

Date:13.03.2019

Ref Specification No- CDS/DG/19-20/01

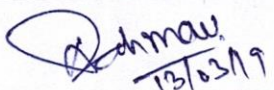
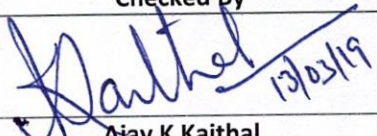
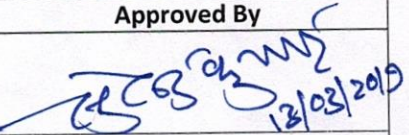
Specification for 250 KVA DG Set**A.General Instructions**

1. Vendor is required to fill & sign each page of this document and submit along with the offer. Inadequate, blank or incomplete, ambiguous or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance.
2. Any deviation may be clearly mentioned in this format.
3. Diesel Generator Set with digital display panel is required in CFFP BHEL Haridwar. Vendor to offer in line with the same.
4. Vendor has to submit technical data sheets/documents of the model offered with complete technical specifications.

B.Scope:

This DG set is required for providing backup power to auxiliary motors of steel melting shop in CFFP. This specification deals with the supply & commissioning of 1 no. of Diesel Generator Set with all accessories, having specified electrical capacity of 250 kVA for specified site conditions. The civil work and installation (if any) will be carried out by CFFP, BHEL Haridwar.

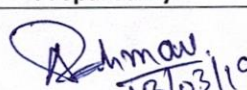
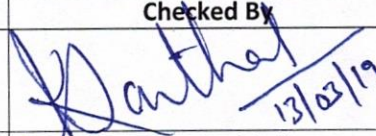
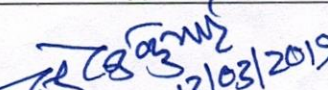
C.Technical Specification

S.No.	Parameter	Requirements	Vendor Confirmation
1	Capacity	250 KVA	
2	Operating voltage	3 phase 415 V, 4 wire	
3	Frequency	50 Hz $\pm$ 3%	
4	Starting arrangement	With 12/24 DC with suitable battery/batteries and its charging system.	
5	Fuel Tank	At least 400 Litre storage capacity with drain valve and air vent	
6	Lubricating oil	To be specified by vendor	
7	Voltage regulation	$\pm$ 1%	
8	Insulation class	H	
9	Exciter	Brushless	
10	Display of	1.Voltage, Current and Frequency 2.Power Factor 3. KW, KWH, KVA and KVAR 4. Fuel Level 5. Battery voltage 6. Lubricating oil level 7.Coolant temperature	
Prepared By		Checked By	Approved By
			
A.R. Idrisi		Ajay K Kaithal	Surendra Kumar
Dy. Mgr.(CDS)		Manager(CDS & PSX)	AGM(M&S, HSE & PMG)

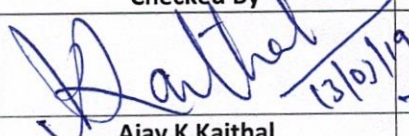
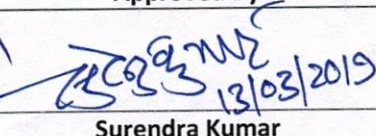
S.No.	Parameter	Requirements	Vendor Confirmation
11	Protection Features for	1.Engine over speed 2.Engine low speed 3.Abnormal coolant temperature 4.Low Engine oil 5.Over voltage and under voltage 6. Low Fuel Level 7. Abnormal Frequency 8. Low pressure of Lubricating oil 9. High water temperature. 10. Battery /battery charging failure.	
12	Dimensions	Length, width, height and weight to be mentioned by vendor	
13	Enclosure	Sound proof canopy with exhaust silencer package	
14	First Filling	All lubricant, engine oil etc. as required for commissioning to be supplied by vendor.	
15	Compliance	Compliance to all relevant upto date CPCB, MoEF and IS/IEC standards.	
16	Overloading	DG set should be capable of handling 10% overloading for 1 Hr in 8 Hour of operation.	
17	Cooling system	Vendor to specify	
18	Diesel Engine	Should comply to IS 10002/BS 5514 or equivalent with latest edition	
19	Ambient temperature at CFFP BHEL Haridwar	From 0 °C to 50 °C with humidity up to 95 %	
20	General Ambient conditions	Contains high level of dust and fumes. Also there is presence of conductive and magnetic dust.	

