

BUILDING YOUR TOMORROW TODAY

DOOSAN COMPACT DIESEL ENGINES
US TIER 4-FINAL / EU STAGE IIIB & IV



D24 2.4L

Corporate profile

Doosan Infracore ranks among the world’s leading makers of construction equipment, machine tools and engines required to build and maintain infrastructure. We were founded in 1937 and have since achieved an unrivalled position in the world. In the 1990s, we has grown to become a truly global player through technological advancements, acquisitions and new product developments.

Doosan Infracore built a global network of large production facilities and sales subsidiaries, along with extensive dealer networks in all regions of the world including North America, Europe and China. Doosan Infracore continues to secure the latest products and technologies in line with the growing demand for green engines and boosting customer value.

Introduction of Engine Business Group

The history of the Doosan Infracore Engine BG goes back to 1958 by offering diesel engines, and the unit today produces and supplies diesel and natural gas engines with high-performance and fuel-efficiency for commercial vehicles, military vehicles, construction equipment, generators and ships around the world. Doosan Infracore is emerging as a global engine producer by developing a full line-up of diesel and gas models that meet increasingly strict environmental regulatory standards.

With the introduction of our new compact diesel Tier 4 final and EU Stage IIIB & IV compliant engines, Doosan Infracore is positioned to become one of the world’s top 5 engine makers with advanced environmentally-friendly technology.

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History & Award

1950~70’s 1980~90’s 2000’s 2010’s

1950’s

1958 Marine Engine (AVL)

1970’s

1975 Medium duty Engines (MAN license) - D0846, D2156

1979 Light duty Engines (ISUZU license) - 4BA1, 6BB1 (2.8, 5.4L)

1980’s

1983 Large Engines (MAN license) - D28 Series (15, 18, 22L)

Grand Prix of Quality Control (Honor of President/ Korea)

1985 ‘STORM’ engine, (the first in-house designed model, 8, 12L)

1986 Iron Medal of Industry with STORM engine (Honor of President/ Korea)

1988 Small Engines - 3AB1, C223, C240, 4BC2 (1.8, 2.2, 2.4, 3.3L)

1990’s

1994 Acquire ISO 9001/9002

1995 ‘DE & DV’ series (8, 12, 15L)

Gold Medal of Q.C.C. Contest (Honor of President/ Korea)

1996 Grand Prix Tech. of Environmental Reservation with DE12TI engine (Honor of President/ Korea)

1997 Grand Prix of Quality Management (Honor of President/ Korea) Acquire ISO 14001

1999 ‘GE’ series - CNG engine for city bus (12L)

