



An Intelligent Approach To Moving People

Systems Expertise in Buses



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Mobility From a Single Source

Mobility moves us all. As traffic grows, congestion increases. The logical consequence is switching to public transport. In the city, intercity, everywhere. Since the foundation of our company, we have been pursuing the claim to meet the demands of drivers, operators and passengers, while cutting costs, fuel consumption and emissions – effectively and systematically.

Our principle here: as far as possible, everything from one source, with all components meshing perfectly. Switching to buses for transport must be a noticeably better alternative to private transport, gridlocks and environmental pollution.

Clearing the Way for Mobile Megatrends

Current megatrends in mobility include maximum efficiency, the highest safety levels, autonomous driving and locally emission-free e-mobility. ZF delivers technological solutions to transform these trends into advances in mobility.

So, what trends determine the future of today's driveline technology?

Two topics continue to dominate the discussion. The first is the constant search for more efficient drive systems that help save energy and therefore fuel. Second, it's vital to improve safety for passengers, highway users and the vehicle itself.

In recent times, another issue has consistently drawn attention: cities are gasping for clean air! Driveline technology has a continuing duty to reduce vehicle emissions. And there is another future trend that supports our approach to these challenges: autonomous driving. This is because autonomous driving can improve both safety and efficiency as well as, ultimately, comfort.

Responding to these current issues, ZF offers diverse concepts and concrete technical solutions to convert these trends into real-life progress. Our engineers' primary goal for the future is Vision Zero; zero emissions, zero accidents!

On the path to zero emissions, ZF already achieves efficiency increases using intelligent lightweight construction, smart electronic functions as well as electrification on all vehicle levels. For locally emission-free transport vehicles, for example city buses, all-electric drives are the only option. ZF supplies these drives as highly efficient system solutions, among them electric motors and power electronics complete with electronic control units.

In order to make buses equipped with combustion engines considerably more efficient and economical, ZF is driving hybridization. This solution is promising above all for long-distance coaches that have to accomplish the last mile within cities.

Preventing road accidents or at least reducing their severity is another core goal of Vision Zero. ZF offers the most extensive safety technology portfolio in the supplier industry. ZF-developed key technologies range from axle and transmission systems through sensors and right up to active steering systems and electronics.

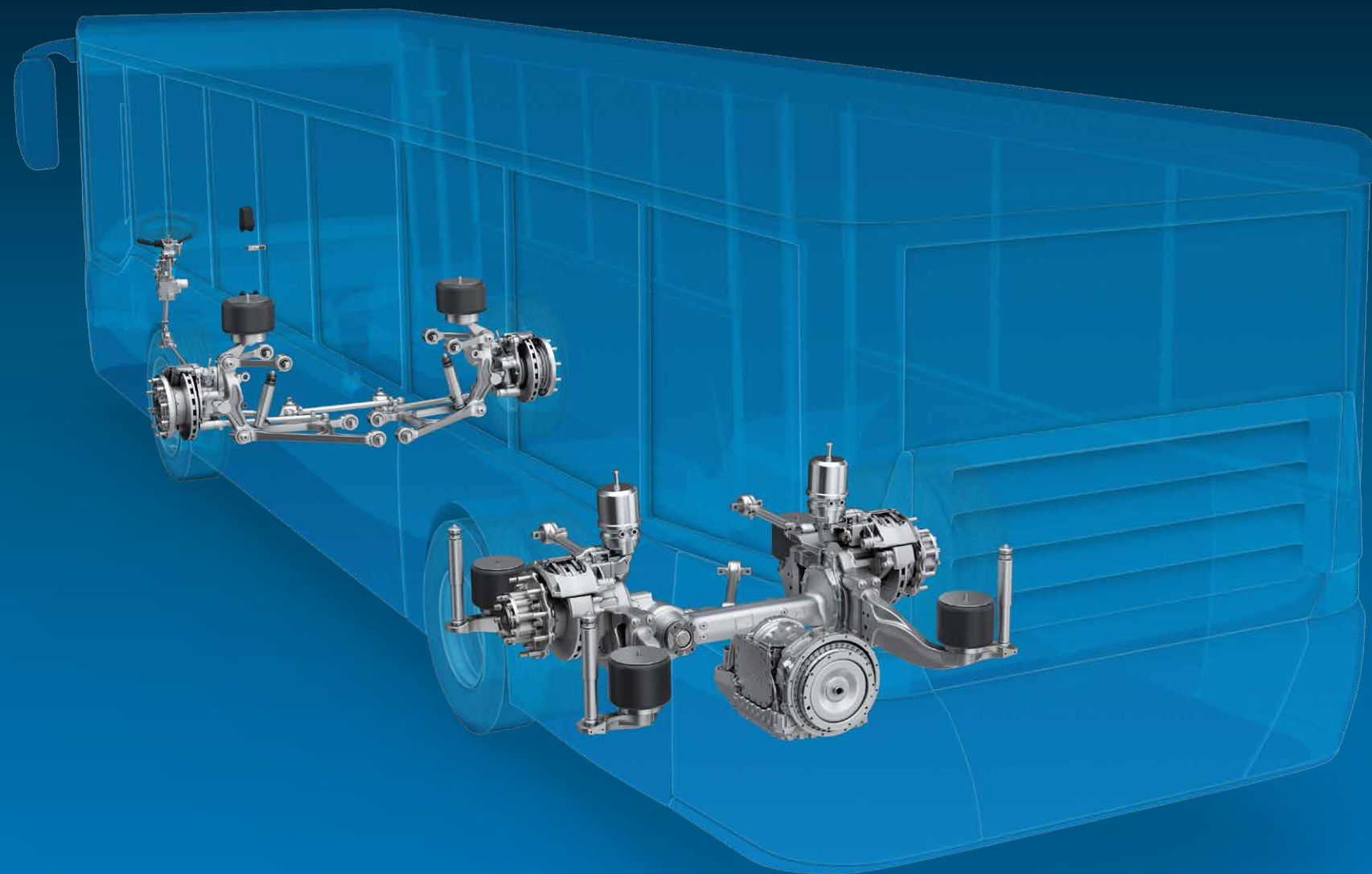
The company is developing intelligent assist systems that enable vehicles to detect risks sooner. Highly advanced ZF control units convert the volumes of data supplied by vehicle sensors and infrastructure systems into command actions for intelligent mechanical systems, such as drive systems, steering systems and brakes.

SEE – THINK – ACT: ZF allows vehicles to see, think and act. Thanks to its great expertise, ZF combines environmental sensors, such as camera and radar ("see") with central electronic control units in the vehicle ("think"). Intelligent mechatronics in the drive, chassis and steering system then convert the insights gained into actions ("act").

The SEE – THINK – ACT triad is the leading principle for the company itself and also a unique selling proposition for its technological innovations. ZF applies its wide-ranging know-how to create individual solutions as well as comprehensive and intelligent systems for the megatrends mobility, safety, efficiency and autonomous driving.



Systems Expertise in City Buses



We want to make public transport a real alternative to private car use. That's why our driveline and chassis specialists are working on groundbreaking solutions that will benefit municipalities as well as public and private transport companies, and of course also passengers. Our objectives are clear: higher comfort, greater efficiency and greener transport.

Maximum reliability and efficiency result when all components mesh perfectly. That's exactly what our system-centered approach is about. You can see this in our perfectly fine-tuned combination of the AVE 130 electric portal axle with inverter and control electronics. Or the balanced interplay of our EcoLife automatic transmission with the AV 133 portal axle. This combination adds up to minimal fuel consumption, long service life and low noise level. Other major components are control arms, tie rods and suspension joints with precisely defined rigidity for excellent wheel guidance, plus dampers that support safety functions such as lane assist, braking and acceleration and that reduce vibration loads. Ideal for both vehicle manufacturers and passengers.

Extra benefits: Comfortable drivability and smooth transmission of the braking torque from the transmission retarder to the wheel brakes. Our driveline consultancy service helps you choose from a vast range of components the right ones for your needs as well as the optimal drive axle ratio.

ZF city bus service options also cover everything from installation inspection to custom service packages and global service.

EcoLife

Making Urban Life Liveable

Start, stop, start, stop: city traffic is often a pain. Relieve the stress with our EcoLife 6-speed automatic transmission - the uncompromising solution for any application. That goes for economy as well as ecology.

