

Annexure-I**Supply, Installation and commissioning of DG set Capacity- 500 kVA with AMF Control Panel, foundation, earthing and cabling**

Description- Supply, Installation and commissioning of Fixed Mounted Diesel Generator (DG) set Capacity- 500 kVA with AMF Control Panel including construction of foundation, supply and laying of cable and earthing.

1. OUTPUT CAPACITY RATING/ PHASE		
i	Nominal Rated Capacity (kVA)	500
ii	No of phase	3 phase
2. ENGINE		
i	Capacity of Engine	12000 to 18000 cc
ii	Rated Engine Power (kWm)	100 to 110 % of the required powered at STP(Standard Temperature Pressure) i.e equal to (Nominal Rated Capacity (KVA) of power generator Any Auxilary power Consumption by the Power generator) x Power factor(0.8) / Alternator efficiency
iii	Type of Engine cooling	Liquid Cooled
iv	Type of governor	Electronic
v	Number of cylinders (nos)	06 or higher
vi	No of Strokes (nos)	4
vii	Rated RPM of Engine (RPM)	1400-1600
viii	Fuel	High Speed Diesel
ix	Specific Fuel Consumption (gm/kWh)	200 to 265
x	Starting voltage (volt)	24
xi	Salient Features of Engine	Turbo Charged Engine, Direct injection Fuel System, CRDi Fuel System
3. ALTERNATOR		
i	Alternator Voltage Rating	415 Volt
ii	Rating of AC Generator (KVA)	500
iii	Power Factor of AC generator	0.8
iv	Efficiency at rated Power factor at 75% of full Load	95 percent or better
v	Conformity to Indian Standard (for Alternator)	conforming to IS:13364
vi	Type of alternator	Brushless
vii	Voltage Regulation Grade	VG 3
viii	Alternator IP Rating	IP 23
ix	Class of Insulation	H

काचिंग डिप्टी अधिकारी
पश्चिम मध्य रेलवे जबलपुर
Coaching Depot Officer
West Central Railway, JBP

... ..
पश्चिम मध्य रेलवे जबलपुर
Sr. Section Engineer (C&W)
West Central Railway, JBP

3062687/2026/O/o Sr DME(CHG)/JBP/WCR

687/2026/O/o Sr DME(CHG)/JBP/WCR

4. CONTROL PANEL		
i	Control Panel	AMF Control Panel with Auto and Manual operation feature
ii	Control Panel Location	Outside the Canopy
iii	IP Rating of Control Panel	IP 53 or better
iv	Display meters in the control panel (with appropriate rating and accuracy class)	Multifunctional Digital display meter (displaying Voltage, Current, Frequency, Power Factor, Running House)
v	Other devices in the control panel (with appropriate rating)	Required switches and cutout, MCB, MCCB, Contactor, Circuit breaker, Battery charger etc are inclusive in scope of supply
vi	Displayed parameters/Features	Engine Speed, Lube oil pressure, Coolant/cylinder head Temperature, Engine running hours, Engine battery voltage, Engine Running status, Generator Voltage (Ph-Ph),Generator Voltage (Ph-N),Generator Current (R, Y, B),Generator apparent Power (kVA),Generator active Power (kW),Power factor, Frequency, Fuel level, Event log, Control supply Voltage
vii	Indicators	Low Lube oil pressure, High water / coolant / cylinder head temperature, Low fuel level, Over speed
viii	Audio Alarm	Low Lube oil pressure, High water / coolant / cylinder head temperature, Low fuel level, Over speed
5. ACOUSTIC ENCLOSURE		
i	Power Generator supplied with Acoustic Enclosure	
ii	Sheet Thickness	Min 1.6 mm
iii	Thickness of insulation	Min 28 mm
iv	Noise level at 1 meter	Maxi. 75 dB
v	Fuel Tank Capacity	700-900 Liter
vi	Number of Fuel tank	1
vii	Fuel Tank Sheet Material Thickness	Min. 2 mm
viii	Fuel Tank Fabricated Material	M.S Sheet
ix	Acoustic Enclosure shall be made of Pre-treated and Powder coated CRCA Sheet. The sheet shall be Pre-treated and Powder coated with weather-proof paint. The enclosure shall accommodate the fuel tank of the Power Generator to make the system compact.	
6. BATTERY		
i	Battery capacity (Ah)	180 (Ah) Each
ii	No of batteries	2
iii	Battery Type & Specification	Lead Acid Battery with Low maintenance free to IS: 14257 for high cranking performance
7. SALIENT FEATURES		
i	Salient Features of Power Generator	Glass window on Accoustic Enclosure in front of the Control Panel, Emergency Stop outside the Accoustic Enclosure
8. STANDARD TOOLS		
i	Machine should be supplied with standard set of tools consisting of a set of 3 spanners, one screw driver set with bulb, one standard plier, one nose plier of appropriate size. One	

कावेग डिप्टी ऑफिसर
पश्चिम मध्य रेलवे जबलपुर
Coaching Depot Officer
West Central Railway, JBP

जीन. सक्शन इंजीनियर (समं.)
पश्चिम मध्य रेलवे जबलपुर
Sr. Section Engineer (C&V)
West Central Railway, JBP

