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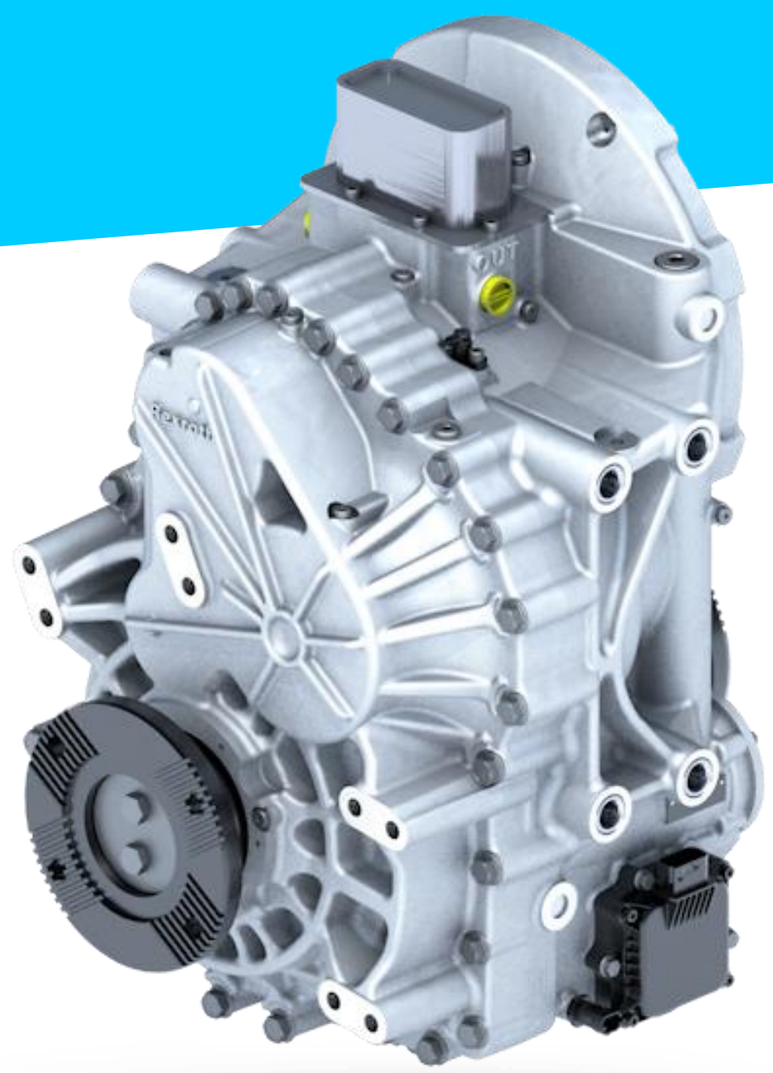
ROTATRAC eGFZ9200 series 10

2-speed spur gear drive



The mobile machinery market has a growing need to increase productivity and performance, lower operating costs through improving efficiency, and reduce exhaust and noise emissions. Electric drives are an important element in achieving this goal. The central component of an electric drive train is the gearbox technology. In addition to high demands of the drive in terms of climbing and tractive force, constant and slow driving is also a challenge in many applications. At the same time, a high final speed of the vehicle is to be achieved.
This is why Bosch Rexroth has developed the highly efficient 2-speed gearbox eGFZ9200 based on many years of experience and comprehensive know-how. This central drive is an ideal solution for both two- and four-wheel drives.

