



**Generating Set
Diesel**

GE.PK.022/020.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

Alternator

- AVR Automatic Voltage Regulator

Protection & connection Panel

- Magneto-thermal protection on panel board
- Emergency stop button
- 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	20
Prime power (cosfi 0,8)	KW	16
LTP Limited-time running power	kVA	21
Limited time running pow. (cosfi 0,8)	KW	17
Voltage standard	V	400/230
Current PRP (cosfi 0,8)	A	29

Noise level

LwA	dB(A)	88
Acoustic pressure level to 7 mt	dB(A)	63
Acoustic pressure level to 1 mt	dB(A)	72

Fuel consumption

Fuel type	Type	Diesel
Fuel tank capacity	lt	110
Autonomy at 3/4 load	h	27.5
Fuel consumption at 4/4 load	l/h	5.3
Fuel consumption at 3/4 load	l/h	4
Fuel consumption at 2/4 load	l/h	2.9

General Features

Battery capacity	Ah	1x70
Voltage	Vdc	12
Exhaust tube diameter	mm	50

Dimensions / weight

Dimensions (L x w x h)	cm	175x90x140
Weight inclusive of liquids (oil and antifreeze)	kg	730

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 1
Model		404A-22G1
Speed governor		mechanical +/-5%
Cooling system	Type	liquid (water + 50% Paraflu11)
Speed	rpm	1500
Nominal power	CV	25
Gross engine power	KWm	18.4
Cycle	Type	diesel 4 stroke
Injection	Type	indirect
Aspiration	Type	natural
Numbers of cylinders	N°	4L
Bore x stroke	mm	84 X 100
Total displacement	lt	2,2
Engine oil features		15W40-API CG4-ACEA E3-E5
Total oil capacity	lt	10.6
Coolant liquid capacity	lt	7

Alternator

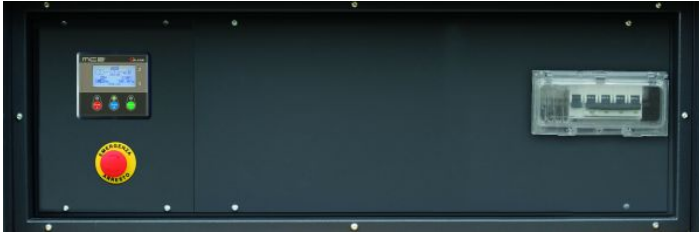
Factory *		Linz
Model		SLT18MD
Prime power 3F+N 400V (480V)	kVA	20
Prime power 1F+N 230V (240V)	kVA	8
Voltage regulator		+/-1%
Poles	N°	4
Phases	N°	3+N
Standard windings connection		star serie
Stator/rotor impregnation		H (ext. temp. 40°C)
Efficiency pf=0,8 4/4	%	86.1
Couple engine		elastic disk
Short circuit current		>=300% (3In)
Degree of protection		IP 23
Cooling system		autoventilate
Maxium overspeed	RPM	2250
Waveform distortion	%	< 3
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

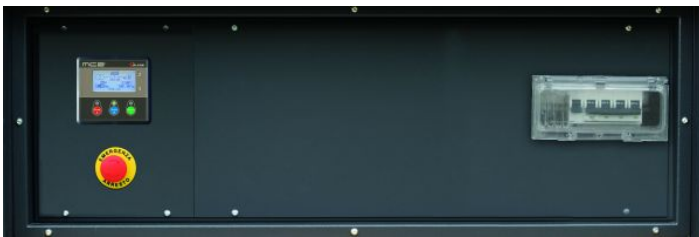
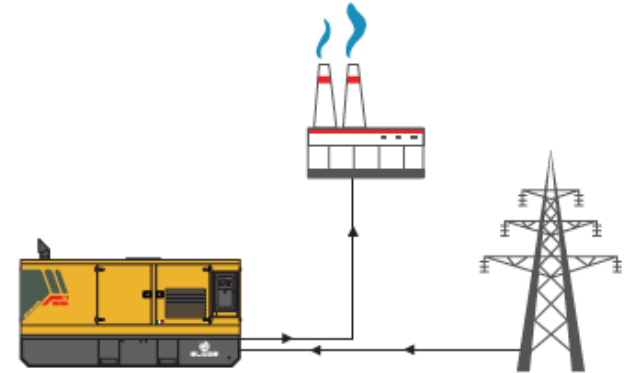
Ambient temperature 25°C
Relative Humidity 30%
Max altitude 1000mt

