GRW115P



Generator engineered and designed to work in a wide variety of applications where temporary power supply is needed. Versatility, high efficiency, high structural resistance, high degree of protection and low noiseemissions together with easy-to-use and easy access for maintenance make these generator sets theideal solution for Rental companies.

Power Rating		
Frequency	Hz	50
Voltage	V	400
Phases	№	3
Power factor	cos ϕ	0.8
Standby power LTP	kVA	110.00
Standby power LTP	kW	88.00
MAX current	A	159
Prime power PRP	kVA	100.00
Prime power PRP	kW	80.00
NOMINAL current	A	144



Ratings definition (According to standard ISO8528 1:2005)

PRP - Prime Power:
It is defined as being 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 under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output over 24 h of operation shall not exceed 70 % of the prime power.

LTP - Limited-Time running Power:
It is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 h of operation per year (whose no more than 300 for continuative use) with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. No overload capability is available.

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Power supply 50Hz 230V Three Phase (with supplement VSS)		
Frequency	Hz	50
Voltage	V	230
Phases	№	3
Power factor	cos ϕ	0.8
Standby power LTP	kVA	110.00
Standby power LTP	kW	88.00
MAX current	A	276
Prime power PRP	kVA	100.00
Prime power PRP	kW	80.00
NOMINAL current	A	251



Power supply 60Hz 480V Three Phase (with supplement DFS)		
Frequency	Hz	60
Voltage	V	480
Phase	№	3
Power factor	cos ϕ	0.8
Standby power LTP	kVA	132.51
Standby power LTP	kW	106.01
MAX current	A	154
Prime power PRP	kVA	120.48
Prime power PRP	kW	96.38
NOMINAL current	A	139

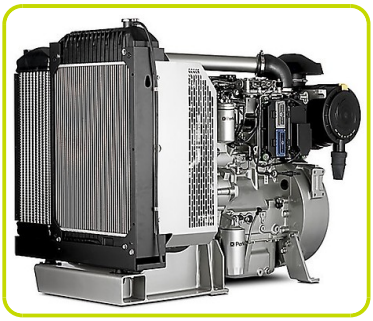


Power supply 60Hz 208V Three Phase (with supplement VSS)		
Frequency	Hz	60
Voltage	V	208
Phase	№	3
Power factor	cos ϕ	0.8
Standby power LTP	kVA	119.00
Standby power LTP	kW	95.20
MAX current	A	330
Prime power PRP	kVA	108.00
Prime power PRP	kW	86.40
NOMINAL current	A	300



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Engine specifications		
Engine manufacturer		Perkins
Model		1104D-E44TAG2
Engine cooling system		Water
Nr. of cylinder and disposition		4 in line
Displacement	cm³	4400
Aspiration		Turbocharged
Speed governor		Electronic
Oil capacity	l	8.4
Lube oil consumption @ PRP (max)	%	0.1
Coolant capacity	l	17
Electric circuit	V	12
VERSION SWITCHABLE [50/60Hz]		YES
ENGINE DATA	Hz	50
[50Hz] Operating Speed-Nominal	rpm	1500
[50Hz] Exhaust emission level		Stage IIIA
[50Hz] Specific fuel consumption @ 75% PRP	g/kWh	238
[50Hz] Specific fuel consumption @ 100% PRP	g/kWh	206
[60Hz] Exhaust emission optimized for EPA tier (EPA)		Tier 3
[60Hz] Specific fuel consumption @ 75% PRP	g/kWh	227
[60Hz] Specific fuel consumption @ 100% PRP	g/kWh	213



Engine Equipment

Standards

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1

Fuel system

Rotary type pump

Lube oil system

Wet steel sump with filler and dipstick

Filter

- Fuel filter
- Air filter
- Oil filter

Cooling system

- Mounted radiator
- Thermostatically-controlled system with belt driven coolant pump and pusher fan

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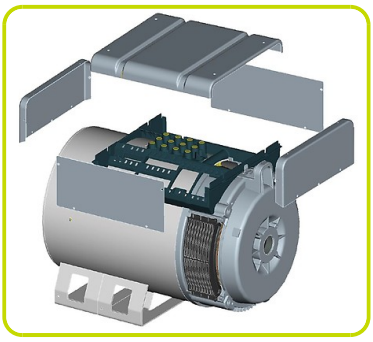
Alternator Specifications		
Alternator		LEROY SOMER
Model		LSA 44.3 S5
Type		Brushless
Class		H
IP protection		23
Insulation Protection Systems		Protection System 2
Poles		4
Winding leads		12
Voltage regulation system		Electronic
Standard AVR		R 438
Voltage tolerance	%	1



SPECIALLY ADAPTED TO APPLICATIONS
The LSA 44.3 alternator is designed to be suitable for typical generator applications, such as: backup, marine applications, rental, telecommunications, etc.

