



**DATA SHEET DIESEL
GENERATOR SET** 

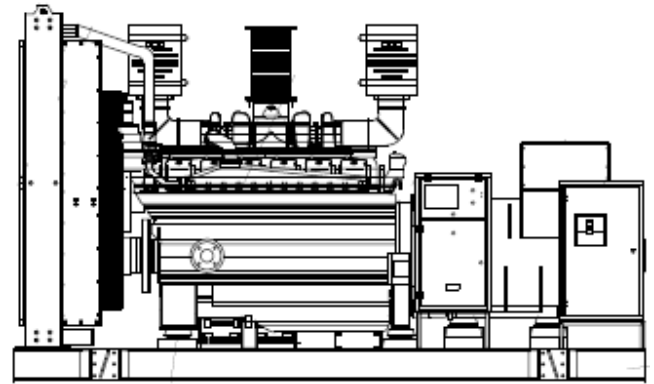
GSBD20700S-UL



► Model

GSBD20700S-UL

| | |
|----------------------|--------------|
| ENGINE BRAND | » BAUDOUIN |
| ENGINE MODEL | » 8M33G4D2/6 |
| ALTERNATOR BRAND | » STAMFORD |
| GENERATOR CONTROLLER | » DSE 7310 |



► GENSET RATING

| ENGINE | ALTERNATOR | VOLTAGE | PH | Hz | STANDBY POWER | | POWER FACTOR | CURRENT |
|------------|------------|---------|----|----|---------------|-----|--------------|---------|
| | | V | | | kW | KVA | | A |
| | S6L1D-C4 | 208/120 | 3 | 60 | 700 | 875 | 0.8 | 2431 |
| 8M33G4D2/6 | S6L1D-C4 | 480/277 | 3 | 60 | 700 | 875 | 0.8 | 1053 |
| | S6L1D-D4 | 600/346 | 3 | 60 | 700 | 875 | 0.8 | 842 |

► Certifications



Standby Power. Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

► ENGINE FEATURES

| | |
|---|--------------------------------|
| » BRAND _____ | ► BAUDOQUIN |
| » MODEL _____ | ► 8M33G4D2/6 |
| » EXHAUST EMISSIONS _____ | ► TIER 2 |
| » RPM _____ | ► 1800 |
| » STANDBY RATING kWm _____ | ► 800 |
| » STANDBY RATING bhp _____ | ► 1073 |
| » PRIME RATING kWm _____ | ► 730 |
| » PRIME RATING bhp _____ | ► 979 |
| » NUMBER OF CYLINDERS _____ | ► 8 |
| » ASPIRATION _____ | ► TURBOCHARGED AND AFTERCOOELD |
| » DISPLACEMENT in ³ _____ | ► 1595.2 |
| » ENGINE AIR FLOW CFM _____ | ► 3217 |
| » GOVERNOR TYPE _____ | ► ELECTRONIC |
| » CONTROL VOLTAGE v _____ | ► 24 |
| » BORE/STROKE, in (_____ | ► 5.9X7.28(150X185) |
| » COOLANT CAPACITY WITHOUT RADIATOR gal _____ | ► 16.64 |
| » OIL CAPACITY, TOTAL gal _____ | ► 29.1 |

► FUEL CONSUMPTION

| STANDBY POWER | | |
|---------------|--------|-------|
| LOAD | GAL/hr | L/hr |
| 100% | 54.63 | 206.8 |
| 75% | 37.40 | 141.6 |
| 50% | 24.91 | 94.3 |
| 25% | 14.82 | 56.1 |

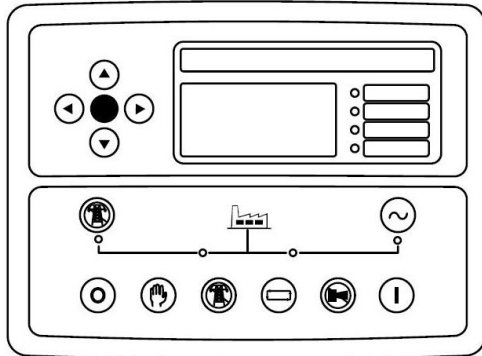
► ALTERNATOR FEATURES

| | |
|--------------------------------|--------------------------------|
| » BRAND _____ | ► STAMFORD |
| » MODEL _____ | ► S6L1D-C4 / S6L1D-D4 |
| » FREQUENCY _____ | ► 60 Hz |
| » PHASES _____ | ► 3 |
| » WINDING LEADS _____ | ► 6/12 |
| » INSULATION SYSTEM _____ | ► H CLASS |
| » CONTROL SYSTEM _____ | ► SEPARATELY EXCITED BY P.M.G. |
| » PROTECTION _____ | ► IP23 |
| » POWER FACTOR _____ | ► 0.8 |
| » COOLING AIR CFM _____ | ► |
| » VOLTAGE REGULATION (%) _____ | ► +-0.5 |

► GENERATOR CONTROLLER

» MODEL

DEEP SEA 7310



The DSE7310 MKII is an Auto Start Control Module and the DSE7320MKII is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs, remote PC and via SMS text alerts (with external modem). The DSE7320 MKII will also monitor the mains (utility) supply. The modules include USB, RS232 and RS485 ports as well as dedicated DSENet@ terminals for system expansion.

KEY FEATURES

- 4-Line back-lit LCD text display
- Multiple Display Languages
- Five key menu navigation
- LCD alarm indication
- DSENet expansion compatibility
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB, RS232 & RS485 communication
- Front panel configuration with PIN protection
- Power save mode
- 3 phase generator sensing and protection
- 3 phase mains (utility) sensing and protection (DSE7320 MKII only)
- Automatic load transfer control (DSE7320 MKII only)
- Generator current and power monitoring (kW, kvar, kVA, pf)
- Mains current and power monitoring (kW, kvar, kVA, pf) (DSE7320 MKII only)
- kW and kvar overload and reverse power alarms

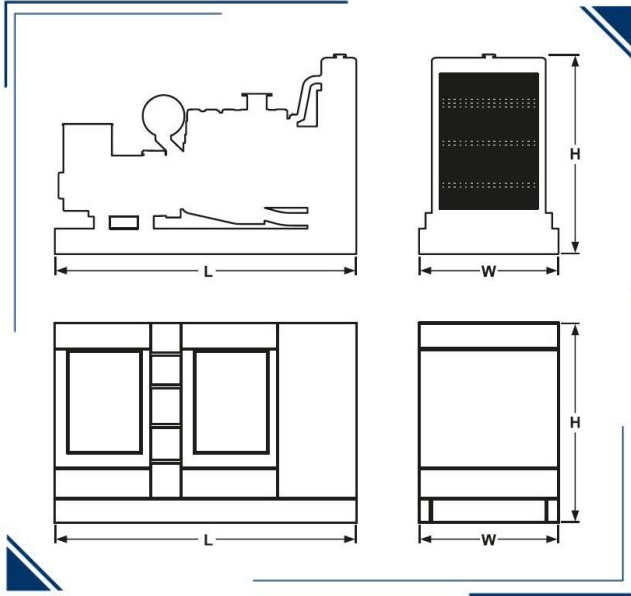
- Over current protection
- Unbalanced load protection
- Independent earth fault protection
- Breaker control via fascia buttons
- Fuel and start outputs configurable when using CAN
- 6 configurable DC outputs
- 2 configurable volt-free relay outputs
- 6 configurable analogue/digital inputs
- Support for 0 V to 10 V & 4 mA to 20 mA sensors
- 8 configurable digital inputs
- Configurable 5 stage dummy load and load shedding outputs
- CAN, MPU and alternator frequency speed sensing in one variant
- Real time clock
- Manual and automatic fuel pump control
- Engine pre-heat and post-heat functions
- Engine run-time scheduler
- Engine idle control for starting & stopping
- Fuel usage monitor and low fuel level alarms
- Simultaneous use of RS232 and RS485 communication ports
- True dual mutual standby using RS232 or RS485 for accurate engine hours balancing.
- MODBUS RTU support with configurable MODBUS pages.
- Advanced SMS messaging (additional external modem required)
- Start & stop capability via SMS messaging
- 3 configurable maintenance alarms
- Compatible with a wide range of CAN engines, including tier 4 engine support

- Uses DSE Configuration Suite PC Software for simplified configuration
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Modules can be integrated into building management systems (BMS) using MODBUS RTU

KEY BENEFITS

- Automatically transfers between mains (utility) and generator (DSE7320 MKII only) for convenience.
- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored & displayed simultaneously for full visibility
- The module can be configured to suit a wide range of applications for user flexibility
- PLC editor allows user configurable functions to meet user specific application requirements.