Reduction in fuel consumption

Depending on your system, by up to

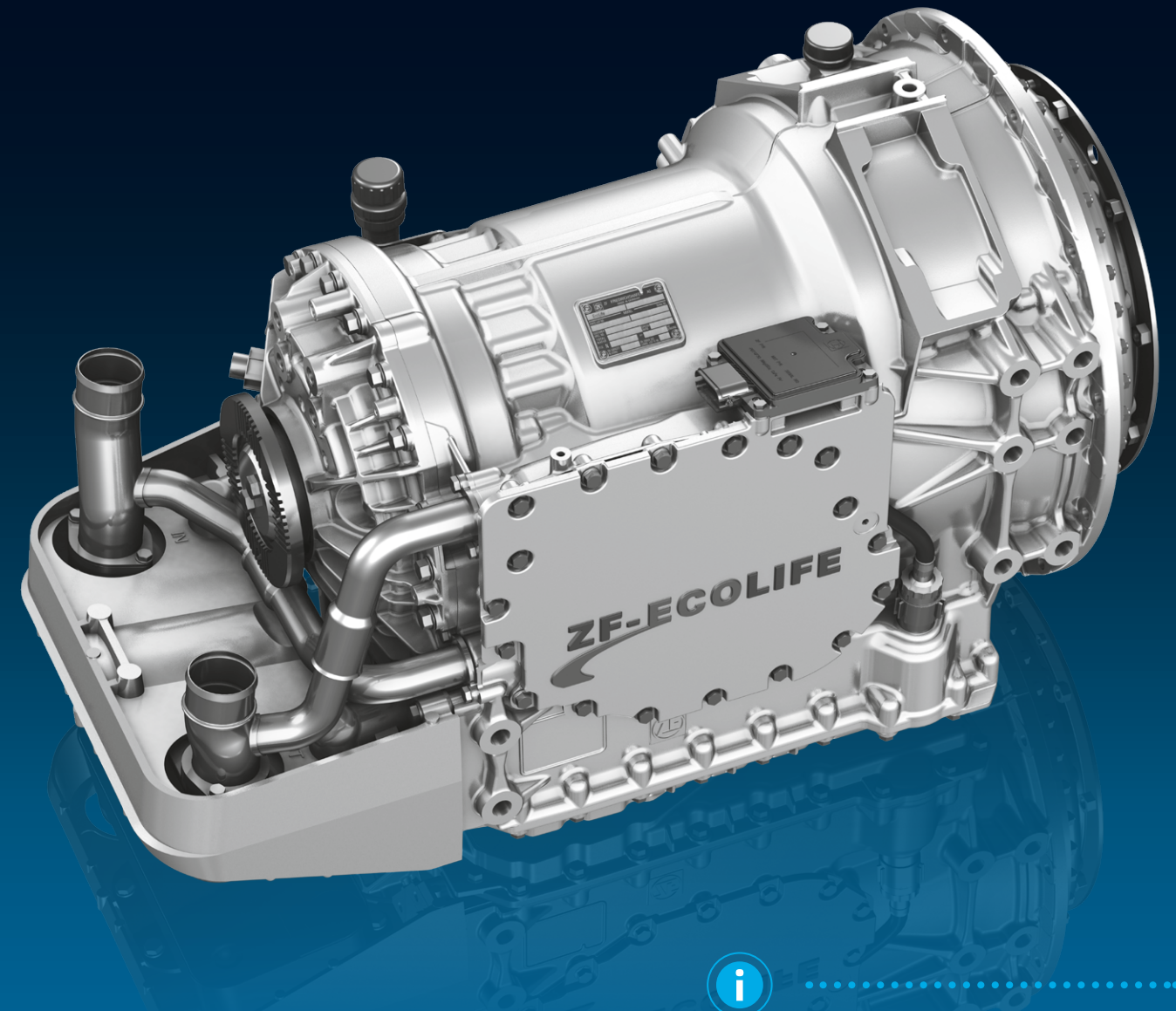
10 %

Suitable for all buses. Whether in city or intercity operation, EcoLife is the ideal transmission for any application.

The powershift transmission has an optimal gear ratio spread combined with especially high mechanical efficiency. The torque converter lock-up clutch closes shortly after setoff to use engine power effectively. Combined with the torque converter ratio, the six gears produce a maximum total spread of 12.5.

TopoDyn Life shift software controls the gear shifts. As the topography changes, this program always selects the right gear, while also taking into account all other driving resistance values.

The hydrodynamic torque converter with standard turbine torsional damper enables high input torques at low engine speeds.



That cuts fuel consumption by 5 percent compared to other automatic transmissions with fewer than 6 gears. It also reduces the noise level.

The integrated primary retarder is incorporated into the vehicle's brake management system and supports high braking power even at low speeds. This effectively reduces the strain on the vehicle's service brakes. The dual cooling system reliably protects against overheating and thus extends oil change intervals.

The biggest challenge in congested urban areas is driving with lots of short stops of under 20 seconds. This is also where the greatest potential for savings lies. Now, after extensive hardware and software enhancements, EcoLife with a torque of up to 1,600 newton meters is fully stop/start-capable. As a result, the transmission system manages an unlimited stop/start frequency in city traffic. This is how another 10% of fuel can be saved.



EcoLife instead of compromise

- Innovative stop/start function saves fuel during the entire transmission service life
- Stop/start function fully integrated into the same installation space
- Six gear steps ensure operation in the optimum engine speed range at all times
- TopoDyn Life – driving resistance-dependent shift control
- Highest braking power thanks to integrated primary retarder and dual cooling concept

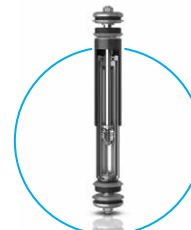
Front Axle Systems and Chassis Technology for City Buses

A pleasure for both sides thanks to ZF low-floor axles: Passengers appreciate barrier-free access to the spacious passenger compartment while drivers appreciate the small turning circle and high comfort.

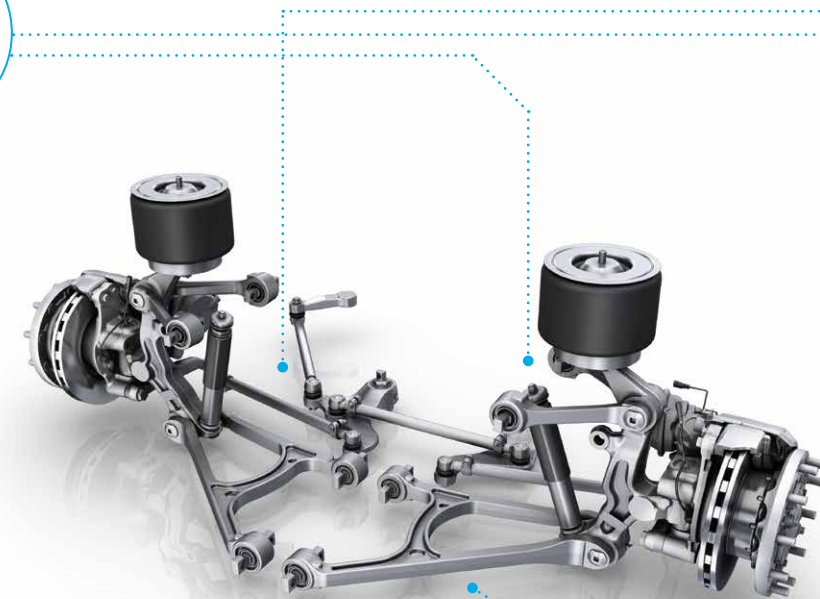
Safety and reliability characterize the entire ZF system and all its individual components. Examples are the ZF independent suspension system RL 82 EC for full low-floor, low-entry and double-decker buses and the RL 55 EC for midibuses. They are the heralds of a new era in axle technology: Weight and strength-optimized components combined with an adapted suspension and damping system guarantee benchmark driving safety and ride comfort. The high level of wheel deflection substantially reduces the turning circle. Other advantages: high axle load, reduced body roll, increased roll stiffness.

Excellent vehicle handling + steering precision = active safety! The arrangement of the maintenance-free control arms optimized with regard to kinematics guarantees precise axle guidance in all driving situations. Just like suspension joints, these control arms have targeted elastokinematic properties which contribute to damping vibrations and noise.

ZF damper technology supports acceleration, braking and lane assistance. Jolts and noise are insulated and the technology itself causes hardly any hydraulic flow noise. In this way, the ZF system and valve technologies guarantee optimal results for vehicle handling, comfort and safety – precisely tailored to the requirements of passengers and drivers.



