



# Spool Valves Portfolio

Your complete valve solution.



Modularity  
mastered

Precision  
perfected

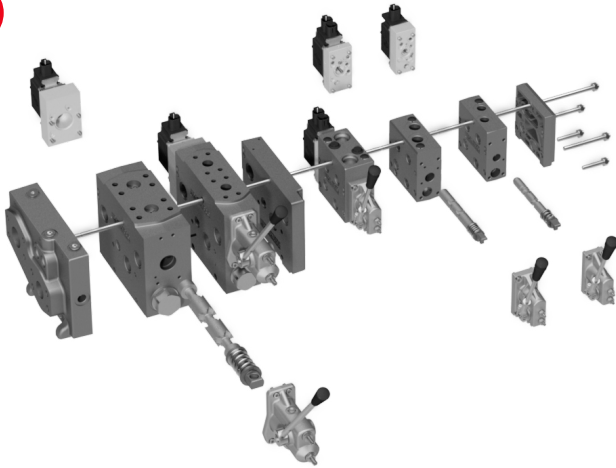
Introduction

# Your complete valve solution.

Our comprehensive Spool Valve Solutions portfolio offers best-in-class control, ensuring high productivity, safety, and minimal emissions for your operations.

Danfoss Power Solutions is committed to growing alongside our customers, offering a complete valve portfolio of tailored solutions designed to maximize user satisfaction.

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### Flexible System Design

Our modular approach allows for easy adaptation to future control needs, offering countless configuration possibilities. Our valve system allows for continuous stacking of up to five sizes, enabling selection of the optimal valve size based on specific application requirements. This flexibility ensures integrated solutions perfectly suited to your vehicle.

### Global Manufacturing and Support

Access seamless after-sales support and product services through our extensive network of sales companies, distributors, partners, and service centers worldwide. Leverage our expertise to prepare your hydraulic system for future challenges. Connect with your local Danfoss representative to enhance your vehicle efficiency, cut costs, and boost productivity.

- Our support resources and documentation include comprehensive technical manuals, training materials, and online resources.
- Our load-sensing capability optimizes energy usage by adjusting hydraulic flow based on actual demand, helping you save fuel and enhance system performance.
- Our designs are environmentally friendly, with valves manufactured using materials and processes that comply with environmental regulations and industry standards.

Compensated proportional valves

# Efficient performance through integrated solutions.

Our PVG (Proportional Valve Group) design toolbox allows us to create valve stacks tailored to any work and control requirements. From simple load-sensing to advanced electrically controlled load-independent proportional valves, our solutions reduce wear and tear on system components, extending vehicle lifespan. Seamless integration is guaranteed, regardless of valve combination.

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### Covering low to high-flow needs

PVG valves meet the full spectrum of low to high-flow demands, including post-compensated flow options. Their robustness and reliability accommodate both simple and complex functionalities within the same stack, setting a new standard for machine system design. Built to last, they deliver precise operation and enhanced productivity.

### Maximum output

Modular flexibility is key to meeting stringent environmental regulations. Our PVG portfolio ensures maximum productivity with reduced engine power, maintaining high hydraulic flow efficiency. For example, PVG 32 minimizes heat generation, enhancing efficiency and power density. PVG 100, a post-compensated flow sharing valve, optimizes productivity by reducing oil flow to basic functions when pump supply is limited, enabling the use of smaller pumps and preventing power wastage.

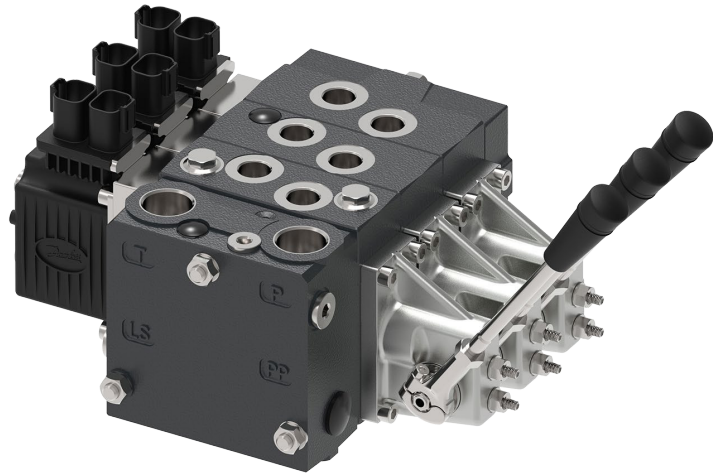
- Modular design enables seamless adaptation to specific application needs.
- Integrated electronic components allow for efficient control and monitoring.
- Compact design facilitates straightforward installation and integration into tight equipment spaces.

