GE.VO3A.450/410.SS+011

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

.SS

Image for demonstration purposes

Standard equipment

⚙ Canopy Soundproofing
Soundproofing with class 1 polyester material
Handles with key lock and automatic closing
Special baffles for air intake and air expulsion
Inspection doors for controls and maintenance

⚙ Exhaust
Exhaust rain cap
Exhaust manifold protection
Insulated exhaust pipes
Internal residential muffler - 35dB(A)

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

⚙ Handling
Lifting hook integrated into the bearing structure
Base frame with anti-overturning forklift pockets

⚙ Base Frame
Bunded base at 110% of fuel tank capacity
Anti-vibrating mounting pads
Battery compartment externally accessible for easy service

⚙ Engine
Engine pre-heater 230V
High coolant temperature and low oil pressure shutdown system
Oil pressure and coolant temperature gauge (only with QPE or +14 variant)
External oil drain points
Engine liquids (oil and antifreeze)
Tropicalized radiator
Rotating parts protection
Electronic speed governor
Radiator level sensor

⚙ Alternator
AVR Automatic Voltage Regulator
AVR Pre-arranged for parallel
Impregnation for marine environment
IP23

⚙ Panel & connection
Emergency Stop button
Magnetothermal circuit breaker on alternator board
Tamperproof panel IP55
Cable output from side
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

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Primary data

⚙ General Information

Speed	RPM	1500
Frequency	Hz	50
PRP	KVA	400
PRP - Prime power	KW	320,0
LTP - Standby power	KVA	440
LTP - Standby power	KW	352,0
Standard Voltage	V	400/230
Current	A	578,03
Voltage for current calculation	V	400
COSFI	0,8	0,8

⚙ General electrical protection

Circuit-breaker rated current	A	630
Type		Magnetothermal switch on the alternator board
Circuit-breaker poles	N	4P

⚙ Noise level +/- 3dB(A)

LWA	dB(A)	93
Sound pressure level @ 7 mt	dB(A)	68
Sound pressure level @ 1 mt	dB(A)	77

⚙ Fuel Consumption

TYPE		Diesel
Standard Fuel Tank capacity	lt	600
Autonomy @ 75% load	h	10
Fuel consumption at 100% load	lt/h	79,3
Fuel consumption at 75% load	lt/h	63,5
Fuel consumption at 50% load	lt/h	45,8

⚙ General data

Rated capacity	Ah	2x180
Auxiliary Voltage	V	24
Exhaust gas temperature	°C	476
Exhaust gas flow	l/s	966,6
Combustion air flow	l/s	383,3
Cooling fan airflow	mc/s	7,1
Exhaust diameter	mm	140
Exhaust side		SX

⚙ Weight and Dimensions

Dimensions (L x w x h)	cm	410x150x230
Weight with liquids (excluding optionals and fuel)	Kg (+/-3%)	4266

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⚙ Engine

Factory		**Volvo**
Model		**TAD 1355 GE**
Emissions stage		**Stage 3A**
Speed governor		**Electronic**
Radiator	°C	**50**
Cooling	Tipo	**liquid (water + 50% Paraflu11)**
Active net power	Kwm	**352**
Nominal net power	CV	**478,3**
Cycle	Tipo	**4 strokes**
Injection	Tipo	**Direct**
Aspiration	Tipo	**Turbo**
Numbers of cylinders	N	**6**
Cylinders arrangement		**L**
Bore	mm	**131**
Stroke	mm	**158**
Total displacement	lt	**12,771**
Engine oil features		**15W40-API CI-4/CH-4 ACEA E5-E7**
Total oil capacity	lt	**36**
Total coolant capacity	lt	**44**
ISO 8528-5 class		**G3**

⚙ Alternator

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

Factory		**Stamford**
Model		**S4L1D-F**
Single-phase Range	KVA	**415**
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	%	**93,2**
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**

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Control Systems on board QPE-C-SC-3F-V1

operating scheme - schema di funzionamento

QPE Automatic panel without switching on board

The QPE-C control panel represents the evolution of the panel for the control and managment of the gen set. With its microprocessor logic it is able to meet any user requested features. The dual operation mode manual and automatic guarantees to every type of functionality protection, analysis and control of the generating set in order to make the managment easy and efficient. Variant without transfer switch on board. ATS panel type QC as optional. The panel manages the QC panels directly or any other ATS panel.

