

AV-680 - VOLVO - TWD 1643 GE

1.500 R.P.M. | 50 Hz

TECHNICAL SPECIFICATIONS



Model:

AV-680

Stand-by automatic gen set.



Image for guidance purposes.

ENGINE	MAKE	MODEL
	VOLVO	TWD 1643 GE

ALTERNATOR	MODEL
	MECC-ALTE ECO 40-1.5L/4

(400 / 230 V)

CONTINUOUS POWER:
(PRP "Prime Power" norma ISO 8528-1) **620 kVA**

STAND-BY POWER:
(LTP "Limited Time Power" norma ISO 8528-1) **680 kVA**

Amperes in the different voltages:

VOLTAGE	HZ	PHASE	COS Ø	PRP KVA/KW	LTP KVA/KW	AMPERAGE
415/240	50	3	0,8	620,0/496,0	682,0/545,6	949,93
400/230	50	3	0,8	620,0/496,0	682,0/545,6	985,55
380/220	50	3	0,8	620,0/496,0	682,0/545,6	1037,42
240/139	50	3	0,8	620,0/496,0	682,0/545,6	1642,58
230/133	50	3	0,8	620,0/496,0	682,0/545,6	1714
220/127	50	3	0,8	620,0/496,0	682,0/545,6	1791,91

ELECTRO EXIM SRL

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ENGINE CHARACTERISTICS

MAKE	MODEL
VOLVO	TWD 1643 GE

GENERAL DATA

Power PRP (kWm)	536
Power LTP (kWm)	596
No. cylinders	6
Cylinder capacity (L)	16.12
Diameter per stroke (mm)	144 x 165
Compression ratio	16.50
Cooling system	LIQUID
Injection	COMMON RAIL
Suction	TURBO-INTERC.
Series regulator	ELECTRONIC
Fly wheel coupling	1-14"

Lubrication system

Oil capacity (L)	48
Oil consumption (%)	0.08
Min. alarm oil pressure (bar)	2.20

Ventilation system

Air cooling flow (m3/h)	46800
Combustion air flow (m3/h)	2640
Max. back pressure for fan (mbar)	0

Exhaust system

Exhaust gas flow (m3/h)	6096
Exhaust back pressure (mbar)	100
Temp. exhaust gases (°C)	450

Electrical system

VDC (V)	24
Battery (Ah)	2 x 180
Engine start-up (kW)	7

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ALTERNATOR CHARACTERISTICS

MODEL

MECC-ALTE ECO 40-1.5L/4 (400 / 230 V)

GENERAL DATA

Power PRP (kVA)	620
Power LTP (kVA)	682.00
Efficiency Alt. 3/4 %	95.10
Efficiency Alt. 4/4 %	94.90
No. Poles	4
Voltage regulator	DER-1
No. wires	12
Insulation	H
Xd (%)	250.00
X'd (%)	18.40
X	9.80
Degree of protection	IP21

GENERATOR SET CONSUMPTION

% POWER USED	LITRES/HOUR
50%	59
75%	89
100%	120

DIMENSIONS, CAPACITIES, APPROXIMATE WEIGHT AND NOISE

LENGTH	DIMENSIONS (MM)	
	WIDTH	HEIGHT
3500	1330	2506
FUEL TANK (LITRES)		WEIGHT (KG)
1023		-
NOISE LEVEL (dB (A))		

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INMESOL GENERATOR SET

GENERAL DESCRIPTION

The "INMESOL" generator set is an electrical energy generating machine which is used in places where there **is no mains supply** or when there is a MAINS failure.

The mobile elements, distribution belt, fan, etc., and those parts which reach high temperatures during operation, exhaust manifold, etc, include their corresponding protections, in compliance with the requirements of the Machinery Directive **2006/42**.

REGULATIONS

The machine holds the "CE" marking, and the corresponding Declaration of Conformity is issued with each of them, in which it specifies that the machine complies with **R.D 842/2002 Low Voltage Regulations and with the European Directives:**

- 2006/42 on Safety in Machinery.
- 2006/95/CE on Electrical Safety.
- 2004/108/CE on Electromagnetic Compatibility.
- 2005/88/CE on NOISE EMISSIONS by equipment for outdoor use (for SOUNDPROOF GENERATOR SETS).