2000’s

2000 Best Award on Engine with GE12TI engine (NGV2000)

2001 Tier II engine

2004 Euro III engine with Common-rail system

2006 GM Group Supplier of the Year (SOY) award

2007 Euro IV engine

2008 CNG engine assembly plant in Atlanta - US07 certified

2010’s

2010 Euro V engine. US10 CNG engine (supplied to LA Metro Bus)

2011 Tier IV-Interim engine

2012 Start of production of Doosan Compact Diesel Engines (1.8,2.4,3.4L)

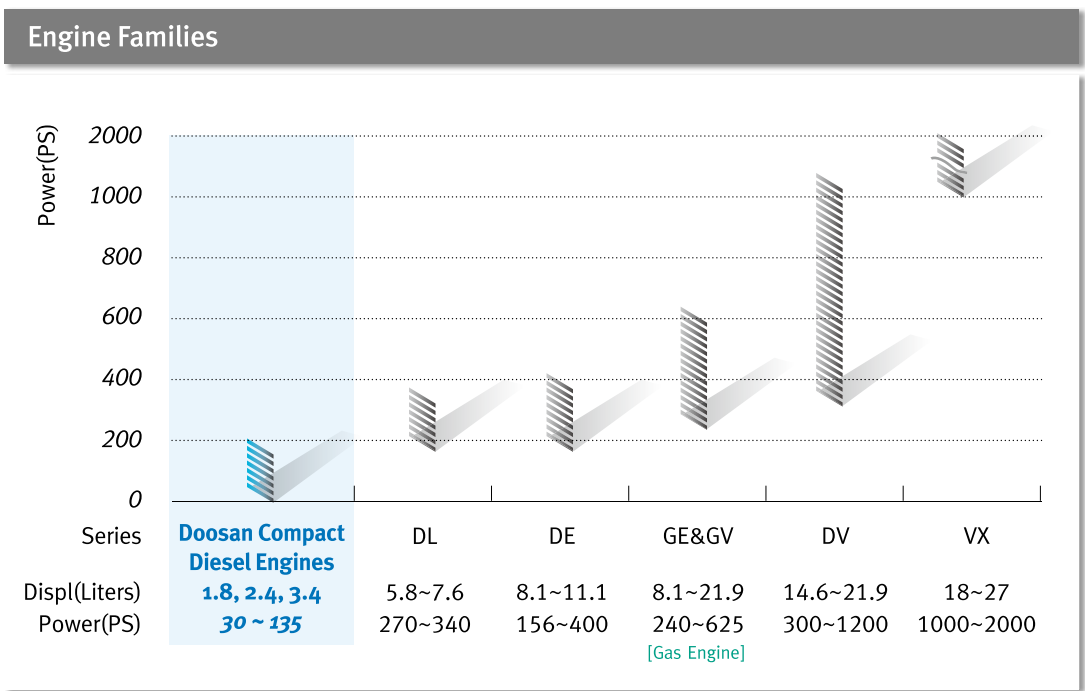
Doosan Infracore Engines

For more than 50 years, we have supplied over 1.5 million sets of engines with durability, reliability and quality world wide. Doosan Infracore offers a full line-up of engine, across a broad range of engine sizes with the completion of its Doosan Compact Diesel Engine plant. Doosan Compact Diesel Engines are developed and designed to meet the emission level of US Tier 4-final and EU Stage IIIB & IV.

Doosan Compact Diesel Engines are designed to be installed in a wide range of compact and mid-sized equipment, such as loaders, excavators, forklifts, tractors, portable power machinery, and more, serving industrial, commercial and agricultural applications.

With its low carbon footprint and high performance characteristics, Doosan Compact Diesel Engines innovate and fuel what matter most: your profits.

Product line up



Best-in-class plant brings best-in-class quality

A State of the art production plant guarantees the perfect quality.

Completed in 2012 with the latest and the advanced technologies, the new plant is specifically designed to build new Doosan Compact Diesel Engines. Clean, efficient and durable Doosan Compact Diesel Engines provide its customers with products that meet and exceed all expectations.

World class Quality Plant

Doosan Compact Diesel Engines offer advanced quality assurance through real-time in-line production monitoring and testing. This rigorous production process in our best-in-class, state-of-the-art plant ensures consistent high quality engines.

Zero Defect & Loss Plant

Our aim is to cut any loss and defect during the process of manufacturing which caused the product delivery delay and poor quality. Human errors are remarkably minimized by various advanced error-proof testing modes.

Green Plant

The Doosan Engine Plant is not just about engine production, it also focuses on the people and environment. A pleasant work environment improves operating efficiency and an environmentally-friendly plant minimizes emissions. Doosan Compact Diesel Engines are designed to consider the environment during manufacturing, as well as during operation.

Doosan Compact Diesel Engines were built with the customer in mind.

Listening to what compact engine customers wanted, Doosan Infracore set out to provide customers with engines robust enough to endure the most challenging working conditions.

By analyzing the root cause of customer downtime, Doosan Infracore developed a new, unique, customized verification methodology to minimize downtime by ensuring a reliable, high quality engine.

Innovation not only in the engine design, but also the manufacturing and quality control processes makes Doosan Compact Diesel Engines the most reliable compact engine available.



Doosan Compact Diesel Engines offer high power output, high low-end torque and maintain the highest level of performance for the most challenging conditions in the most challenging applications.

