TIRES

TEST
INDUSTRY
TEST WITH THE BEST.

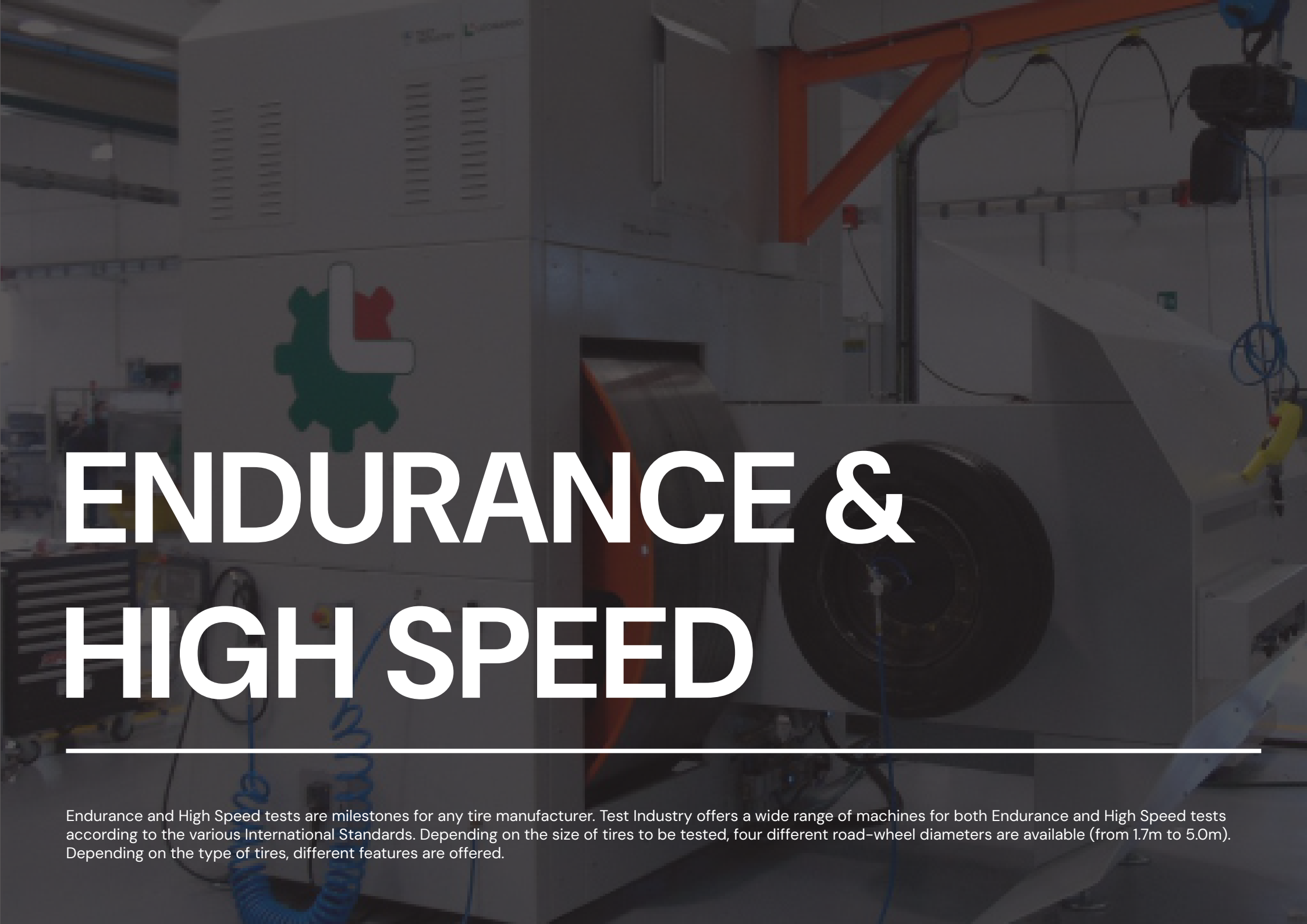
TIRE TESTING SOLUTIONS

Test Industry portfolio includes a complete range of testing and measurement solutions for tires destined to testing laboratories, R&D centres, and production lines.

Among the tests provided, we offer both dynamic test machines for Endurance, Rolling Resistance, Force & Moment, Uniformity, Tread Wear, Noise, and static test equipment like Plunger & Bead Unseating, Stiffness, Footprint analysis and more. Furthermore, in-line fully automatic machines for Uniformity, Runout and Unbalance are available for the tire manufacturing plants.

The accuracy and reliability of Test Industry machines allow to perform all legal tests required by the main International Standards like UN-ECE, ISO, FVMSS, SAE and those required for R&D purposes. A special attention is always dedicated to the new requirements coming from the market with a special focus on tires for Electric Vehicles nowadays getting more and more popular.

Test Industry testing and measurement solutions are available for all different type and size of tires including motorcycle tires, passenger-car tires, light-truck tires, truck and bus tires,



ENDURANCE & HIGH SPEED

Endurance and High Speed tests are milestones for any tire manufacturer. Test Industry offers a wide range of machines for both Endurance and High Speed tests according to the various International Standards. Depending on the size of tires to be tested, four different road-wheel diameters are available (from 1.7m to 5.0m). Depending on the type of tires, different features are offered.

ENDURANCE & HIGH SPEED

ENDURANCE & HIGH SPEED PC-TB

The machine can be supplied both for motorcycle, car and truck tire testing.
Two stations/one drum or four stations/ two drums configuration are available.
Stout structure of load station ensure high rigidity and proper alignment under load conditions.
The machine provided with full set of control such as inflating & monitoring pressure system and tire's bulge detection, temperature monitoring.

APPLICATION
Legal testing according to the test procedures of the different countries for MC, PC, LT, TB. Customized high speed and/or Endurance test according to the companies standard.

TEST STANDARD
FMVSS 109/119/139
ISO 10231, ISO 10191, 10454, 28580, 10191
SAE J1561, J1633
UN ECE R54, R64, R108, R109
GSO 53/2007, 02/FDS/646

TECHNICAL DATA
✓ Drum diameter: 1.7m
✓ 2 or 4 loading position / 1 or 2 drums
✓ Tire Loading: 0,5/2,5/10, tons
✓ Loading principle: hydraulic, electric
✓ Speed: from 120 km/h to 450 km/h
✓ 6th station with horizontal drum available

ENDURANCE & HIGH SPEED

ENDURANCE AGRI-OTR

The machine is suitable for Endurance Testing on Agricultural and OTR tires.

