

# 850 Series 854E-E34TA Industrial Engine

EU Stage IIIB, EPA Tier 4 Interim and MLIT Step 4  
63-86 kW / 84.4-115.3 hp

The new, innovative Perkins 850 Series engines are designed to meet EU Stage IIIB, EPA Tier 4 and Japanese MLIT Step 4 emissions legislation. These engines have been designed to give exceptional power density and low cost of ownership. Their robust technology allows our OEMs the ability to integrate these engines into their equipment with the minimum of re-engineering.

At the top of the range is the 854E-E34TA, turbocharged, air-to-air charge cooled, 3.4 litre, 4 cylinder unit capable of producing 86 kW (115.3 hp). Its high power density, combined with excellent torque, enables the machine manufacturers to select this engine where previously they may have used an engine of higher cubic capacity. This downsizing represents a cost saving and creates more space to package the new aftertreatment unit.

The Perkins 850 Series engines have the innovative design to meet the latest, stringent emissions legislation and the flexibility to integrate into hundreds of different types of equipment.

Perkins have developed a reputation for designing and building reliable and durable engines suitable for the most demanding applications.

## Engine data

Number of cylinders .....	4 vertical in-line
Bore and stroke .....	99 mm x 110 mm (3.9 in x 4.3 in)
Displacement .....	3.4 litres (207.5 in <sup>3</sup> )
Aspiration .....	Turbocharged aftercooled
Cycle .....	4 stroke
Combustion system .....	Direct injection
Compression ratio .....	17:1
Rotation .....	Anti-clockwise, viewed on flywheel
Cooling system .....	Liquid
Total coolant capacity (engine only) .....	6 litres (1.58 US gal)
Dimensions – side turbo	
Length .....	747.5 mm (29.4 in)
Width .....	662.0 mm (26.0 in)
Height .....	822.0 mm (32.3 in)
Dimensions – top turbo	
Length .....	747.5 mm (29.4 in)
Width .....	660.0 mm (26.0 in)
Height .....	830.0 mm (32.7 in)
Dry weight .....	270 kg (595.2 lbs)

Final weight and dimensions will depend on completed specification

## Emissions

Designed to meet 2012 EU Stage IIIB (Europe), EPA Tier 4 (US) and MLIT Step 4 (Japan) emission requirements.

## Reliable, quiet, and durable power

World-class manufacturing capability and processes coupled with proven core engine designs assure reliability, quiet operation, and many hours of productive life.

## Innovative design

- Leading-edge technology of the 850 Series provides significant improvements in power, torque, fuel consumption and response.
- Turbocharging – single smart wastegated turbo systems.
- Durable high pressure common rail technology.
- Centrifugal (no filter) closed circuit breathing system.



## Fuel economy

Fuel consumption optimised to match operating cycles of a wide range of equipment and applications. No additional fluids or additives are required which lowers operating costs.

## Low cost of ownership

- Excellent fuel consumption.
- Hydraulic tappets allow service-free top end.
- Multi-vee belts for longer service intervals.
- 500 hour oil change intervals.

## Product support excellence

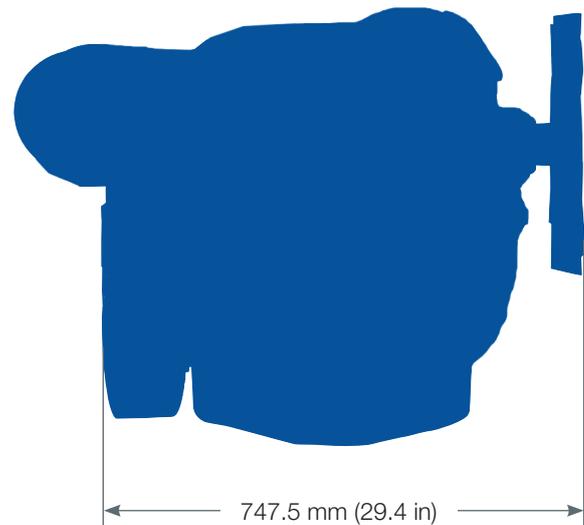
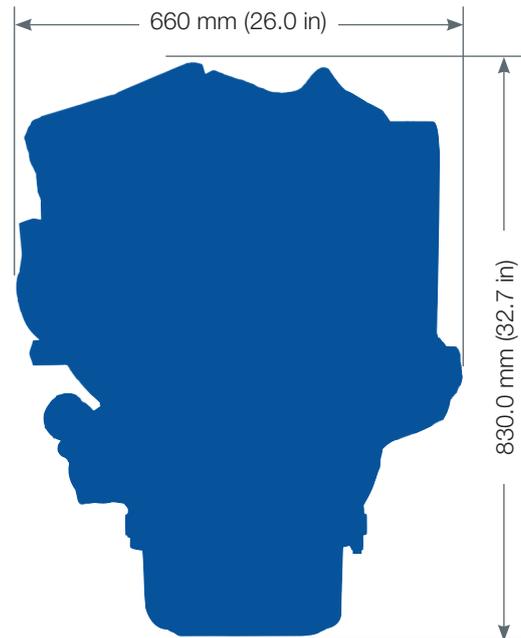
- Perkins recognise that the customer relationship is important to machine manufacturers and we can offer a range of flexible solutions to help provide appropriate support, either to the OEM's network or directly to the machine customer.
- Perkins information systems enable our distributors to quickly diagnose engine faults and identify the right parts. The Perkins logistics operation is able to dispatch more than 45,000 different parts from stock, reaching the customer within 24 hours.
- Extended Service Contracts:
  - No surprises – Total protection from unexpected repair costs (parts, labour and travel)
  - Enjoy longer lasting product support from Perkins global network
  - Genuine Perkins parts ensure continued engine performance
  - Highly trained technicians carry out all repairs
  - Transferable coverage should you sell your machine.