► DIMENSIONS AND WEIGHT



| OPEN GENSET | | | | | |
|-------------------------|------------|-----------|------------|--------|-------------|
| DIMENSION | Length (L) | Width (W) | Height (H) | Weight | Noise Level |
| | IN | | | Lbs | dB |
| | 164 | 73 | 90 | | |
| ENCLOSED GENSET LEVEL 2 | | | | | |
| DIMENSION | Length (L) | Width (W) | Height (H) | Weight | Noise Level |
| | IN | | | Lbs | dB |
| | 256 | 87 | 100 | | |

► ACOUSTIC ENCLOSURE

Acoustic enclosure designed and manufactured with 14 gauge carbon steel sheet, polyurethane acoustic coating, access and air expulsion to avoid gas accumulation, drainage system to avoid liquid accumulation. Electrostatic painting for extended life. We have options for enclosures in aluminum or stainless steel

► STANDARD FEATURES & ACCESSORIES

| | | | |
|-------------------------------------|--|-------------------------------------|--|
| <input checked="" type="checkbox"/> | DSE 9470 Battery Charger | <input checked="" type="checkbox"/> | Emergency Stop Button |
| <input checked="" type="checkbox"/> | Battery and Battery Rack | <input checked="" type="checkbox"/> | Flex Fuel Lines |
| <input checked="" type="checkbox"/> | ABB Main Line Circuit Breaker | <input checked="" type="checkbox"/> | Protection Covers for Rotating Parts |
| <input checked="" type="checkbox"/> | MX341AVR | <input checked="" type="checkbox"/> | Exhaust Insulation Cover |
| <input checked="" type="checkbox"/> | Hotstart Pre heater RMP-CSM10602-000 | <input checked="" type="checkbox"/> | Anti Vibration Pads between Engine/Alternator & Base Frame |
| <input checked="" type="checkbox"/> | Residential Grade Silencer Open Unit | <input checked="" type="checkbox"/> | Operation and Maintenance manuals |
| <input checked="" type="checkbox"/> | Critical Grade Silencer Inside Enclosure | <input checked="" type="checkbox"/> | 24 Months /1000 hours Limited Standby Warranty |



▶ OPTIONAL ACCESSORIES

| | |
|---|---|
| Paralleling Adder (DSE8610 & Motorized Breaker) | Enclosure AC light and On/Off Switch |
| 120V GFCI Receptacle | Enclosure DC light and On/Off Switch |
| 240V Receptacle | Enclosure space Heater (1500w/120v) |
| Alternator Strip Heater | Load Center / Distribution Board (100 A, 12 Breaker) |
| Battery Blanket Heater | Load Center / Distribution Board (200 A, 8 Breaker) |
| Battery Disconnect Switch | AVR UPGRADE |
| Battery Pad Heater | Oil Pan Heater |
| Battery Restraint | Relay - 10A Common Alarm |
| Control Panel Heater | Relay - 10A Run Relay |
| DSE2157 Output Module (8 dry contacts) | Remote E-Stop- Breaker Glass Type / Nema 3R |
| DSE2520 Remote Display Module | Remote E-Stop- Breaker Glass Type / Nema 4X |
| DSE2548 Remote Annunciator (16 light) | Remote E-Stop- Flush Mount |
| DSE2548 Remote Annunciator (24 light) | Remote E-Stop- Surface Mount |
| DSE2548 Remote Annunciator (8 light) | Remote E-Stop- Visual/ Plastic Hinged Cover |
| DSE890 3G GATEWAY | Spring Isolator- Non Seismic (ACE 121 Series) <small>SKIRT NOT INCLUDED</small> |
| GSM/GPS ANTENNA 3M RG-174, GSM-SMA(M), GPS-SMA(F) | Spring Isolator- Seismic/Restraint (ACE 821 Series) <small>SKIRT NOT INCLUDED</small> |
| DSE9641 10A Battery Charger | Voltage Adjust Rheostat |
| DSE9470 10A Battery Charger | Automatic Transfer Switch |


▶ OPTIONAL UL142 SUB BASE TANK

| | 24 hr | 48 hr | 72 hr |
|-----------------------|-------|-------|-------|
| Fuel Capacity (gal) | 1500 | 3100 | |
| Dimensions (L/W/H) in | | | |
| Weight lb | | | |



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| | | | | |
|---|----------------------------------|-------------------|--------|----------|
|  | Model : | 8M33G4D2/6 | Date : | 15/12/22 |
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Ratings

| RPM | Gross Engine Output | | | | Net Engine Output | | | |
|------|---------------------|-------|-----|------|-------------------|-------|-----|------|
| | PRP | | ESP | | PRP | | ESP | |
| | kWm | BHP | kWm | BHP | kWm | BHP | kWm | BHP |
| 1800 | 730 * | 979 * | 800 | 1073 | 682 * | 915 * | 752 | 1009 |


1 kWm = 1,34102 BHP

When the engine is used with a cooling system using an electrically driven fan, net engine output data may change and quoted figures should be used for reference only

Basic data

| | |
|--|---------------------------------------|
| Engine model |8M33G4D2/6 |
| N° of Cylinders / Valves | 8 / 32 |
| Cylinders arrangement | At Vee |
| Bore x Stroke (mm) | 150 x 185 |
| Displacement (L) | 26.14 |
| Thermodynamic Cycle | Diesel 4 stroke |
| Firing Order | A1-B4-A4-A3-B2-A2-B3-B1 |
| Mean Piston Speed (m/s) | 11.1 |
| BMEP @ ESP (Bar) | 20.4 |
| Cooling System | Liquid (water + 50% antifreeze) |
| Injection System | Direct |
| Fuel System | High Pressure Common Rail |
| Aspiration | Turbocharged and Aftercooled |
| Compression ratio | 15 : 1 |
| Flywheel housing | SAE 0 |
| Flywheel | 18" |
| Rotation Viewed from Flywheel... | Counterclockwise |
| Allowed static bending moment of the flywheel housing..... | / |
| N° of teeth on flywheel ring gear | 194 |
| Inertia of flywheel (kg•m ²) | 6.47 |
| Inertia of crankshaft (kg•m ²) | 2.22 |
| Emission standard | EPA Tier2 |
| Overall Dimensions with radiator (Length x Width x Height) (mm) | 2550x1865x2016 |
| Engine dry weight without radiator and without radiator pipes (kg) | 3100 |
| Engine dry weight with radiator and radiator pipes (kg) | 3500 |
| Engine wet weight with radiator (includes oil, coolant) (kg) | 3752 |

* The indicated PRP Power is for reference only. This engine is designed for emergency standby power (ESP) applications only.

| | | | | |
|---|----------------------------------|-------------------|--------|----------|
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Air intake system

| | |
|--|------|
| Air intake temperature rise (°C) | ≤ 5 |
| Air intake restriction clean filter (mBar) | ≤ 35 |
| Air intake restriction dirty filter (mBar) | ≤ 62 |
| Recommended air flow @ PRP (m³/min) | 86.8 |
| Recommended air flow @ ESP (m³/min) | 91.1 |
| Min. diameter of intake pipe (mm) | 152 |

Aftercooling system

| | |
|---|------------|
| Aftercooler system type | Air to Air |
| Max. intake temperature @ 25°C ambient temperature (°C) | 55 |
| Max. difference between intake temperature and ambient temperature (°C) | 30 |
| Max. intake pressure drop of aftercooler (mBar) | 120 |

Lubrication system


| | |
|--|----------|
| Oil capacity Low / High (L) | 90 / 105 |
| Oil pressure in normal condition idle speed (Bar) | ≥ 2 |
| Oil pressure in normal condition at 1800 Rpm @ PRP (Bar) | 4 - 6.5 |
| Lowest oil pressure alarm (shutdown) (Bar) | 2 |
| High Oil Pressure Warning | 10 |
| Max. oil temperature (°C) | 105 |
| Oil flow at 1800 Rpm (L/min) | ≥ 288 |
| Oil fuel consumption ratio based on engine fuel consumption data | ≤ 0.3 % |
| Total system capacity (including filters) (L) | 110 |

Heat balance test data (with ambient temperature 39.4 °C)

| | |
|---|--------|
| Total heat dissipation @ ESP (kJ/s) | 1244.4 |
| - Heat Rejection to Jacket Water @ ESP (kJ/s) | 291.6 |
| - Heat Rejection to AfterCooler @ ESP (kJ/s) | 195.3 |
| - Radiated Heat to Ambient @ ESP (kJ/s) | 93.0 |
| - Heat Rejected to Exhaust @ ESP (kJ/s) | 664.5 |

Exhaust system

| | |
|---|-------|
| Max. exhaust back pressure (mBar) | 75 |
| Max. exhaust temperature before turbocharger (°C) | 750 |
| Max. exhaust temperature after turbocharger (°C) | 600 |
| Exhaust flow @ PRP (m³/min) | 189.6 |
| Exhaust flow @ ESP (m³/min) | 208.6 |
| Min. diameter of exhaust pipe (mm) | 190 |
| Max. bending moment of exhaust gas exit flange (Nm) | 10 |

| | | | | |
|---|----------------------------------|-------------------|--------|----------|
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Cooling system with standard radiator

| | |
|---|--------------------|
| System designed for ambient temperature up to (°C) ¹ | 50 |
| Radiator type | Mechanical |
| Fan type | Belt driven pusher |
| Min. inside diameter of coolant outlet pipe (mm) | 80 |
| Coolant capacity of radiator and pipes (L) | 89 |
| Coolant alarm (shutdown) temperature (°C) | 103 |
| Thermostat opening temperature / full open temperature (°C) | 82 / 92 |
| Max. additional restriction for external cooling circuit (Bar) | 0.45 |
| Coolant capacity of the engine (L) | 63 |
| Cooling fan airflow (m ³ /min)* | 1650 |
| Fan absorbed power (kW) | 46.2 |
| Additional restriction (for reference) - Duct allowance (Pa) | 100 |

