

Application-Report - **KBA-approved*** speed sensors in a hydraulic system for engageable four-wheel drive

***German Federal Motor Transport Authority**



Area of application/ Task:

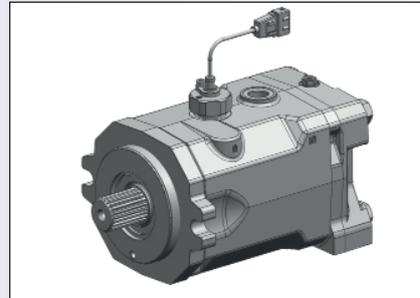
For use in difficult terrain it is necessary to use vehicles with four-wheel drive.

All-wheel drive vehicles are considerably less economical on the road than those without all-wheel drive.

Solution:

An HMF fixed displacement motor with nominal size 105 from Linde Hydraulics is used to drive the pump of a switchable all-wheel drive. This means that the four-wheel drive is only engaged if the situation requires it - unlike permanent four-wheel drive, this is more cost-effective.

This function extends the range of applications of vehicles without all-wheel drive. Road vehicles can now also drive on difficult terrain, such as construction sites.



[HMF with speed sensor](#)



Source: Company Linde Hydraulics

The sensor solution:

The sensor used to detect speed and direction of rotation had to be approved by the Federal Motor Transport Authority due to the range of applications. A RHEINTACHO sensor from the FC series is used.

The sensor electronics of the brass sensor used from the FC series is designed as a 2-channel Hall differential sensor. Due to a special brass alloy, the sensor is especially designed for high temperatures (up to 160°C) and higher pressure loads. Due to an intelligently designed sealing system, the brass sensor also achieves protection class IP69K.

The sensors of the FC series have an extremely tightly tolerance phase shift of 20°. Therefore, the sensor provides an extremely precise signal when detecting the direction of rotation and enables very sensitive control.

The FC series is available in various designs:

- with different connectors
- with different depths (30mm, 35mm, 45mm)



[FC Series](#)

RHEINTACHO is a flexible, highly efficient partner- wherever speed must be measured, monitored or indicated. Innovation, the most modern production techniques and equipment, meticulous quality control along with a first-class workforce are the corner stones of our company. For the past 114 years, Rheintacho has used his extensive knowledge and experience to developed sensors, systems and customized solution to meet the customer's requirements.