



**EVERY™ JOB.**

**ISB<sup>e</sup>**



**CUMMINS EURO 4 ENGINES 140-300PS**

# EURO 4 ENGINES.

## ISB<sup>e</sup>

Cummins ISB<sup>e</sup> takes a further leap forward to meet Euro 4 emissions and beyond. With an excellent reputation for performance and fuel economy already established at Euro 3, these engines have been improved in a number of key areas benefiting the operators of rigid trucks, speciality vehicles and buses with higher performance and lower running costs

Based on the experience of over 3 million B Series in use around the world and over 50,000 ISB<sup>e</sup>'s sold across Europe, this engine family continues to improve with each generation. Key design enhancements are incorporated in the latest ISB<sup>e</sup> engines to provide higher power to weight ratios and improved vehicle productivity. These improvements are the basis of Cummins' strategy to provide evolutionary product updates which continue to move the company significantly ahead of the competition.

Torque and power are increased substantially, allowing these engines to move up to new application classes traditionally associated with engines of higher displacement. Weight sensitive installations such as multi-axle rigids and size constrained installations such as full size buses are now in reach of the ISB<sup>e</sup>'s capabilities.

The new ISB<sup>e</sup> is unique to Cummins, with no other manufacturer able to offer the same design benefits for Euro 4. It provides equipment manufacturers with a much more cost effective power plant backed by the renowned reliability and durability of Cummins B engine platform. Cummins ISB<sup>e</sup> – the engine for every job!



### Ratings

ENGINE MODEL	POWER (PS)	PEAK TORQUE (Nm@RPM)	GOVERNED SPEED
4 CYL			
ISB <sub>E</sub> 140	140	550@1200-1600	2500
ISB <sub>E</sub> 160	160	600@1200-1600	2500
ISB <sub>E</sub> 185	185	700@1200-1600	2500
6 CYL			
ISB <sub>E</sub> 205	205	750@1200-1700	2500
ISB <sub>E</sub> 225	225	850@1200-1700	2500
ISB <sub>E</sub> 250	250	950@1200-1700	2500
ISB <sub>E</sub> 250B*	250	1020@ 1200-1600	2500
ISB <sub>E</sub> 285	285	1020@1200-1700	2500
ISB <sub>E</sub> 300	300	1100@1200-1700	2500

