

OFF-ROAD ENGINES



POWERING YOUR BUSINESS

RELIABLE ENGINES FOR OFF-ROAD OPERATIONS



**VOLVO
PENTA**



PART OF THE VOLVO GROUP

For more than 100 years, Volvo Penta has provided power to customers around the globe – even in remote regions and extreme climates.

Volvo Penta is part of the Volvo Group, the world's leading manufacturer of trucks, buses, construction equipment and diesel engines.

Developing innovative new products and improving existing products is a source of pride for the entire Volvo Group. Although these products come to life in our R&D departments and workshops, the sparks that ignite new ideas come from our customers and the end users of our products.

THIS IS VOLVO PENTA.

MORE THAN AN ENGINE SUPPLIER

Volvo Penta is more than just an engine supplier, we work with you to provide solutions for increased uptime and, ultimately, greater profitability.

The heart of our offer is an impressive range of reliable, high-performing engines designed for off-road service. Add to that our comprehensive global aftermarket support, as well as our close partnerships with customers, and you've got all the factors necessary for optimum uptime.



PARTNERSHIP Working in close cooperation with all our customers comes natural to us. A partnership with you enables us to see and fully understand your needs. But most importantly, we can supply you with much more than just an engine. We supply you with tailored engineering and service support throughout the lifetime of your machines. We know that we have done our job when our customers tell us that our product innovations have made a tangible difference in their businesses.

A FRUITFUL COLLABORATION Our new Start/Stop function – developed in collaboration with an OEM – is a good example of a fruitful collaboration. We go the distance to make sure that our engines are the best possible fit for all our customers' applications.

ENGINE RANGE FOR OFF-ROAD APPLICATIONS

Characterized by their high performance, reliability, fuel efficiency, and low emission levels, Volvo Penta diesel engines for off-road applications are built to be versatile. The engines are developed to satisfy OEMs' demands, with their low weight, compact designs, and easy installation, making them perfect for numerous machine and equipment applications in a variety of industries.

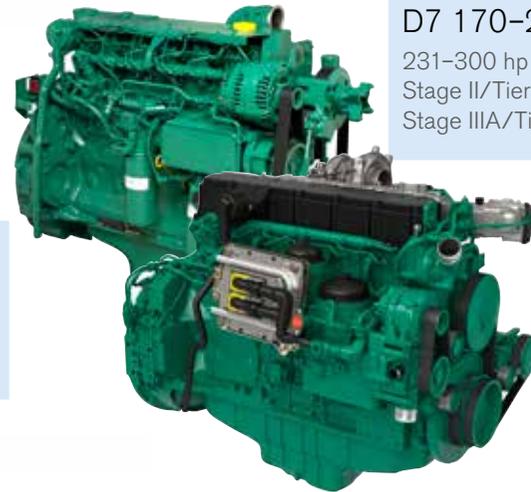
5-, 6- & 7-LITRE RANGE



D5 129–155 kW
175–211 hp
Stage IIIB/Tier 4i



D6 147–155 kW
200–211 hp
Stage II/Tier 2
Stage IIIA/Tier 3



D7 170–220 kW
231–300 hp
Stage II/Tier 2
Stage IIIA/Tier 3

D7 160–235 kW
219–328 hp
Stage IIIB/Tier 4i

5- & 8-LITRE RANGE



D5 105–160 kW
143–218 hp
Stage II/Tier 2
Stage IIIA/Tier 3
Stage IV/Tier 4f



D8 160–235 kW
218–320 hp
Stage II/Tier 2
Stage IIIA/Tier 3
Stage IV/Tier 4f



ENGINE INFO
Use the QR code for more engine information. Or go to www.volvopenta.com

Regardless of emission standard, engines in each size family have a similar footprint. That means OEMs don't have to make major modifications to equipment built for different markets.

