

# x-wheel

## THE INNOVATIVE CHASSIS GEOMETRY TEST STAND



### Innovations

The Dürr wheel alignment stand x-wheel is subject to a permanent, further innovative development to optimize the process of chassis geometry setting as well as to adapt it to the requirements of modern vehicles.

### Tasks

Relating to a perfectly horizontal steering wheel position when driving straight it is necessary to accurately measure and adjust the wheel geometry in the area of angle minutes. The most important wheel geometry parameters are the individual toe angles, the total toe angles, the camber angles and the castor angles. The individual toe angles of the rear axle determine the driving direction of the vehicle.

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## Modules

- » The wheel supports which guarantee a rotation of the wheel without any lateral forces and toe and camber setting at the non-rotating wheel without any resistance.
- » The patent-registered wheel support positioning system which positions the vehicle without any contact (no lateral contact rollers at the tyres).
- » The wheelbase adjustment, which adjusts the wheel alignment stand x-wheel safely to different wheel bases (standard version: from 2300 mm to 3200mm).
- » The steering wheel balance "x-tronic balancer" which detects the steering wheel angle transmits it to the test stand control system (wireless). (see separate flyer x-tronic balancer)
- » The well-proven measuring system x contour based on laser triangulation and the innovative measuring system x-3Dprofile based on stereo-photogrammetry, which meets the highest flexibility requirements with regard to vehicle mix.
- » The setting system which guarantees exact, manual, semi-automatic or fully automatic toe, respectively camber setting, depending on the vehicle design.
- » The automation system x-line to control, visualize and store the measurement, setting and normal values in a data base and to connect with plant networks.

| Technical Data x-wheel   |   |   |
|--|---|---|
| Type of sensor   | x-3Dprofile   | x-contour   |
| Measuring range i.e. flexibility in relation to different tyre sizes | 1 sensor per wheel<br>Measuring range:<br>14" to 20" = (7")                         | 2 sensors per wheel<br>Measuring range:<br>14" to 16" = (3")                        |
| Measuring procedure  | Photogrammetry with<br>max. 40 laser lines  | Triangulation with one<br>laser line  |
| Measuring frequency  | 20 Hz in case of difference image method<br>(40 Hz image evaluation)                | 30 Hz complete picture  |
| Laser protection class   | 2M, EN 60 825-1 (European standard) 2,<br>FDA/CDRM (US standard)                    | 2M, EN 60 825-1 (European standard) 2,<br>FDA/CDRM (US standard)                    |
| Allowed homogeneous surrounding light                                | < 2500 Lux  | < 2500 Lux  |
| Accuracy *   | toe <1min<br>camber <2min<br><small>*) measurement at the calibration gauge</small> | toe <1min<br>camber <2min<br><small>*) measurement at the calibration gauge</small> |



## Quality

The wheel alignment stand x-wheel as well as each sensor of the chassis geometry measuring system are subject to a defined, internal test in order to meet the high customer requirements. Each wheel alignment stand is equipped with a calibration gauge which is used to transmit the single sensor coordinates to a common coordinate system. The calibration gauge can also be used to check the sensors of the measuring systems. The gauge itself is traceable to national standards when measured by a coordinate measuring machine. As an option a reference chassis frame can be delivered, which is able to present four different but set toe and camber angles with different

\* The photos or figures of the assembly and testing systems in the flyer are not showing the complete installation. The requirements of the machinery directive (2006/42/EG) will only be met by other supplementary scope of supply or - on delivery of uncompleted machines - those requirements must be fulfilled by the manufacturer of the (complete) machine. Flyer x-wheel, Version D

