bapro

chassis dynamometers
Road Simulators

Technology as Passion

bapro

Road Simulators

Bapro is the only company totally dedicated to the development and production of chassis dynamometers/road simulators for cars and motorbikes.
The hardware and software design is carried out in house by our technician: this allows us to be independent from any third part supplier and to know exactly every working detail of our instruments.

Bapro is working continuously to the development of its products in both for the vehicles evolution and for the customers requests. We customize our instruments on specific requests and provide consulting services for the installation in the most suitable area.
Bapro offers the right solution to every needs: installation in the area chosen by the customer, installation on moving truck or trailer, installation with soundproof cabin and ventilation system.

Bapro road simulators are designed only in braked configuration by eddy current brake. That is the reason why all the hardware is designed to adsorb the vehicle power and therefore has characteristics of high resistance.

Our products differ from the competitors because they are designed as a complete tool: extremely sophisticated devices, but at the same time very simple and intuitive use by the end user.

The old generation dynamometers (inertial and the first generation braked) are confined to typical tests of a few seconds, that sometimes you can not run because of tyres slippage.

Bapro road simulators allow you to perform any kind of tests for as long as you desire. With Bapro road simulator you can perform all the tests and checks in real road conditions, without exposing the operator to risks arising from a road test (loss of license points, traffic, speed limits, accidents, weather conditions I.E.).

The tool integrates with the equipment already installed in the workshop to perform repairs in real-time, that could be impossible to complete on the road: you can obtain a significant saving of time and money by eliminating all the extra time to exit and entry the workshop.
Bapro road simulator satisfies the needs concerning in-service vehicles, which are subject to "inspection" with particular attention to the polluting emissions and noise levels of the exhaust systems.

Bapro road simulator allows to verify specific anti-pollution systems as catalytic converter and FAP filters (for car sector) and injection management systems for methane/LPG (both in original equipment and after market devices).

In order to improve the service level to the customers, this equipment will lead you to an increase of productivity by allowing you to reduce both reparation times and the level of customers' professionality.

Bapro road simulator allows to issue a delivery certification that testify the quality of the work done. This allows to the sales force to guarantee a unique and complete service to your final customers in a simple way.

Bapro road simulator is compliant to every laws in force and EC guidelines
On the commercial side Bapro offers specific solutions on demand.

BAPRO Technology as passion!

Bapro road simulator avoids the tires slippage and wear on the rollers

The worst limit of the chassis dynamometers is the tyres slippage. This phenomenon induces overheating, abnormal wear and above all wrong data outputs. Slipping tyres do not transmit power (let's think about driving on icy roads) and though the road simulator can not work properly.

Aware of that Bapro has engineered an outstanding mechanical design in order to overcome its competitors limits: with Bapro road simulators tyres never slipper.

This target has been achieved by working on various issues.

First of all big diameter rollers have been introduced; this leads to a bigger tyre patch contact on the rollers and a consequent lower load and heat.

Secondly a huge work has been done on increasing the "grip": the rollers are knurled with cutting tools. The resulting surface has much more traction if compared to traditional solutions (forming knurling) because the profile of the cut area is much more defined.

Another leading innovation is the transmission. The rollers on which the tyre runs are linked with a special HTD belt: the power transferred by the tyre is split into both rollers. The load is halved and though the slippage is greatly reduced. The power is not wasted and the tyres do not overheat and wear abnormally!

Technical differences among upgraded inertial benches and Bapro road simulators

The inertial bench is completely based on rollers inertia (directly related to its weight) and though it is necessary to ballast the rollers in order to run a decent test.
On one hand this is the reason why when you test low power vehicles you get too long runs with bad results; on the other hand high performance vehicles face the serious risk to run too short tests due to high accelerations that cannot replicate normal road conditions (even the ECU does not control the engine properly).

Adding a brake to an inertial bench has several implications.
Among them we can talk about the big problems with stiffness and rectilinearity and the more overload because of the rotors inertia. For these reasons little vehicles are disadvantaged.

The increased total weight influences the tests that can be performed because the rollers take much time to slow down. Some competitors use auxiliary brakes, but this is not exactly the right solution.
Moreover it is not possible to calculate exactly the wasted power of the transmission fundamental for calculating shaft power. This is the only one that counts!

