

ZF Parts

Setting the standard in terms of quality:
ZF Parts steering gears and steering pumps
for PC and light CV



ZF Parts steering systems: Intelligent and safe solutions in OEM quality

As vital for the vehicle as the engine and the wheels, as important for safety as the brake – the steering system is at the heart of every vehicle. Whether it be a question of operation, safety or ride comfort, one thing is clear – the overall quality of the vehicle depends on the quality of the steering.

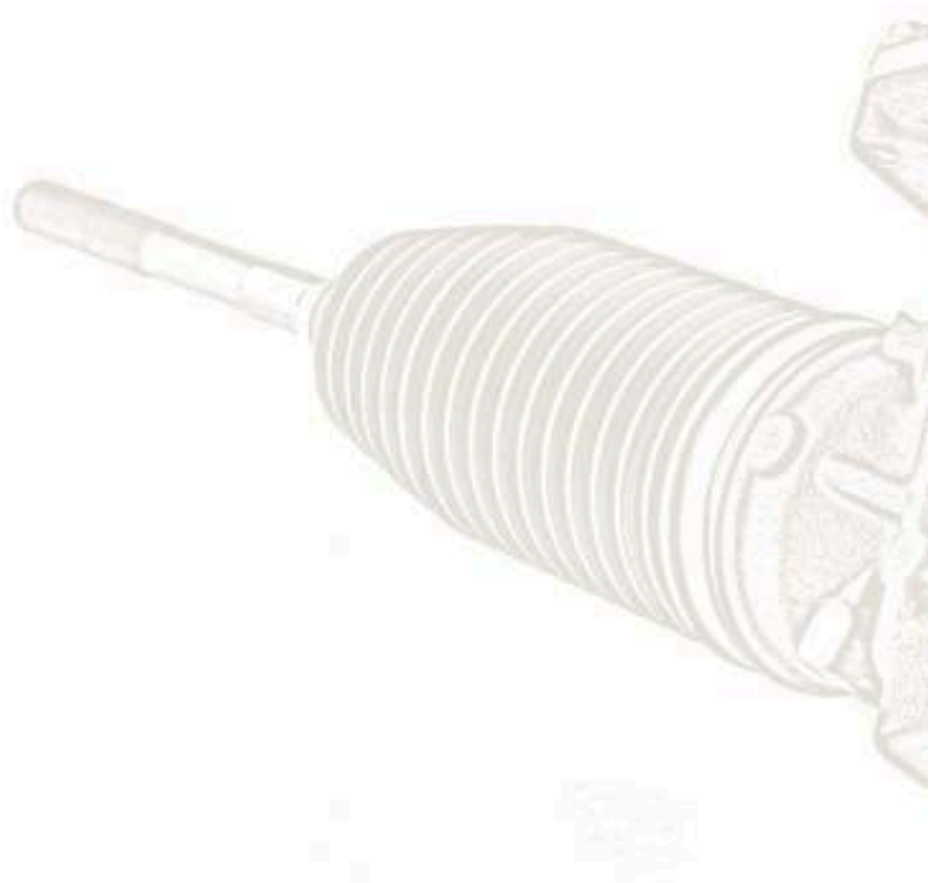
Behind all this, you will find cutting-edge technology - particularly now, with the increasing influence of electronic safety systems.

Expertise from first hand experience

ZF Parts steering gears and steering pumps. Behind this product range lies the experience of ZF Lenksysteme GmbH, a joint venture between ZF and Bosch. The company – a market leader in OEM equipment - develops and manufactures state-of-the-art steering gears for virtually all automotive manufacturers. Under the banner of the ZF Parts brand, their technological expertise is now available through ZF Trading to the replacement parts market.

A product range which meets market requirements

Our range covers all standard vehicles in the Western European market. All products are manufactured to the original equipment specifications. All ZF Parts components meet the same requirements as the original replacement parts.



The role of the steering system

The steering system is the key interface between driver and vehicle. The challenges faced by the steering system are clear: the steering should be precise, with no play. It should be smooth and direct, compact and light. In addition, it must also provide the driver with a perfect feel for the road surface and help the wheels return to the straight-ahead position.

When it comes to safety potential, the power steering gear really comes into its own at high speeds. Abrupt steering corrections – when maneuvering to avoid an obstacle – are easy to master thanks to the power assistance provided by the Servotronic mechanism. Also, the hydraulic system will compensate for the most part for sudden, one-sided steering forces. The driver is able to react to the surprise, keep the vehicle on track and bring it to a safe stop. And all this requires a minimal effort on the steering wheel.