Advanced fuel injection system

The fuel injection system of Doosan Compact Diesel Engines is 1,800 bar common rail system. The advanced fuel injection system enables accurate fuel injection control thanks to high pressure of the common rail. This unique technology of Doosan Compact Diesel Engines improves performance and fuel efficiency, while reducing emission, noise and vibration.

Your Benefits

- Low exhaust gas emission
- Low noise vibration
- Better fuel efficiency
- Optimized governing for each application

Common rail system



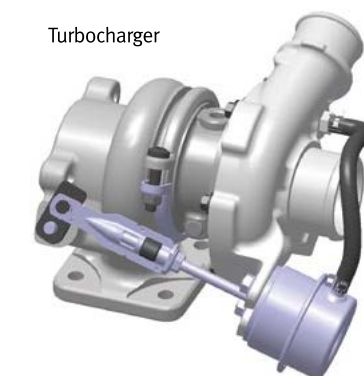
Turbo charger

The wastegate-type turbo charger with intercooler helps realize the best-level performance.

Your Benefits

- Better fuel efficiency and performance
- Excellent low-end torque
- Maintaining optimal performance even at high altitudes

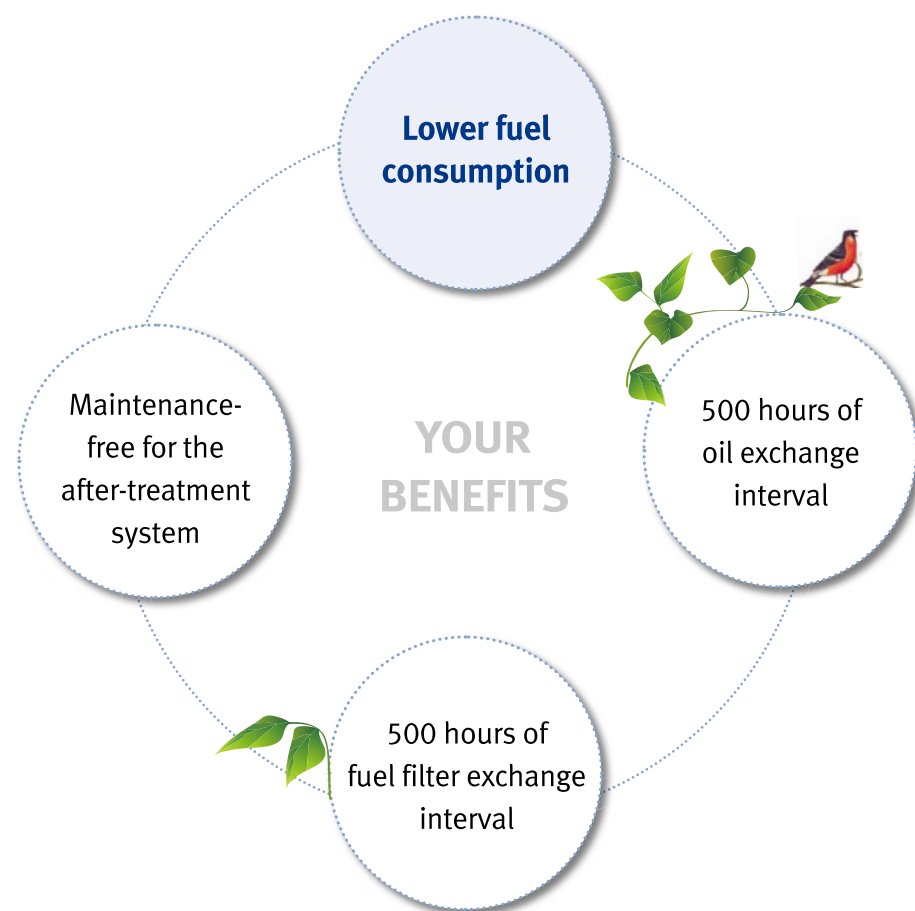
Turbocharger





Economical Solution

Doosan Compact Diesel Engines are designed for efficiency, as well as performance, with the durability and quality you expect. Lower fuel consumption, longer maintenance intervals and maintenance-free after-treatment systems lowers the total cost of ownership over the life of your engine. Payback period is faster with Doosan Compact Diesel Engines and that of any other engines in this class.

