

**TENDER SPECIFICATION OF PORTABLE INDUSTRIAL DIESEL GENERATOR (250KW)
WITH ACCESSORIES– BN DOCKYARD**

PART I : GENERAL INFORMATION AND BIDDER'S RESPONSIBILITY

1. **Qualification of Bidder.** Manufacturer of Genset or their authorized distributor/ agent can submit quotations through their authorized local agent enlisted in DGDP. In case of offer from authorized distributor/ agent, one additional certificate is to be submitted with the offer stating that the warranty and after sales support will be provided under the full responsibility of OEM. Authorization certificates and all relevant certificates from OEM are to be submitted with the offer.

2. **Standard.** The offered Genset is to brand new and shall fulfill the requirement of IEEE/ IEC/ ISO or other equivalent internationally recognized standards. The applicable classification standard(s) of offered items are to be mentioned and should be well supported by the certificates. Moreover, all the relevant documents are to be submitted with the offer.

3. **Condition for Acceptance of Quotation.** 01 (One) set of brochure/ booklet, containing technical information of the offered Generator set (Prime Mover, Alternator, AVR, Governor, Changeover Switch, etc.) is to be provided with the offer for evaluation and assessment. The brochure should contain in addition to other behaviors of the Generator set including characteristics/ performance curves, behavior when various loads are added or taken-off. Non-submission of said documents is to be treated as non-compliance or disqualification of the offer.

4. **Scope of Supply.** The Industrial AC Diesel Generator set is to be supplied as per the specifications enumerated in the subsequent paragraphs. The Generator set and associated accessories should be complete with all standard accessories, ready in all respect for operation after installation. The scope of supply shall include (not limited to):
 - a. AC Diesel Generator Set (As per Para 20(a)).
 - b. Changeover Switch (As per Para 20(b)).
 - c. Generator Control Panel (As per Para 20(c)).
 - d. Power Cables (As per Para 20(d)).
 - e. Trailer (As per Para 20(e)).
 - f. Standard accessories (As per Para 21).
 - g. Optional Spares (As per Para 22).
 - h. Factory Acceptance Test (FAT) (As per Para 23).
 - j. Installation and Setting to Work (As per Para 24).
 - k. Test, Trial and Acceptance (As per Para 25).
 - l. Local Training (As per Para 26).
 - m. Documentations and Certifications (As per Para 5 & 6).

5. **Documentation.** Following documents and manuals in English are to be provided with the system free of cost at the time of item delivery:
 - a. 01 (One) set of drawings and instructions manual necessary for installation of the Generator set with all equipment are to be supplied within eight weeks of signing the contract.
 - b. Instruction and operation manual of the Prime Mover.
 - c. Maintenance manual and workshop level repair manual of the Prime Mover.

- d. Parts catalogue of the Prime Mover.
- e. Instruction and operation manual of the Alternator.
- f. Maintenance manual and workshop level repair manual of the alternator.
- g. Parts catalogue of the Alternator.
- h. Instruction and maintenance manual and circuit diagram of the AVR.
- j. Electrical wiring diagrams.
- k. Faultfinding flow charts of the alternator.
- l. Motor stator coil winding and lamination drawing (If any).

6. **Certification.** Following certificates are to be provided by the supplier of the Generator set and associated equipment/ accessories:

- a. Manufacturer's Authorization Certificate with the offer.
- b. Pre Inspection Certificate (in English) are to be provided at the time of item delivery.
- c. Necessary type approval certificate with the offer.
- d. Quality assurance certificates for the Generator set and their associated equipment and instruments in regard to its manufacturer and performance is to be provided at the time of items delivery.
- e. Factory report on loading condition at the time of delivery.

7. **After Sales Service Support.** The supplier is to give After Sales Service Support for at least 10 (Ten) years at a reasonable price. The bidder has to submit after sales service support certificate from OEM with the offer.

8. **Site Visit.** The bidder may visit the installation site (BN Dockyard/ Yard Service-L) of Generator set before submission of tender to avoid any difficulties/ confusion after placing order.

9. **Validity.** The offer should remain valid up to 30 June 2025.

10. **User List.** List of users of the offered Generator set is to be mentioned with full address. The list shall provide the name of various users with respective model and brand of the system. The offered system should be widely used by various users. The user list will be used for the assessment of the offer.