And finally, modern steering systems must also work in tandem with driver assistance systems and make an active contribution to reducing fuel consumption.



Schematic representation of the ZF Servotronic® 2

1. Electronic speedometer in the vehicle 2. Electronic control unit (ECU) 3. Electro-hydraulic transducer 4. Rack and pinion power steering gear 5. Steering pump 6. Oil reservoir with fine filter 7. Anti-vibration expansible hose 8. Manually adjustable steering column

ZF Parts steering gears – products which have proved themselves time and time again in millions of applications

Perfect for every application: Rack and pinion power steering

Rack and pinion power steering with variable ratios is used in many applications. It is as equally suitable for mid-size sedans and light commercial vehicles as it is for sports cars.

It enables precise and rapid steering responses at higher speeds without excessive or jittery over-reaction to minor steering adjustments. It optimizes the handling of the vehicle when maneuvering it in or out of a parking space, when turning around in tight spaces or during extreme cornering.

Depending on the manufacturer's specifications, the rack and pinion power steering may also be fitted with a number of equipment options. At the OEM level, this allows the steering to be adapted in an optimum way to the kinematic and motorization conditions present on the vehicle.

Electronic perfection: ZF Servotronic® 2

ZF Servotronic® 2 is a top-quality product, using state-of-the-art electronics to control the steering system according to vehicle speed. In order to achieve this vehicle speed, signals from the electronic speedometer or from the ABS control unit are evaluated in a microprocessor and sent to the electro-hydraulic transducer, which then modifies the hydraulic pressure applied to the rotary sleeve valve, becoming the actuating moment acting on the steering wheel.

Saving fuel: the hydraulic steering limiter

The use of a hydraulic steering limiter enables the power requirement of the steering pump to be reduced, which in turn means that the idling speed of the engine can be lowered, thus saving a considerable amount of fuel.

Thanks to the technical competence that comes with being the market leader, we always guarantee delivery of state-of-the-art systems.



ZF Parts steering pumps – well thought-out technology for the utmost in safety and perfect comfort

