EURO POWER®

EP Series

EP400

Features:

- Excitation system: self-excited
- ATS (automatic transfer switch) receptacle
- Lockable battery isolator switch
- Stainless galvanized zinc plates with strong corrosion resistance
- Vibration isolators between the engine/alternator and base frame
- Integrated wiring design
- Base fuel tank for at least 8 hours running
- Equipped with an industrial muffler
- Engine oil pump
- 50℃ radiator
- Top lifting and steel base frame with forklift holes
- Drainage for fuel tank
- Complete protection functions and safety labels
- IP54 (soundproof sets), IP56 (control system)
- Water jacket preheater, oil heater and double air cleaner, etc. are available.

Output Ratings

Generating Set Model	Prime	Standby
EP350	400kVA/320kW	440kVA/352kW

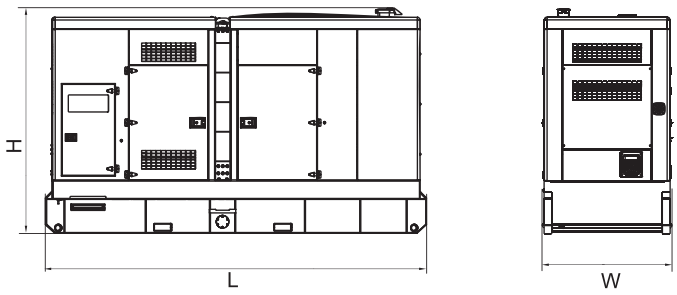
Ratings at 0.8 power factor.

Ratings and Performance Data

Engine Make & Model:		2206C-E13TAG3
Alternator Model:		LSA47.2S4
Alternator Brand:		Leroy Somer
Control System:		PLC-7420
Noise Level@7m:		/
Circuit Breaker Type:		/
Frequency & Phase:		50Hz & 3PH
Engine Speed: RPM		1500
Structure Type:	EP350	R
Fuel Tank Capacity: L	EP350	800
Fuel Consumption: l/hr (100% Load)	Prime	/
	Standby	/

Dimensions and Weights

Generating Set Model	Length (L) mm (in)	Width (W) mm (in)	Height (H) mm (in)	Dry kg (lb)	Wet kg (lb)
EP350	4242	1400	2510	4955	/
Dry = With Lube Oil		Wet = With Lube Oil and Coolant			



Also available in the following voltages: 415/240V-380/220V-220/127V-200/115V;
ESP: Standby Power Standby duty, operation under variable load, without over load;
PRP: Prime Power-Continuous duty operation, under variable load 24/24h-10% over load permissible 1 hour/12 hours;
The data is only for your reference but not for use of sales.

M: Mechanical speed governor, E/ECU: Electronic speed governor;
NA: Naturally aspirated, TC: Turbocharged, TCA: Turbocharged and air-air aftercooled. TCW: Water-cooled Turbocharged;
The weights are approximate and without fuel.

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Engine model: 2206C-E13TAG3

Cooling system

Radiator

Face area . ... 1,238 m²
Number of rows and materials . ... 1rows, aluminium
Matrix density and material .. .. 12 fins per inch, aluminium
Width of matrix . ... 1048 mm
Height of matrix ... ... 1100 mm
Weight of radiator (dry) . ... 132 kg
Pressure cap setting (min) ... ...70 kPa

Charge cooler

Face area.. ... ... 1,006 m²
Number of rows and materials . ... 1rows, aluminium
Matrix density and material .. .. 12 fins per inch, aluminium
Width of matrix . ... 915 mm
Height of matrix ... ... 1100 mm

Coolant pump

Speed @ 1500 rev/min . ... 2056 rev/min
Speed @ 1800 rev/min . ... 2468 rev/min
Drive method. ... ... Gear

Fan

Diameter ... ... 927 mm
Drive ratio.. ... ... 0,92:1
Number of blades.. 9
Material . ... .composite
Type .. .. pusher
Cooling fan air flow @ 1500 rev/min . ... 654 m³/min
Cooling fan air flow @ 1800 rev/min . ... 788 m³/min

