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ZONE 2 60KVA GENSET

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Model Number: RG60-DGZ2 Serial Number: RGGS-1121-03

FOR ILLUSTRATION PURPOSES ONLY

[1.1] Production Information

Product Brief: Zone 2 60kVA / 50Hz / 400V / 3Phase – Diesel Driven Generator

Compliance details

Build compliance	: **Group II Category 3G**
Temperature class	: **T3 (200°C)**
Gas Group	: **IIA**
Output Type	: **Continuous (Isochronous)**
Expected Ambient	: **0°C to + 40°C**
Quantity	: **1 Unit**
Compliance Type	: **ATEX**
Zero Requirement	: **Zone**

Alternator details

Output Power	: **60 kVA**
Output Frequency	: **50Hz**
Output Voltage	: **400**
Power factor	: **0.8**
Efficiency	: **89.2**
IP Rating	: **54**
No. of Phases	: **3**
No. of Wires	: **4**

Design criteria: The unit will be designed and built to meet the requirements of the following guidelines and standards: -

☒ **BS EN 1834:1:2000**	☒ **ATEX 94/9/EC**
☒ **EN60079-0**	☒ **EN60079-15**
☐ **2006/42/EC**	☒ **PB200**

External Dimension (L x W x H): 3,412 mm x 2,212 mm x 2,258 mm
Payload: 5,500 Kg
Max Gross Mass (Rating): 7,580 Kg
Tare Mass: 2,080 Kg

[1.2] Engine Information

The engine will be fully tested, packaged and certified in accordance with the requirements of the Standard: EN1834-1:2000. Certified for use in Category 3G Zone 2 environment and shall consist of the following components:-

Engine details:			
Make	CATERPILLER	**Model**	C4.4TA
Fuel	☒ Diesel	☐ LPG	
No.of cylinders	☐ 3 cylinder ☒ 4 cylinder ☐ 6 cylinder ☐ 8 cylinder ☐ 12 cylinder		
Configuration	☒ Straight	☐ V configuration	
Aspiration	☐ Naturally aspirated	☒ Turbo	
Coupling	☐ None	☒ fitted	
Fuel filter	☐ Standard	☐ High performance	☒ Remote Duplex
Oil filter	☐ Standard	☐ High performance	☒ Remote Duplex
Air Filter	☒ Single stage high performance		☐ Service indicator
RPM	☐ Variable ☒ Adjustable ☐ Switchable ☒ 1500RPM ☐ 1800RPM		
Governor type	☐ Mechanical ☒ Electronic		
Air Inlet and over speed protection			
Air inlet valve	With automatic over speed shutdown protection		☒ Fitted ☐ none
Flame arrestor	Integral to the inlet valve suitable for : Gas group IIA		☒ Fitted ☐ none
Other details			
Exhaust Gas cooling	☒ Mani-Cooler	☐ SlimClean	
Exhaust manifold	☐ Standard* ☐ Water cooled* ☒ N/A		☐ HCTB*
Inlet manifold	☐ Standard* ☐ Water cooled* ☒ N/A		☐ HCTB*
Turbocharger	☐ Standard* ☒ Water cooled* ☐ N/A		☐ HCTB*
Exh. Flame arrestor	☐ Not installed ☒ Installed		Suitable for ☒ IIA
Exh. Spark arrestor	☐ Not installed ☒ Installed		
Exh. Rain cap	☐ Not installed ☒ Installed		
Radiator	☐ Not installed	☐ Standard OEM version	☒ Marine Grade**
Fan type	☐ Metal	☒ Plastic	☒ Anti-static

*Exhaust manifold and exhaust cooling system to reduce exhaust surface and gas temperature to below T3 fully flame non-transmission tested and certified.

Standard* When standard product is used on the exhaust system, the component is verified as safe by design by means of thermal testing and meets the T3 requirements of this package.