	Digital Earth Resistance Tester and one multimeter.
9. AUTOMATIC MAINS FAILURE (AMF) CONTROL PANEL	
i	Power generator should be supplied with Automatic Mains Failure (AMF) control panel. AMF panel shall be able to start up the Power Generator and transfer the load on to the Power Generator on mains failure without requiring any human intervention. Similarly on restoration of mains supply, it shall be able to transfer the load to mains supply and switch off the Power Generator automatically.
ii	AMF Control Panel shall be equipped with suitable Voltmeter, Ammeter, Frequency meter, power factor meter (these items should be supplied in one multifunctional digital display meter), battery charger, indicators, various switches and cutout / MCB / MCCB / Contactor / Circuit breaker for the DG output of appropriate rating and accuracy class as per trade practice for better utility.
iii	AMF control panel should have both Auto and manual mode for automatic and manual operation of DG set
iv	Power Generator should have protection against under voltage, over voltage, under frequency, over frequency, low battery voltage, over current, earth-fault, short circuit, phase sequence change etc.
10. OTHER SPECIAL REQUIREMENTS	
i.	Fuel tank of capacity- 700-900 Liter is inclusive in the scope of supply. Fuel Tank shall be complete with fuel piping (between fuel tank and diesel engine), valves, level indications and all standard accessories. MS pipes, heavy class of suitable dia conforming to IS 1239 (Part-1) - latest shall be used for fuel piping.
ii	Construction of foundation, loading and unloading of DG set at consignee premises, complete Installation and commissioning of Power Generator is inclusive in the scope of supply. 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 Power Generator. The height of the foundation shall be 600 mm, i.e., 200 mm below and 400 mm above the ground level. All the materials, labour required for foundation work shall be in the suppliers scope of work.
iii	Supply, laying and termination of interconnecting power and control cable shall be done by the supplier. The cable supplied shall be ISI marked heavy duty PVC insulated, armored cable, with PVC outer Sheath of Type ST-2 (FR Grade, Category C1), with aluminum conductor having insulation of PVC compound type -C, suitable for rated voltage upto and including 1100 volts and conforming to IS: 1554 (Part-1) latest. For 3-Phase Power Generators, 3.5 core or higher core, 120 sqmm cables shall be used. Total length of the cable supplied by the seller shall be 80 meters.
iv	Construction of suitable earthing station and necessary connections shall be done by the supplier. All the materials / labour required for construction of earthing station shall be the arranged by supplier. The total number of earthing pits/stations shall be 4, i.e., 2 for neutral and 2 for body-earthing. Neutral earthing shall be done with copper Plate and Body earthing shall be done with G.I. plate / Copper. Earthing station shall be typically constructed as per prevalent standard practices.
11. TEST REPORTS	
i	Certificates required as per CPCB
ii	Type Approval Certificate for the specified rating of the Power Generator from any of the designated agency authorized by CPCB, COP Certificate for engine, Type test report for Alternator as per IS:13364 (Part-1) latest / IS:13364 (Part-2) latest to prove conformity to the specifications.


काचिंग डिपो अधिकारी
पश्चिम मध्य रेलवे जयसपुर
Coaching Depot Officer

श्री. संतराम कुजानयन
पश्चिम मध्य रेलवे जयसपुर
Sr. Section Engineer (C&V,
West Central Railway, JP)

12. OPERATION AND MAINTENANCE MANUAL	
i.	Supplier has to provide 04 copies of machine manual which include spare parts manual, operation and maintenance manual, electrical wiring diagram, hydraulic circuit diagram, Preventive maintenance schedule period and work during maintenance.
13. PREVENTIVE MAINTENANCE AND SPARE PARTS	
i	All preventive and breakdown maintenance during warranty period will be done by supplier free of cost.
ii	Minimum 02 visit per year during warranty period for preventive maintenance.
iii	Supplier has to provide 02 year quantity of consumables (oil filter, diesel filter, air filter, engine oil and coolant etc) with the machine free of cost to attend the preventive maintenance.
iv	If the supplier fails to do the preventive maintenance on time during the warranty period, the machine will be treated as breakdown and penalty will be levied as per warranty clause.
14. COMMISSIONING	
i	Supplier has to commission the machine free of cost within 30 days from date of receiving of the machine at consignee premises..
ii	Any loading and unloading at consignee premises will be arranged by supplier.
iii	All the tools and equipment required during commissioning will be arranged by the supplier himself.
iv	After successful installation and erection, machine will be taken under trial for minimum 03 days. Commissioning will done after successfully completion of trial period.
15. WARRANTY	
i	Warranty period of the machine is 24 month from the date of commissioning.
ii	All spare parts and tools required to repair the breakdown will be arranged by the supplier himself.
iii	In case of breakdown of machine, supplier has to attend and rectify the problem within 72 Hrs from the time of reporting to the supplier.
iv	Supplier has to provide valid contact no.(Whatsapp no) and email address for correspondence and breakdown information.
v	A penalty of 0.5% (Zero point Five percent) per week of the contract value will be levied for delay in attending and rectification of fault beyond free period of 72 Hrs during warranty period.
vi	Maximum penalty levied on account of warranty failure will be 5 % (Five percent) calculated during whole of warranty period and after that if there is any delay on the part of supplier consignee shall be entitled for encashment of WBG. In such cases the bad performance of the firm during the warranty period will be recorded and circulated to all railways.

CDO JBP


 काचिंग डिपो अधिकारी
 पश्चिम मध्य रेलवे जबलपुर
 Coaching Depot Officer
 West Central Railway, JBP


 जे.ए.एस. (स्टोरेज) / सी.एंड.बी.पी.
 पश्चिम मध्य रेलवे जबलपुर
 Sr. Section Engineer (C&W)
 West Central Railway, JP