

ROTATRAC

eGFZ9175 series 10

1-speed spur gear drive

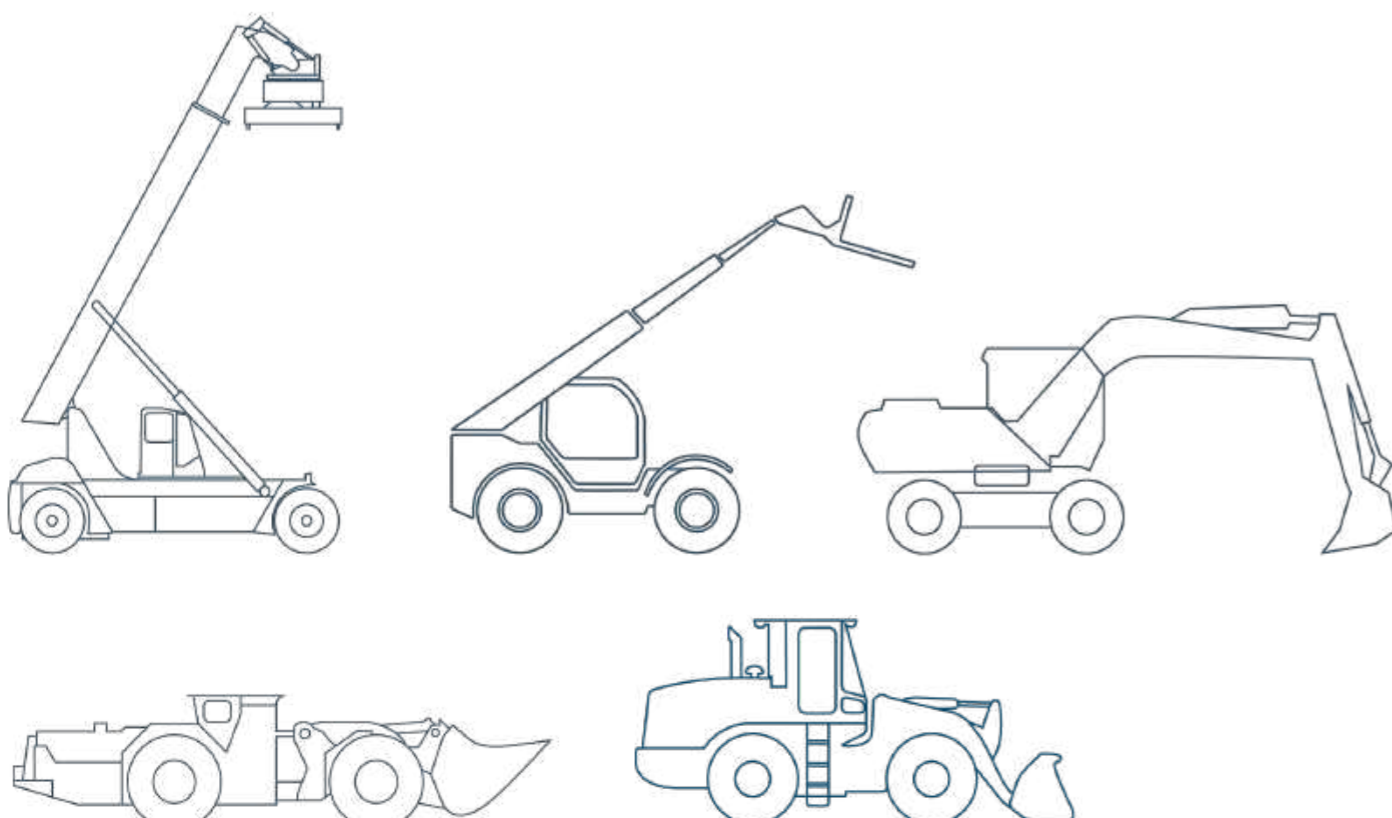


There is a growing need in the mobile machinery market to increase productivity and performance, to lower operating costs by increasing efficiency and to reduce exhaust as well as noise emissions. Electric drives are an important element in achieving this goal. The central component of an electric drive train is the gearbox technology. This is why Bosch Rexroth has developed the highly efficient gearbox eGFZ9175 based on many years of experience and comprehensive know-how. This central drive is an ideal solution for both 2-wheel and 4-wheel drive configurations.

CUSTOMER BENEFITS

- Drive with high power density for off-highway vehicles
- Plug and drive system – all necessary components integrated
- Efficient monitoring
- Flexibility with e-motor connection
- Versatile output solutions

APPLICATIONS



FUNCTION AND BENEFITS

Drive with high power density for off-highway vehicles

The eGFZ9175 was specially developed for high-speed electric motors and combines a high power density with an efficiency of up to 98% while simultaneously optimizing noise levels. This enables the integration of a zero-emission drive into existing installation space requirements for off-highway applications such as reach stackers, telehandlers or underground-mining vehicles. Compared to electric direct drives without gearboxes, two axles can also be driven with only one electric motor without having to accept disadvantages in terms of efficiency and acoustics (see figure "Application solutions").