11. **Compliance Statement.** A compliance statement fulfilling all the requirement of the tender is to be submitted for evaluation of the quotations. Stating mere 'Yes or No' will not suffice and detailed evidences with description/ information, brochures/ booklet, drawing and diagram as required is to be given. An incomplete compliance statement may attribute to cancellation of the offer. If any clause of this specification does not commensurate with offered genset, the deviation has to be spelt out clearly.

PART- II: OPERATIONAL AND TECHNICAL SPECIFICATION

12. **Name of the Equipment.** Portable Industrial Diesel Generator (250KW) with Accessories.

13. **Purpose.** The Generator set will be capable to generate and distribute electric power. The Generator power will be used to provide electric power to BN Dockyard workshops and as per requirement of BN.

14. **Quantity** : 01 (One) Complete set.

15. **Type** : Industrial AC Diesel Generator.

16. **Brand** : To be mentioned.

17. **Model** : To be mentioned.

18. **Year of Manufacturing** : 2024 or later.

19. **Name and Address** Name and full address (including mobile number and email address) are to be provided for the following:

- a. Manufacturer.
- b. Genset Assembler.
- c. Supplier/ Principal/ Bidder.
- d. Local Agent.

20. **Technical Specifications.**

a. **Complete Generator set:**

(1) **Complete Assembly Genset:**

Ser	Description	Remarks
(a)	Country of Origin and Manufacturer (Assembler)	<u>Genset & Control/ Monitoring and Other parts/ accessories.</u> Canada/ EU country/ Japan/ Turkey/ USA/ UK (Country to be mentioned).
(b)	Type	To be mentioned.
(c)	Brand	To be mentioned.
(d)	Model	To be mentioned.
(e)	<u>Operating Environment of Generator Set.</u>	
	i. Ambient air temperature	+5 ⁰ C + 50 ⁰ C
	ii. Relative humidity	Up to 95% (non condensing)
(f)	Power factor	0.8 Lagging.
(g)	Output	415V, 50Hz, 3 Phase, 4 wire, 250KW, 1500 RPM.
(h)	Overall Dimension and weight of Generator set	To be mentioned.
(j)	Canopy	i. Should be Sound and water proof.
		ii. Noise level: To be mentioned.
		iv. Dimension: To be mentioned.

		v. Material: To be mentioned.
(k)	Type of Coupling (Prime Mover and Alternator)	Details to be mentioned.
(l)	Combined Base Frame	The Prime Mover and the Alternator are to be mounted on a combined base frame to be rigidly fixed to the Generator seating. Lifting eyes are to be provided for lifting the complete Generator Set with canopy.
(m)	Mounting	The Generator set is to be elastically mounted on the common base frame. The generator set to be fixed on a trailer.

(n) **Loading Condition.** The AC Generator set will be subjected to sudden high inductive loads like **3 phases induction motor not more than 60 KW where starting transient current will be high.** Under such circumstances, the output voltage should remain sufficiently stable. The generator must be capable to undertake maximum load at 50Hz frequency. The Governor and AVR system must be highly responsive and should meet the following conditions :

i. **Voltage.**

a. Voltage transient tolerance: +25% to -20% or better (To be mentioned).

b. Voltage transient recovery time: Max 6 sec or better (To be mentioned).

c. Voltage Regulation: Within $\pm 5\%$ or better (To be mentioned).

ii. **Frequency.**

a. Frequency transient tolerance: +12% to -10% or better (To be mentioned).

b. Frequency transient recovery time: Max 5 sec or better (To be mentioned).

iii The above transient Conditions must be maintained under following load change:

a. Load Changes from 0 to 50%.

b. Load Changes from 50% to 100%.

b. Load Changes from 100 to 0%.

Note: Graphs showing various characteristics and response of transient voltage and frequency variation are to be submitted with the FAT Report.

(2) **Specification of Prime Mover (Engine):**

Ser	Description	Remarks
(a)	Manufacturer (OEM)	Manufacturer of Prime Mover should be as following: Caterpillar/ SEMT Pielestic/ MAN Diesel/ MTU/ Moteurs Baudouin (To be mentioned).
(b)	Type	To be mentioned.
(c)	Brand	To be mentioned.
(d)	Model	To be mentioned.

