



**Generating Set
Diesel**

GE.PK.110/100.SS+0_all

Standard Equipment and features

Canopy - Soundproofing

- Soundproof canopy IP 32 removable
- Polyester class1 soundproofing
- Snap handles with key lock
- Air inlet and air outlet Winding protection against water
- Inspection doors located to facilitate controls and servicing

Exhaust

- Direction pipe with rain cap
- Exhaust tubes protection guards
- Internal residential muffler -35 dbA

Fuel supply

- Daily fuel tank with inspection hatch to allow cleaning
- Low fuel level shutdown automatic system
- Fuel gauge

Handling

- Lifting lug integrated in the lifting structure
- Anti-turning forklift pockets
- Base frame predisposed for not approved trailer
- Handling from the short side

Base Frame

- Anti pollution Bunded base with external draining point
- Anti vibrating mounting pads
- Battery compartment externally accessible for easy service

Engine

- High coolant temperature and low oil pressure shutdown system
- External oil drain points
- Engine liquids (oil and antifreeze)
- Tropicalized radiator
- Rotating components protection guards
- Electronic speed governor

Alternator

- AVR Automatic Voltage Regulator

Protection & connection Panel

- Magneto-thermal protection on panel board
- Differential protection (adjustable only on variant +10 & +11)
- Emergency stop button
- Tamper proof panel
- Socket module (only variant +12)
- Power outlet at the bottom
- Earth leakage point
- Machine electric wiring IP 44
- Startup battery (pre-charged)

Documentation

- CE conformity declaration - User and maintenance manuals

Normatives

- All ELCOS Generating sets are compliant to CE Marking
- 2004/108/CE Electromagnetic compatibility
- 2000/14/CE Noise Emission for outdoor use
- Factory-designed systems built at Elcos ISO 9001:2008



Data and technical specifications are subject to change in order to update or improve the products.

Generating Set

Speed	rpm	1500
Frequency	Hz	50
PRP Prime power	kVA	100
Prime power (cosfi 0,8)	KW	80
LTP Limited-time running power	kVA	110
Limited time running pow. (cosfi 0,8)	KW	88
Voltage standard	V	400/230
Current PRP (cosfi 0,8)	A	145

Noise level

LwA	dB(A)	91
Acoustic pressure level to 7 mt	dB(A)	66
Acoustic pressure level to 1 mt	dB(A)	75

Fuel consumption

Fuel type	Type	Diesel
Fuel tank capacity	lt	250
Autonomy at 3/4 load	h	14.6
Fuel consumption at 4/4 load	l/h	22.6
Fuel consumption at 3/4 load	l/h	17.1
Fuel consumption at 2/4 load	l/h	11.8

General Features

Battery capacity	Ah	1x120
Voltage	Vdc	12
Exhaust tube diameter	mm	80
Exhaust temperature	°C	514
Exhaust gas flow	l/s	253.3
Combustion air flow	l/s	100
Cooling Fan air flow	m3/s	2.8

Dimensions / weight

Dimensions (L x w x h)	cm	260x110x168
Weight inclusive of liquids (oil and antifreeze)	kg	1580

COP

It is the power that the generating set is capable to supply, in continuous operation, for an unlimited number of hours per year at the reference environmental conditions. This is valid as long as the engine undergoes a scheduled maintenance, as specified by the manufacturer. The generating set is able to provide power equal to 100% of the nominal load. COP power is typically 30% lower than the LTP one. No overload capability is allowed for this rating.

PRP

Applicable for supplying power in lieu of commercially purchased power. Prime power is the maximum power available at a variable load for an unlimited number of hours. A 10% overload capability is available for limited time. (Equivalent to Prime Power in accordance with ISO8528 and Overload Power in accordance with ISO3046, AS2789, DIN6271, and BS5514). This rating is not applicable to all generator set models.

