

Industrial Range



POWER (PRP / ESP):
405 / 445 kVA (324 / 356 kW)



EMISSIONS LEVEL:
EU Stage 0



FREQUENCY
50Hz



VOLTAGE
400/230V



CE CERTIFIED



DGC 450 ST



DGCS 450 ST

1. General technical data

1.1. Version, dimensions and weight

Version	Open	Soundproofed
Dimensions	6K	FK1
L (mm)	3450	4600
W (mm)	1250	1606
H (mm)	2140	2236
Weight with liquids and without fuel (kg)	4100	4400

1.2. Main technical data

Engine	CUMMINS QSG12-G2	
Alternator	STAMFORD S4L1D-F	
Fuel	Diesel	
Type of execution	G2	
Control panel	DSE 7320 MKII	
Tank (l)	963	840
Sound level-Lp(A) (dB(A)@1m) ¹	N/A (Indoor)	82
Sound level-Lp(A) (dB(A)@7m) ¹	N/A (Indoor)	74
Sound power-LW(A) (dB(A))	N/A (Indoor)	98

¹The sound levels may vary depending on the measurement conditions.

Voltage	PRP ² (KVA/KW)	ESP ² (KVA/KW)	PRP Amperage (A)	ESP Amperage (A)
400/230V	405 / 324	445 / 356	584,2	642,6

¹PRP: Continuous power ("Prime Power"). ESP: Emergency Standby Power according to ISO8528-1.

Tolerance of maximum active power (kW) ±5%

Directives and Regulations

ENVIRONMENTAL CONDITIONS STANDARD ISO 8528-1:2018: 25°C, 100kPa and 30% relative humidity:

- **Prime Power (PRP):** Data on electrical power available at variable load without limit of hours per year. An overload of 10% is allowed for 1h out of 12. According to ISO 8528-1:2018.
- **Emergency Standby Power (ESP):** Data on electrical capacity available at variable load in case of emergency according to ISO 8528-1:2018.

The DAGARTECH Generator bears the CE marking which includes the following directives:

- **2006/42/EC.** Machine Safety Directive.
- **EN ISO 8528-13:2016.** Part 13: Safety. Alternating current generators powered by reciprocating internal combustion engines.
- **2014/30/EU.** Electromagnetic Compatibility Directive.
- **2000/14/EC.** Noise Emissions Directive. Sound power levels evaluated in accordance with the procedure laid down in the directive.
- **Directive 2011/65/EU** on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2).

2. Engine specifications

400/230V · 50Hz (1500 rpm)			DGC 450 ST		DGCS 450 ST		
2.1. General technical data of the engine	<i>Version</i>		Open		Soundproofed		
	Make and model		CUMMINS QSG12-G2				
	Emissions		EU Stage 0				
	r.p.m.		1500				
	Maximum ESP power (kWm)		389				
	Power PRP (kWm)		351				
	Fuel		Diesel				
	No. of cylinders		6				
	Cylinder capacity (c.c.)		11800				
	Compression ratio		17,0:1				
	Cooling system		Water-cooled				
	Type of regulation		Electronic				
Type of engine/injection/suction		Diesel / direct / Turbocharged					
2.2. Fuel	Type of fuel		Diesel				
	Tank capacity		963		840		
2.3. Consumption and autonomy			Open		Soundproofed		
	Consumption (l/h)		Autonomy (h)		Autonomy (h)		
		PRP	ESP	PRP	ESP	PRP	ESP
	50%	41	-	23,5	-	20,5	-
	75%	60	-	16	-	14	-
100%	82	92	11,7	10,5	10,2	9,1	
2.4. Cooling system	<i>Version</i>		Open		Soundproofed		
	Fan flow (m³/s)		7,2		7,2		
	Radiator back pressure (mm H ₂ O)		13		13		
	Fan power consumption (kW)		14,1				
	Total refrigerant capacity (l)		48				
2.5. Lubrication system	Oil capacity (l)		34,1				
	Oil consumption (N/A)		N/A				
2.6. Intake system	Combustion air intake flow (l/s)		424				

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400/230V - 50Hz (1500 rpm)		DGC 450 ST	DGCS 450 ST
2.7. Starter system	<i>Version</i>	Open	Soundproofed
	No. of batteries	2	
	Battery characteristics	12V 44Ah	
	Start-up voltage (V)	24V	

2.8. Exhaust system

Common data for both versions		
Exhaust gas flow (l/s)	936 [PRP]	1029 [ESP]
Exhaust gas temperature (°C)	507 [PRP]	524 [ESP]
<i>Version</i>	Open	Soundproofed
Exhaust outside diameter (mm)	Consultar	5" (Ø 127)
Exhaust attenuation level (dB(A))	-10	-35
Max. exhaust back pressure (kPa)	10,2	

Radiator level sensor not available for Baudouin 4M06 series engines.

