Integrating Powertrain Systems

As single-source supplier for forward-thinking powertrain systems we offer the complete powertrain range: from state-of-the-art transmissions up to intelligentDrive eMobility solutions for mild, full and plug-in hybrid as well as for pure electric vehicles. Our bundled system competence, our global strength and our experience over years allow us to meet all the future automotive market trends. Our manufacturing locations, engineering centers and sales offices are situated close to our global customer base, stretching throughout all regions of the world.
Top Standards. Top Results.

It is our target to be the supplier of choice for all our customers and to be recognized as a World Class Manufacturer for the products we deliver. World Class Manufacturing is one of Magna Powertrain’s main pillars for a solid foundation.
Innovation tools like value engineering, benchmarking and continuous improvement ideas from employees help us develop new products and manufacturing processes that propel Magna Powertrain into the future.

Consistent Product Delivery Processes
Our Product Delivery Process employs effective program management methods in order to launch programs that meet our customer’s needs in a cost-effective and timely manner, yielding a product that is free from defects and warranty concerns. We utilize consistent IT systems across the organization to effectively manage our business using real-time, accurate information and communications.

Consequent Quality and Capital Planning
We use Advanced Product Quality Planning (APQP) tools like Design and Process FMEA (Failure Mode and Effects Analysis), Control Plans, Layered Process Audits and our Key Performance Indicators (KPIs) to assure the quality of our products and processes. We maintain, optimize and re-use capital.

Efficient Material Management and Logistics
We need to ensure that our operations are supported by effective material management and logistics systems for incoming and outgoing materials and internal storage. Value stream mapping methods and material flow diagrams as well as other lean tools are used to maximize these systems.

Global Purchasing Capabilities and Supply Base
We have more buying power when our strong group purchasing functions work together to give us advantageous global purchasing capabilities. Our global supply base allows us to reduce costs and also effectively manage both our direct, indirect and MRO (Maintenance, Repair and Operations) supplies.

Comprehensive Magna Factory Concept (MAFACT)
The Magna Factory Concept (MAFACT) Assessment helps ensure our manufacturing operations have the best baseline standards and controls in place. It focuses on management, health, safety and the environment, manufacturing excellence, material control and logistics, design engineering and APQP as well as human resources.
An intercultural team of experts is working at Magna Powertrain to shape the mobility of the future. Environmental sustainability, safety and vehicle dynamics are our daily focus as we develop powertrain products to be ever smarter, cleaner, safer and lighter.
Magna Powertrain’s innovations ensure a sustainable route to energy-efficient, modern mobility. Focusing increasingly on electrification, hybrid technology and lightweight concepts, we drive advancements for CO2 emissions reductions forward. To further minimize the energy footprint, our teams combine sustainable technologies with cutting-edge methods during the manufacturing and assembly process.

With innovative vehicle assistance systems and consequent weight reduction, our research and development experts also help improve vehicle safety and dynamics, making sure drivers and passengers arrive at home safely and have fun getting there.

Our approach to innovation is based on the following four pillars:

SMARTER
We design and deliver inspiring, best-in-class systems solutions for more comfort, convenience and safety. We make the entire vehicle more intelligent and convenient to improve the onboard experience for drivers and passengers.

CLEANER
We strive to reduce CO2 emissions and our overall carbon footprint by building automotive components that contribute to better fuel efficiency and minimize pollution from vehicles. We do our best to minimize the impact of our manufacturing operations on the environment and provide safe and healthful working conditions through the use of technological innovations and efficient operational practices. In addition, all our facilities have adopted ISO 14001 environmental management standards.

SAFER
To improve active and passive safety, we engineer protection and peace-of-mind for all who share the road. Our systems protect drivers and passengers as well as pedestrians in all driving situations and environment conditions.

LIGHTER
For better driving performance and fuel consumption, we develop new lightweight components through intensive R&D, focused on innovative mass and inertia reductions. We engineer the powertrain as efficiently as possible and optimize the use of raw materials.

TOGETHER FOR OUR CUSTOMERS
We help vehicle manufacturers meet increasingly stringent safety, fuel efficiency, emissions reductions and overall vehicle performance requirements. Development centers all over the world ensure a global, intercultural and interdisciplinary mindset as we innovate for the automotive markets of the future. Our experts collaborate and form one team to meet and exceed customer needs, regionally and globally. To constantly improve our creative process, we collaborate with universities and well-known research centers worldwide, pursuing one goal: bringing cutting-edge technologies and advanced systems know-how on the road.