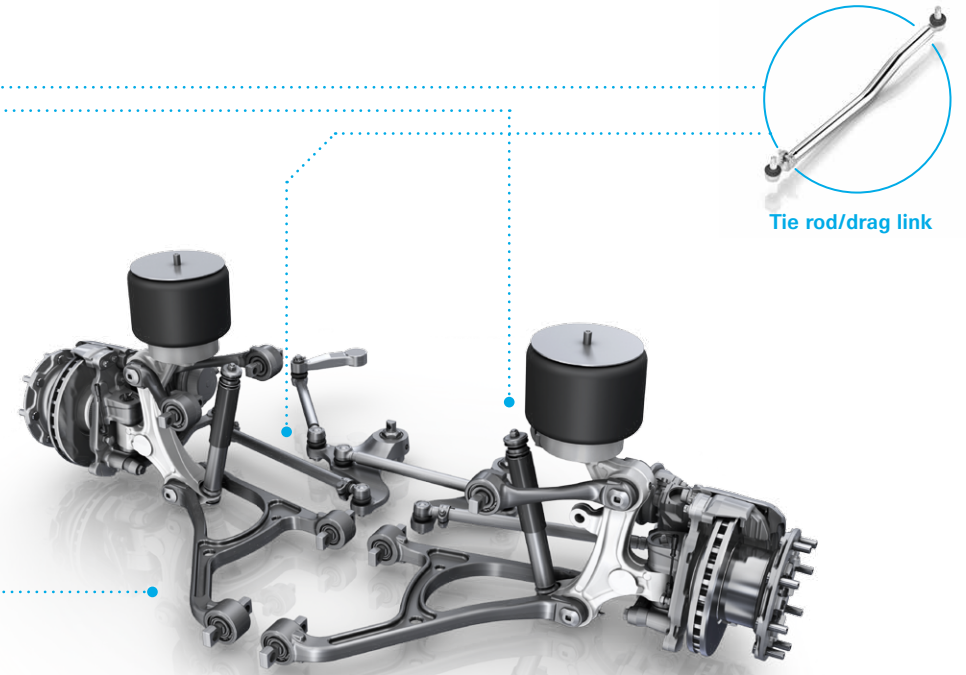
Damping systems



Independent suspension for city buses



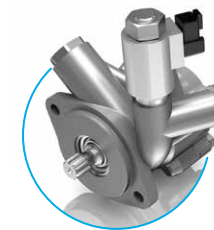
Control arm



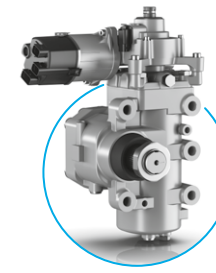
Independent suspension for midibuses



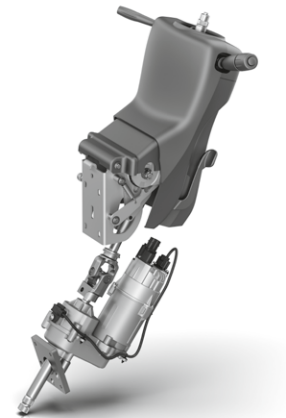
Tie rod/drag link



eActivMode power



ReAX steering



Global Column steering column with ReAX

The THP steering gear series offers exceptional steering comfort, compact design and top performance and reliability values.

The eActivMode power steering pump uses vehicle signals such as speed, velocity and steering requests to adjust the pump flow to the current performance requirements. That ensures maximum energy efficiency.

As a combination of hydraulic power steering and electric actuator, ReAX reduces the steering forces during maneuvering and stabilizes vehicle handling at high speeds. Depending on the configuration, ReAX can be installed either on the steering column or the steering gear.

The Global Column series of adjustable steering columns provides both infinite tilt and telescope adjustment throughout the range of motion for maximum comfort.



Suspension joints

Rear Axle Systems and Chassis Technology for City Buses

Efficiency, safety and comfort: The low-floor concept ensures fast boarding and exiting. This increases average speed on the route, benefiting both operators and passengers.

Available from ZF are driven axles as complete systems including air springs, dampers and axle guidance. ZF portal axles provide continuous step-free passenger compartments with no raised platforms. The wide range of ratios also covers electric drive concepts such as trolley and hybrid drives.

Our AV 133 driven axle features specially ground bevel gears that ensure smooth running and low noise.

The AVN 132 non-driven portal axle is designed as a middle or trailing axle for city buses with 3 or more axles. It can be used in both pusher and puller systems.

For low-entry buses with centrally arranged engines, ZF offers the AV 133 T-Drive solution or the A 132 direct-drive axle.

From a single source. Best for you! A complete package with torque rods and dampers comes with clear advantages: more comfort, less wear and weight savings thanks to lightweight construction. All this results in lower maintenance, fuel consumption and bearing wear, plus longer service life.

A great ride wherever you sit. When the bus drives over bumps, dampers rapidly damp vibrations between axle and body in addition to the suspension. Optimally coordinated, they ensure passenger comfort and safety even on the back seats.

Portal drive axle system for city buses

Portal drive axle system for midibuses

Non-driven portal axle system for city buses

Damping systems

Torque rod

AV 133

With Efficiency Package

The Solution for Smart Cost Savings

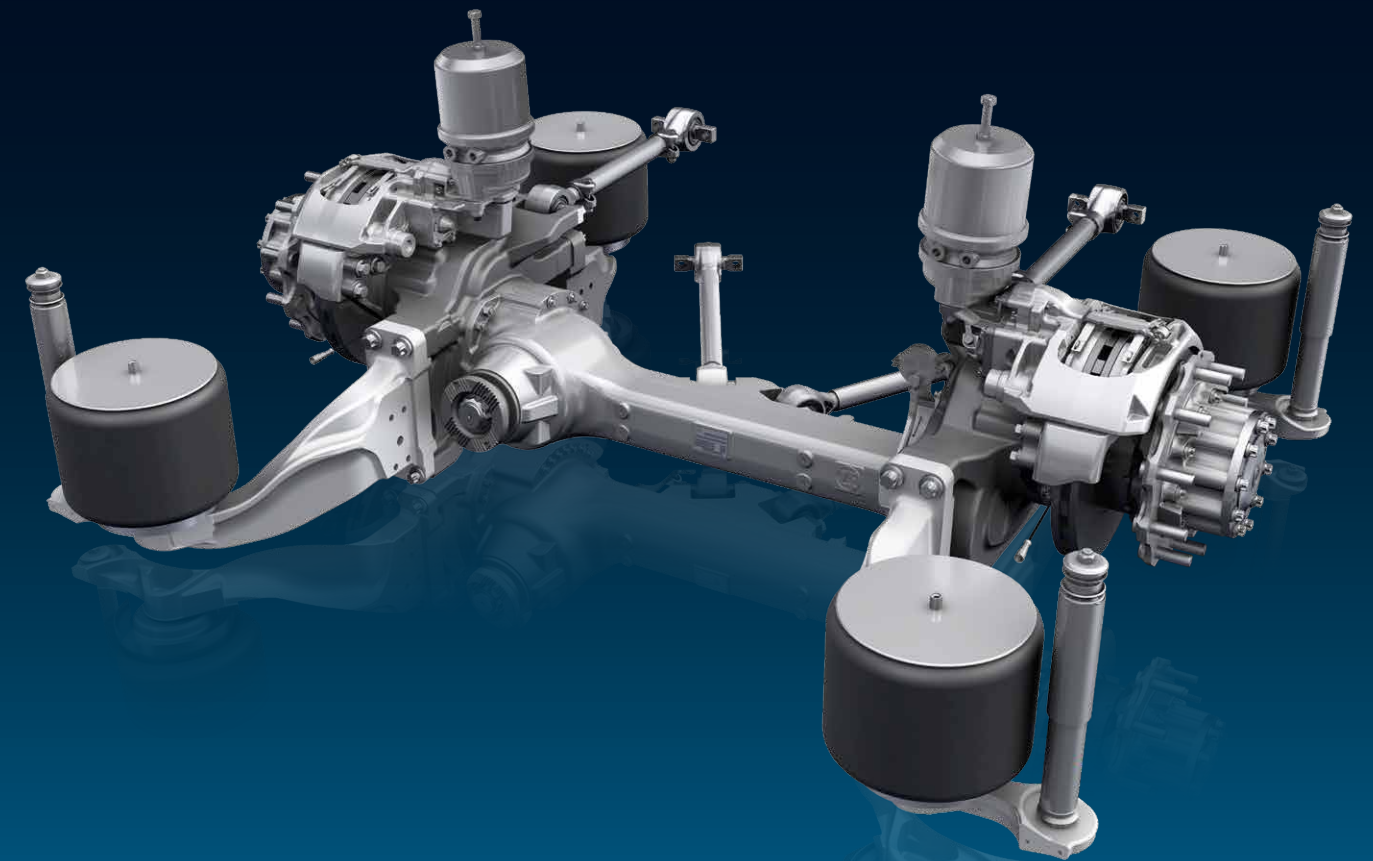
With optimized efficiency, weight and oil circuit as well as more powerful gearing and better acoustics, the fourth generation of the AV 133 low-floor portal axle is a market success. Now, a new efficiency package offers even more advantages.