11-, 13- & 16-LITRE RANGE



D11 235–285 kW
320–388 hp
Stage II/Tier 2
Stage IIIA/Tier 3
Stage IV/Tier 4f



D13 256–405 kW
348–551 hp
Stage II/Tier 2
Stage IIIA/Tier 3
Stage IIIB/Tier 4i
Stage IV/Tier 4f



D16 397–565 kW
540–768 hp
Stage II/Tier 2
Stage IIIA/Tier 3
Stage IIIB/Tier 4i
Stage IV/Tier 4f



COMPLIANCE IN PRACTICE

Volvo Penta is committed to selective catalytic reduction (SCR) as the best environmental technology to comply with current and future emission demands. As our chosen technology, the SCR system combined with a light exhaust gas recirculation (EGR) has more than proven its efficiency for the Tier 4 Final engines.

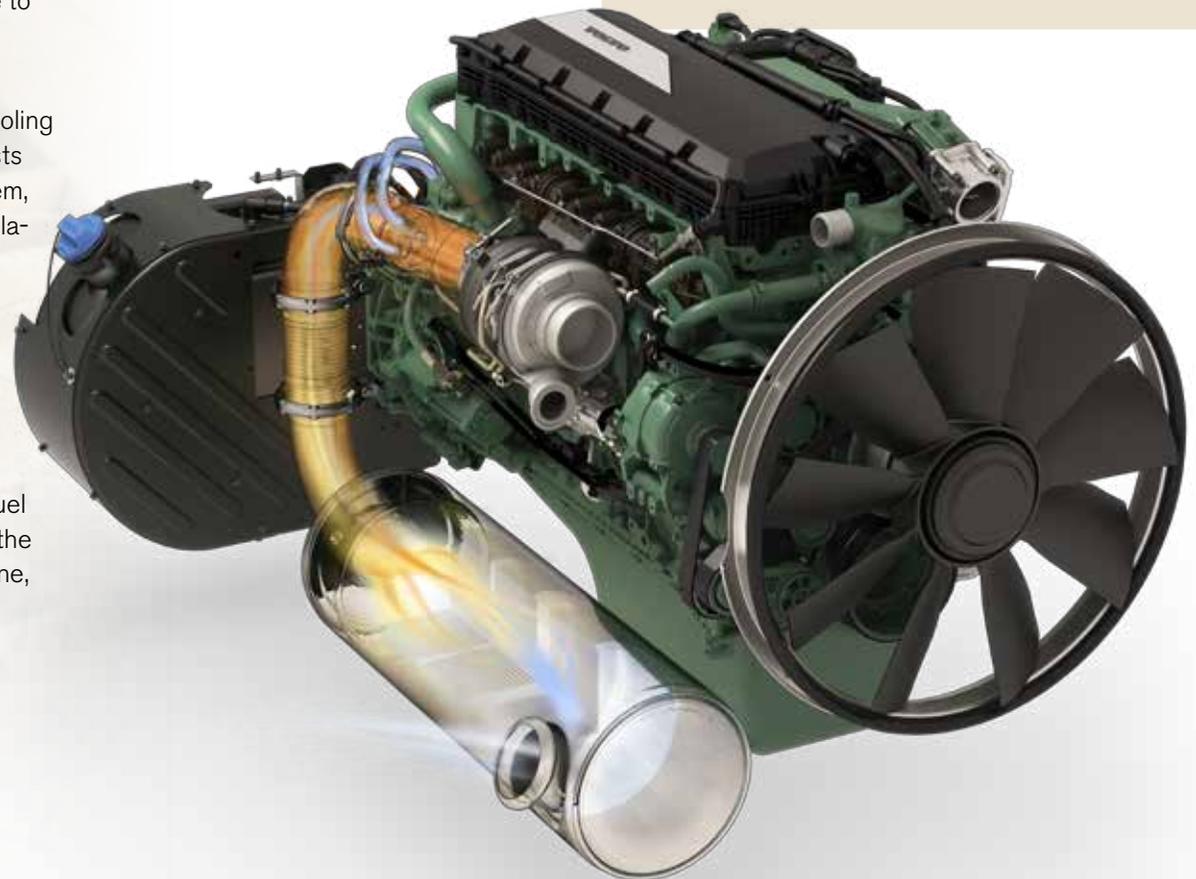
EASIER INSTALLATION The Volvo Penta Stage IV/Tier 4F solution – engine, urea tank and SCR muffler – is very simple to install. We provide the complete system, including hoses and cable harnesses with connectors.