3. Alternator specifications

3.1. General technical data of the alternator

<i>Version</i>	Open	Soundproofed		
Make and model	STAMFORD S4L1D-F			
No. of poles	4			
Insulation class	H			
No. of threads	12			
Mechanical protection index	IP23			
Voltage Regulator (AVR)	AS440			
Voltage regulation	±1%			
ESP power 27°C (kVA)	465			
Power PRP 40°C (kVA)	415			
No. of phases	3			
Power factor (cos φ)	0,8			
	Performance η (%)			
	50%	75%	100%	110%
	94,4%	94,2%	93,2%	92,6%

i Standard regulations that the alternator meets:

AS 1359 | IEC 34-11 | BS EN 60034-1 | VDE 0530 | BS 5000 | CAN/CSA-C22.2-100 | NEMA MG1-32

Low wave distortion: THD (100% load) = 2% | THF < 2%

Complies with: EN61000-6-3, EN61000-6-2 regarding radio interference.

400/230V · 50Hz (1500 rpm)

DGC 450 ST

DGCS 450 ST

4. Bench Specifications

- Unit mounted on **electro-welded high-resistance steel bench**, painted with epoxy-polyester powder paint.
- Connection of the assembly to the bench by means of **anti-vibration dampers**.
- **Fuel tank located on the bench itself**. The engine is equipped with a measuring gauge and fuel system.
- **Tested in a salt spray chamber according to ASTM B-117-09, resistance 500h.**

5. Soundproof Canopy Specifications



The canopy is part of the scope of supply of the soundproof generator sets. Open generators do not include a canopy.

- **Electro-welded canopy made of high resistance galvanized steel** painted with electrostatic epoxy-polyester powder
- Interior soundproofing by means of a **lining with soundproofing material**.
- **Efficient attenuation silencer -35dB(A)** for the evacuation of gases to the outside with protective cover.
- **Tested in a salt spray chamber according to ASTM B-117-09, resistance 720H. IP44 mechanical protection degree.**

THE CANOPIES OF THE INDUSTRIAL RANGE ARE MADE OF HIGH-RESISTANCE GALVANIZED STEEL AND ARE ELECTRO-WELDED AND PAINTED WITH ELECTROSTATIC EPOXY-POLYESTER POWDER PAINT.



In addition, they are equipped with a **rigid panel** made of glass wool with an outer textile covering. We also incorporated an efficient **silencer attenuation device for the evacuation of gases to the outside**, featuring a rain cap.

*Our canopies are tested in a salt spray chamber according to standard **ASTM B-117-09** (resistance 720H. **IP44 mechanical protection** grade).*

6. Control panel

6.1. Main elements of the control panel

- Protection panel, distribution with **automatic control module** which allows you to work in manual, automatic or signal mode.
- **Push button** for **emergency stop**.
- **Deep Sea Electronics battery charger**, designed to be permanently connected to the battery and maintain 100% of the charge. The charger switches to float mode when charging is complete:

Model	DSE BC2405 24V, 5A
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Protections:

- **4-pole magnetothermic protection** against overloads and short circuits.
- **Protection fuses** for the control set.

6.2. Circuit breaker

Model	Schneider EasyPact 630A 4P
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6.3. Control module



1. 4 configurable indicator LEDs	8. Manual mode
2. Generator on load	9. Genset stop
3. Transfer to the generator (manual mode)	10. MAIN NETWORK transfer (manual mode)
4. Start engine (manual mode)	11. Network on load
5. Silence alarm	12. Navigation keyboard
6. Automatic mode	13. Main status and instrument display
7. Test mode	

Model	DSE 7320 MKII
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DSE 7320 MKII DEEP SEA control card with mains grid monitor. The genset will automatically start up when detecting a fault in the electric power network and it will turn off automatically as well, when the electrical supply is re-established. It can also work in manual mode and by signal. It allows you to monitor a wide range of generator parameters and display information alerts, status and alarms.

The module includes communication ports USB, RS232, RS485, and also DSENet® for system expansion. Possibility of Ethernet networking (plug).

The entire module is easily configurable via PC using the DSE specific software configuration.

It has 132x64p illuminated LCD display with 4 lines of text, 5-key navigation through menus, 9 configurable outputs and 8 configurable inputs, programmable clocks and alarms, reading and displaying parameter values, including RMS values.

Different operating modes: AUTOMATIC mode, MANUAL mode, SIGNAL mode and TEST mode.

Other alternative configurations are available upon request to extend the capabilities of the operation modes.

Environmental Tests that the module passes:

BS EN 61000-6-2 (electromagnetic compatibility) | BS EN 61000-6-4 (electromagnetic compatibility) | BS EN 60950 (electrical safety) | BS EN 61000-6-2 (temperature) | BS EN 60068-2-6 (vibrations) | BS EN 60068-2-27 (shock)

400/230V - 50Hz (1500 rpm)

CUMMINS OSG12-G2 | STAMFORD S4L1D-F

6.3. Control module


Standard ✓

Model
DSE 7320 MKII

Operating modes

STOP mode	✓
MANUAL mode	✓
TEST mode	✓
AUTO mode	✓

Module configuration options

PC	✓
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Generator readings

Generator voltage (F-F)	✓
Generator voltage (F-N)	✓
Generator current (A)	✓
Generator frequency	✓
Generator load F-N (kW / kVA / kVAr)	✓
Total generator load (kW / kVA / kVAr)	✓
Average generator power factor	✓
Accumulated generator load (kW, kVAh, kWh, kVAh)	✓

