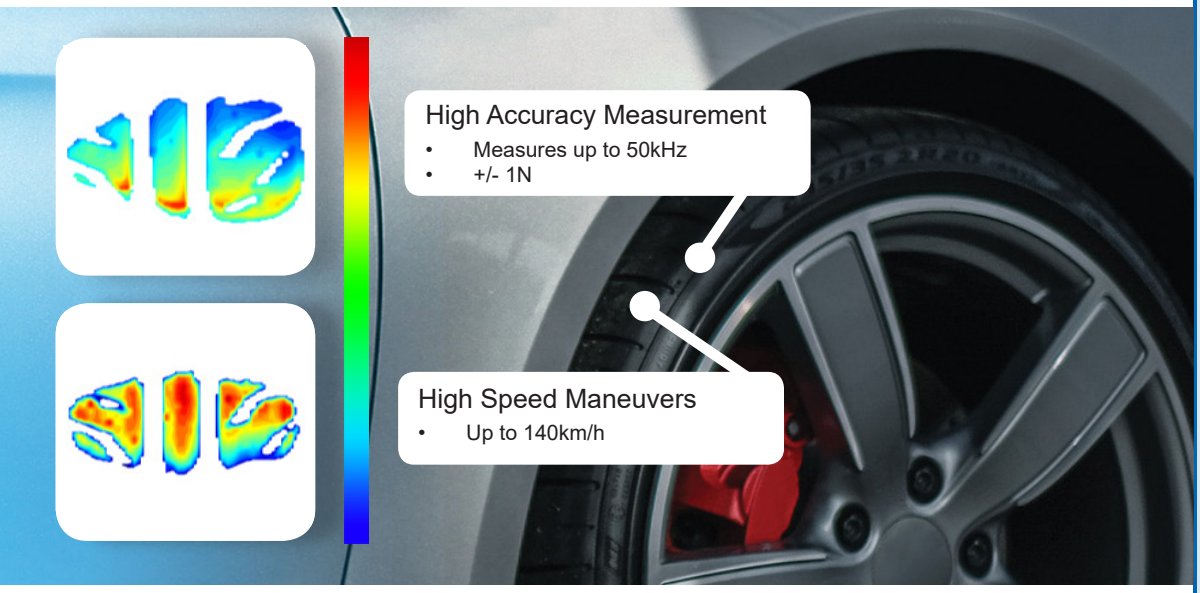
Dynamic Contact Force Rig

Tire Testing Evolution

A&D Discover Precision

DCFR

The New Standard in Tire Testing



A&D has developed a new, state-of-the-art tire testing technology, which allows for the measurement of dynamic contact force distribution at the tire patch.

This innovative technology: "The Dynamic Contact Force Rig (DCFR)," is a modified rolling drum machine with an embedded sensor array of small size (4mm x 4mm) 3-component force sensors called the Force Matrix Sensor (FMS).

As the drum rotates, the FMS passes through the entire contact patch, measuring the dynamic forces.

During each rotation only a small section of the contact patch can be measured. To replicate the dynamics over the entire contact patch, data from multiple rotations are captured and combined. This leads to a highly accurate representation of all three forces at the contact patch.

With this machine, A&D is paving the way for the next evolution in tire development.

Maximum tire speed	140 kph
Maximum load	10 kN
Slip angle	+/- 20 deg
Camber angle	-5→+30 deg

Benefits

- Measure all 3 components of force at the contact patch
- Measure 3 forces & 3 moments at the tire spindle
- Highly accurate measurement up to 50kHz and +/-1N
- High speed maneuvers of up to 140km/h

Highlights

- φ3.2m diameter drum simulates a near-flat road test environment
- Mechanical adjustments
  - Normal force
  - Camber angle
  - Slip angle
  - Longitudinal slip
  - Tire pressure
  - Drum speed
- A&D Force Matrix Sensor (FMS) built into drum
- Advanced rotation synchronization and slip ratio setting available