Compensated proportional valves

# PVG 16

**Max workport flow**  
Up to 65 l/min [17.2 US gal/min]

**Key applications**  
Municipal vehicle, Agricultural machinery, Small crane, Construction machinery and Road building application.



**Unlock enhanced productivity**  
Covering a broad spectrum of needs for low-flow requirements, PVG 16 offers versatility. Benefit from reliable technology and components, ideal for custom valve configurations.

Experience optimized productivity and reduced system costs with tailored load-sensing functionality all the while ensuring compliance with emissions and safety regulations effortlessly.

[Read more](#)

- Robust yet compact design allowing for easier installation and integration into space-constrained equipment designs.
- Modular in design, allowing for easy customization and adaptation to specific application requirements.
- Interchangeable sections that can be combined to create valve assemblies tailored to different needs.

Compensated proportional valves

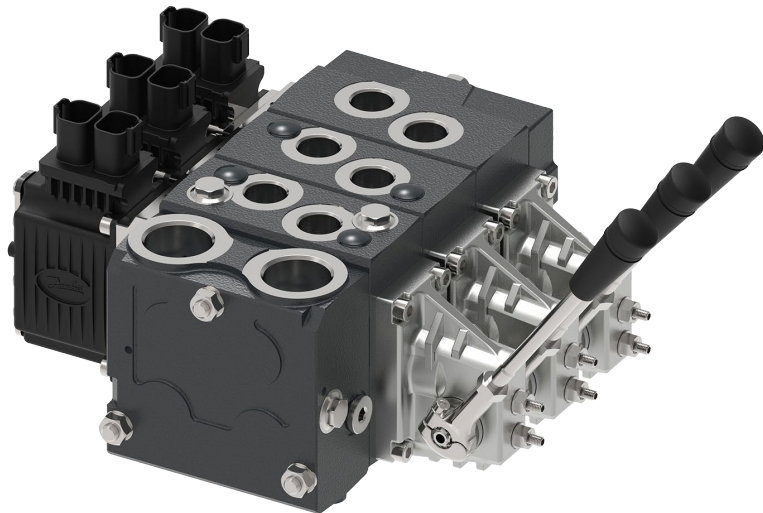
# PVG 32

### Max workport flow

Up to 125 l/min [33 US gal/min]

### Key applications

Harvester, Tractor, Wheel loader and Truck mounted crane.



### Designed for maximum flexibility

Whether you require basic directional control with load independence or seek to utilize it for small propel applications with an emphasis on safety, PVG 32 delivers. Its proven technology not

only ensures optimal performance but also saves valuable time in operation and maintenance. Advanced electronic control can be achieved with our PVE electrohydraulic actuators.

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- Enhanced operator safety and equipment protection through integrated safety features like overload protection, emergency shutdown mechanisms, and fault detection systems.
- Versatility achieved by consolidating multiple valve functions—such as directional control, pressure control, propel control, and flow control—into a single unit, simplifying hydraulic system design and reducing component count.
- Diagnostic capabilities for real-time monitoring of valve performance and condition, enabling preventive maintenance and minimizing downtime.