⚙️ Mechanical features

Protection degree	IP	55

⚙️ Battery charger

Model		ELCOS - CB1
Maximum output current	A	2,5
Output DC voltage (selectable)	Vdc	12-24
Input AC voltage (selectable)	Vac	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)
Common Alarm - DC output
GS start with key in OFF position (Only in MRS mode)

GS lock
Mains contactor close/open command (2)
GS test without load
Programmable output - Volt free output

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⚙ Control Module

Model	**MC4**
Operating mode	**AMF - MRS**

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
Partial run time
Hours to maintenance
Battery voltage
Battery charging voltage
Start-ups counter
Engine speed (2)
Engine Oil temperature (2)
Cooler temperature (2)
Engine oil level (2)
Engine coolant level (2)
Engine coolant pressure (2)
Turbo pressure (2)
Fuel Consumption (2)
Tank autonomy - hrs (5)
Fuel remaining quatity (5)
Fuel used quantity (5)

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
Generator Reactive Power kVAR
Generator accumulated power kWh
Power factor Cosfi

MAINS MEASURES
Mains voltage L1, L2, L3
Mains voltage L1-N, L2-N, L3-N
Mains frequency

COMMUNICATION PORTS
Can-bus port
RS485 port with Mod-bus RTU communication
RS232 port for display connection
USB port for parameters saving and firmware update

EQUIPMENT
Microprocessor Logic
Back-lit display
Programmable from display
16 event log
Multiple display languages
STOP button
START button
TEST button
Reset alarm button
Alarm mute button
Fuel transfer pump activation button
Glow-plug activation button

PRE-ALARMS/ ALARMS
Common Alarm
Fuel reserve (pre-alarm)
Low fuel level (alarm)
Tank overflow
Charge alternator failed (dinamo)
Low oil pressure (pre-alarm) (1)
Low oil pressure (alarm)
Oil sensor failed (alarm)
High coolant temperature (pre-alarm) (1)
High coolant temperature (alarm)
Low coolant temperature (pre-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
Reverse power
Earth fault (pre-alarm)
Earth fault (alarm)
Block from password
CAN communication Failed
Maintenance request
Emergency button pressed
Remote emergency active
Forced stop
External battery failed
Fuel theft
Genset negative phase sequence
Mains negative phase sequence
Fuel theft protection

VISUALIZATIONS ON CONTROL MODULE/DISPLAY
Pre-alarms
Alarms
Engine measures
Alternator measures
Mains measures
Date and time
Operating mode
Genset status
Mains status
Mains contactor status
Genset contactor status
Digital Input and Output status
Grounding current mA (3)
Grounding current threshold mA (3)
Delay time of differential protection (3)
Glow plugs status

CONTROL MODULE FUNCTIONS
Automatic start and stop when the Mains Fails (7)
Remote Start and Stop
Remote Start and Stop with key in OFF position
Manual Start and stop
Emergency stop button on panel board
Remote emergency stop
Remote lock
Remote test without load
Remote test on load
Scheduled start-ups
MODBUS commands (Start, Stop, Reset, Test)

CONTROL MODULE SPECIAL FUNCTIONS (on demand)
Automatic charging of an external battery
Dummy load (4)
Load shedding (4)
Redundant starter motor management
Fuel monitoring
GS battery Load test
Idle mode
Service phone number indication
Variable speed Generator
Master / Slave mode

(1) Present with the sensor installed on engine
(2) Present according to the engine equipment and to the ECU type (ECU - Canbus)
(3) Present only with the residual current device mounted on genset board
(4) Present with optional expansion modules
(5) Present with special function activated
(6) Only with the optional of the automatic fuel refilling system on board
(7) Only in AMF mode