Control Systems on board



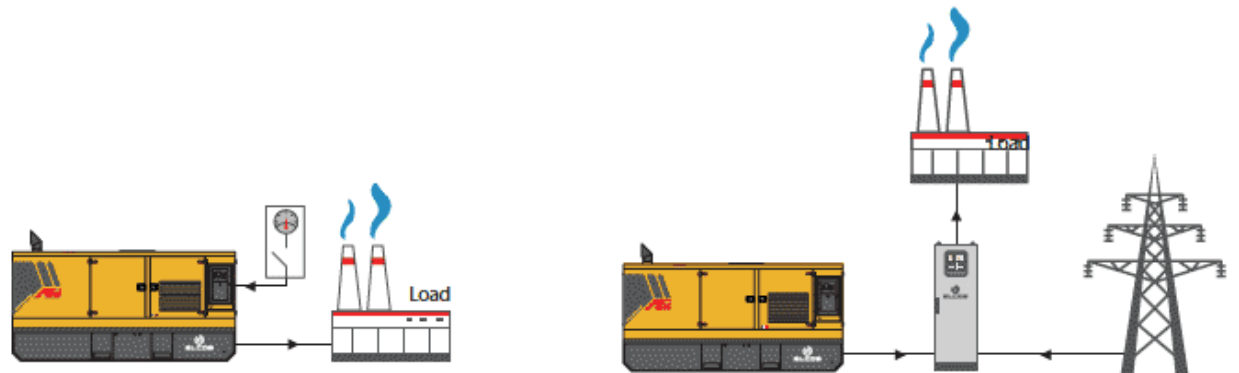
Variant +10 (QLE-A-O-CC (10-40)) Multifunction panel with switching on board

The multifunctional QLE panel is suitable for the management, protection and monitoring of generating sets when the mains fails (AMF) or in self-production continuous operating mode. The QLE panel has a double operating mode : MANUAL or AUTOMATIC, which guarantees the right protection, analysis and control of the generating set to every type of functionality. Variant +010 unit is equipped with switching on board. Switching made with a pair of contacts electrically and mechanically interlocked 4P, maximum capacity 60A. Degree of protection IP44 (optional IP55 with cover plate). Electronic protection against overload, short circuit and ground-fault.



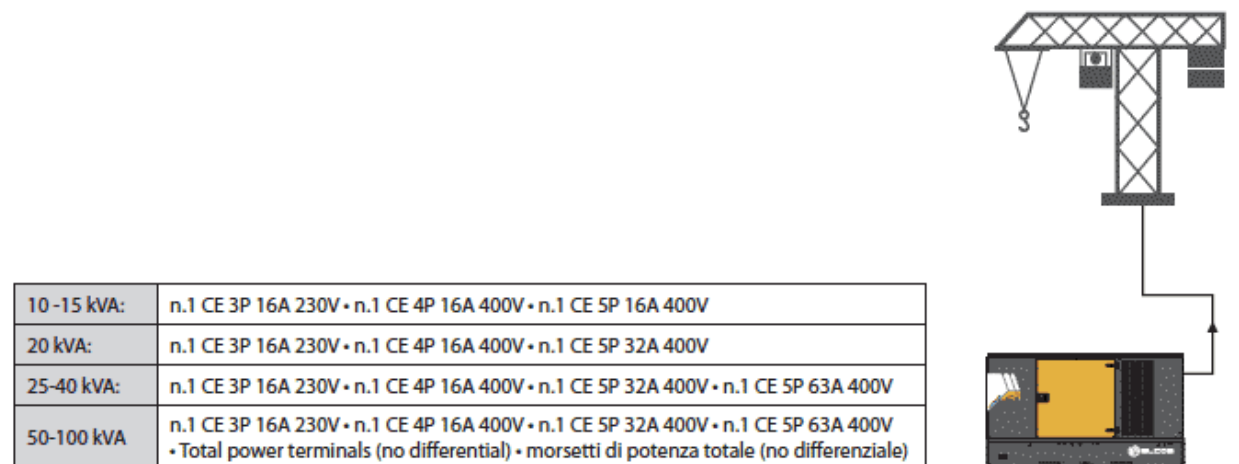
Variant +11 (QLE-A-O-SC (10-40)) Multifunction panel without switching on board

