



## Intelligent System Solutions for Material Handling

**Whether zero-emission and quietly operating electric forklifts for usage in buildings or diesel forklifts who must transport high loads for a long distance outside. The technology therefore comes from ZF. For both applications ZF offers a large product range. In addition, ZF rounds off its comprehensive product portfolio with new products, based on the joint venture with Anhui Heli, founded in 2018. Thus, ZF offers tailored and efficient driveline solutions for all vehicle categories and technology levels and provides with its "Best Choice" strategy the best solution accordingly of the respective customer and market requirements.**

With the newly developed eTRAC GP27, ZF extends the model range of the well-known dual-motor front wheel drive eTRAC GP25 (fig. 4). Besides the advantages of energy efficiency, noise and maintenance intervals which distinguishes the eTRAC GP range in general, ZF offers with its new Heavy-Duty version solutions for trucks with higher lifting capacity up to 2.5 tons and bigger tires.

- Dual motor acceleration for best maneuverability and smallest possible turning radius
- High efficiency due to regenerative e-braking
- Suitable to support versatile truck platform
  - Very flexible vehicle interface (width, frame, wheel, mast)
  - Ideal for the realization of different brake concepts
- Easy to assemble into truck
- Ideally suitable with EPS 3 rear-wheel steering for 3-wheel forklift trucks for highest maneuverability and energy efficiency

The electromechanical steering eSTEER EPS3 replaces the commonly used hydrostatic steering in front-driven 3-wheel counterweight forklifts for up to 2 tons. Thanks to its electric driveline elements automated driving functions are being enabled (fig. 5).



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Furthermore, the steering system offers the following advantages for end users:

- More than 10% of energy saving in the VDI 2198 driving cycle
- Reduced energy consumption and longer battery range by power on Demand
- Excellent driving ergonomics (e.g. steering speed adjusted to actual driving situation)
- Reduced installation effort at the forklift assembly
- Reduced noise characteristics by optimal gearing design
- Optimally applicable in combination with GP25 front-wheel drive for maximum maneuverability and energy efficiency

With the GK10 LD electric steering ZF presents a universal drive kit for also hand-held equipment with electric steering. Thanks to its components, even an interface for automated operations is being generated (fig. 6). Furthermore, the patented hypoid toothing provides the customer with optimum performance (torque capacity) and service life. This, in turn, enables a variety of ratio options in a minimal installation space.

Additional advantages of the GK series are as follows:

- Low reaction torque for hand-held equipment due to optimized axle offset and larger wheel
- Minimum maintenance required thanks to durable transmission components

Captions:

- 4) ZF eTRAC GP27 – A new benchmark regarding efficiency
- 5) EPS 3 electromechanical power steering offers an energy saving of more than 10% over its driving cycle.
- 6) Bevel Gear Drive with electric steering – GK10 LD with electric steering

Images: ZF



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**ZF Friedrichshafen AG**

ZF is a global technology company and supplies systems for passenger cars, commercial vehicles and industrial technology, enabling the next generation of mobility. ZF allows vehicles to see, think and act. In the four technology domains Vehicle Motion Control, Integrated Safety, Automated Driving, and Electric Mobility, ZF offers comprehensive solutions for established vehicle manufacturers and newly emerging transport and mobility service providers. ZF electrifies different kinds of vehicles. With its products, the company contributes to reducing emissions and protecting the climate.

ZF, which acquired WABCO Holdings Inc. on May 29, 2020, now has 160,000 employees worldwide with approximately 260 locations in 41 countries. In 2019, the two then-independent companies achieved sales of €36.5 billion (ZF) and \$3.4 billion (WABCO).

For further press information and images, see [www.zf.com](http://www.zf.com)

For information on ZF-technology in Material Handling, see:

<https://www.zf.com/materialhandling>