Natural Gas Generator set data sheet *(01-01-2018)*

Prime 176kWe, *Natural Gas*

Gas Generator Set Model:	TPI220XG	***Gas Engine Model:***	*PSI D111L*	***Alternator Model:***	*Leroy Somer LSA 46.3S3*

60Hz 1800 r.p.m	***3 Phase*** *4 Wires*	***Power Factor:*** *Cos ∅ = 0.8*	***Emissions Standard***	*N/A*

RATINGS[2]	***Prime Power*** *(PRP)*		***Continuous Power*** *(COP)*		***Rated Current***	***Thermal Output***	***Efficiency***	
							Eletrical	**Thermal**[3]
Voltage (V)	kW	kVA	kW	kVA	Amps	kW	η(%)	
380/220	176	220	N/A	N/A	334.3	218	**38.0%**	**47.0%**
416/240	176	220	N/A	N/A	305.3	218		
440/254	**176**	**220**	**N/A**	**N/A**	**288.7**	**218**		
480/277	176	220	N/A	N/A	264.6	218		

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	TPI220XG	Electrical efficiency	38.0%
Gas Engine model	D111L	Thermal efficiency	47.0%
Electrical output (kW/kVA)	176/220	Total efficiency	85.0%
Fuel	Natural gas	Speed regulating rate	0-5% Adjustable
Frequency (HZ）	60	Dimension (length×width×height) (mm)	2750×1015×1460
Speed（rpm）	1800	Net Weight (kg)	2170

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Engine Specifications

Manufacturer	PSI
Model	D111L
Mechanical power	200 kWm
Speed	1800 rpm
Configuration / number of cylinders	In line / 6
Bore / Stroke	123/155 mm
Displacement	11.1 L
Compression ratio	10.5:1
Firing order	1-5-3-6-2-4
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)	25 Litres
Total coolant capacity (engine with radiator)	105 Litres
Engine coolant flow	310 Liters/min
Standard thermostat range	71-85°C
Maximum allowable top tank temperature	104-110 °C

Lubrication system

Engine oil capacity (min-max)	19-25 Litres
Oil filter capacity	3.5 Litres
Oil consumption	≤1.0 g/kW.h
Maximum allowable oil temperature	121 °C
Oil grade	API CD/CF or higher, SAE 15W-40

Exhaust system

Maximum permissible restriction	10.2 kPa
Exhaust gas flow	40.3 m^3/min
Exhaust gas temperature	750°C

Air induction system

Maximum allowable Intake Air Restriction with Air Cleaner	
- Clean	1.24 kPa
- Dirty	3.74 kPa
Combustion air required (entire engine)	13 m^3/min

Fuel system

Maximum EPR rated pressure	6.9 kPa
Minimum running pressure to EPR	1.7 kPa
Minimum gas supply pipe size	2" NPT
Lower calorific value	34.71 MJ/Nm^3
Gas consumption at 100% standby	66.0 Nm^3/h
Gas consumption at 100% load	60.0 Nm^3/h
Gas consumption at 75% load	45.0 $Nm^{3/}$h
Gas consumption at 50% load	30.0 $Nm^{3/}$h
Gas consumption at 25% load	15.0 Nm3/h

Electrical system

Charging generator	24V x 45A alternator
Starting motor	24V x 7kW
Battery voltage	24V
Ignition controller	12 or 24V DC

Thermal Data

Heat rejected to cooling water at rated Load	11.1 kW
Heat rejection per CAC	25.7 kW

Alternator Specifications

60Hz/1800R.P.M

Manufacture / Brand	Leroy-Somer
Model	LSA 46.3S3
AVR model	R250
Coupling / Bearing	Direct /Single bearing
Phase	3 Phase
Power factor	Cosϕ = 0.8
Winding pitch - code	2/3 - (wdg6)
Drip proof	IP 23
Excitation	Shunt

Prime output power	184kW/230kVA
Insulation class	H
Voltage regulation	± 0,5 %
Totale harmonic distortion THD	no load <2.5% - on load <2.5%
Number of wires	12
Wave form : NEMA = TIF - (*)	< 50
Altitude	⩽ 1000 m
Overspeed	2250 min^{-1}
Air flow	0.58 m^3/s

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Control Pannel

- 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
- ● 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

Optional

- ○ Automatic Transfer Switch (ATS)
- ○ Canopy/Enclosure
- ○ Water heater for severe cold weather
- ○ Lub-oil heater for severe cold weather
- ○ Silent containerised
- ○ Residential silencer
- ○ Panel for auto synchronization with Mains
- ○ Extra air filters for time-maintenance
- ○ Automatic oil supply system
- ○ Extra oil filters for time-maintenance
- ○ Parallel cabinet
- ○ Full range of attachments and options available for alternator
- ○ Flame arrestor in gas train
- ○ Desulfurization system
- ○ Gas pretreatment system
- ○ Dehydration system
- ○ Genset Comissioning / Testing on site

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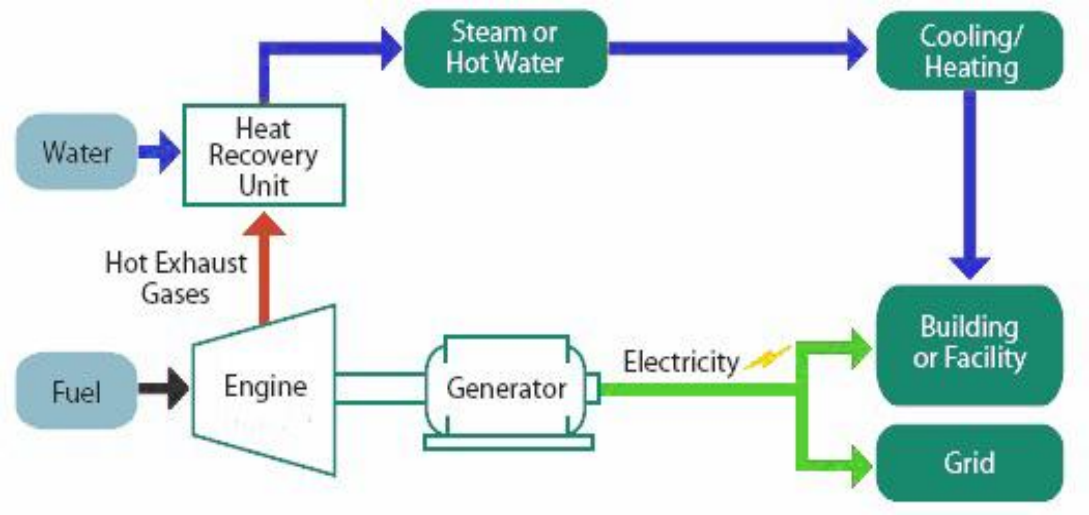
Combined Heat and Power Systems



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 man-made 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.

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