The multifunctional QLE panel is suitable for the management, protection and monitoring of generating sets when the mains fails (AMF) or in self-production continuous operating mode. The QLE panel has a double operating mode : MANUAL or AUTOMATIC, which guarantees the right protection, analysis and control of the generating set to every type of functionality. Variant +011 has separate switching inside a wall ATS panel optional. The output line is protected by a 60A breaker which protects from overload, short circuit and ground-fault. The panel manages the QC panels directly or any transfer panel. Degree of protection IP44 (optional IP55 with cover plate).



Variant +12 (QMC-01 (10-40 SS)) Manual panel and socket module

Instruments: Voltmeter • Frequencymeter • 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 alarm • Magnetothermal differential switch • IP55



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

MC2

Description

Elcos's control module MC2 is designed for diesel generator sets.
It offers outstanding protection, monitoring and control for small and middle size generator sets.

Elcos's control module MC2 incorporates a number of advanced features to meet the most demanding on-site application.

It includes USB port, LCD screen.

Applications:

- Emergency to the mains (AMF)



FEATURES

→ Controls

- Manual start up and stop
- Automatic start up and stop from AMF
- Test NO load with external timer (only with AMF mode enable)
- Remote start from dry-contact (only with AMF mode disable)
- G.S. locked from external
- Emergency stop button
- Mains counter command closed
- Genset counter command closed

→ Engine Measures

- Fuel level %
- Total operating hours
- Battery charger voltage
- Start up counter
- Engine speed

→ Alternator Measures

- Gen set voltage three-phase RST
- Gen set star voltage RN,SN,TN.
- Gen set frequency

→ Main Measures

- Mains voltage RST
- Mains frequency

→ Equipment

- Microprocessor logic
- Backlit refractive display
- 10 events alarm history list
- Icons management
- Troubleshooting with suggestions

→ Protections

- Failed to start
- Failed to stop
- Low oil pressure
- High temperature
- Generator battery charger
- Genset overvoltage
- Genset undervoltage
- Genset maximum frequency
- Genset minimum frequency
- Phase rotation

→ Signals

- Start up
- Stop
- Battery connected
- Battery charging
- Battery undervoltage
- Battery overvoltage
- Genset connected
- Mains connected
- Mains overvoltage
- Mains undervoltage
- Emergency button pressed
- Cumulative alarm
- No fuel

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
- Automatic fuel refilling system on board (available only with optional QPE)

Engine

- Engine heater 230 V
- Oil pressure & antifreeze temperature gauge (only with QPE panel)
- Oil change pump
- Electronic speed governor
- 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