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## Engine specification

- Multiple engine ratings
- SAE A PTO drive
- Timing case gear driven auxiliaries
- Flywheel housings
- Flywheel and starter rings
- Fuel filter positions
- Adapter plates
- Starter motors
- Fan drives and locations
- Lubricating oil filters
- Front end drives
- Alternators
- Belt driven auxiliaries
- Induction manifolds
- Exhaust manifolds
- Cold start aids
- Engine mountings
- Cooling packs
- Electronic Control Module
- Common rail fuel pump and injectors
- Wiring harness
- Sensors for:
  - Engine speed
  - Oil pressure
  - Coolant temperature



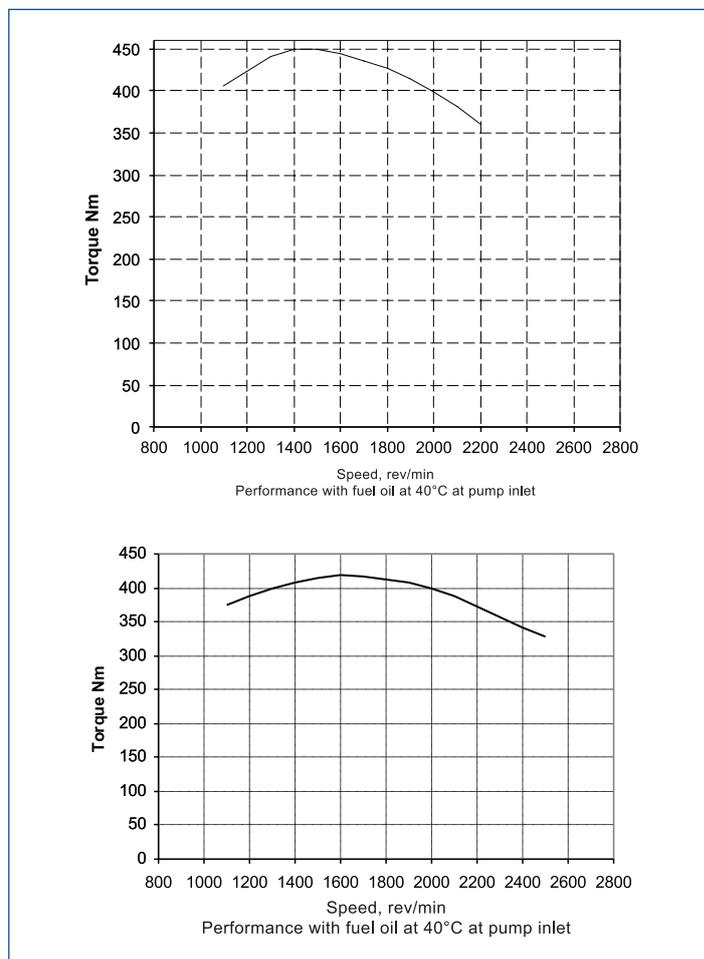
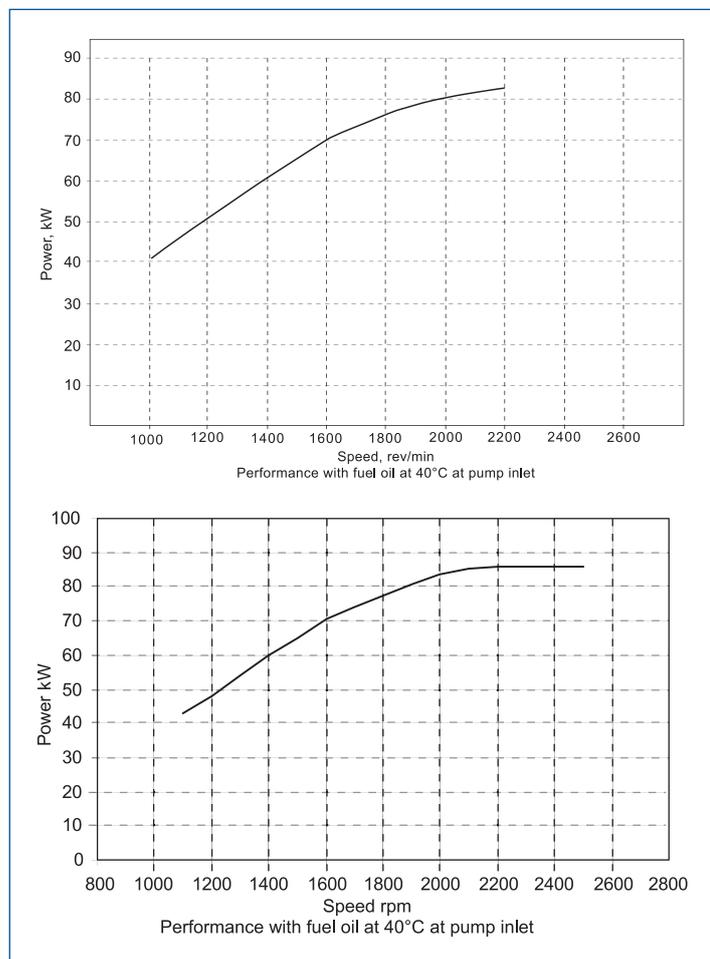
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## Performance data