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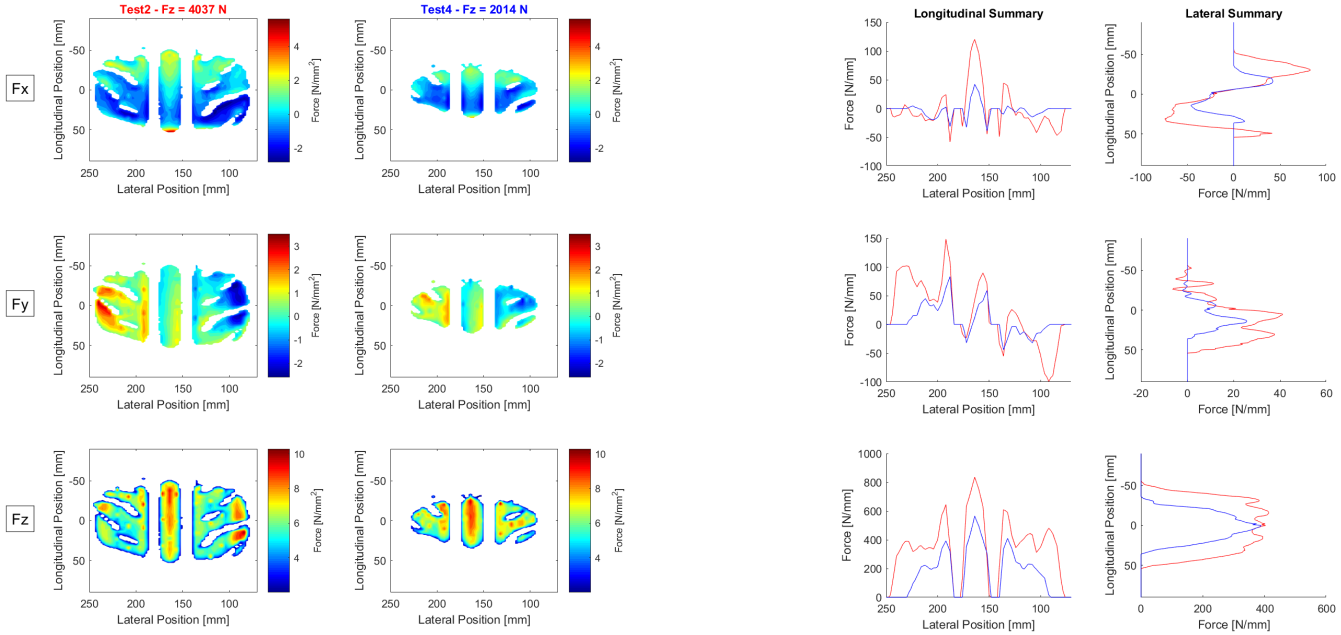

A&D is a global leader in tire testing and has worked to create high accuracy tire testing that is utilized by industry leaders in the development of tire technology. Having been a part of the global market for many years, A&D is now bringing our expertise to North America. Our product lineup includes flat track test rigs, rolling drum machines, tire stiffness testers, and on-board vehicle sensors.

DCFR

Dynamic Contact Force Rig

- Extremely accurate state-of-the-art technology
- Measure all 3 components of force at the contact patch
- Measure 3 forces + 3 moments at the tire spindle
- High accuracy measurement
  - Measures at up to 50 kHz
  - + - 1N
- High speed maneuvers (up to 140 km/h)

FBTR

Flat Belt Test Rig

- High response, high accuracy six component force sensor
- Exceptional belt driving straightness
- Superior belt flatness due to patented air bearing technology
- Belt crack detection sensor detects cracks at the edges and center of the belt to prevent damage to the test rig.
- Achieve user-desired test sequences with high flexibility

VMS

Vehicle Measurement System

- Completely modular
- Easily configurable for a specific applications (based on size and scale)
- Sensors include: Wheel Force Sensor, Wheel Position Sensor, Laser Ground Speed Sensor and Control and Data Logger
- Can be incorporated with third-party sensors

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