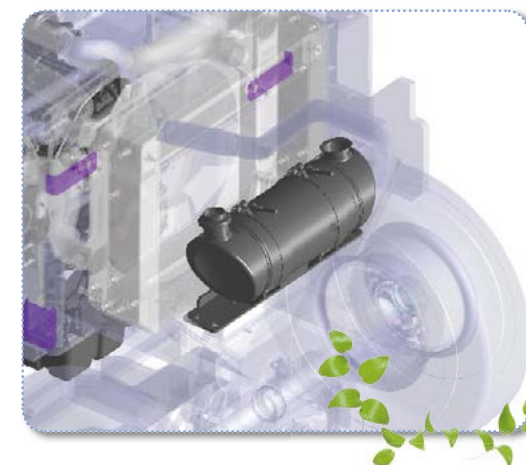
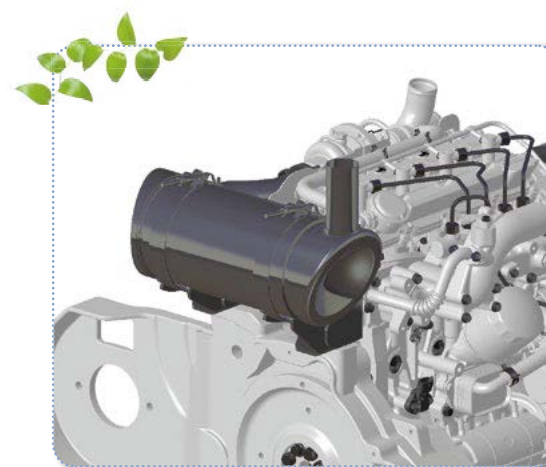


Convenient Solution

With its strong power at small displacement, Doosan Compact Diesel Engines are ideal for a wide variety of equipments. Doosan Compact Diesel Engines are designed to optimize the application, with the engine performance. The compact size, flexible after-treatment system and simple installation of Doosan Compact Diesel Engines allow engine configurations to fit almost any type of equipment.

Flexible configuration of after-treatment system

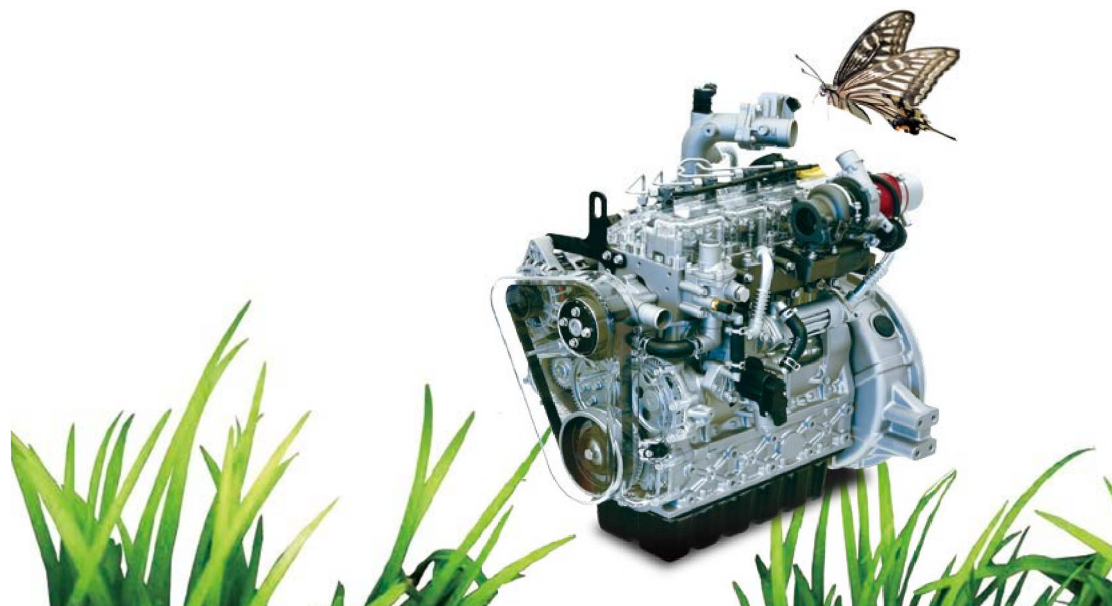
- Both engine-mount and chassis-mount design are available



Built with the latest, Doosan Compact Diesel Engines greatly reduce Nitrogen Oxides (NOx) and Particulate Matter (PM), satisfying both US Tier 4-final and EU Stage IIIB & IV emission requirements.