Network readings

Network voltages (ph-N)	✓
Network voltages (ph-ph)	✓
Grid frequency	✓
Network current (A)	□
Network load ph-N (kW / kVA / kVAr)	□
Total network load (kW / kVA / kVAr)	□

Engine readings

Coolant temperature	✓
Oil pressure	✓
Engine fuel level	✓
Engine battery volts	✓
Engine speed	✓
Engine run time	✓

Caption

- ✓ Included
- Optional
- ✗ Not available
- ⓘ Consult

Readings available at control module level.

Confirm the availability of these readings for this generator and engine.

Ask us for further readings in generating sets equipped with electronically managed engines and DSE 7320MKII control module.


DO YOU WANT A SUPERIOR PERFORMANCE CONTROL MODULE?

Contact us and tell us what you need.

400/230V - 50Hz (1500 rpm)

CUMMINS QSG12-G2 | STAMFORD S4L1D-F

6.3. Control module


Standard ✓

Model DSE 7320 MKII

Engine protections

High water temperature	✓
Low oil pressure	✓
Low water level	✓
Fuel reserve by sensor	✓
Second fuel tank control	✓
Shutdown failure	✓
Battery voltage failure	✓
Battery charge alternator failure	✓
Overspeed	✓
Underfrequency	✓
Failure to start	✓
Emergency stop	✓
Maintenance notice	✓
Maintenance Alert	✓

Alternator protections

High frequency	✓
Low frequency	✓
High voltage	✓
Low voltage	✓
Short circuit	✓
Asymmetry between phases	□
Incorrect phase sequence	✓
Reverse power	✓
Breaker Trip 4 poles	□
Overpressure alarm	✓

Counters

Hour meter	✓
Kilowatt meter	✓
Starter counter	✓

Caption

- ✓ Included □ Optional
- ✗ Not available ⓘ Consult

Readings available at control module level.

Confirm the availability of these readings for this generator and engine.

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DO YOU WANT A SUPERIOR PERFORMANCE CONTROL MODULE?

























Contact us and tell us what you need.

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6.3. Control module



Standard 

Model	DSE 7320 MKII
Communications	
RS232	
RS485	
USB communication port	
Modbus IP	<input type="checkbox"/> DSE 855/890/891
Modbus RS 485	
PC Software (Mimic)	
GSM/GRPS MODEM	<input type="checkbox"/> DSE 890
Remote display < 1km	<input type="checkbox"/> DSE 2520
Remote monitoring	<input type="checkbox"/> DSE 855/890
Input expansion	<input type="checkbox"/> DSE 2130 8 inputs
Output expansion	<input type="checkbox"/> DSE 2157 8 inputs
SNMP protocol	<input type="checkbox"/> DSE 892
Services	
Configurable alarm history	250
External start	
Start-up inhibition	<input type="checkbox"/>
Network Failure Start	
Activation of group counter	
Activation of grid and group counter	
Control of fuel transfer	
Motor temperature control	
Forced group operation	
Free programmable alarms	
Group start function in test mode	
Free programmable outputs	
Multilingual	
Special applications	
GPS localisation	<input type="checkbox"/> DSE 890
Calendar scheduler	
DSE configuration suite via PC	
Front panel module configuration with PIN	
Alternative work	
Programmable PLC	
Power save mode	
Alternative configurations	
Dummy load control / load shedding	 5 Stage dummy load

Caption

-  Included
- Optional
-  Not available
-  Consult

Readings available at control module level.

Confirm the availability of these readings for this generator and engine.

Ask us for further readings in generating sets equipped with electronically managed engines and DSE 7320MKII control module.



DO YOU WANT A SUPERIOR PERFORMANCE CONTROL MODULE?

Contact us and tell us what you need.



400/230V - 50Hz (1500 rpm)

CUMMINS QSG12-G2 | STAMFORD S4L1D-F

7. Detailed supply scope

Engine

CUMMINS QSG12-G2, EU STAGE 0, 1500 RPM, WATER-COOLED, WITH ELECTRONIC REGULATION ENGINE.

- 6-cylinder inline Diesel engine, 4-stroke with Electronic fuel regulation by means of a fuel pump, original from the manufacturer.
- direct injection and Turbocharged suction system. Original manufacturer's particle separator filter.
- Industrial exhaust gas silencer of -10 dB(A).  INCLUDED
- Efficient high-attenuation exhaust silencer of -35 dB(A).  INCLUDED
- Refrigeration through cooling liquid, fully distributed in the closed circuit run by an engine driven pump, tropicalised radiator, original from the engine manufacturer.
- Crankshaft-driven pump lubrication system. The filter is a full-flow insert cartridge, front housing, original from the engine manufacturer.
- Air intake system for turbo-fed combustion with two-stage filter, original from the engine manufacturer.
- Electric motor starting system, battery (no maintenance) with disconnecter and load alternator driven by the 24V starter, original elements from the engine manufacturer.
- Protection from hot and moving parts.