The powertrain of the future needs to be environmentally friendly while maintaining vehicle dynamics and supporting active safety. Through global collaboration, our engineers know the automotive market and the trends that drive it.

Shaping the Future of Mobility
Strong market performance requires great leaders. As we continue to expand into new areas, we are actively developing potential talent to support our future growth. Strategic leadership development positions us for success today, tomorrow and further down the road.
Magna has a very unique corporate culture, built on a decentralized operating structure and infused by an entrepreneurial spirit. Therefore, we need leaders at all levels throughout the organization. Our operational principles, Employee Charter and values ensure that we work together successfully and according to mutually shared ethical standards.

A FORMALIZED DEVELOPMENT SYSTEM
With its three pillars, our formalized Leadership Development System (LDS) allows us to actively develop people with potential and help them move forward in the company.

ONLY THE BEST LEADERS
Magna Powertrain’s Global Talent Programs develop bench strength for key positions in the company. Succession planning and talent development committee meetings take place on a quarterly basis to ensure constant development. Our goal is to ensure all talents become successors and to achieve a succession ratio of at least 1:1.

By assessing all potential managers prior to hiring and promotion, we ensure that only the best leaders are selected, which benefits our people and the company as a whole.
Great future perspectives

Frank Stronach opens tool and die shop named Multimatic in Toronto, Ontario, Canada 1957

Company name changes to Magna International Inc. 1967

Magna is listed on the New York Stock Exchange 1973

Magna acquires JV stake in STT, Tesma, and FPV-MB 1992

Magna acquires a majority holding in STEYR-DAIMLER-PUCH AG 1996

Magna acquires a majority holding in WIA Magna Powertrain, Korea 2002

Magna acquires New Venture Gear 2004

Magna steps foot in China with the establishment of their Shanghai location 2005

Magna completes privatization of its three publicly traded automotive companies including Tesma 2005

Magna acquires GETRAG 2006

Magna acquires Bluewave, Allied Transportation Technology, and Suixing Electronics 2008

Magna acquires ixetic 2012

Magna acquires JV stake in WIA Magna Powertrain, Korea 2009

Magna acquires Bluwave, Allied Transportation Technology, and Suixing Electronics 2008

Magna acquires GETRAG 2016
Magna Powertrain is the global leader in the development, integration and industrialization of innovative, efficient and cost-effective 4WD and AWD systems. We support transverse and longitudinal drivetrain layouts for a variety of vehicle segments including electrified drivetrains.

We are the innovation partner for high performance, safety and flexibility within the automotive industry. Our leading electrified solutions support future market requirements for safety, performance, CO2 reduction and global platform strategy concepts for OEMs.

World Class Manufacturing is key for all our activities. Our innovative production processes allow for short time to market, the best quality standards and highest flexibility. Our global footprint allows us to meet our global customers’ requirements for volume production with high flexibility in every region of the world.

KEY PRODUCT CAPABILITIES
Hybrid Drives and eDrives
Transfer Cases
AWD/4WD Disconnect Systems
AWD Coupling Systems
Power Take-off Units
Axle Drive Modules

EXPERIENCE
Driving the Future

6-WHEEL DRIVE APPLICATIONS
Magna Powertrain is the global market leader for transfer cases in 4WD vehicles. We provide solutions for all possible configurations and architectures. Our outstanding competence in this area of technology is deeply rooted in Magna Powertrain, which enables the company to offer state-of-the-art solutions. With decades of experience, the engineers of our Driveline Systems group have been able to set new industry standards for transfer cases, which allow for the highest performance, efficiency and safety. Our modern transfer cases are equally suitable for small, cost-efficient SUVs, luxury sedans, off-road vehicles, and heavy-duty applications.

ALL-WHEEL DRIVE APPLICATIONS
The Driveline Systems group is synonymous with cutting edge innovation and state-of-the-art products, such as power take-off-units, rear drive modules and AWD couplings. As a leading supplier in AWD technologies, we meet our customers' requirements for size, weight and efficiency. Our innovative technologies, like the AWD disconnect system FLEX4™ that only activates the AWD system when required, are proof of our competencies and Magna Powertrain’s future-oriented mindset.

ALE DRIVE MODULES
Magna Powertrain’s axle drives offer the highest standards for NVH, are compact and extremely light — but what makes them truly impressive is their enormous power density. We are also able to achieve significant installation space and weight reduction through the integration of AWD couplings, disconnect units, electronically limited slip differentials or 48 Volt eMachines for mild hybrids.

