









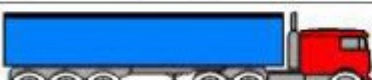



## Commercial vehicles with (pay)load measurement in wheel-ends having rotating outer ring bearings

To-day's load sensing/measurement system developments in vehicle wheel-ends focus mainly on car applications using specially developed bearing units with rotating inner rings. This bearing unit concept has strain-gauges/wires fitted in the inside or on the outside of the stationary bearing outer ring.

These strain-gauge sensors measure the deformation of the steel bearing ring at service conditions. As these output signals depend on Young's modulus, this sensor application is sensitive to hysteresis and temperature creep which require extensive hardware and software developments to compensate for this.

### TRUCK TYPE

	2 AX SINGLE
	3 AX TENDEM
	3 AX SINGLE
	4 AX SINGLE-TENDEM
	4 AX TENDEM-SINGLE
	4 AX SINGLE
	5 AX SINGLE-TRIDEM
	5 AX TENDEM-TENDEM
	5 AX SINGLE-SINGLE-TENDEM
	5 AX TENDEM-SINGLE-SINGLE
	6 AX TENDEM-TRIDEM
	6 AX TENDEM-SINGLE-TENDEM

Commercial vehicle wheel-ends use about 95% world-wide rotating outer ring bearings, the inner rings fixed with an interference fit on the stationary stub axle. At service conditions the inner rings will creep/rotate on the stub axle, consequently fixed strain gauges- /wires on the inner rings will be damaged and will fail.

Therefore the application of this sensor type is not possible for wheel-ends with rotating outer ring bearings. The (pay)load measurement in a commercial vehicle wheel-end should therefore be done differently.

**IS** works on the development of an idea/-system, how to realize accurate wired (pay)load measurement for driven and non-driven wheel-ends. This system should use as much as possible standard components, e.g. catalogue bearings, etc.. The overall system cost for the wheel-end modification and implementation should be relatively low.