Maximum Rating (kW)	Speed (rev/min)	Torque (Nm)	Speed (rev/min)
83	2200	450	1400
86	2500	420	1600

Rating Standard ISO 14396:2002

Unless otherwise specified, all stated data is for maximum rated speed and 100% load.

## Rating definitions and conditions

**IND-C (Intermittent)** is the horsepower and speed capability of the engine where maximum power and/or speed are cyclic (time at full load not to exceed 50%).

**IND-D** For service where maximum power is required for periodic overloads (time at full load not to exceed 10% of the duty cycle).

Additional ratings are available for specific customer requirements. Consult your Perkins distributor.

**Rating Conditions for Diesel Engines** – up to 7.1 litres are based on ISO/TR14396, inlet air standard conditions with a total barometric pressure of 100 kPa (29.5 in. Hg), with a vapour pressure of 1 kPa (0.295 in Hg) and 25°C (77°F). Performance is measured using fuel to specification EPA 2D 89.330-96 with a density of 0.845-0.850 kg/L @ 15°C (59°F) and fuel inlet temperature 40°C (104°F).

Photographs are for illustrative purposes only and may not reflect final specification.

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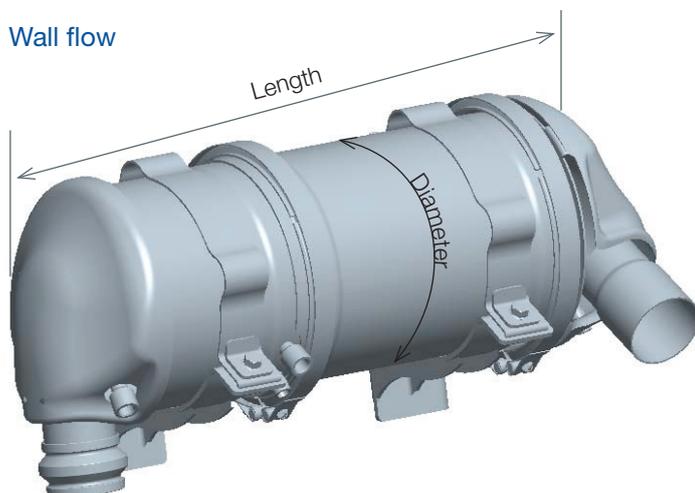
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## Aftertreatment configuration

### Wall flow



Aftertreatment Type	Length	Diameter of Can	Weight
Wall Flow	541 mm (21.3 in)	180 mm (7.1 in)	20 kg (44 lbs)

Final weight and dimensions will depend on completed specification

### Technology

The Diesel Particulate Filter (DPF) technology chosen performs through the whole work cycle of the engine thus allowing it to work efficiently.

### Power

Using our advanced research and development techniques, we have perfectly matched the aftertreatment to the engine. The engine performance has then been optimised to give the maximum power and the emissions module is invisible to the operator in most duty cycles.

### Mounting

Multiple off and on engine installation options provide OEM with simple and flexible solutions for many applications.

### Service

Minimum 3,000 hour DPF ash service intervals.

### Aftertreatment

The diesel particulate filter on its own cannot remove all the legislated gases. Hydrocarbons, carbon monoxide and the 'soluble organic fraction' must also be managed. The Diesel Oxidation Catalyst (DOC) is a silicon carbide material but uses a through flow principle. The gases pass straight through the device rather than through the walls.

For particulate reduction Perkins is offering:

- A silicon carbide wall flow DPF. This porous ceramic material is highly efficient at removing particulate matter – 90% as a minimum – and often much higher.
- Incorporating low temperature regeneration with oxy-exotherm back-up.

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