\*BUS ONLY RATING

### Specifications

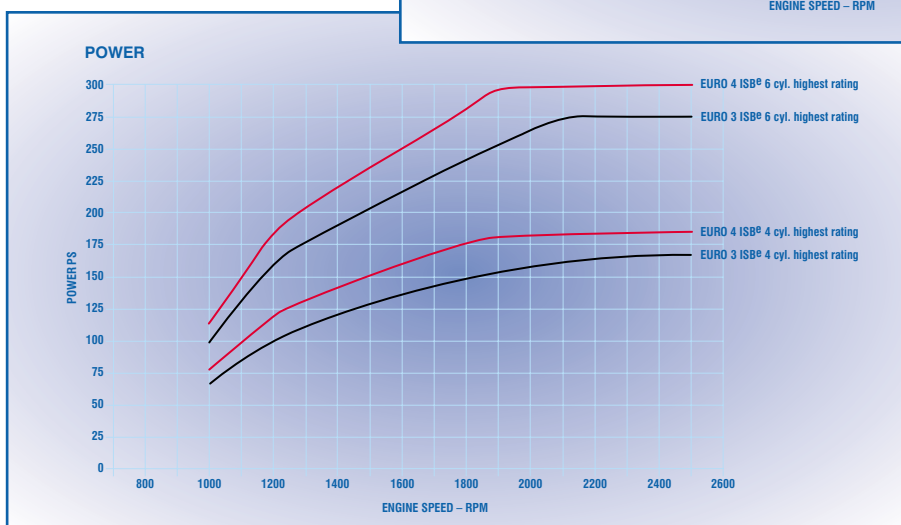
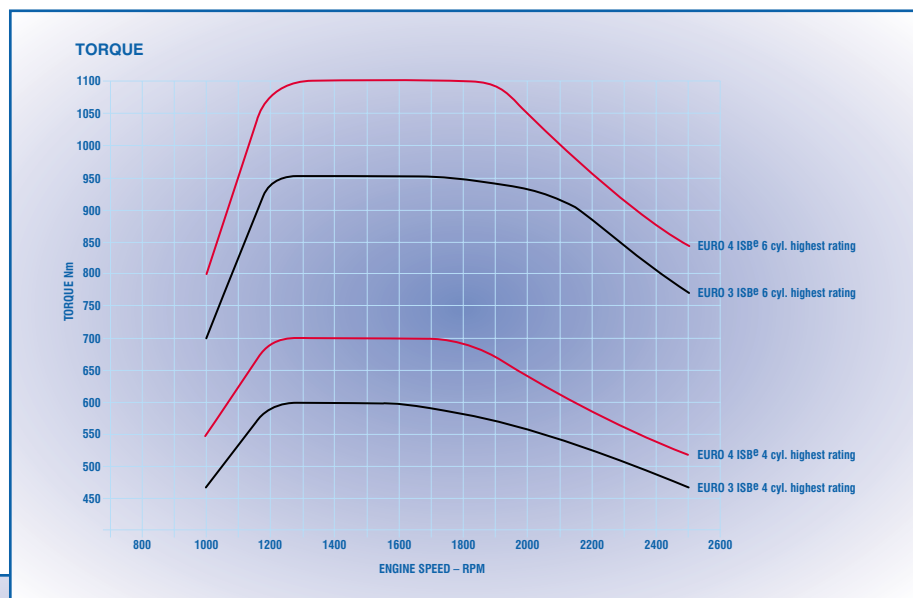
	4 CYL ISB <sup>e</sup>	6 CYL ISB <sup>e</sup>
POWER (PS)	185	300
PEAK TORQUE (Nm)	700	1100
GOVERNED SPEED (RPM)	2500	2500
NO OF CYLINDERS	4	6
DISPLACEMENT (LITRES)	4.5	6.7
OIL SYSTEM CAPACITY (LITRES)	11	17.5
DRY WEIGHT (KG)	374	485

## Features and Benefits

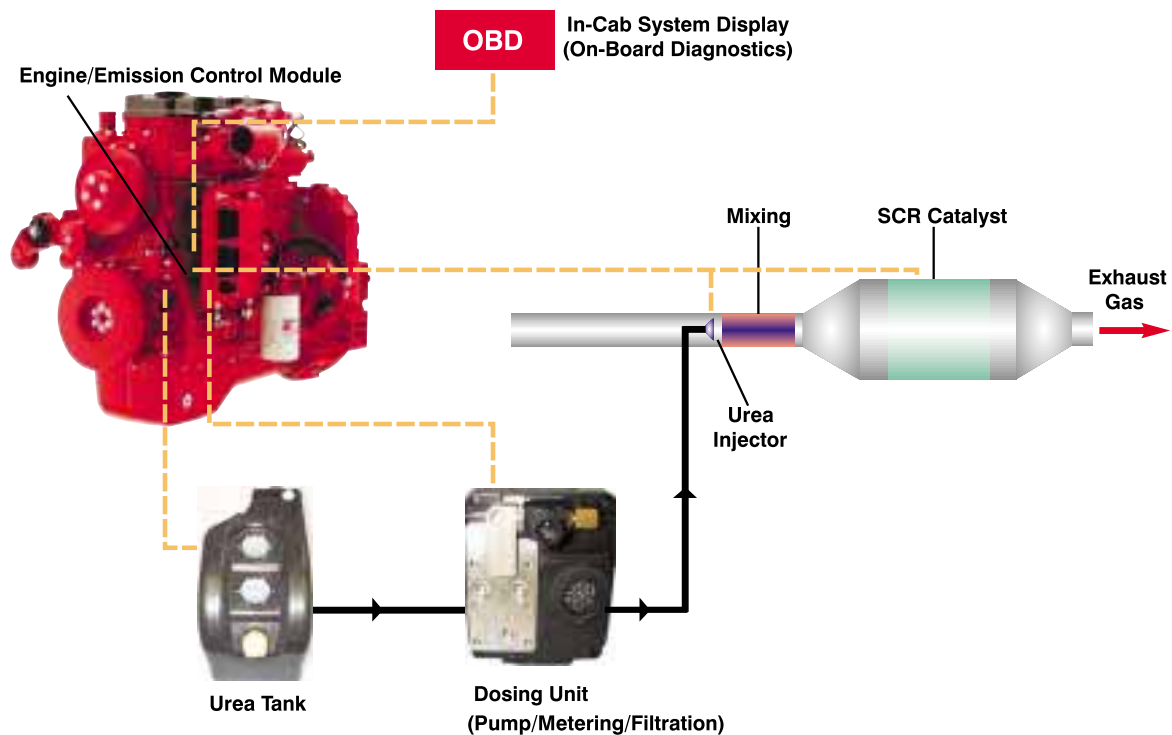
Cummins have carried over the successful ISB<sup>e</sup> benefits from the previous model, and made key changes to improve the total package :