Pressure monitoring system, bulge detection and temperature controls are available.

APPLICATION
Legal testing according to the test procedures of the different countries for Heavy Truck, Agri & OTR Tires. Customized high speed and/or Endurance test according to the companies standard.

TEST STANDARD
UN ECE R106

TECHNICAL DATA
✓ Drum diameter: 3-5 m
✓ 1 or 2 loading position
✓ Tire loading: 25-160 tons
✓ Loading principle: hydraulic
✓ Speed: up to 80 km/h

ENDURANCE & HIGH SPEED

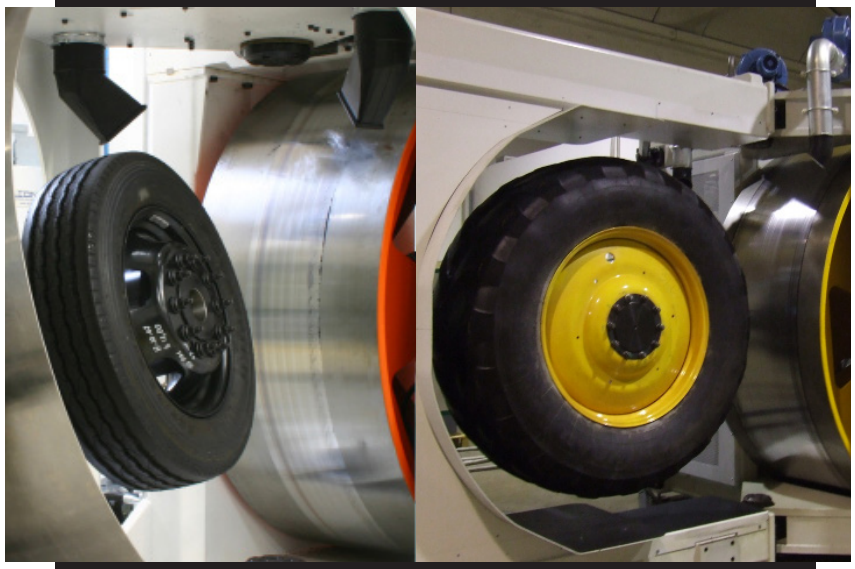
SLIP & CAMBER ENDURANCE PC-TB

The machine is studied to perform the Endurance test according to the most common standards for MC-PC-LT and TB tires with the possibility to dynamically control Slip & Camber angles during the cycle. Special configuration of pivot allow dynamic regulation of slip & camber without any need to separate tire from drum.
The machine presents a high rigidity and implements various controls. There is the possibility to provide the machine with a single/double station.

APPLICATION
Legal testing according to the test procedures of the different countries for MC, PC, LT and TB tires. Customized high speed and/or Endurance and/or steer and camber test according to the companies standard.

TEST STANDARD
FMVSS 109/119/139
ISO 10231, ISO 10191
SAE J1561, SAE J1633
UN ECE R30, R54, R64, R75, R106, R108, R109

TECHNICAL DATA
✓ Drum diameter: 1,7m
✓ 1 or 2 loading positions
✓ Tire Loading: 0,5/2,5/10, tons
✓ Loading principle: hydraulic or electric



ENDURANCE & HIGH SPEED

SLIP & CAMBER ENDURANCE AGRI-OTR

The machine is suitable for Endurance Testing on Industrial & OTR Tires. Different drum's size, pressure monitoring system, bulge detection and temperature controls are available according to various standards.

APPLICATION
Legal testing according to the test procedures of the different countries for Agri and OTR tires. Customized Endurance and/or steer and camber test according to the companies standard.

TEST STANDARD
FMVSS 109/119/139
ISO 10231, ISO 10191
SAE J1561, SAE J1633
UN ECE R30, R54, R64, R75, R106, R108, R109

TECHNICAL DATA
✓ Drum diameter: 3m
✓ 1 or 2 loading positions
✓ Tire Loading: up to 40 tons
✓ Loading principle: hydraulic
✓ Speed: up to 80 km/h

SIMULATION & CHARACTERIZATION

Indoor or laboratory testing of tires offers many advantages over vehicle outdoor testing. Advantages in test equipment capabilities and technologies available for defining and simulating meaningful tire behaviour has made indoor testing a reality. This is especially true when we talk about road simulation, tread wear, and simulation of take-off and landing when testing aircraft tires.

SIMULATION & CHARACTERIZATION

AIRCRAFT DYNAMOMETER

The Aircraft Dynamometer machine is capable to perform test program designed with multiple dynamic steps for loads, speeds, and time.
Machine is able to simulate the behaviour of the main phase of aircraft (take off and landing) in different conditions (i.e. Yaw motion, high acceleration & high speed,...).

APPLICATION
Legal testing is in accordance to the test procedures of the different countries. Customized take off and landing testing to the companies test standard.

TEST STANDARD
ITSO C629
ETSO-C62
ISO 3324
IS 10992
SAE AS 4833

TECHNICAL DATA
✓ Drum diameter: 3m
✓ 1 or 2 loading positions
✓ Tire Loading: up to 80 tons
✓ Loading principle: hydraulic or electric
✓ Speed up to 640 km/h
✓ Acceleration up to 12,5 m/s2

SIMULATION & CHARACTERIZATION

TREAD WEAR TEST

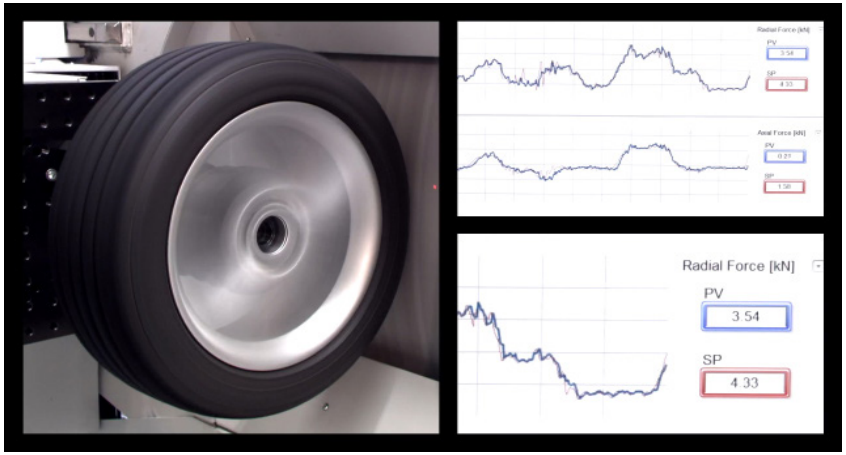
The machine, available for both PC-Lt or TB tires, has been developed for simulating generation of tyre and road wear particles (TRWP). The particles significantly contribute to the envirоonment pollution, so there is a big interest today in studying the composition and effects of TRWP on the atmosphere.
Using the machine in simulator laboratory allow to evaluate the abrasion of tire under realistic driving/braking conditions without the inference of road surface contaminants.

