

Starlite Series Engines

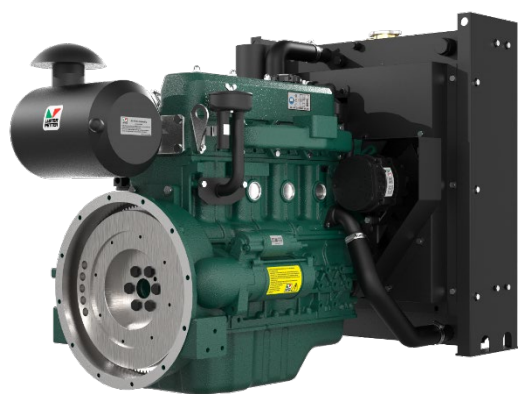


SA427G1

SA427G1 Engine

fixed speeds
1500 r/min

22 – 24 kWm | 29.5 – 32.2 bhp²



OVER VIEW

The engine is specifically designed as a Power generating engine suitable for use in stage II emissions territories. It is durable, reliable and easy to maintain. It is designed for continuous operation in ambient temperatures up to 52° C (125° F) and a cold start capability down to -25° C (-13° F).

G Build

Note:

For further information and approval please contact Applications Department

* Optional items standard on most builds.

BASIC ENGINE CHARACTERISTICS

- direct fuel injection
- 4 cylinders
- liquid cooled
- natural aspirated

DESIGN FEATURES AND EQUIPMENT

- electric starting
- anti clockwise rotation, looking on the flywheel end
- SAE Flywheel connection
- SAE compliant flywheel housing
- radiator and fan guard
- cast-iron structural crankcase
- self-vent fuel injection system
- mechanical fuel injection equipment
- mechanical and electronic governing variants
- flywheel and gear ring
- cyclonic heavy duty airfiltration
- oil pressure protection switch
- coolant temperature protection switch
- spin-on full flow lubricating oil filter
- fuel filter
- intake and exhaust manifolds
- operators' handbook

OPTIONAL ITEMS

A range of options are available that allows you to select a specification that matches your requirements; please consult your Lister Petter Engine distributor.

POWER OUTPUTS | Stage II EMISSIONS RATINGS

Model	Speed, r/min	Power	Gross ²		Net		Standard Generator Output*		
			kW	bhp	kW	bhp	Power	kVA	kWe
SA427G1	1500	Prime	22	29.5	21.5	28.8	PRP	23	18
		Standby	24	32.2	23.5	31.5	ESP	25	20

*The suggested continuous power is 80% prime power.

TECHNICAL DATA

Engine fixed speed 1500r/min		SA427G1
Type of fuel injection		Direct
Number of cylinders		4
Aspiration		Natural
Direction of rotation (flywheel end)		Anti clockwise
Nominal cylinder bore	mm	90
	in	3.54
Stroke	mm	105
	in	4.13
Total cylinder capacity	litre	2.67
	in ³	162.9
Compression ratio		18.5:1
Firing order (number 1 cylinder is at the gear end)		1-3-4-2
Alternator		14V × 35A
Starter motor		12V × 3.8kW
Fuel injection pump		Mechanical
Speed governor		Electronic
Speed regulation class		ISO 8528 G3
Fly wheel housing		SAE 4
Fly wheel		SAE J620 Size 7.5"

RATING DEFINITIONS TO ISO 3046

ISO Standard Conditions

Barometric pressure 100kPa
Relative humidity 30%
Ambient air temperature at the inlet manifold 25°C

Power Standards

The engine performance corresponds to ISO 3046, BS 5514 and DIN 6271. The technical data applies to an engine without cooling fan and operating on a fuel with calorific value of 42.7 MJ/kg (18360 BTU/lb) and a density of 0.84 kg/liter (7.01 lb/US gal, 8.42 lb/Imp gal).

Rating definition has basis in ISO 3046 & 8258-1, the tolerance of engine power is ±3%

Standby power rating is the supply of max emergency power under running variable load for the duration of none availability of the Mains, NO OVERLOAD capacity is adopted at this rating, furthermore, this published standby rating can be operated 500 hour/ year.

Prime Power rating is available for unlimited hours per year with variable load, of which are average engine load factor is 80% of the published prime power rating, incorporation of a 10% overload for 1 hour in every 12 hours of operation is permitted.