TOP OF THE RANGE ELECTRICAL PERFORMANCE
- Class H insulation.
- Standard 12 wire re-connectable winding, 2/3 pitch, type no. 6.
- Voltage range:
- 50 Hz: 220 V - 240 V and 380 V - 415 V
- 60 Hz: 208 V - 240 V and 380 V - 480 V
- High efficiency and motor starting capacity.
- R 791 interference suppression conforming to standard EN 55011 group 1 class B standard for European zone (CE marking).

EXCITATION AND REGULATION SYSTEM
- Excitation system: AREP
- Voltage A.V.R.: R 438



REINFORCED MECHANICAL STRUCTURE
- Compact rigid assembly to better withstand generator vibrations.
- Steel frame and terminal box.
- Aluminium flanges and shields.
- single-bearing designed to be suitable for heat engines.
- Half-key balancing bearing.
- Permanently greased bearing (20 000h).

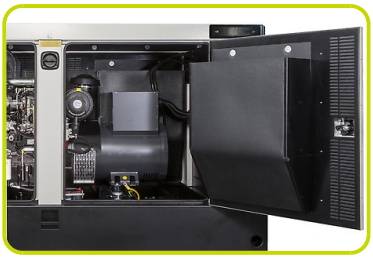
PROTECTION SYSTEM SUITED TO THE ENVIRONMENT
- The LSA 44.3 is IP 23.
- Winding Protection Standard: for clean environments with relative humidity ≤ 95%, including indoor marine environments.
- Winding Protection System 2: reinforced insulation for tropical environment (abrasive atmosphere), rental (except for coastal area), relative humidity > 95%

COMPLIANT WITH INTERNATIONAL STANDARDS
The LSA 44.3 alternator conforms to the main international standards and regulations:
- IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA / UL 1146 (UL 1004 on request), marine regulations, etc.
It can be integrated into a CE marked generator.
The LSA 44.3 is designed, manufactured and marketed in an ISO 9001 environment and ISO 14001.

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Genset Equipment

CANOPY
Canopy painted in RAL9016 made up of modular panels with 1000h+ tested salt spray resistant zinced metal sheet, with access doors on each side with high quality gaskets and lockable handles for easy maintenance and service.



SUPERSILENT
Soundproofing by means washable and fireproof soundproofing material, to get noise attenuation.
Exaust silencer integrated in the genset shape with flat rain flap.

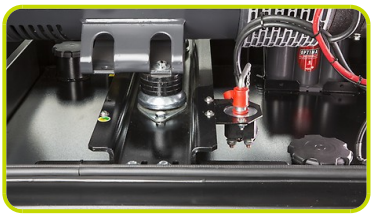


BASE FRAME
Heavy duty base guarantees the highest standards of durability and resistance, painted using a high quality powder coating process (1000+h tested salt spray resistance).
Fully bunded, able to retain 110% of all the sets fluids, the base frame is provided with integrated fork pockets and pull bar for easy maneuverability and site positioning.



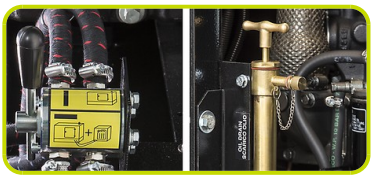
FUEL TANK
Integrated metal fuel tank complete with double fuel refiling point (one each side)

LEAK PROOF TRAY WITH DETECTOR SENSOR
Fluid leak check in the leak proof tray .



FUEL VALVE (6 WAY)
System designed for use the fuel from external tank and increase the autonomy of the generator

LUBE OIL DRAIN PUMP
Makes it easier to the engine oil change



SINGLE LIFTING POINT
Access easy by rung and handle incorporated (available on both sides)



PLASTIC BUMPER
Protections for the transport and stocking



MANUAL BATTERY SWITCH

EARTH ROD
Earth stock with cable fixed inside the genset



DOCS HOLDER
Box intenal for documents, manuals and electrical drawings

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Dimensional data		
Length	(L) mm	3460
Width	(W) mm	1200
Height	(H) mm	1950
Dry weight	Kg	2460
Fuel tank material		Metal
Fuel tank capacity	l	530