Compensated proportional valves

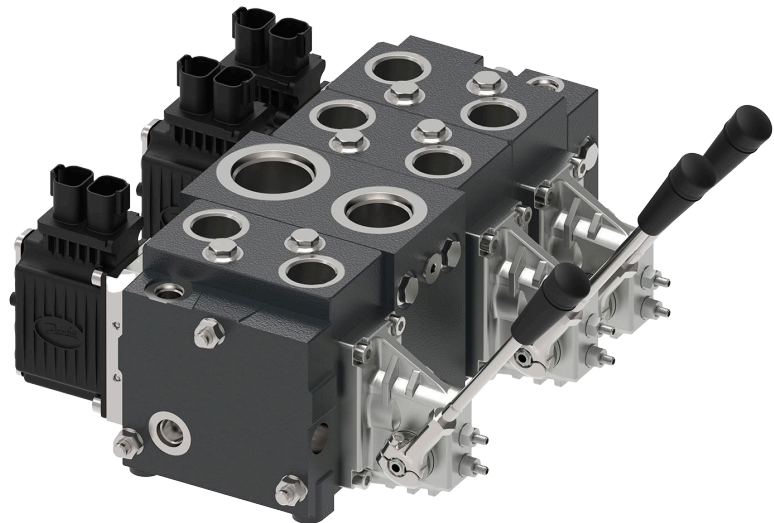
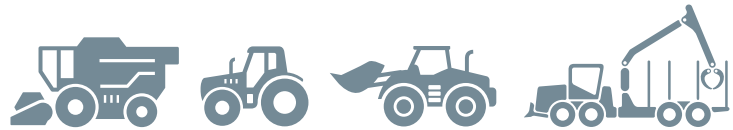
# PVG 48

### Max workport flow

Up to 180 l/min [47.5 US gal/min]

### Key applications

Harvester, Tractor, Wheel loader and Forestry machinery.



### Seamless integration

PVG 48 is designed for maximum flexibility based on proven PVG technology and modularity that simplifies the design process, manufacturing and aftermarket activities. Its design allows for direct stacking with PVG 16 and PVG 32, while also

offering the option to stack with PVG 128/256 via an interface plate. This compatibility streamlines the integration process and offers greater versatility in hydraulic system setups.

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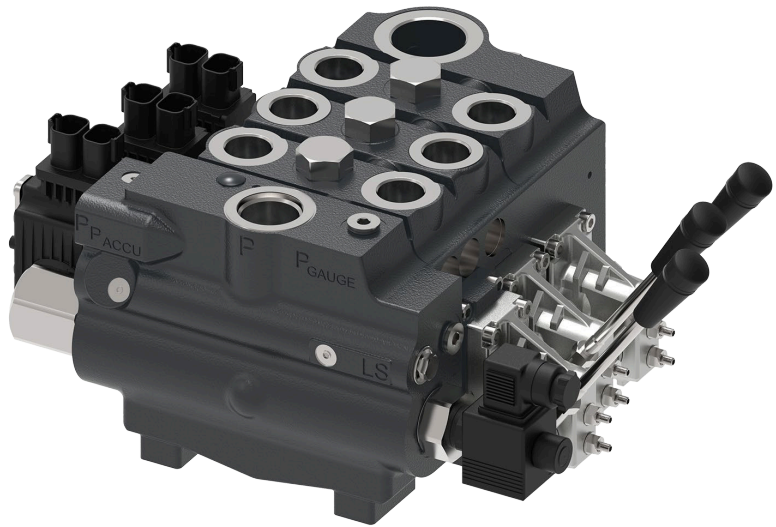
- Pressure compensation mechanisms maintain consistent performance, ensuring stability and reliability in hydraulic systems across varying load conditions or operating environments.
- Minimized pressure drop across the valve ensures efficient power transmission, contributing to smoother operation, improved system response, and reduced energy consumption.
- Reliability and durability are paramount, designed to withstand harsh operating conditions, guaranteeing long-term reliability and durability.

Compensated proportional valves

# PVG 100

**Max workport flow**  
Up to 240 l/min [63.4 US gal/min]

**Key applications**  
Wheel loader, Off shore drill and Backhoe loader



### Enables high performance

Experience enhanced performance with the PVG 100's flow-sharing capability, optimizing power usage in all conditions.

Ideal for systems with high flow demands, this technology ensures efficient operation even under extreme conditions.

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- Modular design allows for easy configuration and customization, making it adaptable to different system requirements and applications.
- High flow capacity despite its compact size suitable for demanding hydraulic systems commonly found in heavy-duty mobile machinery.
- Low power consumption due to efficient design and proportional control technology minimizing power consumption, contributing to energy efficiency and reducing operating costs.