Base load is available for continuous published baseload power.

Derating

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

Notes:

1. Power ratings are measured at the flywheel end.
- 2.. Power ratings and fuel consumption figures apply to a fully run-in, non derated engine without a radiator and fan fitted, and without power absorbing accessories or transmission equipment.

* The power output of the generator data is calculated using a typical efficiency of the AC generator. The kVA and kWe values are converted as per standard power factor 0.8. Generator data is for reference only.

EXHAUST AND INTAKE SYSTEM | 1500 RPM FIXED SPEED ENGINES

Parameter	Engine Model
	SA427G1
EXHAUST	
Maximum allowable back-pressure (kPa)	≤ 10
Exhaust gas flow, (m ³ /min)	3.7
Emissions level	Stage II
Exhaust gas temperature, continuous (°C)	328
Exhaust gas temperature, overload (°C)	380
Exhaust pipe diameter -recommended	63.5mm
INTAKE	
Maximum allowable inlet restriction (kPa)	≤ 4
Combustion air flow (m ³ /min)	1.5

ENGINE COOLANT SYSTEM | 1500 RPM, FIXED SPEED

Parameter	Engine Model
	SA427G1
Cooling method	Liquid cooled (belt driven water pump)
RADIATOR	
Material	Aluminium
Radiator face area (m ²)	10.8
Pressure cap setting (kPa)	90
FAN	
Diameter (mm)	420
Number of blades	7
Material	Plastic
Type	Pusher
COOLANT	
Cooling package maximum operating temperature (°C)	≤110
Total system with radiator capacity (L)	9.8
Total system without radiator capacity (L)	4.1
Thermostat type	Wax Capsule
Thermostat opens at... (°C)	72
Thermostat fully open at... (°C)	82
Minimum temperature to engine (°C)	-25
Maximum static pressure head at pump (meters at 1500rpm)	14
Cooling fan flow rate (m ³ /s)	1

Recommended coolant:

50% ethylene glycol with a corrosion inhibitor (BS 6580 : 1992 or ASTM D3306-89 or AS2108) and 50% de-ionised water

ENGINE LUBRICATION SYSTEM

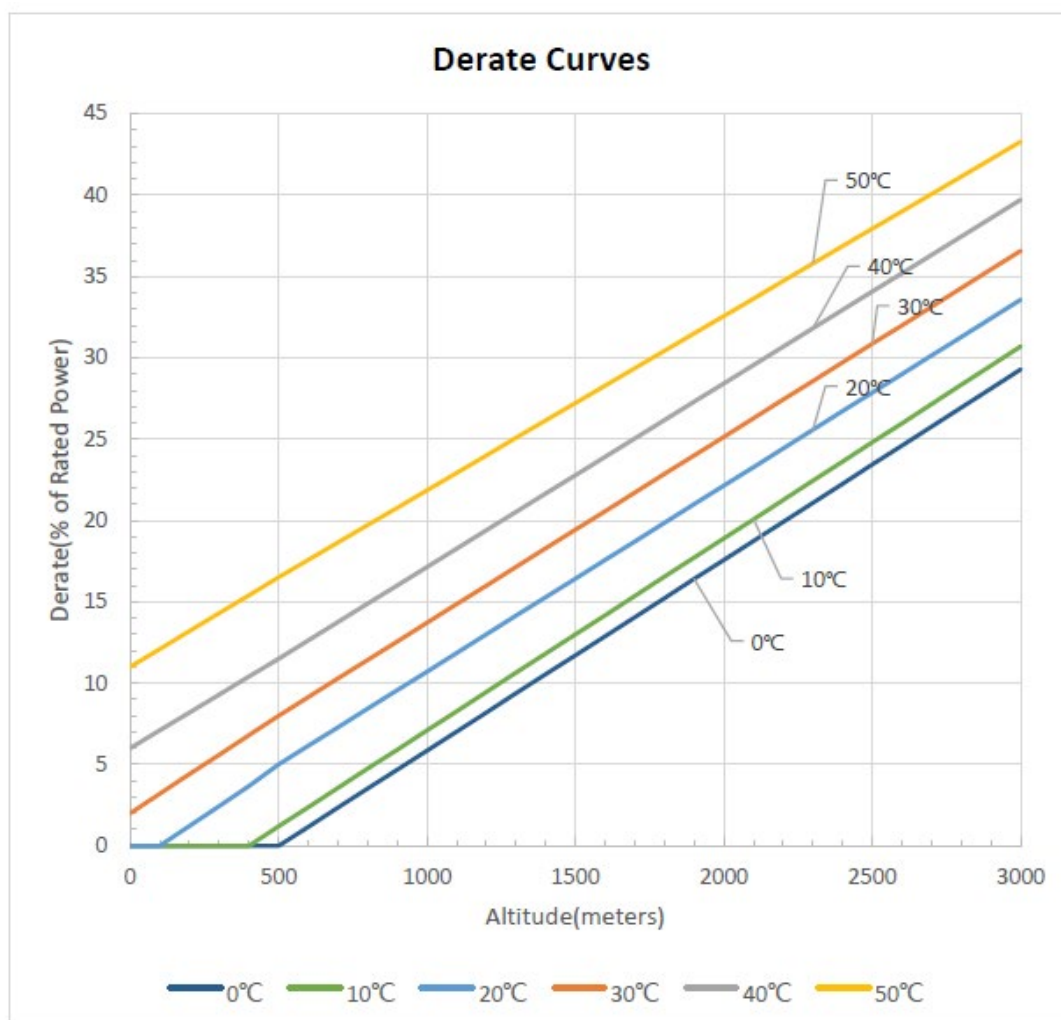
Parameter	Engine Model
	SA427G1
Lubricating method	Pressure feed and splash
Sump capacity including filter (L)	8.0
Service Interval (hr)	250
Oil filter type	Spin-on full flow oil filter
Oil Specification	API CH-4
	ACEA E5
Oil consumption % SFC	≤ 0.2%
Oil consumption, 100% (l/hr)	0.012
Lubricating oil temperature (°C)	90-105
Maximum oil temperature (°C)	108
Maximum operation angle of engine (degrees)	10°