LTP

Applicable for supplying emergency power for the duration of normal power interruption. No sustained overload capability is available for this rating. This rating is applicable to installations served by a reliable normal utility source. This rating is only applicable to variable loads with an average load factor of 80 percent of the standby rating for a maximum of 200 hours of operation per year and a maximum of 25 hours per year at 100% of its standby rating. The standby rating is only applicable to emergency and standby applications where the generator set serves as the back up to the normal utility source. No sustained utility parallel operation is permitted with this rating. (Equivalent to Fuel Stop Power in accordance with ISO3046, AS2789, DIN6271 and BS5514). Nominally Rated.

Engine

Factory		Perkins
Emissions		Stage 2
Model		1104C-44TAG2
Speed governor		Electronic
Cooling system	Type	liquid (water + 50% Paraflu11)
Speed	rpm	1500
Nominal power	CV	123.4
Gross engine power	KWm	90.1
Cycle	Type	diesel 4 stroke
Injection	Type	direct
Aspiration	Type	Turbo
Numbers of cylinders	N°	4L
Bore x stroke	mm	105 x 127
Total displacement	lt	4.4
Engine oil features		15W40-API CG4-ACEA E3-E5
Engine oil consumption	%	0.15% fuel consumption
Total oil capacity	lt	8
Coolant liquid capacity	lt	12.6
Classification ISO 8528-5		G3

Alternator

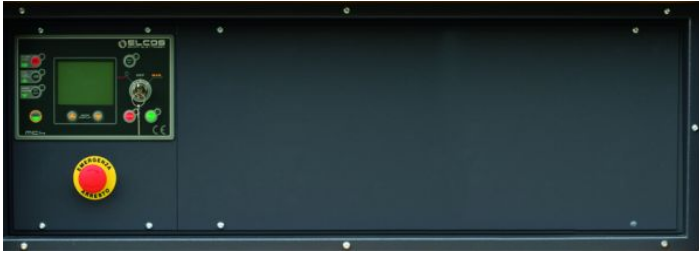
Factory *		Marelli
Model		MJB225MA4
Prime power 3F+N 400V (480V)	kVA	105
Prime power 1F+N 230V (240V)	kVA	42.0
Voltage regulator		+/-0.5%
Poles	N°	4
Phases	N°	3+N
Standard windings connection		star serie
Stator/rotor impregnation		H (ext. temp. 40°C)
Efficiency pf=0,8 4/4	%	91.8
Couple engine		elastic disk
Short circuit current		>=300% (3In)
Degree of protection		IP 23
Cooling system		autoventilate
Maxium overspeed	RPM	2250
Waveform distortion	%	< 2
Exciter		diode bridge

* Availability will vary according to the warehouse stock. However, in any case a primary brand will be used.

Standard operating environmental conditions

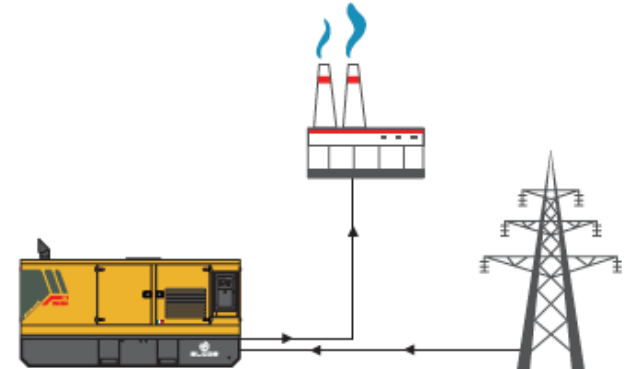
Ambient temperature 25°C
Relative Humidity 30%
Max altitude 1000mt