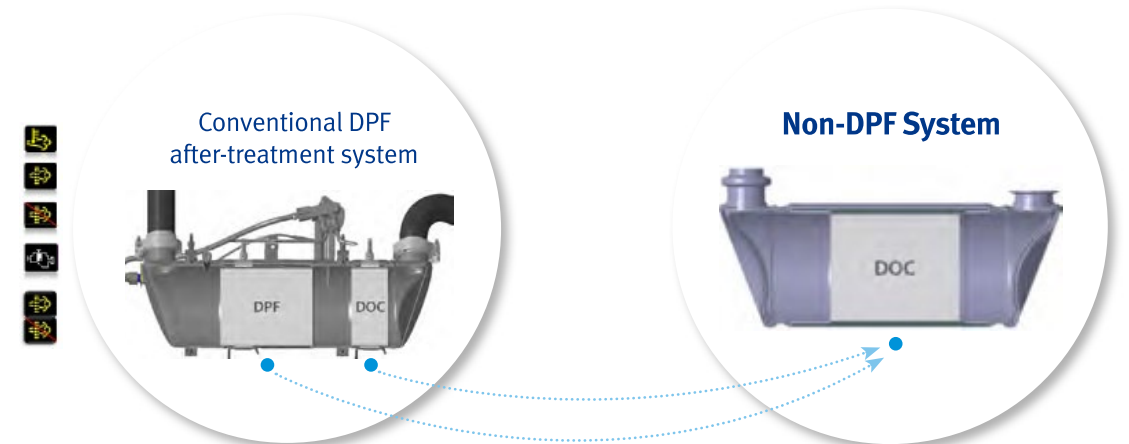
While traditional engine makers are relying on conventional technologies to satisfy the regulations of emission control, Doosan Infracore has developed a unique after-treatment system.

The conventional technology after-treatment systems apply both Diesel Particulate Filter (DPF) and Diesel Oxidation Catalyst (DOC) to meet the emission regulation. Departing from the complicated conventional after-treatment systems, Doosan Infracore has successfully eliminated DPF while satisfying the stringent emission requirements. Doosan Compact Diesel Engines address both user convenience and environmental concerns.



The conventional DPF type after-treatment systems cannot avoid the inconvenience and maintenance cost caused by their complicated system structure in order to meet US Tier 4-final and EU Stage IIIB & IV emission regulations. Doosan Compact Diesel engines use a Non-DPF System which is a much simpler system than the DPF-type systems solutions – no concerns on maintenance or quality issues. Doosan Compact Diesel Engines will be your best choice satisfying both the users and environment.

Our research shows that dealers and customers want and prefer a Non-DPF solution. Non-DPF will mean fewer parts on our engines than DPF engines, which means there will be fewer items for customers to perform required maintenance on. And Non-DPF will help minimize after-treatment quality issues, such as a regeneration process and clogging and cleaning the filter.



Your Benefits

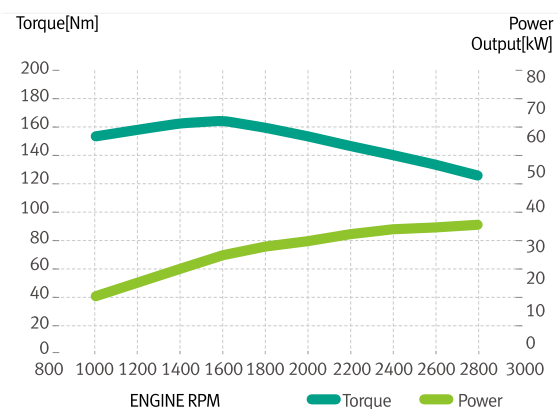
- Elimination of unnecessary parts (DPF with complicated sensors, wires, diagnosis lamp and etc)
- Prevention of after-treatment quality issues
- Maintenance – Free (No regeneration process and ash cleaning required)

