



Image for demonstration purposes

 **Generating Set**
PROFESSIONAL - Diesel

GE.PK.220/200.PRO+011

1500 rpm - Threephase - 50Hz - 400V
Multifunction panel without switching on board



Standard equipment

Canopy Soundproofing

- Removable soundproof canopy
- Painting canopy (RAL) in galvanized sheet steel
- Soundproofing with class 1 polyester material
- Handles with key lock and automatic closing
- Inspection doors for controls and maintenance
- Inspection doors with hermetic gasket

Exhaust

- Exhaust rain cap
- Insulated exhaust pipes
- Internal residential muffler

Fuel Supply

- Single wall daily tank with bunded base
- Automatic shutdown system for low fuel level
- Fuel gauge

Handling

- n.4 lifting hooks integrated into the bearing structure
- Loadable side by side for truck transportation

Base Frame

- Anti-vibrating mounting pads
- Anti pollution Bunded base

Engine

- Oil pressure and coolant temperature gauge (only with QPE or +14 variant)
- Tropicalized radiator
- Electronic speed governor

Alternator

- AVR Automatic Voltage Regulator
- Impregnation for marine environment
- IP23

Panel & connection

- Emergency Stop button
- Protection by controller
- Non-Automatic circuit breaker on panel board
- Tamperproof panel IP55
- Cable output from the bottom
- IP44 wiring
- Start-up battery (pre-charged)
- Grounding point

Documentation

- CE conformity declaration
- User and Maintenance manual
- Wirings diagrams

Normatives

- All Generating sets are compliant to CE Marking
- 2014/30/UE Electromagnetic compatibility
- 2000/14/CE Noise Emission for outdoor use
- Factory-designed systems built according to ISO 9001:2015
- CEI EN 60204-1:2018 - Electrical equipment of machines

Primary data

General Information

Speed	RPM	1500
Frequency	Hz	50
PRP	KVA	200
PRP - Prime power	KW	160,0
LTP - Standby power	KVA	220
LTP - Standby power	KW	176,0
Standard Voltage	V	400/230
Current	A	289,02
Voltage for current calculation	V	400
COSFI	0,8	0,8

General electrical protection

Circuit-breaker rated current	A	320
Type	Non-Automatic circuit breaker on panel board	
Circuit-breaker poles	N	4P
Optional/notes circuit-breaker	Opening coil	

Noise level +/- 3dB(A)

LWA	dB(A)	95
Sound pressure level @ 7 mt	dB(A)	70
Sound pressure level @ 1 mt	dB(A)	79

Fuel Consumption

TYPE		Diesel
Standard Fuel Tank capacity	lt	250
Autonomy @ 75% load	h	8
Fuel consumption at 100% load	lt/h	45,8
Fuel consumption at 75% load	lt/h	34,7
Fuel consumption at 50% load	lt/h	23,1

General data

Rated capacity	Ah	1x180
Auxiliary Voltage	V	12
Exhaust gas temperature	°C	580
Exhaust gas flow	l/s	581
Combustion air flow	l/s	210
Cooling fan airflow	mc/s	4,7
Exhaust diameter	mm	100

Weight and Dimensions

Dimensions (L x w x h)	cm	343x122x208
Weight with liquids (excluding optionals and fuel)	Kg (+/-3%)	2255

Engine

Factory		Perkins
Model		1106A-70TAG4
Emissions stage		Stage 0
Speed governor		Electronic
Radiator	°C	50
Cooling	Tipo	liquid (water + 50% Paraflu11)
Active net power	Kwm	173,9
Nominal net power	CV	236,3
Cycle	Tipo	4 strokes
Injection	Tipo	Direct
Aspiration	Tipo	Turbo
Numbers of cylinders	N	6
Cylinders arrangement		L
Bore	mm	105
Stroke	mm	135
Total displacement	lt	7,01
Engine oil features		15W40-API CI-4/CH-4 ACEA E5-E7
Total oil capacity	lt	16,5
Total coolant capacity	lt	21
ISO 8528-5 class		G2

Alternator

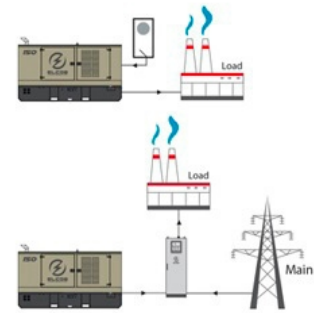
*** May vary based on stock availability. However, a primary brand will be used.**