Control Systems on board



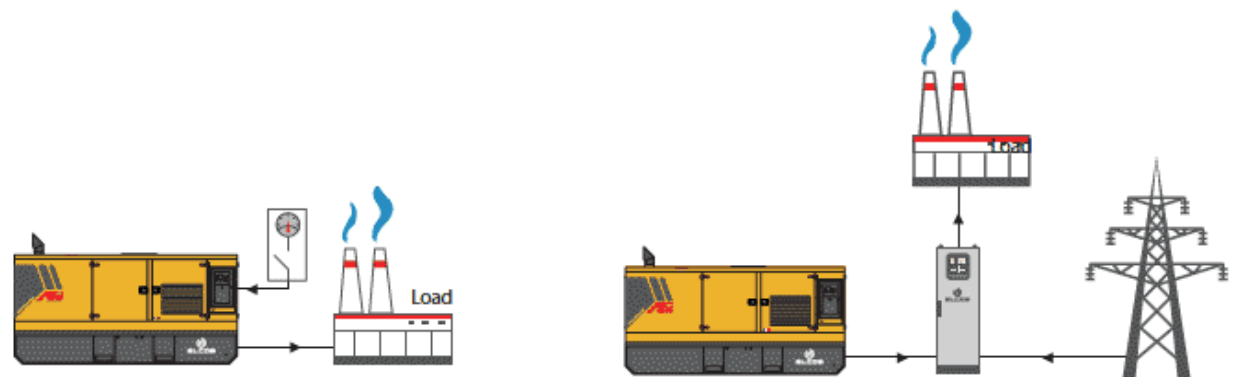
Variant +10 (QPE-C-OCC (50 - 100 SS)) Automatic panel with switching on board

The QPE-C panel represents the evolution of the panels for the control and management of the generating set, with its microprocessor logic it is able to meet any user-requested features. The dual operation mode MANUAL or AUTOMATIC guarantees to every type of functionality protection, analysis and control of the generating set in order to make the management easy and efficient. Variant +010 unit is equipped with switching on board. Switching made with motorized changeover switch 4P 160A. Degree of protection IP55. Electronic protection against overload, short circuit and ground-fault.



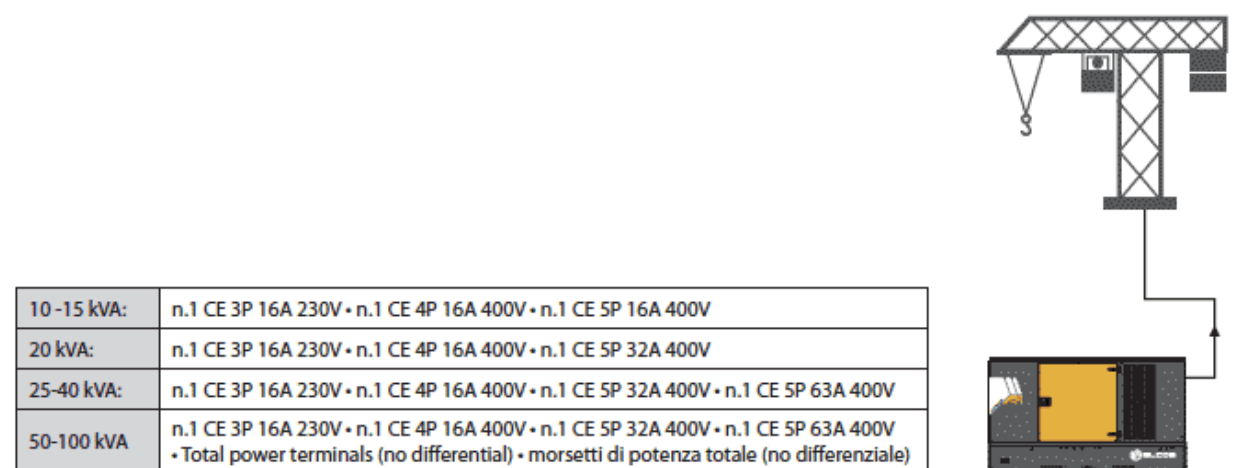
Variant +11 (QPE-C-OSC (50 -100 SS)) Multifunction Panel QPE without switching on board

The QPE-C panel represents the evolution of the panels for the control and management of the generating set, with its microprocessor logic it is able to meet any user-requested features. The dual operation mode MANUAL or AUTOMATIC guarantees to every type of functionality protection, analysis and control of the generating set in order to make the management easy and efficient. Variant +011 has separate switching inside a wall ATS panel optional. The output line is protected by a 160A switch controlled by the MC4 board which protects from overload, short circuit and ground-fault. The panel manages the QC panels directly or any transfer panel. Degree of protection IP55.