D18

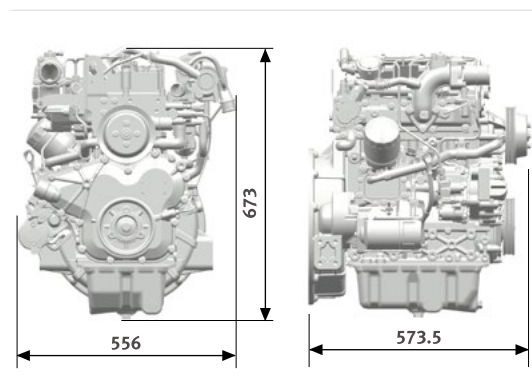


Model Name	D18
No. of Cylinder	In-line 3
Bore x Stroke	90mm x 94mm
Displacement	1,794cc
Aspiration	Turbocharged & Intercooled
Max. Power	50hp (37kw) @2,800rpm
Max. Torque	165Nm @1,600rpm
Aftertreatment	DOC (Tier4-final)

PERFORMANCES



DIMENSIONS *



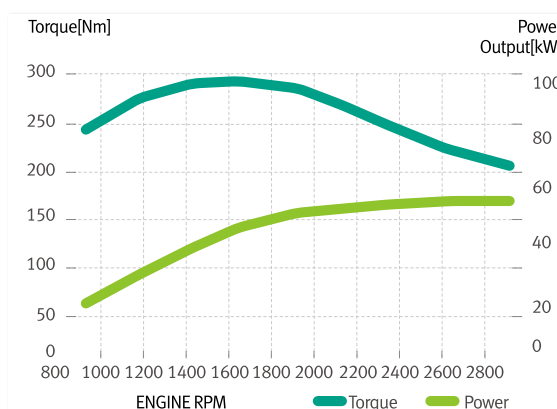
* Dimensions vary depending on the delivery specification

D24

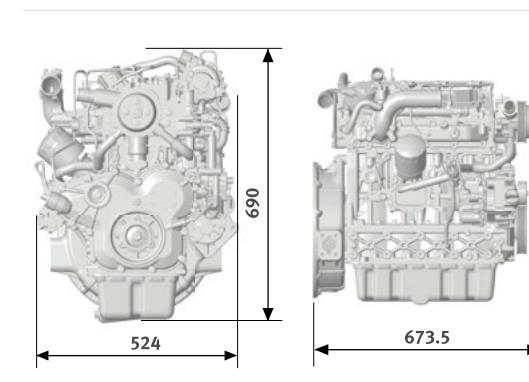


Model Name	D24
No. of Cylinder	In-line 4
Bore x Stroke	90mm x 94mm
Displacement	2,392cc
Aspiration	Turbocharged & Intercooled
Max. Power	74hp (55kw) @2,600rpm
Max. Torque	280Nm @1,600rpm
Aftertreatment	DOC (Tier4-final)

PERFORMANCES



DIMENSIONS *



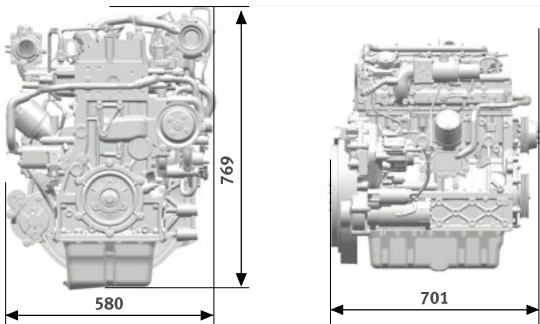
* Dimensions vary depending on the delivery specification