**High quality galvanized mild steel frame radiator with solder dipped core radiator suitable for 0°C to + 40°C ambient temperature for cooling the Engine and the Pyroban exhaust gas heat exchanger complete with stone guard and fan impeller guard.

[1.3] Output & Starting System

The Alternator Supplied with this package is certified as a minimum to: Ex'n T3 IIA for use in Category 3G Zone 2 hazardous areas:

Generator Details							
KVA Rating	60kVA	Frequency (Hz)	50Hz	Voltage	400	PF	0.8
Efficiency @100% Load	89.2	Phase's	3	Wires	4	IP Rating	54
Anti-condensation Heaters	☒ Not fitted	☐ Fitted	Voltage				
Winding insulation class	H	Temperature rise class	B				
Temp sensors	☒ 1 (per winding)	☐ 2 (per winding)	☐ 3 (per winding)				
Bearing sensors	☐ none	☐ Fitted	☒ Not Available				
Cooling	☒ TEFC = Totally Enclosed Fan Cooled						
AVR	☒ Fitted and Mounted inside:	☐ Alternator	☒ main enclosure	☐ Not fitted			

- Upon request a 3rd party type test certification and manufacturer's basic test report can be supplied as part of the documentation of this package.

Starting Details:				
Electric *(Atex certified starter)*	☒ Primary	☐ Secondary	DC Voltage	12V
Hydraulic*	☐ Primary	☐ Secondary		
	☐ Recharge Pump	☐ Engine driven	☐ Manual driven	☐ Motor driven
	☐ On board Hydraulic tank	☐ Sight Glass	☐ Level Switch	
	☐ On board Hydraulic accumulator	☐ Stainless steel piping	☐ Filter	
Pneumatic	☐ Primary	☐ Secondary	☐ On board Air Receiver	
	☐ Recharge Pump	☐ Engine driven	☐ Manual	☐ Motor driven
Spring	☐ Primary	☐ Secondary		

All of the above starters and associated equipment will be sized to suit the engine shown in *Section 1*

* Hydraulic starter motors and accumulators will be sized for approximately 3 'Short Burst' starting attempts before recharging is required.

[1.4] Mechanical Protection

Skid frame type:	
Engine Mounting (Img.1)	☐ Not required (Engine Skid free issued) ☒ Engine Sub base frame
Open Skid Frame Type	☐ Makers Cert. Skid Frame ☒ EN12079-1 Skid Frame ☐ DNV 2.7 1 3rd party Certified Skid frame ☐ 4 wire, 45-60" Lifting Sling
Skid Frame Features	☒ AVM isolation ☒ Fork Pockets ☒ Side impacts bars ☒ Drip Pan / Drainage Port ☒ Rotating and hot surface guards ☒ Earth point
Enclosed Skid Frame Type (Img.2)	☒ Weather Protect to: **IP23**
Enclosure Material	☒ Electro Galvanized steel enclosure ☐ Stainless steel enclosure
Enclosure Features	☒ Fixed Ventilation louvers ☒ Removable panels for easy access ☒ Hinged doors ☒ High grade lock / Handle ☐ Stainless Steel locks / Handle ☒ External E-stop access ☒ Window for gauges / Display ☒ MCT Certified cable exit ☒ Sound attenuation to: ☒ **85dBA @ 1m on all 4 sides** ☐ **90dBA @ 7m on all 4 sides**
Component Locations	**Spark Arrestor:** ☒ internal ☐ external **Coolant Expansion tank:** ☒ internal ☐ external

[1.5] Safety & Control Information

Genset control method:	
Main control ethos	☐ Hydraulic ☐ Pneumatic ☐ Electronic Other ☐ Electronic ComAp InteliGen ☒ Electronic ComAp Intelilite ☐ PLC ☐ Relay
Main GCB breaker operation	☒ Mechanical ☐ Electrical ☒ Manual
Alternator synchronisation type:	☐ Synchronous ☒ Isochronous
Genset Start / Stop operation	☒ Local only ☒ Manual ☐ Auto ☐ Remote
Remote monitoring	☐ RS232 ☐ RS485 ☐ Red Ethernet ☐ Volt free contacts ☐ Can Bus ☐ 4-20mA

