

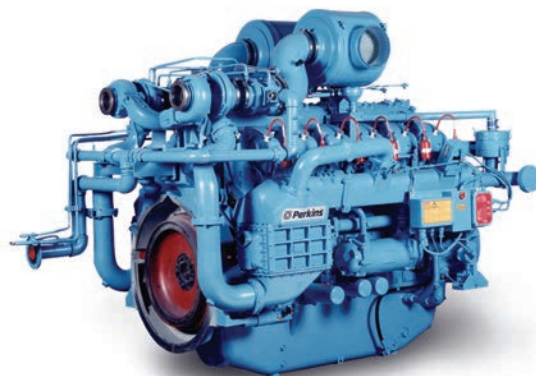
4000 Series 4012TESI Spark Ignited Gas Engine

632 kWm @ 1500 rpm

Designed in advance of today's uncompromising demands within the gas power generation industry, the Perkins® 4000 Series family of 6, 8, 12 and 16 cylinder spark ignition gas engines offers superior performance, dependability and reliability.

The 4012TESI is a turbocharged and air-to-air water chargecooled, 12 cylinder vee-form engine designed for operation on a wide range of gases including natural, landfill and digester gases. The internationally proven durability and reliability, combined with exceptional thermal efficiency and reduced whole life costs, make selection of the Perkins 4000 Series engine the obvious choice.

The 4000 Series 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 operations.



Specification		
Number of cylinders	12 vee-form	
Bore and stroke	160 x 190 mm	6.3 x 7.5 in
Displacement	46 litres	2795 in ³
Aspiration	Turbocharged and air-to-water chargecooled	
Cycle	4 stroke	
Combustion system	Spark ignited	
Compression ratio	11.5:1	
Rotation	Anti-clockwise, viewed on flywheel	
Total lubricating capacity	177.6 litres	47 US gal
Cooling system	Liquid	
Total coolant capacity	73 litres	19 US gal

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 **Perkins®**

THE HEART OF EVERY GREAT MACHINE

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Features and benefits

Economic power

- Utilises advanced combustion technology to deliver durable and reliable power
- High commonality of components with other engines in the 4000 Series family for reduced stocking levels
- Individual large valve cylinder heads with matched deep bowl pistons for greater swirl, achieve high mechanical efficiency

Reliable power

- Developed and tested using the latest engineering techniques
- Piston temperatures controlled by an advanced gallery jet cooling system
- Extended durability and attention to reducing servicing with extended component life add benefit of the reduced whole life cost
- Robust to varying gas quality
Specs for both natural gas and biogas are available*

Compact, clean and efficient power

- Exceptional power-to-weight ratio and compact size give optimum power density for ease of transportation and installation
- In excess of 40% mechanical efficiency
- Designed to provide excellent service access for ease of maintenance
- Engines to comply with major international standards
- All engines in the 4000 Series family are capable of meeting the NOx requirements of TA Luft

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
- To find your local distributor: 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

Air inlet and exhaust

- Electronic governing system, conforming to ISO 8528 G2
- Twin exhaust gas driven turbochargers
- Cast iron, jacket water-cooled exhaust manifolds
- Twin vertical exhaust outlet - supply on Electro unit only

Governing, gas and ignition system

- Air/fuel mixer with zero pressure regulator and mixture adjustment screw
- Metal braided flexible gas connection
- Altronic 800 'C' Series ignition system with individual cylinder ignition coils, spark plugs
- Digital governing system, governing to ISO8528-5 class G2

Lubrication system

- Gear driven, externally mounted lubricating oil pump
- Wet sump with filler and dipstick
- Spin-on type replacable lubricating oil filters
- Jacket water cooled shell and tube oil cooler/stabiliser
- Closed circuit crankcase ventilation system – natural gases only
- Low oil pressure switch

Cooling system

- Pressurised jacket water cooling system, gear-driven jacket water, circulating pump – supply on Electro unit only
- Air to water charge cooler, pipe work – supply on Electro unit only
- Jacket water thermostatic control – supply on Electro unit only
- High coolant temperature switch

Electrical equipment

- 24 volt starter motor
- 24 volt 70 amp battery charging alternator with integral voltage, regulator and activating switch – supply on Electro unit only
- High manifold pressure switch
- Digital knock detection

Flywheel and housing

- Flywheel housing SAE 00 and flywheel SAE J620 Size 18
- Viscous type torsional vibration damper(s)

Mountings

- Front and rear engine mounting support

Literature

- User's Handbook and Parts Manual

Optional equipment

- 220 / 240 volt thermostatically controlled immersion heater
- Three way thermostatic valve for charge cooler cooling circuit
- Mechanically driven water pump for charge cooler circuit
- Exhaust temperature monitoring
- Tool kit
- Additional manuals

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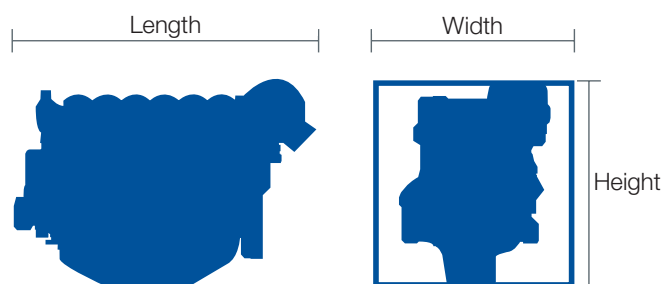
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Engine package weights and dimensions				
	Electro unit		Cogeneration unit	
Length	2681 mm	105 in	2650 mm	104 in
Width	1888 mm	74 in	1888 mm	74 in
Height	1893 mm	75 in	1893 mm	75 in
Weight (dry)	4680 kg	10318 lb	4680 kg	10318 lb

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Speed rpm	Type of operation	Typical generator output (Gross)	Engine power (Gross)
		kWe	kWm
4012TESI	Continuous operating power	600	632

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1. Derating may be required for conditions outside these; consult Perkins Engines Company Limited.

Generator powers are typical and are based on an average alternator efficiency and a power factor (cos. θ) of 1.

Fuel specification: Natural gas having a Lower Calorific Value of 34.71 MJ/m³.

Rating definitions

Continuous operating power: Power available for true Base load, rating as defined in ISO 8528/1, BS 5514/1 – No overload permitted.

Designation	Cogeneration unit 140 LC	Electro unit 200 LC
Fuel consumption gross	kJ/kW	kJ/kW
Continuous baseload rating	2.84	2.78
75% of prime power rating	3.00	2.92
Designation	Cogeneration unit 140 HC	Electro unit 90 HC
Fuel consumption gross	kJ/kW	kJ/kW
Continuous baseload rating	2.69	2.73
75% of prime power rating	2.8	2.9

Fuel consumption figures are for TA Luft compliant engines at ISO 8528/1 in "Cogen" engine specification, running on British natural gas with LCV 34.71 MJ/Sm³

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