Compensated proportional valves

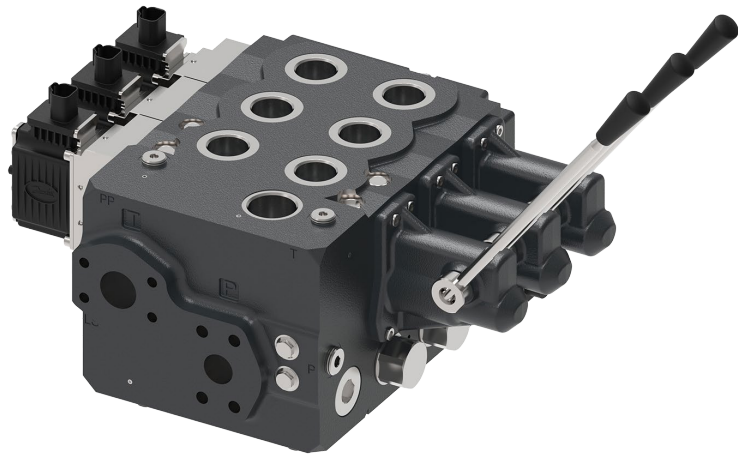
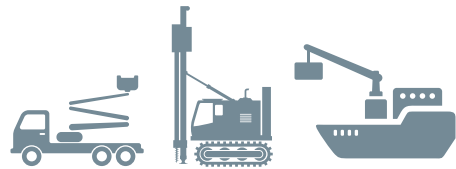
# PVG 128

### Max workport flow

Up to 300 l/min [79.3 US gal/min]

### Key applications

Truck mounted crane, Vertical drill rig and Marine crane.



### Modularity and efficiency

Modularity and efficiency are paramount, especially in the most demanding applications where both high flow and pressure are essential. The PVG 128 delivers unparalleled control, capable of handling up

to 300 l/min per section and supplied with a pump flow of up to 1200 l/min (317 US gal/min). In such high-stakes scenarios, rock-solid control and optimal safety are imperative, ensuring seamless operation even in the most challenging tasks.

[Read more](#)

- Wide temperature range suitable for use in diverse climatic conditions and extreme environments.
- Pressure compensation mechanisms that maintain consistent performance even in varying load conditions or operating environments to help ensure stability and reliability in hydraulic systems.
- Diagnostic capabilities that enable real-time monitoring of valve performance and condition helping to detecting potential issues early on, facilitating preventive maintenance and minimizing downtime.

Compensated proportional valves

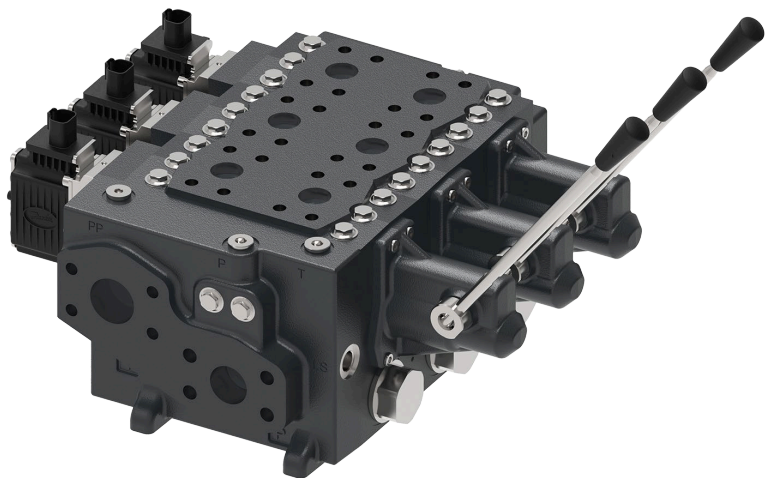
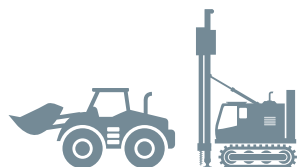
# PVG 256

## Max workport flow

Up to 500 l/min (132 US gal/min)

## Key applications

Wheel loader and Vertical drill rig



## Unrivalled power and performance

For the most demanding applications, maximum flow and pressure are essential. The PVG 256 is built to take control with up to 500 l/min per section supplied with up to 1200 l/min (317 US gal/min) pump flow.

Rock-solid control and optimum safety are more critical than ever when it comes to the biggest applications and the heaviest tasks.