- Brand new engine block – increases displacement from 3.9 to 4.5 litres on the 4 cylinder engine and from 5.9 to 6.7 litres on the 6 cylinder product.
- Emissions technology – meets Euro 4 requirements with the Cummins Integrated Emission Management (I.E.M.) system using Selective Catalytic Reduction (SCR) technology.
- New Electronic Control Module – new CM850 ECM with a processing speed over twice as fast as the previous ECM. Maintains an optimum balance between load demands, fuel-efficiency and emissions control. It is designed to be isolated from detrimental thermal and vibration loading for extreme reliability and durability.
- New Common Rail system – works at higher pressure and provides more precise control of the combustion process. Capable of generating up to 1600 bar injection pressures for refined and rapid power delivery, reduced noise, and improved cold start.

- Rear engine power take-off (REPTO) with a drive capability of 400Nm is now available. Suitable for applications such as cement mixers.
- Higher Power – 4 cylinder engine increases to 185ps and the 6 cylinder engine moves up to 300ps, giving it the highest power to weight ratio in its class.
- Higher torque – increased by 17% versus Euro 3 for improved responsiveness. 4 cylinder engine moves up to 700Nm and the 6 cylinder engine increases to 1100Nm
- Low operating costs – the optimised engine and aftertreatment system provides significant reductions in fuel consumption and extends service intervals.
- Future proof design – minimal changes required to meet Euro 5 and beyond.



The Euro 4 ISB<sup>e</sup> offers significantly more power and torque compared to the Euro 3 ISB<sup>e</sup>. This is provided without penalty to fuel economy. In fact, fuel consumption will reduce by up to 7% with engine service intervals being extended by 60%.



## Emissions Technology

The ISB<sup>®</sup> engines will meet the Euro 4 emissions legislation with the Integrated Engine Management (I.E.M.) system using Selective Catalytic Reduction (SCR) technology. The system is controlled and monitored from the engine mounted ECM, providing a more reliable, cost effective, easier to install system. The IEM strategy was formed around the ability to provide a total solution of engines, air handling and exhaust systems all under the Cummins umbrella. By working closely with Holset Turbocharging and Fleetguard Emissions Solutions, Cummins are in a unique position to provide a complete engine to exhaust pipe package.

## How it works

During optimum combustion there are undesirable but unavoidable emissions of nitrogen oxide and nitrogen dioxide. These are commonly amalgamated and termed as NOx. In the SCR process a re-agent AdBlue (32.5% urea dissolved in water) is used to react with and neutralize the NOx. AdBlue which is a non toxic, odourless, non flammable liquid is injected into the exhaust system. The exact amount of AdBlue introduced into the system is precisely controlled by the electronic dosing unit. In the heat of the exhaust stream the AdBlue hydrolyses and ammonia molecules are released. The NOx and ammonia molecules react in the catalyst. Nitrogen and water as

steam are all that remain after the reaction. This is clean, safe technology as Nitrogen is completely harmless and makes up almost 80% of the air we breathe.