Autonomy		
[50Hz] Fuel consumption @ 75% PRP	l/h	19.34
[50Hz] Fuel consumption @ 100% PRP	l/h	22.14
[50hz] Running time @ 75% PRP	h	27.40
[50Hz] Running time @ 100% PRP	h	23.94
[60Hz] Fuel consumption @ 75% PRP	l/h	21.91
[60Hz] Fuel consumption @ 100% PRP	l/h	26.88
[60hz] Running time @ 75% PRP	h	24.19
[60Hz] Running time @ 100% PRP	h	19.72



Noise level 50Hz		
Guaranteed noise level (LWA)	dB(A)	91
Noise pressure level @ 1 m	dB(A)	73
Noise pressure level @ 7 m	dB(A)	62



Installation data		
[50Hz] Cooling air	m³/min	203.74
[50Hz] Exhaust gas flow @ PRP	m³/min	16.41
[50Hz] Exhaust gas temperature @ LTP	°C	657
[60Hz] Cooling air	m³/min	244.64
[60Hz] Exhaust gas flow @ PRP	m³/min	19.48
[60Hz] Exhaust gas temperature @ LTP	°C	634



Control panel availability	
MANUAL CONTROL PANEL	MCP
AUTOMATIC CONTROL PANEL	ACP
MODULAR PARALLEL PANEL	MPP

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MCP - Manual Control Panel

Mounted on the genset, complete with digital control unit (InteliNanoNT Plus) for monitoring, control and protection of the generating set, protected through doors with lockable handle.



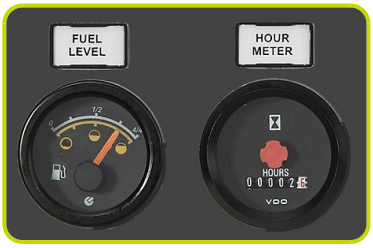
CONTROL SECTION
- ON/OFF selector switch
- Emergency push button
- Differential protection with internal switch
- 5A Battery charger.
- Potentiometer for voltage adjustment (internal)
- Alternator AVR (single plug wiring)

Control unit InteliNanoNT Plus
- Biggest LCD screen
- Generating set voltage (3 phases).
- Generating set frequency.
- Generating set current (1 phases).
- Battery voltage, Service time and Running hours indication
- Remote start/stop from external signal

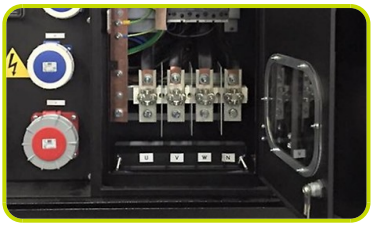


Protection:
- Low fuel level
- Battery charger failure
- low oil pressure
- high engine temperature

Extra Instrumentation (analogue)
- Voltmeter with selector switch (3 phases)
- Ammeters (n.3)
- Fuel level meter
- Mechanical hour counter



POWER SECTION
- It integrates 4 poles modular circuit breaker suitably rated with thermal and magnetic overloads.
- Large and robust busbar with cables passage opening from the bottom for easy power cable connection.
- Provided with safety switch to trip circuit breaker if operator open the power section door to operate on the bus bar.



SOCKET SECTION

Two wires facility for remote start/stop		√
• Plug for auxiliary power supply		√
SUPPLEMENT - Only available when order		:
Socket Kit	Type	SPKB1
3P+N+T CEE 400V 125A	n	1
3P+N+T 400V 63A	n	1
3P+N+T CEE 400V 32A	n	1
3P+N+T CEE 400V 16A	n	1
2P+T CEE 230V 16A	n	1
230V 16A SCHUKO	n	1
Each socket with its own circuit breaker		•
Common differential protection for three phase sockets		•
Each single phase provided with earth fault protection		•
Other Kit Socket combinations available		√



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ACP - Automatic Control Panel

Mounted on the genset, complete with digital control unit (AC-03) for monitoring, control and protection of the generating set, protected through doors with lockable handle.



CONTROL SECTION
- ON/OFF selector switch
- Differential protection with internal switch
- 5A Battery charger.
- Potentiometer for voltage adjustment (internal)
- Alternator AVR (single plug wiring)

Control unit (AC-03)
- Generating set voltage (3 phases).
- Mains voltage.
- Generating set frequency.
- Generating set current (3 phases).
- Battery voltage.
- Power (kVA - kW - kVAr - Cos φ).
- Hours-counter.
- Engine speed r.p.m.
- Fuel level (%).
- Engine temperature

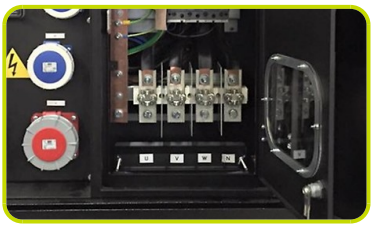


Comand and others:
- Four operation modes: OFF - Manual starting - Automatic starting - Test.
- Pushbutton for forcing Mains contactor or Genset contactor.
- Push-buttons: start/stop, fault reset, up/down/page/enter selection.
- Remote starting availability.
- Acoustic alarm.
- Automatic battery charger.
- RS232 Communication port.
- Settable PASSWORD for protection level



Protections:
- Engine protections: low fuel level, low oil pressure, high engine temperature,
- Genset protection: under/over voltage, overload, under/over battery voltage, battery charger failure.