[Read more](#)

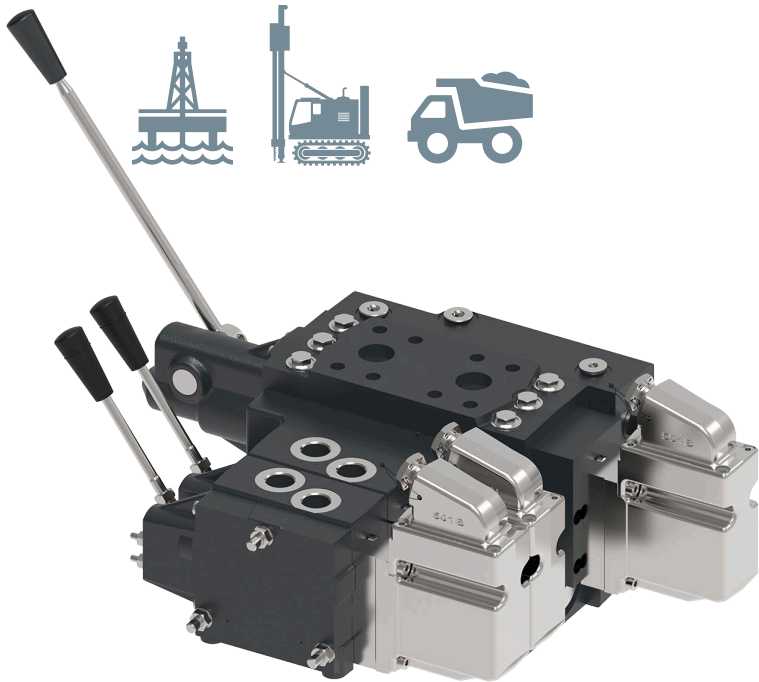
- Integrated safety features such as overload protection, emergency shutdown mechanisms, and fault detection systems help enhance operator safety and protect equipment from damage.
- Low pressure drop across the valve, ensures efficient power transmission and reduces energy consumption and enhances system response and operation.
- Field serviceability for ease of maintenance, with features such as accessible replaceable components and user-friendly adjustment mechanisms, reduces downtime and lowers maintenance costs.

Compensated proportional valves

# PVG EX

**Max workport flow**  
Up to 500 lpm [132 US gal/min]

**Key applications**  
Offshore drill rig, Vertical drill rig and Mining dumper



### Reliable in hazardous environments

Our PVG-EX valve, is an explosion proof PVG designed to be used in Ex hazardous areas like mining and oil and gas industries. This hydraulic load sensing (LS) valve is

designed to give maximum flexibility ranging from a simple load sensing directional valve, to an advanced electrically controlled load-independent proportional valve.

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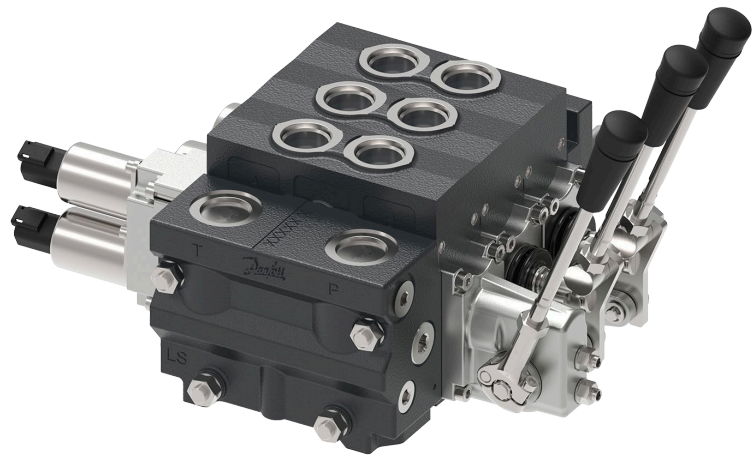
- Field serviceability for ease of maintenance, with accessible replaceable components and user-friendly adjustment mechanisms, reduces downtime and lowers maintenance costs.
- Diagnostic capabilities that enable real-time monitoring of valve performance and condition enables early issue detection, facilitating preventive maintenance and minimizing downtime.
- Versatility by integrating multiple valve functions into a single unit, including directional control, pressure control, propel control, and flow control. This consolidation simplifies hydraulic system design and reduces component count.

