LPG Generator set data sheet (01-01-2018)



Prime 172kWe, LPG



Gas Generator Set Model:	TPI215XLPG	Gas Engine Model:	PS D14		Alternate	or Model:	Leroy Somer LSA 46.3S3
60Hz 1800 r.p.m	3 Phase 4 Wires		<i>Power Factor:</i> <i>Cos ⊄</i> = 0.8		Emissions Standard		N/A
RATINGS ^{2)}	Prime (PF		Continuous Power (COP)		Rated Current	Thermal Output	Remark
Voltage (V)	kW	kVA	kW	kVA	Amps	kW	
380/220	172	215	N/A	N/A	326.7	320	
416/240	172	215	N/A	N/A	298.4	320	
440/254	172	215	N/A	N/A	282.1	320	
480/277	172	215	N/A	N/A	258.6	320	

Conditions and Defintions:

1) COP are applicable for supplying continuous electrical power for full load operations, there is no overload available.

2) Engine output data under ISO8528/1, ISO3046/1, BS5541/1, DIN6271 conditions.

Genset General Specifications

Gas Genset model	TPI215XLPG	Speed regulating rate	0-5% Adjustable
Gas Engine model	D146L	Dimension (length×width×height) (mm)	2850×1390×1820
Electrical output (kW/kVA)	172/215	Net Weight (kg)	2320
Fuel	LPG		
Frequency (HZ)	60		
Speed (rpm)	1800		

