

Ref: PGTPL/23-03-2021/01

Date: 23-Mar-2021

Mr. Zaid
Noida

Contact No. : +91- 9354655582

Subject : Quote for Supply of 500kVA / 400kW Mahindra Powerol DG set

Dear Sir,

Thank you for your inquiry. With reference to your inquiry we are glad to submit our proposal for Mahindra Powerol DG sets meeting your requirement.

- The **Mahindra Group** is a US \$20.7 billion Indian multinational conglomerate company headquartered at Mahindra Towers in Mumbai, India, with a presence in more than 100 countries and employing over 240,000 people. Our operations span several key industries that form the foundation of every modern economy.
- The group is present in aerospace, agribusiness, aftermarket, automotive, components, construction equipment, defense, energy, farm equipment, finance and insurance, industrial equipment, information technology, leisure and hospitality, logistics, real estate, retail, and two wheelers.
- Mahindra Powerol is a part of Automotive & Farm Equipment Sectors (AFS). The company entered the field of Power Generation in 2001-2002. Today, engines from Mahindra Powerol are powering Diesel Generator sets from 5kVA to 625kVA. We are powering Customers from diverse cross-section of industries and segments like Banks, Building & Construction, Public Sector Units, Hospitals, Hotels, Homes and Manufacturing units in India and in Global markets. We have a huge presence in telecom sector with close to 2.0 lakhs telecom towers powered by our gensets with over 60% share.
- We have received the Super brand award in 2015, Japan Deming price for PQM in 2014 and most preferred Genset Brand award for Telecom Segment in 2013.
- In a continuous endeavor to satisfy customer & also delight them we follow TQM philosophy & to be the 'Best-in-Class'. We had got the Deming prize from JUSE, Tokyo.
- Our offer consists of following Techno-Commercial Annexure:

Salient Features of Mahindra DG Sets	:	Annexure-I
Technical Specification of Mahindra DG sets	:	Annexure-II
Price Schedule	:	Annexure -III
Terms and Conditions	:	Annexure - IV

Perfect Generator Technologies Pvt. Ltd.
11 Milestone, Near HLM College, Delhi Meerut Road,
Sainthli, Ghaziabad-201001 (U.P.)
Tel.: 011-41024861, 62



Annexure-I

Salient Features of MAHINDRA POWEROL DG Set

- Compact, Sleek, Manual / Automatic options.
- CPCB Certified Sound proof, Weather proof enclosure.
- The Enclosure is of modular construction with the provision to assemble and dismantle easily.
- The enclosure is fabricated from 1.6mm SWG-CRCA-sheet.
- The sheet metal components go through industry leading eleven tanks pre-treatment process and UV resistant polyester based powder coating (inside as well as outside) for long life and aesthetics.
- All hardware are Zinc coated or SS as per environment conditions.
- In-built draw type Fuel tank provided with breather, big size cleaning holes and drain plugs for filling & draining diesel.
- The fuel level is indicated with the help of fuel gauge meter.
- Drain plugs provided outside the enclosure for draining lube oil externally.
- Battery is provided in a tray inside the Enclosure.
- Doors are sealed with high quality EPDM gaskets to avoid leakage of sound.
- Sound proofing of enclosure is done with high quality Rock Wool/ Mineral Wool of suitable thickness and density.
- A specially designed sound attenuated silencer is provided to control exhaust noise.
- Specially engineered sound attenuators are provided to control air flow and sound at air entry & exit points inside the enclosure.
- To make the system vibration free, engine and alternator are mounted on specially designed anti-vibration pads mounted on Base frame.
- The Generator set comes with standard manual control panel.
- The enclosure is designed in a way that there is easy access to serviceable parts.
- Adequate ventilation is provided to meet air requirement for combustion & heat removal.
- There is an arrangement for illumination inside the enclosure.
- The silent DG set has the following safeties:
 - ♦ High water temperature.
 - ♦ Low lube oil pressure.
 - ♦ High enclosure temperature.
 - ♦ Emergency stop push button outside the enclosure.
 - ♦ Electrical trips for over and under voltage, over speed, over current etc.
 - ♦ Electrical trip for **engine overload**

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Annexure – II

Technical Specifications for 500kVA/400kW MAHINDRA POWEROL DG SET

DIESEL ENGINE

Perkins make Full electronic Engine model **2506D – E15TAG2**, 6 cylinders, 15.2 Liters, 4 stroke cycles, Liquid cooled developing 607 BHP @ 1500 rpm as per ISO 3046.. The engine shall be provided with electrical starting arrangement and shall give the electrical output of 500kVA at 0.8 power factor, 415 V at the alternator terminal and provide permissible overload of 10% for one hour in 12 hours of operation.. Other accessories of the engine would be as under:

Basic Engine: <ul style="list-style-type: none"> ➤ High inertia flywheel ➤ Forged crankshaft and Connecting Rods ➤ Four-valve per cylinder ➤ Vibration damper
Starting System: <ul style="list-style-type: none"> ➤ Electric starter ➤ Battery charging alternator, V-belt driven ➤ Battery, Battery stand & Leads
Fuel System: <ul style="list-style-type: none"> ➤ Electronically controlled high-pressure injection with single unit injection pumps ➤ Fuel delivery pump ➤ Fuel filters (Primary, Main and Water Separator) ➤ ADEM 4 Advanced Engine Management Unit for precise control and operation ➤ Engine standard version for fuel consumption-optimized operation
Lube Oil System: <ul style="list-style-type: none"> ➤ Forced-feed lubrication system with piston cooling ➤ Lube oil circulation pump with safety valve ➤ Lube oil multi-stage filter ➤ Side canopy crankcase venting system
Combustion Air System: <ul style="list-style-type: none"> ➤ Exhaust turbochargers with insulation ➤ Intercooler integrated in radiator ➤ Exhaust silencers – Residential ➤ Dry-type air filter with contamination indicator
Cooling System: <ul style="list-style-type: none"> ➤ Coolant circulation pump for jacket water ➤ Coolant thermostat for jacket water cooling system ➤ Tropical zed Radiator with fan, fan guard and fan belts

