DAGARTECH®
ENERGY SOLUTIONS

400/230V - 50Hz (1500 rpm) | PERKINS 1104C-44TAG2 | STAMFORD UCI274C

# DGPS 110 ST

## Industrial Range


**Ideal for...**

INDUSTRY | HOSPITAL | INFRASTRUCTURES

Weight with liquids without fuel: 1700 kg

Dimensions
Plat CK1:
L: 2775 mm
W: 1162 mm
H: 1700 mm

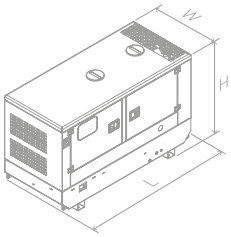



**Image for orientation purposes.** Dagartech reserves the right to modify the data in this technical sheet without prior notice. The weight of the equipment may vary depending on the equipment.

Diesel | EU Stage II | Water-cooled | Soundproofed | CE Conformity

# 1. General technical data

| | | |
|---|---|---|
| **General technical data** | **Engine** | **PERKINS 1104C-44TAG2** |
| | **Alternator** | **STAMFORD UCI274C** |
| | Type of execution | G3 |
| | Frequency | 50Hz |
| | Voltage | 400/230V |
| | Control panel | DSE 6020 MKII |
| | Fuel tank (l) | 260 |
| | Sound level-Lp(A) (dB(A)@7m) | 65 |
| | Sound power-LW(A) (dB(A)) | 93 |

| | | |
|---|---|---|
| **Power[1]** (m.p. cos φ 0.8) | **PRP (kVA / kW)** | **100 / 80** |
| | **ESP (kVA / kW)** | **110 / 88** |

[1]PRP: Continuous power ("Prime Power"). ESP: Emergency Standby Power according to ISO8528-1.
**Maximum active power tolerance (kW) ±5%**

| Voltage | PRP (KVA/KW) | ESP (KVA/KW) | Amperage (A) |
|---|---|---|---|
| 400/230V | 100 / 80 | 110 / 88 | **159** |

## Directives and Regulations

**ENVIRONMENTAL CONDITIONS STANDARD ISO 8528-1:2018:** 25ºC, 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 Generating Set has EC labelling** which includes the following directives:

- **2006/42/EC.** Machine Safety Directive.
- **EN ISO 8528-13:2016. Part 13: Safety.** Alternating current generator sets 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

| | Make and model | PERKINS 1104C-44TAG2 |
|---|---|---|
| **2.1. General technical data of the engine** | r.p.m. | 1500 |
| | Maximum ESP power (kWm) | 97.9 |
| | Power PRP (kWm) | 89 |
| | Fuel | Diesel |
| | No. of cylinders | 4 cylinders |
| | Cylinder capacity (c.c.) | 4400 |
| | Compression ratio | 18,3:1 |
| | Cooling system | Water-cooled |
| | Type of regulation | electronic |
| | Type of engine/injection/suction | Diesel/direct/turbocharged |
| **2.2. Fuel** | Type of fuel | Diesel |
| | Fuel tank capacity | 260 |

| **2.3. Consumption and autonomy** | Consumption (l/h) | | Autonomy (h) | |
|---|---|---|---|---|
| | PRP | ESP | PRP | ESP |
| **50%** | 11.8 | - | 22.0 | - |
| **75%** | 17.1 | - | 15.2 | - |
| **100%** | 22.6 | 24.9 | 11.5 | 10.4 |

| | | |
|---|---|---|
| **2.4. Cooling system** | Fan flow (m³/min) | 165.6 |
| | Fan power consumption (kW) | 0 |
| | Radiator back pressure (kPa) | 200 |
| | Total refrigerant capacity (l) | 12.6 |
| **2.5. Lubrication system** | Oil capacity (l) | 8 |
| **2.6. Intake system** | Combustion air intake flow (m³/min) | 6.01 |
| **2.7. Starter system** | No. of batteries | 1 |
| | Battery characteristics | 12V 60Ah |
| | Start-up voltage (V) | 12V |

| | | | |
|---|---|---|---|
| **2.8. Exhaust system** | Exhaust gas flow (m³/min) | 15.2 [PRP] | 16.3 [ESP] |
| | Exhaust gas temperature (ºC) | 514º [PRP] | 543º [ESP] |
| | Exhaust outside diameter (mm) | 3" - Ø76mm | |
| | Max. exhaust back pressure (kPa) | 15.0 | |

[1] **Radiator level sensor not available for Baudouin 4M06 series engines.**

- **4 cylinders 4-stroke diesel engine online** with electronic regulation electronic by means of a fuel pump, original from the manufacturer.