Protection & connection Panel

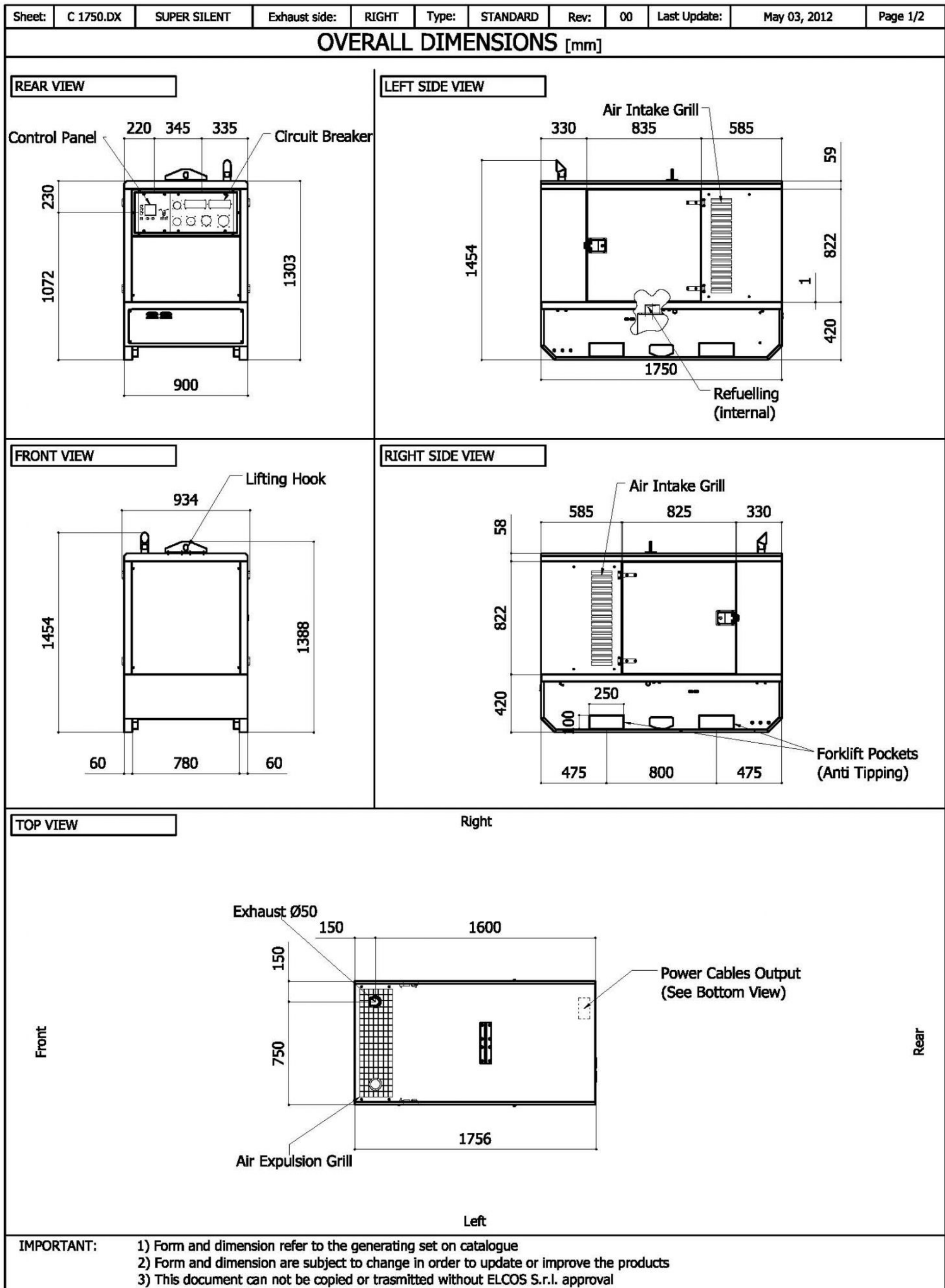
- Tamper proof panel

Panel

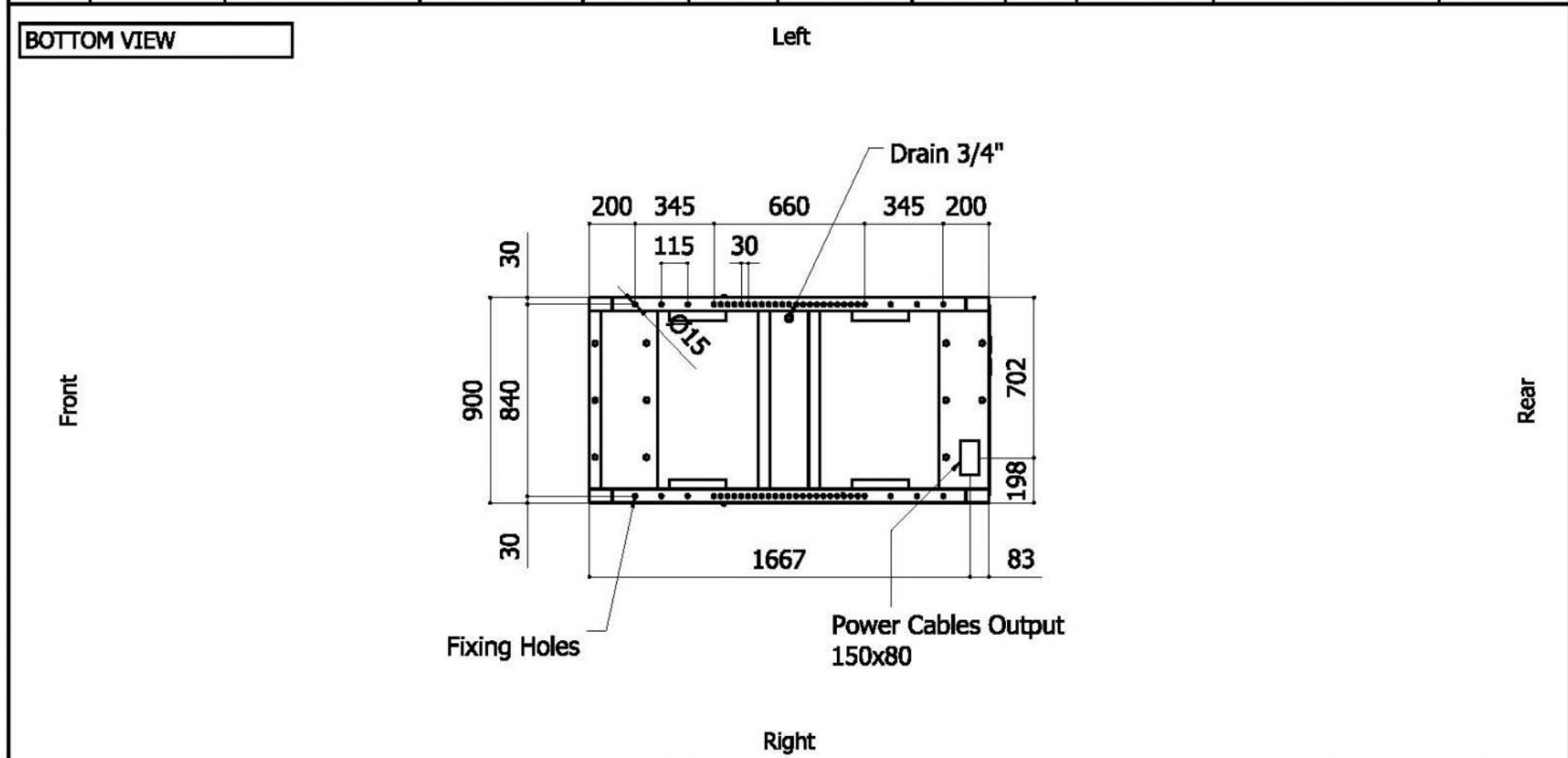
- ATS switching cabinet (QC) (only variant +11)
- UTIF counter with ARCUDI terminal box
- Remote control with 20 mt cable (only variant +12)
- Rental terminal box (n. a. on variant +12)
- Output power socket CE(only variant +11 with QPE panel)
- Differential protection
- QPE Multifunction Panel Elcos