* Air flow figure assumes the presence of the standard radiator provided, taking into consideration the backpressure caused

Fuel system

| | |
|---|-------------|
| Governor | ECU |
| Governor steady state speed stability at constant load (ISO 8528-5 Class G3) ² | ≤ +/- 0.5 % |
| Max. restriction at fuel inlet (Bar) | 0.65 |
| Max. pressure at fuel inlet (Bar) | 0.5 |
| Max. fuel return restriction (Bar) | 0.8 |
| Max. fuel inlet temperature (°C) | 80 |
| Fuel supply flow (L/hr) | 1100 |
| Min. internal diameter of inlet pipe (mm) | 14 |
| Min. internal diameter of return pipe (mm) | 14 |


Electrical system

| | |
|---|-------|
| Electrical system voltage (negative to ground) (Vdc) | 24 |
| Starter power (kW) | 8.5 |
| Battery charger current (A) | 55 |
| Battery charger absorbed power (kW) | 1.6 |
| Max. electric resistance of starting circuit (Ω) | 0.008 |
| Min. sectional area of wire (mm ²) | 70 |
| Min. cold start temperature without auxiliary starting device (°C) ³ | -10 |
| Min. cold start temperature with auxiliary starting device (°C) ³ | -20 |

¹ The indicated value is based on the AOT value of 50°C for an engine tested at 100% of the ESP Power, reflecting temperature in an open condition, without an enclosure or container, without any airflow obstruction in the front of the radiator, without air recirculation, with free exhaust gas exit and with the engine thermostatic valve in its full open condition, without a closing plate present. The reference air restriction is equal to 50Pa. For the equivalent ATB (Air-to-Boil) performance in a customer or project basis, please consult Baudouin Application Engineering.

² This refers only to the frequency response of the engine and should not be confused with the performance class of the Generator Set, which is subject to additional contributing factors such as alternator selection and control settings.

³ Engines used in emergency standby application or applications that require immediate start under load, they must be equipped with coolant heaters. Baudouin recommend heaters installation to be executed by providing constant coolant circulation across all the engine components. Two heaters are required for V-type engines, one per each side.

| | | |
|---|----------------------------------|-----------------|
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Noise

| | |
|--|-------|
| Diesel engine noise (Acoustic power level) (dB(A)) | 118.2 |
| Noise - upper side (dB(A)) | 100.9 |
| Noise - right side (view from flywheel) (dB(A)) | 101.1 |
| Noise - left side (view from flywheel) (dB(A)) | 102.8 |
| Noise – front (radiator) side (dB(A)) | 102.3 |
| Noise – rear (flywheel) side (dB(A)) | 102.1 |

Notes :

- Noise test made at 100% of the ESP power, at 1 mt. distance, on engine without radiator, without cooling fan and without silencer.
- Noise test refers to ISO 6798 norm : “Reciprocating internal combustion engines. Measurement of emitted airborne noise. Engineering method and survey method”.

Fuel consumption

| Rating | gr/kWh | L/hr |
|-----------------------------------|--------|-------|
| 100% ESP | 217.2 | 206.8 |
| 100% PRP | 217.2 | 188.8 |
| 75% PRP | 217.3 | 141.6 |
| 50% PRP | 217.0 | 94.3 |
| 25% PRP | 258.4 | 56.1 |
| Fuel consumption tolerance +/- 5% | | |

Notes:

This engine is designed for ESP (Emergency Standby) applications only, the values shown above at PRP levels refer to the Referenced Power (730 kWm).

Ratings definitions

Emergency Standby Power (ESP)

Emergency Standby Power is the maximum power available for a varying load for the duration of a main power network failure. The average load factor over 24 hours of operation should not exceed 70% of the engine’s ESP power rating. Typical operational hours of the engine is 200 hours per year, with a maximum usage of 500 hours per year. This includes an annual maximum of 25 hours per year at the ESP power rating. No overload capability is allowed. The engine is not to be used for sustained utility paralleling applications.

Prime Power (PRP)

Prime Power is the maximum power available for unlimited hours of usage in a variable load application. The average load factor should not exceed 70% of the engine’s PRP power rating during any 24 hour period. An overload capability of 10% is available, however, this is limited to 1 hour within every 12 hour period.

- All ratings are based on operating conditions under ISO 8528-1, ISO 3046, DIN6271. Performance tolerance of $\pm 5\%$.
- Test conditions : 100 kPa, 25°C air inlet temperature, relative humidity of 30%, with fuel density 0.84 kg/L. Derating may be required for conditions outside these; please contact the factory for details.
- Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan and optional equipment.

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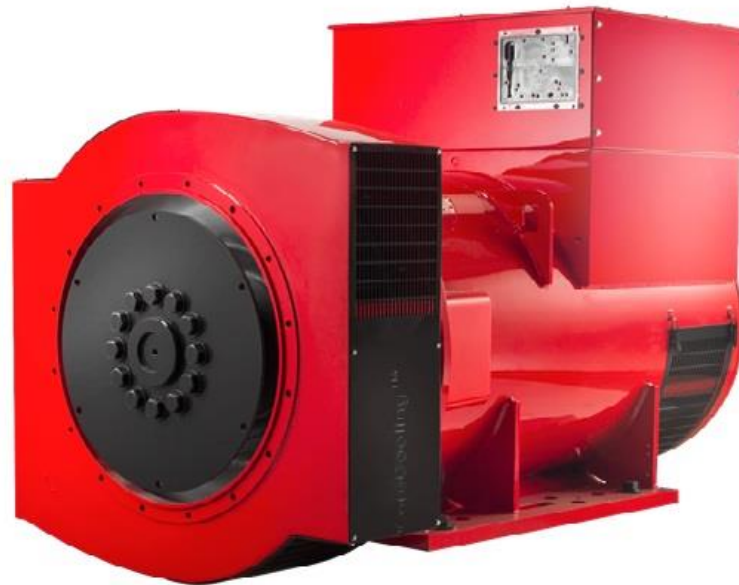
S6L1D-D4 Wdg.07 - Technical Data Sheet

Standards

STAMFORD industrial alternators meet the requirements of the relevant parts of the IEC 60034 and the relevant sections of other international standards such as BS5000-3, ISO 8528-3, VDE 0530, NEMA MG1-32, CSA C22.2-100 and AS 60034. Other standards and certifications can be considered on request.

Quality Assurance

Alternators are manufactured using production procedures having a quality assurance level to BS EN ISO 9001.



Excitation and Voltage Regulators

| Excitation System | | | | | |
|--------------------|-------------|-------|--|--|--------------------------|
| AVR Type | MX321/MX322 | MX341 | | | |
| Voltage Regulation | ± 0.5% | ± 1% | | | with 4% Engine Governing |
| AVR Power | PMG | PMG | | | |

| | |
|----------------------------------|-------|
| No Load Excitation Voltage (V) | 14.41 |
| No Load Excitation Current (A) | 0.78 |
| Full Load Excitation Voltage (V) | 47 |
| Full Load Excitation Current (A) | 2.6 |
| Exciter Time Constant (seconds) | 0.17 |

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| Electrical Data | |
|--|---|
| Insulation System | H |
| Stator Winding | Double Layer Concentric |
| Winding Pitch | 2/3 |
| Winding Leads | 6 |
| Winding Number | 07 |
| Number of Poles | 4 |
| IP Rating | IP23 |
| RFI Suppression | BS EN 61000-6-2 & BS EN 61000-6-4, VDE 0875G, VDE 0875N. Refer to factory for others |
| Waveform Distortion | NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0% |
| Short Circuit Ratio | 1/Xd |
| Steady State X/R Ratio | 21.56 |
| 60 Hz | |
| Telephone Interference | TIF<50 |
| Cooling Air Flow | 1.71 m³/sec |
| Voltage Star (V) | 600 |
| Voltage Parallel Star (V) | - |
| Voltage Delta (V) | 346 |
| kVA Base Rating (Class H) for Reactance Values (kVA) | 1063 |
| Saturated Values in Per Unit at Base Ratings and Voltages | |
| Xd Dir. Axis Synchronous | 1.87 |
| X'd Dir. Axis Transient | 0.13 |
| X''d Dir. Axis Subtransient | 0.10 |
| Xq Quad. Axis Reactance | 1.61 |
| X''q Quad. Axis Subtransient | 0.25 |
| XL Stator Leakage Reactance | 0.06 |
| X2 Negative Sequence Reactance | 0.14 |
| X0 Zero Sequence Reactance | 0.03 |
| Unsaturated Values in Per Unit at Base Ratings and Voltages | |
| Xd Dir. Axis Synchronous | 2.25 |
| X'd Dir. Axis Transient | 0.15 |
| X''d Dir. Axis Subtransient | 0.12 |
| Xq Quad. Axis Reactance | 1.66 |
| X''q Quad. Axis Subtransient | 0.30 |
| XL Stator Leakage Reactance | 0.06 |
| Xlr Rotor Leakage Reactance | 0.08 |
| X2 Negative Sequence Reactance | 0.17 |
| X0 Zero Sequence Reactance | 0.04 |

