

# LLO LIQUID COOLED GENSETS

## LLO 200(A)

50 Hz; 1500 r/min; power outputs: 175—248 kVA  
60 Hz; 1800 r/min; power outputs: 256—282 kVA

### LIQUID COOLED GENERATING SETS WITH ELECTRONIC CONTROL MODULE

#### CHOICE OF:

- 50 Hz, 1500 r/min or 60 Hz, 1800 r/min
- Lister Petter Omega Series liquid cooled, direct injection, turbocharged & intercooled engine
- open set (LLO) or acoustic set (LLOA)
- manual / remote start and automatic mains failure operating modes
- Lister Petter or Stamford alternator

#### STANDARD FEATURES

- continuous operation in ambient temperatures up to 50°C (122°F) for open sets, up to 45°C (113°F) for acoustic sets
- control system with electronic digital control module
- galvanised steel base-plate with forklift pockets and lifting eyes
- anti vibration mountings
- 24V starter battery and leads
- electronic governing
- emergency stop button (lock-down type)
- pusher fan
- operators' handbook
- electrical diagrams



**ACOUSTIC GENSET (LLOA)**

**Please note:** This photograph is for illustrative purposes only. Actual product received may change depending on the agreed specification.

#### OPEN SETS ONLY:

- remote mounting silencer kit (silencer & flexible bellows)

#### ACOUSTIC SETS (50HZ ONLY):

- acoustic canopy
- residential exhaust silencer
- external emergency stop button
- 525 litre fuel tank

**ENGINE FEATURES**

- 24V electric starting
- 35 Amp battery-charging alternator
- twin oil and fuel filters
- heavy duty air cleaner
- fuel solenoid, energised to run

**ALTERNATOR SPECIFICATION**

- single bearing brushless
- solid state AVR with  $\pm 1.5\%$  voltage regulation as standard
- class “H” insulation on the rotor and stator
- IP23 protection class

**OPTIONAL ITEMS**

- battery charger unit for electric start sets (standard as part of AMF mode)
- engine mounted silencer for open gensets
- acoustic canopy kit (including residential silencer kit) for retro-fitting to electric-start open sets only

**CONTROL CUBICLE**

- electronic digital control module with monitoring/control facility and warning indicators
- automatic shutdown protection
- emergency stop button (lock-down type)
- 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)
- output frequency
- engine speed
- engine coolant temperature
- battery voltage
- engine hours run

**The control module has indicators for:**

- overspeed / underspeed
- emergency stop
- low engine oil pressure
- high engine temperature
- failure to start
- battery charger failure

**Automatic shutdown occurs under:**

- low engine oil pressure
- high engine temperature
- overspeed / underspeed
- 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)**

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:

- wall mounted cubicle governing automatic mains failure operation
- control module timer circuits set to delay start, delay transfer back to mains and delay stop to allow for engine cooldown
- solid state automatic battery charger that maintains charge when set is not running

**The wall-mounted cubicle 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

| POWER OUTPUTS TO ISO 8528-1 |              |         |                                     |     |                        |     |
|-----------------------------|--------------|---------|-------------------------------------|-----|------------------------|-----|
| Genset Model                | Engine Range | Rating  | 50 Hz, 1500 r/min                   |     | 60 Hz, 1800 r/min      |     |
|                             |              |         | Three Phase                         |     | Three Phase            |     |
|                             |              |         | 380/220 V<br>400/230 V<br>415/240 V |     | 220/127 V<br>230/133 V |     |
|                             |              |         | kVA                                 | kWe | kVA                    | kWe |
| LLO 200/175(A)              | OWTA6        | Prime   | 175                                 | 140 | -                      | -   |
|                             |              | Standby | 193                                 | 154 | -                      | -   |
| LLO 200/200(A)              | OWTA6        | Prime   | 200                                 | 160 | -                      | -   |
|                             |              | Standby | 220                                 | 176 | -                      | -   |
| LLO 200/225(A)              | OWTA6        | Prime   | 225                                 | 180 | -                      | -   |
|                             |              | Standby | 248                                 | 198 | -                      | -   |
| LLO 200/256                 | OWTA6        | Prime   | -                                   | -   | 256                    | 205 |
|                             |              | Standby | -                                   | -   | 282                    | 226 |