Low levels of inertia on the rollers (Bapro design presents hollow and lightened rollers) and a joint work done by the brake and the electronic board are the optimal solutions.
This is the only way to adapt the load to all the possible conditions and to have the best control of the transient between low and high loads.
High levels of inertia prevents the test from having detailed results: it acts like a filter! Good results on the paper does not reflect good performances of the engine.

BPM 1-R

PERFORMANCE

Maximum Measurable Power 500 HP

Maximum Speed 330 km/h

Maximum Traction Force 5000 N

ROLLER KNURLED

Bapro is the only one to adopt the cut knurling that gives the best grip to the tyre.

HIGH STRENGTH STEEL FRAME

Allows to test high power heavy vehicles ensuring steady measures over time.

VENTILATION SYSTEM INTEGRATED WITH COMPUTER SUPPORT

Tubular frame,
long lasting structure and vibration-proofing.

BPM 2-R

PERFORMANCE

Maximum Measurable Power 550 HP

Maximum Speed 350 km/h

Maximum Traction Force 5000 N

HTD BELT TRANSMISSION BETWEEN ROLLERS

Toothed belt that distribute the vehicle power between the roller.

EDDY CURRENT BRAKE WITH LOAD CELL

Allows to perform load tests at fixed rpm.

TILTABLE RAMP MADE WITH GRATING WITH GAS SPRINGS

Built with high strength steel, it is light and strong.

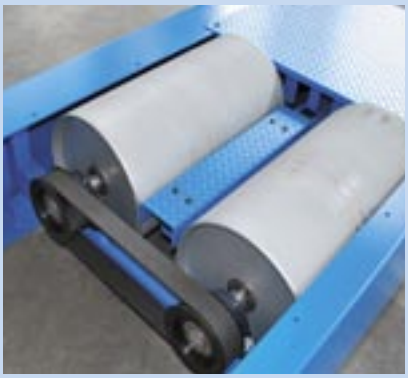
BPA 2-R

PERFORMANCE

Maximum Measurable Power 600 HP

Maximum Speed 360 km/h

Maximum Traction Force 8000 N



HTD BELT TRANSMISSION BETWEEN ROLLERS

Toothed belt that distribute the vehicle power between the rollers.

HIGH STRENGTH STEEL FRAME

Allows to test high power heavy vehicles ensuring steady measures over time.

CHASSIS DYNAMOMETER MANAGEMENT SOFTWARE

Allows to perform, save, compare and print the tests.

BPA 4-R

PERFORMANCE

Maximum Measurable Power 1200 HP

Maximum Speed 360 km/h

Maximum Traction Force 16000 N

VENTILATION SYSTEM MOVABLE ON WHEELS

Target power 4,4 kW, flow rate 40000 m^3/h allows to cool every vehicle.

EDDY CURRENT BRAKE WITH LOAD CELL

Allows to perform load tests at fixed rpm.

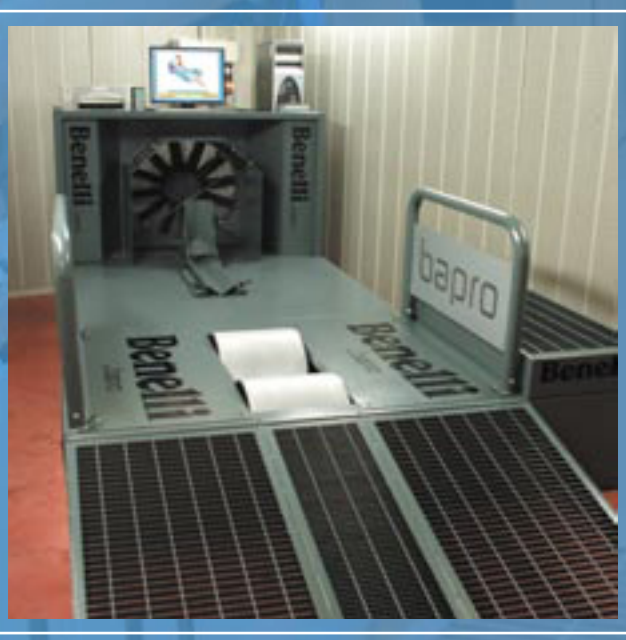
TRAVERSING

Long stroke, frame with high precision rails and carriages. Screw jacks actuator.

They trust us

DUCATI

Benelli



MOTOR HARLEY-DAVIDSON CYCLES
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