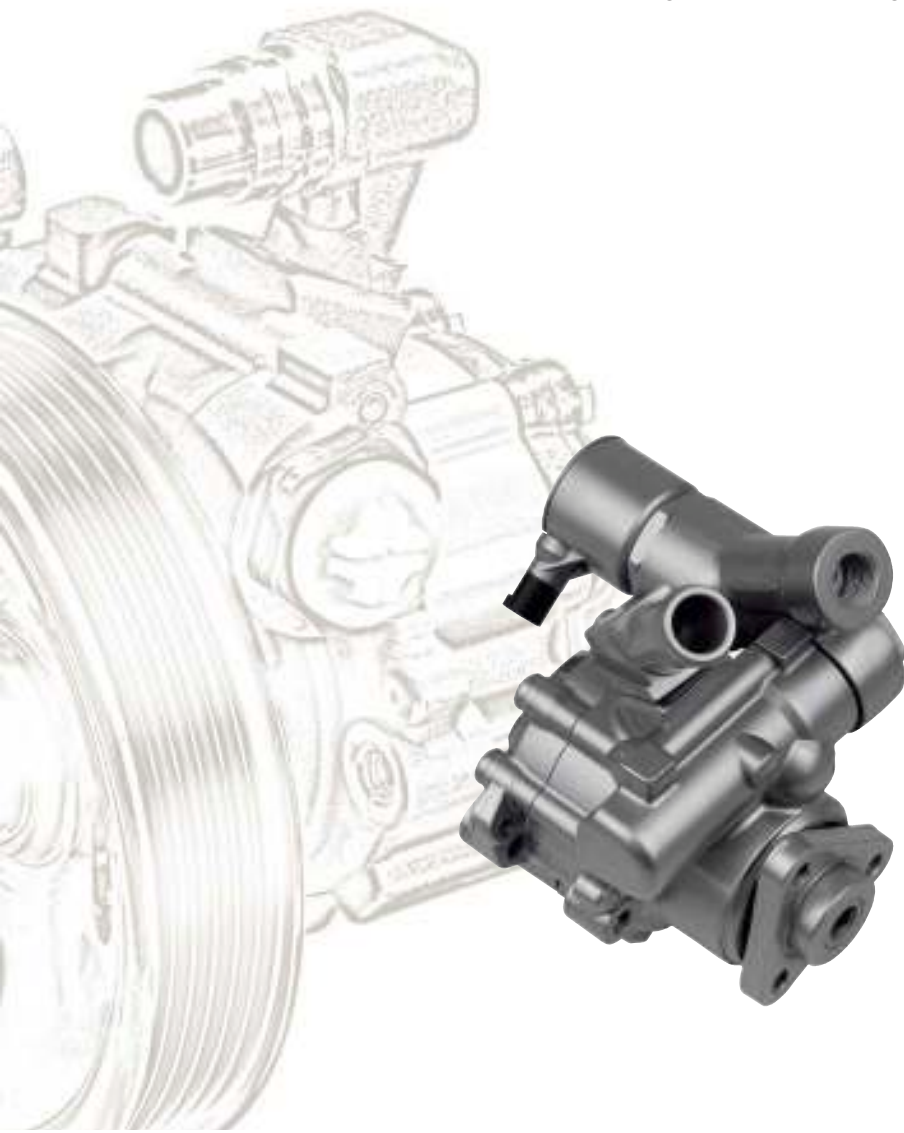
Compact, lightweight and effective

ZF Parts steering pumps are characterized by their compact design. They offer a first-rate balance between minimum weight and maximum delivery volume.

The wide range covers various pump designs and series. As well as vane pumps and tandem pumps, there are also special energy saving pumps. The electromotively driven Powerpack for electrohydraulic steering systems is tremendously innovative.

Energy-saving solutions

The use of volume flow control allows manufacturers to make considerable energy savings – regardless of the vehicle speed. In a hydraulic steering system, the functionality of the basic pump can be significantly improved by varying how it is actuated according to the rate with which the steering wheel is being turned and the speed of the vehicle. The electronic control systems required for this can be integrated in the existing vehicle electronics systems.



Professional reconditioning - as good as new

How we stand out from independent suppliers of reconditioned parts

The technology and expertise that comes with being a supplier of OEM parts guarantee the reliability and durability of ZF Parts steering components. We have direct access to the quality standards of the vehicle manufacturers and have control over the entire technical content. Industrial reconditioning takes place at ZF Lenksysteme GmbH plants and is subject to the same rigorous quality standards as our manufacturing processes for new parts.

The same principle applies to all components supplied by ZF Parts:

Any components which cannot be reconditioned to within the tolerances specified by the vehicle manufacturer are replaced with new parts from series production. All seals, plastic parts and other synthetic parts are always fully replaced with new parts. Once the carefully controlled reconditioning process is finished, the units are then subjected to the strictest testing. Every component is marked and, if the part is returned, withdrawn from circulation. That means that every component is refurbished only once. These conditions are the only way to ensure that reconditioned parts offer the same quality, safety and functional integrity as their new counterparts.

Regardless of whether new or reconditioned, all ZF Parts components always comply with the OE specifications for the relevant vehicle. Although this should be a market standard, numerous market suppliers ignore this requirement - often simply ignoring tolerance specifications, using low-grade materials or even reselling defective components. Ultimately, the driver pays the price in terms of driving safety and driving comfort - two of the most fundamental aspects - if unprofessionally manufactured or reconditioned parts like this are used. In addition, the use of steering components which are not properly coordinated with the vehicle can lead to damage.

Keep your company and your customers on the safe side - with ZF Parts steering components.

Information media and services: fast, reliable and market-driven

The ZF Parts product range is continually adapting to the requirements of the market. The technological leadership of ZF Lenksysteme GmbH at an OEM level guarantees a constant competitive edge in terms of quality in the replacement parts business. The exceptional level of service ensures fast and reliable availability. With market-driven documents, technical support and sales instruments, ZF Parts round out the range of steering gears and steering pumps with a strong customer focus.

The ZF Parts catalog is available on paper as well as in electronic format on the "InCat" CD-ROM, as well as in our online catalog "WebCat", which can be accessed on the Internet at <http://webcat.zf-trading.com>.

An overview of our product range can also be found on the CD-ROM "TecDoc".

In addition, our technical brochure and our hotline can both offer valuable tips. You can contact us on telephone number +49 9721 4755-555 or by e-mail at techsupport.zf-trading@zf.com.



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Driveline and Chassis Technology