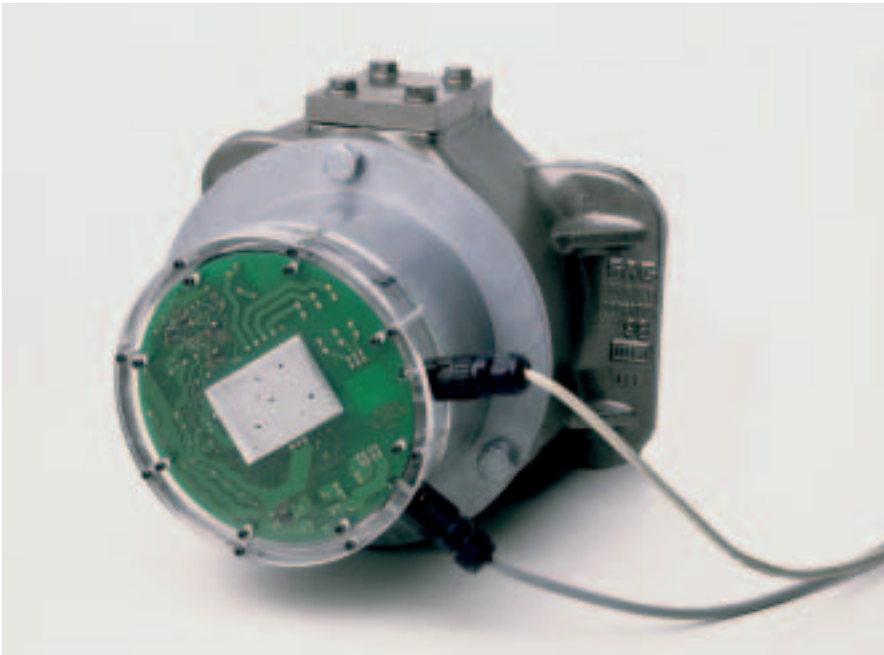


# FAG Wheelset Bearings with an Integrated Generator



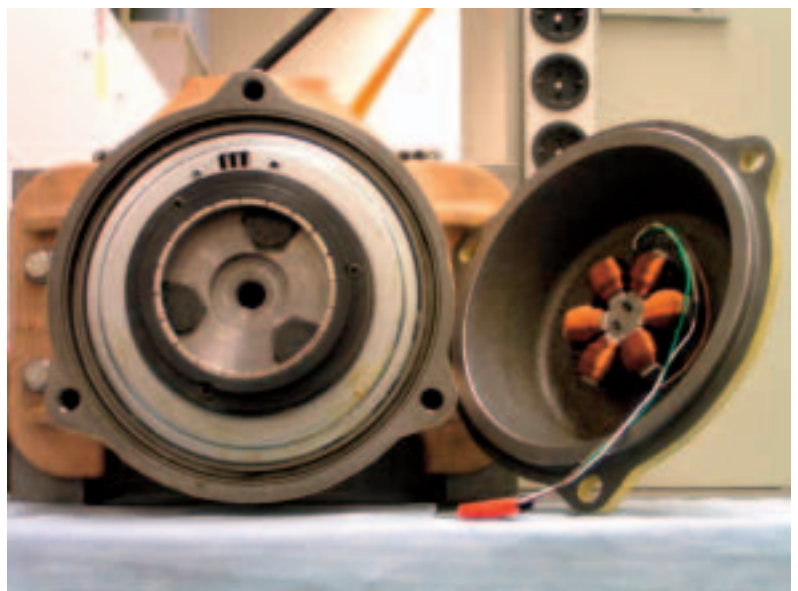
## Examples of Application Engineering

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High power generator

Low power generator



Rail-bound freight traffic requires increasingly intelligent logistics systems. That is why FAG Kugelfischer AG has developed a generator which is integrated into wheelsets. In this way freight cars can be provided with a self-sufficient power supply

that works even when a train is standing. This means that FAG axle box bearings with an integrated generator can be used every-where where power is needed in railway cars but where normally none is available.

For example, telematic systems with additional functions such as axle box bearing diagnosis and hazardous goods monitoring can transmit the data at shorter intervals thanks to sufficient and continuous power supply.

## Examples of power-dependent systems in freight cars

- Anti-theft systems in freight cars
- Monitoring systems for special-goods transports
- Exact car location via GPS receivers
- Diagnosis of bogie components
- Braking and nonskid systems

## Advantages

- Self-sufficient power supply of individual cars
- Standard components remain unchanged ( housings, bearings, axle journals)
- Generators can be installed into existing wheelsets and can be replaced if necessary
- Generators are wearproof and maintenance-free
- Speed signal for nonskid system optionally available

## Low power version

The low power version of the generators supplies a continuous output of 5 watts, which makes it ideal for various applications, e.g. supplying power to sensors for axle box bearing diagnosis, for telematic systems with GPS tracking and for transport monitoring with data transmission via GSM.

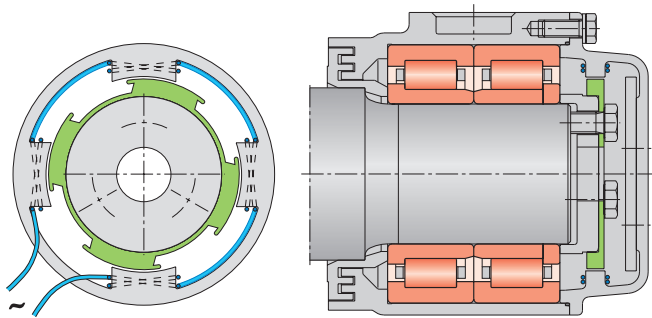
The generators are very easy to install: the housing cover and axle cap of a standard housing (UIC or Y25) are simply replaced by a cover and cap with an integrated generator. The rotor and stator are installed or cast into the housing parts in such a way that the latter have maintained their standard dimensions.

## Technical data of FAG wheelset bearings with an integrated generator

<i>High Power</i>		<i>Low Power</i>	
24 / 12 V DC	Voltage	12 V DC	
4.0 A DC	Current	0.4 A DC	
100 watts	Power	5 watts	
100 ... 1000 rpm	Speed range	150 ... 1000 rpm	
- 40 ... + 85 °C	Temperature range	- 40 ... + 85 °C	

We can also supply customer-specific solutions (e.g. voltages of 6 V or 24 V). Please contact us for details.

## Wheelset bearing with an integrated generator



(Outline drawing)

As the wheel axle rotates, the magnets in the axle cap (which act as the rotor) rotate as well whereas the coils in the housing cover (which act as the stator) are stationary. The power thus generated is stored in a lead-gel battery and is available for various applications even when the train is standing.

## High power version

High power generators supply a continuous out-put of 100 watts that can be used to supply power to, for example, electropneumatic brakes, acoustic and optical warning systems or nonskid systems. In this version, the generator components are also integrated into the axle cap and housing cover (both special designs) and are simply installed instead of the standard housing parts.



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