An engine equipped with the Volvo SCR system has a low cooling demand – which means lower noise levels and minimized costs for the radiator package. It also means a more compact system, enabling manufacturers to house the cooling system in installations where space is limited. With the SCR system, more fuel energy is converted into mechanical power – for less heat rejection and maximized power output. The result is smaller engine sizes, reduced costs, and simplified installations.

TOTAL COST OF OWNERSHIP For end users, the principal benefits begin with unsurpassed fuel efficiency that cuts operating costs. High-efficiency combustion leads to lower fuel consumption and low levels of particulate matter (PM). Plus, the catalytic converter is designed to last the lifetime of the engine, so maintenance costs and downtime are also reduced.

KEEP IT SIMPLE – SCR TECHNOLOGY

There are many ways to build an SCR system. At Volvo Penta, we've kept our SCR as simple and reliable as possible. While others have chosen more complex installations – including separate burners and particle filters, in addition to the more complex cooled exhaust gas recirculation (C-EGR) system – we use only two parts: SCR and light EGR. The benefits are obvious: the fewer components used, the easier the installation will be and the less risk of part failure or system malfunction.



TIER 4 FINAL ENGINES

With the proven SCR system with light EGR, installation challenges for manufacturers are limited, no regeneration is necessary, and operating costs are low.

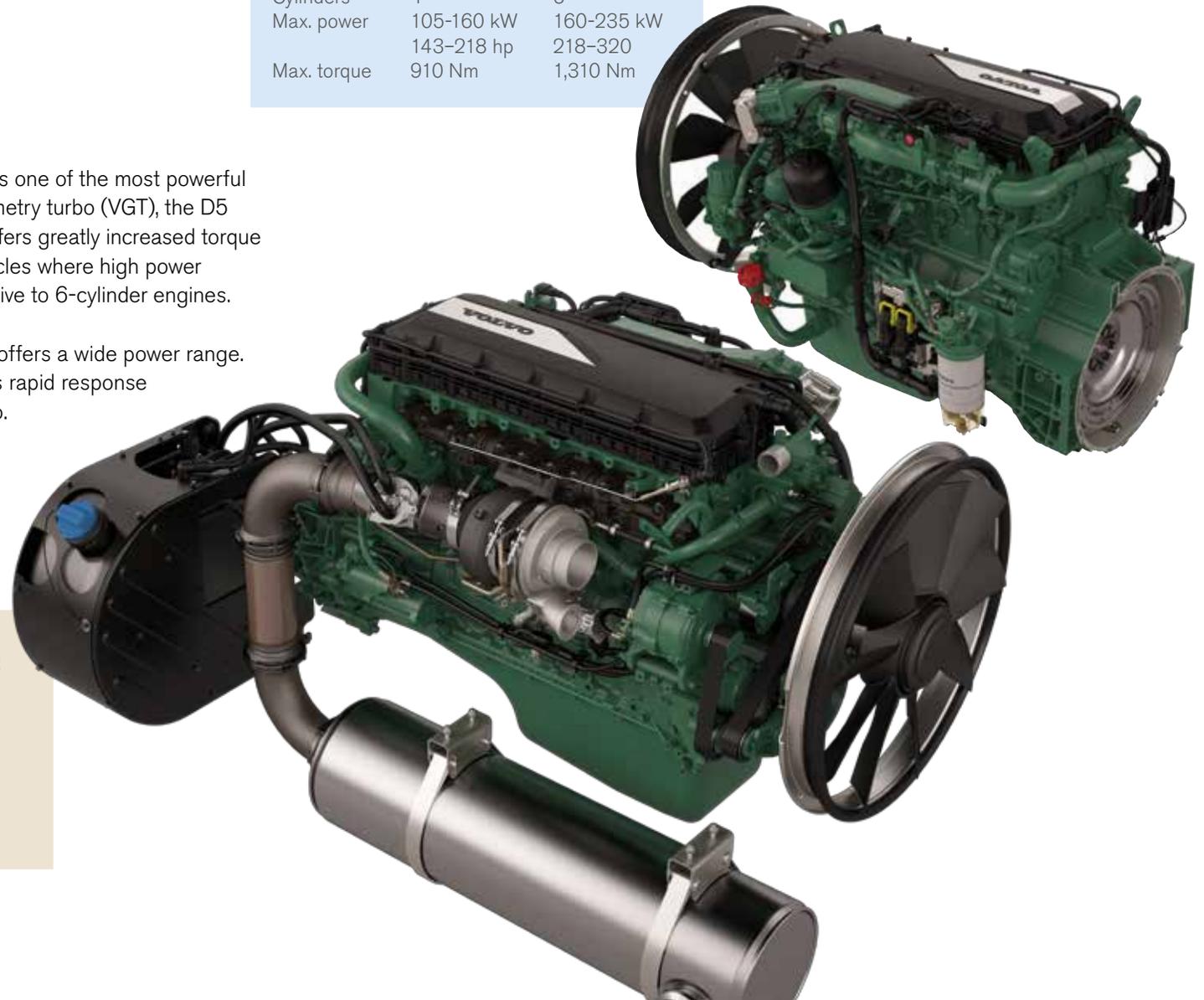
ENGINE	D5	D8
Cylinders	4	6
Max. power	105-160 kW 143-218 hp	160-235 kW 218-320
Max. torque	910 Nm	1,310 Nm