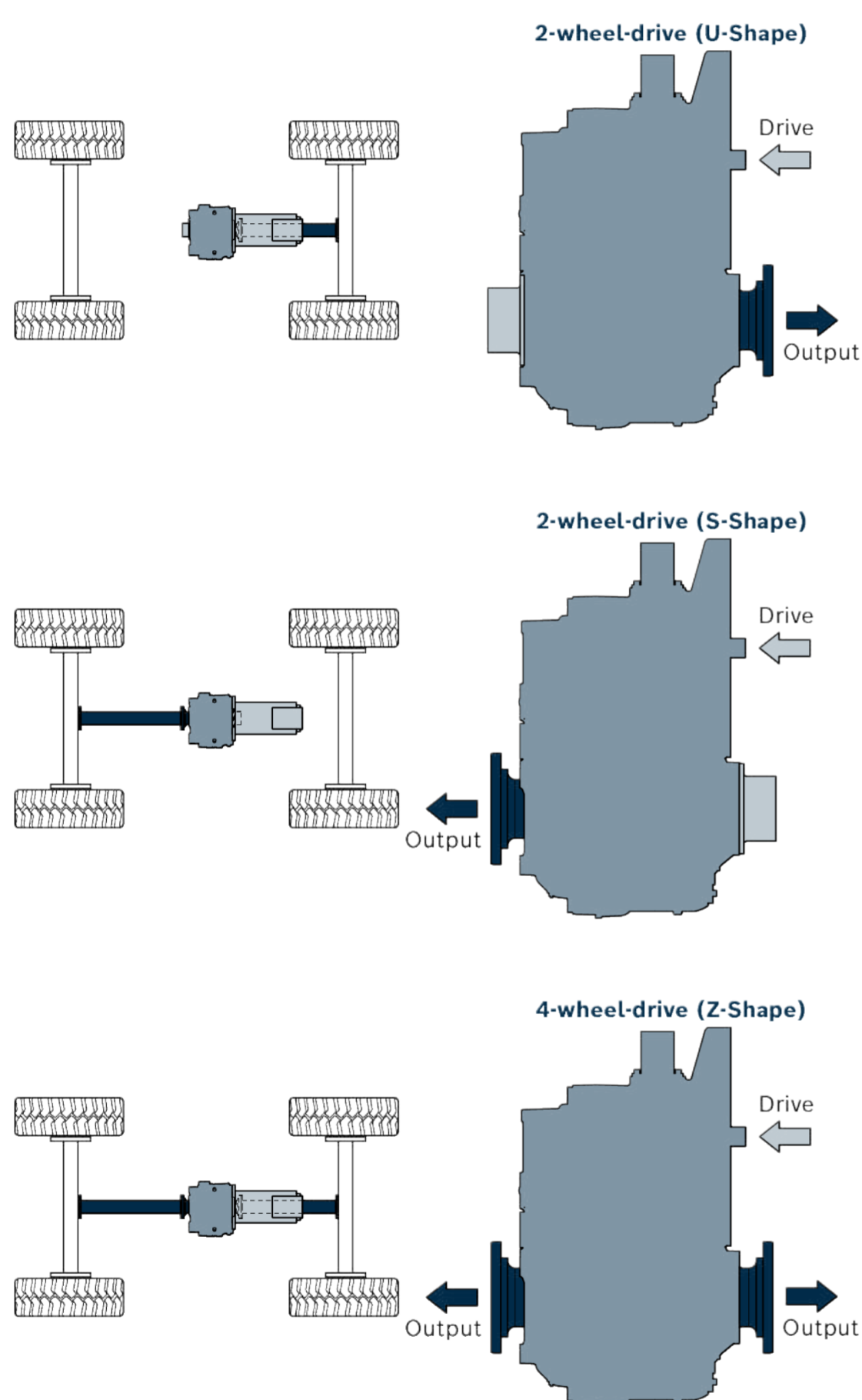
Plug and drive system

Due to the components that are already installed in the gearbox, like the heat exchanger and oil pump, eGFZ9175 can be easily integrated into the existing cooling circuit of the electric drives (e.g. inverter and e-motor). Therefore, a separate cooling circuit is not required.

TECHNICAL DATA

1-speed spur gear drive ROTATRAC eGFZ9175 series 10

Gear ratio:	4,01 + 5,00
On request:	3,52 / 6,16 / 7,02 / 8,74
Max. output torque:	3175 Nm
Max. input speed:	10500 min ⁻¹
For continuous performance:	180 kW
Ambient temperature:	-20 °C to +45 °C
Cooling:	Water glycol mixture
Oil pump:	Integrated
Heat exchanger:	Integrated



Application solutions

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Efficient monitoring

Integrated sensors in the standard version, e.g. for temperature, as well as optional connections for speed measurement in combination with CAN bus communication of common standards ensure the required safety during operation.

Flexibility with e-motor connection

The eGFZ9100 is optimized for mounting various electric motors, especially for high-speed, highly efficient and compact permanent magnet synchronous motors such as the Rexroth EMS1 and Bosch SMG, but also motors from other manufacturers with similar performance.