Extra Instrumentation (analogue)
- Fuel level meter
- Mechanical hour counter



POWER SECTION
- It integrates 4 poles modular circuit breaker suitably rated with thermal and magnetic overloads.
- Large and robust busbar with cables passage opening from the bottom for easy power cable connection.
- Provided with safety switch to trip circuit breaker if operator open the power section door to operate on the bus bar.

SOCKET SECTION



Two wires facility for remote start/stop		√
• Plug for auxiliary power supply		√
• Multipin connector for LTS		√
SUPPLEMENT - Only available when order		:
Socket Kit	Type	SPKB1
3P+N+T CEE 400V 125A	n	1
3P+N+T 400V 63A	n	1
3P+N+T CEE 400V 32A	n	1
3P+N+T CEE 400V 16A	n	1
2P+T CEE 230V 16A	n	1
230V 16A SCHUKO	n	1
Each socket with its own circuit breaker		•
Common differential protection for three phase sockets		•
Each single phase provided with earth fault protection		•
Other Kit Socket combinations available		√

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MPP - Modular Parallel Panel

Mounted on the genset, complete with digital control unit InteliVision5 for monitoring, control, protection and load sharing for both single and multiple gen-sets operating in standby or parallel modes (up to 32 gen-sets in island).



CONTROL SECTION
- ON/OFF selector switch
- Emergency push button
- Differential protection with internal switch
- 5A Battery charger.
- Potentiometer for voltage adjustment (internal)
- Alternator AVR (single plug wiring)

CONTROL UNIT InteliVision5 (5,7" Colour TFT display 320×240 pixels)
Majors Measures Available:
- Generating set: Voltage, Current, Frequency, Hours-counter
- Generating set Power: kVA, kW, kVAr, Cos φ, kWh, kVAh.
- Mains: Voltage, Current, Frequency, kW, kVAr, Cos φ.
- Engine: Speed (r.p.m.), Temperature, Oil Pressure
- Fuel level, Battery voltage

Comand and Others:
- Operation modes: OFF, AMF function, Single Parallel to mains Island application, Single Parallel to Mains AMF application, Mulitple parallel genset Island application.
- Pushbuttons: start/stop, fault reset, up/down/page/enter selection.
- Acoustic alarm.

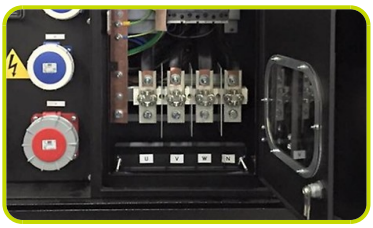
Protection:
- Engine protections: low fuel level, low oil pressure, high engine temperature.
- Genset protections: under/over voltage, overload, under/over frequency, starting failure, under/over battery voltage
- Others: overcurrent, shortcircuit, reverse power, Earth fault



Extra Instrumentation (analogue)
- Fuel level meter
- Mechanical hour counter



POWER SECTION
- It integrates 4 poles motorized moulded case circuit breaker suitably rated with thermal and magnetic overloads
- Large and robust busbar with cables passage opening from the bottom for easy power cable connection.
- Provided with safety switch to trip circuit breaker if operator open the power section door to operate on the bus bar.



SOCKET SECTION



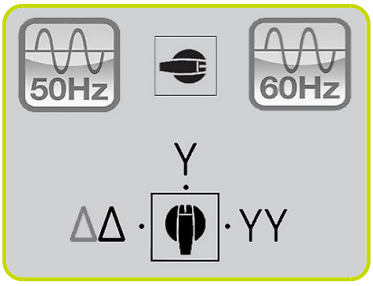
• Multi-pin connectors for paralle running		√
Two wires facility for remote start/stop		√
• Plug for auxiliary power supply		√
SUPPLEMENT - Only available when order		:
Socket Kit	Type	SPKB1
3P+N+T CEE 400V 125A	n	1
3P+N+T 400V 63A	n	1
3P+N+T CEE 400V 32A	n	1
3P+N+T CEE 400V 16A	n	1
2P+T CEE 230V 16A	n	1
230V 16A SCHUKO	n	1
Each socket with its own circuit breaker		●
Common differential protection for three phase sockets		●
Each single phase provided with earth fault protection		●
Other Kit Socket combinations available		√