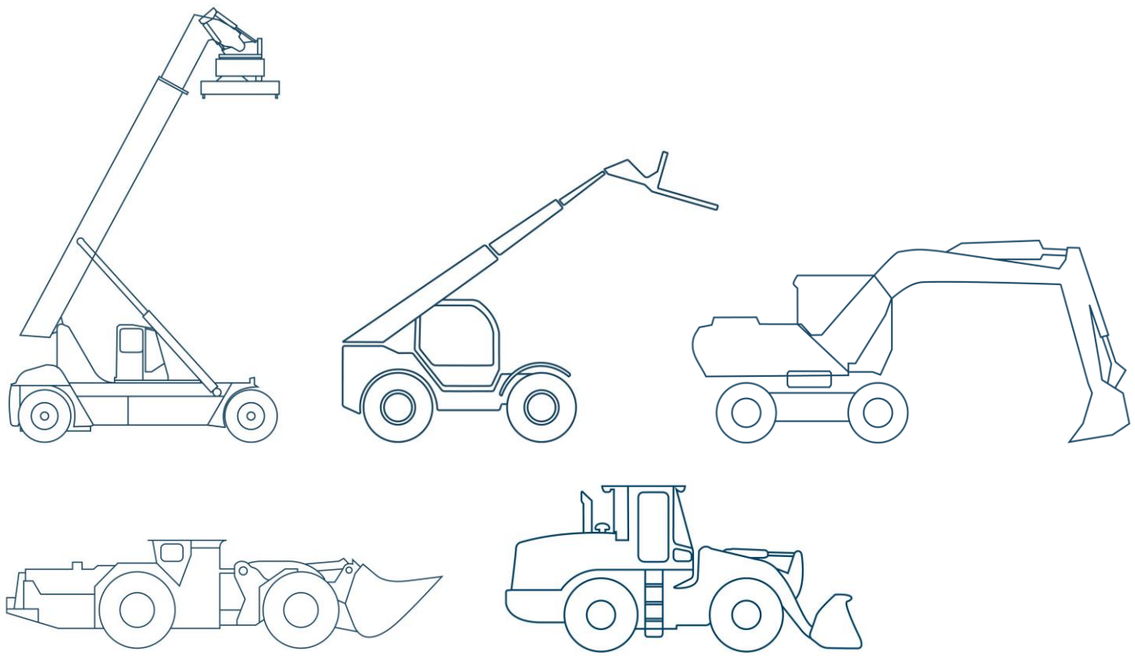
CUSTOMER BENEFITS

- Optimum utilization of engine spread for off-highway vehicles
- Plug and drive system – all necessary components integrated
- Efficient monitoring
- Flexibility with e-motor connection
- Versatile flange output solutions

FUNCTION AND BENEFITS

Optimum utilization of engine spread for off-highway vehicles
Developed specifically for high-speed electric motors, eGFZ9200 combines high power density with an efficiency of up to 98 % while optimizing noise at the same time. The choice of three different transmission variants for the 1st and 2nd gear always guarantee maximum climbing and tractive force of the vehicle on the one hand, and maximum final speed in transport travel on the other hand.
Compared to electric direct drives without gearboxes, two axles can also be powered with only one electric motor without having to accept the disadvantages in terms of efficiency and acoustics. (See Figure “Application solutions”.)