## Advantages

The use of SCR as the right technology has been driven by ever increasing customer demands. Cummins recognises the need for improved fuel economy, longer service intervals and higher vehicle uptime. Compared to Euro 3 the results show substantial savings:

- Fuel economy is improved by up to 7%, depending on duty cycle. This is a major cost benefit to operators.
- Service intervals are increased to 65,000km, giving an improvement of over 60%. Vehicle availability is substantially increased.
- Durability is improved due to optimised engine timing allowing less unburned fuel to cause sooting in the oil.
- The SCR system has lower heat rejection compared with other emissions technologies, meaning that little change is required to the vehicle cooling system.
- The complete system is supported by Cummins service network

## INTERACT enhances your vehicle

INTERACT intelligence reaches out from the engine to integrate fully with other electronically controlled systems on the vehicle. The engine ECM incorporates an industry standard SAE J1939 datalink to accept inputs from all powertrain components – electronic transmission, ABS brakes and ASR anti-slip, all creating a seamless flow of information shared along a high speed datalink. The engine responds exactly to requested adjustments in torque or speed performance for gear changing or wheel spin correction. The result is smoother and more fuel-efficient performance, with added protection against powertrain wear.

**Drive-by-Wire** – electronically control-led throttle.

**Multiplexing** – enables vehicle manufacturers to engineer simplified wiring with improved reliability, carrying data signals through to the instrument panel and driver controls.

**Cruise Control** – fully integrated into the engine management system and offering a number of trimmable features.

**Power Take-Off (PTO) Controls** – allow drivers of vehicles such as mixers, tippers and refuse vehicles to ramp up engine speed either in-cab or outside.

**Powerful Idle Torque** – provides for smooth vehicle movement from rest, particularly useful on inclines or difficult ground.

**Fan Clutch Control** – OEM option, electronically linked to enhance cooling efficiency.

## INTERACT keeps you up and running

Cummins information products provide easy access to the engine management system for rapid diagnostics and data downloading, helping to ensure maximum uptime for vehicles. Cummins INTERACT technology allows the engine to look after itself. Sensors throughout the engine continually send data back to the ECM for self diagnosis and protection.

## Electronic Tools

■ **INSITE™** – For years Cummins INSITE software has been making it easy for technicians to troubleshoot, repair and service our electronic engines through easy-to-follow steps on your computer. Providing the kind of uptime you demand from your trucks.

■ **QuickCheck III** – Technicians can quickly and easily view engine data from every type of electronic diesel engine you run, using Cummins QuickCheck III and your own PDA device.

For more information on hardware compatibility, please visit us at <http://quickcheck.cummins.com> or see Bulletin 4081450.

■ **QuickServe® Online** – Gives Cummins fleets, owner/operators, distributors and dealers rapid access to parts and service information for over 8 million engine serial numbers. Part numbers and diagrams, maintenance information and service bulletins, warranty details and more are available every minute of every day via the Internet.

## QuickServe®

### Every Question, Answered.

■ **Customer Assistance Centre** – Call the Cummins specialists for technical assistance, service locations and product literature at +44 (0)1327 886464.

■ **Cummins PowerMaster** – E-mail the experts for timely answers to Cummins-related questions at [powermaster@cummins.com](mailto:powermaster@cummins.com).

■ **Cummins Online Registration** – Register all your Cummins engines quickly and easily at [www.everytime.cummins.com](http://www.everytime.cummins.com) to ensure quality parts and service for your engine.





Cummins has always been a pioneer in product development. Thus specifications may change without notice. Illustrations may include optional equipment.



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Bulletin 4951250 Printed in UK 03/05  
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