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Supplements:	
To be ordered with the equipment	:

GENSET CONTROL EQUIPMENT

Dual Frequency Switch (50/60Hz)	Y400/230V 50Hz Y480/277V 60Hz	DFS
Voltage Selector Switch 2 postions (only with ACP/MPP and DFS)	Y400/230V 50Hz Y480/277V 60Hz YY208/120V 60Hz	VSS1
Voltage Selector Switch 3 postions (only with ACP/MPP and DFS)	Y400/230V 50Hz Δ230V 3P 50Hz Y480/277V 60Hz YY208/120V 60Hz	VSS2
Voltage Selector Switch 2 postions (only with ACP/MPP and DFS)	Y400/230V 50Hz Δ230V 3P 50Hz Y480/277V 60Hz	VSS4



ELECTRICAL OPTION

Remote control trough IL-NT-GPRS + ANTENNA Available for	(ACP)	RCG 16
Free Voltage Contacts with module IL-NT-EFCPM2 + IR-B8 relay board	(ACP)	TLP 6
Remote control trough with InternetBridge-NT	(only with MPP)	RCG 13
Free Voltage Contacts with module IGS-PTM +IR-B8 relay board	(only with MPP)	TLP 4
Differential Protection type B		ADI-B
Insulation Monitoring Device (Replace standard differential protection)		IMD
Socket Section Customized		SPKS
Control section internal lighting (automatic with door switch)		CLS
Internal Canopy Lighting system with manual switch		ICL
Engine analogue gauges (water temp / oil pressure)		EAG

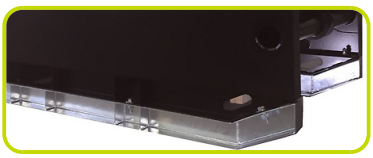




MECHANICAL OPTION

Pre-heating system	PHS
Quick Fit Fuel connectors	QFC
Quick Fit Connectors inside the canopy	QFC1
Water Separator Filter	WSP
Heavy-Duty Air Filter	HDF
Hot Parts Protections	HPP
Exhaust Spark Arestor ATEX certified	ESA
Air Shut-Off Valve	ASV
Galvanized Sliding Skid	GGS
Baseframe Bumpers	BFB



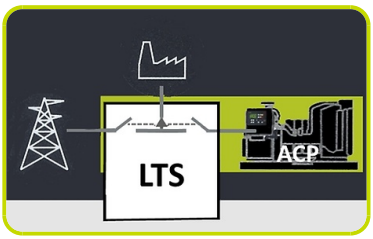


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Accessories	
Items available as accessory equipment	:
RTR-B Road Trailer with Drawbar Height-Adjustable	•
RTR - Road Trailer	•
STR - Site trailer	•



LTS - Load Transfer Switch [Accessories for ACP Automatic Control Panel]



The Load Transfer Switch (LTS) panel operates the power supply changeover between the generator and the Mains in backup applications, guarantying the feeding to the load within a short period of time.
It consists of a standalone cabinet which can be installed separate from the generating set. The logic control of the power supply changeover is operated by means of the Automatic Control Panel (ACP) mounted on the generating set, so therefore none logic device is required on the LTS panel.



LTS Type ATyS_D:

- Box type: steel enclosures
- Installation mode: Wall mounted <400A; Floor Standing =>630A
- Door: Hinged door closed with double barb locking.
- Ingress Protection: IP43
- Gland Plates: Removable on the top & bottom side
- Connections: Bottom/Bottom
- Motor unit
- Gland Plates: Removable on the top & bottom side
- Connections: Bottom/Bottom
- Motor unit
- Switch position indicator
- Auto/Manual cover selector
- Housing for manual handle
- Padlocking mechanism
- Two side by side mounted load break switches
- Poles 4
- Double coils self-powered
- Voltage (coils): 208/277VAC (Tolerance+/-20% 166/333VAC)
- Frequency 50 & 60HZ
- Interface ATyS D10, fixed on the door for the status indication: Two lights to indicate the voltage presence of the grid and the diesel generator; Two lights for the switch position; Functionality mode (auto/manual) and cover protection IP65.
- *Compliant with IEC 60947-3, EN 61439-6-1 and GB 14048-11*

LTS SUPPLEMENTS AVAILABLE ON REQUEST:

- ***ESB -*** *Emergency Stop Button (installed on the panel front)*
- ***APP*** *- Additional IPXXB Protection (internal plexiglass)*

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