Versatile output solutions

Different strategies for voltage supply and battery storage requirements have a direct impact on the installation space in the vehicle frame.

The wide range of options for output-side flange versions in accordance with 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 "Application solutions").

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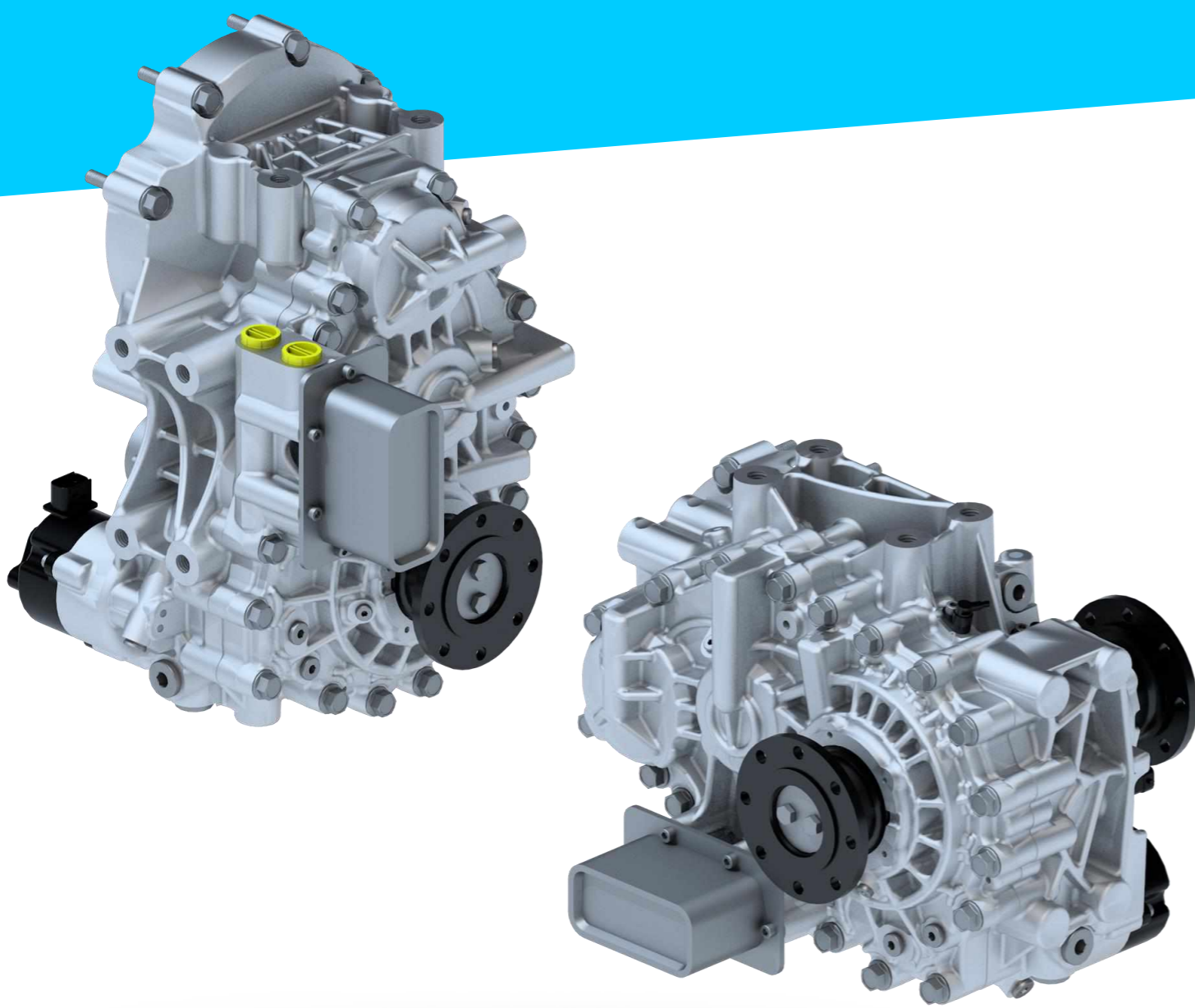
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ROTATRAC

eGFZ9125 series 10

1-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. This is why Bosch Rexroth has developed the highly efficient gearbox eGFZ9125 based on many years of experience and comprehensive know-how. This central drive is an ideal solution for both 2-wheel and 4-wheel drive configurations.