ELECTRIC DRIVES
With a wide range of products for hybrid and eDrive applications, Magna Powertrain is able to provide solutions for electrified propulsion systems. We can offer full system know-how for drivetrain electrification, including eMotor, gearbox, inverter, and control software. A unique platform approach makes it possible to customize the eDrive to specific requirements for different vehicle architectures. Our strong global footprint, with different options for industrialization, allows us to meet our customer’s serial production requirements.

KEY ENGINEERING COMPETENECIES
- System engineering (system architecture, function definition, functional safety, vehicle integration)
- Virtual design and analysis (CAE and CAD)
- Mechanical design and simulation
- Electromagnetic design and FEM analysis and simulation
- Gear design and manufacturing processes
- Kinematic and vehicle simulation
- System and vehicle control software development
- Inverter hardware and software development
- Mechatronic system development
- Vehicle verification and validation in our testing labs and proving grounds
- Model-based software development

Highly Integrated Electric Axle Drive

PROACTIVE™
FLEX 4™ Disconnect System
ACTIMAX™
4WD Transfer Case
Transmission maker GETRAG joined the Magna Powertrain family in 2016, completing its portfolio with passenger car transmissions. With 80 years of experience and products for manual to hybrid solutions, we cover the global demand for passenger car transmissions.

FROM MANUAL TO HYBRID
Drawing on eight decades of experience, GETRAG has developed a broad range of transmission solutions adaptable to individual customer requirements. Based on layshaft technology, our products offer a variable combination of efficiency, driving comfort and performance.

GETRAG is a complete systems supplier that can cover the entire development chain from an idea to series production.

KEY PRODUCT CAPABILITIES
- Manual Transmissions
- Dual-Clutch Transmissions
- Hybrid Transmissions
- Transmissions for Electrical Drivetrains

GETRAG
Modularity, efficiency and scalability.

DRIVEN BY
PRECISION
HYBRIDIZATION COMBINES THE BEST OF TWO WORLDS: THE ENVIRONMENTAL-FRIENDLINESS OF AN ELECTRIC DRIVE WITH THE CONSTANT AVAILABILITY OF A COMBUSTION ENGINE.

Magna Powertrain provides scalable solutions ranging from a mild hybrid with 48V to plug-in hybrids with 400V, offering various options for differing regional requirements. Due to the torque-split arrangement, which connects the eMachine with one of the two sub-transmissions via a reduction gear, the eMachine can also be considerably smaller, lighter and more cost-effective. As a whole, a GETRAG hybrid transmission is only slightly larger than the base transmission, and the transmission length does not change at all.

Along with these three main areas of our portfolio, we are also working on transmission solutions for purely electrified drivetrains.

LOW LOSSES WITH LAYSHAFT TECHNOLOGY

All Magna Powertrain transmissions are based on layshaft transmission technology. Offering a multitude of ratio layout options, this technology allows for adjustments in single ratios and gear spread according to the specification of each engine. This helps the engine to operate as efficiently as possible. It also enables very low frictional losses within the transmission itself with a potential degree of efficiency well above 95 percent.

MODULAR MANUAL TRANSMISSIONS

Our manual transmissions are designed according to a modular concept: varying the number of speeds and the maximum torque density allows us to apply one layout to numerous engines. In addition, we continuously optimize all elements of transmission design, including bearings and sealings, as well as oil and thermal management. Consequent weight reduction rounds off our endeavour to make Magna Powertrain manual transmissions as efficient as possible.

SMARTLY ACTUATED AUTOMATION

GETRAG dual-clutch transmissions offer the best driving comfort, top-of-the-line efficiency and superior driving dynamics. Intelligent software ensures that while one gear is active, the next is already preselected. During gear changes, two clutches are actuated alternately allowing for seamless shifts without torque interruption, speeding up gear change and avoiding the jolt associated with regular automatics. Thanks to “Smart Actuation”, clutch actuation requires very little power and has no significant effect on fuel consumption. This results in an efficiency level comparable to that of a manual transmission.

TAILORED TORQUE-SPLIT HYBRIDS

Hybridization combines the best of two worlds: the environmental-friendliness of an electric drive with the constant availability of a combustion engine. Magna Powertrain provides scalable solutions ranging from a mild hybrid with 48V to plug-in hybrids with 400V, offering various options for differing regional requirements. Due to the torque-split arrangement, which connects the eMachine with one of the two sub-transmissions via a reduction gear, the eMachine can also be considerably smaller, lighter and more cost-effective. As a whole, a GETRAG hybrid transmission is only slightly larger than the base transmission, and the transmission length does not change at all. Along with these three main areas of our portfolio, we are also working on transmission solutions for purely electrified drivetrains.
Efficiency

Magna Powertrain is a global leader in automotive pumps and an innovative provider of engine and transmission component modules for thermal management, combustion systems, transmissions, and driveline.