Factory		Stamford
Model		UCI274H
Single-phase Range	KVA	200
Voltage Regulator (voltage accuracy)	+/- %	1
Poles	N°	4
Phases	N°	3+N
Standard windings connection		Star Series
Stator/rotor impregnation		H (Outdoor Temp 40°C)
Efficiency	%	93,3
Engine coupling		Elastic disk
Short circuit current		>= 300% (3In)
Protection degree	IP	23
Cooling system		Self ventilating
Maxium overspeed	rpm	2250
Waveform distortion	%	<5
Exciter		Diode bridge

Standard operating environmental conditions

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

Control Systems on board QLE-B-SC-3F-4P-400-O3



operating scheme - schema di funzionamento

QLE Multifunction panel without switching on board

The QLE command and control panel offers outstanding protection, monitoring and control for small and middle size generator sets. Elcos's control module MC2 Plus offers advanced features to meet the most demanding on-site application. Elcos's control module MC2 Plus is designed to offer an easy user interface. Variant without transfer switch. The panel directly manages the QLTS and QC panels. The output line is protected by a magnetothermic breaker with opening coil. The overload and short-circuit protection is managed by the control board.

Mechanical features

Protection degree	IP	55
-------------------	----	----

Battery charger

Model		ELCOS - CB1
Maximum output current	A	2,5
Output DC voltage (selectable)	V _{dc}	12-24
Input AC voltage (selectable)	V _{ac}	220-260
Frequency	Hz	50-60

Data Communication

Data connection port		RS-485
Communication protocol		Mod-bus RTU-8N1

Remotable functions in terminal box

GS start	Genset contactor close/open command (1)
Mains contactor close/open command (2)	Remote horn - DC output
Programmable output - Volt free output	

(1) Ready to load function (ARS mode without QC or QLTS panel)(1) Genset contactor open and close command (AMF mode with QC or QLTS panel)(2) Mains contactor open and close command (AMF mode with QC or QLTS panel)

Control Module



Model	MC2 Plus
Operating mode	AMF - ARS

Specifics

Applications

Emergency to the Mains
Stand-alone
Construction site/Rental
Self-production

ENGINE MEASURES

Fuel tank level %
Engine oil pressure BAR (1)
Engine Coolant temperature °C (1)
Total run time
Battery voltage
Start-ups counter
Engine speed

ALTERNATOR MEASURES

Generator Voltage L1, L2, L3
Generator Voltage L1-N, L2-N, L3-N
Generator frequency
Generator current L1, L2, L3
Generator Apparent Power kVA
Generator Active Power kW

COMMUNICATION PORTS

Can-bus port
RS485 port with Mod-bus RTU communication
USB port for parameters saving and firmware update

EQUIPMENT

Microprocessor Logic
Back-lit display
Programmable from display
16 event log
Icons management
STOP button
START button
TEST button
Reset alarm button
Alarm mute button

PRE-ALARMS/ ALARMS

Common Alarm
Fuel reserve (pre-alarm)
Low fuel level (alarm)
Charge alternator failed (dinamo)
Low oil pressure (alarm)
Oil sensor failed (alarm)
High coolant temperature (alarm)
Low water level (1)
Water in fuel (1)
Battery undervoltage
Battery overvoltage
GS failure to start
GS failure to stop
Can-bus Failure
No Can-bus communication
Genset overload L1, L2, L3 phases
Genset short circuit
Genset overvoltage
Genset undervoltage
Genset high frequency
Genset low frequency
overspeed
Earth fault (alarm)
Maintenance request
Emergency button pressed
Remote emergency active
Genset negative phase sequence

VISUALIZATIONS ON CONTROL

MODULE/DISPLAY

Pre-alarms
Alarms
Engine measures
Alternator measures
Operating mode
Genset status
Genset contactor status
Glow plugs status

CONTROL MODULE FUNCTIONS

Remote Start and Stop
Manual Start and stop
Emergency stop button on panel board
Remote emergency stop
Remote test on load
Scheduled start-ups
MODBUS commands (Start, Stop, Reset, Test)

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

AAABBB

OPTIONAL

Fuel Supply

**O.G-ACO-AT-CI-02**

External tank connections for supply only from external tank (g without tank) GE 130/700