Safety details:			
☒ Emergency Stop	Emergency stop switch linked to air intake shutdown valve and fuel supply		
Shut downs and Warnings	In the event of abnormal operating conditions the electrical safety shutdown system will stop the engine by closing the air inlet valve and interrupting the fuel supply. Other options can be configured as warnings only		
Automatic Engine Over Speed Shutdown Device	☒ Mechanical	☒ Electrical	☐ Not required
High engine coolant temperature		☒ Shutdown	☒ Warning
Loss of engine oil pressure		☒ Shutdown	☒ Warning
High exhaust gas temperature		☒ Shutdown	☒ Warning
Engine Over speed		☒ Shutdown	☐ Warning
Alternator temp monitoring		☒ Shutdown	☒ Warning
Frame leakage detection		☒ Shutdown	☒ Warning
Other 1		☐ Shutdown	☐ Warning
Other 2		☐ Shutdown	☐ Warning
Other 3		☐ Shutdown	☐ Warning

Control equipment Protection:				
Main control equipment housed in:	☒ Ex'd Enclosure	☐ Ex'e Enclosure	☐ IP Rated Enclosure	
Consumer connection point	☐ Ex'd Enclosure	☒ Ex'e Enclosure	☐ IP Rated Enclosure	
Status Display	☒ Ex'd Enclosure	☐ Ex'e Enclosure	☐ IP Rated Enclosure	☐ Gauge panel

Control equipment Protection:			
Instrumentation	☒ Water Temp.	☒ Alternator Temp.	☒ Exhaust Temp.
☒ Oil Pressure	☒ Engine Speed	☒ Battery Voltage	☒ Hours Run
☒ GCB closed	☒ Frame Leakage	☒ Alt. Voltage	☒ Alt. Current

Definitions: *Ex'd - Enclosures are certified and tested as Explosion proof*
Ex'e - Enclosures are certified and tested as increased safety
IP - Enclosures are certified and tested as Weather protected

[1.6] Fuel Tank information

Fuel tank Information:		
☒ fuel tank	☒ Internal	Carbon steel fuel tank built into the carbon steel engine sub base frame
	☐ Internal and removable	Mounted within the Skid frame, fixed securely into place with mounting pads at the base of the tank Material: ☐ SS316L ☐ SS304 ☐ A36 Mild steel
	☐ External	fuel tank built separately and supplied with mounting feet and stainless steel connecting pipework and braided hoses for low pressure lines Material: ☐ SS316L ☐ SS304 ☐ A36 Mild steel
☒ Inspection hatch	☐ Level Gauge	☐ Level switch ☐ Level sensor
☒ flame trap breather	☐ Quick connect filler cap	☒ Marine filler cap ☒ Drain port
Fuel Capacity / hours	**8hrs**	

Fuel system:			
Lift pump	☐ Mechanical	☒ Ex'm electronic	Ex'n ☐ electronic
Fuel stop	☐ Mechanical	☒ Ex'm electronic	
Fuel pressure Gauge	☐ Required		

[1.7] Declaration of Conformity

The Diesel engine and generator will be provided with a Declaration of conformity to ATEX 94/9/EC and be labeled in accordance with the marking:-

Group II Category 3G IIAT3 -10°C to + 40°C

The hard copy documentation package will contain O&M Instructions and details of all of the components selected complete with all necessary certification, and declaration of conformity / incorporation to ATEX 94/9/EEC & Machinery Directive (2006/42/EC)

Adex Zonex stringent manufacturing standards follow ISO 9001 quality assurance regulations.