Emissions compliance
**EU Stage II**

- **Direct injection and suction system turbocharged.** Original manufacturer's particle separator filter.

- **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 disconnector and load alternator driven by the starter** 12V, original elements from the engine manufacturer.

Exhaust attenuation level
**-35dB(A)**

# 3. Alternator specifications

**3.1. General technical data for the alternator**

| Make and model | STAMFORD UCI274C |
|---|---|
| No. of poles | 4 |
| Insulation class | H |
| No. of threads | 12 |
| Mechanical protection index | IP23 |
| Voltage Regulator (AVR) | AS440 |
| Voltage regulation | ±1% |
| ESP power 27ºC (kVA) | 110 |
| Power PRP 40ºC (kVA) | 100 |
| No. of phases | 3 |
| Power factor (cos φ) | 0.8 |

| Performance η (%) | | | |
|---|---|---|---|
| 50% | 75% | 100% | 110% |
| 92.2% | 91.5% | 90.3% | 89.8% |

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

## Standard regulations that the alternator fulfils:

AS 1359 | IEC 34-1 1 | 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.

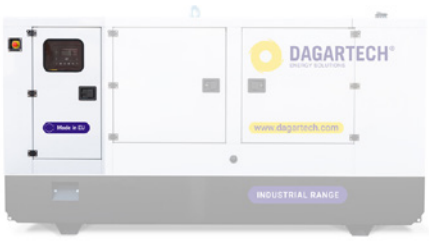
# 4. Frame Specifications

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


# 5. Soundproof canopy Specifications

- Electro-welded **canopy made of high resistance galvanized steel** painted with electrostatic epoxy-polyester powder paint.
- **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 saline mist chamber chamber according to ASTM B-117-09, resistance 720H. IP44 mechanical protection degree.**

# 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.
- **Emergency stop button**.
- **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 9150 12V, 3A |
|---|---|

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

## 6.2. Protection switch

| Model | Schneider EasyPact 160A 4P |
|---|---|

## 6.3. Control module


| Model | DSE 6020 MKII |
|---|---|

1. Alarm indicator
2. Transfer to the generator (manual mode)
3. **Start engine (manual mode)**
4. Silence alarm
5. Automatic mode
6. Test mode
7. Manual mode
8. **Genset stop**
9. Main network transfer (manual mode)
10. Navigation keyboard
11. Main status and instrument display

DSE 6020 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 USB communication ports, 4 configurable digital inputs, 3 analog inputs, 6 configurable outputs, emergency stop button, 8-35 V battery charger.

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

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

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)

# 6. Control panel

| **6.3. Control module** | (Standard)  | (Option)  |
|---|---|---|
| **Model** | **DSE 6020 MKII** | **DSE 7320 MKII** |
| **Operating modes** | | |
| STOP mode | ✔ | ✔ |
| MANUAL mode | ✔ | ✔ |
| TEST mode | ✔ | ✔ |
| AUTO mode | ✔ | ✔ |
| **Module configuration options** | | |
| PC | ✔ | ✔ |
| **Group 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) | ✔ | ✔ |
| Network 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 | ✔ | ✔ |

**Do you want a superior performance control module?**

Contact us and tell us what you need.

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

✔ Includes ■ Optional
✕ Not available ⓘ Consult

Readings available at control module level.

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

# 6. Control panel

| **6.3. Control module** | (Standard)  | (Option)  |
|---|---|---|
| **Model** | **DSE 6020 MKII** | **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 | ✔ | ✔ |

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Readings available at control module level.

