Created by
NPS Diesel
Engine Applications

ZENORO

Zenoro Premium Marine Generator

Model: ZASCLS2025HESE

DI09 074M Marine Generator Set

202 ekW / 50 HZ 1500 rpm

DIMENSIONS
2700 x 1210 x 1300 mm

WEIGHT
dry weight 2415 kg

SOUND REDUCTION
equal or > than 20 dba at 1 meter
free field conditions

VIBRATIONS
low

POWER
202 ekW 400 V 50 HZ

EMISSION
IMO 2

COLOURS
RAL 9010 or custom

ENCLOSURE
aluminium modular design

GENERATOR RATINGS PRIME (KVA AT POWER FACTOR 0,8)

Voltage	Phase	Amps	ekW/KVA
400/230	3	364	202/252,5
380/220	3	384	202/252,5
415/240	3	351	202/252,5

SCANIA ENGINE SPECIFICATION

INLINE 5 CYLINDERS, 4 CYCLE-DIESEL

Engine type	DI09 074M
Prime Power	217 kWm
Emission	IMO / Tier 2 compliant
Firing order	1-2-4-5-3
Displacement	9.3 L (567 cu. in.)
Rated engine speed	1500
Bore	130 mm (5.12 in.)
Stroke	140 mm (5.5 in.)
Aspiration	Turbocharged- after cooled
Injection system	Unit injection, PDE
Governor	Electronic
Cooling system	Heat exchanged
Refill capacity	
- Cooling system	30 L (7.9 US GAL)
- Lube oil system	32-38 L (8.4 - 10 US GAL)
Fuel filter	Duplex fuel oil filter switchable
Oil change interval	Up to 500 hours when fuel & oil requirements are met
Rotation (from flywheel end)	Counter clockwise
Engine crankcase ventilation system	Closed to eliminate engine room contamination

ENGINE ELECTRICAL

Battery voltage	24 volt isolated ground
Starter	7 kW
Battery charging	100 Amps
Battery recommendation	Min. 24V@32 °F (0 °C) 600 amps

COOLING SYSTEM

Seawater pump	Gear driven impeller type
Max. seawater pump suction lift	3,0 m (10 ft)
Seawater pump flow	215 Lpm (56.8 US GAL)
Sea water temp maximum engine in	32 °C
Ambient temperature max.	
- Intake from Engine room	45 °C
- Intake with inlet duct	60 °C

FUEL

Fuel recommended	EN 590 (DMA or DMX)
Recommended fuel line inside diameter	
Length < 6 m	12 mm*
Total fuel flow	240 L/hr (63,4 US GAL/hr)
Max. suction head of feed pump	1,0 m
Max. fuel level above feed pump	3,5 m
Fuel pre-filter yard supply	Min. 30 Micron

OPERATION REQUIREMENTS

AIR REQUIREMENTS

Engine combustion air	15,2 m3/min
Cooling air flow required for generator set at 50 °C	31 m3/min
Exhaust flow	34,3 m3/min
Exhaust temperature max	400°C
Maximum Exhaust backpressure without power loss	5,0 kPA
Maximum Exhaust backpressure	10,0 kPA

FUEL CONSUMPTION*

Diesel fuel consumption at % engine load

100%	49,0 l/hr	(12.9 US GAL/hr)
75%	37,6 l/hr	(9.9 US GAL/hr)
50%	26,0 l/hr	(6.9 US GAL/hr)

*All above values at rated speed and power.
Specific fuel gravity 0,853@ 60 F (15.5 C)

ZENORO STANDARD FEATURES

- Engine and alternator marine white painted
- Steel frame to support engine & alternator
- Approved vibration isolators
- Dry exhaust + exhaust compensator with exhaust insulation
- Junction box & controller box in one piece, central service connector
- Emergency button
- ABS, BV classification, other classification societies by option

STANDARD ENGINE SAFETY SYSTEM

- Engine oil pressure low warning & shutdown
- Engine coolant temperature high warning & shutdown
- Engine coolant level low warning
- Over speed shutdown
- Belt guard

STANDARD POSITION OF INTERCONNECTIONS

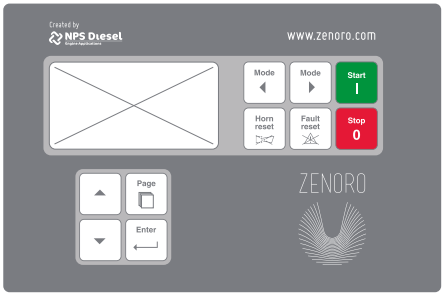
- Fuel connections, fuel inlet/outlet
- Seawater inlet pipe hose connection + rubber seals
- Seawater outlet via pipe hose connection + rubber seals
- Oil drain
- Opening for AC-load leads
- Opening for battery cables