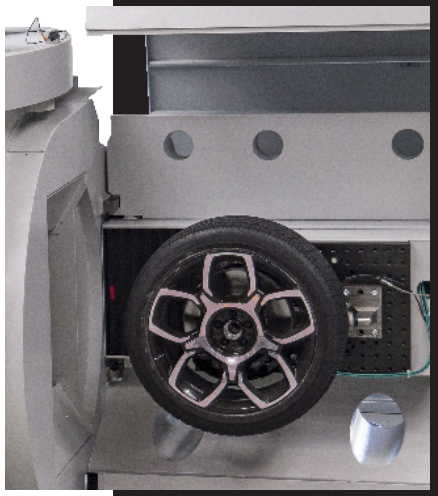
APPLICATION
Indoor generation of TRWP and evaluation of tyre wear following the international norms.

TEST STANDARD
ISO/TS 22638
TP-VTQG-W-01

TECHNICAL DATA
✓ Drum diameter: 3 m
✓ Testing positions: 1 / 2 positions for PC or TB
✓ Tire Loading: 2.5, 6.3 tons
✓ Loading principle: Hydraulic or electric
✓ Speed: up to 180 km/h
✓ Slip angle, camber angle automatic adjustable
✓ Intechangeable replica (drum linings)
✓ System for talc dosing and suction.
✓ Runout laser measurement as an option
✓ Tire axis with driving / braking torque application

ROAD SIMULATION





The machine, available for both PC-LT tires, has been developed for complete simulation of road behaviour of tire also in combination with original wheel-hub, wheel and brake.

The data acquired on a real track (like Formula 1 circuits) can be used as a test program on the machine

Slip & Camber angles can be controlled with very high dynamics.
Drive and braking torque is controlled (1g acceleration and brake).
Test positions enclosures available for a safe and thermically controlled test area.

The special design of the structure gives a very high rigidity to the loading unit.

APPLICATION
A most complete machine that allow to 100% simulate the real behavior on road of tire, wheel and hub for PC, LT and TB tires.

TEST STANDARD
Complete simulation including possibility to acquire data from wheel and replicate the track on the machine (i.e. Nurburgring). Force and moment standard.

TECHNICAL DATA
✓ Drum diameter : 1.7m, 2 m
✓ Testing positions: 1 / 2 positions
✓ Complete forces Fx, Fy, Fz and moment Mx, My, Mz
✓ Tire Loading: 1, 2, 2.5, 6.3 tons
✓ Loading principle: Hydraulic or electric
✓ Speed: up to 1 tons

SIMULATION & CHARACTERIZATION

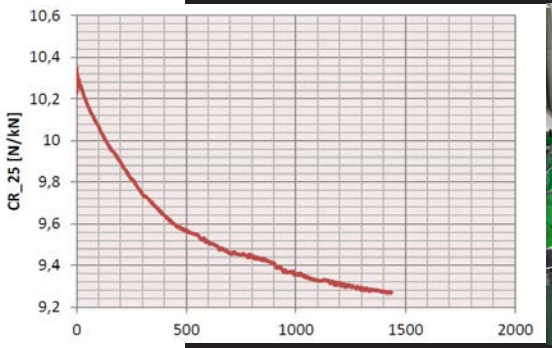
ROLLING RESISTANCE

An accurate measurement of rolling resistance is necessary because it's the most important parameter to evaluate the energy dissipation of tires.
Thanks to the high degree of accuracy, Test Industry machines are used as reference in the EGLA commission (Expert Group on Laboratory Alignment.
By special oil-lubricated bearings, a very low skim torque ensures to have an irrelevant influence of the parasitic losses on the RRC measurements,
Complete range of machine is available for high and low speed for PC, MC and TB tires.

APPLICATION
Rolling Resistance Test for MC, PC, Truck.
Legal testing according to the test procedures of the different countries.
Some machines are actually used a reference in round robin.

TEST STANDARD
ISO 28580, ISO 16377, ISO 9948, ISO 1816
R 117, GB/T 29042-2012
SAE J2452, SAE J1269, SAEJ1270, ECE 324

TECHNICAL DATA
✓ Drum diameter: 2 m
✓ Testing positions: 1 or 2 positions
✓ Test methods: Torque or force method
✓ Tire Loading: up to 10 tons
✓ Loading principle: hydraulic, electrical
✓ Very low skim torque (less than 10 Nm)
✓ High reproducibility (standard deviation <0,05 N/kN)
✓ Speed: up to 350 km/h
✓ Very low skim
✓ Bearing system for low skim



SIMULATION & CHARACTERIZATION

NOISE MEASUREMENT

The outbreak of E-mobility has made it essential to check the noise level of the tires. Test Industry machine is designed for an accurate measurement of the noise level of tire in different conditions of contact surface, speed, load, wheel torque. The tire can be tested alone using a loading station or while mounted on the vehicle.
The machine is available with up to 4 loading positions for PC, LT and TB tires. In case of 2 or more positions, the drums installed underground can be automatically moved in order to adapt their distance to the different vehicle's dimensions. The machine will be located in an anechoic room in order to create the perfectly silent environment.

APPLICATION
Noise testing according to the test procedures of the automotive companies and standard procedures.
Machine can be designed for test of stand alone tire or for test of tires on car.