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OPTIONAL

⚙ Test

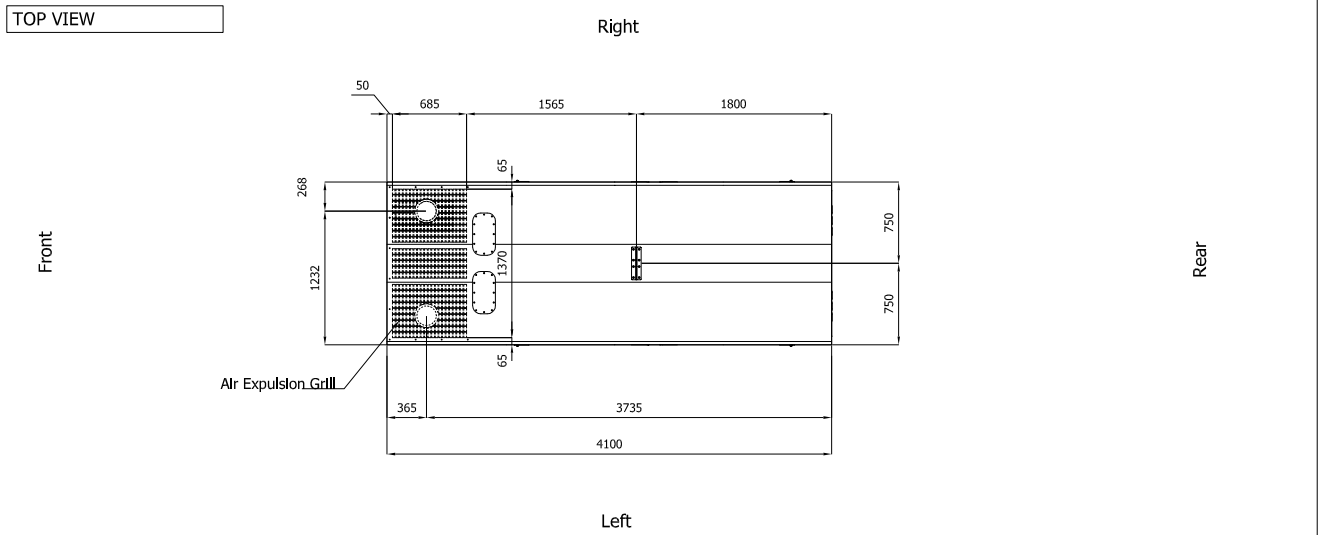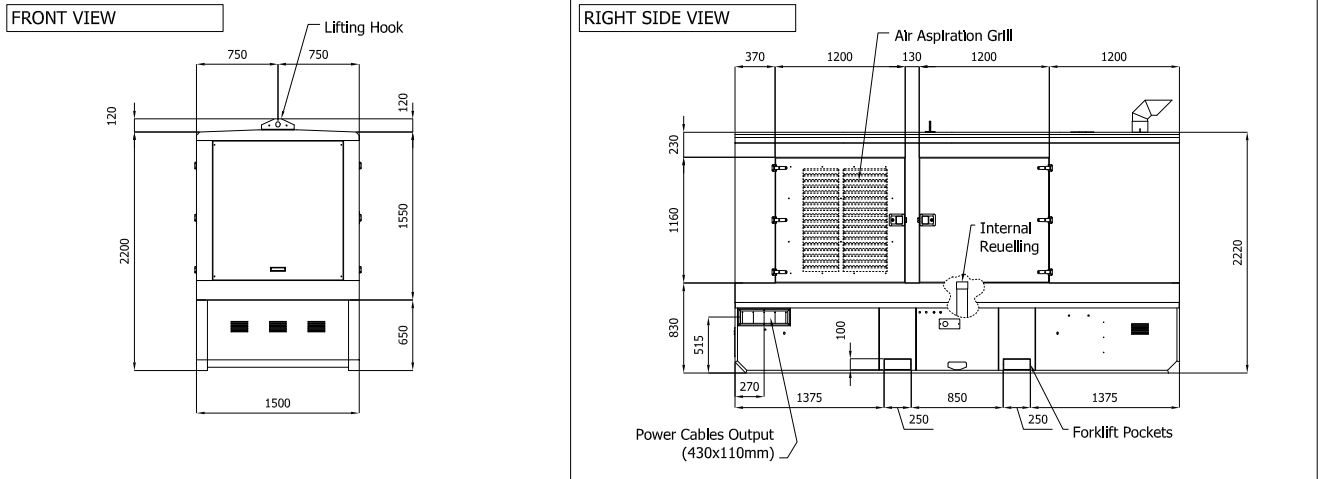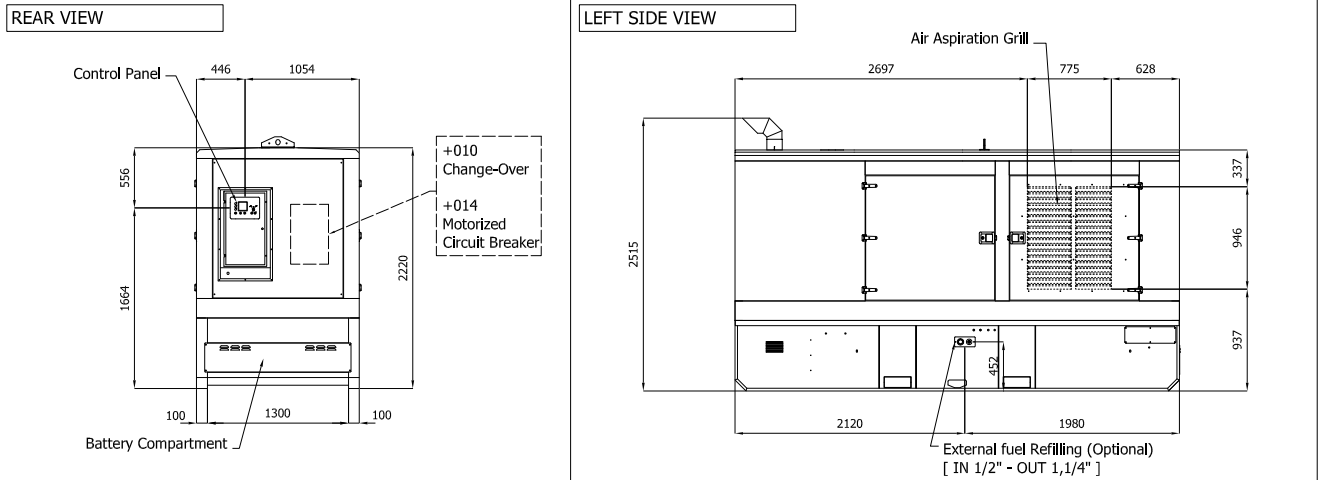|	MS.CP-LT-02	FAT - Factory Acceptance Test for single Gen Set from 130 to 400 kVA according to our standard procedures in Elcos factory (max 2 hours - max 4 people - max 1 hour of operation)
	MS.CP-SP-02	FAT - Factory Acceptance Test for single custom Gen Set from 130 to 400 kVA max 4 operating hours 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)

