Document by an amendment.

4.2 The amendment will be notified in writing or by telex or E-mail to all prospective Tenders who have received the Tender Documents and will be binding on them.

4.3 In order to afford prospective Tenderers reasonable time in which to take the amendment into account in preparing their bids, the Office may, at its discretion, extend the last date for the receipt of the Bids.

5. Language of Bids :

The bids prepared by the Tenderer and all correspondence and documents relating to the bids exchanged by the Tenderer and the Office, shall be written in English language, provided that any printed literature furnished by the Tenderer may be written in another language so long as accompanied by an English translation in which case, for purposes of interpretation of the bid, the English translation shall govern.

6. Documents comprising the Bids

6.1 The Bids prepared by the Tenderers shall comprise of following components:

a) Technical Bid shall consist of the following:

(i) Technical Bid furnished as per the format for technical bid (Section V).


(ii) Technical literature for each product/service, covering full technical specifications.

b) Commercial Bid consisting of the following:

(i) Bid prices duly filled, signed and complete as per the format (Section V).

(C) OTHER TERMS AND CONDITIONS

1. The Vendor should adhere with all seriousness to the time schedule provided by the Office.
2. The products asked for should be of international brand and not locally assembled, with authorized service provider in Kolkata.
3. All the rates will be F.O.R. at DPD(HQ), NSSO, Mohalanobis Bhawan, 164, Gopal Lal Thakur Road, Kolkata -700108
4. The Vendor shall be liable to indemnify the office in all respects and meet and pay off the litigation expenses and all the liabilities including damages, sums etc. arising out of and as a consequence of the negligence, deficiencies, mistakes, lapses, delays etc. in the execution of the various jobs and the services provided.
6. There is no provision for making advance payment to the Vendor as per Central Government rules. However, the bills submitted by the company after supply testing & successful commissioning of the aforesaid 250 KVA DG set will be cleared for payment within reasonable period.
7. The company should submit a copy of the profile of the company along with the customers' satisfaction report.



PART-V

SCHEDULE OF PRICE

NAME OF BIDDER -----

Sl.no	Details	Unit	Quantity	Rate(in Rupees)	Amount(in Rupees)
1.0 (a)	Basic price towards Supply of one no.250 KVA 415V, 3 phase and neutral prime duty DG set with AMF panel, Breaker panel etc. for DPD(HQ).Kolkata	Set	1.0		
(b)	Other Charges(including Entry TAX),if any				
Total of 1.0 i.e. sum of 1.0 (a) & 1.0(b)					
2.0 (a)	VAT				
(b)	Service Tax				
Total of 2.0 i.e. sum of 2.0(a) & 2.0(b)					
Grand Total i.e. sum of 1.0 & 2.0					

Note:

I. Terms of Delivery: DPD(HQ) site

II. All the taxes should be specified clearly failing which DPD(HQ) reserves the right to reject the offers.

III. Evaluation shall be done on Basic price.

IV. All prices shall be indicated in both figures & words.

V. Tenderers to ensure arithmetical accuracy.

VI. In case of any discrepancy between figures and words, words shall govern. In case of any discrepancy

between rate and amount, rate shall govern.

Signature of Bidder _____

Name _____

Designation _____

Date _____

SEAL OF COMPANY

Dhanshi

TECHNICAL SPECIFICATIONS

DIESEL GENERATOR SET

General

Design, manufacture and testing should comply with the relevant latest Indian/International Standards. All Materials used should be brand new and of the best quality & of the latest design. DG Set shall meet the requirements of environmental protection rules, 1986 as laid down by Ministry of Environment & Forest, amended upto date, in respect of "noise norms" for the DG Set.

DG set should have protection against under voltage, over voltage, under frequency, over frequency, low battery voltage, over current, earth fault, short circuit, phase change etc.

Scope

Scope of work under this specification shall include but not limited to design, manufacturing, inspection, supply, safe transportation to DPD(HQ), of one no. 250 KVA 415V, 50 Hz, 3phase & neutral prime duty radiator cooled type Diesel Generating Set with Diesel engine of required BHP(as per ISO 3046), preferably of 310, to drive the alternator and ancillaries.