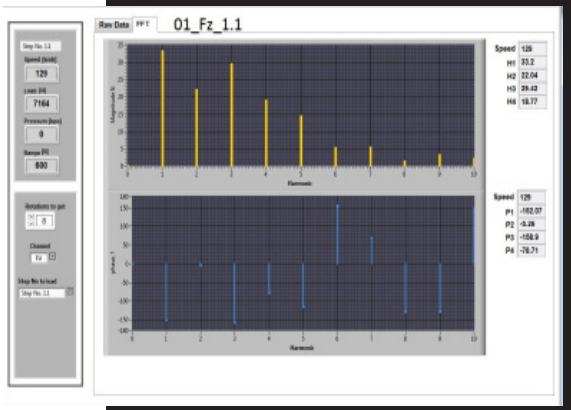
TEST STANDARD
ECE R117/RS1
ISO 13325

TECHNICAL DATA
✓ Drum diameter: 1,7m / 2m and 3m/ 1 or 2 drum
✓ Testing positions: 1 position/2 positions
✓ Force measurement device: Multiaxial platform
✓ Tire Loading: 1, 2, 2.5, 6,3 tons
✓ Loading principle: Hydraulic, electric
✓ Speed: Up to 250km/h

SIMULATION & CHARACTERIZATION

LOW SPEED UNIFORMITY

Different machines available for MC, PC, LT and TB tires. The machine is designed for laboratory to carry out tests under controlled conditions to verify the uniformity of tires. Post processing of data is performed by FFT analysis up to the 30th Harmonic for tire behaviour analysis. A special 3-axes measuring platform and the compensation of the tire unbalance allow the machine to reach a very high level of accuracy.



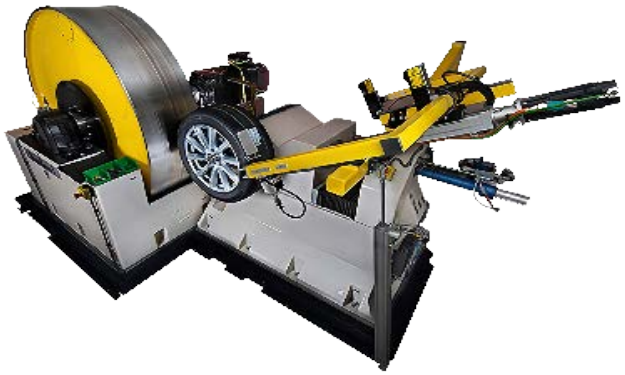
APPLICATION
OEM testing according to the test procedures of the automotive companies. Customized High Speed Uniformity testing to the tire manufacturers internal test standards:
Tire radial, lateral and tangential uniformity;
Tire unbalance.
Tire radial and lateral run out

TEST STANDARD
ISO 13328, ISO 23671, ISO 13326, SAE J2730, SAE J332, SAE J2731

TECHNICAL DATA
✓ FFT: evaluation up to 30th harmonic and angle
✓ Unbalance compensation: included
✓ Drum diameter: 1,7, 2 m
✓ Tire loading: up to 10 tons
✓ Speed: up to 150 Km/h

SIMULATION & CHARACTERIZATION

HIGH SPEED UNIFORMITY

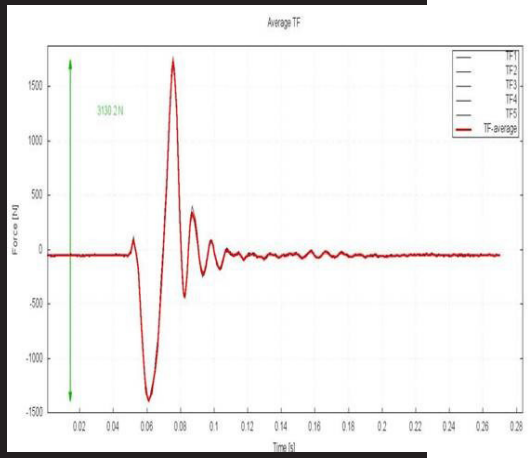


Different machines available for MC, PC and LT tires. The machine is designed for laboratory to carry out tests under controlled conditions to verify the high-speed uniformity of tires. A special heavy and stout structure ensures no influence on test results at high frequences. Post processing of data is performed by FFT analysis up to the 30th Harmonic for tire behaviour analysis. A special 3-axes measuring platform and the compensation of the tire unbalance allow the machine to reach a very high level of accuracy. Radial and lateral runout can be acquired by dedicated laser systems.

APPLICATION
OEM testing according to the test procedures of the automotive companies. Customized high speed uniformity testing to the tire manufacturers internal test standards:
✓ Tire radial, lateral and tangential HS uniformity
✓ Tire unbalance
✓ Cleat testing
✓ Tire radial and lateral run out

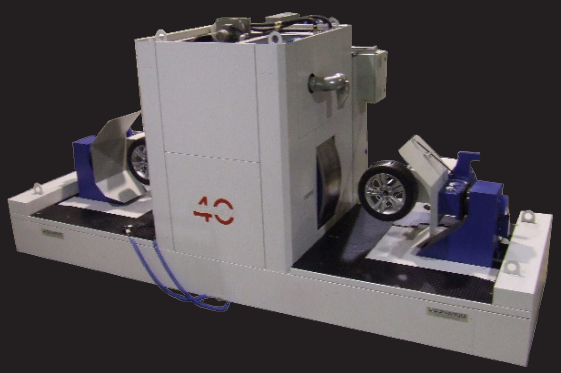
TEST STANDARD
ISO 13328, ISO 23671 SAE J2730, SAE J332, SAE J2731

TECHNICAL DATA
✓ FFT: evaluation up to 30th harmonic and angle
✓ Unbalance compensation: included
✓ Drum diameter: 2 m
✓ Tire loading: up to 3 tons
✓ Speed: up to 350 Km/h



SIMULATION & CHARACTERIZATION

FORCE & MOMENT



Different machines available for PC, LT and TB tires. The Force & Moment machine is used to evaluate the most important characteristics of the tire under different operation conditions. Complete forces and moments (6 components) are acquired by a special measurement platform to remove any possible noise.
A flexible PC program allows to set a complete range of tests such as Steady State, Dynamic Free Rolling Force & Moment Test, Sweep test, combined longitudinal and lateral test and more. Driving and braking forces tests (Slip Ratio tests) can be performed

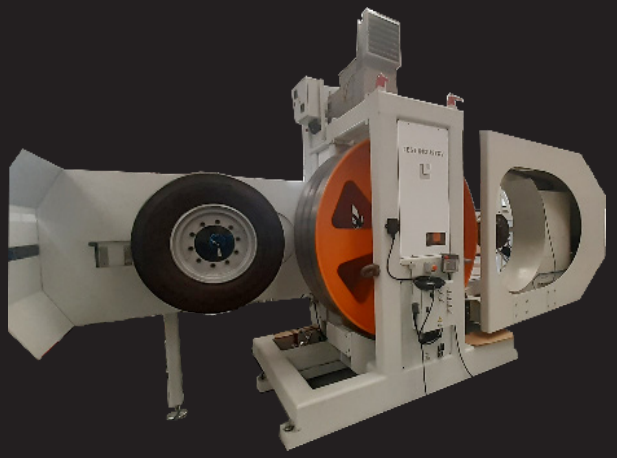
APPLICATION
Force and Moment tester for PC, LT and TB tires. SAE, ISO and OEM standard testing according to the test procedures of the automotive companies.