D34



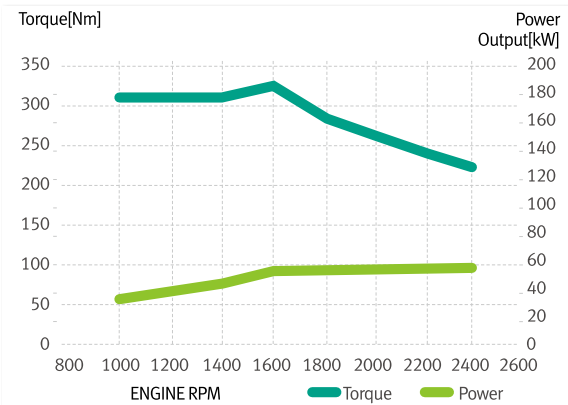
Model Name	D34 (74hp)	D34 (135hp)
No. of Cylinder	In-line 4	
Bore x Stroke	98mm x 113mm	
Displacement	3,409cc	
Aspiration	Turbocharged & Intercooled	
Max. Power	74hp(55kW) @2,400rpm	135hp (101kW) @2,400rpm
Max. Torque	325Nm @1,600rpm	500Nm @1,400rpm
Aftertreatment	DOC (Tier4-final)	DOC + SCR (Tier4-final)

DIMENSIONS *

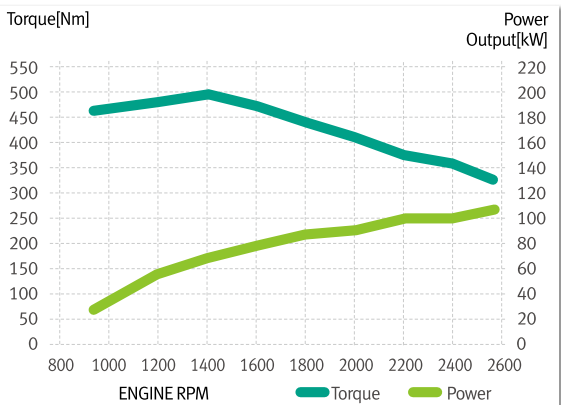


* Dimensions vary depending on the delivery specification

PERFORMANCES (74hp)



PERFORMANCES (135hp)



Technical Data

Model Name		D18	D24	D34 (74hp)	D34 (135hp)
Performance **	Max. power (hp[kW])/rpm	50 [37] /2,800	74 [55] /2,600	74 [55] /2,400	135 [101] /2,400
	Max. torque (Nm/rpm)	165 /1,600	280 /1,600	325 /1,600	500 /1,400
	Low-end torque(Nm@1,000rpm)	154	235	309	410
Main Characteristics	Cylinder arrangement	In-line 3	In-line 4	In-line 4	In-line 4
	Engine control	Full electronic engine management			
	Fuel Injection system	High pressure common rail (1,800bar)			
	Aspiration	Turbocharged & Intercooled			
	Turbocharger	Wastegate Type			
	EGR	External cooled EGR			
	After-treatment	DOC	DOC	DOC	DOC
	Emission compliance	US Tier4-final EU StageIIIB	US Tier4-final EU StageIIIB	DOC (Tier4-final) StageIIIB	US Tier4-final EU StageIV
	Valve arrangement	4 valves per cylinder			
	Ventilation system	Oil separator intergrated CCV(Close-Circuit Ventilation)			
Technical Features	Bore x Stroke (mm)	90 x 94	90 x 94	98 x 113	98 x 113
	Displacement (cc)	1,794	2,392	3,409	3,409
	Compression ratio	17 : 1			
	Engine weight (kg) *	163	204	265	265
	Gradeability	35deg for 4 directions			
Fuel Economy **	Min. BSFC (g/kWh)	220	216	209	209
	Max. power (g/kWh)	255	234	242	234
Fuel	Fuel compatibility	EN590:2009 Diesel			
Maintenance	Oil/filter change	500hr			
	Fuel filter change	500hr			
	Valve adjustment	500hr			

* Dry weight: w/harness included and f/wheel & HSG, alternator, A/C pulley, belt and aftertreatment not included.

** These features can be varied according to customer's requirements and are only for information purposes.



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