ALTERNATOR:

Stamford/ Crompton Greaves make synchronous alternator of 500kVA rating suitable for operation at 1500 RPM generating 415V (at 0.8 power factor (lag) 50 Hz), 3 phase, and 4 wire system. The alternator shall be Brush-less type, separately excited & self-regulated through an AVR. The alternator shall be suitable for tropical climate and generally conform to BS: 2613/IS: 4722 & have following features-

- $\pm 1\%$ voltage regulation (max) in static conditions.
- IP23 protection with class 'H' insulation and temperature rise limited to class "H" insulation limits.
- 2/3rd pitch winding as standard

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DG SET CONTROLLER- DSE 4521 STANDARD AMF CONTROLLER:

DSE-4521 is a microprocessor-based generator set monitoring, metering, and control system. This provides an operator interface to the Genset.

Features:

- Auto Start/Stop (Optional)
- Local & Remote Start/Stop
- Genset Breaker and Mains Breaker Control
- Easily accessible
- MODBUS for BMS connectivity
- 500 event fault log
- Genset run time scheduler

Engine Parameters:

- RPM, Oil Pressure, Coolant Temperature,
- Hour Meter, Battery Volts, Battery Charging Voltage
- Running Status
- Event Recording
- Fault Code Display

Electrical Parameters

- Voltage, Current, Frequency, kW, kVA, Pf, kWh and kVA
- Breaker Status

Engine Protection

- High Water Temperature
- Low Lube oil Pressure
- Engine over speed / Under Speed Shutdown
- Unbalanced load display
- Various analog and digital customer inputs and outputs

MANUAL CONTROL PANEL (SUPPLIED AS STANDARD):

- Advanced Genset Controller (DSE 4521).
- Suitably rated Circuit Breaker

BASE FRAME:

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

FUEL TANK:

Daily service fuel tank 825 liters manufactured with 14 SWG sheet metal complete with drain valve, air vent, inlet and outlet connection. The fuel tank shall be suitable for floor mounting installation outside the acoustic enclosure.

BATTERIES:

Two number batteries of 12V capacity rated 150 AH with its leads.

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Annexure – III

PRICE SCHEDULE:

Sr.No.	Item Description	Qty. No.	Basic Price per unit (in Rs)
1.	500kVA/400kW 3 phase Mahindra CPCB II compliant DG, Prime Rated, Radiator cooled, powered by PERKINS Engine coupled to Stamford/Crompton Greaves Alternator rated at 500kVA at 415Volts, microprocessor based Controller, Silencer, Anti-Vibration mountings, exhaust flexible connector, Batteries with cables, fuel tank, Acoustic Enclosure with MCP Panel .	1	26,000,00/-

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Annexure - IV

GENERAL TERMS & CONDITIONS:

1	Prices	<ul style="list-style-type: none"> Prices quoted are basic. GST extra as applicable on date of dispatch. Currently it is 18%. Entry Tax / Octroi if applicable will be charged extra at actual. Any variation in Taxes by State or Central Government will be to the Purchaser's account. Any composition of new taxes will also be to the purchaser's account.
2	Transportation	<ul style="list-style-type: none"> Freight Extra. Transit Insurance extra.
3	Installation & Commissioning	<ul style="list-style-type: none"> Installation of DG sets, control panels and related works are all extra and if required will be carried out on chargeable basis. We will be able to quote after necessary site inspection. One pre-commissioning and one commissioning visit will be offered free of cost after receipt of confirmation from user end on completion of installation in all respects and ready availability of consumables such as fuel at site. Fuel needs to be arranged by the user at their own cost.
4	Shipment/Delivery	<ul style="list-style-type: none"> Delivery will be made within 4-6 weeks from the date of receipt of technically & commercially clear order.
5	Payment Terms	<ul style="list-style-type: none"> 30% advance along with the order and balance 70% Performa Invoice before dispatch including all Duties and Taxes. In the event of delay/default in making the payment as agreed terms, you shall pay an interest @ 24% per annum from the date of such delay/default.
6	Warranty:	<ul style="list-style-type: none"> Product shall be warranted for all manufacturing and workmanship defects for a period of 24 months from delivery/commissioning or 5000 hours of Operation whichever is earlier.
7	Exclusion from scope of supply/work	<ul style="list-style-type: none"> All civil works shall be to your account, however we shall provide foundation drawings. Power cable, Control cable, Fuel pipe and terminations are not included in our scope of supply. Batteries shall be supplied dry and uncharged, initial battery charging shall be to your account. Commissioning shall be carried out at free of cost, however load and consumable shall be provided by you for testing. No safety equipment shall be supplied along with DG Set. All required statutory approvals are excluded.

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8	Validity	<ul style="list-style-type: none"> This offer is valid for a period of one month from date of offer
9	Force Majeure	<ul style="list-style-type: none"> If by reason of war, acts of god, government or parliament restrictions, prohibition of enactment of any kind, strike, lockout, import or export regulations or any other cause whatsoever beyond our control we shall be unable to fulfil the delivery obligation within the stipulated time, then in that case, any conflict arising out of our offer shall be violable at an option with no right on either of us to claim against the other in respect of any loss.

We trust the above offer is in line with your requirement and we look forward to receive your valuable order. In case you need any further clarifications, please feel free to contact us.

Thanking you,
Yours Sincerely,

Perfect Generator Technologies (P) Ltd

Abhishek Anand
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