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

# 6. Control panel

| **6.3. Control module** | (Standard)  | (Option)  |
|---|---|---|
| **Model** | **DSE 6020 MKII** | **DSE 7320 MKII** |
| **Communications** | | |
| RS232 | ✕ | ✔ |
| RS485 | ✕ | ✔ |
| USB communication port | ✔ | ✔ |
| Modbus IP | ■ DSE 855/890/891 | ■ DSE 855/890/891 |
| Modbus RS 485 | ■ DSE 855/890/891 | ✔ |
| PC Software (Mimic) | ✔ | ✔ |
| GSM/GRPS MODEM | ■ DSE 890 | ■ DSE 890 |
| Remote display < 1km | ✕ | ■ DSE 2520 |
| Remote monitoring | ■ DSE 855/890 | ■ DSE 855/890 |
| Input expansion | ✕ | ■ DSE 2130 8 inputs |
| Output expansion | ✕ | ■ DSE 2157 8 inputs |
| SNMP protocol | ■ DSE 892 | ■ DSE 892 |
| **Services** | | |
| Configurable alarm history | 50 | 250 |
| External start | ✔ | ✔ |
| Start-up inhibition | ■ | ■ |
| 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 | Symbols | ✔ |
| **Special applications** | | |
| GPS localisation | ■ DSE 890 | ■ 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 |

**Do you want a superior performance control module?**

Contact us and tell us what you need.

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

✔ Includes ■ Optional
✕ Not available ⓘ Consult

Readings available at control module level.

**CONFIRM THE AVAILABILITY OF THESE READINGS FOR THIS GENERATOR AND ENGINE.**

# 7. Standard Scope of Delivery

## Engine

- **PERKINS 1104C-44TAG2 Diesel Engine,** 1500 rpm water cooled.
- With **electronic regulation.**
- **Protection from hot and moving parts.**
- Electric motor starting system, **battery (maintenance-free) with switch** and load alternator driven by **starter motor of 12V**.
- **Efficient high-attenuation exhaust silencer of -35d(BA)** for the evacuation of gases to the outside with protective cover.

## Alternator

- **12-Wire, 4-pole brushless STAMFORD UCI274C alternator** with electronic voltage regulation type AVR (AS440).
- With IP23 protection level.
- **Insulation class H**.

## Frame

- **Electro-welded frame** made of **high-strength steel**.
- Painted with electrostatic epoxy-polyester powder paint.
- **Anti-vibration dampers** from the engine block to the frame.
- **Fuel tank with capacity of 260 litres,** located on the frame 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.
- **Bedplate tested in a salt spray chamber according to ASTM B-117-09 (500h resistance).**

## Soundproofed canopy

- **Electro-welded canopy** of high-strength **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**.**
- **Cab tested in salt spray chamber according to ASTM B-117-09 (resistance 720h).**

## Control panel

- **DeepSea Electronics automatic control module DSE 6020 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.
- DeepSea Electronics battery charger **DSE 9150 12V, 3A**. 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.


## Other equipment

- **Mechanised fuel nozzle outside with key.**
- **Tropicalised Radiator** for work at 50ºC*
- Prepared for maintenance intervals every 500 hours.
- **Emergency stop button.**
- **Reinforced pole** centrally-mounted.

*CHECK THE SPECIFICATION ACCORDING TO THE MODEL.

# 8. Featured options available

Do you need to include some options in the standard equipment of this genset to make it the perfect generator for you? We show you below some of the most demanded options in generator sets of the Industrial range.

## 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.

C5M

## 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**.

## 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).

See other options for available timing

**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.

# 9. Even more options

If you're looking for other features to complete your machine, don't worry.

Below we detail many of the options from the Industrial range that we make available to you to turn your unit into a unique machine.

24 hour tank

ROTH DUO SYSTEM outside tanks

## 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.

| | Capacity (l): | | 24h tank - 545 l | | 48h tank - 995 l | |
|---|---|---|---|---|---|---|
| % load | Consumption (l/h) | | Autonomy (h) | | Autonomy (h) | |
| Power | PRP | ESP | PRP | ESP | PRP | ESP |
| 50% | 11.8 | - | 46.2 | - | 84.3 | - |
| 75% | 17.1 | - | 31.9 | - | 58.2 | - |
| 100% | 22.6 | 24.9 | 24.1 | 21.9 | 44.0 | 40.0 |

- **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

- 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))
- Alternator anti-condensation resistors.
- Alternator superior impregnation systems.
- AVR MX341 + PMG ± 1% STAMFORD.
- AVR MX321 + PMG ± 0.5% STAMFORD.