5 LITRES The D5 is equipped with common rail and is one of the most powerful four-cylinder engines available. With the variable geometry turbo (VGT), the D5 performs on par with larger 6-cylinder engines and offers greatly increased torque at a low rpm, compared to Tier 4 Interim. Used in vehicles where high power density is required, this engine is an attractive alternative to 6-cylinder engines.

8 LITRES The D8 is equipped with common rail and offers a wide power range. Its design is similar to the D11, D13, and D16. It offers rapid response and high torque at a low rpm, thanks to the VGT turbo.

MAIN CHARACTERISTICS:

- Optimized SCR system
- Updated airless urea injection
- Added light EGR
- Easy installation

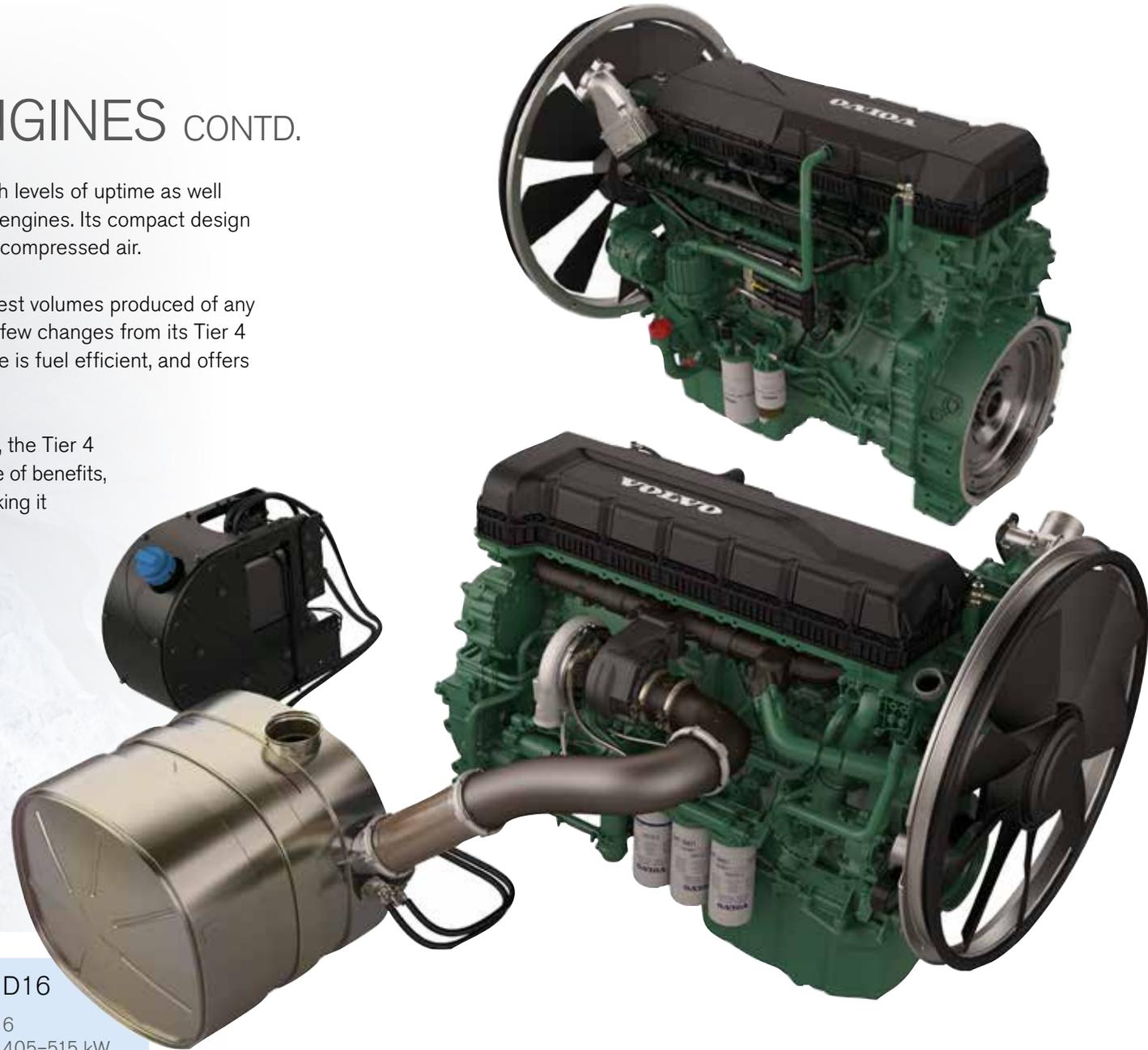


TIER 4 FINAL ENGINES CONTD.

11 LITRES This basic engine concept provides high levels of uptime as well as a long operational lifetime – like all Volvo Penta engines. Its compact design works without a particle filter, oxidation catalyst, or compressed air.

13 LITRES The Volvo Penta D13 is one of the largest volumes produced of any industrial 13-litre engine on the market. It has very few changes from its Tier 4 Interim version and like the whole range, the 13-litre is fuel efficient, and offers extended service intervals.

16 LITRES The most powerful engine in the range, the Tier 4 Final-compliant D16 packs up to 700 hp and a range of benefits, including a long lifetime and impressive torque – making it a truly powerful and efficient engine.



ENGINE	D11	D13	D16
Cylinders	6	6	6
Max. power	235–285 kW	285–405 kW	405–515 kW
	320–388 hp	388–551 hp	551–700 hp
Max. torque	1,938 Nm	2,650 Nm	3,213 Nm

RELIABLE IN **EXTREME** **CONDITIONS**

External forces, vibration and dusty working conditions put a strain on the coolers, filters and harnesses used in off-road equipment. With Volvo Penta's optional heavy-duty package, you can reduce unplanned stops and increase engine uptime even further.

The Volvo Penta **HEAVY-DUTY COOLING SYSTEM** is specifically designed for harsh and dusty workplaces, with side-by-side cooling packages that are able to withstand cleaning with high-pressure water.