STANDARD HIGH QUALITY HEAVY DUTY SOUND ENCLOSURE

- High quality modular sound enclosure with aluminium extrusion profiles
- RAL 9010 standard color , 2 layers Powder coating, 70% gloss, minimum total layer thickness 120 micron measured according ISO 2808
- Easily built up & dismantle
- Heavy duty service panels, easy removable
- Non-combustible insulation material according IMO (oil & vapour proof)
- Separate generator & engine compartment

ENGINE CONTROLLER PLATFORM FEATURES

- Certified Marine Engine Controller with redundant microprocessor based control for complete engine protection and control
- Engine settings available for Droop load sharing either isochronous load sharing



DISPLAY / USER INTERFACE

- Graphic 128 × 64 pixels display
- English language
- Buttons with mechanical feedback

COMMUNICATION INTERFACES

- Engine speed up/down voltage or current controlled
- Generator ready to start (pot. free contact)
- Engine running (pot. free contact)
- Common warning (pot. free contact)
- Common shutdown (pot. free contact)

ENGINE CONTROL & PARAMETERS

Engine fault code descriptions and codes
Black out start, 3 start attempts
Remote start & stop

Engine parameters are visualized on display and or Modbus RS 232 as:

- Engine running hours
- Oil pressure
- Rpm
- Battery voltage
- Engine status
- Coolant temperature
- Engine load in %
- Fuel consumption

HISTORY LOGS

Event based history
Reason, Date and Time + all important values are stored
Battery backed-up RTC
Important
Engine controller only, no generator protection,
no voltage & power & current measurements.
No paralleling functions. Yard responsibility

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ALTERNATOR SPECIFICATION

Manufacturer	Leroy Somer
Type	LSAM46.2L9
Electrical output	202 ekW/252,5 KVA
Power factor	0,8
Voltage regulator	AVR R450 +/- 0,5%
Type of regulation	AREP
Temp Rise	115°C
Insulation Class	H
Bearing	Single roller bearing
Coupling	Flexible disc
IP	23
Space heater*	250 W 230/240VAC

*To be connected &switched by yard

ALTERNATOR FEATURES

- Compact & low weight
- Standard 12 wire re-connectable winding, 3-phase brushless, 2/3 pitch windings
- High efficiency
- Short circuit current up to 300% of rated current for 10 seconds
- Permanently greased bearings up to 20.000 h

GENERAL

- Plastic wrap packing
- Manuals supplied in cd rom format with instruction, Operating and Maintenance Manual (in PDF format only)
- Factory Quality Report

OPTIONAL

- Wet elbow inside enclosure 6 inch connection for optimum installation
- Wet exhaust elbow temperature high warning & shutdown
- Drip pan underneath oil & fuel filter(s)
- Engine coolant level low warning by Murphy gauge
- Engine oil temperature sensor warning & display
- Engine oil drain with hose & hand pump
- Seawater flow sensor
- Modbus converter for RS 485 protocol
- Optional Internet/Ethernet connection for remote monitoring
- Electric cable penetrations with Roxtec
- Siphon break
- Outside muffler & water separator
- Other Classification societies as Lloyds, GL-DNV, RINA
- Unit certificates for certain notations
- Manuals in hard copy format
- Leroy Somer equipped with 3 phase sensing
- Stainless steel under plate for single elastic mounting
- Double elastics mounting: with heavy underframe minimum 40% of weight above, first & second layer of Rubber Design isolators

OPTIONAL MARINE CERTIFIED CONTROLLER PACKAGE

Marine certified generator controller package:
- Synchronizing, load sharing and breaker control
- Measurement and display of Volts, amps, PF, KW, KVA, kVAr, kWh, kvaHr
- No synchronizing to shore
- No power management
- Circuit breaker (motorized)
- Other details on request

OPTIONAL EXHAUST AFTER TREATMENT SYSTEM

IMO Tier 3 compliant emissions with Zero NOx System
Zero Soot System, electric, fuel burner either passive available

REFERENCE CONDITIONS

- Rated speed and power
- Gross Power guaranteed within +/-5% at SAE J1995 and ISO3046
- J1995 and ISO 1346 conditions:
- 25 °C (77 °F)air inlet temperature
- 99 kPa (29.31 in. Hg) barometric pressure
- 40 °C (104 °F) fuel inlet temperature
- 0,853 fuel specific gravity @ 15 °C (60 °F)

Ambient air temperature is defined to be the temperature of ambient air close to operating vessel that is not influenced at any manner by operating characteristics of the vessel (free field temperature).

All values from current available data. Subject to manufacturing and measurement variations and to change without notice. Actual performance is subject to application and operation conditions outside of Zenoro control.