# 9. Even more options

Complete stainless steel canopy (304)

## MECHANICAL OPTIONS

- Retention tray (see change of dimensions).
- Liquid leakage probe (requires retention tray).
- SilentBlocks for levelling.
- Damping - anti-vibration springs.
- Complete stainless steel canopy (304).
- Galvanized frame.
- Non-standard RAL colour.

DSE 2157

DSE 334 network surveillance

## COMMUNICATION OPTIONS

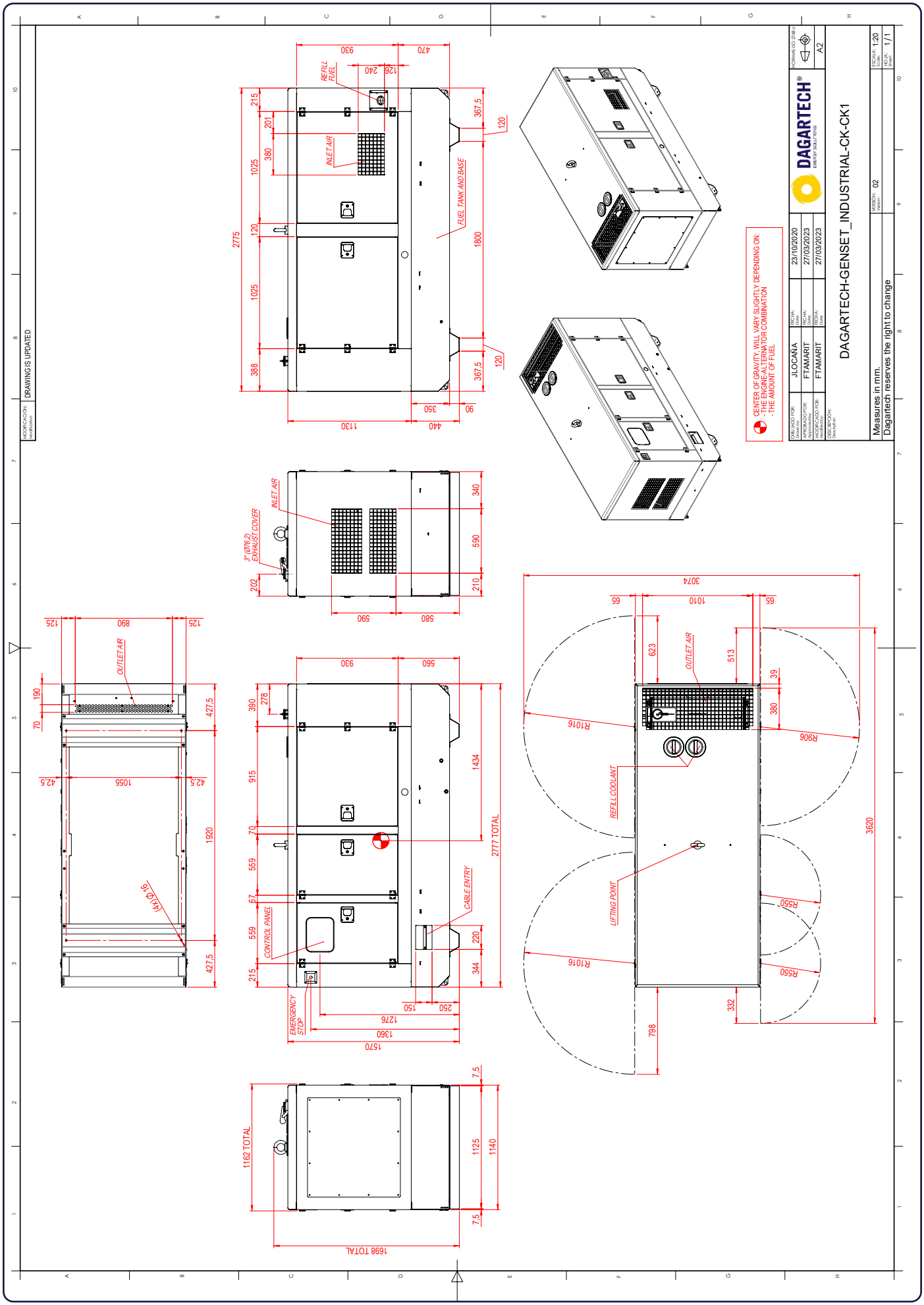
- Supplement to the DSE 7320 MKII control board (for models with the DSE 6020 MKII control board in the standard scope of supply).
- DSE 2157 8 potential free output (requires DSE 7320MKII).
- DSE 2130 8 inputs (requires DSE 7320MKII).
- DSE 2548 8 LED diodes (requires DSE 7320MKII).
- DSE 855.
- DSE 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: ≥ 125A.