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S6L1D-D4 Wdg.07

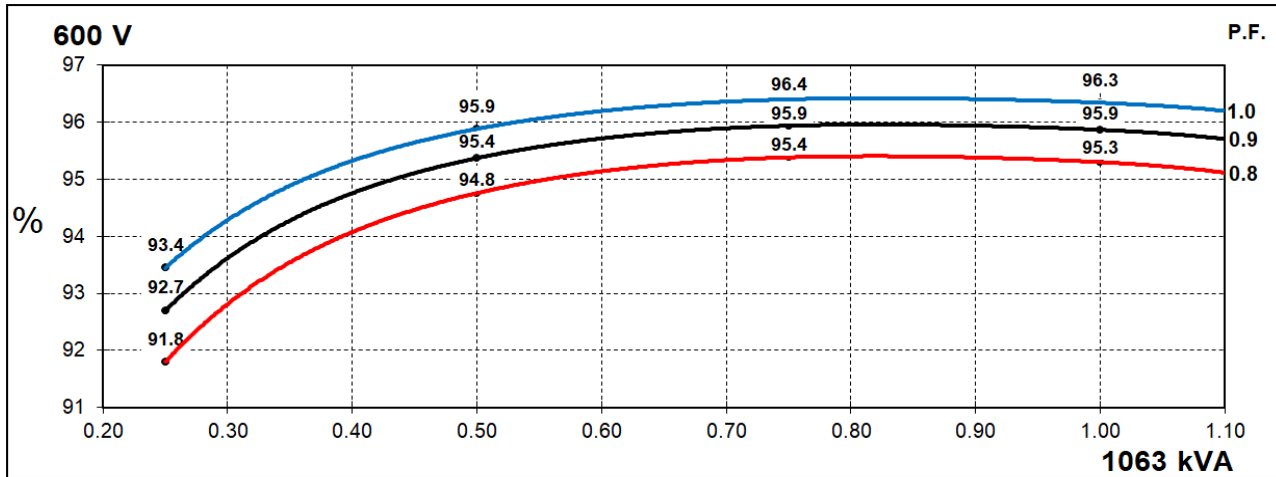
| Time Constants (Seconds) | | |
|--|---|------------------------|
| T'd Transient Time Const. | | 0.091 |
| T''d Sub-Transient Time Const. | | 0.013 |
| T'do O.C. Field Time Const. | | 3.352 |
| Ta Armature Time Const. | | 0.021 |
| T''q Sub-Transient Time Const. | | 0.0102 |
| Resistances in Ohms (Ω) at 22°C | | |
| Stator Winding Resistance (Ra), per phase for series connected | | 0.00350 |
| Rotor Winding Resistance (Rf) | | 1.82 |
| Exciter Stator Winding Resistance | | 18.47 |
| Exciter Rotor Winding Resistance per phase | | 0.095 |
| PMG Phase Resistance (Rpmg) per phase | | 1.91 |
| Positive Sequence Resistance (R1) | | 0.0044 |
| Negative Sequence Resistance (R2) | | 0.0050 |
| Zero Sequence Resistance (R0) | | 0.0044 |
| Saturation Factors | | 600V |
| SG1.0 | | 0.524 |
| SG1.2 | | 1.835 |
| Mechanical Data | | |
| Shaft and Keys | All alternator rotors are dynamically balanced to better than ISO 21940-11 Grade 2.5 for minimum vibration in operation. Two bearing generators are balanced with a half key. | |
| | 1 Bearing | 2 Bearing |
| SAE Adaptor | SAE0,1 | SAE0,1 |
| Moment of Inertia | 18.99 kgm ² | 18.46 kgm ² |
| Weight Wound Stator | 924kg | 924kg |
| Weight Wound Rotor | 800kg | 758kg |
| Weight Complete Alternator | 1953kg | 2030kg |
| Shipping weight in a Crate | 1996kg | 2073kg |
| Packing Crate Size | 160x105x153(cm) | 160x105x153(cm) |
| Maximum Over Speed | 2250 RPM for two minutes | |
| Bearing Drive End | - | BALL 6224 |
| Bearing Non-Drive End | BALL 6317 | BALL 6317 |

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S6L1D-D4 Wdg.07

THREE PHASE EFFICIENCY CURVES

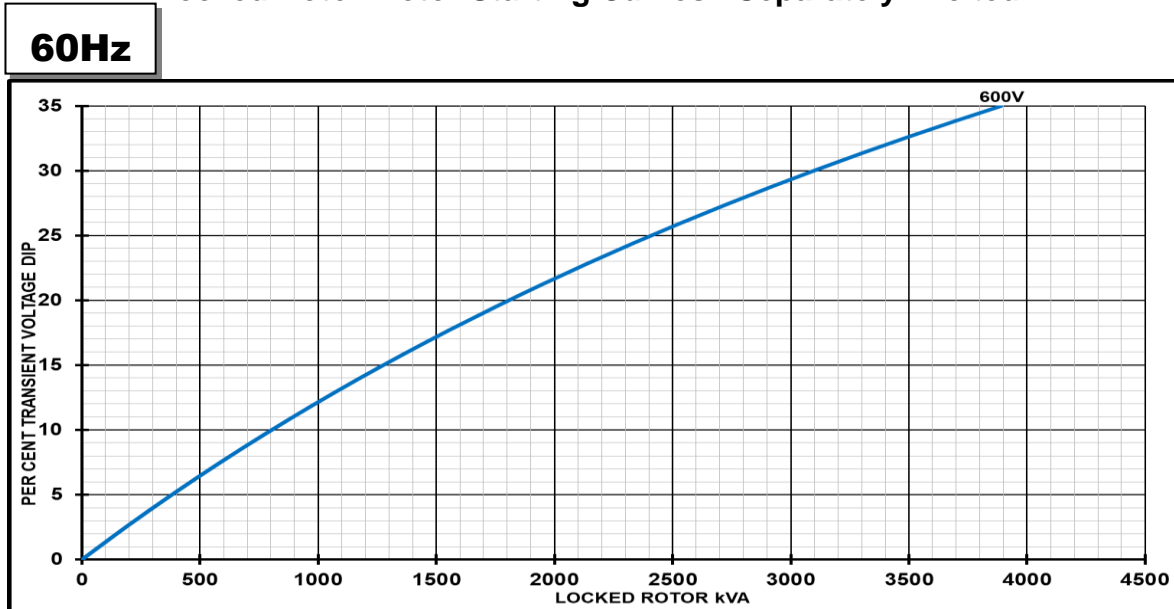
60Hz



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S6L1D-D4 Wdg.07

Locked Rotor Motor Starting Curves - Separately Excited



| Transient Voltage Dip Scaling Factor | | Transient Voltage Rise Scaling Factor | |
|--------------------------------------|----------------|---------------------------------------|----------------|
| Lagging PF | Scaling Factor | Lagging PF | Scaling Factor |
| <= 0.4 | 1.00 | <= 0.4 | 1.25 |
| 0.5 | 0.95 | 0.5 | 1.20 |
| 0.6 | 0.90 | 0.6 | 1.15 |
| 0.7 | 0.86 | 0.7 | 1.10 |
| 0.8 | 0.83 | > 0.7 | 1.00 |
| 0.9 | 0.75 | | |
| 0.95 | 0.70 | | |
| 1 | 0.65 | | |

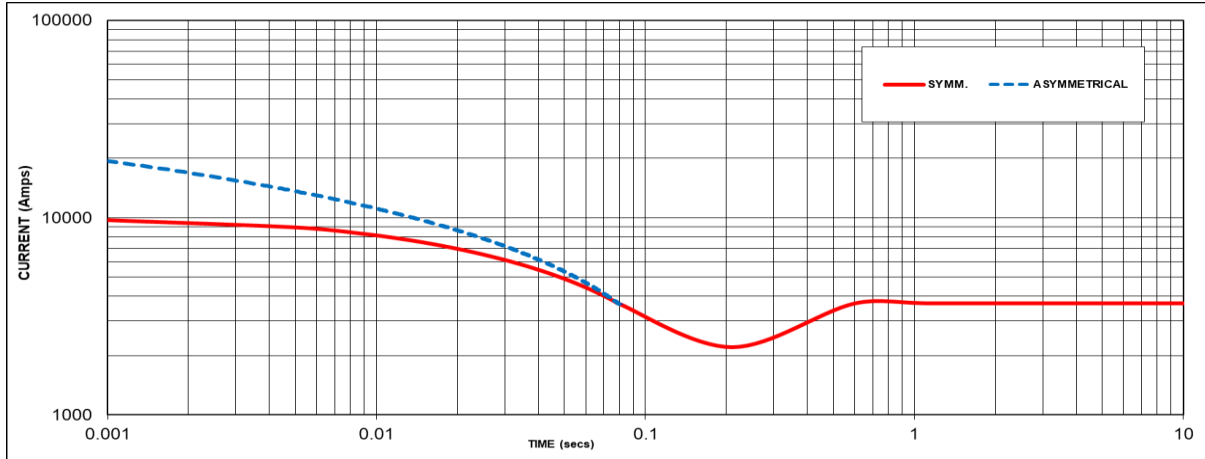
Note: To determine % Transient Voltage Dip or Voltage Rise at various PF, multiply the % Voltage Dip from the curve directly by the Scaling Factor.