Fuel tank and fuel piping system complete.

Exhaust system including silencer & exhaust piping meeting Pollution Control Board norms

Facilities for electronic governing of the engine.

Suitable required Generator Control Panel (GCP) or controller panel as required

Battery and battery charger.

Engine monitoring and protection.

All interconnection cables except external power cables and control cables between DG set/ Accessories supplied by Tenderer.

AVR cum excitation system for the alternator.

Acoustic treatment of the complete DG set to suppress noise pollution with noise level meeting Pollution Control Board norms.

Automatic Mains Failure Starting and Stopping and Manual starting and stopping facility.

Set of standard tools for the DG operation and installation

All technical data required for preparation of civil and structural drawings for building and foundation shall be provided by the tenderer.

All MS items such as channel, angle, etc and its fabrication works for the successful installation of DG set and control panel.

Any other specific as well as general requirements needed for satisfactory operation of the Diesel Generating set but not mentioned herein. The controller and panel may be suitably placed as required suitable.

➤ Fuel (oil) consumption should be maximum of 50ltrs per hour. Lube oil should not be changed before 400 Hours of running of the set.

The DG set and associated accessories /equipment shall also conform to the provision of the latest revisions of the Indian electricity Rules and statutory regulations currently in force.



A. DIESEL ENGINE :

Reputed make Diesel engine preferably rated at 1500 RPM, water cooled, four stroke, electric start, six cylinder diesel engine conforming to relevant BS/IS with capacity of 10% over loading for one hour in twelve hours duration having following accessories as scope of supply :-

AIR INTAKE SYSTEM

- Air intake manifold.
- Dry type air cleaner.
- Vacuum indicator.

EXHAUST SYSTEM

- Turbocharger.
- Flexible connection.
- Exhaust manifold.
- Exhaust silencer - Residential type.

COOLANT SYSTEM

- Engine water pump.
- Radiator.
- Coolant additive concentrate.

LUBRICATING SYSTEM

- Oil pan.
- Engine mounted lub oil pump.
- Full flow lub oil filter.
- Lube oil by-pass filter.

FUEL SYSTEM

- In line fuel pump with Electronic Governor.
- PTD injector.
- 24V DC solenoid coil.
- Replaceable fuel filter.

STARTING SYSTEM

- 24V DC electric starter.
- 24V DC battery charging alternator.

SAFETY CONTROLS

- Low lube oil pressure trip.
- High water temperature trip.
- Overspeed stop.

POWER COMMAND CONTROLLER

Panel consisting of system for complete controlling of the DG set preferably microprocessor based integrated generator set monitoring , metering protection and control system with built-in torque matched volts/Hz overload control.

Preferably Single control for all genset functions:

- Digital Governing
- Digital voltage control
- Engine control
- Operator interface
- Protection
- Advanced control functions

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Preferable features of genset controller

Engine :

Metering

- RPM
- Battery Voltage
- Lube oil pressure failure
- Coolant Temp.
- Running hours

Protections

- Low lube oil pressure
 - High water temperature
 - High/Low DC voltage
 - Weak Battery
 - Over speed
- Fail to crank
 - Fail to start
 - Sensor

Alternator :

Metering

- 3 phase voltage (L-L and L-N) overload
- 3 phase Current
- Frequency
- kVA.

Protections

- Under voltage
 - Over voltage
 - Over current
 - Under/Over frequency
 - Loss of sensing
- Field

Misc. :

- Battle switch function
- Delay Start/Stop
- Configurable Cranking cycle
- Sleep mode time

OTHERS

Vibration damper.

Flexible coupling (only for double brg. Alternators).

Flywheel with housing.

B. ALTERNATOR :

Synchronous alternator of reputed make of 250KVA rating, suitable for continuous operation at 1500 RPM generating 415 volts at 0.8 P.F. (lag) suitable for 50 Hz, 3 phase, 4 wire system. The alternator shall be Brushless type with VG-2 Grade of voltage regulation, self excited & self regulated through an AVR. The alternator shall be screen protected ,drip proof with IP-21 or better degree of protection as per IS:4691/85(reaffirmed 2004). The alternator should be suitable to take unbalanced load as per IS:13364(part-2)/1992(reaffirmed 2008). The alternator will be suitable for tropical climate and shall generally conform to IS : 4722. The salient features of the alternators are :-

± 1% voltage regulation (max) in static conditions.

