



TP 1

Tire Measurement Reporting System[®]



Who's TireTech?



Innovative engineering

The TireTech GmbH was founded by Karl Staudinger and Bernhard Brain in 2019. Their core competence is the construction of special machines. It is the first company to offer an automated solution for the testing and evaluation of used tires and stands for:

Professionality

"We stand for technically sophisticated and interdisciplinary engineering know-how, always at the cutting edge of technology"

Expertise

"Over 25 years of industry experience us to become experts in the fields of special machine construction and automation".

Inventive Spirit

"Our passion is custom engineering. It inspires us to solve things differently, more simply, more effectively or better".

Process optimisation

"Our focus is on handling, automation and also straightening und control gauges construction - everything from one source from design to the finished product".

The new TP1 Tire Measurement Reporting System®



TP1 Basic module

With great passion the owners have developed in recent years a completely new machine that automates the "random" manual testing of used car tyres. The new and patented TP1 now checks the reusability for different qualities.

First overview

- System individually and modularly combinable
- Easy installation and operation
- Up to 75 % savings in personnel costs
- Machine can be used in multiple shift operation
- Efficient spreading with up to 400 tyres per hour
- Increasing the reusability of used tyres
- Each tyre is marked and logged according to quality
- Provable facts and traceable results at the end of the day

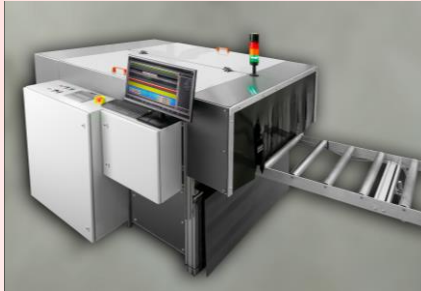


YouTube – Video TP1

https://www.youtube.com/channel/UCpvvCUyyp54mJ7TbDXb0FsQ?disable_polymer=true

Procedure basic module TP1

1. Feeding - conveyor belt



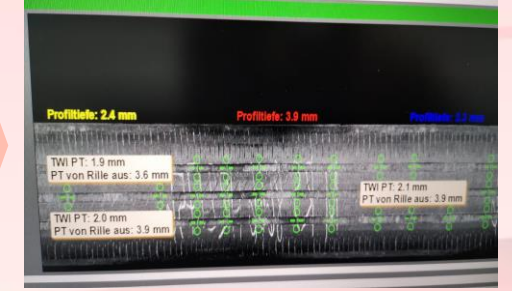
2. Feeding - Testing unit TP1



3. Testing process - evaluation TP1



4. Results - Logging TP1



- Testing of passenger car tyres with a width of 150 mm to 320 mm and a diameter of 14" to 21", which corresponds to approx. 400 mm to 750 mm
- Personalized quality inspections with different dimensions: Make, tread depth, tyre size, tread pattern, ContiSeal, snowflake, TWI, damage and if desired, DOT identification
- Technical performance data of the TP1 - The cycle time is approx. 8 to 11 seconds per tyre and depends on the number of defined quality tests
- Output of up to 3,000 tyres in an 8-hour shift is possible
- Daily logged evaluations of the quality inspection are given
- On the basis of the evaluations, the tires can be directly assigned to a modular, expandable rejection system, e.g. according to tread thickness, retreading or shredding
- The TP1 is produced according to German quality standards and in Germany
- Higher reusability also means lower environmental impact

Acting persons



A passion for engineering

Karl Staudinger and Bernhard Brain have known each other since their apprenticeship and are experts in their field. For more than 25 years they have been successful as entrepreneurs and have helped shape many new innovations and developments.

Joint expertise

- Establishment of own companies
- Positioning and establishment in medium-sized businesses
- Focus on handling, automation and gauges construction
- Own production in special machine construction
- Services around mechanical engineering
- Welding fixtures for automated production
- Robot welding systems for industry and automotive industry
- Special machines for the aircraft industry
- "Everything from a single source" from design to the finished product

Environment and responsibility



TireTech is a member of the ZARE initiative and makes an important contribution to the preservation of the environment. ZARE is an association of 12 in the Bundesverband Reifenhandel und Vulkaniseur-Handwerk e.V. (BRV) and certified waste tyre disposal companies.