**O.G-ACO-BT-P3700-1000**

1000 Lt Oversized Fuel Tank on board for BF/PRO (180/250 kVA) (Increased weight and size)

**O.G-ACO-BT-P3700-600**

600 Lt Oversized Fuel Tank on board for BF/PRO (180/250 kVA), (Increased weight and size)

Batteries

**O.G-BAT-BAE-03**

Maintenance free high efficiency starter batteries (130/250 kVA)

**O.G-BAT-STB-02**

Battery isolator lockable(130/700 kVA)

Canopy

**O.G-COF-PV-02**

Lift off doors kit for SS versione (130/400 kVA) and PRO version (130/500 kVA)

Electrical on board

O.Q-QBM-BMIN-230V-02

Additional price for 230V minimum voltage coil on MCCB both on the control panel and on the alternator (check feasibility)

O.Q-QBM-CPI-BEN-01

Permanent insulation controller for IT networks up to 230V / 400V. BENDER IR423-D4-1. Adjustable threshold 10 ÷ 300 kohm. (2 DIN rail modules - check feasibility)

O.Q-QLE-K-DIF-M3

Adjustable differential protection only for MC2-PLUS controller for Gen Sets 10/500 kVA (+011 variant)

**O.Q-QLE-QBM-COM-AMF25**

Additional price for QBM COMAP AMF25 panel replacing the standard QLE-A.

**O.Q-QLE-QBM-DSE-7320**

Additional price for QBM DSE7320 panel replacing the standard QLE-A.

**O.Q-QLE-QPE-MC4**

Additional price for QPE-C panel with MC4 replacing the standard QLE-A.

O.Q-QPE-INT-CST-03

STATUS contact GE main switch wired to terminal board inside the QPE panel (130 / 250KVA) on board the GENERATOR.

Engine

**O.G-MOT-K-40C-03**

Engine liquids suitable for -40°C ambient temperature for Gen Sets 130/250 kVA



O.G-MOT-PO-02

Oil change pump for Gen Sets 130/700 kVA



O.G-MOT-SC-AC-EL-01

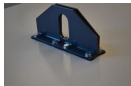
Engine pre-heater 230V with thermostat on board for Gen Sets 10/100 kVA + 130/500 PRO version



O.G-MOT-SC-AC-EL-03

Super hot engine heater 230V with thermostat on board for Gen Sets 130/250 kVA

Handling



O.G-MOV-GC-S2700

Lifting hook (150/250 kVA) PRO Version

ATS Panels



QLTS.400A

Wall-mounted ATS switching panel 400A 4P (275 kVA 400V) Dim. 80 x 28 x 60 cm - 40 kg.

Test



MS.CP-LT-02

FAT - Factory Acceptance Test for single Gen Set from 130 to 400 kVA according to our standard procedures in Elcos factory (max 2 hours - max 4 people - max 1 hour of operation)



MS.CP-SP-02

FAT - Factory Acceptance Test for single custom Gen Set from 130 to 400 kVA max 4 operating hours or parallel system up to 4 units for 1 operating hour, in Elcos factory (max 4 hours - max 4 people)



MS.CP-ST-02

FAT - Factory Acceptance Test for single Gen Set from 130 to 400 kVA according to our standard procedures in Elcos factory (max 4 hours - max 4 people - max 2 hour of operation)

Vari

O.G-VAR-PUN-TER-01

Round earth spike, diam. 20 mm, height 1.5mt, galvanized, complete with clamp and 3m yellow/green cable model FS17 1x35mm² with cable lugs.

O.G-VAR-PUN-TER-02

Cross-shaped earth spike, height 1.5mt, galvanized, complete with clamp and 3m yellow/green cable model FS17 1x35mm² with cable lugs.