(e)	Country of Origin and Manufacturer	USA/ France/ Germany/ UK (To be mentioned).
(f)	Year of Manufacture	2024 or later.
(g)	Shut down system	Details to be mentioned (Including
(h)	Lub Oil to be used	To be mentioned.
(j)	Starting System.	Battery Started (New battery to be provided with the Genset. Battery brand, model and capacity to be mentioned).
(k)	Maintenance Schedule/ Overhauling.	
	i. Major Overhauls	10000 hour or more (To be mentioned).
	ii. Top Overhauls	5000 hour or more (To be mentioned).
	iii. Other Maintenance routine	To be mentioned.
(l)	Safety Devices	Following safety protections are to be incorporated: i. Engine over speed. ii. High Engine temperature. iii. Low Engine oil pressure. iv. Others to be mentioned (if any).

(3) **Specification of Alternator:**

Ser	Description	Remarks
(a)	Manufacturer (OEM)	Manufacturer of Alternator should be as follows: Leroy Somer/ Stamford (To be mentioned).
(b)	Type	To be mentioned.
(c)	Brand	To be mentioned.
(d)	Model	To be mentioned.
(e)	Country of Origin and Manufacturer	France/ UK (To be mentioned).
(f)	Year of	2024 or later.
(g)	AVR	Electronic Type.
(h)	Insulation Class	F or Better.
(j)	Safety Devices	Following safety protections are to be incorporated: i. Over load protection. ii. Short circuit protection. iii. Under frequency indicator. iv. Excitation loss indicator. v. Reverse power protection. (f) Any others to be mentioned.

b. **Specification of Changeover Switch (04 Poles):**

Ser	Description	Remarks
(1)	Type	To be mentioned.
(2)	Brand	To be mentioned.

(3)	Model	To be mentioned.
(4)	Quantity	01 (One).
(5)	Country of Origin and Manufacturer	To be mentioned.
(6)	Year of Manufacturer	2024 or later.
(7)	Rated voltage	380~440 V AC.
(8)	Ampere Rating	500 Amps.
(9)	Ingress Protection	IP 23 or better.

c. **Generator Control Panel.**

(1) Followings are to be incorporated:

- (a) Multifunction digital control with display.
- (b) Both manual and automatic start & stop facility.
- (c) Others (if any) to be mentioned.

(2) **Digital Meter Panel.** Followings are to be incorporated:

- (a) Generator Volt meter (Phase to Phase and Phase to Neutral).
- (b) Generator Amps meter (for line current measuring).
- (c) Generator Frequency meter.
- (d) Engine oil pressure gauge.
- (e) Running hour meter.
- (f) Battery voltage indicator meter.
- (g) Others (if any) to be mentioned.

d. **Power Cable (4 Core 95 RM).**

- (1) Suitable for the offered genset.
- (2) Flexible rubber insulated cable.
- (3) Class 5/ Class 6 Extra flexible copper conductor.
- (4) Qty: 50 mtr Cable (Local/ Foreign).

e. **Trailer (04 Wheel, 2 Rest) with accessories (Locally Supplied).**

Ser	Description	Remarks
(1)	Feature	The trailer shall have 04 (four) wheel with 02 (two) rest, hand brake and arrangement to pull truck/ jeep (Details to be mentioned including brake system) which is able to carry and suitable for the offered genset and 50mtr cable considering max. load and dimension.
(2)	Platform material	Wood coating, treated with preservative.
(3)	Type of tyre	To be mentioned.
(4)	Year of Manufacturer	2024 or later.
(5)	Weight & Dimension	To be mentioned.

21. **Standard Accessories.** Standard accessories must include every item and accessories, which are essential to make the offered Genset operational, whether those are mentioned in the specification or not are to be supplied by the bidder within the scope of the supply. Those are to be mentioned clearly with purpose and submit with offer mentioning item wise price.