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SB STAND-BY RANGE / SCOPE OF SUPPLY

		
Engine/alternator monobloc directly connected and installed via silent blocks on a frame made from high tensile electro welded steel profiles that are treated with degreasing liquids and applied with a phosphate coat and epoxy paint.	✓	✓
Canopy of steel sheet sound proofed with fireproof rockwool, and treated with degreasing liquids and applied with a phosphate coat and epoxy paint.	•	✓
Fuel tank integrated in the chassis provided with fuel level gauge and fuel lines to the engine.	✓	✓
Engine with mechanical engine driven pusher fan.	✓	✓
Industrial silencer with -15 db(A) noise reduction and exhaust outlet tube.	✓	•
Residential silencer with -35 db(a) noise reduction with exhaust tube and protection cap.	•	✓
4 Pole thermal and magnetic circuit breaker.	✓	✓
Battery charge alternator.	✓	✓
Starter battery complete with cables to the engine and pole protection.	✓	✓
Installation prepared for earthing spike (spike not included).	✓	✓
Security protection for belts and moving parts as well as on electrical component.	✓	✓
External emergency stop push button.	✓	✓
Manual engine oil extraction pump.	•	✓
Self excited and auto regulated alternator.	✓	✓
Integrated lifting hook for single point lifting with crane, gensets up to 450 kVA (Except in swing-out cover model)	•	✓
4 Lifting points for gen sets from 450 kVA and bigger.	✓	•
Prepared for extended fuel tank, fully bonded for leakage protection.	✓	✓
Base frame prepared for trailer kit	✓	✓
Standard electronic speed governor on engines from 220 kVA and up.	✓	✓
Electric control cubicle with digital control module, automatic mains failure, manual start or remote start on signal.	✓	✓
Battery charger for gen set with 12VCC battery (2A).	✓	✓
Battery charger for gen set with 24VCC battery (5A).	✓	✓
Electric engine coolant preheating on gen sets with automatic mains failure controller.	✓	✓
Horizontal outlet for hot air	•	✓

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DSE 7320 AUTOMATIC CONTROL PANEL

DSE 7320 AUTOMATIC CONTROL PANEL

PROTECTION, DISTRIBUTION AND AUTOMATIC CONTROL panel which starts the generator set when it detects a mains failure and stops it when the mains is restored with the control unit DSE 7320.



Image for guidance purposes.

It has the following:

- 1** EMERGENCY STOP PUSHBUTTON
- 2** PROTECTIONS:
 - Magnetothermal switch (preheating resist.) 2P (16 A)
 - Protection fuses for control module
- 3** BATTERY CHARGER

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DSE 7320 AUTOMATIC CONTROL PANEL

- 4 DSE 7320 CONTROL and PROTECTION CENTRE.** It has a digital LCD screen, which provides easy reading of the information regarding the ENGINE, ALTERNATOR, MAINS and CHARGING.

READINGS that can be made:

ENGINE:

- Coolant temperature
- Oil pressure
- Turning speed (rpm)
- Fuel level
- Battery voltage
- Battery alternator voltage.
- Operating hours
- Number of start-ups

ALTERNATOR AND CHARGE:

- Voltages between phases and between phases and neutral.
- Intensities
- Frequency
- Active Power (kW)
- Reactive Power (kVAr)
- Apparent Power (kVA)
- Cos phi
- Active energy meter (kW-h)

MAINS:

- Frequency
- Phase rotation order
- Voltages between phases and neutral (L1-N, L2-N, L3-N).
- Voltages between phases and (L1-L2, L2-L3, L1-L3).
- Earth current

CONTROL of the set:

- STARTS and STOPS the set AUTOMATICALLY when mains failure is detected and when it is restored, respectively.
- It can also operate MANUALLY

Protection of the engine and alternator, with the ALARMS activated:

ENGINE:

- Low oil pressure
- High coolant temperature
- Low and High battery Voltage.
- Failure of the alternator to charge batteries
- Low fuel level

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DSE 7320 AUTOMATIC CONTROL PANEL

ALTERNATOR:

- Low and High Voltage
- Low and High Frequency
- Overload due to Intensity (A)
- Short-circuit
- Negative Phase Sequence.
- Power Overload (KW-kVA)
- Load control:
 - 1.Connection and disconnection of artificial loads.
 - 2.Disconnection of non-essential loads

MAINS:

- Low and High Voltage
- Low and High Frequency

OTHER CHARACTERISTICS:

- The real-time clock provides an exact record of events.
- Extensive number of configurable inputs and outputs.
- Configurable alarms and timers.
- USB connectivity
- Fully configurable via software and PC.
- Modbus RTU
- Possibility of SMS text messages
- Communications Ethernet, RS 232 and RS 485
- Programmer Clock with multiple maintenance events which can be configured for the optimal operation of the engine. Weekly and/or monthly programming of up to 16 starts and stops per week.
- ALTERNATIVE CONFIGURATIONS, which open up the working possibilities

5 DISTRIBUTION:

- Direct output of the magnetothermal switch.