Alternator

STAMFORD S4L1D-F ALTERNATOR OF 12 WIRES AND 4 POLES, BRUSHLESS AND WITH ELECTRONIC VOLTAGE REGULATION TYPE AVR (AS440).

- With IP23 protection class and H insulation class.
- Brushless 4-pole alternator. Robust mechanical structure with easy access to connections and components. H insulation class, coil pitch 2/3 and self-excited AVR. IP23 protection degree.
- Protection with premium epoxy resins. High voltage parts are impregnated under vacuum, which always means very good insulation.

Do you have any queries about the supply?

Get in touch with us.



Caption:



INCLUDED IN OPEN GENERATOR SETS



INCLUDED IN SILENT GENERATOR SETS

400/230V - 50Hz (1500 rpm)

CUMMINS OSG12-G2 | STAMFORD S4L1D-F

Bench

- Bench made of high-strength electro-welded steel.
- Painted with electrostatic epoxy-polyester powder paint.
- Anti-vibration dampers from the engine block to the bedplate.
- Fuel tank included on the bench itself. Equipped with cleaning record to facilitate maintenance work.
- With measuring gauge and installation of fuel to the engine.
- Liquid drainage connection to the outside.
- **Bench tested in a salt spray chamber according to ASTM B-117-09 (500h resistance).**

Soundproofed canopy (not included in open models)

- Electro-welded canopy of high resistance galvanized steel.
- Painted with electrostatic epoxy-polyester powder paint.
- Interior soundproofing by means of a rigid panel made of glass wool with an exterior textile covering.
- With IP44 mechanical protection level.
- **Canopy tested in salt spray chamber according to ASTM B-117-09 (resistance 720h).**

Control panel

- **DeepSea Electronics automatic control module, DSE 7320 MKII which allows you to work in manual, automatic or signal mode.**
 - It offers multiple event logging and is fully configurable through DeepSea Electronics' free-access specific configuration software.
 - Three-phase network and group detection with measurement for configurations upon network failure.
- **DSE BC2405 24V, 5A DeepSea Electronics battery charger.**
 - Designed to be permanently connected to the battery and maintain 100% of the charge. The charger switches to float mode when charging is complete.
- **Protections:**
 - 4-pole magnetothermic protection against overloads and short circuits.
 - Protection fuses for the control set.

400/230V - 50Hz (1500 rpm)

CUMMINS OSG12-G2 | STAMFORD S4L1D-F

7. Detailed supply scope

Other equipment

- Mechanised fuel nozzle outside with key.
- Tropicalised Radiator for work at 50 °C*
- Prepared for maintenance intervals every 500 hours*.
- Push button for emergency stop.
- Reinforced pole centrally-mounted (Optional for models below 90kVA in open version).

8. Featured options available



Monitor and control your generating set via PC or mobile phone with the DSE 890 module

Including this module, **the device connects to the switchboard server** via ethernet or GPRS (GSM or 3G) connection. **It also includes the GPS** function (satellite tracking).

A DSE GSM antenna is required for the correct operation of the DSE890.



If your generating set is going to be installed outdoors or subjected to high humidity conditions...

We recommend that you choose to manufacture it in stainless steel or add special treatments such as C5-M painting.



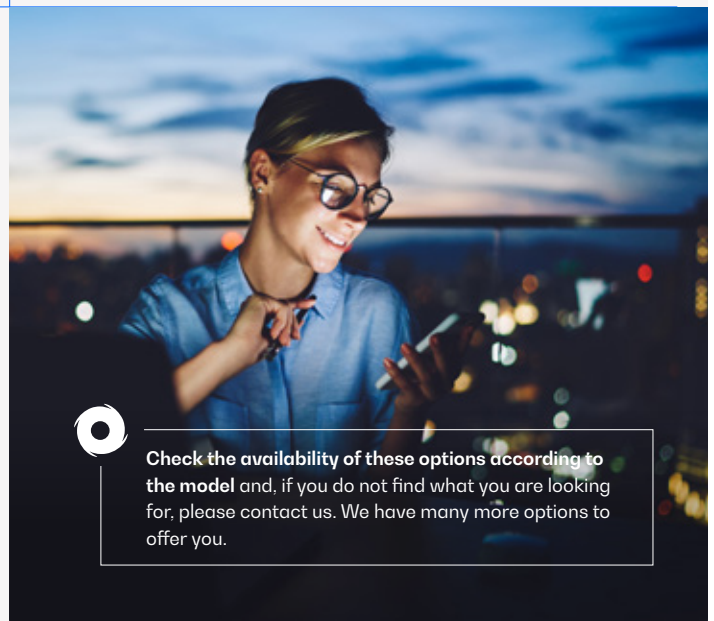
OPTION AVAILABLE IN SOUNDPROOF GENERATOR SETS



SEE OTHER SYNCHRONISATION OPTIONS AVAILABLE

Do you need to scale up the power of your installation by synchronising several generating sets?