22. **Optional Spares.** A list of the following optional spares is to be quoted separately with item wise price. The buyer may select the any of the spares as required from the list:

Ser	Name of Item	Unit Price	Remarks
1.	Oil Filter		
2.	Fuel Filter		
3.	Air Filter		
4.	Belt (all types)		

23. **Factory Acceptance Test (FAT).** Following FAT(s) criteria to be carryout in OEM or manufacturer of prime mover /alternator / assembler premises for the offered system:

a. FAT will be carried out by a team of 02 (Two) BN members for duration of 03 (three) working days in OEM premises at the buyer’s expense. Both way air fare, accommodation and food for the FAT team will be borne by BN. All types of movement/ transportation (air/sea/road) of the team within the manufacturer’s country, reception and arrangement for entry into the country/ concerned area for the FAT are to be arranged by the supplier. The supplier should inform the buyer about the date of FAT (schedule) and FAT criteria at least 08 (Eight) weeks prior to the date of FAT. FAT procedure shall be forwarded to the buyer 8 (Eight) weeks prior to the date of commencement of the FAT to the concerned directorate for approval of BN. Serial No of Prime Mover and Alternator are to be provided eight weeks before FAT. The cost of FAT in this respect is to be quoted in the offer.

b. On return from the country of manufacturer, the FAT team will submit the report to concerned Directorate at Naval Headquarters. Naval Headquarters will, in turn, forward final decision along with FAT report, basing on which DGDP will render clearance for shipment of stores to the supplier concerned. The supplier will not make shipment of any item of the contract without clearance from DGDP.

c. The FAT will be carried out at manufacture’s factory premises following approved FAT protocols. In this regard, the FAT protocol is to be approved by BN well in advance.

d. During FAT, tests will be carried out to fulfill the required condition mentioned in technical specification of the offered system. Various tests for checking performance are to be carried out and recorded. After FAT, a joint test report will be prepared and signed by both the seller and buyer’s representative.

e. The FAT criteria in details is to be submitted, which should include the following:

(1) **Generator Load Tests.** Generators load test will be carried out to fulfill the required condition mentioned at Para 16a(19). Recording of voltage, frequency, transient voltage and frequency variation and recovery time will be made to ascertain the specified condition.

(2) **Prime-Mover Test.** Factory Test Reports of prime mover are to be provided.

(3) **Tests of Alarm and Safety Devices.** Various test for checking temperature, pressure, fuel oil consumption etc. with recording of alarm and shutdown steps are to be carried out.

(4) **Test Report.** Test reports are to be prepared in English which will include all test results and other relevant information. Test report is to be submitted to BN before shipment.

f. **Location of FAT.** Location of FAT with full address is to be mentioned.

24. **Installation and Setting to Work (STW).**

a. Installation of the genset will be done by the supplier. BN will provide available welding, cutting and drilling support as required.

- b. A qualified manufacturer's/ supplier engineer will supervise the Setting to Work (STW) and commissioning.
- c. Cost of installation and Setting to Work (STW)/ Commissioning are to be borne by the supplier and quoted separately.
- d. **Installation Materials.** All installation materials including base plate shock mountings etc are to be provided by the supplier.

25. **Test, Trial & Acceptance.**

- a. Test, trials and commissioning procedure of generator set shall be provided by supplier. The supplier is to provide necessary test equipment for measurement/ recording of transient variations, recovery time at various loading condition.
- b. After satisfactory test trials an acceptance certificate will be provided by the purchaser.
- c. Dummy Load will be provided by BN. Supplier will conduct all the test in presence of BN dockyard personnel.
- d. Cost of test/ trials and commissioning of generator set are to be quoted separately.

26. **Local Training.** The supplier is to send one qualified representative who will provide operation and maintenance training in Bangladesh to BN personnel for duration of 03 (three) working days after test, trial and commissioning of the genset. Training documents shall be forwarded to buyer at least 06 (Six) weeks prior to the date of training. Cost of accommodation, food and transportation of the supplier representative is to be borne by the supplier. A set of detail training content is to be provided by bidder to BN 02 (Two) weeks prior to the said training. The training should include (but not limited to) the following:

- a. System composition, configuration, principle of operation and troubleshooting.
- b. Software installation, operation and configuration for smooth conducting of all the tests.
- c. Theoretical concept and procedure of tests (practical).
- d. Repair and maintenance.

27. **Labeling.** Circuit breakers, control switches, instruments, indicating light and terminal blocks, etc are to be clearly labeled to identify their purpose and function.