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.

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| Sheet: | C 4100 | SUPER SILENT | Exhaust side: | - | Type: | STANDARD | Rev: | 01 | Last Update: | Oct 14, 2019 | Page 1/2 |

OVERALL DIMENSIONS [mm]

REAR VIEW

Control Panel

446   1054

556

+010 Change-Over

+014 Motorized Circuit Breaker

2220

1664

100   1300   100

Battery Compartment

LEFT SIDE VIEW

Air Aspiration Grill

2697   775   628

337

2515

946

937

2120   1980

452

External fuel Refilling (Optional)
[IN 1/2" - OUT 1,1/4"]

FRONT VIEW

Lifting Hook

750   750

120   120

2200

1550

650

1500

RIGHT SIDE VIEW

Air Aspiration Grill

370   1200   130   1200   1200

230

1160

Internal Reuelling

2220

830

515

270   1375   850   1375

250   250

100

Power Cables Output
(430x110mm)

Forklift Pockets

TOP VIEW

Right

50

685   1565   1800

65

268

750

1232   1370

750

65

Front

Rear

Air Expulsion Grill

365   3735

4100

Left

VENTILATION OF THE ROOM

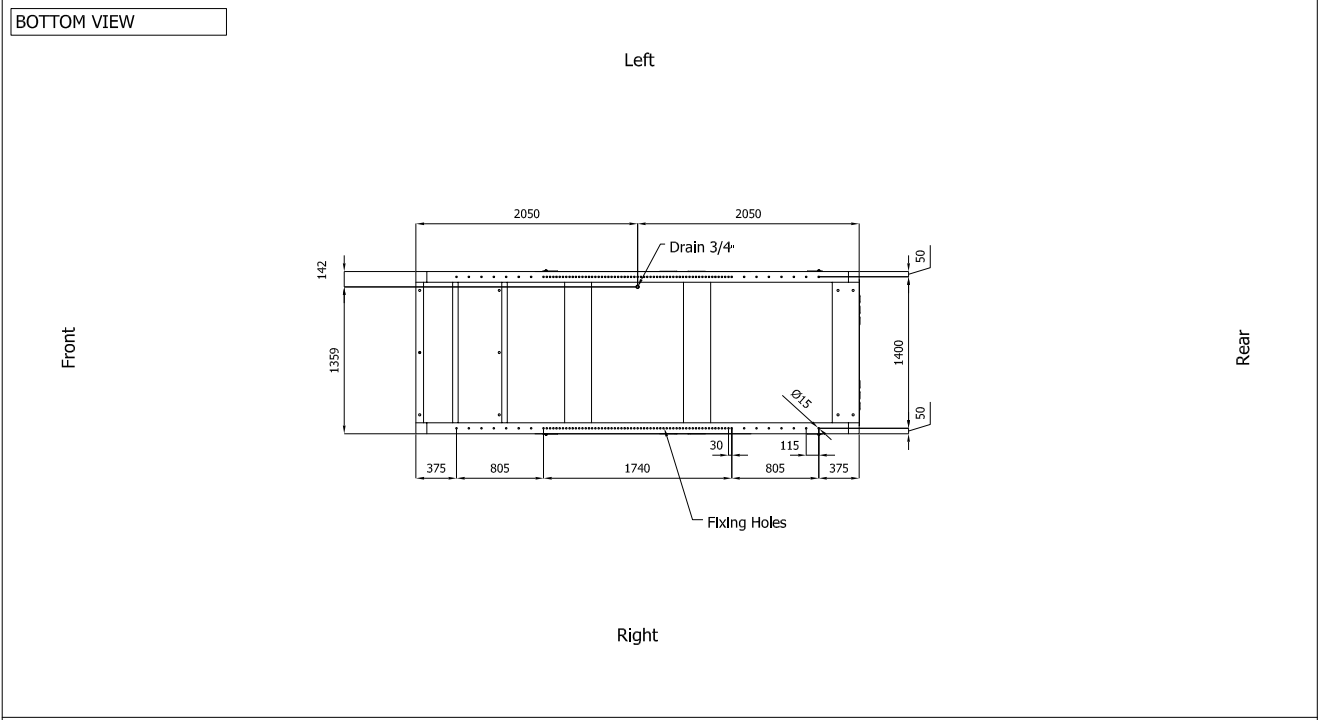The windows area in the generating set room needs to be (recommended):
Aspiration: 1.50 m2
Expulsion: 1.00 m2
ATTENTION: for a correct ventilation the expulsion air and the exaust gas needs to be conveyed in the open-air