6 OPTIONAL:

- 4-Pole Switchboard installed next to the Automatic Panel
- 4-Pole Switchboard in metal cabinet independent from the Automatic Panel

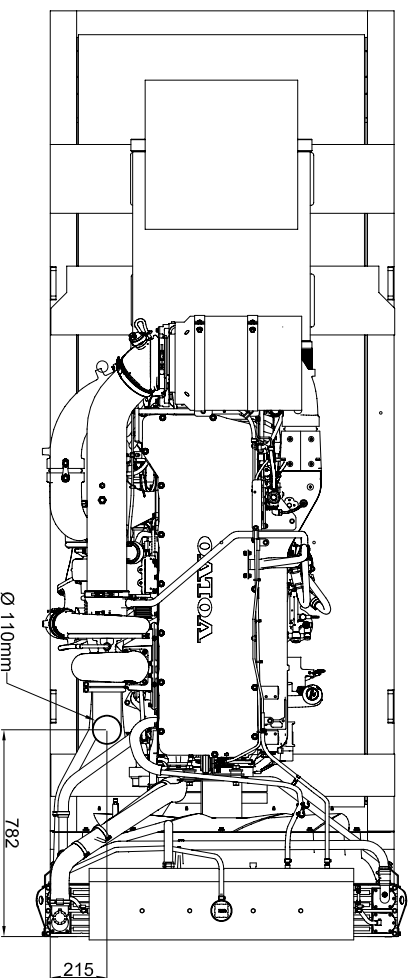
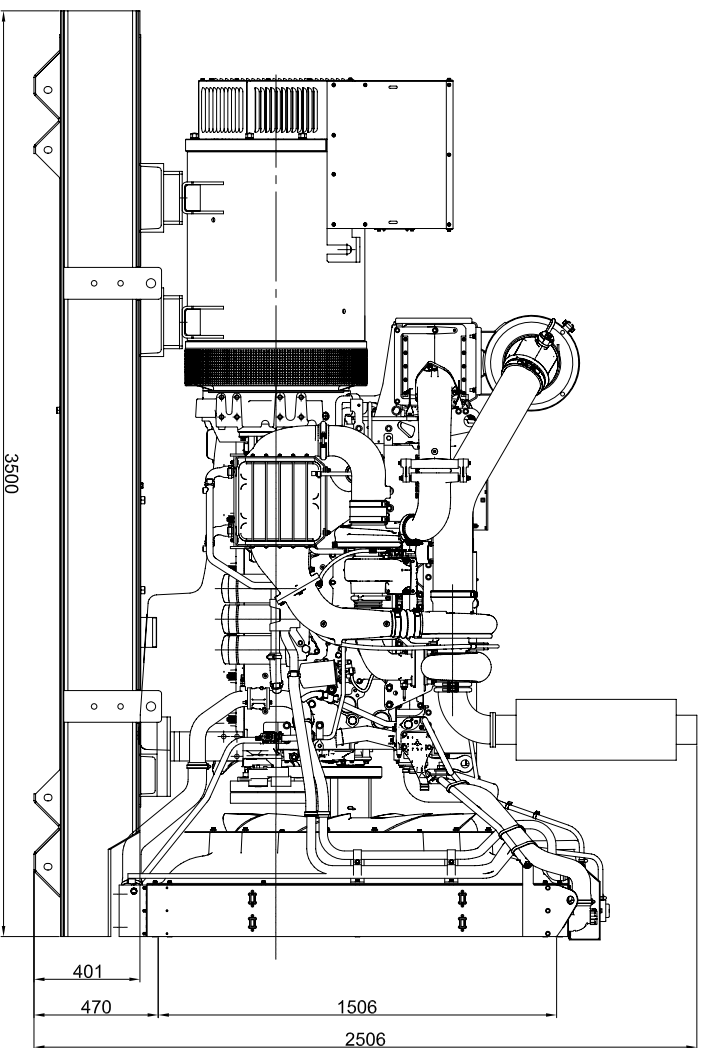
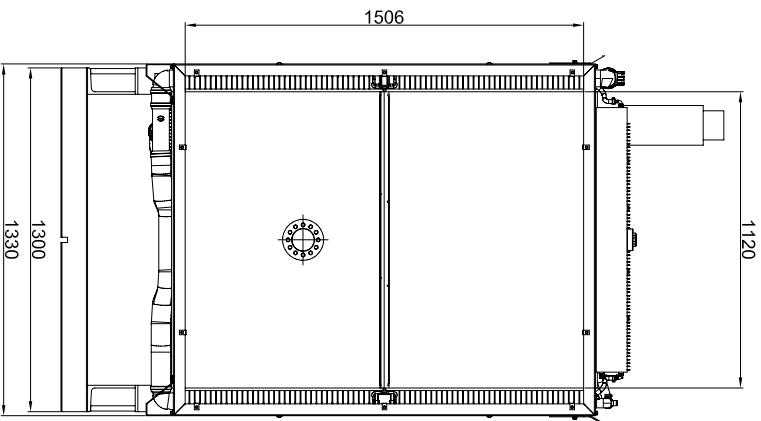