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Engine Specifications

Speed 1800 rpm Configuration / number of cylinders V-type / 8 Bore / Stroke 128/142 mm Displacement 14.6 L Compression ratio 10.51 Firing Order 1-5-7-2-6-3-4-8-1 Direction of rotation Counter clockwise from flywheet Speed Governor Electronic Ignition system Altronic Spark plug NGK Induction system Turbo charge air cooled Combustion type Spark ignition Cooling system Turbo charge air cooled Consustion type Spark ignition Cooling system Turbo charge air cooled Minimum gas supply pipe size 2 x 1-1/4" NPT Lower calorific value 77.25 MJ/Nm ³ LPG consumption at 100% standby 0.15m ³ /kw.h Electrical system Charging generator 24V x 45A alternator Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 104-110 °C Electrical system Charging generator 24V x 45A alternator Standard thermostat range 71-85°C Maximum all				
Mechanical power 202 kWm Speed 1800 rpm Configuration / number of cylinders V-type / 8 Bore / Stroke 128/142 mm Displacement 14.6 L Compression ratio 10.5:1 Direction of rotation Counter clockwise from flywheel Speed Governor Electronic Ignition system Altroin Spark plug NGK Induction system Turbo charge air cooled Cooling mode Radiator Total coolant capacity (engine only) 43.2 Litres Total coolant capacity (engine only) 43.2 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 25-31 Litres Coli flor capacity 7.1 Litres Coli flor capacity 7.1 Litres Coli flor capacity 7.1 Litres Oil consumption 1.0 g/kW.h Heat rejected to cooling water at rated Load 16.2 kW Heat rejection per CAC 46.9 kW				
Speed 1800 rpm Configuration / number of cylinders V-type / 8 Bore / Stroke 128/142 mm Displacement 14.6 L Compression ratio 10.51 Firing Order 1-5-7-2-6-3-4-8-1 Direction of rotation Counter clockwise from flywheet Speed Governor Electronic Speak Governor Electronic Spark plug NGK Induction system Altronic Spark plug NGK Induction system Turbo charge air cooled Combustion type Spark ignition Cooling system Turbo charge air cooled Conling system Coloring system Total coolant capacity (engine only) 43.2 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110°C Lubrication system 24V x 45A alternator Starting motor 24V x 7kW Battery voltage 24V Ignition controller 12 or 24V DC Lubrication system 104-110°C Lubricati	Model	D146L		
Configuration / number of cylinders V-type / 8 Bore / Stroke 128/142 mm Displacement 14.6 L Compression ratio 10.5:1 Firing Order 1-57-2-6-3-8-1 Direction of rotation Counter clockwise from flywheel Direction of rotation Counter clockwise from flywheel Ipinition system Altroinic Speed Governor Electroic Induction system Turbo charge air cooled Combustion type Spark ignition Cooling mode Radiatori Cooling system Turbo charge air cooled Conding system Turbo charge air cooled Cooling mode Radiatori Cooling system Coule and thermostat range Total coolant capacity (engine only) 43.2 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110°C Lubrication system 7.1 Litres Oil iconsumption ≤1.0 g/kW.h Maximum allowable oil temperature 121°C	Mechanical power	202 kWm	-	53.6 m ³ /min
Bore / Stroke 128/142 mm Displacement 14.6 L Compression ratio 10.5:1 Firing Order 1-5-7-2-6-3-4-8-1 Direction of rotation Counter clockwise from flywheel Speed Governor Electronic Ignition system Alir induction system Maximum allowable oil temperature 0.9 kPa Induction system Turbo charge air cooled Cooling system Radiator Total coolant capacity (engine only) 43.2 Litres Total coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 104-110 °C Lubrication system 24-11/4" NPT Consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Speed	1800 rpm	Exhaust gas temperature	750°C
Displacement 14.6 L Compression ratio 10.5:1 Firing Order 1-5-7-2-6-3-4-8-1 Direction of rotation Counter clockwise from flywheel Speed Governor Electronic Ignition system Altronic Spark plug NGK Induction system Turbo charge air cooled Combustion type Spark ignition Cooling system Turbo charge air cooled Coloing system Radiator Cooling system 12 °C Total coolant capacity (engine only) 43.2 Litres Engine colant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 25-31 Litres Oil consumption <1.0 g/kW.h	Configuration / number of cylinders	V-type / 8		
