



Source: Mercedes-Benz AG

NEXT.assembly

x-3Dprofile

The innovative measuring system

x-3Dprofile responds to the increasing vehicle mix with a reliable and simple-to-parameterize solution which can perform more measuring tasks in an optimized cycle time.

Besides, the system requires very low maintenance, has a long lifecycle and is energy-saving.

Dürr combines the quality of the proven laser measuring technology with the measuring range of a camera projection system. x-3Dprofile works with stereo photogrammetry and laser lines with high light intensity to illuminate the tire to be measured.

These laser lines form a two-dimensional line matrix and can be switched individually.

CUSTOMER BENEFITS



Large measuring range for extreme vehicle mix with reference to track width difference, ride height difference and different tyre sizes

One sensor per wheel for measurement of the complete chassis parameters (toe, camber, height, castor, ...)

No need to align several sensors per wheel to each other

High measuring reliability due to the measurement being carried out with several separately generated laser lines

Technical Data

x-3Dprofile

RIDE HEIGHT MEASUREMENT

The edge of the wheel arch is illuminated with an additional LED strip for this purpose. The reflection edge caused by this will be evaluated by stereo photogrammetry which supplies three-dimensional coordinates for wheel arch edge, the ride height. These values can be considered in the wheel aligner, but also in the succeeding test and setting stations for driver assistance systems.

SAFETY

In addition to its extensive independence of surrounding lighting, it is the fail-safe reliability of x-3Dprofile that stands out. If one laser line fails, or even if several do, this is of little significance as far as the measuring result is concerned. With the Dürr process, measurements result from statistical evaluation of a multitude of measured lines. Thus, a high level of measurement accuracy is generated without unnecessary data collection.

FLEXIBILITY

The large measuring range is excellently suitable for extreme vehicle mix with reference to track width difference, ride height difference and different tyre sizes. Additionally, the sensor distinguishes itself by a faster availability for measurement and also by a measuring frequency that is twice as high in case of differential image algorithm.

STABILITY

The increasing conversion to alternative energies holds challenges, in particular for the automotive industry. Here, the sensor distinguishes itself by appropriate stability in order to prevent malfunctions by declining power system stability and increasing electric smog by using wireless systems.



Measuring system x-3Dprofile

TECHNICAL DATA

	Single-line sensor	x-3Dprofile
Accuracy*	Toe < 1 min Camber < 2 min *) Measurement at the calibration gauge	Toe < 1 min Camber < 2 min *) Measurement at the calibration gauge
Measuring range	2 sensors per wheel, Measuring range: 14" to 16" = {3"}	1 sensor per wheel, Measuring range: 14" to 20" = {7"}
Measuring procedure	Triangulation with one laser line	Photogrammetry with max. 40 laser lines
Laser protection class	2M, EN 60 825-1 (Euro Norm) 2, FDA/CDRM (US Norm)	2M, EN 60 825-1 (Euro Norm) 2, FDA/CDRM (US Norm)
Sensitiveness to external light	< 2500 Lux	< 2500 Lux
Measuring frequency	30 Hz complete picture	20 Hz in case of difference image method (40 Hz image)
Lifetime laser	> 7000 h	> 7000 h
Width of wheel alignment stand	Stand-off: 400 mm	Stand-off: 800 mm

Subject to change. The information in this brochure solely contains general descriptions and performance features, which may vary in specific cases of application. The desired performance features are only binding if they have been agreed upon explicitly at the conclusion of the contract. © Dürr 2022