PART III: TERMS AND CONDITIONS

28. **Warranty.**

- a. Manufacturer's warranty for repair/ replacement at supplier's cost for the supplied Generator set (Prime Movers, Alternators and other accessories) for a period of minimum 12 months after final acceptance by BN on completion of installation and necessary test/ trial onboard the ship is to be provided. The warranty shall cover all parts and service costs/ charges throughout the warranty period. Certificate from OEM regarding warranty is to provided with the offer.
- b. If for defect of any unit or sub unit of the supplied items, the Generator set or any supplied items remain non-operational for a certain period within warranty, the warranty will be extended by the same period.

c. For warranty repair/ replacement, the supplier will collect the defective item (portable) from NSD, Chittagong/ NSSD, Dhaka (as applicable) and re-supply the same to collecting place after warranty repair or for replacement within 90 (ninety) days from the date of defect at no cost to the purchaser.

29. **Guarantee.** The supplier will guarantee to supply the spares (from manufacturer) for at least 10 years with reasonable price. Yearly increase of price of spares should not be more than 5% of the list of spares with price to be supplied with the quotation.

30. **Shipment & Delivery.**

a. The supplied items are to be delivered within **09 (Nine)** months after signing the contract to the following Consignee:

The Commanding Officer Naval Stores Depot New Mooring, Chattogram, Bangladesh BIN-002349278-0503	or	Officer In Charge Naval Stores Sub Depot Dhaka Naval Unit Khilkheth Namapara, Dhaka-1229, Bangladesh
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b. **Place of Delivery.** NSD, Chattogram.

c. Incase of CFR, the supplier will carry the items from any sea port/ air port (as applicable) to NSD Chattogram.

d. **Port of Shipment.** To be mentioned. The Port of shipment is to be from manufacturing country of prime mover/ alternator/ genset.

e. **Source of supply.** To be mentioned. The Source of supply is to be from manufacturing country of prime mover/ alternator/ genset.

31. **Performance Guarantee (PG).** The supplier is to provide PG of 10% at BG (Bank Guarantee) of the total contract price for satisfactory performance of the supplied items.

32. **Terms of Payment.** Letter of Credit will be opened for full amount of contract price in favor of the supplier/ Principal for the complete scope of supply with the following terms of payment:

a. 80% of CFR value shall be released after shipment of all items and on submission of necessary documents as per DGDP rules.

b. The remaining 20% of CFR value shall be released after successful test/ trial, jointly carried out by the buyer's representative and supplier's representative and final acceptance of the Generator set by the purchaser.

c. 100% cost of Local Training, FAT, installation and Setting to Work (STW) shall be released upon completion of respective activities and upon submission of each completion certificate.

d. 100% cost of locally supplied items shall be released and paid to local agent after final acceptance of the locally supplied item/items and Generator set.

33. **Price.** Price of the each item of the total offer is to be shown separately (e.g. price of the main items, additional and optional items, spares, FAT, installation & Setting to Work (STW), training, test/trial & acceptance, Warranty/ Guarantee etc) and then grand total of the foreign currency to be shown on the original offer submitted by the bidder. Format of the price details is shown as follows:

Ser	Nomenclature	A/U	Qty	Unit Price	Currency	Total Value
1.	Main Equipment/	Set		To be	To be	To be

RESTRICTED

	AC Diesel Generator			mentioned	mentioned	mentioned
2.	Essential accessories	Set		To be mentioned	To be mentioned	To be mentioned
3.	Cables	Unit		To be mentioned	To be mentioned	To be mentioned
4.	Optional Spares	Set		To be mentioned	To be mentioned	To be mentioned
5.	Total FOB Value				To be mentioned	To be mentioned
6.	Agency Commission on FOB Value				To be mentioned	To be mentioned
7.	Net FOB Value after Agency Commission				To be mentioned	To be mentioned
8.	Sea/ Air Freight Charge				To be mentioned	To be mentioned
9.	Total CFR Value in Foreign Currency (5+6)				To be mentioned	To be mentioned
10.	Total CFR Value in Bangladeshi Currency				-	-
11.	Factory Acceptance Test (FAT)				To be mentioned	To be mentioned
12.	Installation/Commissioning/Test and Trial				To be mentioned	To be mentioned
13.	Local Training				To be	To be
14.	Total LC Value in Foreign Currency				To be mentioned	To be mentioned
15.	Total LC Value in Bangladeshi Currency				-	-
16.	Locally Supplied Items (If any)				-	-
17.	Other charge including agency commissioning in BD Currency				-	-
18.	Total Price in BDT				-	-