We are defined by our strong expertise in mechatronic engineering, comprehensive technical development, and our ability to scale new technologies and globally manufacture them in high volumes. We are able to reduce development costs, shorten validation lead times, optimize production costs, and reduce logistics efforts through a full vertically integrated series production and by leveraging platform synergy.

A full-service supplier with a global engineering and manufacturing footprint, the FP&C group works with our global customers to develop competitive, sustainable, market-leading mechatronics solutions that enable OEMs to meet the increasingly stringent CO2 and fuel-economy legislative regulations.

We are developing products to meet the electrification requirements of the future, today.

Key Product Capabilities
- ePumps – Coolant & Transmission Oil Pumps
- Mechanical Engine & Transmission Oil Pumps
- Mechanical Vacuum & Water Pumps
- Tandem Pump Modules
- Electronic Cooling Fans
- Thermal Management Modules
- Powertrain Actuators
- ePhasers
- eSuperchargers

Driven by Efficiency

Fluid Pressure & Controls

On-demand solutions. Active control.
Intelligent Solutions for the Automotive Future

THERMAL MANAGEMENT
Magna Powertrain is able to provide our customers an integral thermal management solution. Our product portfolio includes fixed and variable mechanical components, and a full line of e-products comprised of auxiliary and main electronic water pumps, electronic cooling fans and thermal management modules. We concentrate on optimizing product efficiency and reducing weight and complexity.

With our in-house development and manufacturing of brushless (BLDC) eMotors, including electronics for 12V and 48V systems, we provide on-demand components that allow the active control of all significant circuits and thermal conditions within the powertrain. These products support the evolution of future low emission electric vehicles.

LIBRICATION SYSTEMS & ACTUATORS
A global leader in engine and transmission oil pumps, Magna Powertrain offers a wide portfolio of highly efficient mechanical binary vane pumps that lead the market segment in Step, CVT and DCT applications. Our electronic transmission oil pumps support start/stop systems, and provide the OEMs with hybrid drive actuation in PHEV/hybrid vehicle transmissions. With its broad knowledge and experience in BLDC-based machines, Magna Powertrain has extended its product portfolio into actuators for transmissions and 4-wheel-drive systems, while meeting tight packaging restrictions and high efficiency demands without compromising dynamic features and requirements.

For passenger vehicle brake system actuation, our vacuum pumps are market leaders in efficiency and power consumption, significantly contributing to CO2 emission reduction for all vehicle types, including gasoline and diesel engines. We produce stand alone mechanical vacuum pumps, tandem modules (oil/vacuum).

ENGINE COMBUSTION & BOOSTING SYSTEMS
As an innovator in the air path segment, Magna Powertrain is committed to delivering products that improve the engine’s combustion processes as well as its boosting system.

Our electro-mechanical cam phaser (ePhaser), consisting of a 12V BLDC motor and an eccentric transmission, allows ultra-compact, light-weight designs thanks to its patented transmission concept. Furthermore, an electric actuator for variable compression ratio (eVCR) helps run an engine at its best efficiency.

Our 48V eSupercharger is an electric centrifugal supercharger with integrated power and control electronics that provide superior engine low-end torque. SUPERGEN is a 12V-based pulley-driven centrifugal supercharger with a continuously variable transmission placed between two electric motors. It supports both e-supercharging and base electrical load requirements, and enables downsizing, down-speeding and advanced combustion systems, while reducing CO2.
As a leader and innovator in providing high-quality metal-formed products, Magna's Pacesetter Metal-Forming Solutions group offers a vast diversity of advanced processes for a wide range of applications. From individually optimized parts to the completely assembled modules, our deep knowledge of powertrain systems and manufacturing concepts allow us to provide the right solution to meet our customer’s requirements.

We work closely with our global customers to ensure coordinated in-house design, development, and validation testing to drive improvements that utilize the best performing systems for the application, while always taking into account the total delivered cost.

