

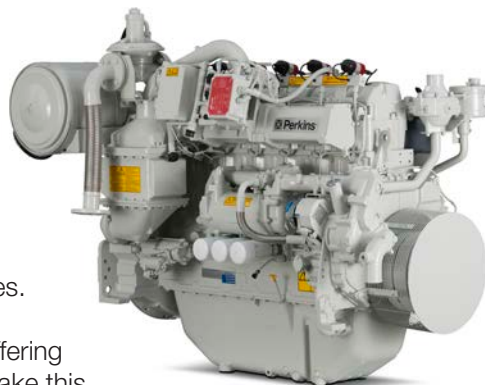
# 4000 Series 4006-23TRS1 Spark Ignited Gas Engine

322 kWm @ 1500 rpm

Developed from a proven engine range that offers superior performance and reliability, the 4006-23TRS is designed to meet the future demands of the power generation industry for clean, efficient gas fuelled engines.

The 4006-23TRS 6-cylinder spark ignition gas engine offers high performance, dependability and reliability whilst meeting the market's increasingly stringent emission requirements.

The 4006-23TRS is a turbocharged, air to water charge cooled, 6 cylinder inline engine, designed for operation on a wide range of methane based gases. Its premium features and design provide economic and durable operation as well as exceptional mechanical efficiency and power-to-weight ratio, whilst offering improved emissions. The overall performance and reliability characteristics make this the prime choice for today's power generation industry.



Specification		
Number of cylinders	6 vertical in-line	
Bore and stroke	160 x 190 mm	6.3 x 7.5 in
Displacement	22.92 litres	1399 in <sup>3</sup>
Aspiration	Turbocharged and air-to-water charge cooled	
Cycle	4 stroke	
Combustion system	Spark ignited	
Compression ratio	12.0:1	
Rotation	Anti-clockwise, viewed on flywheel	
Total lubricating capacity	122.7 litres	32.4 US gal
Cooling system	Water cooled	
Total coolant capacity	36 litres	9.5 US gal

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Photographs are for illustrative purposes only and may not reflect final specification.  
All information in this document is substantially correct at time of printing and may be altered subsequently.  
Final weight and dimensions will depend on completed specification.

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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 reduced 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](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

### Air inlet and exhaust

- Mounted air filter – replaceable cartridge type
- Dry exhaust manifolds
- Exhaust manifold shielding
- High efficiency turbocharger

### 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
- Full-flow replaceable canister type oil filters
- Jacket water cooled shell and tube oil cooler/stabiliser
- Closed circuit crankcase ventilation system – natural gases only

### 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

### 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 coolant temperature
- Low oil pressure switch
- High manifold pressure switch
- Digital knock detection

### Flywheel and housing

- High inertia flywheel to SAE J620 Size 14
- SAE 'O' flywheel housing

### Mountings

- Front and rear engine mounting support

### Literature

- User's Handbook

### 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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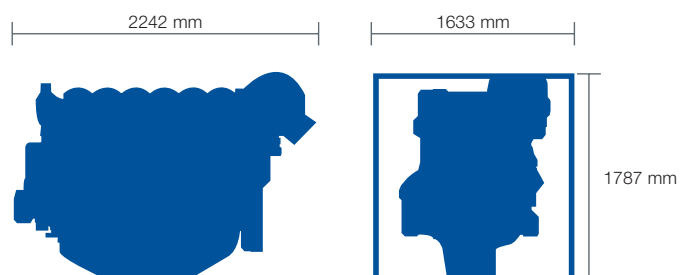
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Engine package weights and dimensions				
	Electro unit		Cogeneration unit	
Length	2242 mm	88.3 in	2242 mm	88.3 in
Width	1633 mm	64.3 in	1418 mm	55.8 in
Height	1787 mm	70.3 in	1787 mm	70.3 in
Weight (dry)	2420 kg	5335 lb	2420 kg	5335 lb

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Speed rpm	Type of operation	Typical generator output (Gross)	Engine power (Gross)
		kWe	kWm
4006-23TRS1	Continuous operating power	307	322

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.  $\theta$ ) of 1.

Fuel specification: Natural gas having a Lower Calorific Value of 34.71 MJ/m<sup>3</sup>.

#### 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	Electro unit
Fuel consumption gross at 1500 rpm	kJ/kW	kJ/kW
Continuous baseload rating	2.55	2.58
75% of prime power rating	2.63	2.66
50% of prime power rating	2.84	2.87
25% of prime power rating	3.88	3.91

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/Sm<sup>3</sup>

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