Savings thanks to higher performance – that's what you get from the optional efficiency package. ZF simulations show that a diesel bus saves up to 750 liters of gasoline within the first five years. Alternatively, an electric bus achieves a increased range of up to 3,300 kilometers. Longer oil-change intervals help keep maintenance costs down and reduce oil consumption. Furthermore, CO₂ emissions drop by 2,000 kilograms. All this means the efficiency package pays for itself after just three years.

The package comprises a friction-value-optimized portal drive, a membrane axle breather and the semi-synthetic oil ZF-Ecofluid XL. The membrane breather specially developed by ZF prevents oil leakage and makes it practically impossible for water to get in, assuming correct maintenance and use. The vehicle manufacturer no longer has to grapple with complicated routing of the breather hose.

These three factors reduce losses by the axle system by 12 to 18 percent. The result is that an oil change is only necessary after 300,000 kilometers instead of the usual 180,000 kilometers. It's an added advantage that the AV 133 with efficiency package is completely interchangeable with the standard axle, so vehicle manufacturers can change over at any time.

The efficiency package also anticipates future statutory requirements for energy saving. It is expected that from 2021 buses in the EU will be subject to CO₂ regulations and will have to display energy consumption labels. Vehicles equipped with the efficiency package will attain better results from the VECTO Simulation (Vehicle Energy Consumption Calculation Tool) than standard-axle vehicles.



Lower losses in the axle system
by up to

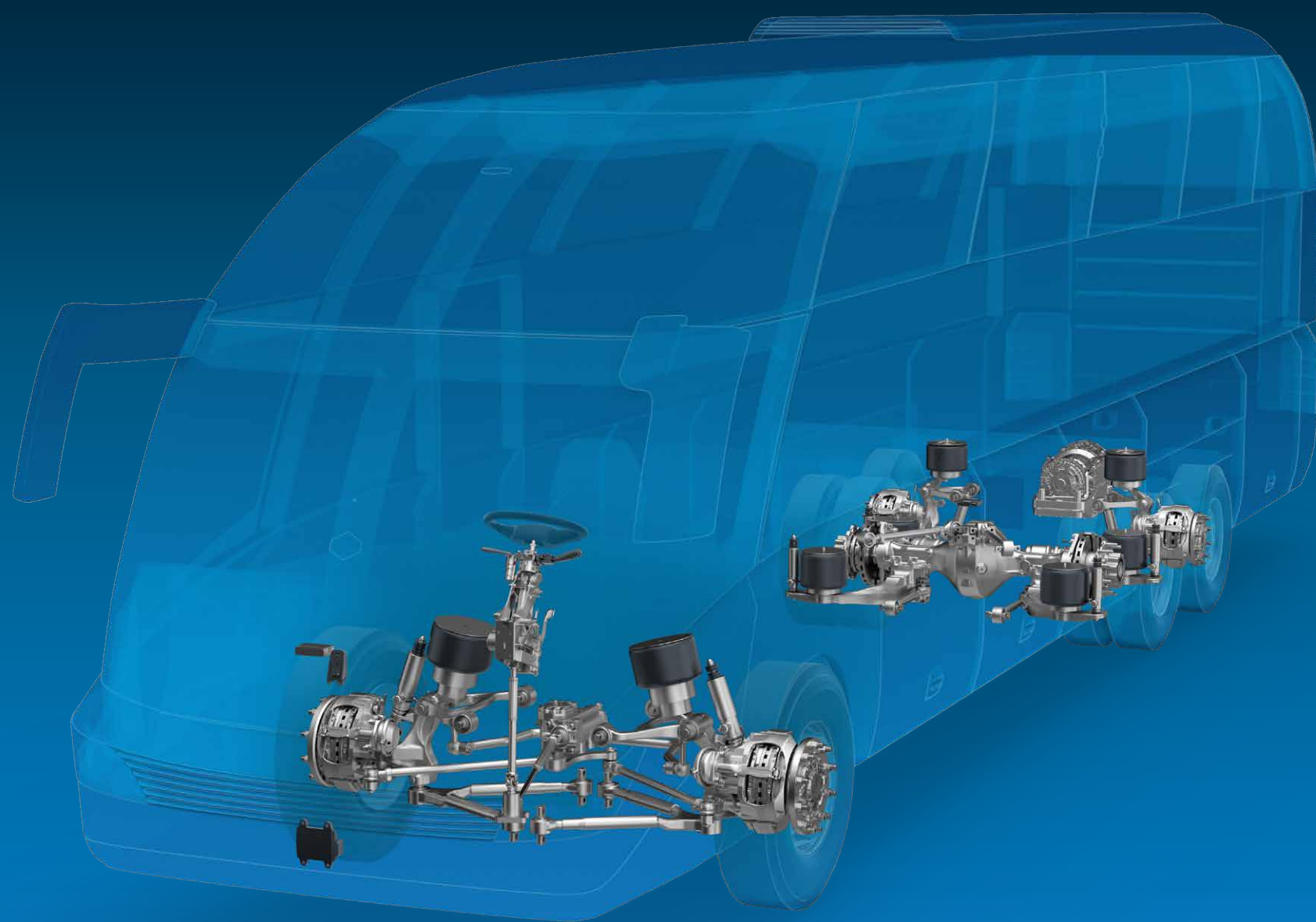
18 %



Advantages at a glance

- Reduction of CO₂ emissions
- Reduced fuel consumption
- Efficiency increase with membrane breather
- Oil-change intervals extended to 300,000 km with ZF-Ecofluid XL
- Interchangeable with the AV 133 standard axle

Systems Expertise in Coaches



Modern coaches offer everybody on board safety, comfort, power and maneuverability. These are essential requirements! We want passengers and drivers to be relaxed while on the road – with complete systems from ZF. This is where we combine decades of experience in ZF chassis and driveline technology for you.

Ideal balance: because we're all in the same bus.

ZF driveline and chassis technology are two sides of the same coin. Together we are continuously working on system solutions such as the synchronization between ZF rear axle and transmission systems. For driving in busy inner cities with exhaust gas limits, we offer electric hybrid drives complete with inverters and control electronics. Furthermore, during long-distance travel, the hybrid drive helps save fuel.

A large variety of different ZF components contribute to the overall travel experience: clutches and torque rods, drag links and tie rods, suspension joints or dampers. All these components have been optimized for interaction in order to ensure road safety, offer comfort to passengers and bus drivers, decrease wear on the vehicle and on the road and to reduce fuel consumption as much as possible.

Power steering systems enable easy maneuvering and stabilize the vehicle at cruise speed. The steering columns are continuously variable and can be adjusted to fit the requirements of the driver; a new steering pump saves energy.

We guarantee highly-developed technology systems that are purpose-built for coaches. Top-notch consultancy. And worldwide service. To make sure you keep coming back for more.

EcoLife Coach – The Automatic Transmission for Coaches

Hilly roads, narrow curves, large inclines with reduced motor power, then back to intercity or city traffic. Stop und Go. Slow driving. Frequent braking and acceleration. That's why there's EcoLife Coach.

Coach transmissions have to do a lot. This is where EcoLife Coach demonstrates its advantages over manual and automated transmissions – with 25 percent more torque and designed for a much longer service life, challenging roads and slopes.

Up to 2,300 newton meters of torque and 6 speeds ensure high average speeds at low engine speeds thanks to a higher constant axle ratio.

This means that the engine can always deliver full torque without disengaging and engaging the clutch, and without losing speed during gearshifts. Despite fast acceleration even on slopes, passengers do not notice any gear shifts.

The standard integrated TopoDyn Life drive program makes a major contribution by activating the right gear-shift strategy to deliver optimum fuel consumption based on the topography and driving resistance. The brake force is adjusted automatically. Fuel consumption and noise development remain at a low level.

The primary retarder does not depend on the output speed, which is why it delivers maximum deceleration almost up to standstill.

The dual cooling system with transmission and retarder heat exchanger reliably protects against overheating, which extends oil change intervals.