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

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| Sheet: | C 4100 | SUPER SILENT | Exhaust side: | - | Type: | STANDARD | Rev: | 01 | Last Update: | Oct 14, 2019 | Page 2/2 |

BOTTOM VIEW

Left

Right

DIMENSIONS WITH OPEN DOORS [mm]

Right

Left
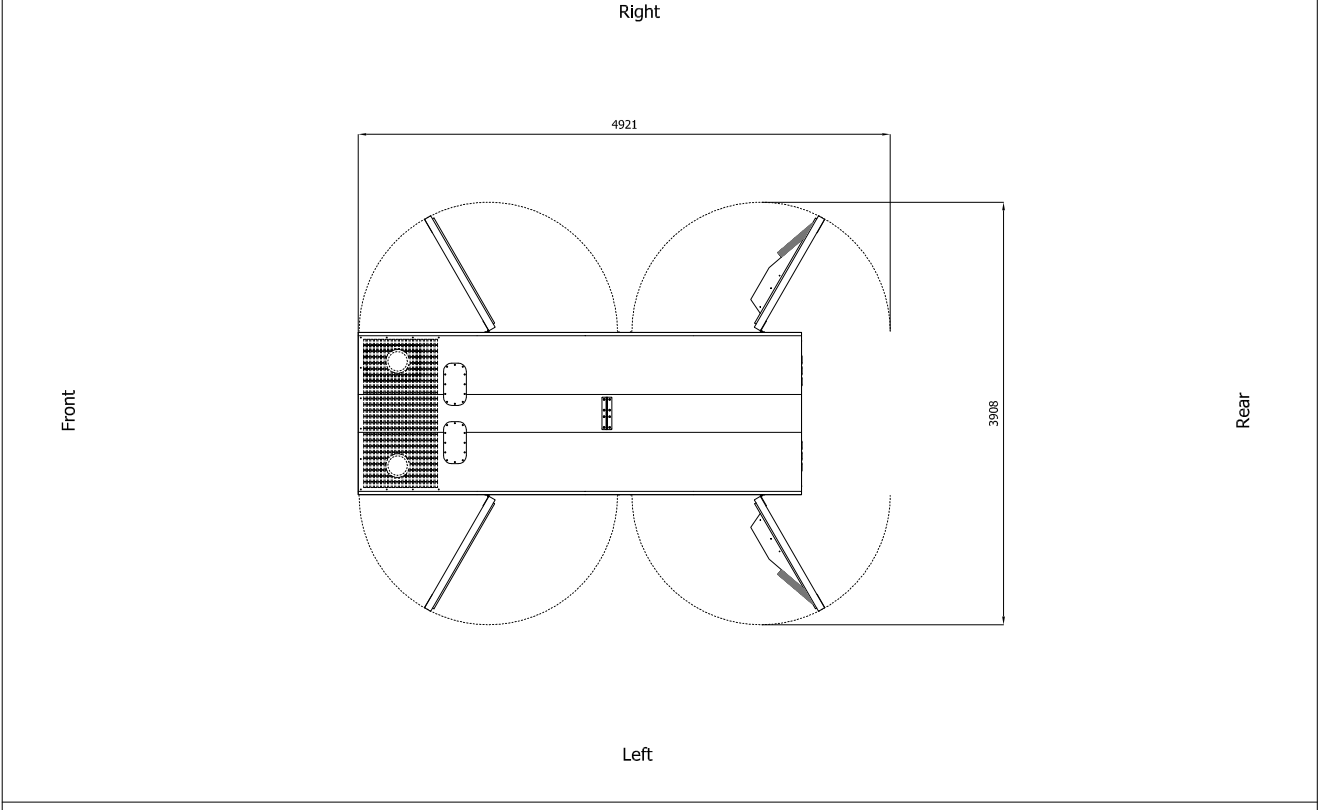
Note: -With Lifting-Off Door Solution consider only canopy dimensions.

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