Load sense directional control valves

# ECO 80

**Max workport flow**  
Up to 80 l/min [21 US gal/min]

**Key applications**  
Harvester and Truck mounted crane



### Reliability and efficiency

Our ECO 80 valves offer the proven benefits of our technology, ensuring unmatched quality and performance. Like the PVG valve portfolio, the ECO 80 design includes a modular concept that enables machine

designers to specify a valve solution across multiple applications. Its wide variety of mechanical activations, combined with a low pressure drop design increase productivity and reduce energy consumption.

[Read more](#)

- Load-sensing technology delivers high efficiency, reduces energy consumption and extends system life.
- Pressure and flow control simultaneously enhances overall system efficiency and performance.
- Robust construction built with durable materials and precision engineering ensures reliability and long service life even in demanding environments.

Electrohydraulic actuators

# Digital CAN bus electrohydraulic actuators

**Key applications**  
Tractor, Truck mounted crane and Telehandler



## High performance actuators

Following the market trend of digitalization we expand our proven-in-use digital actuator platform pushing the technology and the standards to give the best utilization of CAN bus.

Our high-performance PVED digital actuators are specifically designed for J1939/ISOBUS

Protocol and CAN open systems and facilitate compliance with Functional Safety legislation.

Full compliance with our PLUS+1® GUIDE electronic control platform gives you the benefit of easy configuration and installation and a shorter time to market.

[Read more](#)

- Standardized communication governed by internationally standardized protocols such as ISObus/J1939 or CAN open, ensuring interoperability and compatibility among devices, promoting widespread adoption and ease of integration.
- Deterministic communication meaning messages are transmitted and received with precise timing, making it suitable for real-time control applications as well as high safety requirements, up to SIL2.
- Easy troubleshooting with built-in diagnostic features, facilitate rapid identification and resolution of communication issues within the network.

Electrohydraulic actuators

# Analog electrohydraulic actuators

**Key segments**

Construction, Agriculture, Material handling, Specialty and Forestry.



**Designed for integration**

Our analog actuators are designed for simplicity when integrating them in a machine. All you need is a power supply and a ratio-metric joystick then you can harness the power of electric control of you machine

with electro-hydraulic control. With the our analog PVE actuators you can also connect a controller or a PLC to get even more benefit from electronic control.

[Read more](#)

- Increased diagnostics with embedded event monitoring and integrated LED indicating functional status.
- Optimized control principles like ratio-metric, fixed voltage, PWM or high current PWM for pairing with wide range of controller options like machine controller or PLC.
- Increased environmental robustness with superior corrosion protection and ambient temperature rating of -40°C to +90°C [-40°F to +194°F].

## We care for your safety

Safety in machinery is becoming an ever-increasing part of valve and system design. We offer a variety of integrated solutions to our valves to help you realize the safety functions and comply to relevant legislation and standards.



### Integrated Solutions for Simplified Hydraulics

Our solutions are directly integrated into the valve, eliminating the need for external components, thereby reducing the number of potential leak paths and simplifying overall hydraulic system design.

### SIL2 Certified & Type C/B Compliant

All actuators utilize state-of-the-art technology making them compliant with both type C and B standards allowing them to be used everywhere.

Solutions that are SIL2 certified by external authorized body are available giving addition speed-to-market.

### Examples of safety specific features

- Operator presence can be linked to our dump valves that in turn can be integrated into PVG modules e.g. inlets.
- Our PVS KM module is available for built-in downstream oil flow blockage, to create CAT2 valve architecture options like P-block.
- CAN bus communication is taken care of by utilizing safety standards for our protocols to make the entire sub-system safe.



# About Danfoss Power Solutions

Danfoss Power Solutions (DPS) is a leading supplier of hydraulics and electric powertrain systems. We leverage our full solutions capabilities and application know-how to optimize the performance of mobile and industrial machinery. Our Spool Valve Solutions, portfolio part of the Controls Division, provides state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market. Building on our extensive applications expertise, we work closely with you to ensure

exceptional performance for a broad range of off highway vehicles. We help OEMs around the world speed up system development, reduce costs and bring vehicles to market faster.

We are passionate professionals, committed to developing cutting-edge control solutions that enable sustainable growth and improved energy efficiency and we pursue global change for better.