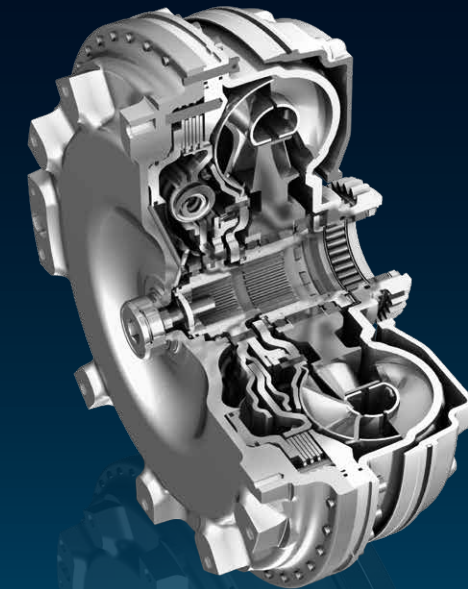
Developed for harsh requirements

The torque converter used in the improved EcoLife transmission is even more powerful than its predecessor. With its reinforced converter cover, it is designed for engine torques of up to 2,300 newton meters.

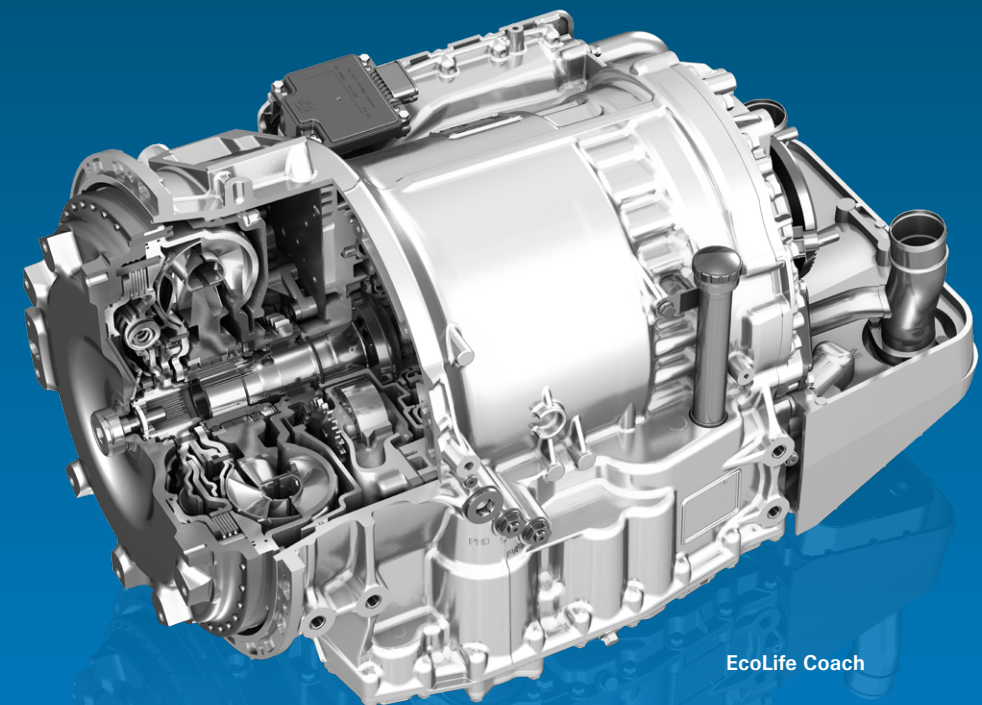
The torque converter lock-up clutch significantly helps cut fuel consumption. After a short start-off phase, the torque converter is locked, which guarantees maximum energy efficiency.

The standard torsional vibration damper reduces shift speeds so that the engine can run at lower speeds. This enables slow maneuvering without clutch wear.

We draw on gear and driveline expertise gained over decades of experience in cooperation with various vehicle manufacturers. All this expertise comes together when we provide driveline consulting tailored precisely to your requirements.



Torque converters



EcoLife Coach

TraXon

Comfortable, Economical and Very Quiet

Comfort and reduced fuel consumption, low weight and more performance, a longer service life and less maintenance – with the TraXon automated transmission system, we are on our way towards achieving a new standard of efficiency.

An extremely compact, robust and versatile basic transmission with the highest efficiency of its class is at the core of the innovation. The space-saving design and newly developed gear sets make TraXon a benchmark in power-to-weight ratio.

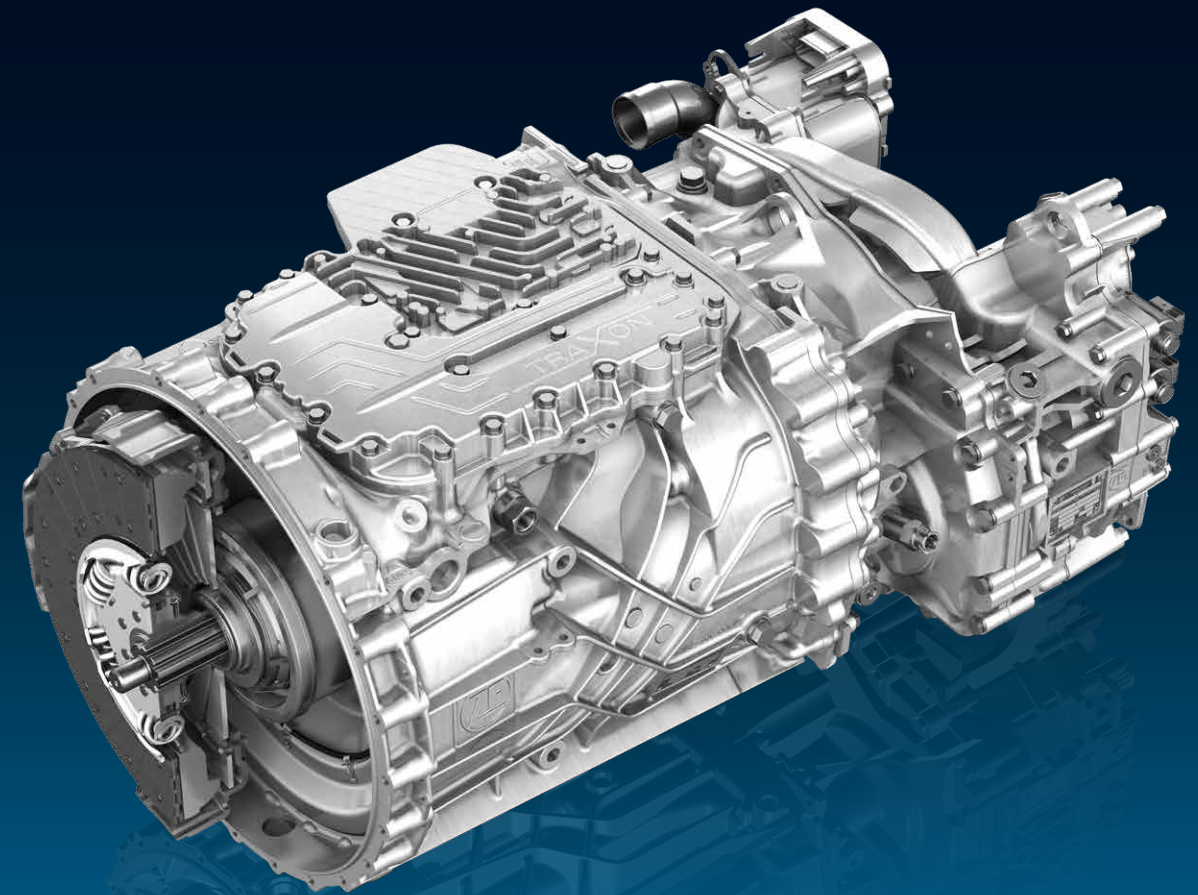
It can transmit torques of up to 2,800 newton meters. Thanks to various engineering features such as optimized housing geometry, ground gears and an integrated rattle damper in reverse gear, the noise level is one third below that of its predecessor model.

Modular in design, TraXon can be combined with additional systems. The wear-free transmission brake ZF-Intarder with a brake torque of up to 4,000 newton meters is integrated in the transmission housing and can be included in the vehicle's brake management system.

Thanks to the shared oil circuit, the Intarder can cool the transmission oil or rapidly heat it to the optimum operating temperature.

The PreVision GPS predictive shifting strategy offers the option of linking the transmission to GPS data and digital maps. This avoids unnecessary shifting. Further functions support the driver during maneuvering or hill starts, or save fuel in start-stop driving. As a result, the bus is more fuel-efficient on average and, at the same time, faster.

Thanks to the clutch with integrated torsional vibration damper, fewer vibrations are transmitted from the engine to the transmission. The ConAct concentric clutch actuation system operates gently for reduced stresses on the driveline.



