



**Vibration measurement at the vehicle**

**Non-contacting method of measurement using laser technology**

**Vibro-acoustical diagnosis**

**Calculation of powertrain unbalance**

**Calculation of unbalance correction**

**Retrofitting in existing roller test stands is possible**

---

## **Non-contacting balancing and diagnosis system for vehicles**

**Type EEJA**

### **Application**

The system is used for vibration measurement on complete vehicles during EOL tests in the roller test stand. The objective is to record vibrations caused by unbalance and assembly faults. Integration in the roller test stand typically takes place

between the rollers either of the front or rear axle. This allows access to measuring points on the powertrain near the rear axle or the gear box. The measured data recording and evaluation related to a speed frequency (e.g. drive shaft speed) allow not only a complete frequency analysis of the vibration signal

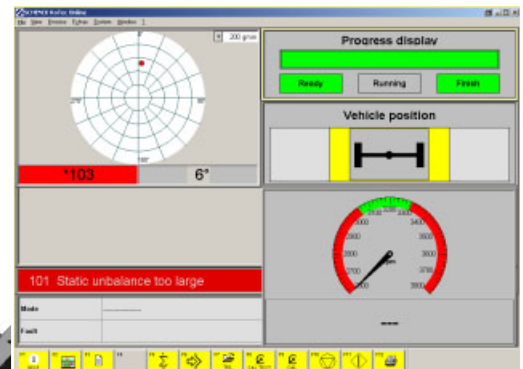
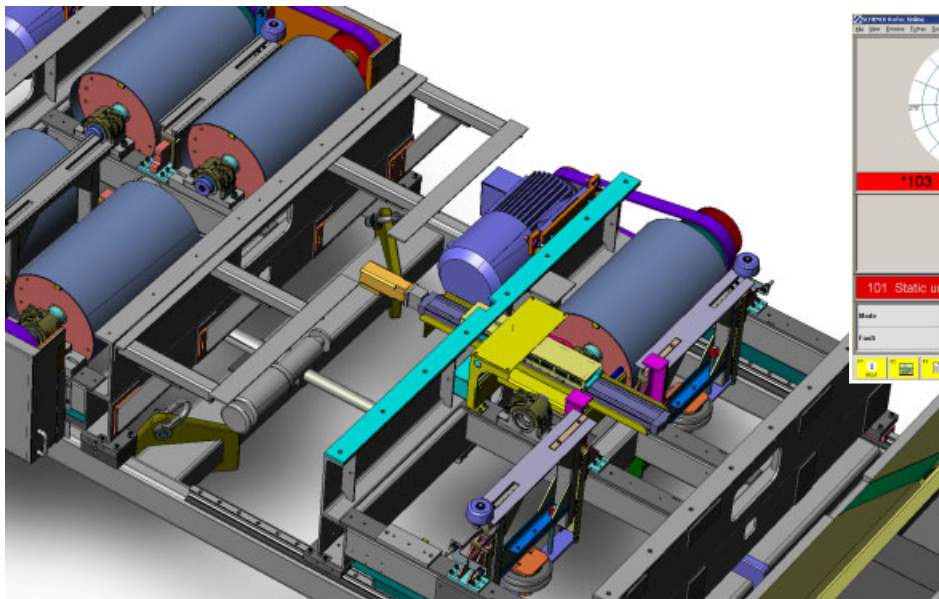
but also the determination of unbalance (e.g. of the powertrain). Correction of this unbalance using a wide range of different methods (e.g. attachment of weights on the flange between the cardan shaft and the differential) is calculated.

## Basic set-up

The measurement uses the principle of non-contact recording of the vibration using a laser vibrometer. In addition, the speed and/or angle are recorded by scanning a reference mark on a rotating part (e.g. on the cardan shaft). This non-contact measurement using lasers allows

the recording of vibrations parallel to other tests taking place without previous adaptation of measuring sensors on the vehicle. The laser measuring head is mounted in the roller test stand on an X-Y table. This allows different measuring positions to be approached automa-

tically. By measuring the vehicle position, the measuring head tracks the sideways movement of the vehicle. The connection with the control unit of the roller test stand enables the measuring task to be integrated in the automatic test sequence.



### Important data at a glance

Test specimen	cars on a roller test stand
Test method	signal analysis, unbalance
Unbalance correction	especially with attachment of weights on the flange between the cardan shaft and the differential



**Balancing and Diagnostic Systems**

SCHENCK RoTec GmbH  
Landwehrstraße 55  
D-64293 Darmstadt

Tel.: +49 (0) 61 51 - 32 23 11  
Fax: +49 (0) 61 51 - 32 23 15  
eMail: [rotec@schenck.net](mailto:rotec@schenck.net)  
[www.schenck-rotec.com](http://www.schenck-rotec.com)

Make use of our worldwide distribution network.  
Please see us at <http://www.schenck-rotec.com>