

# LWA Liquid Cooled Gensets

|                 |                 |
|-----------------|-----------------|
| 50Hz; 1500r/min | 5.8 - 22.0 kVA  |
| 3000r/min       | 9.7 - 39.2 kVA  |
| 60Hz; 1800r/min | 7.1 - 28.6 kVA  |
| 3600r/min       | 10.6 - 31.3 kVA |

LWA10(A), LWA14(A), LWA15(A), LWA20(A), LWA22(A), LWA27(A), LWA30(A), LWA41(A) | Meccalte alternator

Open Genset



Acoustic Genset



## Note:

These gensets do not comply with Harmonised International Regulated Emissions Limits. LWA gensets do not comply with noise directive 2000/14/EC.

## SPECIAL ATTRIBUTES

- 500-hour service intervals
- designed for continuous operation in ambient temperatures up to 52°C (122°F)
- cold start capability down to -32°C (-25.6°F)

## STANDARD FEATURES

- control system with electronic digital control module
- single bearing, 4-pole brushless alternator [LWA10(A), LWA15(A), LWA20(A), LWA27(A)], 2-pole brushless alternator [LWA14(A), LWA22(A), LWA30(A), LWA41(A)]
- 66-litre polypropylene fuel tank with contents gauge
- zirconium phosphated powder coated base plate with forklift pockets
- bunded base retaining 110% of all fluids
- anti vibration mountings
- 12V starter battery and leads
- mechanical governing
- emergency stop button (lock-down type)
- pusher fan
- operators' handbook
- electrical diagrams

## BASIC CHARACTERISTICS

- 50 Hz, 1500 r/min and 3000 r/min or 60 Hz, 1800 r/min and 3600 r/min
- diesel fuelled and approved for operation on biodiesel, that conforms with ASTM D6751 and EN14214, concentrations of up to 20%
- naturally aspirated or turbocharged 4 cylinder
- open set (LWA) or acoustic set [LWA(A)]

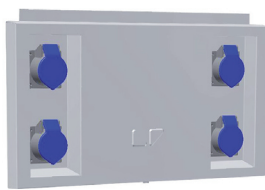
## OPTIONAL ITEMS

A comprehensive range of options allows you to select a specification that matches your requirements. Please ask your Lister Petter Power Systems distributor.

## ACOUSTIC SET OPTIONS



Sand filter unit



Industrial electrical output sockets



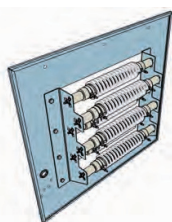
Rodent mesh



Large service doors showing fold-down front panel on cubicle and external emergency stop button \*



Roof mounted lifting eye bolt fixings \*



Internal dummy load unit (various rating)

\* These are standard features on canopied gensets

## OPEN SETS ONLY

- engine mounted exhaust silencer (not illustrated)

## ACOUSTIC SETS ONLY

- acoustic canopy
- residential exhaust silencer
- 2 off roof mounted lifting eye bolt fixings
- external emergency stop button
- tough ripple effect paint finish
- earth straps on service doors
- large side door for easy service access
- document pocket in access door

## ALTERNATOR SPECIFICATION

- single bearing, 2-pole or 4-pole brushless alternator
- solid state AVR with  $\pm 1.5\%$  voltage regulation as standard
- class H insulation on the rotor and stator
- IP23 protection class

## CONTROL CUBICLE

All LWA(A) sets have a vibration-isolated control cubicle, which has the following features:

- electronic digital control module with monitoring/control facility and warning indicators
- automatic shutdown protection
- emergency stop button (lock-down type) – open sets only
- AC output circuit breaker with over-current protection
- DC circuit control switch and overload circuit breaker

## The control module gives digital readouts of:

- generator voltage (phase-to-phase and phase-to-neutral)
- generator current (each phase displayed separately)
- generator output frequency
- mains voltage (phase-to-phase and phase-to-neutral) AMF sets only
- mains frequency (each phase displayed separately) AMF sets only
- engine speed
- engine coolant temperature
- battery voltage
- engine hours run

## The control module has indicators for:

- over speed / under speed
- emergency stop
- failure to start
- battery charger failure

## Automatic shutdown occurs under:

- low engine oil pressure
- high engine temperature
- over speed / under speed
- failure to start after three attempts

## MANUAL / REMOTE START SETS

These sets have the flexibility of either manual or remote automatic operation:

- manual operation is by START and STOP push-buttons on the control module
- remote operation is achieved by connecting a 2-wire circuit to the relevant terminals on the control module and is activated by setting the control module to AUTO

## AUTOMATIC MAINS FAILURE SETS (AMF)

### AMF control system integral with control cubicle

The AMF specification provides that in the event of a mains failure the generating set will automatically operate to supply the electrical load. In addition to the standard features automatic mains failure sets have the following features:

- mains monitoring unit to control set operation
- load-transfer contactors, mechanically and electrically interlocked (rated for set output)
- indicator for mains-on-load or plant-on-load
- control module timer circuits set to delay start, delay transfer back to mains and delay stop to allow for engine cool down
- solid state automatic battery charger that maintains charge when set is not running

## OPTIONAL ITEMS

- integral residential exhaust silencer as fitted to acoustic gensets (open sets only)
- remote residential exhaust silencer for plant room installations (open sets only)
- acoustic canopy kit (including residential silencer kit) for retrofitting to open sets
- AMF system with remote mounted ATS panel
- sand filter unit, high efficiency, labyrinth type complete with washable dust element (acoustic sets only)
- rodent mesh
- integral dummy loads (various ratings)
- industrial electrical output sockets
- automatic solid-state 4-Amp battery charger (standard on AMF gensets)

POWER OUTPUTS <sup>3</sup> | UNREGULATED EMISSIONS RATINGS

|       |        |                  | 50Hz         |       |             |           | 60Hz         |              |             |           |
|-------|--------|------------------|--------------|-------|-------------|-----------|--------------|--------------|-------------|-----------|
| Model | Engine | Rating           | 1500 r/min   |       |             |           | 1800 r/min   |              |             |           |
|       |        |                  | Single phase |       | Three Phase |           | Single phase |              | Three Phase |           |
|       |        |                  | 220V*        | 230V* | 380/220V*   | 400/230V* | 220 or 110V* | 230 or 115V* | 220/127V*   | 230/133V* |
|       |        |                  | 240V*        |       | 415/240V*   |           | 240 or 120V* |              |             |           |
|       |        |                  | kVA          | kW    | kVA         | kW        | kVA          | kW           | kVA         | kW        |
| LWA10 | LPW2   | COP <sup>3</sup> | 5.8          | 5.8   | 7.7         | 6.2       | 7.1          | 7.1          | 9.4         | 7.5       |
|       |        | PRP <sup>1</sup> | 6.1          | 6.1   | 8.1         | 6.5       | 7.4          | 7.4          | 9.9         | 7.9       |
|       |        | ESP <sup>2</sup> | 6.3          | 6.3   | 8.5         | 6.8       | 7.8          | 7.8          | 10.3        | 8.2       |
| LWA15 | LPW3   | COP <sup>3</sup> | 8.9          | 8.9   | 11.9        | 9.5       | 10.9         | 10.9         | 14.6        | 11.7      |
|       |        | PRP <sup>1</sup> | 9.3          | 9.3   | 12.5        | 10.0      | 11.4         | 11.4         | 15.3        | 12.2      |
|       |        | ESP <sup>2</sup> | 9.8          | 9.8   | 13.0        | 10.4      | 12.0         | 12.0         | 16.0        | 12.8      |
| LWA20 | LPW4   | COP <sup>3</sup> | 11.9         | 11.9  | 16.0        | 12.8      | 14.9         | 14.9         | 20.0        | 16.0      |
|       |        | PRP <sup>1</sup> | 12.5         | 12.5  | 16.8        | 13.4      | 15.7         | 15.7         | 21.0        | 16.8      |
|       |        | ESP <sup>2</sup> | 13.1         | 13.1  | 17.6        | 14.1      | 16.4         | 16.4         | 22.0        | 17.6      |
| LWA27 | LPWT4  | COP <sup>3</sup> | 15.2         | 15.2  | 20.0        | 16.0      | 19.4         | 19.4         | 26.0        | 20.8      |
|       |        | PRP <sup>1</sup> | 16.0         | 16.0  | 21.0        | 16.8      | 20.3         | 20.3         | 27.3        | 21.8      |
|       |        | ESP <sup>2</sup> | 16.8         | 16.8  | 22.0        | 17.6      | 21.3         | 21.3         | 28.6        | 22.9      |
| Model | Engine | Rating           | 3000 r/min   |       |             |           | 3600 r/min   |              |             |           |
|       |        |                  | Single phase |       | Three Phase |           | Single phase |              | Three Phase |           |
|       |        |                  | 220V*        | 230V* | 380/220V*   | 400/230V* | 220 or 110V* | 230 or 115V* | 220/127V*   | 230/133V* |
|       |        |                  | 240V*        |       | 415/240V*   |           | 240 or 120V* |              |             |           |
|       |        |                  | kVA          | kW    | kVA         | kW        | kVA          | kW           | kVA         | kW        |
| LWA14 | LPW2   | COP <sup>3</sup> | 9.7          | 9.7   | 13.0        | 10.4      |              |              |             |           |
|       |        | PRP <sup>1</sup> | 10.2         | 10.2  | 13.6        | 10.9      |              |              |             |           |
|       |        | ESP <sup>2</sup> | 10.7         | 10.7  | 14.3        | 11.4      | 10.6         | 10.6         | 14.1        | 11.3      |
| LWA22 | LPW3   | COP <sup>3</sup> | 15.3         | 15.3  | 20.1        | 16.1      |              |              |             |           |
|       |        | PRP <sup>1</sup> | 16.1         | 16.1  | 21.1        | 16.9      |              |              |             |           |
|       |        | ESP <sup>2</sup> | 16.8         | 16.8  | 22.1        | 17.7      | 16.9         | 16.9         | 22.4        | 17.9      |
| LWA30 | LPW4   | COP <sup>3</sup> | 21.0         | 21.0  | 27.9        | 22.3      |              |              |             |           |
|       |        | PRP <sup>1</sup> | 22.0         | 22.0  | 29.3        | 23.4      |              |              |             |           |
|       |        | ESP <sup>2</sup> | 23.0         | 23.0  | 30.7        | 24.5      | 23.7         | 23.7         | 31.3        | 25.0      |
| LWA41 | LPWT4  | COP <sup>3</sup> | 25.5         | 25.5  | 35.7        | 28.5      |              |              |             |           |
|       |        | PRP <sup>1</sup> | 26.8         | 26.8  | 37.4        | 29.9      |              |              |             |           |
|       |        | ESP <sup>2</sup> | 28.0         | 28.0  | 39.2        | 31.3      |              |              |             |           |