Compression ratio 10.51 Firing Order 1-5-7-2-6-3-4-8-1 Direction of rotation Counter clockwise from flywheel Speed Governor Electronic Ignition system Altronic Spark plug NGK Induction system Turbo charge air cooled Combustion type Spark ignition Cooling mode Radiator Cooling system Turbo charge air cooled Minimum gas supply pipe size 2 x 1-1/4" NPT Lower calorific value 77.25 MJ/Nm³ LPG consumption at 100% standby 0.15m³/kw.h Coling system 127 Litres Total coolant capacity (engine only) 43.2 Litres Charging generator 24V x 45A alternator Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 25-31 Litres Oil filter capacity (min-max) 25-31 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Bore / Stroke	128/142 mm	Air induction system	
Firing Order 1-5-7-2-6-3-4-8-1 Direction of rotation Counter clockwise from flywheel Speed Governor Electronic Ignition system Altronic Spark plug NGK Induction system Turbo charge air cooled Combustion type Spark ignition Cooling mode Radiator Total coolant capacity (engine only) 43.2 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 25-31 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Displacement	14.6 L	Maximum allowable Intake Air Restriction	with Air Cleaner
Direction of rotation Counter clockwise from flywheel Speed Governor Electronic Ignition system Altronic Spark plug NGK Induction system Turbo charge air cooled Combustion type Spark ignition Cooling mode Radiator Cooling system Total coolant capacity (engine only) 43.2 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system Engine oil capacity (min-max) 25-31 Litres Oil filter capacity 7.1 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Compression ratio	10.5:1	- Clean	1.24 kPa
Speed Governor Electronic Ignition system Altronic Spark plug NGK Induction system Turbo charge air cooled Combustion type Spark ignition Cooling mode Radiator Cooling system Turbo charge air cooled Conduction system Radiator Cooling system Total coolant capacity (engine only) Total coolant capacity (engine only) 43.2 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 24-24-24-24-24-24-24-24-24-24-24-24-24-2	Firing Order 1-	5-7-2-6-3-4-8-1	- Dirty	3.74 kPa
Ignition system Altronic Spark plug NGK Induction system Turbo charge air cooled Combustion type Spark ignition Cooling mode Radiator Minimum running pressure to EPR 1.7 kPa Minimum gas supply pipe size 2 x 1-1/4" NPT Lower calorific value 77.25 MJ/Nm ³ LPG consumption at 100% standby 0.15m ³ /kw.h Cooling system Charging generator Total coolant capacity (engine only) 43.2 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 24V x 45A alternator Starting motor 24V x 45A alternator Starting motor 24V x 7kW Battery voltage 24V Ignition controller 12 or 24V DC Lubrication system 71. Litres Oil filter capacity 71.1 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Direction of rotation Counter clockwis	e from flywheel	Combustion air required (entire engine)	19 m ³ /min
Spark plug NGK Induction system Turbo charge air cooled Combustion type Spark ignition Cooling mode Radiator Maximum EPR rated pressure to EPR 1.7 kPa Minimum running pressure to EPR 1.7 kPa Minimum gas supply pipe size 2 x 1-1/4" NPT Lower calorific value 77.25 MJ/Nm ³ LPG consumption at 100% standby 0.15m ³ /kw.h Fotal coolant capacity (engine only) 43.2 Litres Total coolant capacity (engine with radiator) 127 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 25-31 Litres Oil filter capacity 7.1 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Speed Governor	Electronic		
Induction system Turbo charge air cooled Minimum running pressure to EPR 1.7 kPa Combustion type Spark ignition Minimum gas supply pipe size 2 x 1-1/4" NPT Cooling mode Radiator 1.0 g/kW.h Minimum gas supply pipe size 2 x 1-1/4" NPT Lower calorific value 77.25 MJ/Nm ³ LPG consumption at 100% standby 0.15m ³ /kw.h Cooling system Total coolant capacity (engine only) 43.2 Litres Electrical system Total coolant capacity (engine with radiator) 127 Litres Charging generator 24V x 45A alternator Standard thermostat range 71-85°C Starting motor 24V x 7kW Battery voltage 24V Ignition controller 12 or 24V DC Lubrication system 1.0 g/kW.h Heat rejected to cooling water at rated Load 16.2 kW Oil filter capacity 7.1 Litres Heat rejection per CAC 46.9 kW Oil consumption ≤1.0 g/kW.h 121 °C 46.9 kW	Ignition system	Altronic	Fuel system	
Combustion type Spark ignition Cooling mode Radiator Minimum gas supply pipe size 2 x 1-1/4" NPT Lower calorific value 77.25 MJ/Nm³ LPG consumption at 100% standby 0.15m³/kw.h Cooling system 127 Litres Total coolant capacity (engine only) 43.2 Litres Total coolant capacity (engine with radiator) 127 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 12 or 24V DC Engine oil capacity (min-max) 25-31 Litres Oil filter capacity 7.1 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Spark plug	NGK	Maximum EPR rated pressure	6.9 kPa