You can include island units and network sync with the Synchro Kit DSE 8610MKII (includes 4P motorisation + harting connectors + 10 meters of connecting cable between sets + ground contactor + PMG).



Check the availability of these options according to the model and, if you do not find what you are looking for, please contact us. We have many more options to offer you.

* Confirm the scope of supply depending on the model. Maintenance intervals may vary. Refer to the engine manufacturer's recommendations.

9. Even more options



24 hour tank


 External ROTH tanks
 DUO SYSTEM

AUTONOMY OPTIONS

Increase the autonomy of your generator up to 48 hours, including special tanks

You can choose between different integrated tanks to increase the autonomy of the unit up to 48 hours of operation. You can also incorporate automatic fuel transfer systems for supply from external tanks.

— External tanks:

- External tank 400 l (ROTH DUO SYSTEM).
- External tank 620 l (ROTH DUO SYSTEM).
- External tank 1,000 l (ROTH DUO SYSTEM).
- External tank 1,500 l (ROTH DUO SYSTEM).




Engine heating system



Fuel particle separator filter

ENGINE - ALTERNATOR OPTIONS

You can choose between different integrated tanks to increase the autonomy of the unit up to 48 hours of operation. You can also incorporate automatic fuel transfer systems for supply from external tanks.

- Electronic engine regulation/management (for models with mechanical regulation).
- Engine heating system.
- Fuel particle separator filter.
- Manual oil drainage pump.
- 6-way fuel valve kit.
- Super Silent kit (includes heavy mass alternator + high attenuation exhaust -50dB(A))
 AVAILABLE
- Alternator anti-condensation heaters.
- Superior generator impregnation systems.
- AVR MX341 + PMG \pm 1% STAMFORD.
- AVR MX321 + PMG \pm 0.5% STAMFORD.

Caption:



AVAILABLE IN OPEN GENERATOR SETS



AVAILABLE IN SILENT GENERATOR SETS



400/230V - 50Hz (1500 rpm)

CUMMINS OSG12-G2 | STAMFORD S4L1D-F



Complete stainless steel hood (304)

MECHANICAL OPTIONS

- Retention bath (see change of dimensions).
- Sensor on retention bath (requires retention bath).
- Lapas - SilentBlocks for levelling.
- Damping - anti-vibration springs.
- Complete stainless steel canopy (304).  AVAILABLE
- Galvanized bench.
- Non-standard RAL colour.  AVAILABLE



DSE 2157



DSE 334 network surveillance

COMMUNICATION OPTIONS

- DSE 7320 MKII control card extra price (for models with the DSE 6020 MKII control board in the standard scope of supply).
- DSE 2157 8 potential free output (requires DSE 7320MKII).
- DSE 2130 8 inputs (requires DSE 7320MKII).
- DSE 2548 8 LED diodes (requires DSE 7320MKII).
- DSE 855.
- DSE 890 webnet.
- DSE 7420 module.
- DSE 334 network surveillance.



Socomec motorised switchboard

POWER OPTIONS

- Differential protection.
- As an option, you can include a switch cabinet attached to the generating set.
- Switching with Schneider contactors. 25 to 125 A.
- Socomec motorised switches: $\geq 125A$.

Caption:

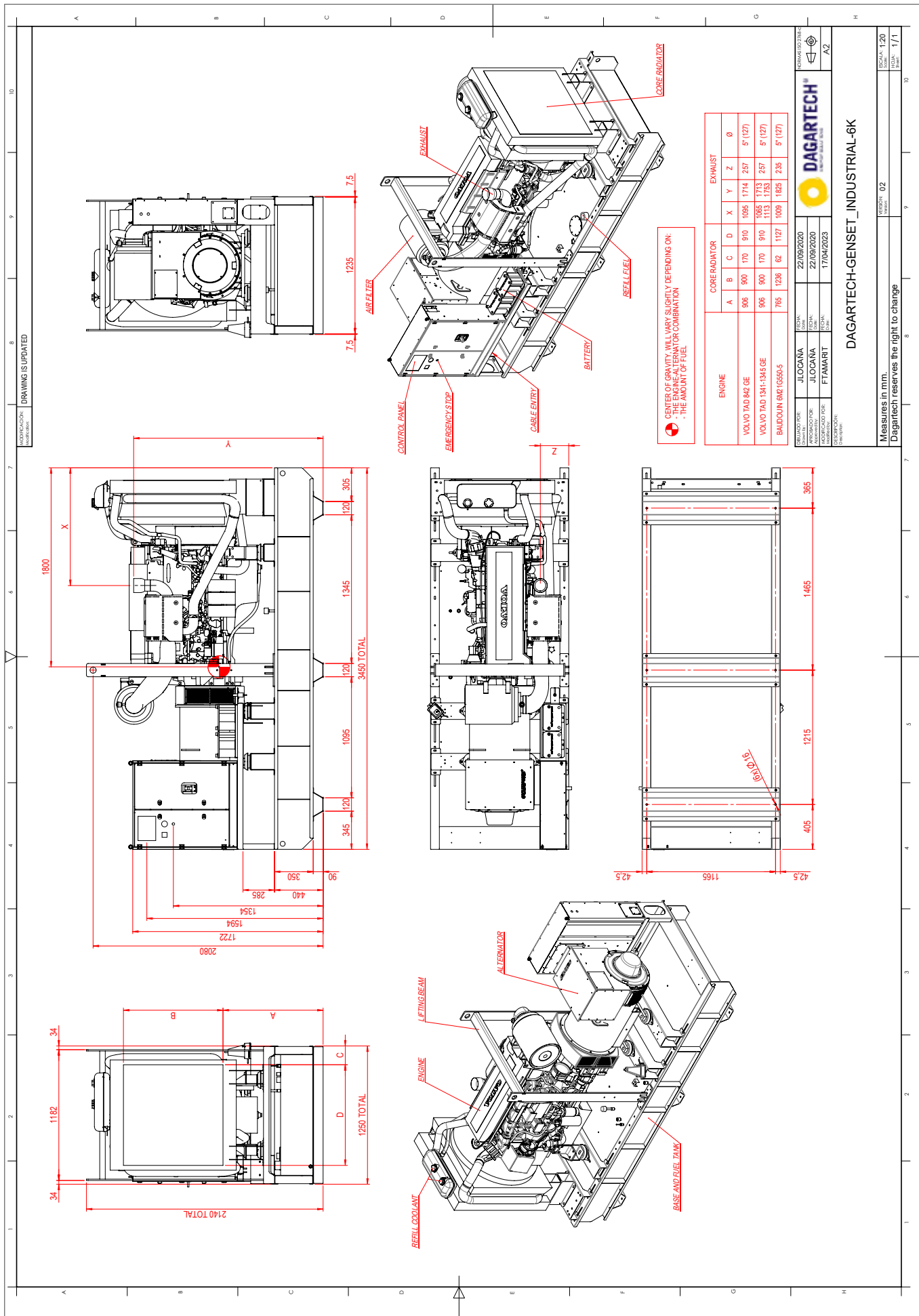


AVAILABLE IN OPEN GENERATOR SETS

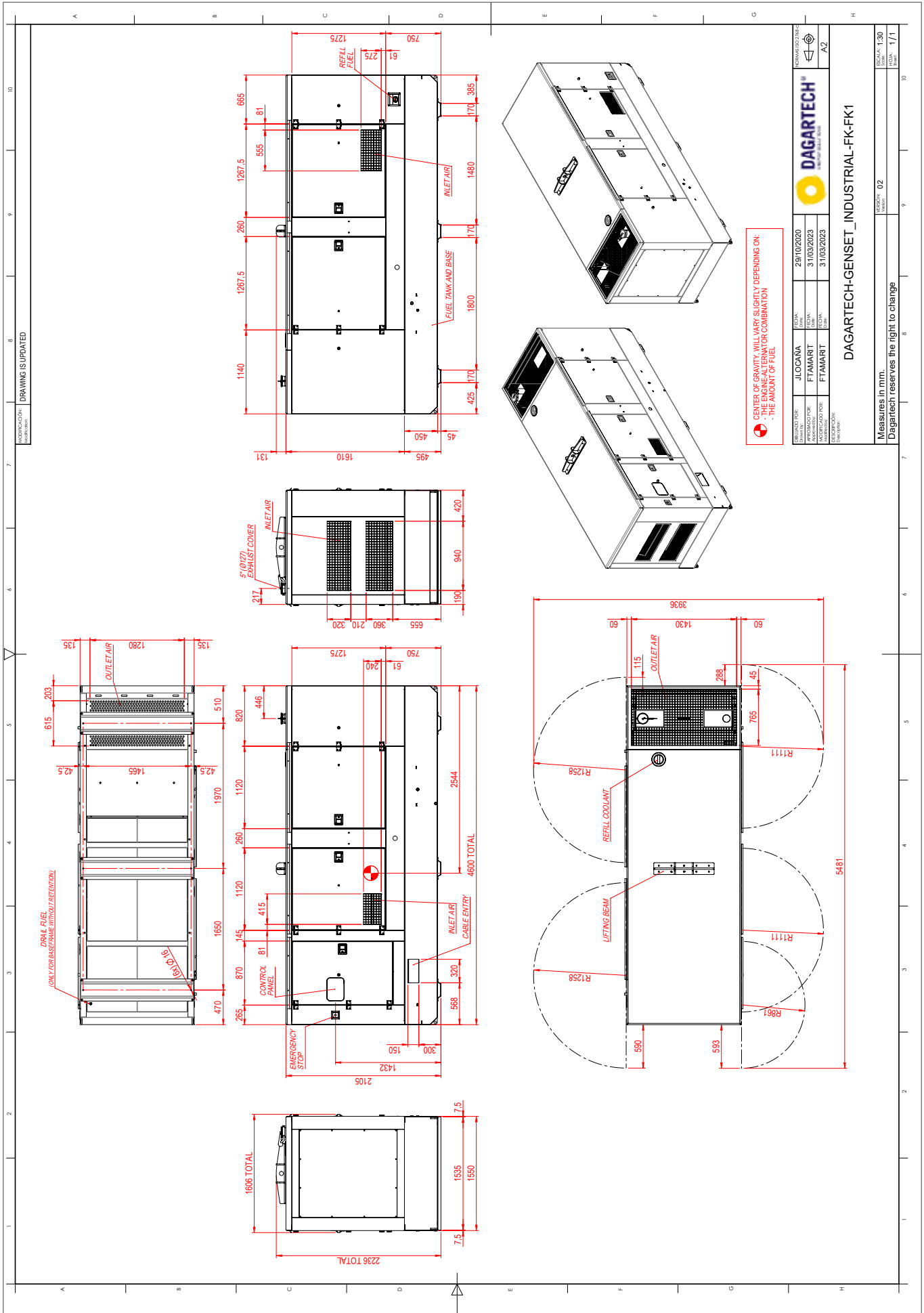


AVAILABLE IN SILENT GENERATOR SETS

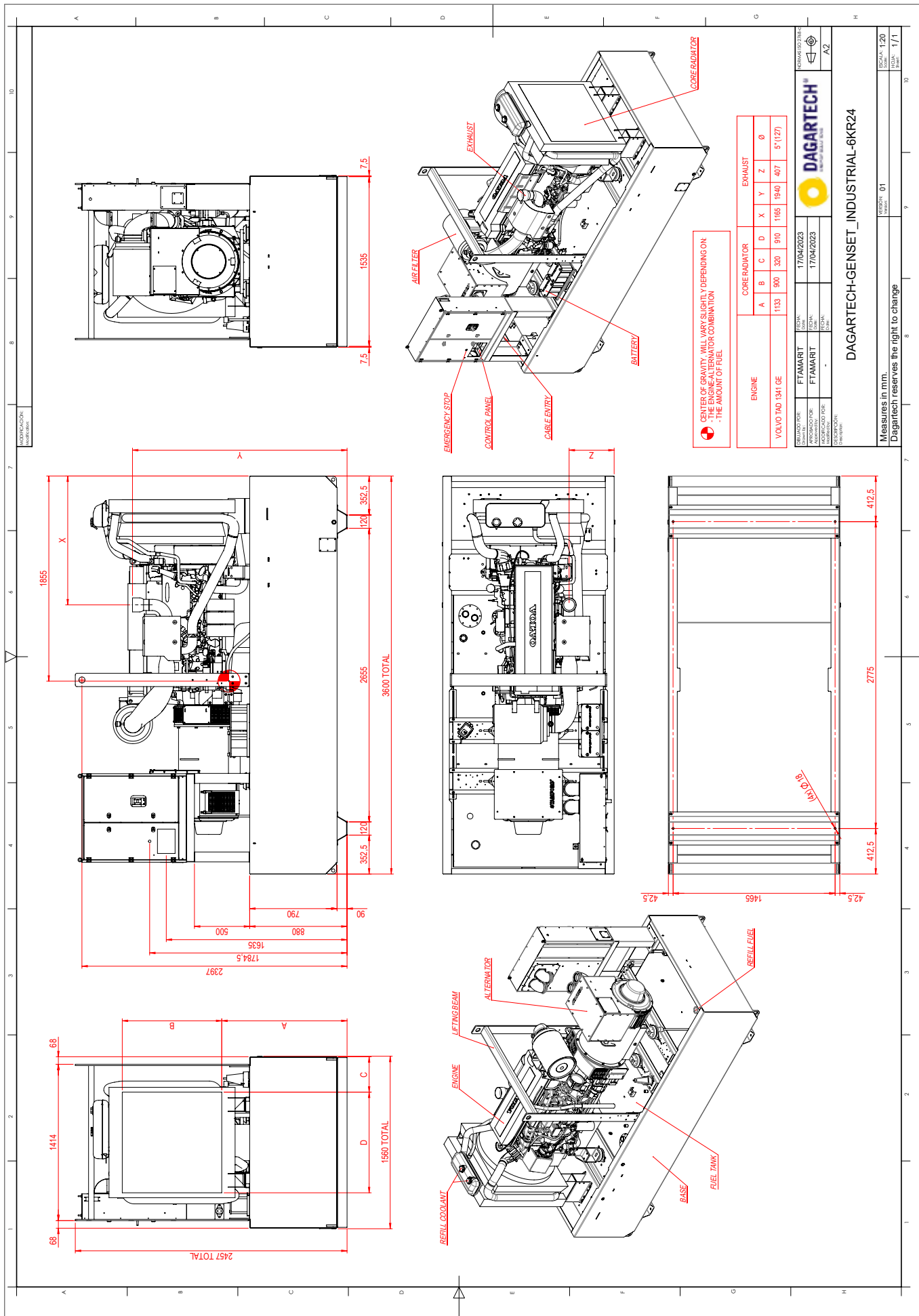
V.1-2024. Last update: 10/05/2024. Technical plan for orientation purposes. The dimensions may vary depending on the equipment. Dagartech reserves the right to modify the data in this technical sheet without prior notice.