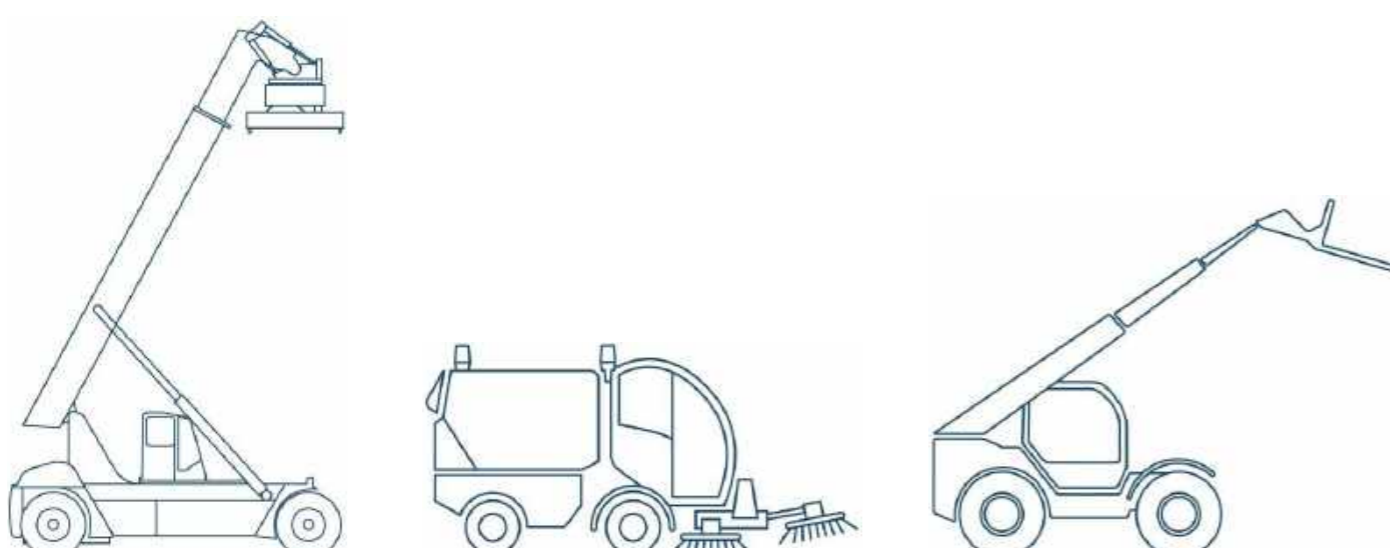
CUSTOMER BENEFITS

- Drive with high power density for off-highway vehicles
- Plug and drive system – all necessary components integrated
- Efficient monitoring
- Flexibility with e-motor connection
- Versatile output solutions

FUNCTION AND BENEFITS

Drive with high power density for off-highway vehicles
Developed specifically for high-speed electric motors, eGFZ9125 combines high power density with an efficiency of up to 98 % while optimizing noise. This enables the integration of a zero-emission drive into existing installation space requirements for off-highway applications like reach stackers, telehandlers or municipal vehicles. Compared to electric direct drives without gearboxes, two axes can also be driven with only one electric motor without having to accept disadvantages in terms of efficiency and acoustics (see Figure "Application solutions").

APPLICATIONS



Plug and drive system

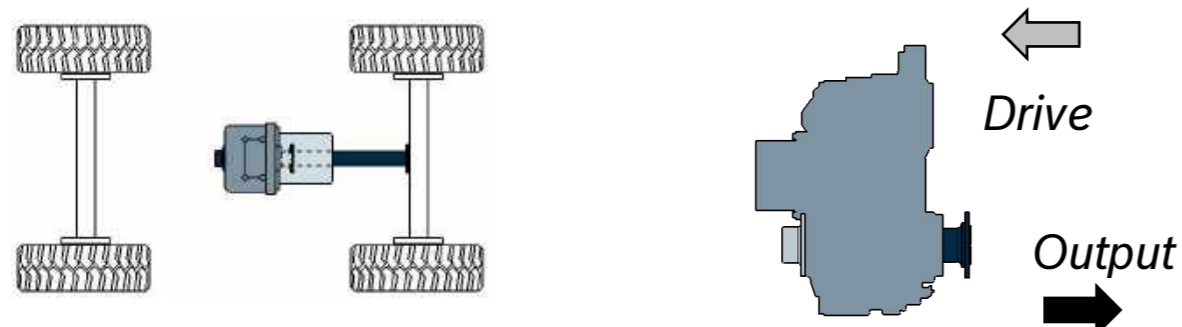
Due to the components already in the gearbox, like heat exchanger and oil pump, eGFZ9125 can be integrated easily into the existing cooling circuit of the electric drives (like the inverter and e-motor). A separate cooling circuit is thus not required.

TECHNICAL DATA

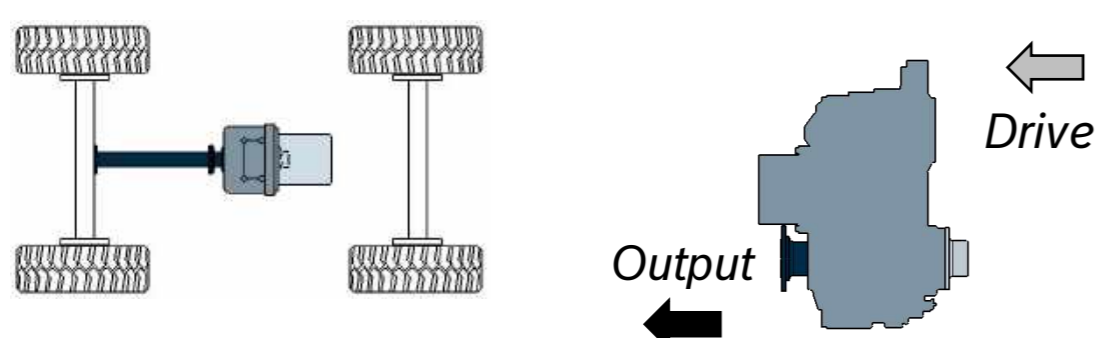
1-speed spur gear drive ROTATRAC eGFZ9125