Thanks to a unique manufacturing technique, the cables inside the tubing of the Volvo Penta **HEAVY-DUTY WIRING HARNESS** are practically immobile and are able to withstand the extreme vibrations in stone crushers or mining equipment.

The fine stone dust in quarries and mines is no match for the Volvo Penta **HEAVY-DUTY AIR FILTER**. With fewer stops required to make filter changes, you can considerably increase your engine uptime.

HEAVY-DUTY COLLABORATION

As a result of our long-term partnership with a mining and stone-crushing equipment manufacturer, we developed a complete heavy-duty package. This greatly improved the working conditions for equipment operating in harsh and dusty conditions underground, as well as for concrete pumps, air compressors and other off-road construction equipment.



CREATING VALUE FOR OEMs

COMMON PLATFORM The engines in the Volvo Penta range for off-road applications share a common platform – a major benefit for OEMs who use multiple engine sizes in their product applications. The common platform also simplifies the design work when developing new equipment and machines.

EASIER INSTALLATION Volvo Penta engines are designed for easy installation – the simpler the fitting, the lower the risk of installation mistakes or future malfunctions. The lightweight and compact engines are easy to build into machines and equipment, even where space is limited. Installation is further simplified with vital engine parts located in the same places on the engine body.

INSTALLATION SUPPORT You can count on full installation support from the Volvo Penta Sales Engineering team. We're ready to provide you with modified engine designs and technical assistance – including field tests – to help you develop the best products possible.

PARTNERSHIP By working in partnership with you, we can share knowledge and expertise, helping you to develop complete packages that maximize performance and functionality in each application.

WE KNOW YOUR BUSINESS Through long-lasting cooperation with operators, designers and the biggest OEMs, we know your business. But above all, we learn about your biggest challenges, whether that's getting the best out of new technology, running a profitable operation or meeting environmental demands.





CREATING VALUE FOR OPERATORS

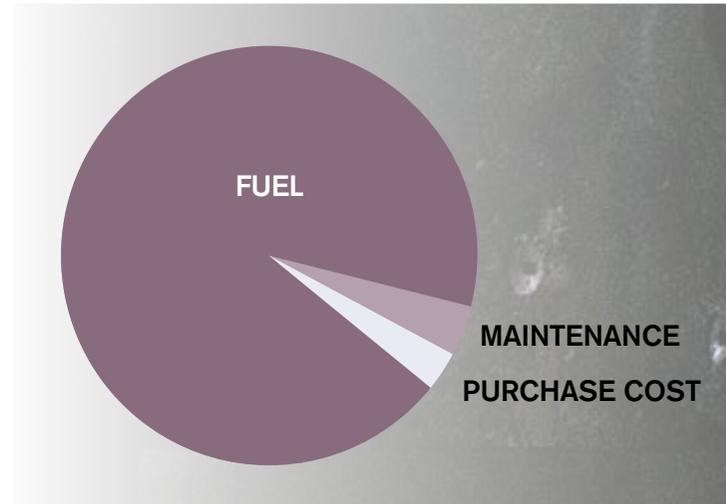
MINIMIZING TOTAL COST OF OWNERSHIP Over a five-year period, fuel accounts for as much as 95% of your total operating costs for an off-road application. The highly fuel-efficient and durable Volvo Penta engine, with an optimized drive cycle, will help you minimize total cost of operation – and improve your long-term profitability.

Fuel consumption and emissions are further reduced with the optional, intelligent Start/Stop function, which automatically shuts down the engine when the machine is idling and restarts it when the driver activates any of the controls. The more frequently a machine idles, the bigger the savings.

GLOBAL AFTERMARKET SUPPORT The quality and reliability of Volvo Penta engines, combined with quick and qualified service and support from our global service dealer network – and world-class parts distribution – give you a solid foundation for optimal uptime and cost of ownership.

EASY TO SERVICE Our engines are designed with designated service locations – where all the service points are positioned – making service easier, especially in tight compartments.

