



Customer  
Success  
Story

# Monitoring solution for linear axes prevents unplanned downtime

Hager is using the Schaeffler DuraSense lubrication monitoring solution for the first time on the linear axes in the large portal handling systems that are being developed for car body production at renowned automobile manufacturers around the world. The special machine manufacturer intends to use this solution to reduce unplanned downtime for its customers on their production lines.

### Benefits of DuraSense

- Early detection of defective lubricators and clogged or leaky lines.
- Predictable maintenance work and reduced workload for personnel.
- Longer-term planning of replacement part procurement and substitution.
- Extended time intervals for general overhaul.
- Unplanned downtime due to insufficient lubrication is reduced.



**Customer**  
HAGER GmbH, Möttingen  
(Sondermaschinenbau)  
**Sector**  
Automobile Industry  
**Application**  
Linear axes in portal  
handling systems  
**Solution**  
Lubrication monitoring

# What our customer drives ...

## Challenge

Hager produces portal handling systems weighing up to 90 tons for renowned automobile manufacturers. The maintenance, general overhaul, and assembly of the portal handling systems is undertaken by around 80 employees of the special machine manufacturer.

In 2012, the Möttingen-based company designed a new type of clamping frame replacement system for car production. The portal handling system, also known as a framer, moves vehicle clamping equipment (clamping frames) with the aid of linear axes. The monorail guidance systems used in the linear axes are counted among the system-critical components in the framer. If they fail, the entire production line is shut down. For this reason, the special machine manufacturer was searching for a monitoring solution that could not only be retrofitted to the linear axes, but which Hager could also use to optimize the general overhaul intervals. As a result, Hager decided to seek assistance from Schaeffler.



Production hall



For the development of the KFG3 framer, on which the Schaeffler DuraSense sensors were installed, Hager was awarded first place in the Central Innovation Program for SMEs.

### Customer

Hager has been constructing special machines primarily for renowned customers in the automobile and flat glass industry since 1982. Approximately 80 employees now work at Hager Möttingen. Hager is represented in Germany, the USA, Brazil, India, and China and operates worldwide with service partners.

### Technical information on the portal handling system

Clamping frame	6
Type	KFG3
Vehicles per hour 50	50
Short type changes per hour	11
Long type changes per hour	5
Weight	90 tons

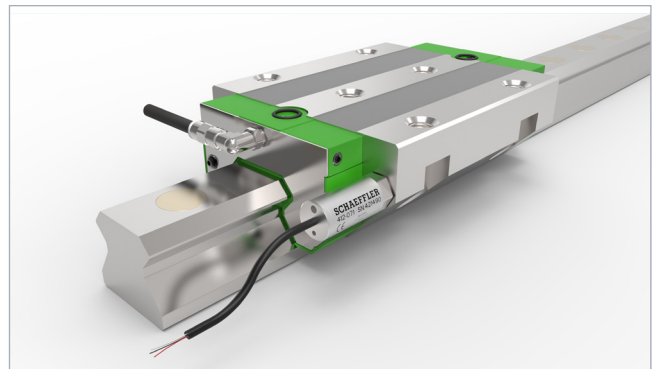
# 50

car bodies per hour can be produced with the portal handling system.

# What Schaeffler has to offer ...

## Solution

Schaeffler experts recommended Schaeffler DuraSense as a monitoring solution for the linear axes. The system comprises carriages with sensors developed specifically for this task and a pre-processing unit for up to seven sensors. The pre-processing unit is at the heart of the DuraSense and contains Schaeffler's rolling bearing expertise, evaluates the sensor signals, and generates an authoritative lubrication parameter. The vibration energy that is emitted by the carriage is influenced by aging lubricant or a decreasing lubricant quantity, and the Schaeffler DuraSense makes use of this effect. The determined lubrication parameter describes the current lubrication condition of the carriage and DuraSense sends a signal to the machine control system if the lubrication limit value is exceeded. Schaeffler DuraSense also detects the exact time for relubrication.



Schaeffler DuraSense constantly monitors the lubrication condition of the linear axes.



Schaeffler electronic evaluation system

## What's special

With Schaeffler DuraSense, Hager received more than a pure monitoring solution in the classic sense.

Schaeffler DuraSense can also be used in other sectors and, under certain conditions, can be retrofitted to existing systems.

### Information on Schaeffler DuraSense

Scanning rate	100 kHz
Analysis	Lubrication condition of each carriage/sensor
Sensors	Up to 7 acceleration sensors
Communication	I/O, Ethernet, Profinet IRT By agreement Modbus TCP, Ethernet IP, Powerlink
Measurement cycle	At least every 8 h (programmable)
Configuration	Via service setup tool

# 30%

lower lubricant demand thanks to intelligent relubrication impulses