**KEY PRODUCT CAPABILITIES**
- Clutch Hubs and Housings
- Precision Stampings and CVT Components
- Flexplates
- Geared Shaft Products
- Transaxle X-Pipe Modules
- Planetary Carriers and Assemblies
- Transmission Clutch Modules
Strong Processes and Material Solutions

With more than 15 years of experience in roller die and cam die design and production, we are able to produce over 21 million parts per year. Exclusively for one customer, MFS has shipped more than 45 million parts to date, at an extremely high quality of less than 0.1 defective parts per million. With this extensive experience, our strong process and materials understanding allows us to optimize manufacturing methods to provide part geometry conducive to metal forming.

CENTERS OF EXCELLENCE

Our approach to advanced, innovative manufacturing is an efficient and sustainable process. As a well-established and incredibly reliable metal-forming supplier, we are dedicated to providing competent engineering support beyond the production process. Our manufacturing locations are more than that - we consider them Centers of Excellence with innovative, effective, and long-term processing solutions.

OPTIMIZED PRODUCTION PROCESS

Our engineering experts collaborate with customers to design the most optimized process using advanced technologies in the areas of:

• Roller and cam die stamping
• Ernst Grob Forming
• Flow-forming
• Hobbing
• Spline rolling
• Electronic beam-, laser-, friction-, and capacitor discharge welding
• CNC machining of shafts, hubs, and geared parts
• Hot and cold forming / rotary swaging
• Transfer and progressive die stamping
• Complex module assembly and testing

Our Metal-Forming Solutions group is fully committed to being your long term partner. We can provide support and in-house testing to fully validate the product as well as the manufacturing process from the component level to completely assembled modules. By providing engineering feedback directly to our customers, we are also able to design and develop unique solutions, and find the right one to meet our customer’s requirements as well as the best total delivered cost.
Magna Powertrain’s Advanced Engineering organization is a globally recognized development partner for vehicle engineering, powertrain systems, alternative propulsion systems, application software, and a full range of testing services. While staying up to date on the latest technology, we combine decades of experience in application development and production with a wide spectrum of knowledge focused on the final product to guarantee we find the best solution for the right product to bring to the market.
Driving ideas to the road

Our innovation topics range from developing advanced modular systems to groundbreaking concepts for the entire drivetrain and vehicles, including innovative engineering software solutions:

- Energy management
- Advanced e-traction and hybrid technology
- Advanced combustion engines
- Safety technology
- Lightweight design
- Comfort and convenience systems
- Vehicle architecture

TECHNICAL APPLICATION SOFTWARE & SUPPORT
Magna Powertrain offers modular software calculation and simulation solutions for vehicle engineering and manufacturing. We also provide leading CAD, CAM, PDM and PLM solutions for applications in development and production. In electronics, we cover the development process and hard- and software for smart sensors and actuators, vehicle LAN systems, software and vehicle tests.

ENGINEERING
Our development activities in engine engineering range from concept studies to engine integration, as well as power and emission upgrades. Our development methods are strongly supported by our software tool chain which optimizes calibration tasks in order to face the future challenges of RDE and electrification. The wide spectrum of knowledge in simulation, design, calibration and testing guarantees a perfect combination of experience to develop reliable products for serial applications.

DRIVETRAIN ENGINEERING FROM IDEA TO PRODUCTION-READY
Magna Powertrain has a long tradition of AWD/4WD development, and has the drivetrain system know-how of a true market leader. Development methods attuned for future demands enable us to provide best in class products like e-drive gear boxes, transfer cases and axle drives for maximum customer benefit. We provide technological competence and function-optimized engineering with high system intelligence. We deliver optimized solutions ready for mass production.

VEHICLE ENGINEERING
With our longtime vehicle engineering experience we cover the complete development process. Our core competences include vehicle design, vehicle integration and system architecture definition, especially for vehicles with electrified powertrains. Magna Powertrain’s prototyping capabilities include the complete vehicle build up and all necessary infrastructure for full functional and endurance testing of components and complete vehicles.

eDRIVE PRODUCTS
With our eTelligent drive platform, we provide a modular construction kit for applications ranging from HEV, PHEV to BEV. Magna Powertrain is your one-stop-shop for compact and highly integrated e-mobility solutions.
Magna innovations move people. They benefit the environment. They change the world.

At Magna, we believe that unique ideas come from unique perspectives. Every day, our team uses that perspective to impact the industry. A career at Magna doesn’t mean improving one part or system for one vehicle – it means impacting the future of mobility itself through technology that’s smarter, cleaner, safer, and lighter.

Magna Powertrain supports employees in pushing the limits of their creativity. If you can think it, we can create it. So join our team and let’s start thinking!

JOIN THE MAGNA FAMILY

JOB.MAGNAPOWERTRAIN.COM