APPROXIMATE FUEL CONSUMPTION

Speed, r/min	Load	Engine model	
		SA427G1	
		g/kWh	l/h
1500	110%	234	6.74
	100%	220	5.76
	75%	216	4.24
	50%	232	3.04
	25%	246	2.1

*Diesel fuel density 0.835 g/ cm³

POWER DERATING



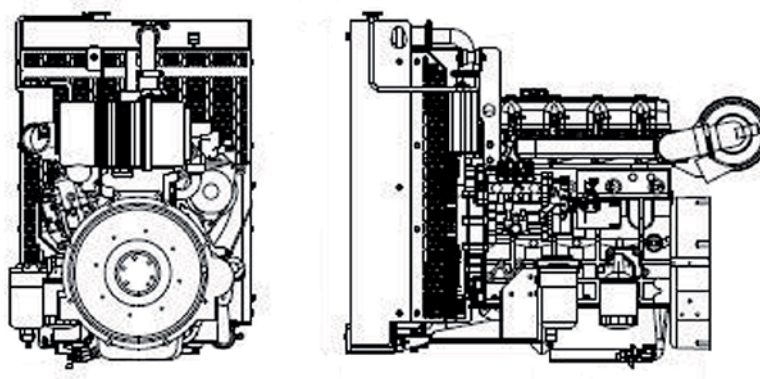
* Estimating the effect of altitude & temperature for the engine output relative to ISO reference condition at sea level.

* Inquiry should always be made to Lister Petter technical department if the altitude is above 3000m.

ENGINE NOISE LEVELS

Parameter	Engine Model
	SA427G1
Sound pressure level at 1m	≤98 dB(A)

APPROXIMATE DIMENSIONS AND WEIGHT



Engine model		SA427G1
Dry weight	kg	297
	lb	653
Length (A)	mm	1155
	in	45
Width (B)	mm	670
	in	26.1
Height (C)	mm	845
	in	33.0

TYPICAL PACKING CASE DIMENSIONS

Engine packing case dimensions	Radiator packing case dimensions	Container quantities (Engine with Radiator)		
L*W*H(mm)	W*D*H(mm)	20FT	40FT	40HQ
975*645*870	790*430*1100	26 sets	50 sets	62 sets



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