IP : 23 protection with class 'H' insulation.

Permanent lubricating bearing.

Permissible overload of 10% for one hour in 12 hours of operation.

C. AMF CONTROL PANEL :

AMF control panel shall be able to start up the DG set and transfer the load to DG set on the Mains failure without requiring any human intervention . Similarly on restoration of the Mains supply be able to transfer the load to Mains supply and switch off the DG set automatically.

The AMF control panel shall be fabricated from steel sheet of 2.0mm thickness minimum duly pretreated and aesthetically finished .The control panel shall be totally



enclosed, dust and vermin proof, floor mounted type with degree of protection IP-53 as per IS/IEC:60947(part-1)/2004.

The AMF control panel shall consist of following instruments of which any of the items can be supplied in a combined relay/meter also.

- (a) Microprocessor based AMF relay.
- (b) AC voltmeter(s) of class 1.5 accuracy, 0-500 volts with selector switch. Separate voltmeter shall be provided for Mains and Alternator.
- (c) AC Ammeter(s) of class 1.5 accuracy and of suitable range, with selector switch.
- (d) Mode selector switch for setting the panel on any one position such as off or auto or manual or test.
- (e) Engine ON-OFF switch (push button type).

(f) HRC fuses of suitable ratings.

(g) Rectangular aluminium bus bars (1 No. for each phase, neutral and earthing terminal) of adequate rating duly colour coded with head shrinkable PVC sleeves.

(h) Two nos. power contactor (one for Mains and one for generator), ACB will be complete with O/L, U/V release, short circuit protection.

(i) Under voltage relay for mains.

(j) Three attempt engine start /engine cranking relay.

(k) On delay timer for load change over.

(l) On delay timer for engine shut off.

(m) Pilot lamps three nos.

(n) Battery charger complete with voltage regulator, float or booster selector switch, ON-OFF switch, Voltmeter and Ammeter for charging the battery from Mains. This will be in addition to the battery charging alternator fitted on the engine.

(o) Instruments and control fuses 06(Six) nos. power fuses of suitable rating.

(p) Five nos. indicating lamps to indicate Mains Low Voltage, Load On Mains, DG Set running, Load on set and Battery charger ON.

(q) Audio Visual alarm for Low Lubricating Oil Pressure, High water temperature,

Start Failure and DG O/L.

(r) Over current relay protection.

The panel shall be floor mounted and equipped with :-

– One no. MCCB of suitable rating

Three Nos Current Transformers

Aluminium bus bars of suitable capacity with incoming & outgoing termination ends.

Indication lamps for "Load On" and "Set Running".

Instrument fuses

D. BASE FRAME


Engine and alternator are mounted, coupled and aligned on a common channel iron fabricated Base Frame with pre-drilled holes.

E. FUEL TANK

Daily service fuel tank of 375 Ltrs., fabricated from 14 SWG sheet metal complete with drain valve, air vent, inlet and outlet connection.

F. BATTERIES

Suitable branded batteries of required capacity in dry and uncharged condition with its leads to be provided



G. ACOUSTIC ENCLOSURE (INO.) CPCB APPROVED) The Accoustic enclosure should consist of following :

- (a) The enclosure should be fabricated out of CRCA sheet of minimum 1.6 mm thick.
- (b) The sheet metal components should be suitably pretreated and should be powder coated to have long life of enclosure.
- (c) The battery should be accommodated in a separate tray in the enclosure.
- (d) There should be provision of drain plugs for draining lube oil and diesel.
- (e) The doors should be gasketed with quality gaskets to avoid leakage of sound.
- (f) The door handle should be lockable type.
- (g) Sound proofing of enclosures should be done with high quality rock wool/ mineral wool/foam/fiberglass wool.
- (h) The rock, mineral, fiberglass wool is further covered with fiberglass cloth and perforated powder coated sheet.
- (i) A special residential silencer should be provided along with the enclosure to control exhaust noise.
- (j) Specially designed louvers should be provided to control sound at air entry to the container and exit from the container.
- (k) It should have Type approval certificate and also COP certificate (if applicable) from certification agencies mentioning MOEF notification No.371(E) dated 17.05.2002 or as amended and applicable at the time of supply.
- (l) Ambient temperature limit inside the canopy should be specified.
- (m) There shall be provision for emergency STOP from outside the enclosure.
- (n) Accoustic Enclosure shall conform to pollution noise norms stipulated in notification GSR 371(E) dated 17.05.2002, amended upto date.