TEST STANDARD
Steady State and Free Rolling Force and Moment Slip Angle Sweep Tests
Sinusoidal Slip Angle Tests and radial deflection Tests
Driving and Braking Force Tests with Spindle Drive
Combined Longitudinal and Lateral Testing
Residual Self-Aligning Moment Test
SAE J1106, SAE J1107, SAE J1987, ISO 8855

TECHNICAL DATA
✓ Drum diameter : 1.7m, 2 m
✓ Testing positions: 1 / 2 positions
✓ Tire Loading: up to 10 tons
✓ Slip Ratio Test available
✓ Loading principle: Hydraulic or electric
✓ Slip angle, Camber angle, drive torque
✓ Speed: up to 400 km/h

SIMULATION & CHARACTERIZATION

MULTIPURPOSE



The multipurpose machine, available for PC, LT and TB tires, combines different tests in the same equipment. The machine is provided by 2 positions: one for Rolling Resistance + Uniformity measurements and the other for Force & Moment tests.

APPLICATION
Force and moment, rolling resistance and low speed uniformity test comply to international norms and to customer specific requirement for PC, LT, TB tire

TEST STANDARD
ISO 13328, 23671, 13326, 28580, 16377, 9948, 1816
SAE J2730, J332, J2731, J2452, J1269, J1270
R 117, GB/T 29042-2012 , ECE 324

TECHNICAL DATA
✓ Drum diameter: 2 m
✓ Testing positions: 2 positions
✓ Rolling Resistance: Torque or force method, low skim torque (less than 10 Nm), high reproducibility
✓ Uniformity Tire radial, lateral and tangential (fore-aft) uniformity; up to 30th harmonic and unbalance compensation. Force and moment, Slip Angle Sweep Tests
✓ Tire Loading: up to 10 tons
✓ Loading principle: hydraulic, electrical
✓ Speed: up to 450 km/h

SIMULATION & CHARACTERIZATION

DYNAMIC FOOTPRINT

The main purpose of the Dynamic Footprint machine is to carry out different footprint tests under drive torque, Slip angle and Camber angle to develop tires with better performance and longer lifetime. Different footprint acquisition devices (mechanical and optical) can be placed on the track for data acquisition. Different test procedures can be applied by a user-friendly software and HMI. Movements of the wheel spindle make it possible to have a compact-size machine. Machine available for PC, LT and TB tires

APPLICATION
Dynamic footprint and force and moment tester for PC, LT and TB tires.

TEST STANDARD
SAE J2704

TECHNICAL DATA
- ✓ 1 testing loading position
- ✓ Force measurement by platform
- ✓ Tire loading: up to 10 tons
- ✓ Loading principle: electric
- ✓ Speed: up to 4 km/h