Other

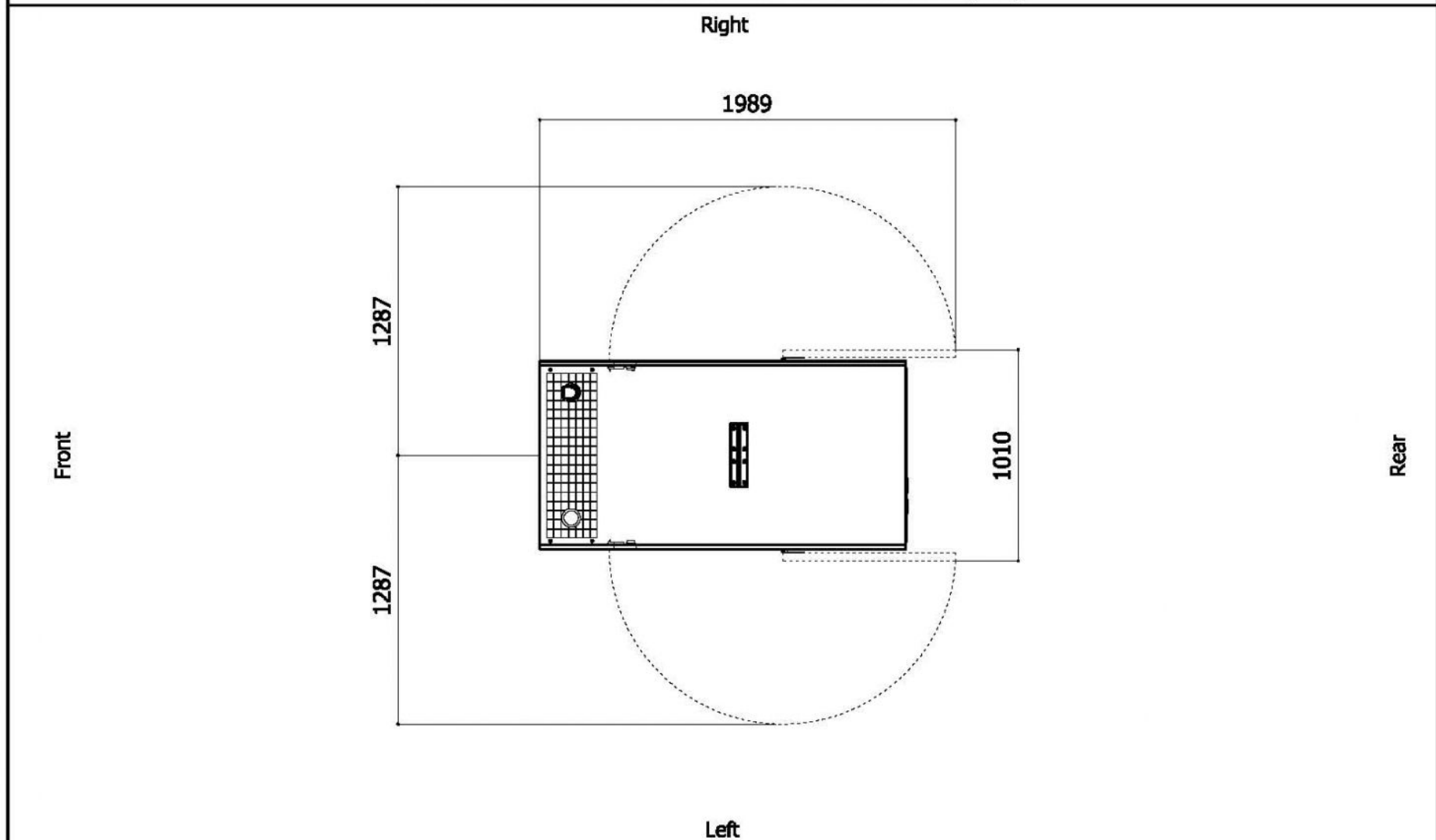
- Toolbox for ordinary maintenance
- Off-road trailer
- On road trailer



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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: 0.26 m²

Expulsion: 0.21m²

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 trasmitted without ELCOS S.r.l. approval