PROVEN TECHNOLOGY A robust and well-proven, in-line engine block design creates the base for durability and trouble-free operation. All users of off-road machines equipped with Volvo Penta engines benefit from the innovations and experience of the Volvo Group – what we at Volvo Penta call “proven technology”.



INDUSTRIAL EXTENDED COVERAGE (IXC)

For protection beyond the international or national limited warranty, Volvo Penta offers Industrial Extended Coverage (IXC). An IXC can cover the whole engine or just major components for up to five years or 10,000 operating hours, allowing customers to tailor coverage to their own requirements – for better predictability and added peace of mind. You order the IXC when the engine is ordered.



ENVIRONMENTAL LEADERSHIP

For us, superior engine performance and reduced environmental impact go hand in hand. Therefore, every new Volvo Penta engine must be competitive in both aspects. By making the most of the fuel that's used and reducing environmental impact at the same time, we've made fuel-efficiency our hallmark.

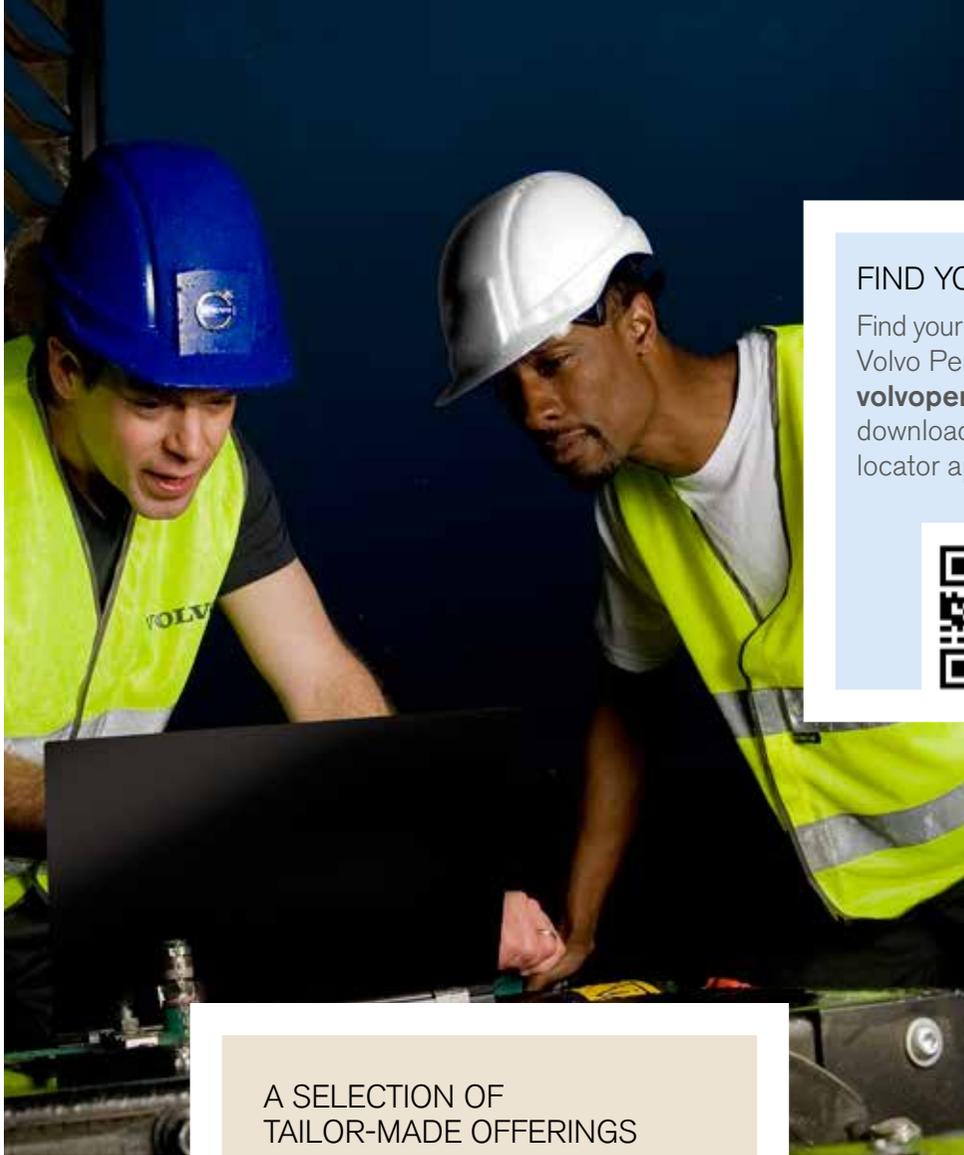
Continually reducing engine emissions is a long-standing practice at Volvo Penta, not just because of legislation requirements but also because environmental care is vital to us and to our customers.