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S6L1D-D4 Wdg.07

Three-phase Short Circuit Decrement Curve - Separately Excited

60Hz



Sustained Short Circuit = 3672 Amps

Note 1

The following multiplication factors should be used to adjust the values from curve between time 0.001 seconds and the minimum current point in respect of nominal operating voltage :

| 50Hz | | 60Hz | |
|---------|--------|---------|--------|
| Voltage | Factor | Voltage | Factor |
| - | - | 600V | X 1.00 |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |

The sustained current value is constant irrespective of voltage level

If MX322 or digital AVR is used, the sustained short-circuit current value is to be multiplied by a factor of 1.1.

Note 2

The following multiplication factor should be used to convert the values calculated in accordance with NOTE 1 to those applicable to the various types of short circuit :

| | 3-phase | 2-phase L-L | 1-phase L-N |
|-------------------------|---------|-------------|-------------|
| Instantaneous | x 1.00 | x 0.87 | x 1.30 |
| Minimum | x 1.00 | x 1.80 | x 3.20 |
| Sustained | x 1.00 | x 1.50 | x 2.50 |
| Max. sustained duration | 10 sec. | 5 sec. | 2 sec. |

Note 3

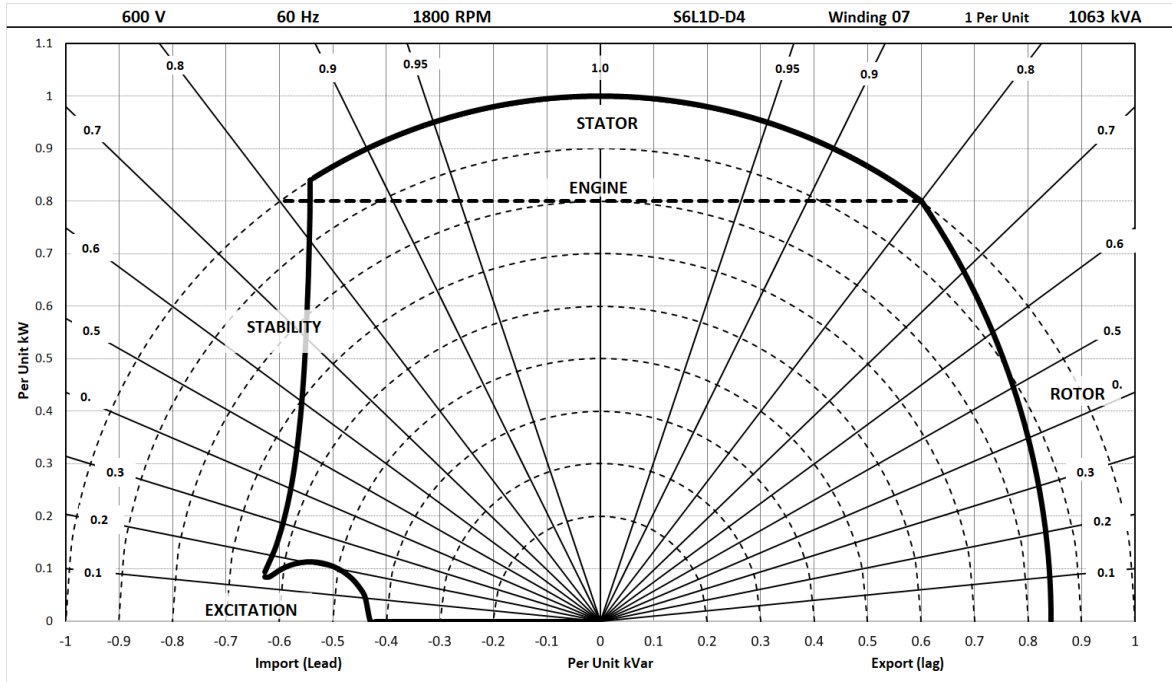
All other times are unchanged
 Curves are drawn for Star connections under no-load excitation at rated speeds. For other connection (where applicable) the following multipliers should be applied to current values as shown :
 Parallel Star = Curve current value X 2
 Series Delta = Curve current value X 1.732

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S6L1D-D4 Wdg.07

Typical Alternator Operating Charts

600V/60Hz



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S6L1D-D4 Wdg.07

RATINGS AT 0.8 POWER FACTOR

| Class - Temp Rise | Standby - 163/27°C | Standby - 150/40°C | Cont. H - 125/40°C | Cont. F - 105/40°C | |
|-------------------|--------------------|--------------------|--------------------|--------------------|-----|
| 50 Hz | Star (V) | N/A | N/A | N/A | N/A |
| | Parallel Star (V) | N/A | N/A | N/A | N/A |
| | Delta (V) | N/A | N/A | N/A | N/A |
| | kVA | N/A | N/A | N/A | N/A |
| | kW | N/A | N/A | N/A | N/A |
| | Efficiency (%) | N/A | N/A | N/A | N/A |
| | kW Input | N/A | N/A | N/A | N/A |

| | | | | | |
|-----------------|-------------------|------|------|------|------|
| 60 Hz | Star (V) | 600 | 600 | 600 | 600 |
| | Parallel Star (V) | N/A | N/A | N/A | N/A |
| | Delta (V) | 346 | 346 | 346 | 346 |
| | kVA | 1163 | 1125 | 1063 | 963 |
| | kW | 930 | 900 | 850 | 770 |
| | Efficiency (%) | 95.2 | 95.2 | 95.3 | 95.4 |
| | kW Input | 978 | 945 | 892 | 808 |

De-rates

All values tabulated above are subject to the following reductions:

- 5% when air inlet filters are fitted
- 3% for every 500 meters by which the operating altitude exceeds 1000 meters above mean sea level
- 3% for every 5°C by which the operational ambient temperature exceeds 40°C @ Class H temperature rise (please refer to applications for ambient temperature de-rates at other temperature rise classes)
- For any other operating conditions impacting the cooling circuit please refer to applications

Note: Requirement for operating in an ambient exceeding 60°C and altitude exceeding 4000 meters (for <690V) or 1500 meters (for >690V) must be referred to applications.

Dimensional and Torsional Drawing

For dimensional and torsional information please refer to the alternator General Arrangement and rotor drawings available on our website (<http://stamford-avk.com/>)

Note: Continuous development of our products means that the information contained in our data sheets can change without notice, and specifications should always be confirmed with Cummins Generator Technologies prior to purchase.



