

Application-Report - Smart hydraulic drive with Shift in Motion and rotational speed sensor of the FC series

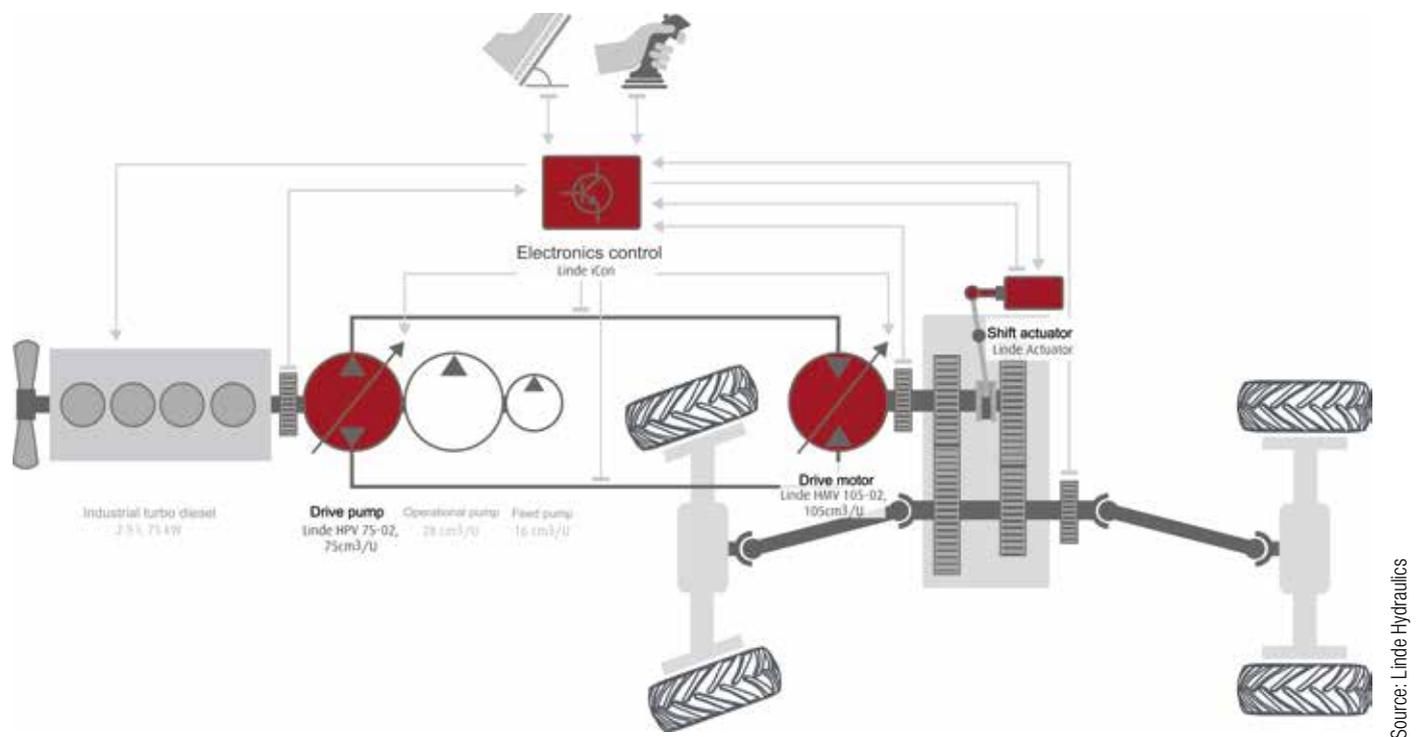


Task:

Normally, a vehicle with a standstill manual transmission must stop for shifting. This not only costs a lot of time - but also a lot of energy.

When shifting gears while driving, however, the advantages are obvious: in addition to saving time, the kinetic energy of the machine that remains in motion is still used and fuel consumption is reduced.

Therefore, in the higher gears, a high starting torque is no longer required. Because of this, the transmission ratio in the higher gears could be increased. This reduces the required revolution of the hydrostats and the diesel engine. This in turn allows the diesel to operate in a more fuel-efficient range.



Picture: Example of a telehandler with Shift in Motion



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Solution:

Work at low driving speeds, shift smoothly while driving and accelerate up to over 40 kilometres per hour - without any CVT or powershift transmission?

This is possible thanks to electro-hydraulic synchronisation with Shift in Motion from Linde Hydraulics. Extremely fast and precisely adjustable hydrostats, a shift actuator and an intelligent control unit take care of the adjustment. This eliminates the need for complex mechanical synchronization components.

Shift in Motion is particularly suitable for vehicles with a drive power of 40 to 300 kilowatts, which frequently change between transport and operation and drive at a maximum speed of more than 25 kilometers per hour.

The sensor solution - FC rotational speed sensors from RHEINTACHO

The sensor electronics of the FC series is designed as a 2-Channel Differential-Hall sensor. Due to a special brass alloy, the sensor is especially designed for high temperature resistance (up to 160 °C) and higher pressure loads. Thanks to an intelligently designed sealing system, the brass sensor achieves protection class IP69K.

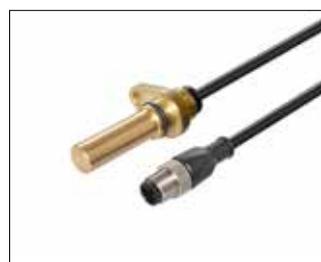
The sensors of the FC series have an extremely arrow toleranced phase shift of 20°. This is why the sensor provides an extremely precise signal when detecting the direction of rotation and enables very sensitive control.

The FC series is available in several designs:

- with different plugs
- with different insertion depths (30mm, 35mm, 45mm)



FC series



SDN3.FC07.E03B



SDN3.FC07.E05J

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 117 years, RHEINTACHO has used his extensive knowledge and experience to developed sensors, systems and customized solution to meet the customer's requirements.