Installation and Commissioning of 250 KVA DG set:

1. The responsibility for installing and commissioning of DG sets shall be that of the firm. The firm shall complete installation as per the supply order.
2. The scope of installation and commissioning shall be as follows:
3. Foundation: Foundation shall be of PCC type with the ratio of 4:2:1. The length and breadth of the foundation shall be 300 mm more from the respective length and breadth of the DG set. The height of the foundation shall be 400 mm i.e. 200 mm below and 200 mm above the ground level.
4. Cable: Armoured PVC sheathed Aluminium cable and its necessary laying and termination shall be done by firm. For 3-phase DG sets, 3.5 core or higher core cables shall be used. The current rating of the cables shall be as per table attached. Total length of the cable shall be within 40 metres for DG sets with AMF control panel.
5. Earthing: Building suitable earthing station and necessary connections shall be done by firm. In case of 3 phase DG sets, the total number of earthing pits/stations shall be 4 i.e. 2 for neutral and 2 for body-earthing. In case of single phase DG sets, the total number of earthing station shall be 2 and it shall be used for body-earthing. The consignee should choose installation site in such a way that the earthing stations can



be made within 20 metres of the DG set. Earthing station shall be typically built as per prevalent standard practices.

6. Installation of Fuel tank, battery charging, and battery connection.
7. Unloading and placement of DG set on foundation.
8. First fill of lube oil and all filters shall be provided by the firm. The firm shall also provide 100 litres for rating upto 250 KVA .
9. The consumables provided by the firm cover the trial run of DG set as well. The firm shall conduct trial run of the DG set with the available electrical load at site. The trial run shall be for ONE hour. The available electrical load shall be less than or equal to the rated capacity of the DG set.
10. Exhaust piping, extra civil work, distribution board shall be provided by firm.
11. Necessary approvals, if any, shall be obtained by the consignees.

Table for Cable Selection

DG SET SPECIFICATION				RECOMMENDED CABLE	
Rating of DG set	No. of Phase	Rated Voltage	Full Load Current	No. of Cores	Cable Size 1.1 KV PVC Insulated Armoured Aluminium
KVA		V	A		Mm
250	3	415	347.8	3.5	2 x 240

Manual operation of the Generating Set

The control panel, though catering to the auto-start and other functions described above, shall facilitate, whenever necessary, manual start, stop and test run of the generating set.

Drawings, catalogues and operation and maintenance manuals

Drawings: You shall submit the following drawings along with supply:

General arrangement drawings of diesel alternator set including principal and auxiliary equipment/ accessories, battery, piping, etc.

Foundation drawing(s) for all equipment giving loadings and all unbalanced forces

Schematic control wiring diagrams and block schematic diagrams showing interconnection between various equipment.

Schematic drawings for fuel oil, lube oil and coolant system.

Catalogues and operation and maintenance manuals

Installation, operation and maintenance manuals for engine, alternator, battery and battery charger.

Lubrication schedule.

Technical literature for all equipment, including engine, alternator, battery and battery

Spare-part catalogues.

Glass framed chart showing procedure for starting and stopping of DG sets.

Detailed protection and control wiring diagram of the engine control panel and AMF panel including relays.

Laminated/ glass framed operation and maintenance schedule.

Detailed drawing of AVR & AMF system.

1 set of following documents shall be provided with each set

O & M Manual of Diesel Engine

Spare parts list of diesel engine

Test Certificate of diesel engine

Test certificate of Alternator

Test Certificate of D.G. Set

Copy of all test reports/certificates

Make & type of all major components