D.Other Requirements:

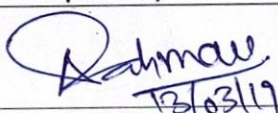
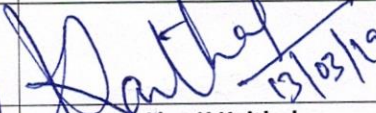
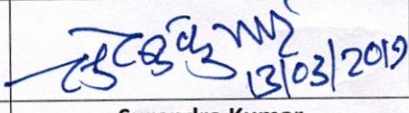
S.No.	Detail of requirement	Vendor Confirmation
1	The Fuel tank shall be provided on a suitably fabricated steel platform. The tank shall be complete with level indicator marked in Litres, filling inlet with removable screen, an outlet, a drain plug, an air vent, an air breather and necessary piping. The tank shall be painted with oil resistant paint and shall be erected in accordance with Indian explosive act of 1932. Fuel tank shall be kept outside of enclosure. The fuel piping shall be carried out to connect the D.G set kept inside.	
2	Diesel engine, alternator, AMF panel, Batteries and Chargers shall be installed outdoor in a suitable weather-proof enclosure which shall be provided for protection from rain, sun, dust etc. Further,	

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 A.R. Idrisi Dy.Mgr.(CDS)	 Ajay K Kaithal Manager(CDS & PSX)	 Surendra Kumar AGM(M&S,HSE & PMG)

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	in addition to the weather proofing, acoustic enclosures shall also be provided such that the noise level of acoustic enclosure DG set shall meet the requirement of MOEF The diesel generator sets should also conform to Environment (Protection) Rules, 1986 as amended. An exhaust fan with louvers shall be installed in the enclosure for temperature control inside the enclosure. The enclosure shall allow sufficient ventilation to the enclosed D.G. Set so that the body temperature is limited to 50°C. The air flow of the exhaust fan shall be from inside to the outside the shelter. The exhaust fan shall be powered from the DG set supply output so that it starts with the starting of the DG set and stops with the stopping of the DG set. The enclosure shall have suitable viewing glass to view the local parameters on the engine.	
3	The Enclosure shall be designed and the layout of the equipment inside it shall be such that there is easy access to all the serviceable parts.	
4	Exhaust from the Engine shall be let off through Silencer arrangement to keep the noise level within desired limits.	
5	All the Controls for Operation of the D.G. Set shall be easily assessable. There should be provision for emergency shutdown from outside the enclosure.	
6	Provision for double earthing for Neutral, Body and alternator should be available.	
7	Following drawings and data sheet shall be submitted for approval: (i) Data sheet for Engine, Alternator, Battery, AMF panel and Enclosure. (ii) GA drawing of DG set (iii) Layout of DG set in the enclosure along with sections (iv) GA and schematic diagram of AMF panel (v) Arrangement of inclined roof and pedestal.	
8	The D G Set shall be supplied with following certificates (i) D G Set test certificate from original manufacturer. (ii) Alternator test certificate (iii) Engine Parts Catalogue. (iv) Alternator Operation, maintenance & Spare parts Manual. (v) Engine Operation & maintenance Manual (Hard and Soft Copy).	
9	The engine shall be given test run for a period of at least 6 hours. The set shall be subjected to the maximum achievable load as decided by Purchaser without exceeding the specified DG Set rating.	

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10	DG set will be suitable for floor mounting, and with dust and vermin proof enclosure. Cabling/Wiring/control cabling of Panel with DG shall be done with flexible aluminium/ copper conductor of appropriate size. Suitable terminal box shall be provided in DG set for connecting suitable cables to carry power from DG set to load.	
11	DG set shall be of any of the following make only 1.Cummins. 2.Mahindra Powerol 3.Crompton Greaves 4.Kirloskar 5.Caterpillar 6.Jakson 7.BHEL Electrical machines Limited.	
12	The alternator shall be of self-excited, self regulated, self ventilated in brushless design, provided with suitable automatic voltage regulator and shall conform to BS:2613 or BS : 5000 and shall give rated output at NTP conditions.	
13	Monitoring and control devices shall be housed on the front door. The construction of the panel will be such that various equipments for applications will be housed in compartments. All incoming and outgoing power and control cables shall be from the bottom	
14	Following test carried out by supplier to be witnessed by BHEL before dispatch: -Operational & Functional Test -Insulation Test -HV Test -Load Test	
15	Guarantee for 24 months from the date of acceptance of the equipment after receipt at CFFP, BHEL Haridwar. During Guarantee period, at least 2 visits per year and/or whenever called by BHEL (within 48 hours of call) by the service engineer of the supplier to be made & the parts, items, spares etc. needing replacement to be replaced by the supplier free of cost. In support a Performance Bank Guarantee of 10% of Basic Value of P.O. valid for 24 months from the date of commissioning will have to be furnished by the supplier.	

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