Gear ratio:	4...6
Max. output torque:	3800 Nm
Max. input speed:	16000 min ⁻¹
For continuous performance:	120 kW
Ambient temperature:	-20 °C to +70 °C
Cooling:	Water glycol mixture / optional oil
Oil pump:	Integrated
Heat exchanger:	Integrated

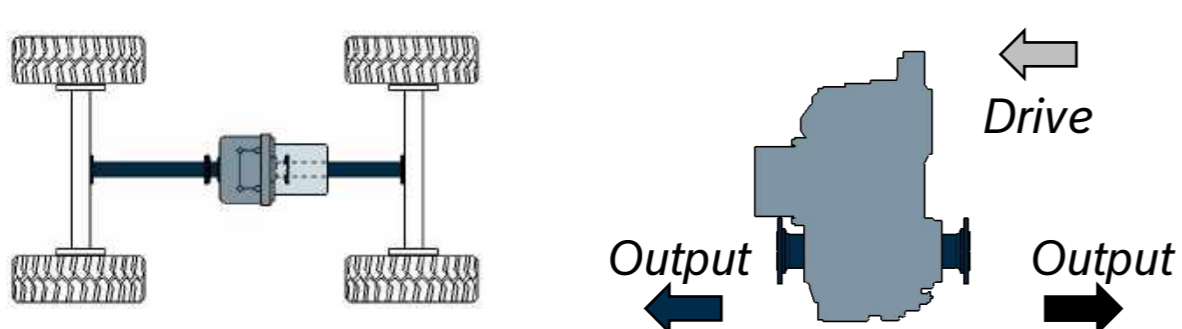
2-wheel-drive (U-shape)



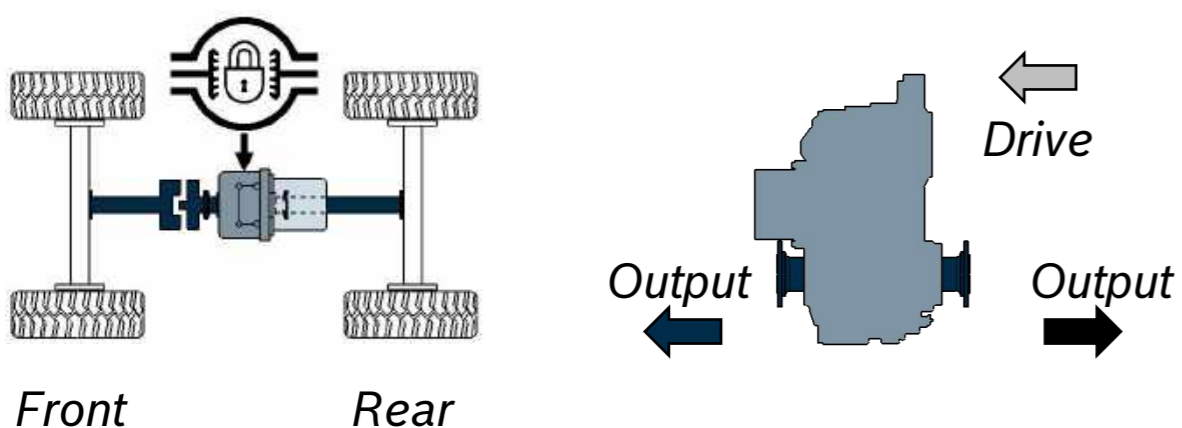
2-wheel-drive (S-shape)



4-wheel-drive (Z-shape)



Optional 2-wheel or 4-wheel drive (Z-shape)



Application solutions

Efficient monitoring

Sensors integrated in the standard version, for instance for the temperature, as well as optional connections for speed measurement in combination with CAN bus communication of common standards ensure the required safety during operation.

Flexibility with e-motor connection

eGFZ9125 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 output solutions

Different strategies of voltage supply and battery storage requirements have a direct effect on the installation space in the vehicle frame.

The variability of the mounting position (horizontal and vertical) of the eGFZ as well as the wide range of options for the output-side flange versions according to DIN ISO give the manufacturer 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.

In addition to a rigid four-wheel drive, the eGFZ9125 offers the option of axle disengagement or permanent four-wheel drive with compensation via a lockable center differential (see Figure "Application solutions").

ROTATRAC

eGFZ9115 series 10

1-speed spur gear drive



Steady increases in productivity and performance, continuous reduction of operating costs, progressive increases in efficiency and the reduction of exhaust and noise emissions are among the most important customer requirements for mobile machinery. Electric drives are an important part in achieving these diverse goals. Gearbox technology is a central component of the electric drive train. Bosch Rexroth has developed the highly efficient gearbox eGFZ9115 based on many years of experience and comprehensive know-how. This is an ideal solution for both single- and dual-axis drive concepts.