Variant +12 (QMC-01 (50-100 SS)) Manual panel and socket module

Instruments: Voltmeter • Frequncymeter • Amperometer • Kilowattmeter • Battery tension • Hourcounter • Fuel gauge • Starting key • Remote control connector Protections: Low oil pressure • Battery charger dynamo alarm • High temperature coolant • Fuel reserve • Generic anomaly • Magnetothermal switch • IP55 Sockets: n.1 CEE 3P 16A 230V - n.1 CEE 4P 16A 400V - n.1 CEE 5P 32A 400V - n.1 CEE 5P 63A 400V



10 -15 kVA:	n.1 CE 3P 16A 230V • n.1 CE 4P 16A 400V • n.1 CE 5P 16A 400V
20 kVA:	n.1 CE 3P 16A 230V • n.1 CE 4P 16A 400V • n.1 CE 5P 32A 400V
25-40 kVA:	n.1 CE 3P 16A 230V • n.1 CE 4P 16A 400V • n.1 CE 5P 32A 400V • n.1 CE 5P 63A 400V
50-100 kVA	n.1 CE 3P 16A 230V • n.1 CE 4P 16A 400V • n.1 CE 5P 32A 400V • n.1 CE 5P 63A 400V • Total power terminals (no differential) • morsetti di potenza totale (no differenziale)

Control module

mc4

Description

Elcos's control panel QPE-C gives you the industry leading control solution for your power needs.

The QPE-C control panel used MC4 control module for single genset applications.

The module incorporates a number of advanced features to meet the most demanding on-site applications.

The MC4 is an Auto mains (Utility) failure control module, It offers a cost effective way of monitoring and communicating with your genset and includes the additional capability of being able to monitor a mains supply.

It includes a USB port and an RS485 port for Mod BUS Communication.

Applications

- ♦ Emergency when the mains failure occurs
- ♦ Self-production
- ♦ Fire fighting
- ♦ Construction site
- ♦ Rent



FEATURES

→ Controls

- Manual start up and stop
- Automatic start up and stop from AMF
- Start up and stop through contact
- Fuel pump control
- Lock
- Reset
- Programmable automatic test
- Emergency stop button
- Main counter command closed
- G.s. counter command closed

→ Engine Measures

- Engine RPM*
- Engine oil pressure BAR
- Engine oil temperature*
- Engine oil level*
- Cooling system pressure*
- Cooling system temperature°C
- Coolant level %
- Fuel consumption*
- Fuel level %
- Total operating hours
- Partial operating hours (resettable)
- Hours to maintenance
- Battery charger voltage
- Start up counter

→ Communication Interfaces

- CAN-BUS communication
- 16-relay module (optional)
- GSM remote management modem (optional)
- Remote management software (optional)
- Remote panel (optional)
- Converter485/USB (optional)
- Converter485/LAN (optional)
- USB port for saving parameters and firmware updates
- RS485 serial output

→ Equipment

- Microprocessor logic
- Backlit refractive display
- 16-event alarm history list
- Multi-language management
- Troubleshooting with suggestions

→ Alternator Measures

- Genset voltage three-phase
- Genset star voltage RN.SN.TN.
- Genset three-phase current
- Genset frequency
- Genset apparent power KVA
- Genset actual power KW
- Genset reactive power KW_r
- Genset KWh
- Genset power factor cosφ