**Notes:**

3. Power outputs are based on Meccalte alternators. Power Factor (pf). Single phase 1.0 pf; three phase 0.8 pf.

\* Other voltages are available on request

## RATING DEFINITIONS TO ISO 8528-1

### Standard Reference Conditions

A Lister Petter generating set is designed to operate in the following ISO 3046 environmental reference conditions.

Barometric pressure 100 kPa

Relative humidity 30%

Ambient air temperature at the inlet manifold 25°C

### 1. Prime Power (PRP)

This rating is for the supply of the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year.

The permissible average power output over 24 hours of operation shall not exceed 70 % of the PRP unless otherwise agreed by Lister Petter Power Systems Limited.

### 2. Emergency Standby Power (ESP)

Emergency standby power is defined as the maximum power available during a variable electrical power sequence, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200 hours of operation per year.

The permissible average power output over 24 hours of operation shall not exceed 70% of the ESP unless otherwise agreed by Lister Petter Power Systems Limited. The actual average power output shall be below or equal to the permissible average power output as defined for ESP. The above ratings are subject to the following ISO 3046 standard operating conditions, the use of fuel to BS EN 590 Class A1 or A2, lubricating oils of the correct performance specification and viscosity classification and that the maintenance intervals and procedures are carried out as prescribed by Lister Petter Power Systems Limited.

### 3. Continuous Power (COP)

This rating is for the supply of a constant load for an unlimited number of hours annually.

### Derating

For non-standard site conditions, reference should be made to relevant BS, ISO & DIN standards.

**APPROXIMATE FUEL CONSUMPTION**

|        |        |      | 50 Hz      |     | 60 Hz      |     | 50 Hz      |      | 60 Hz      |     |
|--------|--------|------|------------|-----|------------|-----|------------|------|------------|-----|
| Genset | Engine | Load | 1500 r/min |     | 1800 r/min |     | 3000 r/min |      | 3600 r/min |     |
|        |        |      | g/kWh      | l/h | g/kWh      | l/h | g/kWh      | l/h  | g/kWh      | l/h |
| LWA10  | LPW2   | 100% | 224        | 2.0 | 247        | 2.5 |            |      |            |     |
|        |        | 75%  | 224        | 1.5 | 250        | 1.9 |            |      |            |     |
| LWA15  | LPW3   | 100% | 261        | 3.2 | 243        | 3.7 |            |      |            |     |
|        |        | 75%  | 261        | 2.4 | 245        | 2.8 |            |      |            |     |
| LWA20  | LPW4   | 100% | 253        | 4.1 | 237        | 4.8 |            |      |            |     |
|        |        | 75%  | 255        | 3.1 | 237        | 3.6 |            |      |            |     |
| LWA27  | LPWT4  | 100% | 209        | 4.7 | 212        | 6.1 |            |      |            |     |
|        |        | 75%  | 207        | 3.5 | 213        | 4.6 |            |      |            |     |
| LWA14  | LPW2   | 100% |            |     |            |     | 244        | 3.9  | 311        | 4.7 |
|        |        | 75%  |            |     |            |     | 342        | 2.9  | 309        | 3.5 |
| LWA22  | LPW3   | 100% |            |     |            |     | 247        | 5.9  | 330        | 7.5 |
|        |        | 75%  |            |     |            |     | 245        | 4.4  | 328        | 5.6 |
| LWA30  | LPW4   | 100% |            |     |            |     | 244        | 7.8  | 327        | 9.9 |
|        |        | 75%  |            |     |            |     | 247        | 5.9  | 326        | 7.4 |
| LWA41  | LPWT4  | 100% |            |     |            |     | 364        | 10.6 |            |     |
|        |        | 75%  |            |     |            |     | 266        | 8.0  |            |     |