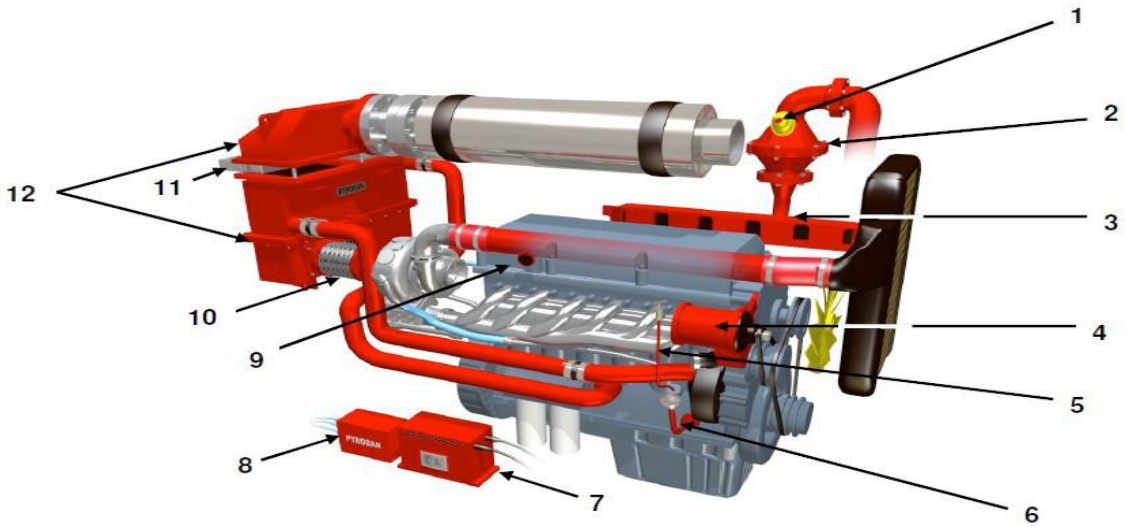
Documentation List:

Standard documentation to be supplied at the END OF THE PROJECT would include only: *(Where applicable)*

- General arrangement drawing (including foundation and support details)
- General arrangement drawing of engine local gauge panel
- General arrangement drawing of local control panel
- General arrangement drawing of engine & alternator assembly
- General arrangement drawing of radiator
- Electrical wiring diagrams
- Alternator performance curves
- Piping & instrument diagrams
- Equipment data sheets and catalogues for all components (engine, starter motor, accumulator, alternator, etc.)
- Bill of materials
- 3rd party certificate for DNV 2.7-1 frame (if applicable)
- 3rd party certificate for lifting slings (if applicable)
- List of spare parts (commissioning & 2-years operation)
- Factory acceptance test report
- Certificate of compliance for complete package

Optional extras and upgrades: *Items with ☒ below will be calculated into the "Unit Package Price with Options"*		
☒	Commissioning Spares	Additional Sing $ FOC
☒	Weather proof canopy	Additional Sing Included
☒	Sound proofing	Additional Sing Included
☒	EN 12079-1 lifting frame with BV 3rd party certification	Additional Sing Included
☒	Extra fan belt one set as spares.	Included
☒	Additional battery install on unit, connected in series	Included

A guide to Zone 2
Key Flame Proofing Components



1) Combustion air inlet shutdown valve.

2) Combustion air inlet flame trap.

3) Steel fabricated inlet manifold (only required when the original manifold fails pressure tests).

4) Charging EExd alternator.

5) Positively retained oil filler dipstick.

6) Screw fitting oil filler cap.

7) EExd increased safety battery assembly.

8) Engine safety control system, design to safely shut down the engine in the event of:-

   i. High coolant temperature.
   ii. High exhaust gas temperature.
   iii. Engine over-speed.

9) Crank case breather flame trap.

10) A water-cooled flexible section when protecting turbo charged engines. This takes exhaust gas from the turbo to the exhaust gas cooler.

11) Removable exhaust gas flame traps (also known as flame arrestors) prevent any flame transmission through the exhaust cooler. These are serviceable items.

12) Exhaust gas cooler to cool exhaust gas and skin temperature

For a quotation and detailed pricing, please contact our sales team:

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