Transmission efficiency
in direct drive

99.7 %



Advantages at a glance

- High torque range up to 2,800 Nm and extreme transmission ratio for lower fuel consumption
- Lower transmission noise
- Intarder: integrated, wear-free additional brake
- ConAct increases the service life of the clutch
- Large number of new software functions
- Clutch perfectly adapted to the transmission system

Automatic and Manual Transmissions

With its wide range of transmissions, ZF meets the requirements of sophisticated markets and applications. The price/performance ratio and efficient operation excel – while still providing palpable comfort for passengers and drivers.

ZF offers its PowerLine 8-speed powershift transmission for school and midibuses. The intelligent electronics and non-wearing torque converter achieve fuel saving in double digits. The integrated double torsional damper reduces vibrations, makes driving quieter and significantly increases ride comfort.

The intelligent transmission control comes with a large number of driving functions. These range from the especially slow-geared maneuvering function for exact vehicle positioning to hill start aid and automatic engine stop.

Our EcoShift modular-design, 6-speed transmission series replaces conventional 6-speed transmissions in city and intercity buses as well as coaches. It stands out for better efficiency and operating comfort.

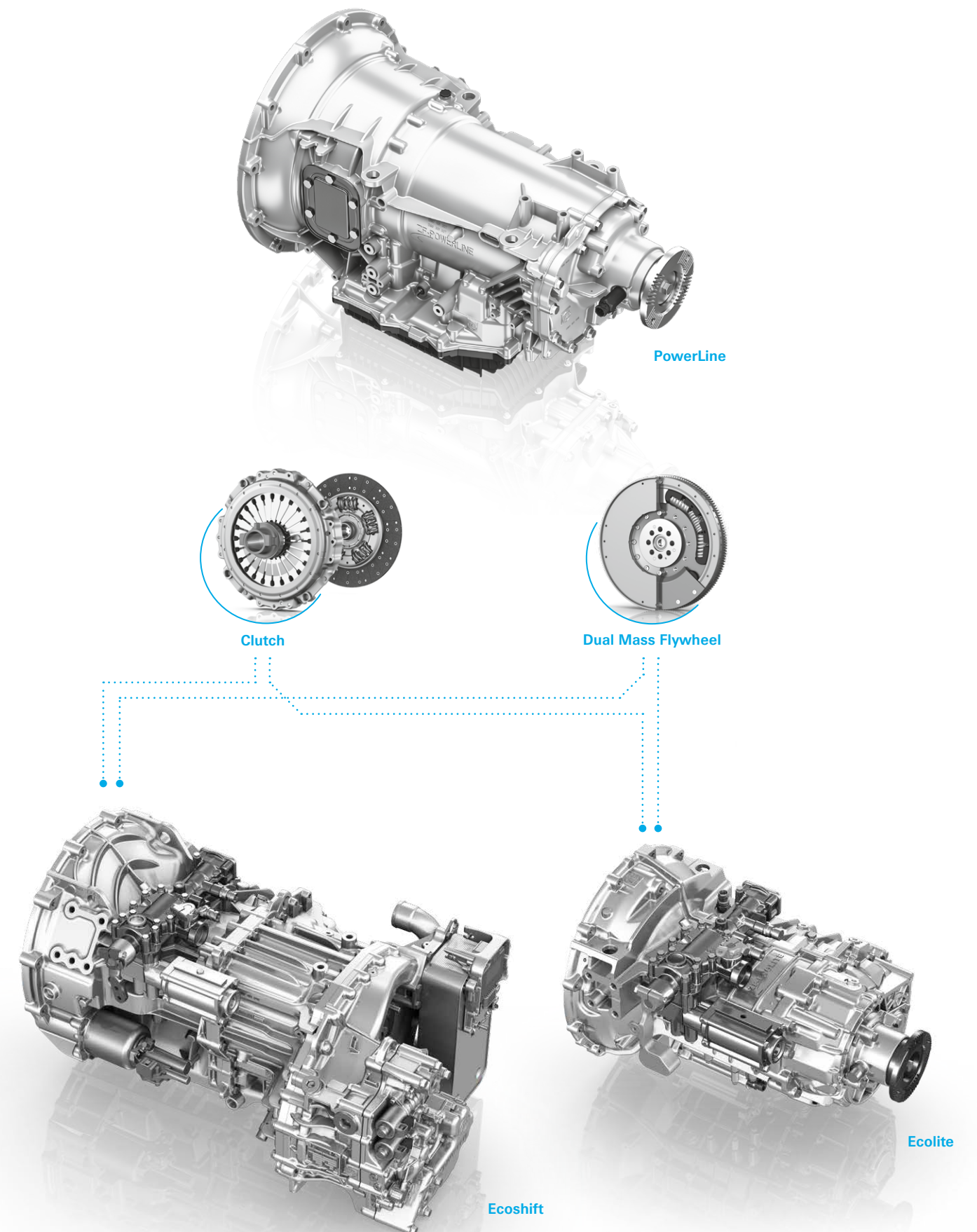
Shifting is easy, precise and noise-optimized, while the transmission itself is lightweight and compact. The advantage of pressure oil lubrication: lower churning losses.

Available as extension modules are our ServoShift shifting assistance, ZF-Intarder and an additional cooling system.

For light motorized buses, Ecolite completes the range of manual transmissions. Ecolite is also easy to use and runs quietly thanks to state-of-the-art synchronous technology.

When transmissions and clutches come from one source, single disk clutches for push or pull-type applications contribute noticeably to cost-effective operation. We ensure special clutch design for every application so that the clutch is optimally adjusted to the transmission. Vehicle manufacturers worldwide appreciate ZF clutch systems.

The Dual Mass Flywheel achieves outstanding separation of engine irregularities and finally eliminates rattling and booming noises.