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emea.service@cummins.com**

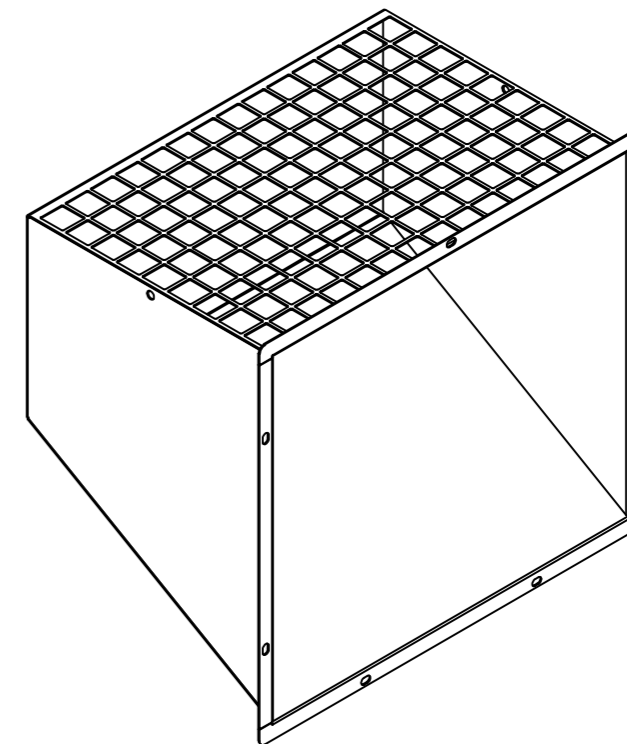
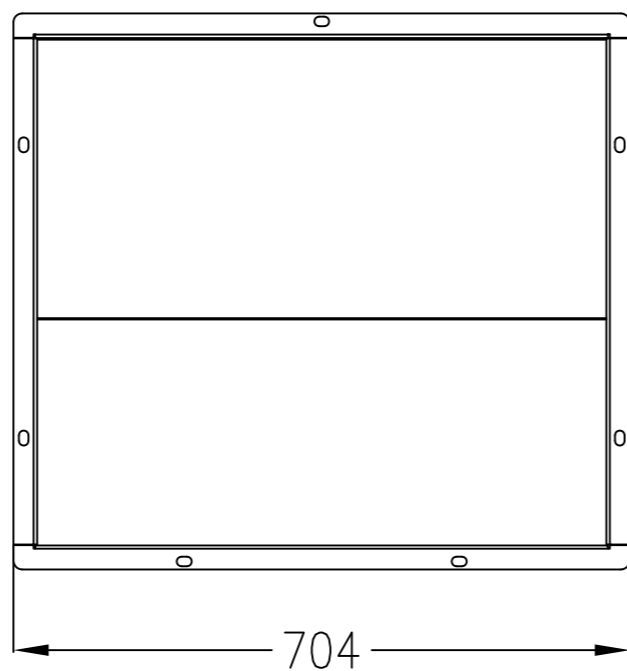
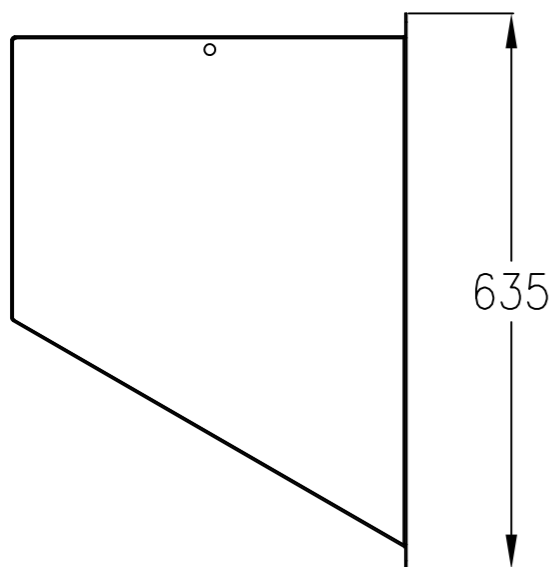
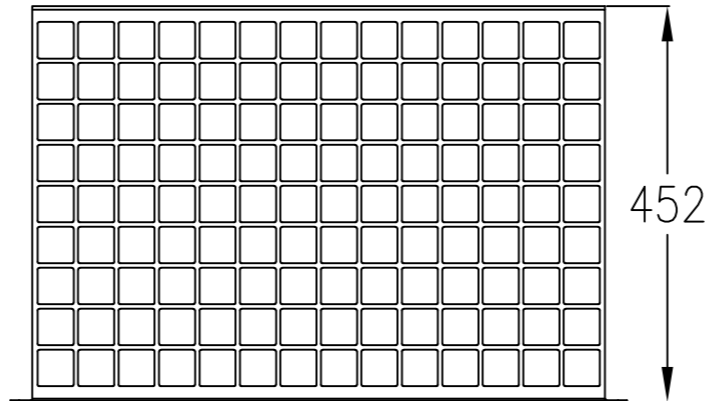
**For General Enquiries:
Stamford-avk@cummins.com**

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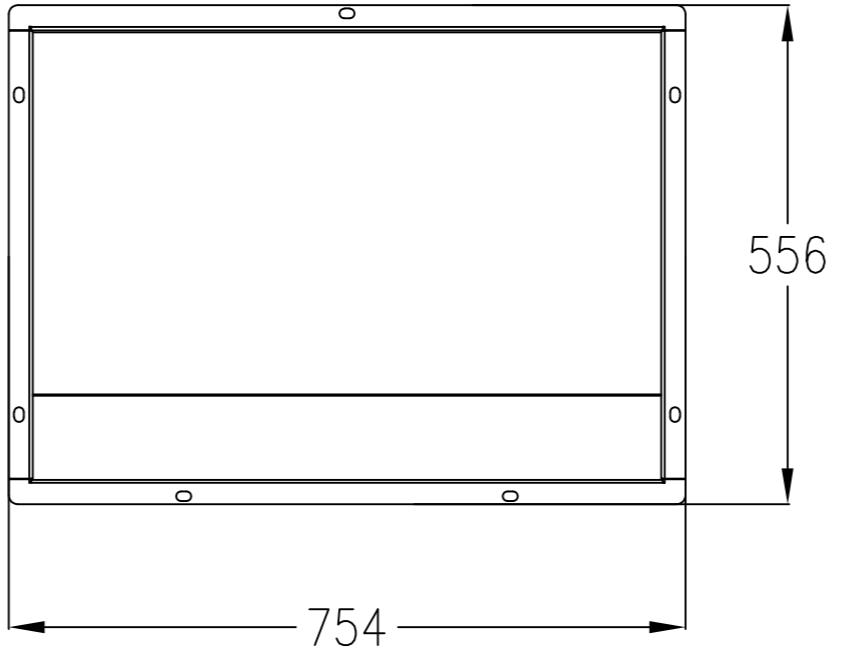
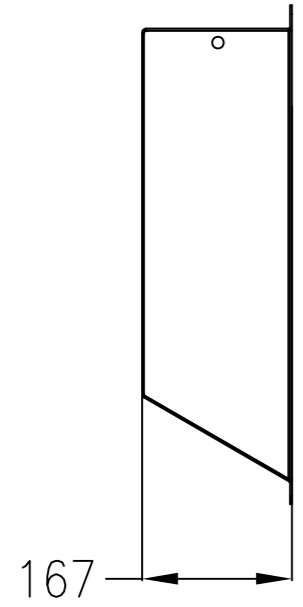
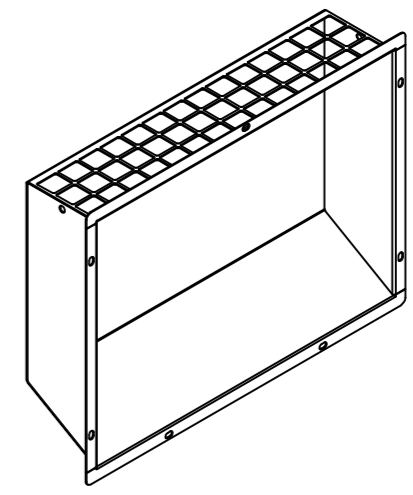
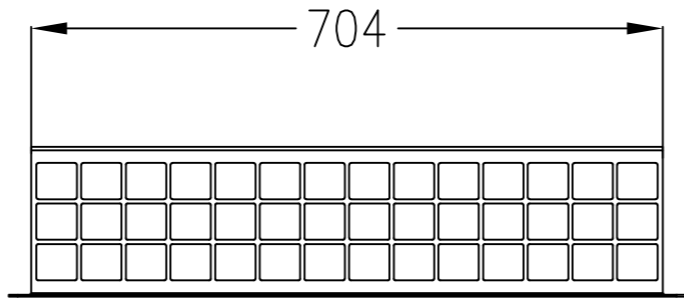
| PART TOLERANCES TABLE | | | | NON SPECIFIED TOLERANCES | |
|---|-----------|--------------------|-------------|------------------------------|----------|
| INTERVAL | TOLERANCE | GENERAL TOLERANCES | | DIAMETERS | ANGULAR |
| 0" - 40" | ± 0.04" | | | ± 0.03" | ± 2° |
| 40" - 16.5" | ± 0.08" | | | | |
| 16.5" - 40" | ± 0.12" | | | ± 0.06" | ± 0.002" |
| 40" - 320" | ± 0.14" | | | | |
| MATERIAL | | ITEM | WEIGHT (kg) | FINISH | |
| CARBON STEEL SHEET METAL 1.9 mm THICKNESS | | | NA | CLEAN SURFACES FREE OF BURRS | |



| | | | | |
|---|----------------------------|--|--------------|---------------|
| DEPT: ENGINEERING | DATE: 07-08-2023 | DRAWING: MBG | REVISED: OLM | APPROVED: RMD |
| SCALE: 1:1 ACDT: INCH | CUSTOMER: UL CERTIFICATION | DRAWING No: 502427-58 | | REV: 00 |
| TITLE: AIR INTAKE REAR Baffle ASSEMBLY | | | | SHEET 1 OF 1 |
| IGSA S.A. DE C.V. <small>OFFICE GENERAL: RIDE OF REFORM No. 2977, COL. CUADRALPA, CP 05000, CIUDAD DE MEXICO, MEX. PLANTA: ANONILULCO-OCOTYDACA 10-S ROAD, LERMA ERG. FROM MEXICO, CP 52740 ENGINEERING DEPARTMENT: TEL: 01 52 56263350 Ext: 3016,3020 & 3030.</small> | | HE INFORMATION CONTAINED HEREIN IS EXCLUSIVE PROPERTY IGSA S.A. DE C.V. THEREFORE IT CAN NOT BE USED, COPIED OR DUPLICATED WITHOUT THE WRITTEN CONSENT IGSA S.A. DE C.V. | | |



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 —()— INSPECTION DIMENSION
 No. DRAWING REVISION

| NON SPECIFIED TOLERANCES | | | |
|---|-----------|------------------------------|-------------|
| PART TOLERANCES TABLE | | GENERAL TOLERANCES | |
| INTERVAL | TOLERANCE | DIMETERS | ANGULAR |
| 0" - 40" | ± 0.04" | ± 0.02° | ± 2° |
| 40" - 16.5" | ± 0.08" | | |
| 16.5" - 40" | ± 0.12" | ± 0.35° ± 0.002 | |
| 40" - 328" | ± 0.4" | | |
| MATERIAL | | ITEM | WEIGHT (kg) |
| CARBON STEEL SHEET METAL 1.9 mm THICKNESS | | | NA |
| | | FINISH | |
| | | CLEAN SURFACES FREE OF BURRS | |



