

TBT Tire Burst Testing Equipment

- Water based burst testing compliant with all valid standards (i.e. ECE R 106)
- Environment friendly with water-management for re-use of water
- Total Safety CAT 4
- Burst testing
- Over pressure air retention testing
- Tire growth measurement
- Pressure flow measurement
- HPEX - early damage detection
- Full automatic process operation
- Test-wheel fixation without touching the ground
- Variable rim-disk concept for testing
- Systems for all tire categories available (2 wheelers, PC, LT, T&B, OTR, OTR MAX)



*Tire Burst Testing Equipment
(without safety housing)*

*Tire Burst Testing Equipment
with optional safety housing
(example: TBT for 2-wheeler tires)*



Altracon TBT is suitable to fill tires, which are mounted to rigid rims, with water to analyze them for the critical burst pressure according to the valid standards and to provide information for the failure examination and meets the latest safety and ergonomic standards.

The system consists of a water pressure management system, which is connected to the facilities water supply, one or multiple mobile wheel carrier, which will be placed and fixated in a test room for testing, rigid steel made test rims and a barcode reader with QM database system including a customized interface to register the tire. The systems water pressure management system includes a high pressure water pump, optional water conditioning if applicable and the necessary piping. A control PC cares for the control of the pressure provided by high pressure pump. The control process variable is the water flow. The pump control is in closed loop with a precision pressure measurement gauge.

The tire/ wheel assembly is connected with a tube to a water tap or a connector hub of the water management system for testing. The water tube is connected to the wheels valve connector.

The respective tire is mounted to its rim and to the mobile wheel carrier for testing. It is automatically controlled deflated to prepare the test. An injection lance is inserted through a second valve hole of the special test rim, alternatively is a hollow needle pierced radially to the tire through the tread if the system is used with a standard OE rim. It is to allow total deflating of the enclosed air while the tire is filled with water and protects with this against tire explosion. The injection lance respectively the hollow needle is equipped with a water level guard, which is connected to the control system. The pressure is measured in the tube system. The wheel carrier ensures that the tire does not touch the ground, which might affect the test result, and that it is securely fixated. This assembly may be prepared in a separate location.

When placed in the test room and connected to the water management the wheel/ tire is still deflated, which means that it is only filled with air without being under pressure. The burst test is proceeded and controlled automatically. The test starts by filling the tire with water. The remaining air is leaking from the inside of the tire through a deflating hose, which is connected by the injection lance or the hollow needle. The system recognizes by itself when the tire is completely filled. At this moment the filling procedure is stopped and the system switches to the test mode. The increase of pressure is done time controlled (pressure gain/ time). The rate is variable. The pressure gauge will measure the increasing pressure and pressure variations due to damage of the structure and finally the burst pressure. The values are recorded by the data acquisition system. The system will stop the test by itself after the tire burst. Maximum inflation pressure for testing is 35bar for the base unit, which is capable to test PC, LT as well as T&B tires up to 1200mm diameter.

ALTRACON HPEX, early detection of tire failure/ damage

ALTRACON TBT is capable to perform the usual functions of a totally controlled burst tester to examine the continuous pressure level ($p(t)$) and the burst pressure (p_{max}) according to the valid standards such as ECE R106. However, these tests and measurements only give a rating of the quality but don't provide measurements as suitable information for product development. The ALTRACON TBT is also equipped with HPEX, a High Pressure Expansion Measurement functionality and is with this enhanced to a tool which is of particular importance for the quality control. The complete evacuation of the air creates a highly precise measurement condition of the filling- and expansion volume in the tire. The system analyses the expansion characteristics of a tire by measurement of the pressure- and volume- variation during the filling process and with this indicates deviations in tire quality, which might be caused by variation in the production process or material quality as a possible cause for changing defect developments.

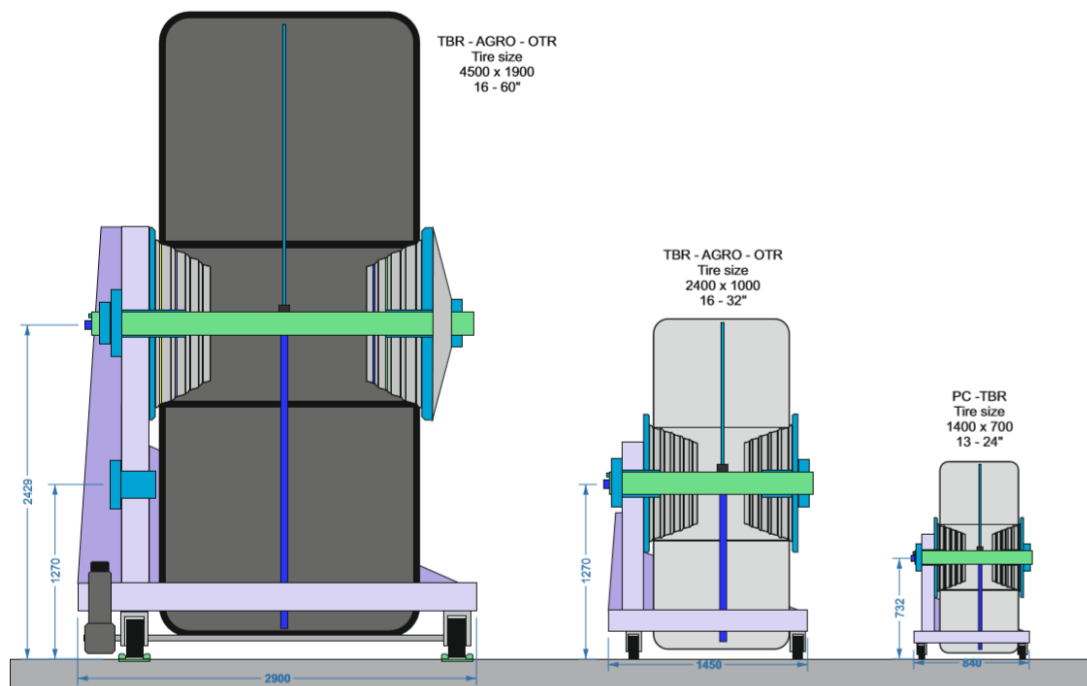
The measurement data taken during the filling process are used to process the analysis of the stiffness and the energy intake of the tire, which allows for a precise predication (fingerprint) of the tire in comparison to the series product. By means of monitoring the intrinsic line of the measuring data a deviation and early detection of the initial defect of the tire is offered prior to that it will burst.

With this fully controlled and automated recognition and early cut off during the pressure increase HDEX allows to do a failure analysis of the non-destroyed tire.

Test rims/ wheel fixation

PC, LT and TBR tires up to 1.500mm diameter are recommended to be mounted to test rims, which are then carried by a mobile wheel carrier for testing. The wheel carrier ensures that the tire does not touch the ground, which might affect the test result. It is securely fixated and adjusted. The assembly of wheel and wheel carrier may be prepared in a separate location before it is placed in the test room.

Tire adapter sets with pressure plates for tire intake, which will be mounted to a solid, non-spinning spindle are an alternative to test rims. They are available in all sizes and offer very flexible mounting in terms of width and diameter.



Tire adapter sets with pressure plates, available for all sizes

Larger diameter tires may be tested while hanging on a crane. This also ensures that the tire doesn't touch the ground. It may be fixated with tensioning ropes. Special test rims with eyelet rings are available on request. Other fixations are available i.e. for two wheeler tires.

Contact us to learn more about **Altracon** ● the solution provider