Transmission and Chassis Technology for Coaches

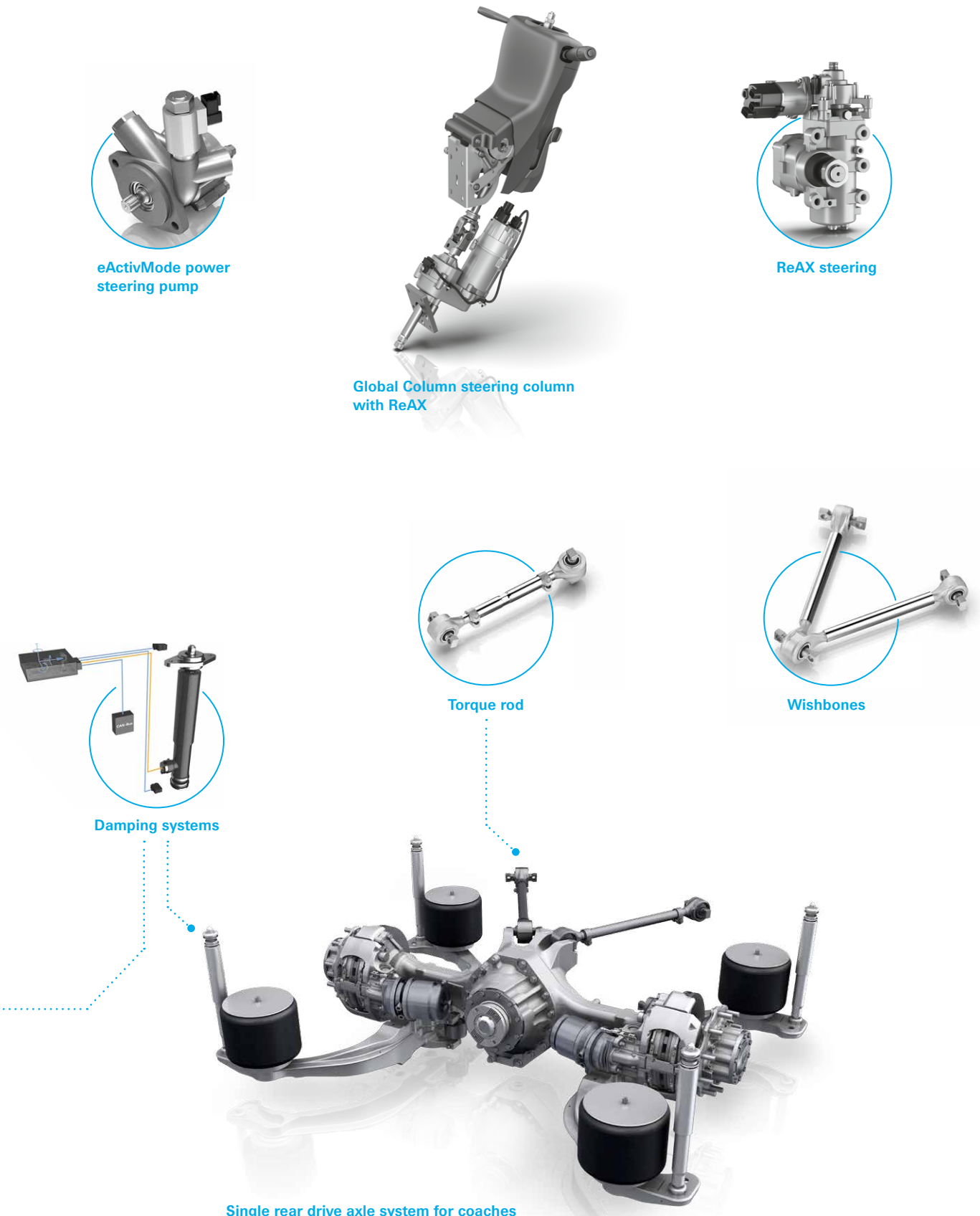
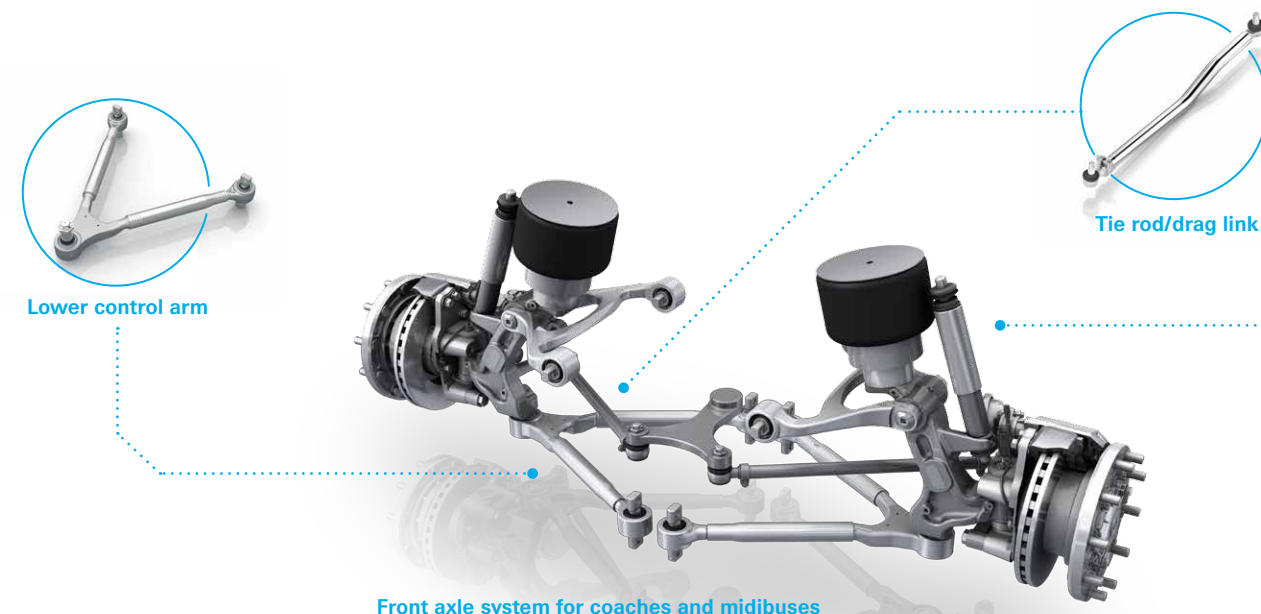
The fact is: Only axle systems specially developed for coaches guarantee the safety and comfort without which long-distance travel would be unthinkable.

The development of independent suspensions is based on the double wishbone principle. Thanks to reduced body roll and a comparatively small turning radius, both passengers and drivers benefit from a feeling of active safety which is generated by improved vehicle handling and high steering precision. This is also true for midibuses. Rear axle systems specially developed for coaches are characterized by reduced weight, low-noise operation, reduced propshaft deflection angles and service-friendly compact bearing units. The axle system's weight including suspension elements is less than 1000 kilograms – a reduction in weight which does not compromise stability at all.

ZF torque rods form the longitudinal, transverse or diagonal connections between the axle and the frame. In combination with precise axle guidance, they contribute to reducing tire wear. V-links serve to absorb longitudinal and lateral forces and, in combination with the torque rods, assume all axle guidance tasks.

This is where intelligent lightweight design and the optimization of functions go hand in hand with cost reductions and improvement of dynamic driving properties. The main focus is always placed on the chassis as a safety part. This is also appreciated by our customers who use ZF components such as stabilizers or damping systems.

The THP steering gear series offers exceptional steering comfort, compact design and top performance and reliability values. The eActivMode power steering pump uses vehicle signals such as speed, velocity and steering requests to adjust the pump flow to the current performance requirements. As a combination of hydraulic power steering and electric actuator, ReAX reduces the steering forces during maneuvering and stabilizes vehicle handling at high speeds. The Global Column series of adjustable steering columns delivers maximum comfort.



PCV

Damping Technology With Extra Stability and Comfort

High comfort is a core requirement in coaches. This is where ZF innovative damping technology makes all the difference. PCV provides immediate damping force. It stabilizes the vehicle at a very early stage. It also significantly reduces hydraulic noise.

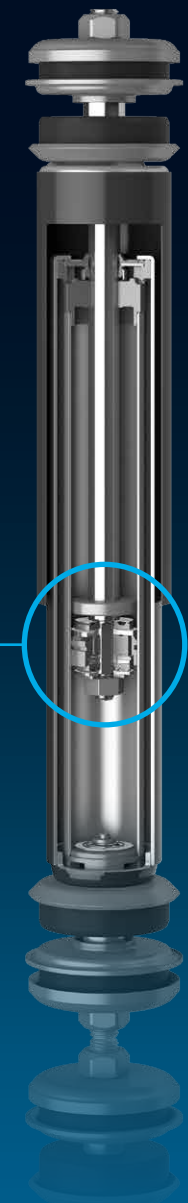
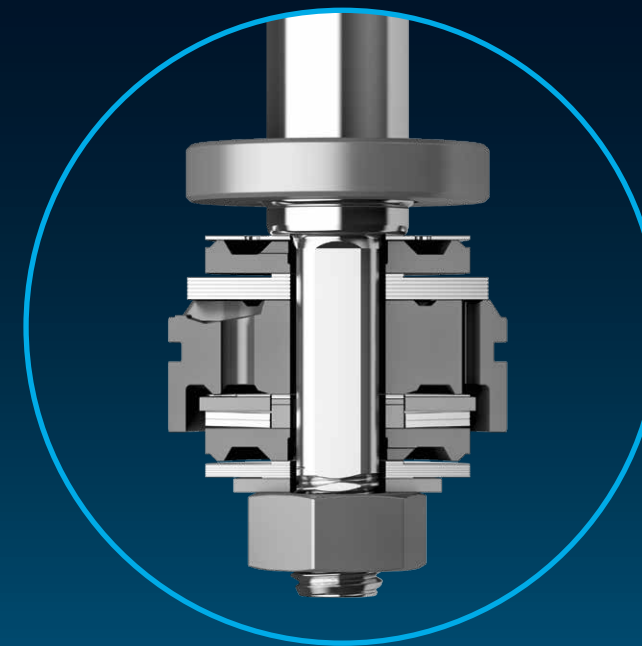
Various axle and engine concepts as well as positioning of batteries and loading areas in the vehicle alter mass distribution and centers of gravity, which also affects noise levels and acceleration behavior. The chassis needs dampers to quickly dampen vibrations caused by this interaction of axle and body. Our PCV Premium Comfort Valve is the right solution for buses, whether they are diesel or electrically driven. It is possible to precisely adjust the damping characteristic to the conditions of the individual vehicle. What's more, PCV minimizes hydraulic flow noises and the transmission of non-damper noises to adjacent assemblies.

Precise adjustment to widely differing buses

The core of our PCV technology is a new piston valve design. You can choose from a large number of parameters. This generates characteristic curves that reflect customer wishes and the requirements of the vehicle even more closely. This is another new standard ZF sets for buses.