Cooling mode Radiator Cooling mode Radiator Lower calorific value 77.25 MJ/Nm³ LPG consumption at 100% standby Cooling system Total coolant capacity (engine only) 43.2 Litres Total coolant capacity (engine with radiator) 127 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71.85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 125-31 Litres Engine oil capacity (min-max) 25-31 Litres Oil filter capacity 7.1 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Induction system Turbo ch	arge air cooled	Minimum running pressure to EPR	1.7 kPa
LPG consumption at 100% standby 0.15m ³ /kw.h Cooling system Total coolant capacity (engine only) 43.2 Litres Total coolant capacity (engine with radiator) 127 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 25-31 Litres Engine oil capacity (min-max) 25-31 Litres Oil filter capacity 7.1 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Combustion type	Spark ignition	Minimum gas supply pipe size	2 x 1-1/4" NPT
Cooling system Total coolant capacity (engine only) 43.2 Litres Total coolant capacity (engine with radiator) 127 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system Thermal Data Engine oil capacity (min-max) 25-31 Litres Oil filter capacity 7.1 Litres Oil consumption ≤1.0 g/kW.h	Cooling mode	Radiator	Lower calorific value	77.25 MJ/Nm ³
Total coolant capacity (engine only) 43.2 Litres Total coolant capacity (engine with radiator) 127 Litres Engine coolant flow 680 Liters/min Standard thermostat range 71-85°C Maximum allowable top tank temperature 104-110 °C Lubrication system 125-31 Litres Engine oil capacity (min-max) 25-31 Litres Oil filter capacity 7.1 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C			LPG consumption at 100% standby	0.15m ³ /kw.h
Total coolant capacity (engine with radiator)127 LitresEngine coolant flow680 Liters/minStandard thermostat range71-85°CMaximum allowable top tank temperature104-110 °CLubrication systemEngine oil capacity (min-max)Oil filter capacity7.1 LitresOil consumption≤1.0 g/kW.hMaximum allowable oil temperature121 °C	Cooling system			
Engine coolant flow680 Liters/min 71-85°CStarting motor24V x 7kW Battery voltageStandard thermostat range71-85°C24VMaximum allowable top tank temperature104-110 °C12 or 24V DC Lubrication system Engine oil capacity (min-max)25-31 LitresOil filter capacity7.1 LitresOil consumption≤1.0 g/kW.hMaximum allowable oil temperature121 °C	Total coolant capacity (engine only)	43.2 Litres	Electrical system	
Standard thermostat range71-85°CBattery voltage24VMaximum allowable top tank temperature104-110 °C12 or 24V DCLubrication systemThermal DataEngine oil capacity (min-max)25-31 LitresOil filter capacity7.1 LitresOil consumption≤1.0 g/kW.hMaximum allowable oil temperature121 °C	Total coolant capacity (engine with radiator)	127 Litres	Charging generator 24	4V x 45A alternator
Maximum allowable top tank temperature 104-110 °C Ignition controller 12 or 24V DC Lubrication system Ignition controller 12 or 24V DC Engine oil capacity (min-max) 25-31 Litres Heat rejected to cooling water at rated Load 16.2 kW Oil filter capacity 7.1 Litres Heat rejection per CAC 46.9 kW Maximum allowable oil temperature 121 °C 121 °C	Engine coolant flow	680 Liters/min	Starting motor	24V x 7kW
Lubrication system Engine oil capacity (min-max) 25-31 Litres Oil filter capacity 7.1 Litres Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Standard thermostat range	71-85°C	Battery voltage	24V
Engine oil capacity (min-max)25-31 LitresHeat rejected to cooling water at rated Load16.2 kWOil filter capacity7.1 LitresHeat rejection per CAC46.9 kWOil consumption≤1.0 g/kW.h121 °C	Maximum allowable top tank temperature	104-110 °C	Ignition controller	12 or 24V DC
Engine oil capacity (min-max)25-31 LitresHeat rejected to cooling water at rated Load16.2 kWOil filter capacity7.1 LitresHeat rejection per CAC46.9 kWOil consumption≤1.0 g/kW.h121 °C				
Oil filter capacity7.1 LitresHeat rejection per CAC46.9 kWOil consumption≤1.0 g/kW.hMaximum allowable oil temperature121 °C	Lubrication system		Thermal Data	
Oil consumption ≤1.0 g/kW.h Maximum allowable oil temperature 121 °C	Engine oil capacity (min-max)	25-31 Litres	Heat rejected to cooling water at rated Loa	d 16.2 kW
Maximum allowable oil temperature 121 °C	Oil filter capacity	7.1 Litres	Heat rejection per CAC	46.9 kW
	Oil consumption	\leqslant 1.0 g/kW.h		
	Maximum allowable oil temperature	121 °C		
Oil grade API CD/CF or higher, SAE 15W-40	Oil grade API CD/CF or highe	r, SAE 15W-40		