Coolant

Total system capacity ... ... 51,4 litres
Max. top tank temperature ... ...104 °C
Temperature rise across engine ... ... 10 °C
Max. pressure in engine cooling circuit . ...70 kPa
Max. permissible external system resistance ... ...30 kPa
Max. static pressure head on pump .. ..30 kPa
Coolant flow against 30 kPa restriction
-1500 rev/min ... ... .5,3 litres/sec
-1800 rev/min ... ... .6,7 litres/sec
Thermostat operation range.. ... ... 87 to 98°C
For details of recommended coolant specifications, refer to the
Operation and Maintenance Manual for this engine model

Electrical system

-type ... ... 24 Volt negative earth
Alternator type ... ... .22SI
-alternator voltage 24V
-alternator output 70A
Starter motor type 39MT
-starter motor voltage. 24V
-starter motor power... ... ... 7,8 kW
Number of teeth on flywheel 113
Number of teeth on starter pinion 11
Minimum cranking speed ... ... 106 rev/min
Starter solenoid maximum
-pull-in current @ -25°C 200A
-hold-in current @ -25°C 25A

Duct allowance

Duct allowance 2206C-E13TAG2			
Maximum additional restriction (duct allowance) to cooling airflow and resultant minimum airflow			
Engine speed rev/min	**Ambient clearance inhibited coolant °C**	**Duct allowance Pa**	**m³/min**
1500	59	200	563
1800	59	200	716

Duct allowance 2206C-E13TAG3			
Maximum additional restriction (duct allowance) to cooling airflow and resultant minimum airflow			
Engine speed rev/min	**Ambient clearance inhibited coolant °C**	**Duct allowance Pa**	**m³/min**
1500	52	200	661
1800	57	200	716

Exhaust system

Maximum back pressure

-1500 rev/min .. .. .10,0 kPa
-1800 rev/min . ... .10,0 kPa
Exhaust outlet, internal diameter. ... ... 123 mm

Fuel system

Injection system... ... ...MEUI
Injector type. ... ...MEUI
Governor type.. ... ... electronic
Governing conforms to ... ...ISO8528-5 Class G2
Injector pressure.. ... ... .207 MPa

Fuel lift pump

-lift pump type.. ... ... .gear driven
-lift pump delivery - 1500 rev/min ... ...480 litres/min
-lift pump delivery - 100 rev/min .. ..600 litres/min
-lift pump delivery pressure . ...621 kPa
-max. suction head at pump inlet ... ... 3 m
-max. static pressure head .. .. 4 m
-max. fuel inlet temperature. ... ...55 °C
-fuel filter spacing primary ... ... 10 microns
-fuel filter spacing secondary... ... ... 2 microns

Fuel specification

BS2869 Class A2 or BSEN590
ASTM D975 Class 1D and class 2D
Note: For further information on fuel specifications and restrictions, refer to the OMM, “Fluid Recommendations” for this engine model.

Induction system

Maximum air intake restriction

-clean filter... ... ...2,5 kPa
-dirty filter. ... ...6,4 kPa
-air filter type ... ... paper element - 15 inch diameter

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Alternator model: LSA47.2S4

SPECIALLY ADAPTED FOR APPLICATIONS

The LSA 47.2 alternator is designed to be suitable for typical generator applications, such as: stand-by, prime power, cogeneration, marine, rental, telecommunications, etc.

COMPLIANT WITH INTERNATIONAL STANDARDS

The LSA 47.2 alternator conforms to the main international standards and regulations:
IEC 60034, NEMA MG 1.22, ISO 8528, CSA/UL request, marine regulations, etc.
It can be integrated into a CE marked generator-set.
The LSA 47.2 is designed, manufactured and marketed in an ISO 9001 environment and ISO 14001.

TOP OF THE RANGE ELECTRICAL PERFORMANCE

- Class H insulation.
- Standard 12-wire re-connectable winding, 2/3 pitch, type no. 6 (the LSA 47.2 L9 is available in two versions: 6-wire and 12-wire).
- Voltage range: 220 V - 240 V and 380 V - 415 V (440 V) - 50 Hz / 208 V - 240 V and 380 V - 480 V - 60 Hz.
- High efficiency and motor starting capacity.
- Other voltages are possible with optional adapted windings:
  - 50 Hz: 440 V (no. 7), 500 V (no. 9), 600 V (no. 23), 690 V (no. 52)
  - 60 Hz: 380 V and 416 V (no. 8), 600 V (no. 9).
- THD Total harmonic distortion < 2% (full load).
- R 791 interference suppression conforming to standard EN 55011 group 1 class B standard for European zone (CE marking).

