

BIP-Industrietechnik GmbH
Railway Equipment Services



**Ultrasonic Test
Equipment**



**Section Measuring
Equipment**



**Assembly And Dis-
assembly Of Wheelsets**



**Transportequipment
For Wheelsets**

Your goal is our challenge

Ultrasonic Test Equipment



Today's traffic density confers an important role to safety. Therefore investments in material test methods are rising.

We develop and manufacture complete automatic ultrasonic testing facilities, as ordered by our clients, or partial test equipment for quill shafts, full shafts and wheel disks. The ultrasonic probes are automatically guided to the test points in the ultrasonic units. We can offer both test equipment for mounted or dismounted assemblies. Our automated methods fail less than manual ones, as they are structured more precisely.

Ultrasonic test results may also be printed out as a generated graphic or diagram. This makes them clear to read for evaluation.



„Wiesel“ Test Unit (Fig. left top)

The Ultrasonic „Wiesel“ Test Unit allows e.g. to check wheelsets fully automatically for cracks in their structure or other stress damage, during a roll-over operation. Facts concerning „Wiesel“:

- Connecting to the moving train with self-propelled probe carriers with telescopic extension and retraction mechanisms
- Measuring cycle duration for one axle: 3 wheel rotations
- Unit installation without modifications to the existing track



Hohlwellenprüfstand (Fig. top)



Vollwellenprüfstand (Fig. left bottom)

Section Measuring Equipment

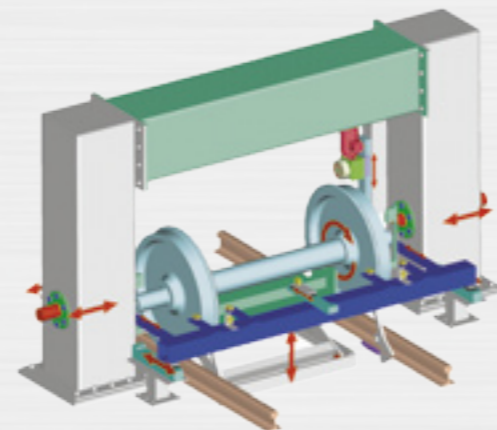
(Fig. bottom) As wheel section surfaces wear out due to friction with the rail sections, regular checks regarding the wheel disk sections are required. Information about the state of a structural component and possible damages needs to be as exact as possible, to estimate the remaining life time of safety-relevant assemblies, using damage research expertise and calculations obtained from material science.

Today tests in this area use modern laser equipment. It is important to guide the measured parts precisely and exactly in the measuring position. This is the only way to exact and faultless measuring. For this purpose we design and manufacture specific measuring devices.

Our section measuring facility provides the following information:

- Exact knowledge about component state
- Exact knowledge about damage
- Material science calculations

As a result, precise estimations of a remaining life time may be made for safety-relevant structural components.



Cleaning Benches (Fig. left center)

As a supplement to the test facilities we also offer cleaning benches to clean wheelset shafts at a preliminary stage to ultrasonic testing. These units may also be upgrades to existing test equipment. The automatic process after selecting the wheelset number is highly efficient and achieves the recommended cleaning level.

Assembly And Disassembly Of Wheelsets

Due to wear and material fatigue, parts of the wheelsets have to be replaced or rebuilt. We do this e.g. on our tyre removal benches. Here the wheel disks are separated from the actual wheel. We can design and manufacture such facilities in an automatic or half-automatic version. But also units to disassemble wheelset bearing housings or mobile lathes to machine sections are applied by us.



Advantages of partial automation (Fig. tyre removal benches, top) in this area are:

- Short cycle times of an average 15 minutes for a complete wheelset
- Parallel torch cutting and wheel removal by pressure by only one operator
- Partial automation of work processes, in particular flame cuts
- Noticeable improvement of working conditions
- Minimization of faulty production
- Significantly remaining below threshold limit values



But also mobile appliances to disassemble wheelset bearing housings have been used by us.

Transport Equipment For Wheelsets

Especially maintenance work often involves difficulties in handling wheelsets. Railway wheelsets tend to be heavy and bulky, due to their own load. This requires auxiliary equipment in the workshop to facilitate their handling.

Three different types of such work shop equipment exist:

Transport

Equipment to change the sense of rotation is applied here e.g.



Speicheranlagen

To work efficiently in large halls (service centres), the right material (wheelsets) should be available in the direct vicinity of the assembly or test place.



Warehousing

Wheelsets take up large areas in warehouses. If possible, room saving solutions need to be found.



Many of these processes may be automated and combined with monitoring facilities. Handling systems may also be connected with test and measuring equipment.

(Fig. Transport Equipment)





Executed Railway Engineering Projects

Extract

Ultrasonic Test Benches

- Full shaft test bench, Wittenberge DB Works
In cooperation with the Krautkrämer Firm
- Full shaft test bench, Neumünster DB Works
In cooperation with the Krautkrämer Firm
- Quill shaft test bench, Neumünster DB Works
- Wheelset crack detecting bench,
Eberswalde DB Works
- „Wiesel“ roll-over equipment – wheelset crack
detecting, Hamburg DB S-Bahn Works
- Ultrasonic cleaning bench, Wittenberge DB Works
- Ultrasonic cleaning bench, Neumünster DB Works
- Manual testing equipment for wheel disks

Assembly and Disassembly of Wheelsets

- Tyre removal bench, Dessau DB Works
- Axle bearing press, Dessau DB Works
- Removal appliance for axle bear-
ings, Cottbus DB Work

Transport of Wheelsets

- Wheelset turning/moving unit,
Wittenberge DB Works
- Wheelset storage, Wittenberge DB Works