SIMULATION & CHARACTERIZATION

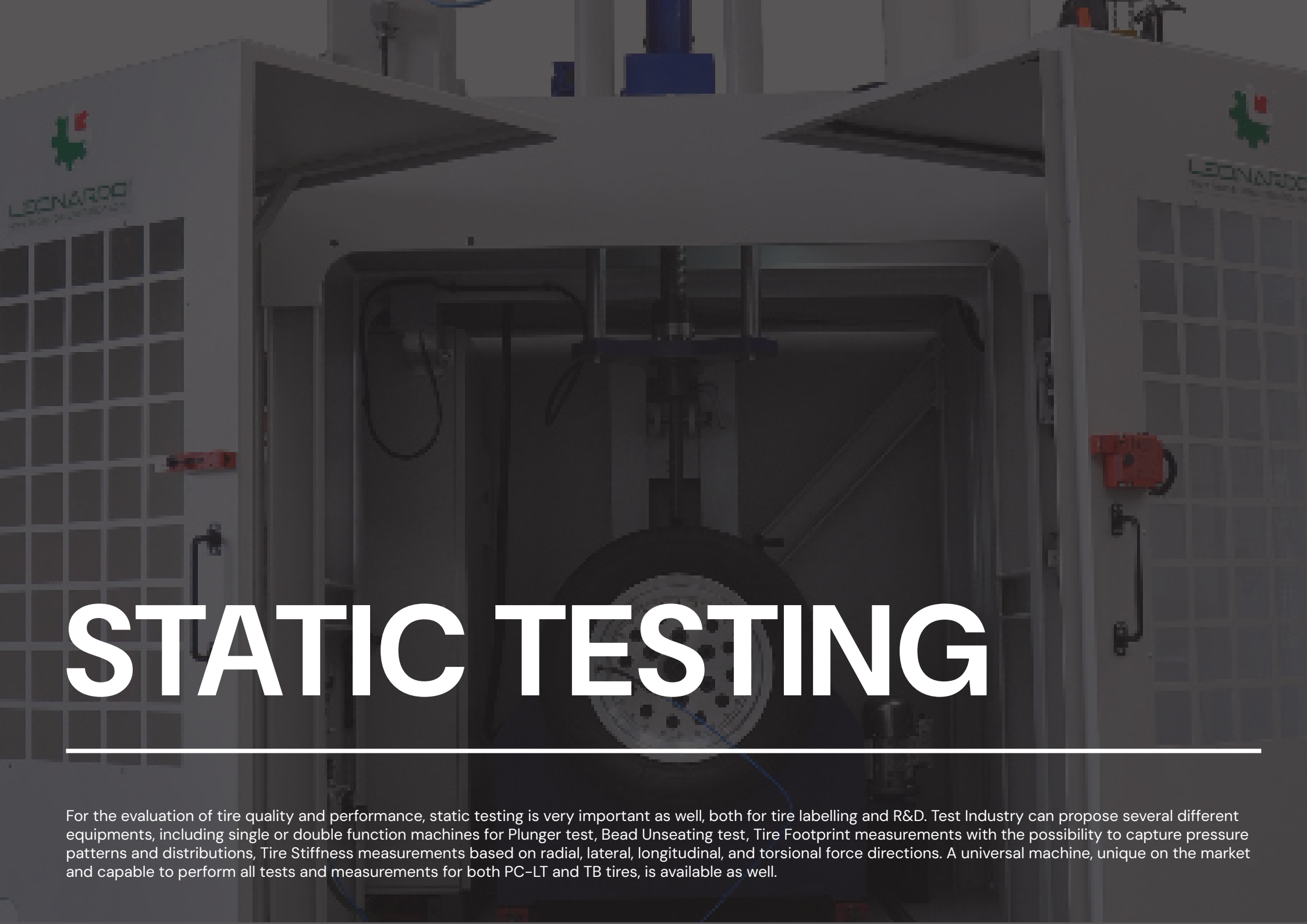
DYNAMIC GROWTH MEASUREMENT

Machine dedicated to test motorcycle tires as per UNECE-R117 regulation. The dynamic growth test checks the maximum growth of the tire under the influence of the centrifugal forces at the maximum speed capability of the tire.
By 3 LASER profilometers a complete section of the tire is acquire in a single shot; this system guarantees the execution of the test in a short time with high accuracy

APPLICATION
The Dynamic Growth test is a test for motorcycle tires and wheels with size from 8 to 30 inches.

TEST STANDARD
UN ECE R 75/324
ISO 10231
IS 15627

TECHNICAL DATA
- ✓ Sensors: high resolution 2D LASER systems on sidewalls (2 units) and treadwear (1 unit)
- ✓ Max speed up to 350 Km/h



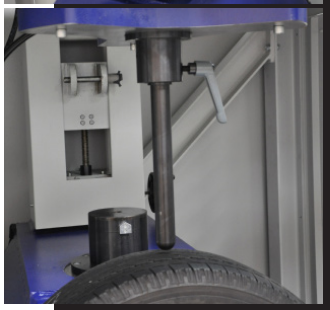
STATIC TESTING

For the evaluation of tire quality and performance, static testing is very important as well, both for tire labelling and R&D. Test Industry can propose several different equipments, including single or double function machines for Plunger test, Bead Unseating test, Tire Footprint measurements with the possibility to capture pressure patterns and distributions, Tire Stiffness measurements based on radial, lateral, longitudinal, and torsional force directions. A universal machine, unique on the market and capable to perform all tests and measurements for both PC-LT and TB tires, is available as well.

STATIC MACHINE

PLUNGER & BEAD UNSEATING

This machine allows to perform the plunger test for the calculation of the energy required to completely penetrate the tread area of an inflated tire, with the result of a damage, loss of inflation pressure, sudden drop in plunger force or bottom-out.
For PCR tires it's possible to integrate a bead unseating test rig, complying with the main international standards, in order to find out whether the tire is capable to keep assembled on the rim. By automatic wheel rotation and user friendly setup position the machine can speed up the test procedure.
The machine is protected by integrated safety fences



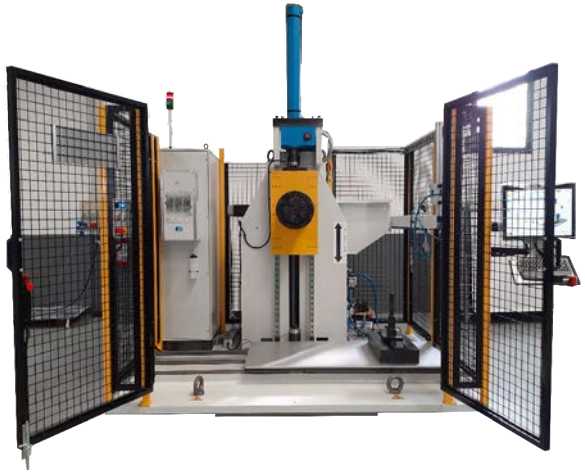
APPLICATION
The machine is suitable for Plunger and Bead unseating tire test. A complete series of interchangeable fixture can be supplied with the machine to cover all the international norms.

TEST STANDARD
JIS D4230, ISO 10454
FMVSS 2109, GSO 02/FDS/646
TC 82020, ASTM F414

TECHNICAL DATA
✓ Tire tested: PC, LT, TB
✓ Radial Load: 2 to (for PC-LT) or 10 ton (for TB)
✓ load principle: electromechanic
✓ Plunger position: on top of tire to easier setup
✓ Loading speed: up to 100 mm/min
✓ Tire pressure control: automatic
✓ Automatic wheel rotation (as an option)

STATIC MACHINE

STIFFNESS & FOOTPRINT



The machine is designed to perform the vertical stiffness measurements and the footprint analysis on PC-LT or TB tires, applying controlled radial load and tire pressure. The footprint acquisition can be performed by digital pressure mat, quoted as an option; dedicated post processing analysis calculates the most important parameters out of the footprint data acquired. Further test features can be supplied as options (plunger test, electrical conductivity test…), by a sliding table it's possible to make a quick setup of different measuring devices. The machine is protected by integrated safety fences

APPLICATION
The machine can perform Tire stiffness Test and Tire Footprint analysis (machine ready to accept electronic Footprint devices).

TEST STANDARD
ISO 10191
SAE J918

TECHNICAL DATA
✓ Load: 2, 10 tons
✓ Load principle: electromechanic
✓ Loading speed: up to 100 mm/min
✓ Tire pressure control: automatic
✓ Footprint acquisition: by sensor mat
✓ Plunger test: available as an option
✓ Automatic wheel rotation (as an option)

STATIC MACHINE

5-AXES STIFFNESS & FOOTPRINT

The machine is designed to measure vertical, longitudinal, lateral and torsional stiffnesses of a statically loaded non-rotating tire as requested by the main International Standards.
Data are suitable for use in determining parameters for road load models and for comparative evaluations of the tire measured properties in research and development. Accuracy of measurements is guaranteed acquiring all forces and moments by special load platform that eliminates any parasitic loss. Automatic Camber angle adjustment is provided.
The machine allows the integration of digital devices for footprint acquisition, and it's protected by integrated safety fences.

