

## WHO WE ARE



TecSA S.r.l. has thirty years of experience in the field of braking system testing laboratories.

Our activities include the manufacture of new machinery and the revamping/updating of existing test benches.

Over the years, TecSA products have undergone continuous evolution and updating:

- PC, latest generation electronic and mechatronic solutions
- Increased performance, along with ease of use and high production yield.

The automation level allows our machines to work in safely conditions even in the absence of the operators. The tests can therefore also be performed at night or during the weekends.

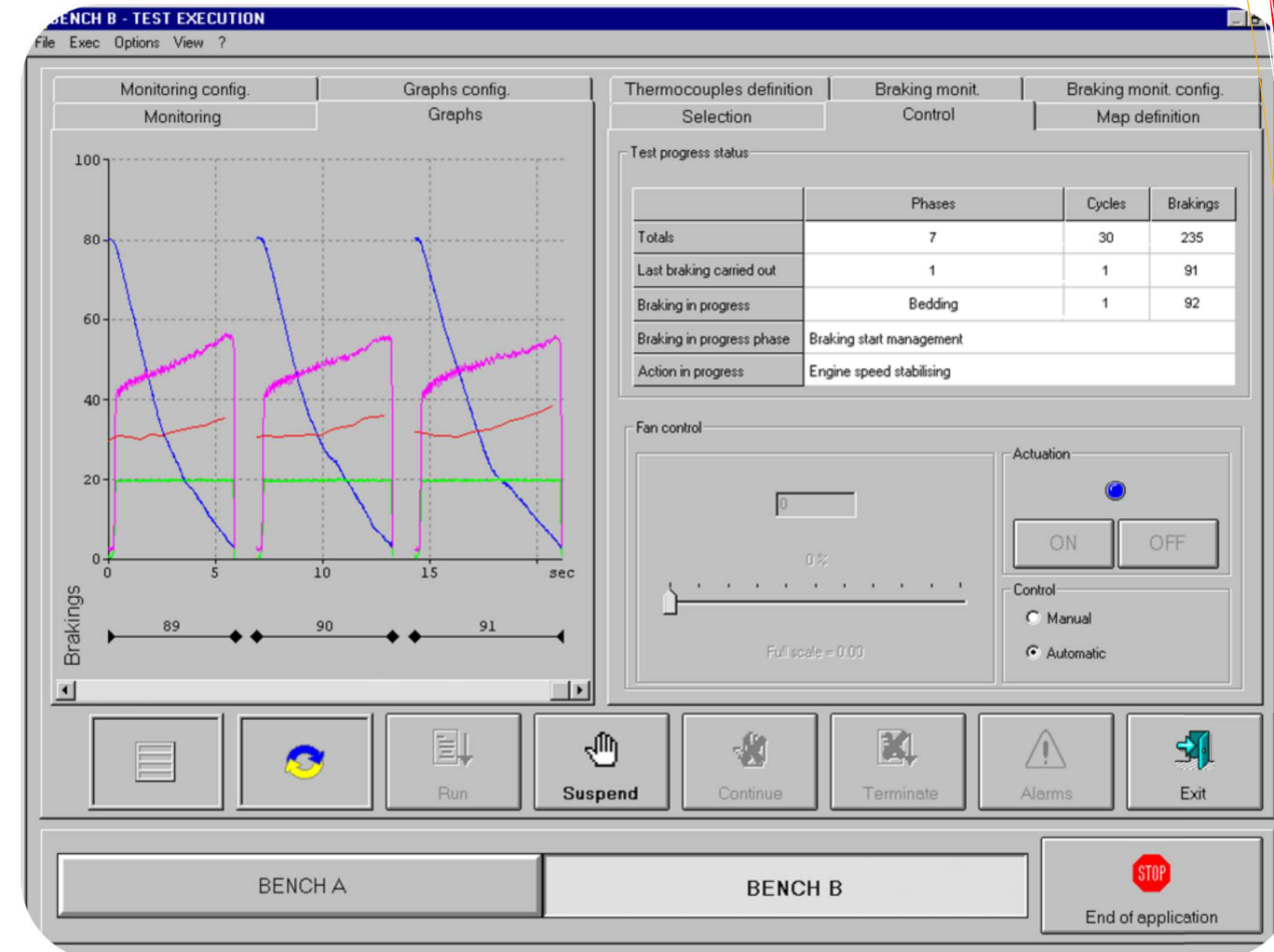
Several machines have been supplied for quality control and product development.

The main ones are:

- dynamometers for passenger and racing automotive sectors
- dynamometers for light commercial vehicle sector
- dynamometers for truck and railway sectors
- FQT (Friction Quality Test) for quality control and/or aftermarket development
- SST (Shear Strength Test) for detachment of friction material from the backplate
- Compressibility
- Alternate torque

Thanks to the close relationship established with its customers, TecSA has developed procedures that meet both international standards (including homologation) and research needs, with high flexibility and the possibility of customizing tests.