CHECK THE AVAILABILITY OF THESE OPTIONS DEPENDING ON THE MODEL

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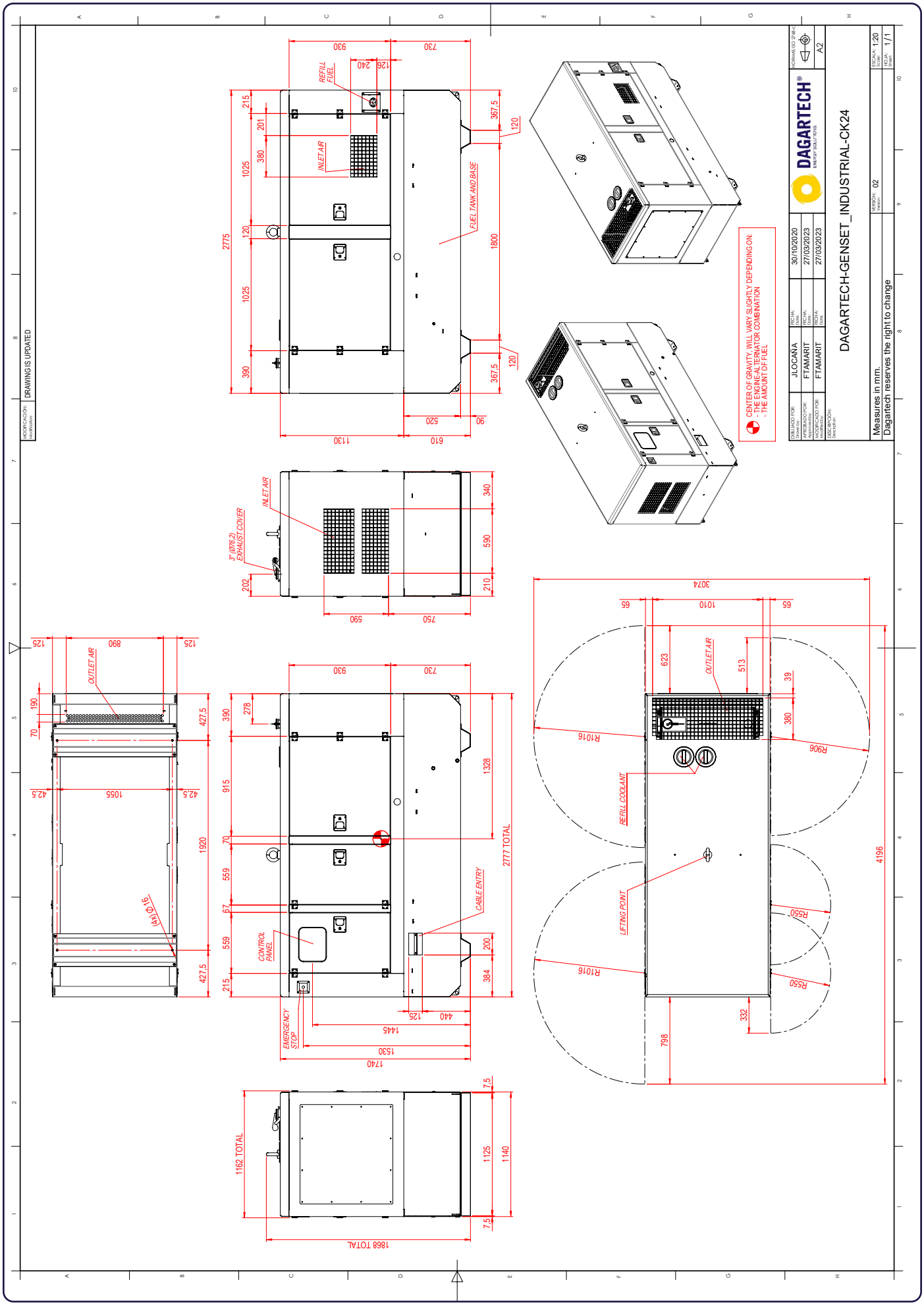