CUSTOMER BENEFITS

- Drive with high power density for off-highway vehicles
- Plug and drive system
- Efficient monitoring
- High flexibility with e-motor connection
- Compact design for limited installation space
- Versatile output solutions

FUNCTION AND BENEFITS

Drive with high power density for off-highway vehicles

Developed specifically for high-speed electric motors, ROTATRAC eGFZ9115 by Bosch Rexroth combines high power density with an efficiency of up to 98 % while optimizing noise. This enables the integration of a zero-emission drive into existing installation space requirements for off-highway applications like sweepers, multi-function vehicles, airport vehicles or other municipal vehicles. Compared to electric direct drives without gearboxes, two axles can also be driven with only one electric motor without having to accept the disadvantages in terms of efficiency and acoustics (see Figure “Output solutions”).

Plug and drive system

Due to the components already in the gearbox, like heat exchanger and oil pump, eGFZ9115 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.

APPLICATIONS



ROTATRAC eGFZ9115 series 10

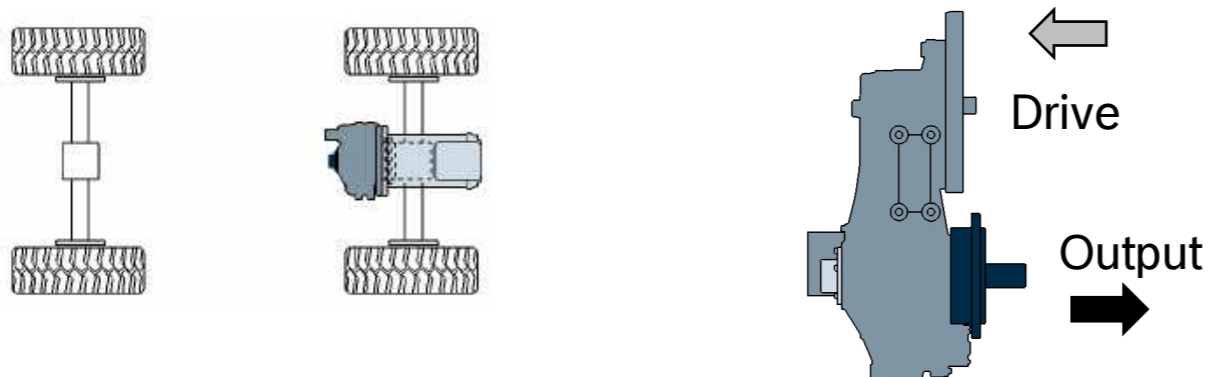
1-speed spur gear drive

TECHNICAL DATA

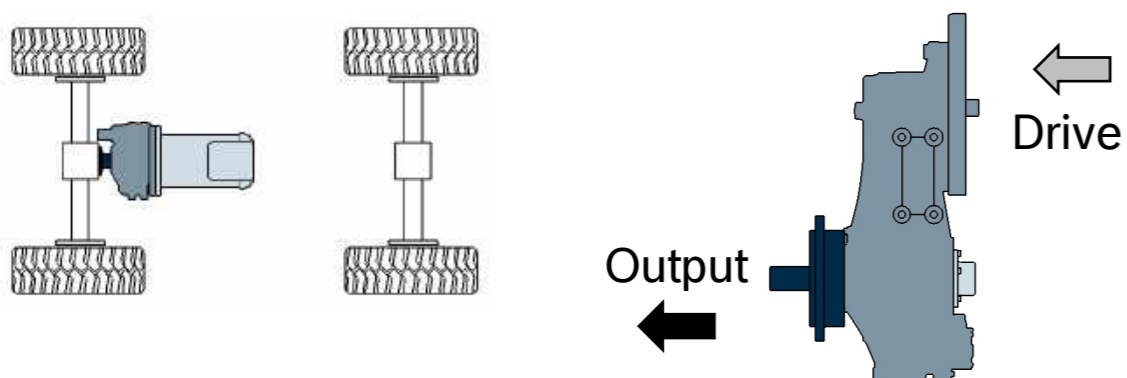
1-speed spur drive ROTATRAC eGFZ9115 series 10

Gear ratio:	2.5....3.78
Max. output torque:	2000 Nm
Max. input speed:	16000 min ⁻¹
For continuous performance	100 kW
Ambient temperature:	-20 °C to +70 °C
Cooling:	Water glycol mixture / optional oil
Oil pump:	Integrated
Heat exchanger:	Integrated
Data sheet:	in preparation