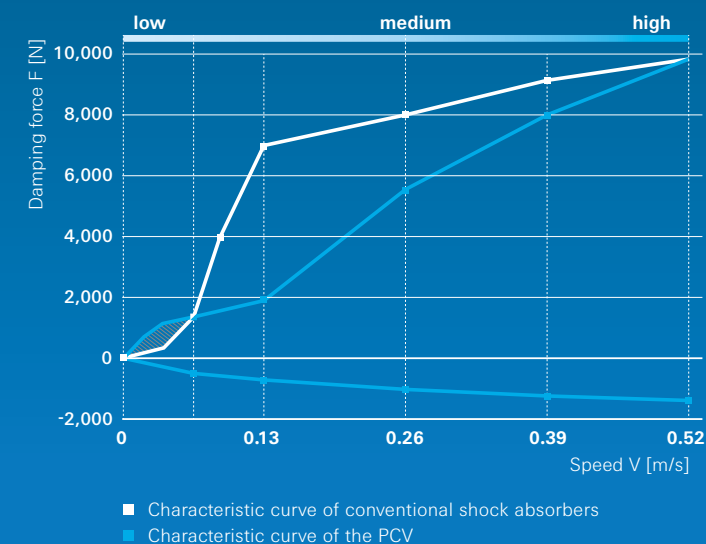
Safety due to regulated damping force

A significant increase in damping force in the low damper speed range reduces rolling and pitching motions to a minimum. At medium velocities, the PCV® with modified oil feed system provides a slow rise in the damping force. To keep the vehicle uniformly stable and to prevent the vehicle body from pitching and subsequently rocking, the damping force increases again at high compression speeds.



Advantages at a glance

- Greater comfort without loss of stability
- Strong damping of axle movement at low deflection speed possible
- Smooth transition to the next force level
- Minimization of the noise in the vehicle
- No external control systems



On Site – Worldwide

ZF is there to serve its customers, always nearby with more than 700 service centers and production locations around the globe ready to help drivers, owners or fleet operators whenever they need professional support.

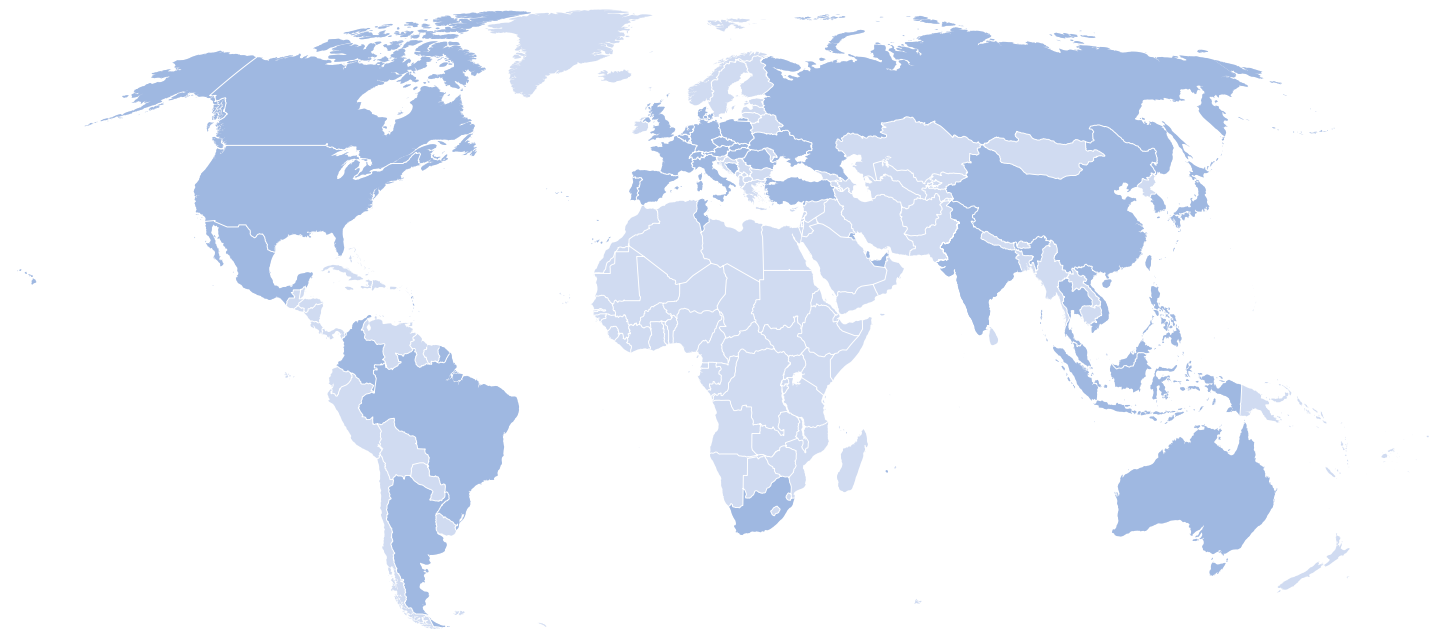
Customers worldwide rely on ZF products for buses. Responding to international demand, the global player ZF is present in all markets. Our system components are produced at various locations on several continents. The key aspects here are market development through adapting products to specific market requirements and best-cost-country considerations which play a decisive role in production and procurement. This applies equally to transmissions and clutch components or chassis parts.

ZF supports the international expansion of established customers while also adding partners from new market regions to its customer portfolio.

This enables ZF to provide a tight network of highly qualified contacts close to international customers at all levels and in all regions.

Our global presence also guarantees service support with standardized ZF quality. The expertise of ZF really counts, especially when it comes to complex servicing or repairs.

Apart from spare parts, exchange units and operating consumables – such as transmission oil – ZF Services also offers special maintenance programs for fleet owners, training for customer repair shops and modification of vehicles to special vocations.



Our Wide Range of Services From a Single Source

As a technology leader, ZF is not only a manufacturer, but also a reliable partner that supports you throughout the lifecycle of your vehicles and applications. Wherever you may need us, ZF Services supports you with its own comprehensive service network and the entire range of aftersales services from a single source. Quickly, directly, reliably. Here are our strong quality products and excellent services at a glance:

Extended Coverage Program (ECP)

You're fully covered with the ZF program for repair risks, including repair and maintenance of transmission and axle systems by ZF Customer Service. As a fleet owner with a contract with ZF, you pay a fixed price and the ZF Service organization renders the service for your ZF transmissions.

Life Cycle Cost Coverage Program (LCC)

This program to cover life cycle costs means ZF provides all preventive and corrective maintenance of transmissions and axles produced by ZF. This ensures top vehicle availability.

Driveline consultancy

A bus provides optimum economy when all driveline components – from the engine and transmission to the rear axle – work accurately and in perfect harmony. ZF's experts already support you in advance, and not only give you advice for the transmission design but also when determining and designing the drive axle for your specific needs. Also included here is subsequent fine-tuning and adaptation of the control software to your specific circumstances.

Openmatics

With an on-board unit on the bus, our Openmatics telematics platform records the vehicle's and the transmission's operating data and continuously transmits it to a web portal. This is where different applications ("apps") evaluate the data.

The results are made available worldwide to a registered user group which can use the data simultaneously. EcoLife supports Openmatics – the most advanced telematics platform on the market!

Spare parts business, remanufacturing, technical training and more

From our large number of logistics centers, we ensure just-in-time delivery of genuine spare parts from the various ZF product brands. Furthermore, we offer warranty-backed industrial remanufacturing of ZF and non-ZF products such as clutches, torque converters, steering systems and transmissions.

Naturally, we also provide technical training for fleet operators and automobile repair workshops. Our specialists in maintenance and repairs of ZF units are responsible for this. We also provide extensive documents such as catalogs as well as repair and installation instructions.

The ZF Group

Groundbreaking technologies for future mobility

As a leading technology company offering comprehensive system solutions, ZF's clear objective is making intelligent mobility possible. Quality, technology leadership and innovative strength have shaped ZF's identity for more than 100 years. As we look to the future in our Corporate Strategy 2025, we have defined our motivation and obligation to shape mobility safely, efficiently and sustainably with trendsetting technologies.

Our goal is to enable autonomous vehicles to see, think and act. ZF's concept is Vision Zero – a world without accidents and emissions. With its development of efficient and electric drives as well as its broad portfolio, ZF is advancing mobility and services in the automobile, truck and industrial technology sectors.

Here, we cooperate with often highly specialized partners, participate in promising startups or set up our own innovation and technology centers around the world.

In product development, ZF relies on meticulously selecting materials and uses life cycle analyses to improve the design of products with every generation. Climate protection, respect for natural resources and eco-friendly product design are the foundations of our environmental policy, which we implement around the world.

Since ZF manufactures products worldwide at 230 locations in 40 countries, the procurement and transport of components plays a major role in a sustainable value-added chain. In order to achieve positive effects, we rely on the strategy "local for local". We procure in the regions where materials or components are required. The resulting shortened transport routes help to preserve the environment and this "local" purchasing approach boosts the well-being of the local economy and community.



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