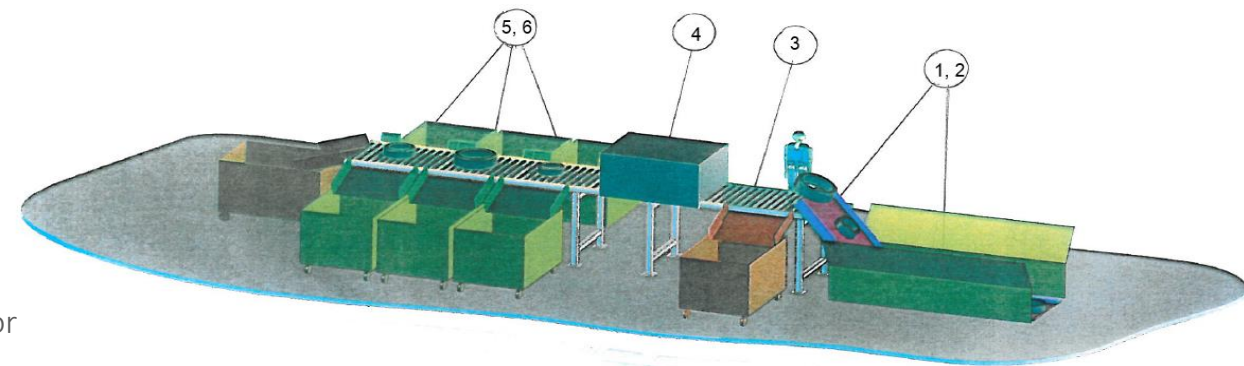
"We want to increase the awareness of professional tyre recycling in Germany and make drivers aware of the need to dispose of their used tyres properly. If used tyres still have enough tread depth, they are still usable in terms of quality. If only the tread strip is worn down and there are no other defects, the tyres can be retreaded."

- In Germany, around 80 million scrap tyres are produced every year, or around 600,000 tonnes; in Europe, the figure is as high as 3.2 million tonnes.
- Used tyres cannot simply be disposed of in household waste. Uncontrolled incineration releases chemicals and flue gases into the atmosphere, which places a heavy burden on the environment. Professional and responsible disposal of used tyres in compliance with the regulations is therefore absolutely essential.
- Since tyres are made of rubber and steel, the recyclable materials must be separated from each other. The first step is the shredding of used tyres into palm-sized pieces. The shredded tyre parts are easily separated from the steel using a magnet. The remaining rubber shredder is further processed into rubber powder. There are various applications for the rubber powder obtained: Sports ground construction, construction industry, carpet underlays, fences and many more.

Back Up

- Scheme
- Profile of the TP1

Scheme



Delivery of the used tyres by a truck in a container

- ① The tyres are poured from the container into the chain conveyor
- ② The chain conveyor transports the tyres to the horizontal belt / roller conveyor
- ③ The tyres are inspected/pre-sorted by an employee at the beginning of the horizontal belt / roller conveyor, or individual rejects can be discharged laterally

New process with the TP1 - automatic quality inspection and subsequent modulation

- ④ The separated tires are transferred via roller conveyor to the TP1 base unit, where the actual testing takes place. In front of the TP1 there is still a light barrier which indicates to the camera 1 which tire height (tire width) is currently being run in. The camera thus positions itself at one of the 3 designated heights

When the tyre has arrived in TP1 and is resting on the ball plate, this plate together with the tyre is slightly lifted and the tyre is centred by 4 rollers which move evenly towards the tyres. The tyre is then rotated by the two driven centering rollers by about one revolution to ensure a clean image recognition.

The image recognition is performed using SmartRay ECCO-3D cameras. The top camera (No. 1) scans the DOT, bead and tyre size. The tread is also equipped with such a camera (No. 2) to check the tread depth. Another optional camera (No. 3) scans the DOT from below. The tires have a DOT designation on one side only, therefore this recognition is necessary from both sides

With the help of the control system, the sorting selection is determined by the operator before the start, or even during the run. In the TP1 the tyres can be sorted according to make, tread depth, tyre size, tread pattern, DOT, ContiSeal, snowflake, TWI and damage.

- ⑤ After the test is completed in the TP1 (cycle time 8 - 11 seconds), the tyre is transported further, where it is discharged into the appropriate container
- ⑥ Tyres that do not fit into the test pattern or are out of tolerance are transported on the horizontal and fall into a container provided for this purpose, onto the floor or are transported to other areas.

Attachment profile

- The TP1 is designed for testing passenger car tyres of the following dimensions
 - width 150 - 320 mm
 - Diameter 14" - 21" this corresponds to approx. 400 to 750 mm
- Possible quality checks
 - Tread depth
 - Tyre dimensions (size according to tyre marking)
 - Profile course over the profile width
 - DOT both sides (top and bottom)
- Technical performance data of TP1
 - Cycle time (depending on the number of quality checks): approx. 8-11 sec/tire
 - Produces a throughput of 3,200 - 2,600 tyres per shift / 8 hours
- A tyre test "tread depth" is provided as standard
- If the options tire size and/or DOT are ordered as well, they are measured and qualified in one measuring and testing process, i.e. simultaneously
- Due to the different measuring methods, only minimal time adjustments are necessary, which then allow a cycle time of approx. 9.5 sec/tyre on average
With this, you usually achieve 3,000 tyres / 8 hours with 1-2 employees
- On the basis of the checks you desire/require, you also automatically control the rejection for further use, in the further course of the system flow after checking
- According to your possibilities, wishes and specifications, the TP1 can, as already mentioned, be optimally assembled on a modular basis, so that structural requirements in your buildings and places can also be directly incorporated
- The TP1 is a solid industrial design and made in Germany, also with regard to the components such as drives, controls, conveyor technology, measuring technology and design
- The TP1 is designed for at least roofed operation
- The TP1 is controlled via control cabinet and PC, which can also be operated in an appropriate container provided by the customer
- The evaluation/logging of the production takes place via printer at this control PC