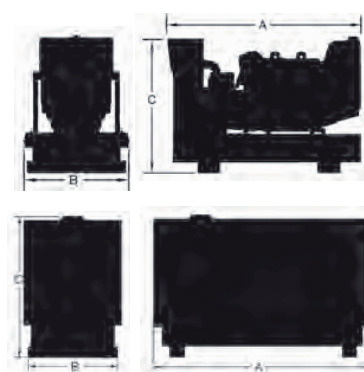
**SOUND PRESSURE <sup>4</sup>**

LWA (acoustic sets), 75% load at 7m

| Genset model | 50 Hz      | 60 Hz      | 50 Hz      | 60 Hz      |
|--------------|------------|------------|------------|------------|
|              | 1500 r/min | 1800 r/min | 3000 r/min | 3600 r/min |
| LWA10 (A)    | 64 dBA     | 65 dBA     |            |            |
| LWA15 (A)    | 64 dBA     | 65 dBA     |            |            |
| LWA20 (A)    | 64 dBA     | 66 dBA     |            |            |
| LWA27 (A)    | 62 dBA     | 63 dBA     |            |            |
| LWA14 (A)    |            |            | 75 dBA     | 77 dBA     |
| LWA22 (A)    |            |            | 75 dBA     | 77 dBA     |
| LWA30 (A)    |            |            | 75 dBA     | 77 dBA     |
| LWA41 (A)    |            |            | 73 dBA     |            |

## APPROXIMATE DIMENSIONS AND WEIGHT

|            |    | Open sets     |              |              |                   |
|------------|----|---------------|--------------|--------------|-------------------|
|            |    | LWA10         | LWA15        | LWA20        | LWA27             |
| Dry weight | kg | 375           | 395          | 434          | 444               |
|            | lb | 825           | 871          | 957          | 979               |
| Length (A) | mm | 1436          |              |              |                   |
|            | in | 56.5          |              |              |                   |
| Width (B)  | mm | 698           |              |              |                   |
|            | in | 27.5          |              |              |                   |
| Height (C) | mm | 992           |              |              |                   |
|            | in | 39.0          |              |              |                   |
|            |    | Open sets     |              |              |                   |
|            |    | LWA14         | LWA22        | LWA30        | LWA41 (50Hz only) |
| Dry weight | kg | 375           | 395          | 434          | 444               |
|            | lb | 825           | 871          | 957          | 979               |
| Length (A) | mm | 1436          |              |              |                   |
|            | in | 56.5          |              |              |                   |
| Width (B)  | mm | 698           |              |              |                   |
|            | in | 27.5          |              |              |                   |
| Height (C) | mm | 1010          |              |              | 1086              |
|            | in | 39.8          |              |              | 42.8              |
|            |    | Acoustic sets |              |              |                   |
|            |    | LWA10A (SF*)  | LWA15A (SF*) | LWA20A (SF*) | LWA27A            |
| Dry weight | kg | 463 (476)     | 494 (504)    | 559 (569)    | 569               |
|            | lb | 1019 (1041)   | 1087 (1109)  | 1230 (1252)  | 1252              |
| Length (A) | mm | 1675 (1775)   |              |              |                   |
|            | in | 65.9 (69.9)   |              |              |                   |
| Width (B)  | mm | 705           |              |              |                   |
|            | in | 27.8          |              |              |                   |
| Height (C) | mm | 1100          |              |              |                   |
|            | in | 43.3          |              |              |                   |
|            |    | Acoustic sets |              |              |                   |
|            |    | LWA14A (SF*)  | LWA22A (SF*) | LWA30A (SF*) | LWA41 (50Hz only) |
| Dry weight | kg | 463 (476)     | 494 (504)    | 559 (569)    | 569               |
|            | lb | 1019 (1041)   | 1087 (1109)  | 1230 (1252)  | 1252              |
| Length (A) | mm | 1675 (1775)   |              |              |                   |
|            | in | 65.9 (69.9)   |              |              |                   |
| Width (B)  | mm | 705           |              |              |                   |
|            | in | 27.8          |              |              |                   |
| Height (C) | mm | 1118          |              |              | 1218              |
|            | in | 44.7          |              |              | 47.9              |



\*Length with sand filter fitted



## Head Office

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## Production Facility

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 **MADE IN BRITAIN**