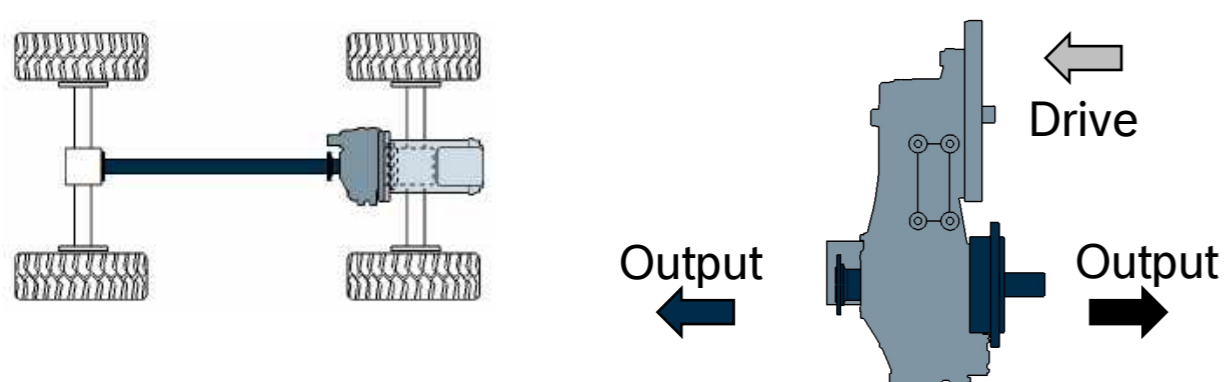
2-wheel-drive (U-shape)



2-wheel-drive (S-shape)



4-wheel-drive (Z-shape)



Output Solutions

Efficient monitoring

The integrated sensor technology in the standard version for e.g. temperature as well as optional connections for speed measurement in combination with CAN bus communication based on common standards ensures the required operational reliability.

High flexibility with e-motor connection

ROTATRAC eGFZ9115 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.

Compact design for limited installation space

Different strategies for power supply, battery storage requirements and additional add-on elements, e.g. fresh water tanks in municipal vehicles, reduce the available installation space of the drive train. ROTATRAC eGFZ9115 is distinguished by optimized axle distance of the gearbox in combination with a compact and powerful Bosch SMG or Bosch Rexroth EMS motor. This enables a drive solution that is installed close to the axle directly above the differential and directly drives into the axle, differential or axle brake.

Versatile output solutions

Various gearbox versions are available for the ROTATRAC eGFZ9115 of Bosch Rexroth. Depending on the requirements, the output in the drive train is available as a U-, S- or Z-shape.

ROTATRAC

eGFZ9275 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 eGFZ9275 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

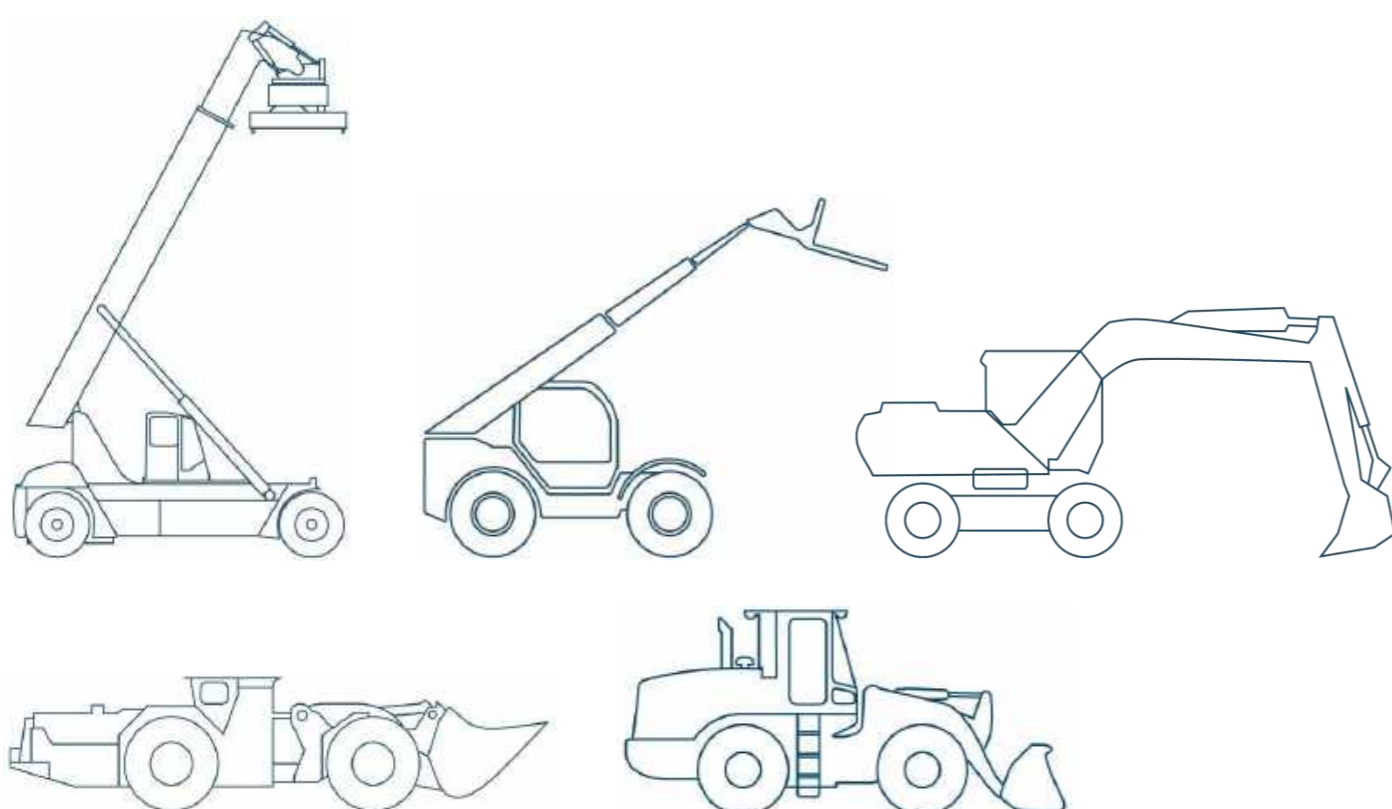
FUNCTION AND BENEFITS

Optimum utilization of engine spread for off-highway vehicles

Developed specifically for high-speed electric motors, eGFZ9275 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

