

# 4000 Series 4016-61TRS2 Spark Ignited Gas Engine

1042 kWm @ 1500 rpm

Designed to meet the future demands of the market for clean, efficient gas fuelled engines for the power generation industry, the Perkins 4016-61TRS 16-cylinder spark ignition gas engine offers high performance, dependability and reliability while meeting the increasingly stringent emission requirements of the market.

The 4016-61TRS is a turbocharged and air-to-water charged cooled 16-cylinder vee-form engine designed for operation on natural gas.

Particular emphasis on efficiency and emission control together with durability, reliability and exceptional thermal efficiency and reduced whole life costs, make selection of the Perkins 4016-61TRS engine the prime choice at a nominal 1000 kW.



Specification		
Number of cylinders	16 60° Vee	
Bore and stroke	160 x 190 mm	6.3 x 7.5 in
Displacement	61.12 litres	3730 in <sup>3</sup>
Aspiration	Turbocharged and air-to-water charge cooled	
Cycle	4 stroke	
Combustion system	Spark ignition	
Compression ratio	12:1	
Rotation	Anti-clockwise, viewed on flywheel	
Total lubricating capacity	286 litres	75.5 US gal
Cooling system	Water-cooled	
Total coolant capacity	95 litres	25.1 US gal

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THE HEART OF EVERY GREAT MACHINE

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## Features and benefits

### Efficient power

- The modern design of the very latest developments in combustion and engineering techniques, to give world beating, fuel efficiencies, economical whole life costs and reliability

### Clean, smooth power

- Extensive research in combustion and noise/vibration/harshness have resulted in a smooth, quiet engine. This, combined with the emissions performance makes the 4016-61TRS more environmentally acceptable in these days of increased concern

### Reliable power

- Extended durability and attention to reduced servicing with extended component life add to the benefit of reduced whole life cost
- Total after-sales service, backed by a network of Perkins Gas Partners with dedicated expertise in service and maintenance of gas engines
- Robust to varying gas quality – specs for both natural gas and biogas are available\*

### Options

- The 4016-61TRS spark ignited gas engine can be supplied to suit customer requirements as a Gas Electro Unit for power generation or Cogen unit specification for combined heat and power operation

### Product support

- With highly trained Perkins distributors in thousands of communities in over 180 countries, you are never far away from expert product knowledge, genuine parts and a range of advanced diagnostic technology for keeping your engine in peak condition
- **Warranties and Service Contracts**  
We provide one-year warranties for our gas engines, as standard. These are supported by multilevel Extended Service Contracts that can be bought additionally  
Discover more: [www.perkins.esc](http://www.perkins.esc)
- To find your local distributor: [www.perkins.com/distributor](http://www.perkins.com/distributor)

\*Engine specification suitable for running on landfill gas, digester gas, biogas and coal bed mine gas. (Please contact your account manager or nearest distributor for more information)

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## Technical information

### Core engine

- High grade cast iron featuring integral crankcase inspection doors
- Wet type liners in centrifugal cast iron, plateau honed for quick ring bedding and reduced oil consumption
- Forged steel crankshaft
- Forged camshaft – carburised hardened
- High grade cast iron individual cylinder heads, each with four valves per cylinder
- Crankshaft driven gear train for camshaft
- Aluminium alloy piston with advanced bowl design. Three ring pack, gallery (oil) cooled
- Split cap connecting rods, forged steel with multi-bolt fixing – shot peened

### Gas/Ignition system

- Air/Fuel mixer with Heinzmann Elektra gas injection valve control system; automatic adjustment according to fuel gas characteristics
- Individual cylinder ignition coils mounted direct to the spark plugs

### Lubrication system

- Gear driven lubricating oil pump, externally mounted
- Spin on, canister type replaceable lubricating oil filters
- Shell and tube type oil coolers, jacket water cooled
- Crankcase closed circuit ventilation system

### Cooling system

- Pressurised fresh water jacket water cooling system
- Two-stage air to water charge cooler, jacket/secondary water cooled

### Air intake system

- Paper element air filter complete with restriction indicator
- Exhaust gas driven turbocharger

### Exhaust system

- Dry cast iron exhaust manifolds with heat shields
- Horizontal exhaust outlet

### Engine management system

- Full electronic management system, governing to ISO 8528 Part 5 Class G2 standard
- Engine protection system for high/low coolant temperature and low oil pressure, overspeed, misfire and knock protection

### Electrical system

- 24 volt electric starter motors

### Drive system

- Cast iron flywheel housing SAE 00 and flywheel SAE J620 Size 18
- Viscous type torsional vibration damper

### Engine mountings

- Engine supports: front and rear feet mounted off the crankcase

### Painting

- Commercial primer finish

### Packing/Preservation

- All engines are preserved after test running, shrink wrapping and suitable for containerised shipment

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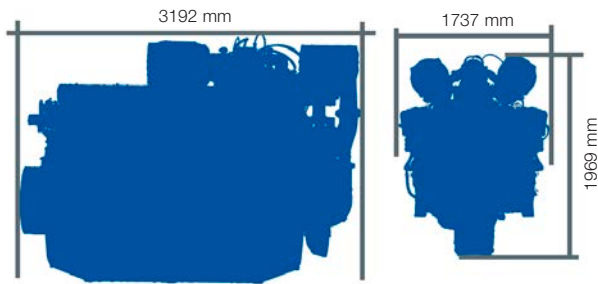
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Engine package weights and dimensions

Length	3192 mm	125.7 in
Width	1737 mm	68.4 in
Height	1969 mm	77.5 in
Weight (dry)	5820 kg	12831 lb

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Speed rpm	Type of operation	Typical generator output (Gross)	Engine power (Gross)
		kWe	kWm
1500	Continuous operating power	1000	1042

The above ratings represent the engine performance capabilities specified in ISO 3046/1, BS5514/1, DIN 6271.

Electrical ratings are based on average alternator efficiency at unity power factor, based on Natural Gas having a lower calorific value of 34.71 MJ/m<sup>3</sup>.

Please consult your local Perkins distributor or Perkins distributor or Perkins Engines Company Limited for derating for ambient conditions or for use of gaseous fuels other than that specified above.

#### Rating definitions

Continuous operation power: A 'true' baseload rating as defined in ISO 8528 as 'COP'.

Fuel consumption gross at 1500 rpm (kJ/kWs)		
	TA Luft	½ TA Luft
100% of COP	2.47	2.53
Continuous baseload rating of:	Cogeneration unit	Electro unit
100%	2.48	2.53
75%	2.58	2.60
50%	2.66	2.68
25%	2.74	2.76

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