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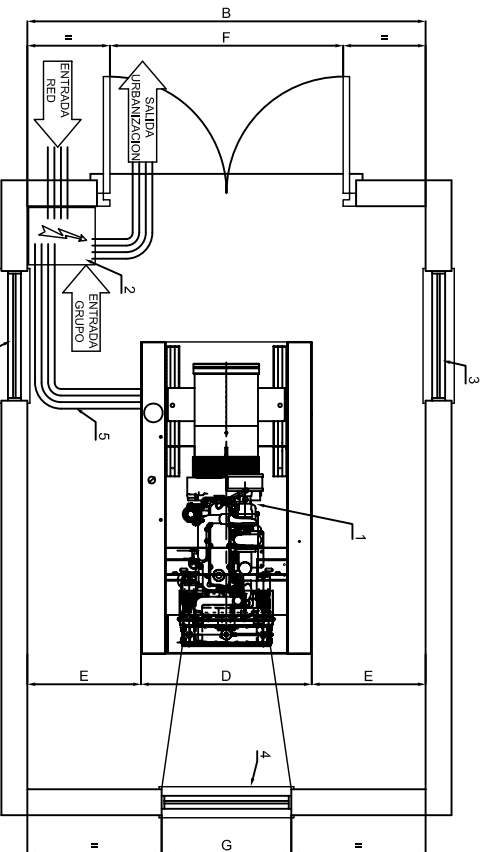
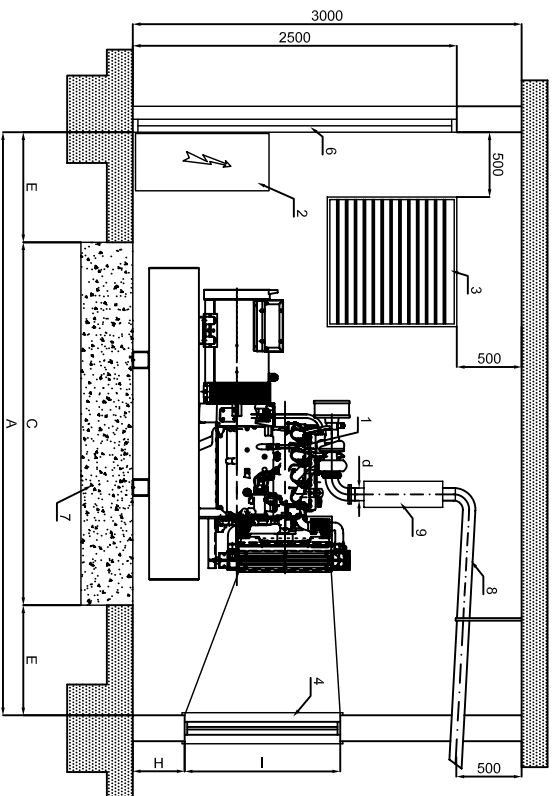
The following table shows the different amperages of the magnetothermal switches and the switchboards according to the set's power - Three-phase generators (single phase by request):