PRP

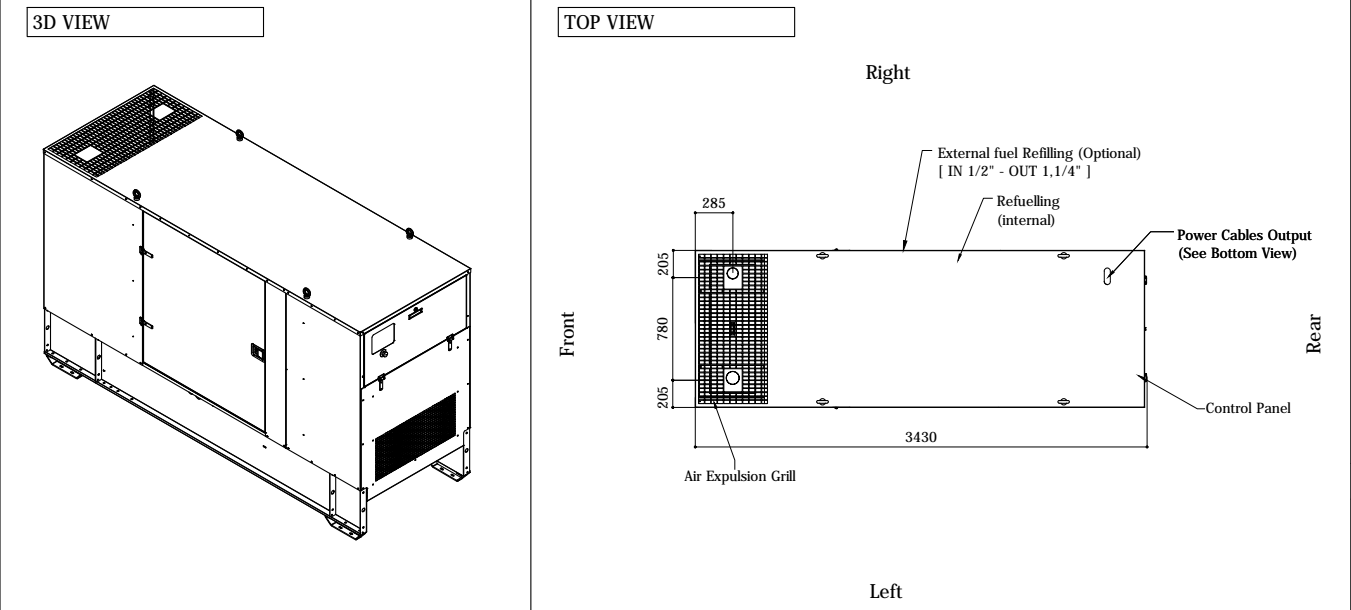
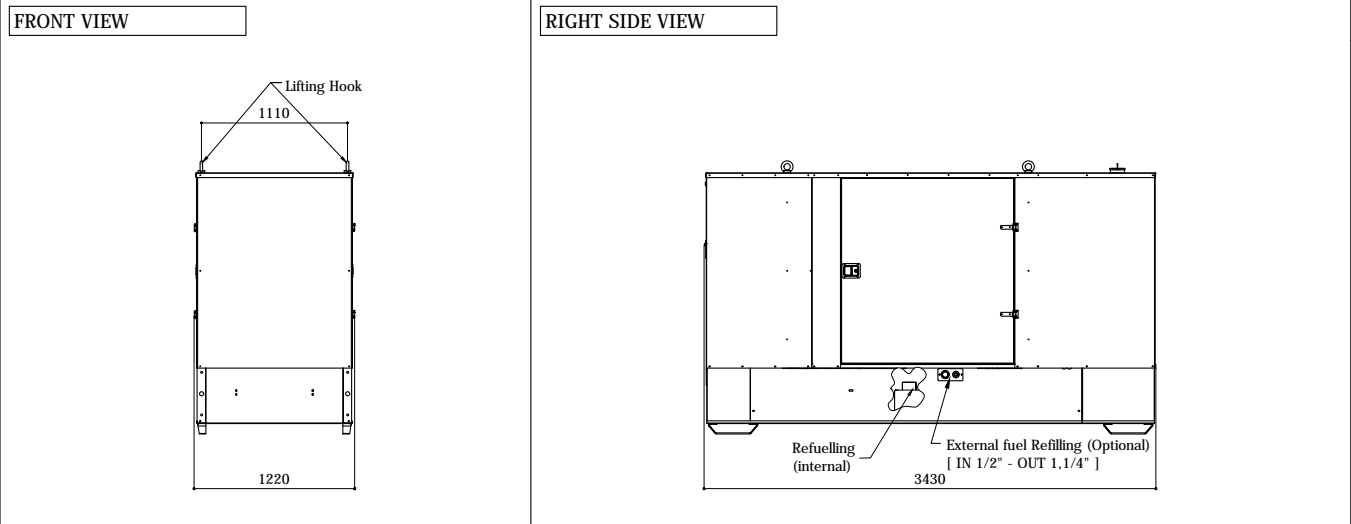
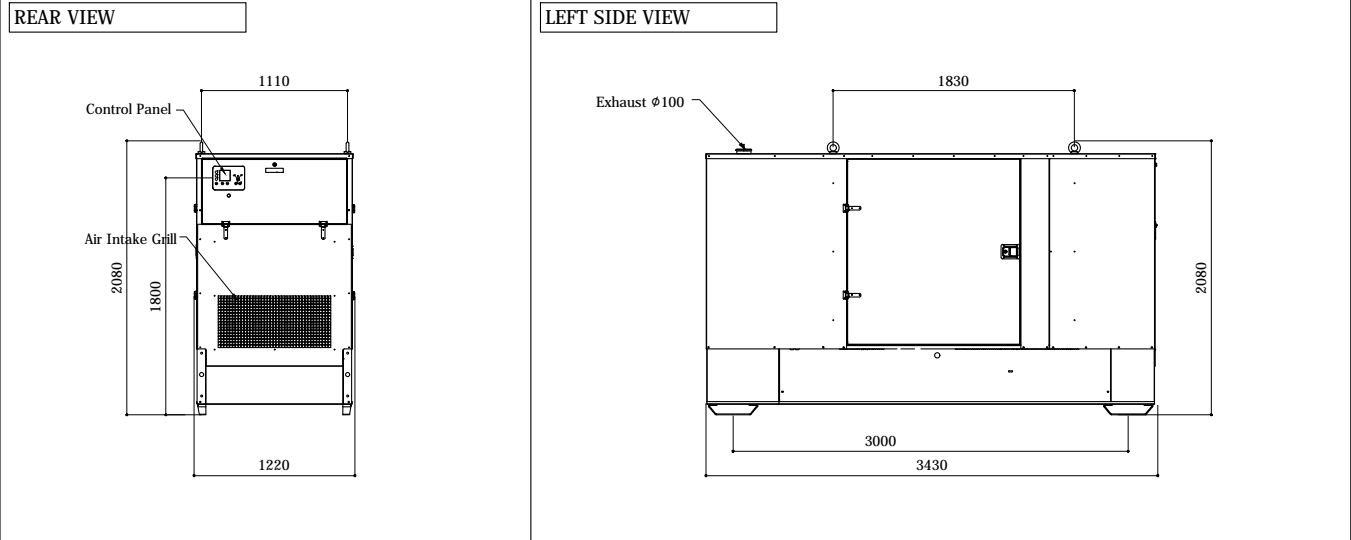
Engines of this rating provide unlimited hours of usage in a variable load application. The average load factor should not exceed 70% of the engine's prime power rating with a maximum number of 500 operational hours at 100% prime power rating. An overload capability of 10% is available, however, is limited to a period of 1 in every 12 hours

