Features:

- Excitation system: self-excited (AREP and PMG are optional)
- 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 °C radiator
- Top lifting and steel base frame with forklift holes
- Drainage for fuel tank
- Complete protection functions and safety labels
- IP54 (soundproof sets), IP65 (control system)
- Water jacket preheater, oil heater and double air cleaner, etc. are available.

Output Ratings

<table>
<thead>
<tr>
<th>Generating Set Model</th>
<th>Prime</th>
<th>Standby</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPS400/S</td>
<td>400kVA/320kW</td>
<td>440kVA/352kW</td>
</tr>
</tbody>
</table>

Ratings at 0.8 power factor.

Dimensions and Weights

<table>
<thead>
<tr>
<th>Generating Set Model</th>
<th>Length (L) mm (in)</th>
<th>Width (W) mm (in)</th>
<th>Height (H) mm (in)</th>
<th>Dry kg (lb)</th>
<th>Wet kg (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPS400</td>
<td>3396</td>
<td>1210</td>
<td>2150</td>
<td>3218</td>
<td>/</td>
</tr>
<tr>
<td>WPS400S</td>
<td>4242</td>
<td>1400</td>
<td>2510</td>
<td>4955</td>
<td>/</td>
</tr>
</tbody>
</table>

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.
Engine model: 2206C-E13TAG3

Cooling system

Radiator
- Face area: 1,238 m²
- Number of rows and materials: 1 rows, aluminium
- Matrix density and material: 12 fins per inch, aluminium
- Width of matrix: 1048 mm
- Height of matrix: 1110 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: 1 rows, aluminium
- Matrix density and material: 12 fins per inch, aluminium
- Width of matrix: 915 mm
- Height of matrix: 1110 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

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
- Governor type: electronic

Governoring conforms to ISO8528-5 Class G2
- Injector pressure: .207 MPa

Fuel lift pump
- Lift pump type: gear driven
- Lift pump delivery @ 1500 rev/min: 621 kPa
- Lift pump 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
Pursuing your query, 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. This is because 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).
- 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**

<table>
<thead>
<tr>
<th>Excitation system</th>
<th>Regulation options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage regulator</td>
<td>SHUNT</td>
</tr>
<tr>
<td>R 250</td>
<td>Std</td>
</tr>
<tr>
<td>R 450</td>
<td>optional</td>
</tr>
<tr>
<td>D 510</td>
<td>optional</td>
</tr>
</tbody>
</table>

Voltage regulator accuracy ± 0.5%

✓: possible mounting

**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 inclusion of accessories for paralleling, protection and measurement.
- 9-way terminal block for voltage reconnection.
**Control System**

**PLC-920 (Optional)**

PowerLink PLC-920 generator controllers integrating digital, intelligent and network techniques are used as the automatic control systems for diesel generators. It can carry out functions including pre-alarm, warning & electrical trip, fail monitoring and controls etc.

### FEATURES
- Parameter configuration via RS-232 serial communication;
- Log last 50 events & alarm information with measured values;
- Statistics records;
- Remote start/stop;
- Speed sensing from alternator voltage or magnetic pickup;
- Configurable 3 inputs and 6 outputs;
- ECU powers, ECU stop, STOP or fuel solenoid selection;
- Automatic transfer switching control and engine control;
- Adjustable start, load and stop timers.

### SPECIFICATION
- Dimensions: 111mm*81mm*61mm
- Protection: IP65 at front panel
- Operating temperature: -20°C to 70°C
- Max. Operating current is 360mA
- Sender measurement: 0 to 1300 ohm

### FUNCTION
- Pre-Alarm
- Engine temperature
- Oil pressure
- Over/under voltage
- Over/under frequency
- Over/under speed
- Warning & Electrical trip
- Over current
- Short circuit
- Error
- Over/under speed
- Speed loss
- Battery low
- Battery high
- Maintenance
- Over current
- Short circuit
- Engine stop
- Can bus
- Charge alternator

### SPECIFICATION
- Panel cut-out: 81mm*70mm
- Weight: approximately 0.3kg
- DC battery supply voltage: 8 to 32Vdc
- CT secondary: 5A
- Accuracy: 1%FS, resolution: 1 ohm

### SPECIFICATION
- Dimensions: 111mm*81mm*61mm
- Protection: IP65 at front panel
- Operating temperature: -20°C to 70°C
- Max. Operating current is 360mA
- Sender measurement: 0 to 1300 ohm

### FUNCTION
- Fail monitoring
- Emergency stop
- Multiple engage fail
- Failed to start
- Low oil pressure
- High temperature
- Speed failure
- Voltage
- Charging fail
- Shutdown
- Warning
- Controls
- Fuel and stop solenoid
- ECU power and stop
- Starter motor
- Automatic generator start
- Preheat
- External alarm horn
- Engine cooling
- Idle mode
Control System

Digital, intelligent control system allows easier operation.

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 automatically shut down the engine and indicate the engine failure.

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

![Control Panel Diagram]

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
## Optional

<table>
<thead>
<tr>
<th>Engine</th>
<th>Alternator</th>
<th>Generator Set</th>
<th>Fuel System</th>
<th>Canopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Water Jacket Preheater</td>
<td>● Winding Temperature Measuring Instrument</td>
<td>● Tools with the machine</td>
<td>● Low fuel level alarm</td>
<td>● Trailer</td>
</tr>
<tr>
<td>● Oil Preheater</td>
<td>● Alternator Preheater</td>
<td></td>
<td>● Automatic fuel feeding system</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● PMG</td>
<td></td>
<td>● Fuel T-valves</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Anti-damp and anti-corrosion treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Anti-condensation heater</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lubricating System</th>
<th>Exhaust System</th>
<th>Cooling System</th>
<th>Control Panel</th>
<th>Voltages</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Oil with the machine</td>
<td>● Protection board from hotness</td>
<td>● Front heat protection</td>
<td>● Remote control panel</td>
<td>● 415/240V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Coolant (-30°C)</td>
<td>● PLC-920</td>
<td>● 400/230V</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● PLC-7420</td>
<td>● 380/220V</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● ATS</td>
<td>● 220/127V</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>● 200-115V</td>
</tr>
</tbody>
</table>

The following lists are optional by the needs of customers.

### Engine Model: 2206C-E13TAG3

<table>
<thead>
<tr>
<th>Minor Repair / 1000 hrs optional</th>
<th>Part Name</th>
<th>Part No.</th>
<th>Qty</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Fuel Filter</td>
<td>CH10931</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pre-Fule Filter</td>
<td>CH10930</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Oil Filter</td>
<td>CH10929</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Air Filter</td>
<td>CH11217</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>BELT</td>
<td>CH12032</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>ALT belt</td>
<td>CH11037</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>SEAL - ROCKER BOX COVER</td>
<td>CH12142</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>GASKET - CYLINDER HEAD</td>
<td>CH12454</td>
<td>1</td>
<td></td>
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<tr>
<td>9</td>
<td>THERMOSTAT</td>
<td>CH11620</td>
<td>1</td>
<td></td>
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<tr>
<td>10</td>
<td>FRONT OIL SEAL</td>
<td>CH12442</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>SEAL - REAR END OIL</td>
<td>CH12721</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

PowerLink reserves the right to make changes in model, technical specification, color, configuration and accessories without prior notice. Please contact the salesman before ordering.

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