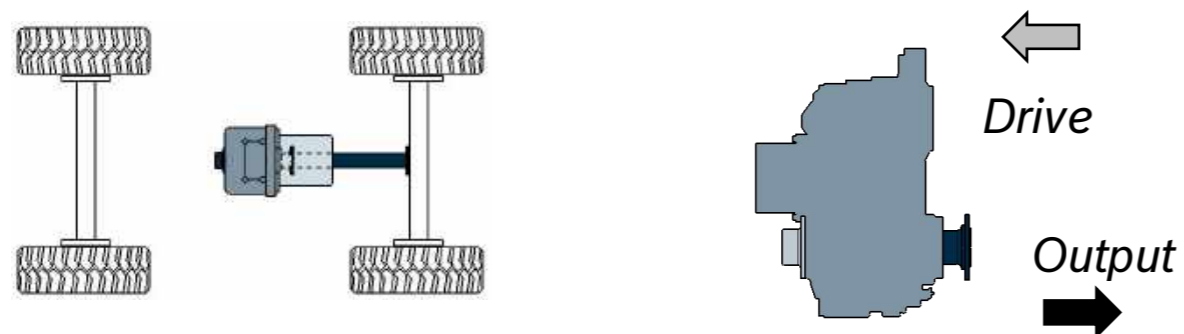


TECHNICAL DATA

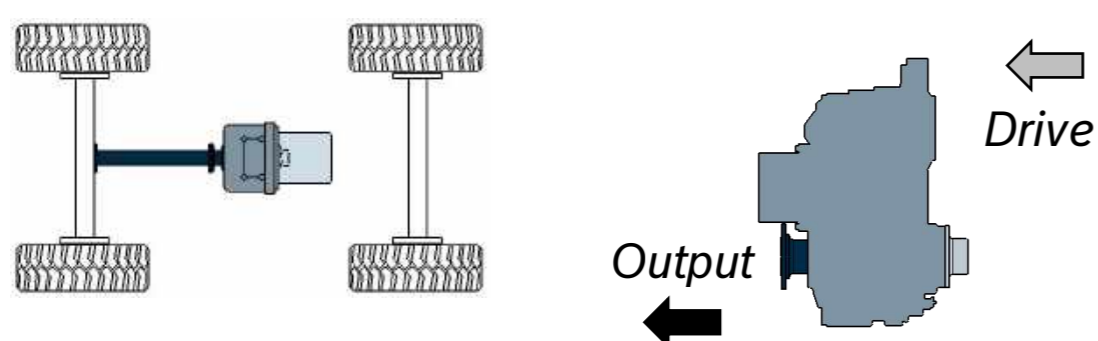
2-speed spur gear drive ROTATRAC eGFZ9275

Gear ratio:	1 st gear / 2 nd gear
Variant 1	11.9 / 5.0
Variant 2	9.6 / 4.0
Variant 3	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

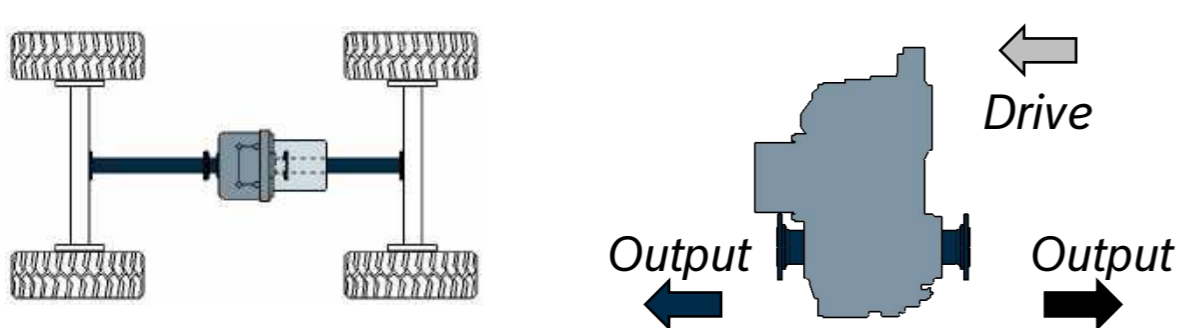
2-wheel-drive (U-shape)



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, eGFZ9275 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 eGFZ9275 has connections for the attachment of an external brake caliper and for the installation of an optional heating rod.

Flexibility with e-motor connection

eGFZ9275 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".)