- Sprinkling on brake: water, salt water, snow
- Regenerative brakes (electric and hybrid vehicles)



## SOFTWARE FOR BRAKE TESTING MACHINES

- Test Bench Control System
- TecNAS

Brake  
Inertia  
Dynamometers  
For Research  
&  
Development,  
Homologations  
And your  
Special Test  
Purposes

## THANKS TO TECSA SOFTWARE PACKAGE, THE CUSTOMER IS COMPLETELY AUTONOMOUS IN DEFINING, MANAGING AND ELABORATING THE TESTS

TecSA Software can be installed in whatever operating system. Data entered by the user and the test results can be exported in .CSV format and imported in Excel or Diadem.

### THE COMPUTER SYSTEM ARCHITECTURE TO CONTROL THE DYNAMOMETER BENCH IS COMPOSED BY THREE LEVELS:

- First Level (optional): centralized management of the data archives and results analysis
- Second Level: supervision of the dynos, monitoring and results analysis. It is possible to use one or more PCs connected to a LAN that can be installed in different offices
- Third Level: control of the dynamometers, composed by a PC connected to a PLC and to a system based on DSP micro controller, that manages the activity in Real Time

### REAL TIME SYSTEM:

Real Time system is composed of NI cRIO with CPU and an expansion chassis and it is managed at 1 kHz frequency. Thanks to Real Time system it is possible to perform stops:

- in torque
- in pressure
- in deceleration
- in torque, by setting up the max. applicable value of pressure
- in torque, pressure and deceleration, with possibility to modify the control value during the braking
- in torque, pressure and deceleration, with possibility to apply trigonometrical functions
- with fixed or variable inertia according to the deceleration to simulate the transfer of the load on the vehicle (from back to front)
- with external handbrake
- static friction, hill hold, creep groan and sticking

### TECSA SOFTWARE AND TECNAS SYSTEM:

In particular, TecSA Software allows to perform:

- profiles simulation on road/WLTP: the dyno performs the brake applications of the vehicle on a circuit (typically used for the racing sector)
- regenerative braking/blending: the dyno replies the braking conditions of the electrical and hybrid vehicles, by adding the application of both the pneumatic and the electric brakes

TECNAS (TecSA Noise Acquisition System) provides each TecSA machines with two different capabilities:

- performance Tests
- NVH (Noise Vibration Harshness) Tests, to analyse the comfort of a vehicle

## TECNAS HARDWARE AND SOFTWARE

TECNAS hardware is composed by:

- 8 vibro-acoustic channels (24 bit, 110 dB dynamic field, 102.4 kS/s max. 45 kHz alias-free bandwidth, IEPE/ICP conditioning)
- 4 auxiliary channels at 100 Hz (pressure, torque, temperature, speed)



The **description of new test procedures** is particularly easy.

TecSA programs allow the user to individually define each braking by adding more than 200 parameters, to gather the brake applications in phases and cycles and to set-up the repetitions.

TECNAS software allows:

- three different buffers for FFT (1024, 20148, 4096)
- online calculation of FFT, noise/vibration, peak/frequency
- programmable threshold
- automatic generation of report
- audio file acquisition
- sound output for megaphone
- cascade post-elaboration



The **performance of new tests** is completely automated and the constant presence of an operator is not needed. A single workstation allows the monitoring (including remote control, via tablet and smartphone) of the activities of several machines and the transfer of the results to centralized databases.

**At the end of the test** the computerized system elaborates numerical results (values are subdivided for each brake application) and Time History data (acquired values according to the specifications defined by the user). Time History file is generated in standard format .CSV that can be read on whatever electrical device.

## OUR ASSISTANCE, ALL OVER THE WORLD.



### PROGRAMMED AND PREVENTIVE ASSISTANCE

Periodical inspection of our benches for:

- ordinary maintenance
- lubrication of bearings and mechanical components
- calibrations



### EXTRAORDINARY MAINTENANCE

Extraordinary maintenance is provided in three steps:

- Diagnosis of the problem and hotline/email assistance
- Remote control assistance
- On-site intervention, through the technicians of our assistance services subdivided in geographical areas



### REPLACEMENTS

All the spare parts are freely available on the market, to allow our Customers to reduce times and costs, by autonomously selecting their own suppliers and reducing/removing transport costs and customs clearance.

Our assistance centers, subdivided for geographical areas, have warehouses already provided with spare parts that, commonly, need periodical substitution:

- **electronical components:** PCs, control and acquisition systems, conditioning modules, transducers (pressure), etc.
- **electromechanical components:** fuses, drives, relès, contactors, thermals, etc.
- **items for periodical maintenance interventions**