RATINGS

Marine Generator: The Marine generator engine rating is the power available under normal varying electrical load factors for an unlimited number of hours per year in commercial applications. This rating incorporates a 10% overload capability, and conforms to ISO 8528 prime power. Average load over a 24-hour period shall not exceed 70% of the prime rating, of which no more than 2 hours are between 100% and 110% of the prime rating.

The marine generator rating is restricted to generator applications only. The criteria used to establish marine generator application ratings are the same used to establish industrial prime power generator application ratings.

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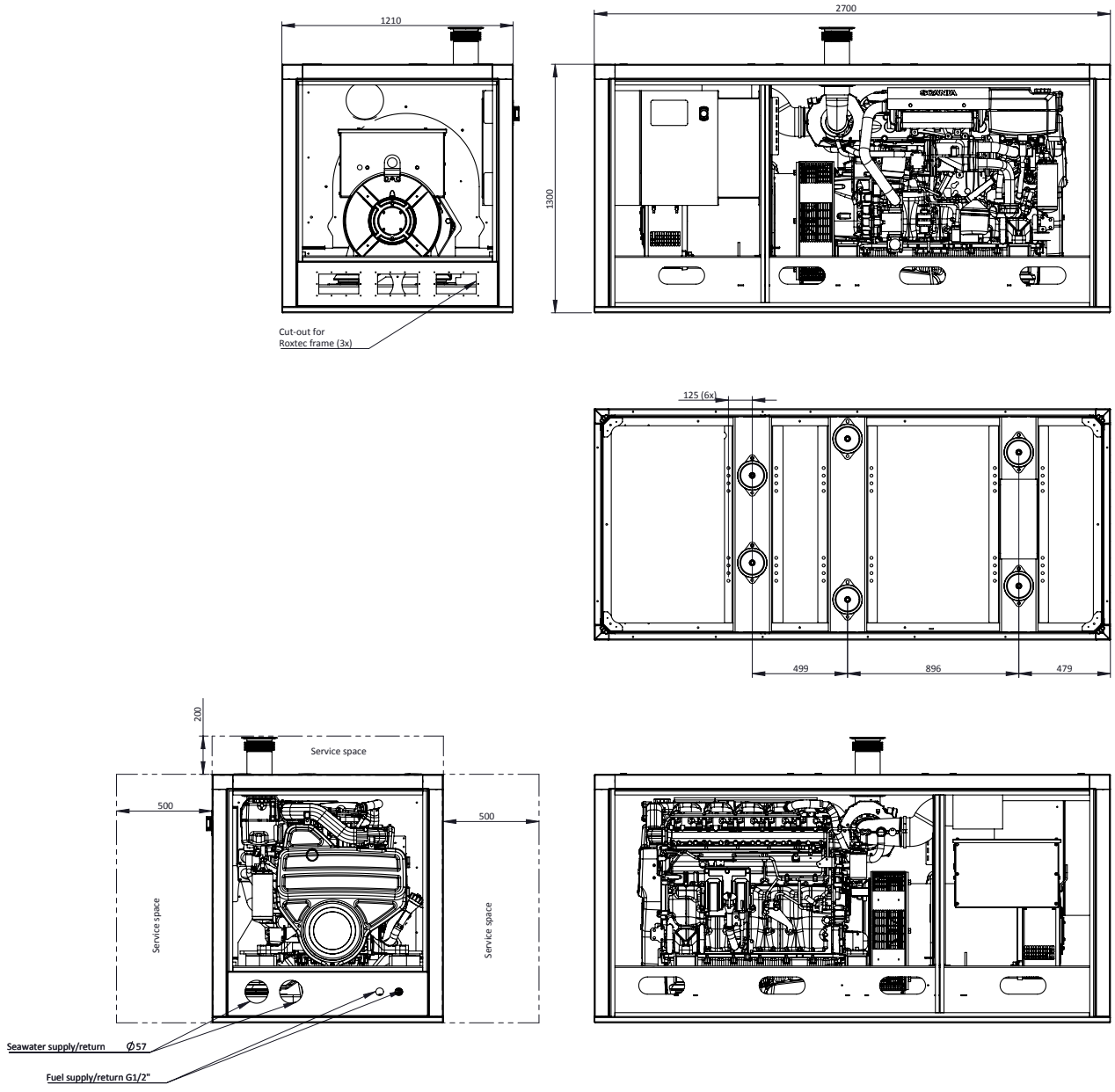
DIMENSIONS



NOTE: Generator sets to be installed above waterline. If not consult factory.
This drawing is provided for reference only and is not intended for installation purpose. Contact us either your local distributor for detailed information.

ZENORO | De Hammen 1 | 5371 MK Ravenstein | The Netherlands | +31 (0)486 201 600 | info@zenoro.com | www.zenoro.com

ZASCLS1845HESE

Premium Generators
for Superyachts