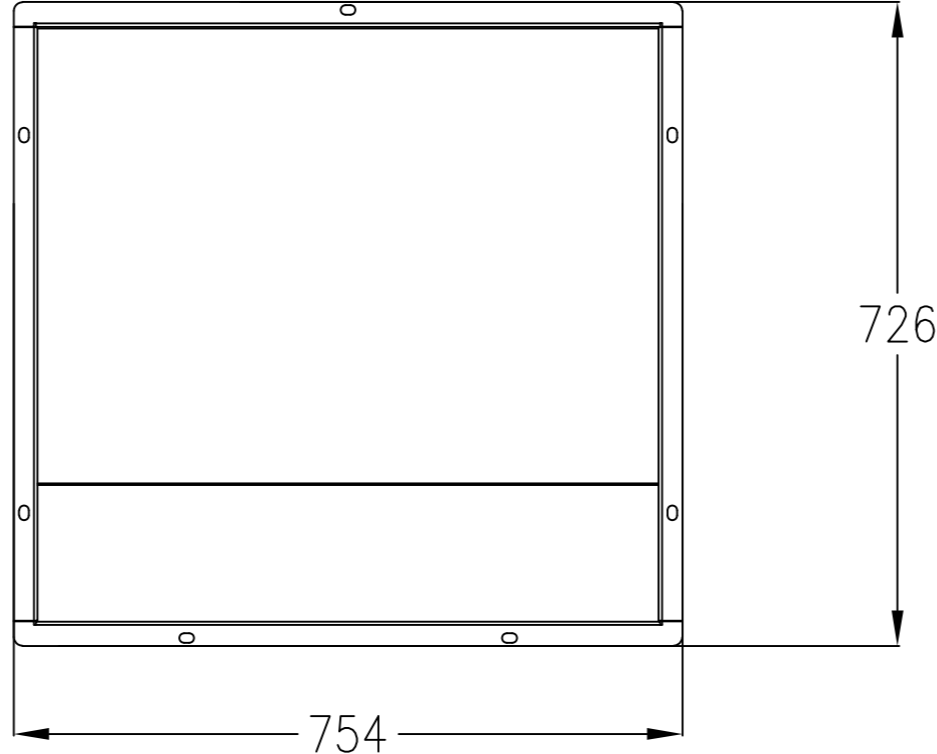
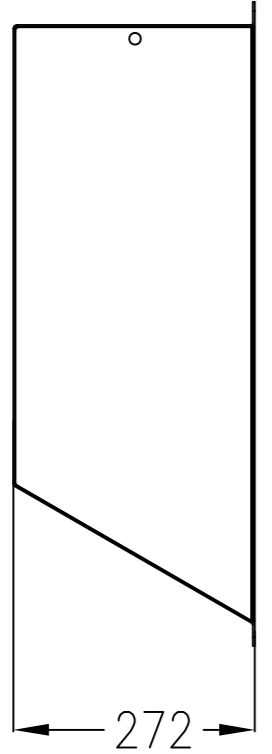
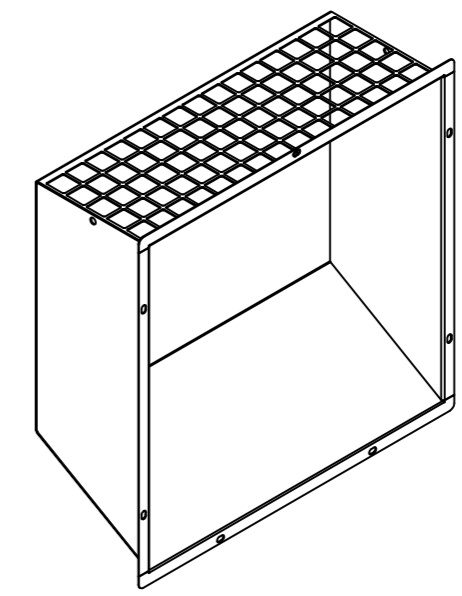
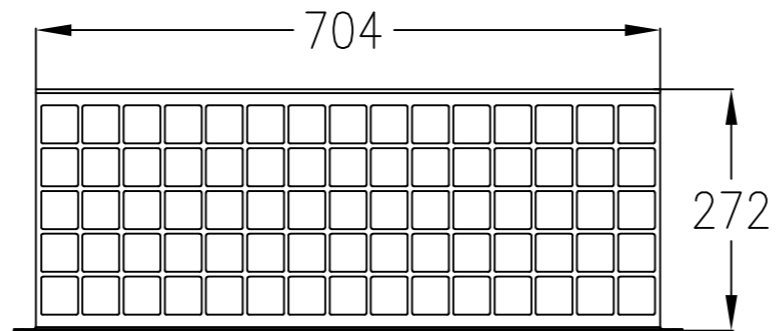
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| SCALE: SIN. ACOT: INCH | CUSTOMER: UL CERTIFICATION | DRAWING No: 502427-59 | | REV: 00 |
| TITLE: AIR INTAKE SIDE BAFFLE ASSEMBLY | | | | SHEET 1 OF 1 |
| IGSA S.A. DE C.V. <small>OFFICE GENERAL: RIDE OF REFORM No. 2977, COL. CUAJIMALPA, CP 05000, CDMX, MEX. PLANT: ANHOLULCO-DOCTOMACAC KM-5 ROAD, LERMA EDO. FROM MEXICO, CP 52740 ENGINEERING DEPARTMENT: TEL: 01 (52) 56263300 Ext: 3018,3020 & 3036.</small> | | THE INFORMATION CONTAINED HEREIN IS EXCLUSIVE PROPERTY IGSA S.A. DE C.V. THEREFORE IT CAN NOT BE USED, COPIED OR DUPLICATED WITHOUT THE WRITTEN CONSENT IGSA S.A. DE C.V. | | |




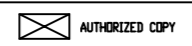
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 No. DRAWING REVISION

| NON SPECIFIED TOLERANCES | | | |
|--------------------------|-----------|--------------------|---------|
| PART TOLERANCES TABLE | | GENERAL TOLERANCES | |
| INTERVAL | TOLERANCE | DIMETERS | ANGULAR |
| 0' - 40' | ± 0.012" | ± 0.05° | ± 2° |
| 40' - 16.5' | ± 0.008" | | |
| 16.5' - 40' | ± 0.012" | ± 0.36° ± 0.002" | |
| 40' - 328' | ± 0.014" | | |

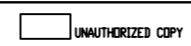
| MATERIAL | ITEM | WEIGHT (kg) | FINISH |
|---|------|-------------|------------------------------|
| CARBON STEEL SHEET METAL 1.9 mm THICKNESS | | NA | CLEAN SURFACES FREE OF BURRS |