→ Main Measures

- Mains voltage RST
- Mains frequency

→ Signals/Protections

- Failed to start
- Failed to stop
- Low oil level*
- Low oil pressure
- Minimum oil pressure (pre-alarm)
- Low cooling liquid level
- Very high cooling liquid level
- High temperature (pre-alarm)
- Generator battery charger
- No fuel
- Low fuel level (pre-alarm)
- Start up
- Stop
- Fuel pump running
- Battery connected
- Battery charging
- Battery undervoltage
- Battery overvoltage
- Genset overvoltage
- Genset undervoltage
- Genset overload
- Genset short circuit
- Genset maximum frequency
- Genset minimum frequency
- Genset connected
- Genset contactor closed
- Circuit breaker protection
- Mains connected
- Mains overvoltage
- Mains undervoltage
- Mains contactor closed
- Emergency button pressed



Control module

SMI

Description

The Elcos manual panel QMC-1 provides a reliable and simple solution to control the genset.

The control panel QMC-1 use the SM1 control modul that allows manual starting and stopping of the GS and monitors the various parameters during operation.

The SM1 card allows you to connect some optional devices (provided by Elcos) for a complete remotely management of the GS.

Applications

- ◆ Self production
- ◆ Construction site
- ◆ Rental



FEATURES

→ Commands

- Manual start and stop
- Emergency stop button

→ Measures engine

- Fuel tank level
- Total workinghours
- Battery voltage

→ Measures alternator

- GS Voltage R-S
- GS Current on phase R
- Generator Frequency Hz
- Apparent Power generator KVA

→ Connector Remote Control

For connecting:

- Radio control Elcos (optional)
- Control with Elcos-Cable to start and stop the genset from distanz (optional)

→ Equipment

- Digital voltmeter
- Digital frequency
- Digital ammeter
- Digital Kilovoltammeter
- Digital Battery voltage
- Digital fuel level
- Analog hour meter
- Ignition key
- Connector Remote Control
- Emergency stop button

→ Signals / Protectors

- Low oil pressure
- High coolant temperature
- Fault dynamo batterycharger
- Fuel reserve (G.S. stops after 5min.)
- Generic Fault
- IP 55

Optional

Canopy - Soundproofing

- Canopy customized painting (RAL)
- Lift off doors kit
- IP 43 Conveyors

Exhaust

- Rain cap
- Exhaust collectors protection
- Exhaust flexible joint
- Exhaust flex tube
- (FAP) Antiparticulate - Exhaust catalyst

Fuel supply

- Diesel connections
- Oversized big tank
- Automatic fuel refilling system
- Tank connections 3 way valve

Engine

- Engine heater 230 V
- Oil pressure & antifreeze temperature gauge (only with QPE panel)
- Oil change pump
- Battery DC circuit breaker
- -40 C° Engine liquids
- Super hot Engine heater 230 V
- Automatic refilling oil system
- 1000 working hours spare parts kit
- Cyclone air filter