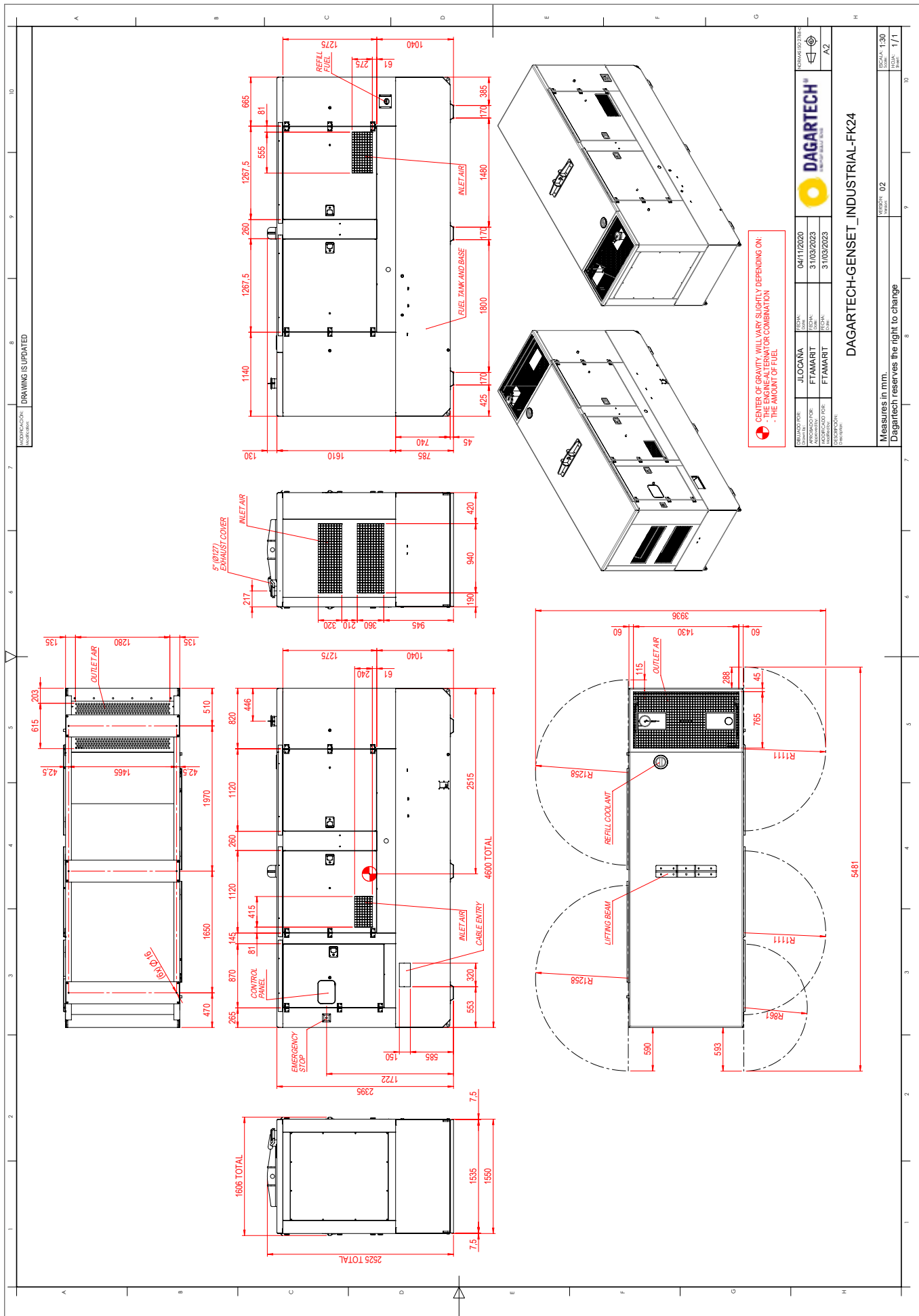
Installation plan DGCS 450 ST - standard silent model



V:1-2024. Last update: 10/05/2024. Technical plan for orientation purposes. The dimensions may vary depending on the equipment. Dagartech reserves the right to modify the data in this technical sheet without prior notice.



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⚠ CENTER OF GRAVITY WILL VARY SLIGHTLY DEPENDING ON:
 - THE ENGINE-ALTERNATOR COMBINATION
 - THE AMOUNT OF FUEL

REVISED FOR:	JLOCAMA	FECHA:	04/11/2020
APROBADO POR:	FTAMART	FECHA:	31/03/2023
APROBADO POR:	FTAMART	FECHA:	31/03/2023
APROBADO POR:	FTAMART	FECHA:	31/03/2023

DAGARTECH-GENSET INDUSTRIAL-FK24

MEASURES IN mm.	MEASURES IN mm.
Dagartech reserves the right to change	Dagartech reserves the right to change
SCALE: 1:30	SCALE: 1:30
BLANK: 1/1	BLANK: 1/1



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CUSTOM ENERGY SOLUTIONS

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ENERGY
SOLUTIONS**

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