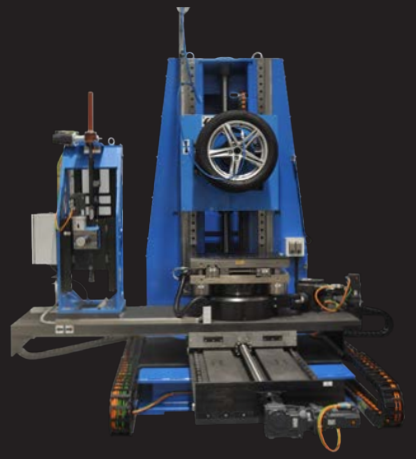
APPLICATION
The machine for multiaxial stiffness measurement and footprint test can be dedicated to PC-LT tires or TB tires. The machine can perform test cycles as per International Standards, or custom test programs according to the tire manufacturers requirements

TEST STANDARD
SAE J2718-2010 norm and by free settable as per OEM request.
FMT 408/2003

TECHNICAL DATA
✓ Imax radial load: 2 tons
✓ Load principle: electric
✓ Loading direction: radial, tangential, lateral and torsional
✓ Camber adjustment: automatic
✓ Tire pressure control: automatic
✓ Automatic wheel rotation (as an option)

STATIC MACHINE

UNIVERSAL STATIC TESTER



This solution combines in a single machine all static tests for PC, LT and TB tires, required by the international Standards. A special machine for industrial, agriculture and OTR tires is available as well. The complete machine is able to measure vertical, lateral, longitudinal, torsional stiffness, make the footprint analysis, perform plunger test, bead unseating test, electrical conductivity, Runout and loaded contour measurements, perform the cleat test. By automatic adjustments, the setup for different tests is easy and fast. Accuracy of measurements is guaranteed acquiring all forces and moments by special load platform that eliminates any parasitic losses.

APPLICATION
Legal testing according to the test procedures of the different countries. Customized stiffness testing to the companies test standards for:
Tire radial, lateral, longitudinal and torsional stiffness
Pressure map and Footprint characteristic
Loaded contour
Plunger & Bead unseating
Electric conductivity
Cleat testing (pitch cut test)

TEST STANDARD
GBT 23663-2009, GBT 4502-2009, ASM F1971
SAE J2705, J2704, J2718-2010, WDK_110

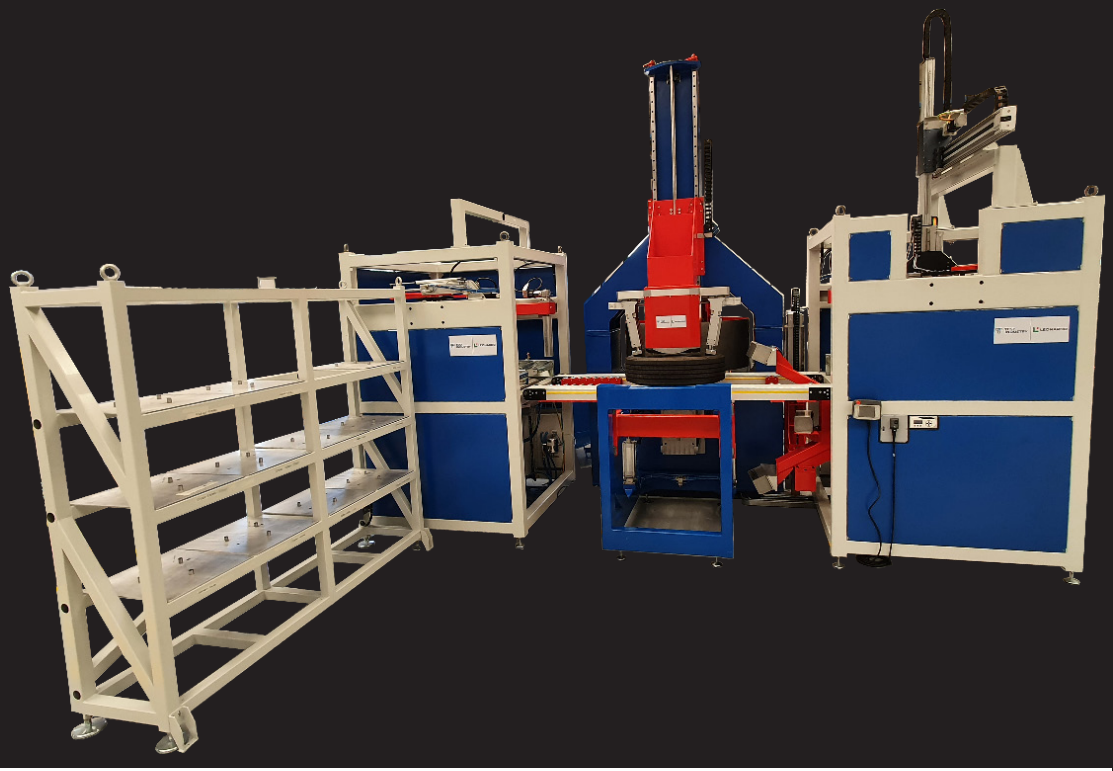
TECHNICAL DATA
✓ 1 loading position
✓ Forces & Moments: by measurement platform
✓ Radial Load:
up to 10 ton (for PC-LT-TB tires)
up to 40 ton (for Agriculture-OTR tires)
✓ Loading principle: electric
✓ Loading speed: up to 50mm/mm
✓ Automatic wheel rotation (as an option)

FINAL FINISH TIRE TESTING

With more than 25 years of experience on fully automatic equipments for production line in the Automotive industry, especially in alloy and steel wheel plants, Test Industry is capable to propose several different solutions for the final finish tire testing. The portfolio is now including an All-in-One machine for Uniformity, Static and Dynamic Unbalance, Geometry inspection, Runout measurements and marking of TB tires, as well as equipments with single or multiple station for each individual function covering both PC, LT, and TB tires.

FINAL FINISH TIRE TESTING

ALL-IN-ONE



Fully automatic machine including all tests required on in the final finishing area of the tire production line: Uniformity, Geometry (Runout) and Unbalance.
Suitable for integration in a "flexible" production line, the machine is coming with warehouse for the rims and robot for automatic rim changing; the machine automatically sets itself according to the model/size of tire coming.

The inlet conveyor is provided by tire lubrication system and DMC/Barcode readers for traceability and chaotic production managing.
High accuracy and high repeatability of the measurements is ensured by the integration of a special spindle.