LTP

Limited-time running power is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500h of operation per year with the maintenance intervals. The overload is not allowed.

Sheet:	PRO3700	PRO	Exhaust side:	-	Type:	STANDARD	Rev:	00	Last Update:	04-02-2020	Page 1/2
--------	---------	-----	---------------	---	-------	----------	------	----	--------------	------------	----------

OVERALL DIMENSIONS [mm]

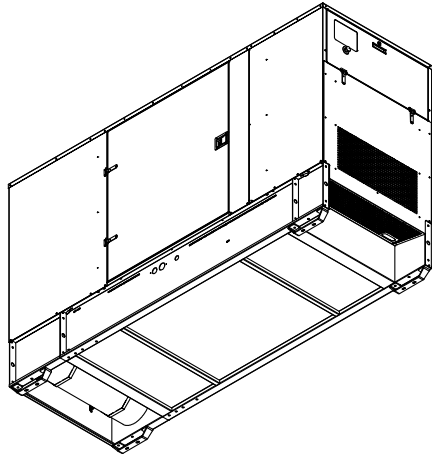


IMPORTANT:

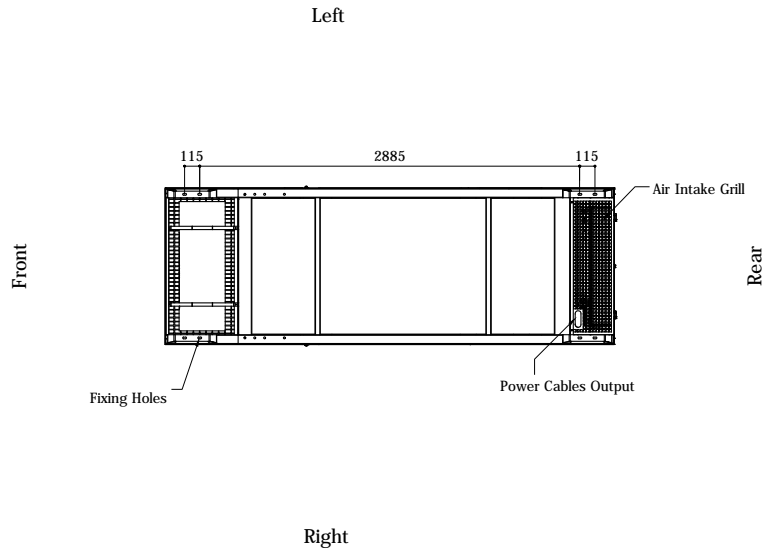
- 1) Form and dimension refer to the generating set on catalogue
- 2) Form and dimension are subject to change in order to update or improve the products
- 3) This document can not be copied or trasmitted without ELCOS S.r.l. approval

Sheet:	PRO3700	PRO	Exhaust side:		Type:	STANDARD	Rev:	00	Last Update:	04-02-2020	Page 2/2
--------	---------	-----	---------------	--	-------	----------	------	----	--------------	------------	----------

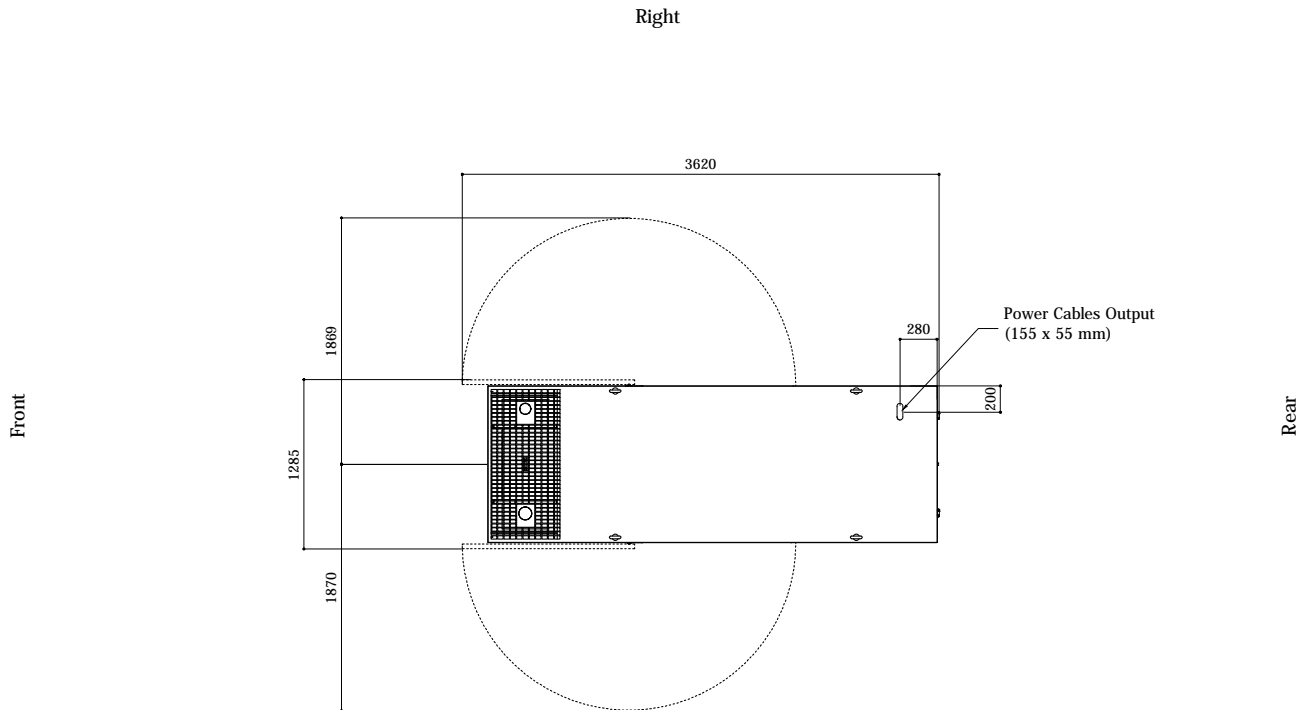
3D BOTTOM VIEW



BOTTOM VIEW



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: 0.90 m²

Expulsion: 0.60 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