**Please note:** Ratings will vary slightly depending on alternator model choice and requested voltage output.

| SOUND PRESSURE                |              |                  |                  |
|-------------------------------|--------------|------------------|------------------|
| Acoustic sets, 75% load at 7m |              |                  |                  |
| Genset Model                  | Engine Range | 50Hz, 1500 r/min | 60Hz, 1800 r/min |
| LLO 200/175A                  | OWTA6        | 78.7             | N/A              |
| LLO 200/200A                  |              |                  |                  |
| LLO 200/225A                  |              |                  |                  |

| APPROXIMATE FUEL CONSUMPTION |        |      |                  |                  |
|------------------------------|--------|------|------------------|------------------|
| Values refer to litres/hour  |        |      |                  |                  |
| Genset                       | Engine | Load | 50Hz, 1500 r/min | 60Hz, 1800 r/min |
| LLO 200/175(A)               | OWTA6  | 100% | 38.6             | N/A              |
|                              |        | 75%  | 29.5             |                  |
| LLO 200/200(A)               | OWTA6  | 100% | 43.6             |                  |
|                              |        | 75%  | 33.3             |                  |
| LLO 200/225(A)               | OWTA6  | 100% | 47.2             |                  |
|                              |        | 75%  | 36.1             |                  |
| LLO 200/256                  | OWTA6  | 100% | n/a              | 58.4             |
|                              |        | 75%  |                  | 45.1             |

**RATING DEFINITIONS TO ISO 8528-1**

Ratings are in accordance with ISO 8528-1. Power Factor: Single phase, 1.0 pf; three-phase, 0.8 pf. Other voltages may be available on request.

**Rating Conditions**

A standard generating set is designed to operate in environmental reference conditions of 25°C, 100 kPa and 30% humidity.


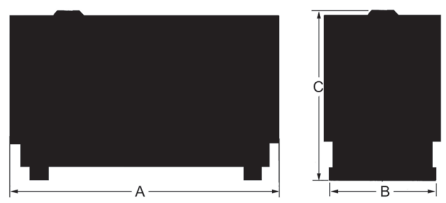
**Prime Power**

This rating is for the supply of continuous electrical power (at variable load). There is no limit on the annual hours of operation and 10% overload power can be supplied for 1 hour in 12.

**Standby Power**

This rating is for the supply of continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted.

**APPROXIMATE WEIGHT AND DIMENSIONS**

|   | Open sets       |      | LLO 200/175 | LLO 200/200 | LLO 200/225 |
|--|-----------------|------|-------------|-------------|-------------|
|  | Length (A)      | mm   | 2790        | 2790        | 2790        |
|  |                 | in   | 110         | 110         | 110         |
|  | Width (B)       | mm   | 1600        | 1600        | 1600        |
|  |                 | in   | 63          | 63          | 63          |
|  | Height (C)      | mm   | 870         | 870         | 870         |
|  |                 | in   | 34          | 34          | 34          |
| Dry Weight   | kg              | 2000 | 2100        | 2200        |             |
|  | lb              | 4400 | 4620        | 4840        |             |
| Please note: Height does not include silencer arrangement                          |                 |      |             |             |             |
|  | Acoustic sets * |      | LLO 200 A   |             |             |
|  | Length (A)      | mm   | 3900        |             |             |
|  |                 | in   | 153.5       |             |             |
|  | Width (B)       | mm   | 1463        |             |             |
|  |                 | in   | 57.6        |             |             |
|  | Height (C)*     | mm   | 2151        |             |             |
|  |                 | in   | 84.7        |             |             |
| Dry Weight   | kg              | 3410 |             |             |             |
|  | lb              | 7517 |             |             |             |

\* Acoustic sets available for 50 Hz only

A comprehensive range of options allows you to select a specification that matches your requirements. Please ask your Lister Petter distributor (see panel below right).

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