On the outlet conveyor different marking systems, like the hot stamp marking device, can be integrated to mark the Unbalance point and/or the RFV point.
A double exit conveyor is available to separate OK and NOT-OK tires.
Predictive maintenance and remote assistance are integrated for a high level of efficiency in production line.

APPLICATION

Fully automatic Uniformity, Runout and Unbalance measurement of TBR tires.

Standard testing and OEM testing according to the procedures and requirements of the tire manufacturers.

Customized Run-Out testing according to the tire manufacturers internal test standards:

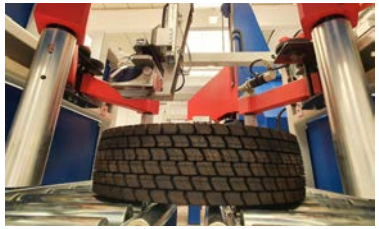
- ✓ Tire radial and lateral run out analysis
- ✓ RFV / LFV/conicity & ply steer
- ✓ Unbalance planes / couple

TEST STANDARD

ISO 13326

TECHNICAL DATA

- ✓ Tire tested: TB tires
- ✓ Setup: automatic as an option
- ✓ Tire recognization: by DMC reader on inlet conveyor
- ✓ Drum diameter: 1,6 m
- ✓ Tire load: 6,3 tons
- ✓ Takt time: <60 sec / tire
- ✓ Test performance: runout/unbalance/ uniformity



FINAL FINISH TIRE TESTING

UNIFORMITY & RUNOUT

The machines are designed to work in production line and measure the Uniformity of PC-LT or TB tires for a rigid control of the complete manufacturing process. The machines can be with single station (only for Uniformity) or double station (2nd station for Unbalance measurements). Geometry (Runout) measurements can be integrated as optional on the Uniformity station for a full quality control of the tire. A special spindle with interchangeable fixtures is designed to reduce the influence on the measurements. The machine is provided with lubrication system in inlet conveyor and a double sorting outlet conveyor for OK-NOK tire can be provided.

APPLICATION
Fully automatic Uniformity measurement of PC-LT or TB tires. Runout measurement as an option in the same station. Second station as an option for Unbalance measurement. Standard testing and OEM testing according to the procedures and requirements of the tire manufacturers. Main measurements are: - Tire radial, lateral and tangential (fore-aft) Uniformity - Tire radial and lateral Runout (optional) - Static/Dynamic Unbalance (optional in a 2nd station)

TEST STANDARD
ISO 13326, 13328
SAE J332

TECHNICAL DATA
✓ Configuration with single station for Uniformity
✓ Configuration with double station for Uniformity & Unbalance
✓ Geometry measurements always available as an option
✓ Drum diameter: 0.856 m, 1,6 m
✓ Radial Load: 2.5 ton (PC-LT tires), or 6.3 ton (TB tires)
✓ Takt time: depending on the configuration
✓ Drum diameter: 0.856 m, 1,6 m
✓ Max radial load: 1, 2, 2.5, 6.3 tons
✓ Takt time: 35 sec / tire

FINAL FINISH TIRE TESTING

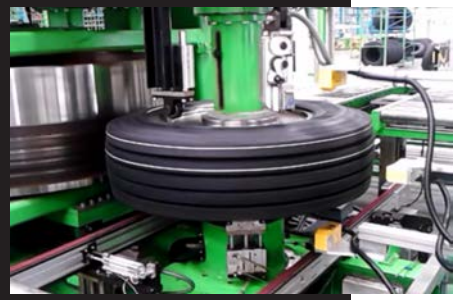
DYNAMIC & STATIC UNBALANCE

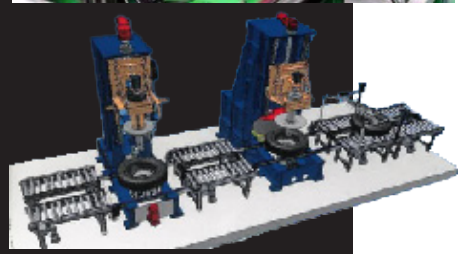
Machine is designed to work in production line to measure unbalance of tire for a rigid control of the complete manufacturing process.
Special spindle with interchangeable fixture is design to reduce parasistic unbalance. Machine is complete of lubrication system in inlet conveyor and a double sorting outlet conveyor for OK-NOK tire can be provided.
Hot stamping marking system can be integrated. Predictive manitenance and remote assistance are integrate for a high level of efficency in production line. Machine can be place in series to uniformity measuring one for a complete control.

APPLICATION
Fully automatic Unbalance measurement of PC-LT or TB tires. Runout measurement as an option in the same station.
Standard testing and OEM testing according to the procedures and requirements of the tire manufacturers.
Main measurements are:
- Static/Dynamic Unbalance
- Tire radial and lateral Runout (optional)

TEST STANDARD
ISO 13326

TECHNICAL DATA
✓ Spindle speed: 200 RPM
✓ Takt time: 35 sec / tire





FINAL FINISH TIRE TESTING

RUNOUT AGRI-OTR

Machine is designed to measure runout on AGRI and OTR tire.
The tire is lubricated and loaded manually by the operator or by the customer's robot.
The tire is clamped on a stout system with interchangeable flanges to adapt at different bead seat diameters.
Automatic tire inflation is provided.
Runout measurements are provided by 3 special LASERS for tread and sidewalls.

APPLICATION
Measurement of radial and lateral Runout for agriculture and OTR tires.
Standard testing and OEM testing according to the procedures and requirements of the tire manufacturers.

TEST STANDARD
ISO 13326

TECHNICAL DATA
✓ Tire tested: agriculture and OTR tires
✓ Spindle speed: 30 rpm
✓ Measuring time: 30 sec/tire

FINAL FINISH TIRE TESTING

INLINE LOW/HIGH SPEED UNIFORMITY FOR TWA

The machine is designed to work in production line to measure the High-Speed Uniformity on passenger-car tire-wheel assemblies (TWA).

Double sorting outlet conveyor for OK-NOK tires can be provided.

Predictive maintenance and remote assistance are integrated for a high level of efficiency in production line.

APPLICATION
Fully Automatic in-line high-speed uniformity on tire-wheel assembled.

TEST STANDARD
ISO 13326, 13328
SAE J332

TECHNICAL DATA
✓ Drum diameter: 0.856 m, 1,6 m
✓ max radial load: 2.5 tons
✓ Takt time: 25 sec / tire

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