Alternator

- Parallel arranged AVR

Panel

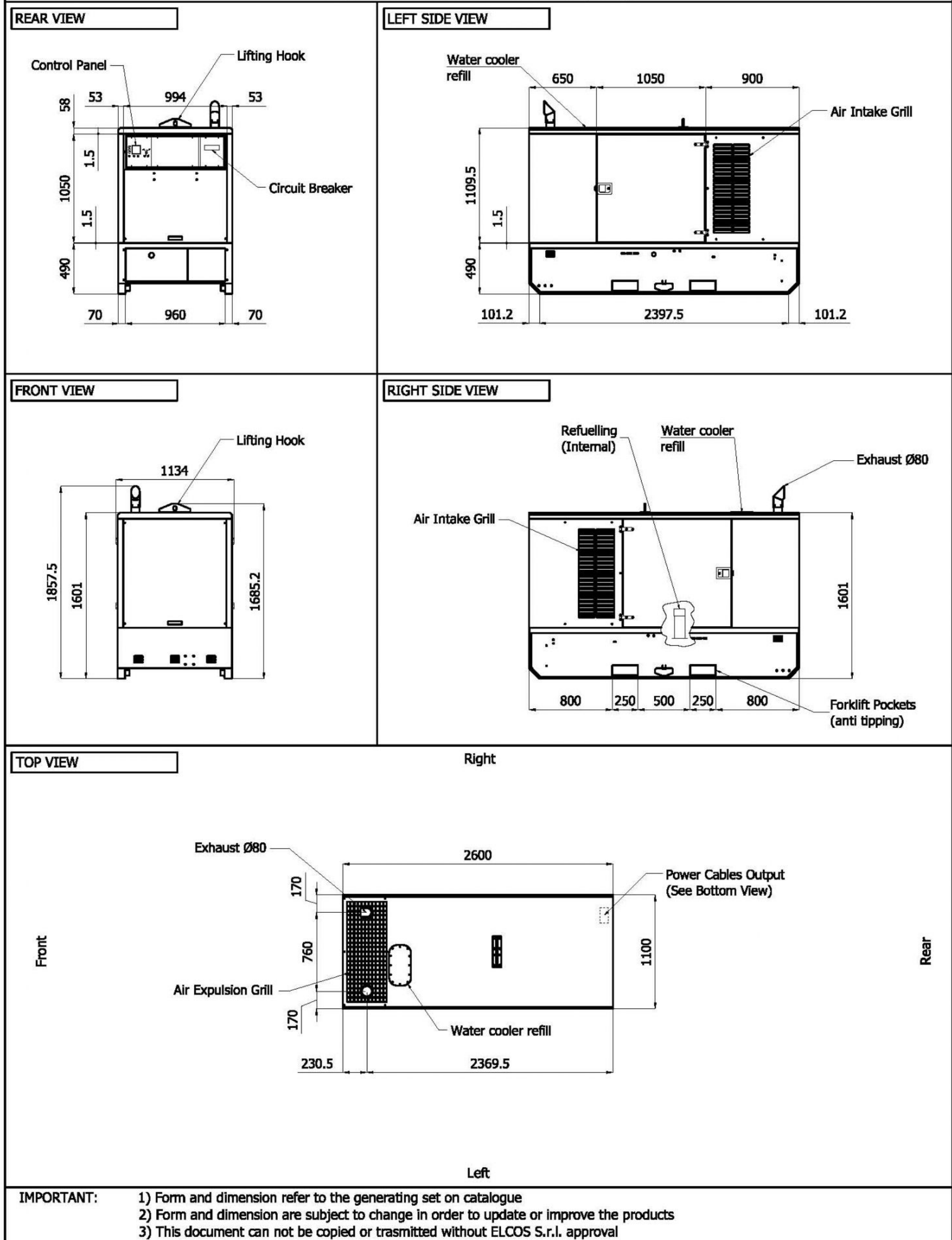
- ATS switching cabinet (QC) (only variant +11)
- Remote management software (only variant +10 & +11)
- Remote panel (only variant +10 & +11)
- Converter 485/USB (only variant +10 & +11)
- Converter 485/LAN (only variant +10 & +11)
- 16-relay module (only variant +10 & +11)
- GSM remote management modem (only variant +10 & +11)
- Radio control (only variant +11 & +12)
- UTIF counter with ARCUDI terminal box
- Remote control with 20 mt cable (only variant +12)
- Rental terminal box (n. a. on variant +12)
- Output power socket CE(only variant +11 with QPE panel)
- Socket module (only variant +11) 5 sockets
- GSM remote control system with web application without SIM card (only variant +10 & +11)
- GPS tracking system (only variant +10 & +11)