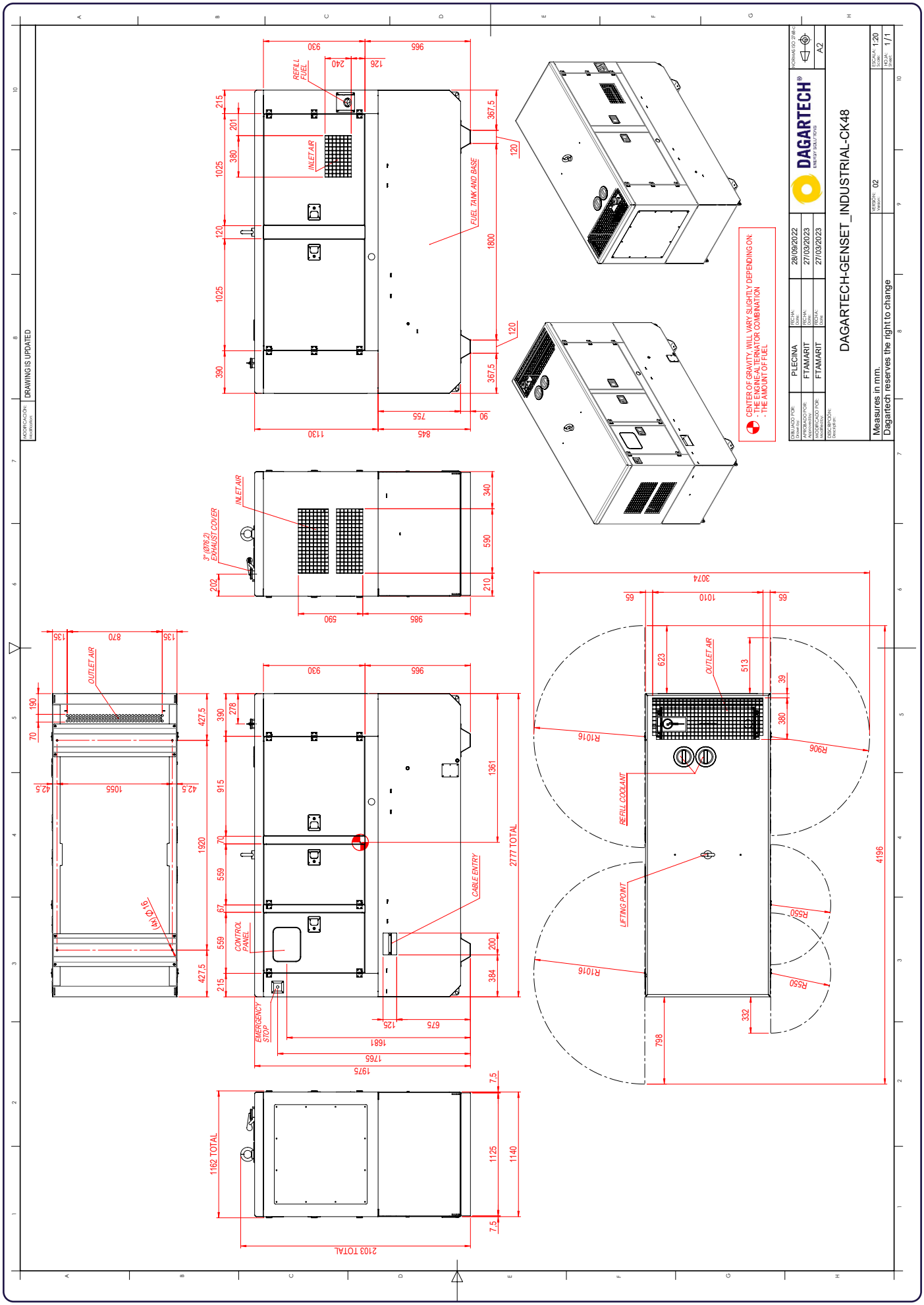


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