EXCITATION AND REGULATION SYSTEM SUITED TO THE APPLICATION

Excitation system				Regulation options				
Voltage regulator	**SHUNT**	**AREP**	**PMG**	**T.I.** Current transformer for paralleling	**R 726** Mains paralleling	**R 731** 3-phase sensing	**R 734** 3-phase sensing on mains paralleling unbalanced	**P** Remote voltage potentiometer
R 250	**Std**	**-**	**-**	**-**	**-**	**-**	**-**	√
R 450	**optional**	**Std**	**Std**	√	√	√	√	√
D 510	**optional**	**optional**	**optional**	√	**included**	**included**	**included**	√

Voltage regulator accuracy ± 0.5%

√: possible mouting

PROTECTION SYSTEM SUITED TO THE ENVIRONMENT

- The LSA 47. 2 is IP 23.
- Standard winding protection for clean environments with relative humidity ≤ 95 %, including indoor marine environments.

Options:
- Filters on air inlet : derating 5%.
- Filters on air inlet and air outlet (IP 44) : derating 10%.
- Winding protections for harsh environments and relative humidity greater than 95%.
- Space heaters.
- Thermal protection for windings and shields.

REINFORCED MECHANICAL STRUCTURE USING FINITE ELEMENT MODELLING

- Standard direction of rotation : clockwise when looking at the drive end view (engine side).
  Running unit anti-clockwise: a derate of 5% must be applied.
- Compact and rigid assembly to better withstand generator-set vibrations.
- Steel frame.
- Cast iron flanges and shields.
- Two bearing and single bearing versions designed to be suitable for engines on the market.
- Half-key balancing.
- Greased for life bearings (regreasable bearings optional)

ACCESSIBLE TERMINAL BOX PROPORTIONED FOR OPTIONAL EQUIPMENT

- Easy access to the voltage regulator and to the connections.
- Possible clusion of accessories for paralleling, protection and measurement.
- 9-way terminal block for voltage reconnection.

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Control System

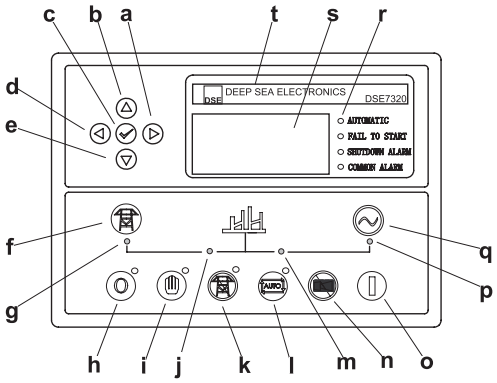
Digital, intelligent control system allows easier operation.

FEATURES

- Microprocessor control, with high stability and credibility
- Monitoring and measuring operational parameters of the mains supply and genset
- Indicating operation status, fault conditions, all parameters and alarms
- Multiple protections; multiple parameters display, like pressure, temp. etc.
- Manual, automatic and remote work mode selectable
- Real time clock for time and date display, overall runtime display, 250 log entries
- Overall power output display
- Integral speed/frequency detecting, telling status of start, rated operation, overspeed etc.
- Communication with PC via RS485 OR RS232 interface, using MODBUS protocol

PLC-7420

PLC-7420 is an advanced control module based on micro-processor, containing all necessary functions for protection of the genset and the breaker control. It can monitor the mains supply, breaker control. and automatically start the engine when the mains is abnormal. Accurately measure various operational parameters and display all values and alarms information on the LCD. In addition, the control module can automaticallyshut down the engine and indicate the engine failure.



Control Panel

a Button (next page)

b Button (increase value / previous item)

c Button (accept)

d Button (previous page)

e Button (decrease value / next item)

f Button (transfer the load to the mains supply, when in Manual mode only)

g Mains supply available LED

h Stop / Reset button

i Manual button (Manual control mode)

j Mains supply on load LED

k Test button (Test mode)

l Auto button (Auto mode)

m Genset on load LED

n Mute/Lamp test button

o Start button (Manual)

p Genset available LED

q Button (transfer the load to the genset, when in Manual mode only)

r Alarm LED (4 alarm items)

s LCD display

t Control module name