Other

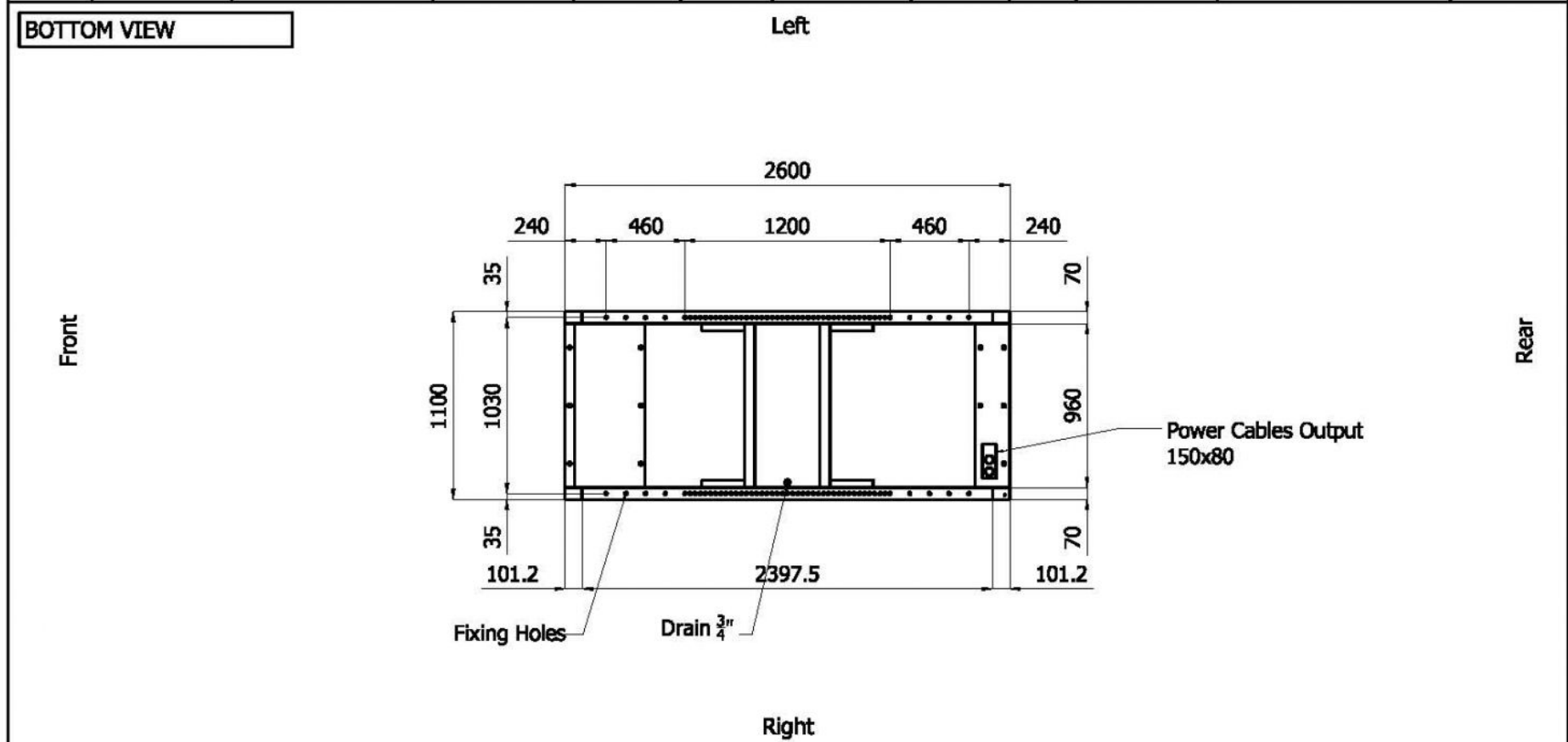
- Toolbox for ordinary maintenance
- Off-road trailer
- On road trailer