CONT. POW		MAGNETOTHERMAL PROTECTION IV POLES (A)	SWITCHBOARD IV POLES (A)
SET'S POWER	250 - 275 kVA	400	400
	300 - 430 kVA	630	630
	450 - 500 kVA	800	800
	570 - 650 kVA	1000	1250
	780 - 800 kVA	1250	1250
	915 - 1100 kVA	1600	1650
	1150 - 1300 kVA	2000	2000
	1400 - 1750 kVA	2500	2500
	1800 - 2100 kVA	3200	3200



CAPACIDAD DE DEPOSITO = 1023 LTS

		PROYECTO:			
Las tolerancias a menos de espesores de placa, a de los perfiles, etc., se darán como indicadas en el presente documento y no serán motivo de reclamación alguna. El presente documento es propiedad de INMIESOL S.A. CÓDIGO		G.E. EST-STD 620 Kva VOLVO (TAD 1643 GE)			
PESO		DIMENSIONES GENERALES			
ESCALA		EXPEDIENTE:			
		Nº PLANO			
		MARCA			
		MATERIAL			
MODIFICADO		TOLERANCIA GENERAL			
DIBUJADO		mm			
COMPROBADO		Nº MOD.			
		MARCA			



DIMENSIONES DE SALA SEGUN POTENCIA												
POTENCIA	A	B	C	D	E	F	G	H	I	d	PESO	SECCION HUECO ENTRADA AIRE
85 Kva	4050	2930	2050	930	1000	1430	800	450	800	80	1100	2x1.00 m2
105 Kva	4250	2930	2250	930	1000	1430	900	450	900	80	1320	2x1.00 m2
130 Kva	4250	3035	2250	1035	1000	1535	900	450	900	80	1460	2x1.00 m2
150 Kva	4500	3035	2500	1035	1000	1535	900	500	900	80	1620	2x2.00 m2
180 Kva	4500	3035	2500	1035	1000	1535	1000	500	1100	80	1608	2x2.00 m2
200 Kva	4500	3035	2500	1035	1000	1535	1000	500	1100	80	1780	2x2.00 m2
250 Kva	5000	3200	3000	1200	1000	1700	1200	500	1100	80	1950	2x2.50 m2
300 Kva	5000	3200	3000	1200	1000	1700	1300	650	1200	110	2770	2x2.50 m2
350 Kva	5000	3200	3000	1200	1000	1700	1400	650	1300	110	3295	2x3.00 m2
375 Kva	5000	3200	3000	1200	1000	1700	1400	650	1300	110	2770	2x3.00 m2
400 Kva	5000	3200	3000	1200	1000	1700	1500	650	1500	110	3295	2x3.00 m2
450 Kva	5490	3300	3490	1300	1000	1800	1500	725	1500	110	3295	2x3.00 m2
500 Kva	5490	3300	3490	1300	1000	1800	1700	725	1700	110	4030	2x3.50 m2
550 Kva	5490	3300	3490	1300	1000	1800	1700	725	1700	110	4240	2x3.50 m2
620 Kva	5500	3330	3500	1330	1000	1880	1900	725	1900	110	4440	2x4.00 m2

- NOMENCLATURA**
- 1.- GRUPO ELECTROGENO
 - 2.- CUADRO DE CONTROL
 - 3.- HUECO ENTRADA DEL AIRE
 - 4.- TUNEL DE EXPULSION DEL AIRE
 - 5.- BANDEJA PASACABLES
 - 6.- PUERTA DE ACCESO
 - 7.- BASE HORMIGON ARMADO H-175
 - 8.- TUBO DE ESCAPE
 - 9.- SILENCIADOR DE ESCAPE

EL Ø DE LA TUBERIA DE EXTENSION DEL ESCAPE PUEDE SER EL MISMO QUE EL DEL SILENCIADOR HASTA 5 m. PARA DISTANCAS MAYORES DE 5 m. DEBE AUMENTARSE EL Ø DE LA TUBERIA 10 mm POR CADA 10 m MAS DE DISTANCIA ENTRE EL GRUPO ELECTROGENO Y LA SALIDA EXTERIOR

CALCULO ESPESOR LOSA DE HORMIGON

$$D = \frac{W}{d \times B \times L}$$

D = altura bloque de hormigon
W = peso total grupo electrogeno
d = densidad del hormigon (2400 kg/m³)
B = anchura bloque de hormigon (m)
L = longitud bloque de hormigon (m)

h = 20/100 mm

		PROYECTO:		GRUPO ESTATICO ESTANDAR VOLVO	
Las informaciones contenidas en este documento son propiedad de INMESOL S.L. y no deben ser utilizadas sin el consentimiento expreso de INMESOL S.L. para su uso en otros proyectos. INMESOL S.L. no se hace responsable de los errores o omisiones que puedan aparecer en este documento.		MODIFICADO		MATERIAL	
PESO		DIBUJADO		TOLERANCIA GENERAL	
ESCALA		COMPROBADO		UDS.	
		DENOMINACION:		EXPEDIENTE:	
		GRUPOS EST-STD VOLVO		Nº PLANO	
		DIMENSIONES DE SALA		MARCA	