Over the years we've led the way with a range of products and solutions specifically focused on reducing environmental impact. As industry leaders, we've taken another step forward with the Tier 4 Final engine range.

As we continue to look at future products and solutions, it remains uncertain what challenges we can anticipate beyond the current emission levels. We know one thing for sure: working together with our partners, we will continue to be at the forefront of innovation for a long time to come.

Environmental care in all operations is an integral part of Volvo Penta's commitment to customers, end users, employees and the community. Therefore, all functions are certified to ISO 14001.





FIND YOUR DEALER

Find your nearest Volvo Penta dealer on volvopenta.com or download our dealer locator app.



GLOBAL SERVICE AND SUPPORT

The network of qualified and skilled Volvo Penta service dealers covers around 130 countries and is constantly growing. As an operator or OEM, you are offered tailor-made service and support offerings with everything needed to secure optimal uptime and cost of ownership over the engine's life cycle.

EFFICIENT LOGISTICS AND PARTS SUPPLY Volvo Penta dealers stock the parts appropriate to their local market. If a part is not held in stock by your dealer, the Volvo Group – with its world-class global parts distribution network – will provide fast delivery, with special routines for breakdowns, wherever you operate.

VOLVO ACTION SERVICE 24/7 Volvo Action Service provides you with breakdown and online technical support in Europe, North America and in large areas of Africa, Middle East, Asia Pacific (India, China, South East Asia, Korea, Japan) Russia and Turkey.

ONLINE SERVICES FOR PARTNERS As an OEM, you are welcome to access the Volvo Penta Partner Network, an online service that provides access to technical and warranty information as well as parts ordering.

These are examples from the wide service and support range offered by Volvo Penta and our dealers. Please note that it can vary between markets.

A SELECTION OF TAILOR-MADE OFFERINGS

- Extended coverage (IXC)
- Preventive maintenance
- Service agreements
- Technical training
- Optimized service schedules
- Oil analysis
- Exchange system and overhaul kits

THIS IS **VOLVO PENTA**



- **PART OF THE VOLVO GROUP**

Volvo Penta is part of the Volvo Group, the world's leading manufacturer of trucks, buses, construction equipment and diesel engines.

- **RELIABLE AND FUEL-EFFICIENT ENGINES**

High-performing, reliable, and fuel-efficient, with low emission levels
– Volvo Penta diesel engines have distinctive qualities.

- **COMMON ENGINE PLATFORM**

No redesigning necessary when you include several engine sizes in your product applications, thanks to the common engine platform.

- **GLOBAL AFTERMARKET SUPPORT**

As part of the global Volvo Group, we have the resources and the presence to serve your business with tailor-made service and support offerings.

- **KNOWLEDGE**

Through long-lasting cooperation with operators, designers and the biggest OEMs, we know your business.

This document is not contractual. In a constant effort to improve the quality of its products, Volvo Penta reserves the right to modify any of the characteristics stated in this brochure without notice. For specific information on a certain engine model, please ask your dealer or visit our website. All models are not available on all markets. The engines in the pictures may be fitted with extra optional equipment.

**VOLVO
PENTA**

www.volvopenta.com