Alternator Specifications

60Hz/1800R.P.M

Manufacture / Brand	Leroy-Somer	Prime output power	172kW/215kVA
Model	LSA 46.3S3	Insulation class	Н
AVR model	R250	Voltage regulation	± 0,5 %
Coupling / Bearing	Direct /Single bearing	Totale harmonic distortion THDno load <2.5% - on load <2.5%	
Phase	3 Phase	Number of wires	12
Power factor	Cos⊄ = 0.8	Wave form : NEMA = TIF - (*)	< 50
Winding pitch - code	2/3 - (wdg6)	Altitude	\leq 1000 m
Drip proof	IP 23	Overspeed	2250 min ⁻¹
Excitation	Shunt	Air flow	0.58m ³ /s

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- Deep sea DSE7320 controller
- Digital control panel
- Volts, current, frequency, rpm (instruments)
- Genset running hours
- Battery voltage and charging
- Over speed pre-alarm & shutdown
- High water temp. pre-alarm & shutdown
- Low oil pressure pre-alarm & shutdown
- Low voltage pre-alarm & shutdown
- Overcurrent pre-alarm & shutdown

Standard Features

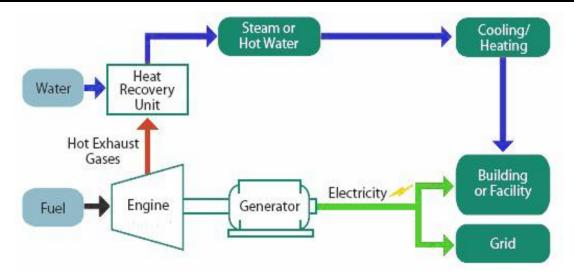
- High efficient water cooled gas engine with radiator
- Brushless alternators (Class H, with AVR.)
- Heavy duty rubber anti-vibration mountings
- Starter batteries and connecting cables
- Separate engine-drive battery charging alternator
- Industrial silencer for open type generator sets
- Circuit breaker 3 pole (MCCB)
- Maintenance free battery
- Low coolant level sensor
- Oil filter Air filter

Optional

- Automatic Transfer Switch (ATS)
- Canopy/Enclosure
- \bigcirc Water heater for severe cold weather
- \bigcirc Lub-oil heater for severe cold weather
- Silent containerised
- \bigcirc Residential silencer
- \odot Panel for auto synchronization with Mains
- \bigcirc Extra air filters for time-maintenance
- \bigcirc Automatic oil supply system

- Fully welded steel baseframe
- Ignition system
- Gas train: ball valve, gas filter, gas pressure regulator, pressure gauge,electromagnetic valve;
- Wiring with IEC standard
- Factory test certificate
- Operation & Maintenance manual & Diagrams
- Worldwide product / Technical support
- \bigcirc Extra oil filters for time-maintenance
- O Parallel cabinet
- Full range of attachments and options available for alternator
- \bigcirc Flame arrestor in gas train
- Desulfurization system
- \bigcirc Gas pretreatment system
- \bigcirc Dehydration system
- \bigcirc Genset Comissioning / Testing on site

Combined Heat and Power Systems



We offer Combined Cooling Heating and Power (CHP and CCHP) packages for our gas generator sets. It can recover 75%-90% combined electrical and thermal efficiency, resulting in major reductions in your overall energy costs. In the past years we have supplied CHP systems to Germany, Russia,Indonesia etc. We have the experience and capabilities to meet your total energy requirements.

Warranty

The goods of Tide Power Technology are under warranty against defects in materials and workmanship for period 1 year or 2000 hours operation time whichever come first from the date of delivery to the end user (except the damageable spare parts of genset caused by incorrect manmade operation), and that the aforementioned warranty for the same token is back up by the engine (8750 hours for continuous duty which should not exceed 75% of the prime power rating) & alternator manufactures and their global distributors.