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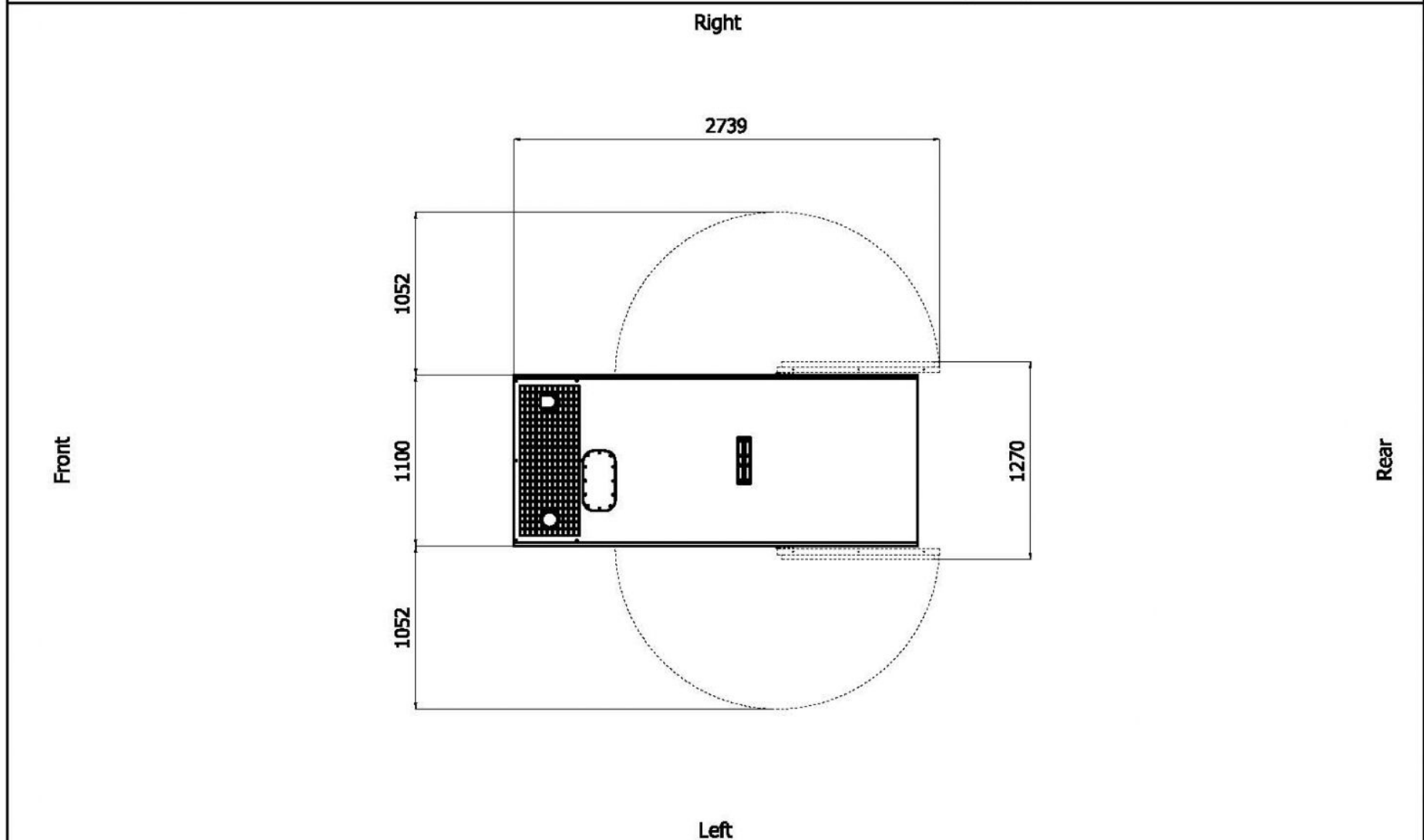
OVERALL DIMENSIONS [mm]



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DIMENSIONS WITH OPEN DOORS [mm]



Note: With Lifting-Off Door Solution consider only canopy dimensions.
(Models with "Control Panel" behind rear door will mount a special cover to protect it)

VENTILATION OF THE ROOM

The windows area in the generating set room needs to be (recommended):
Aspiration: 0.65 m²
Expulsion: 0.45 m²
ATTENTION: for a correct ventilation the expulsion air and the exhaust gas needs to be conveyed in the open-air

IMPORTANT:

- 1) Form and dimension refer to the generating set on catalogue
- 2) Form and dimension are subject to change in order to update or improve the products
- 3) This document can not be copied or transmitted without ELCOS S.r.l. approval