



# Ultrasonic Testing System for Solid Axles

Solid Axle Testing System VWP-PD 2700/80-320



GMH Prüftechnik

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# Solid Axle Testing System

## VWP-PD 2700/80-320



### Brief description

During the production of axles an initial inspection for flaws and inclusions is performed at the end of the production cycle, usually in pre-machined status. This involves an inspection of the axles over their complete length to identify production faults using ultrasonic technology. In this process it is essential that there are as few areas as possible which cannot be tested and that modifications can be quickly performed, due to the large number of different axle types.

The ultrasonic testing system described below combines the ultrasonic testing requirements with the need for production transport of the axles, and caters for the enormous range of axle types and simultaneous short testing times. This can only be realized by a concept which optimally coordinates these factors and thereby determines flexible and efficient operation of the testing system. It is not important whether the axle is 0.3 m or 2.7 m long and whether

or not it has already shown surface contours, you can test them all. Combined with a 2D CAD interface which facilitates the modification and adjustment for other axle geometries, the testing system user has an extremely high-performing tool for the production of solid axles at his disposal.

Depending on the equipment, either conventional ultrasonic testing technology with individual probes can be employed or phased-array testing technology with corresponding test probes. The testing system obviously complies with all common standards and regulations and therefore also achieves certification for international high-speed transportation.

If required, this testing system can be combined with the hollow shaft axle testing system (HWP-PD 2700/30-90), thus creating a universal testing system for ALL axle types.

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### Technical data

#### Features

- Portal testing system with peak tensioning device and running water coupling (optional with oil coupling), requiring no immersion tank and simplest integration in the production line.
- High test speed, for short test times with high resolution
- Very short set-up and adjustment times due to 2D-CAD Interface
- Optimal support for the installation of new axle types
- Automatic evaluation of test results in accordance with valid standards
- Test results displayed as A-, B- and C- scans

#### Ultrasonic testing system

- Fully integrated 8 channel ultrasonic test system (conventional) or (optional) 8 x 16 = 128-channel phased array test system
- Test results displayed on a 22"-TFT-monitor
- Various access hierarchies always ensured by using passwords
- HELIX-scan for optimal test operation
- DAC – dynamic depth compensation
- Adjustable panels for the geometry

Number of ultrasonic probes heads	6/12
Incidence directions and angles	0° Volume (standard) or optional with phased array adjustable angle according to probe
Probe frequency	4 MHz (type)
Flaw resolution	≥ FBH 1 Volume test

#### Control system

- SPS (S7/300) assisted motor control switch
- Hydraulic peak tensioning device
- Fully integrated PC based drive and control system
- Automatic control of test operation
- 6-fold lance system with automatic calculation of the test area
- Minimum interference on the testing technology
- Direct move of scanner to indicators via C-scan

#### Automation and mechanics

- Stationary testing system for production application
- Portal test system with water coupling
- Hydraulic peak tensioning device for practically all axle construction types
- Lances principle for positioning the probes
- Integrated rotation drive with transducer
- Precision guide for probes on axle surface

Axle diameter	80 mm ... 320 mm
Axle length	300 mm ... 2700 mm
Repeat accuracy of the probe positions	± 0,5 mm
Travel resolution	± 0,1 mm min.
Test speed (type)	8 min/axle
Dimensions (w x d x h)	approx. 4000 x 1500 x 2800 mm
Weight (without deposit table and fluids)	approx. 3200 kg

#### Evaluation and operating software

- Operating system Windows 7/64 bit
- Efficient operating and evaluation software
- Very short set-up and adjustment times through
- 2D CAD interface
- Manual entry of test and sample data
- Clearly arranged presentation of important information
- Various display types A-, B-, C-scans
- 2D and 3D analysis
- Freely configurable assessment thresholds (subsequent modification possible)
- Various analysis algorithms
- Extensive zoom functions
- Direct move of scanner to indicators via C-scan
- Efficient report generator with various export functions
- Data back-up with USB device or LAN/WLAN
- Integration in the company network
- Connection to ERP system
- Remote diagnosis and offline analysis functions



GMH Prüftechnik GmbH  
Thomas-Mann-Strasse 63  
90471 Nuremberg/Nürnberg  
Germany

Phone: +49 911 48080-0  
Fax: +49 911 48080-79  
E-mail: [sales@gmh-prueftechnik.de](mailto:sales@gmh-prueftechnik.de)  
Website: [www.gmh-prueftechnik.de](http://www.gmh-prueftechnik.de)