| | | | | |
|--|----------------------------|---|--------------|---------------|
| DEPT.: ENGINEERING | DATE: 07-08-2023 | DRAWING: MBG | REVISED: QLM | APPROVED: RMD |
| SCALE: SIN / ACOT: INCH | CUSTOMER: UL CERTIFICATION | DRAWING No.: 502427-60 | | |
| TITLE: AIR INTAKE SIDE BAFFLE ASSEMBLY | | | | REV.: 00 |
| | | | | SHEET 1 OF 1 |
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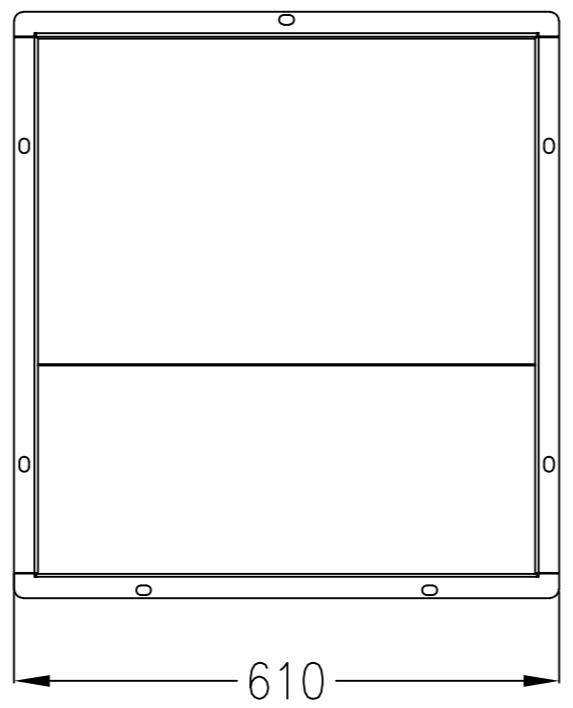
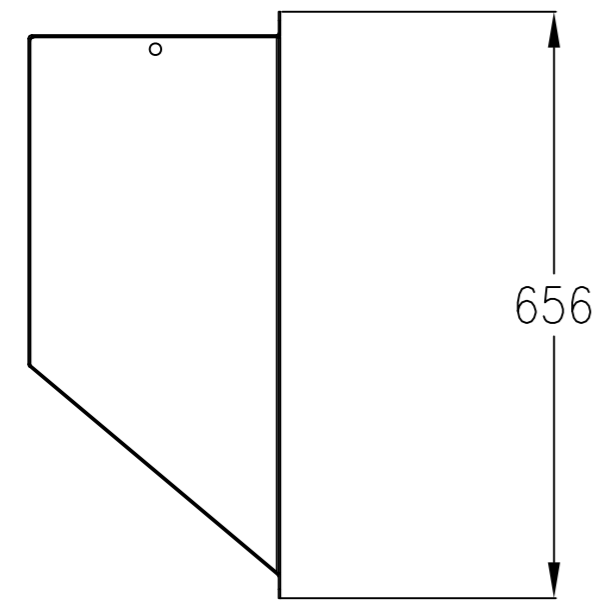
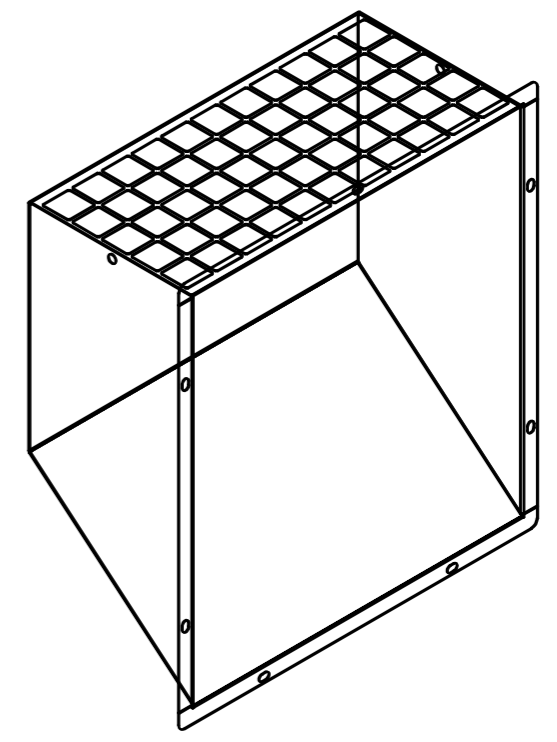
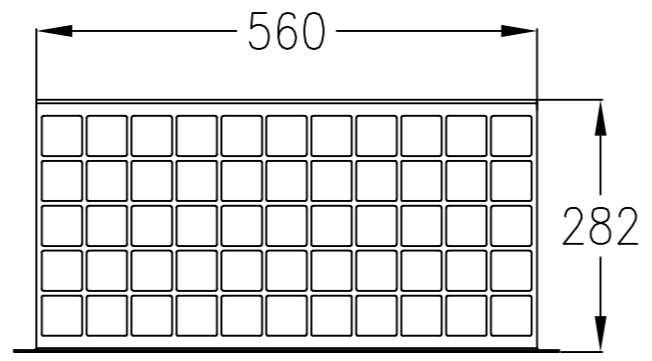
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⬡ No. DRAWING REVISION

| PART TOLERANCES TABLE | | GENERAL TOLERANCES | |
|-----------------------|-----------|--------------------|---------|
| INTERVAL | TOLERANCE | DIAMETERS | ANGULAR |
| 0" - 40" | ± 0.04" | ± 0.03" | ± 2° |
| 40" - 16.5" | ± 0.08" | | |
| 16.5" - 40" | ± 0.12" | ± 0.36" ± 0.002" | |
| 40" - 328" | ± 0.4" | | |

| MATERIAL | ITEM | WEIGHT (kg) | FINISH |
|---|------|-------------|------------------------------|
| CARBON STEEL SHEET METAL 1.9 mm THICKNESS | | NA | CLEAN SURFACES FREE OF BURRS |



| | | | | |
|---|----------------------------|--|--------------|---------------|
| DEPT.: ENGINEERING | DATE: 07-08-2023 | DRAWING: MBG | REVISED: OLM | APPROVED: MBG |
| SCALE: 1:1 ACOT.: INCH | CUSTOMER: UL CERTIFICATION | DRAWING No.: 502427-61 | | |
| TITLE: AIR INTAKE DOOR SIDE BAFFLE ASSEMBLY | | | | REV.: 00 |
| | | | | SHEET 1 OF 1 |
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CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2345744-0
Report Reference AU6440-20231107
Date 10-Nov-2023

Issued to: IGSA S A DE C V
PROLONGACION PASEO DE LA REFORMA # 2977
COL CUAJIMALPA
MEXICO, Mexico 05000
Mexico

This is to certify that representative samples of FTSR - Engine Generators
See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 2200, 2nd Ed., Issue Date: 2012-06-01, Revision Date: 2015-07-29

Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

Deborah Jennings-Conner

Deborah Jennings-Conner, VP Regulatory Services

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CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2345744-0
Report Reference AU6440-20231107
Date 10-Nov-2023

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

| Model | Category Description |
|---|-----------------------------|
| GSBD00700S, GSBD00700L, GSBD00700LT GSBD00700W | Engine Generators |
| GSBD00800S, GSBD00800L, GSBD00800LT GSBD00800W | Engine Generators |
| GSBD01000S, GSBD01000L, GSBD01000W | Engine Generators |
| GSBD01300S, GSBD01300L, GSBD01300W | Engine Generators |
| GSBD01500S, GSBD01500L, GSBD01500W | Engine Generators |
| GSBD01700S, GSBD01700L, GSBD01700W, GSBD01750S, GSBD01750L | Engine Generators |
| GSBD01800S, GSBD01800L | Engine Generators |
| GSBD02000S, GSBD02000L | Engine Generators |
| GSBD02300S, GSBD02300L | Engine Generators |
| GSBD02500S, GSBD02500L | Engine Generators |
| GSBD02640S, GSBD02640L | Engine Generators |
| GSBD02800S, GSBD02800L | Engine Generators |
| GSBD03000S, GSBD03000L | Engine Generators |
| GSBD03300S, GSBD03300L | Engine Generators |
| GSBD30600S, GSBD30600L, GSBD30600LT GSBD30600W | Engine Generators |
| GSBD30633S, GSBD30633L, GSBD30633LT GSBD30633W | Engine Generators |
| GSBD30644S, GSBD30644L, GSBD30644LT GSBD30644W | Engine Generators |

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CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-2339551-0
Report Reference AU6440-20231107
Date 10-Nov-2023

Issued to: IGSA S A DE C V
PROLONGACION PASEO DE LA REFORMA # 2977
COL CUAJIMALPA
MEXICO, Mexico 05000
Mexico

This is to certify that representative samples of FTSR7 - Engine Generators Certified for Canada
See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate.


Standard(s) for Safety: CSA C22.2 No. 14, Edition 13, Issue Date 2018-03, Revision Date 2022-06

Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

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CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-2339551-0
Report Reference AU6440-20231107
Date 10-Nov-2023

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

| Model | Category Description |
|---|-----------------------------|
| GSBD00700S, GSBD00700L, GSBD00700LT GSBD00700W | Engine Generators |
| GSBD00800S, GSBD00800L, GSBD00800LT GSBD00800W | Engine Generators |
| GSBD01000S, GSBD01000L, GSBD01000W | Engine Generators |
| GSBD01300S, GSBD01300L, GSBD01300W | Engine Generators |
| GSBD01500S, GSBD01500L, GSBD01500W | Engine Generators |
| GSBD01700S, GSBD01700L, GSBD01700W, GSBD01750S, GSBD01750L | Engine Generators |
| GSBD01800S, GSBD01800L | Engine Generators |
| GSBD02000S, GSBD02000L | Engine Generators |
| GSBD02300S, GSBD02300L | Engine Generators |
| GSBD02500S, GSBD02500L | Engine Generators |
| GSBD02640S, GSBD02640L | Engine Generators |
| GSBD02800S, GSBD02800L | Engine Generators |
| GSBD03000S, GSBD03000L | Engine Generators |
| GSBD03300S, GSBD03300L | Engine Generators |
| GSBD30600S, GSBD30600L, GSBD30600LT GSBD30600W | Engine Generators |
| GSBD30633S, GSBD30633L, GSBD30633LT GSBD30633W | Engine Generators |
| GSBD30644S, GSBD30644L, GSBD30644LT GSBD30644W | Engine Generators |

Deborah Jennings-Conner
Deborah Jennings-Conner, VP Regulatory Services



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CERTIFICATE OF COMPLIANCE

Certificate Number MH63698
Report Reference MH63698-20200103
Issue Date 2020-JANUARY-08

Issued to: IGSA S A DE C V
PROLONGACION PASEO DE LA REFORMA 2977
COL CUAJIMALPA
05000 MEXICO
DF MEXICO

This certificate confirms that representative samples of SPECIAL-PURPOSE TANKS
Secondary Containment Generator Base Tanks

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 142, STANDARD FOR STEEL ABOVEGROUND TANKS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS.
UL 142A STANDARD FOR SPECIAL PURPOSE ABOVEGROUND TANKS FOR SPECIFIC FLAMMABLE OR COMBUSTIBLE LIQUIDS.
CAN/ULC S601, STANDARD FOR SHOP FABRICATED STEEL ABOVEGROUND TANKS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS.

Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information.

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Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

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