APPLICATIONS

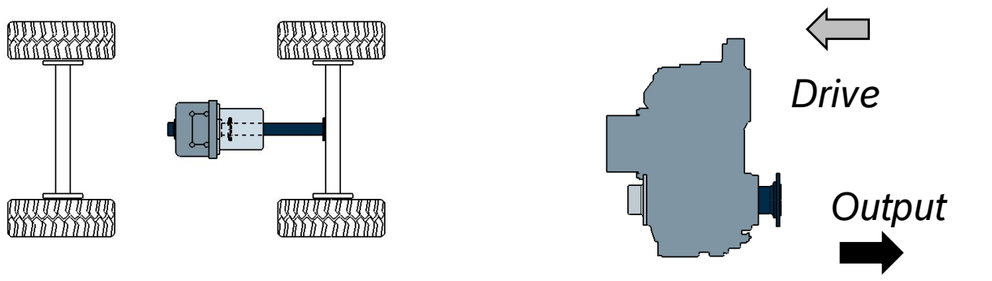


ROTATRAC eGFZ9200 series 10
2-speed spur gear drive

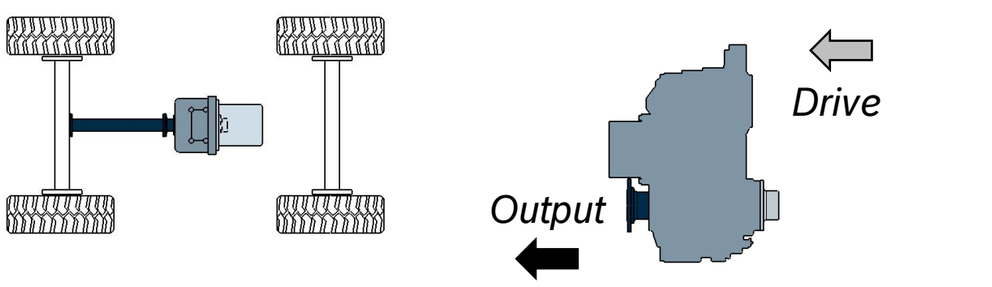
TECHNICAL DATA

2-speed spur gear drive ROTATRAC eGFZ9200	
Gear ratio: Variant 1 Variant 2 Variant 3	1st gear / 2nd gear 11.9 / 5.0 9.6 / 4.0 8.4 / 3.5
Max. output torque:	7650 Nm
Max. input speed:	14000 min^{-1}
For continuous performance:	180 kW
Ambient temperature:	-20 °C to +70 °C
Cooling:	Water glycol mixture / optional oil
Oil pump:	Integrated
Oil filter:	Integrated
Heat exchanger:	Integrated

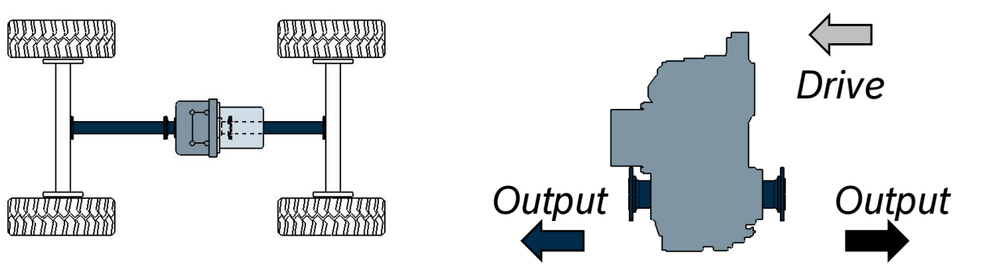
2-wheel-drive (U-shape)



2-wheel-drive (S-shape)



4-wheel-drive (Z-shape)



Application solutions

Plug and drive system
Due to the components already in the gearbox, like heat exchanger and oil pump, eGFZ9200 can be integrated easily into the existing cooling circuit of the electric drives (like the inverter and e-motor). A separate cooling circuit is thus not required. An integrated oil filter cartridge is easily accessible and can be replaced without much effort during the usual vehicle intervals.

Efficient monitoring
Sensors integrated in the standard version, for instance for the temperature, as well as connections for speed measurement in combination with CAN bus communication of common standards ensure the required safety during operation. Position sensors guarantee clean and precisely synchronized switching operations. This shifting system, which is integrated in the gearbox, is controlled electronically by software.
In addition, the eGFZ9200 has connections for the attachment of an external brake caliper and for the installation of an optional heating rod.

Flexibility with e-motor connection
eGFZ9200 is optimized for mounting various electric motors, especially high-speed, high-efficiency, compact permanently excited synchronous motors like the Rexroth EMS1H and Bosch SMG, but also motors with similar power from other manufacturers.

Versatile flange output solutions
Different strategies of voltage supply and battery storage requirements have a direct effect on the installation space in the vehicle frame.
The wide range of options for output-side flange versions to DIN ISO gives manufacturers a great deal of design freedom.
Depending on the requirements in the drive train, the output can be designed as a U-, S- or Z-shape gearbox version.
(See figure “Output solutions”.)

Bosch Rexroth AG
Glockeraustraße 2
89275 Elchingen, Germany
Phone +49 7308 82-0
Info.ma@boschrexroth.de
www.boschrexroth.com

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