

## ROLLER AND EMISSIONS BENCH

### Room Characteristics

The room is fitted with an air-conditioning and air change system to maintain the room temperature in compliance the guidelines set forth in Directive 97/24/EC Chap. 5.

The room is accredited by the TÜV for performing type tests in accordance with directive 97/24/EC Chap.5 and subsequent amendments.

Highly specialised technicians are able to provide the customer with any kind of technical support.



## Bench Characteristics

The bench, supplied by ApiCom, comprises:

- One 150 HP eddy-current brake (to measure performances)
- One 50 HP electric brake (to measure emissions)
- One 602 mm roller complete with inertial masses
- Barometric control unit for environment data
- One front-end for connecting 6 K-type thermocouples, 3 pressure sensors, engine RPM sensor, 1 power signal.
- “XTWIN” SW for data acquisition and processing.
- “Driver Aid” SW for bench management
- “Analisi” SW for measuring emissions
- “TRX” SW for measuring performances
- Fisher Rosemount analysers, with computer-controlled digital control platform, conforming to requirements outlined in Directive 97/24/EC.

The uncertainty of the measurements made is described below:

Room temperature: $\pm 1^{\circ}\text{C}$	<i>Directive requires <math>\pm 2^{\circ}\text{C}</math></i>
Room pressure: $\pm 0.1\text{ KPa}$	<i>Directive requires <math>\pm 0.133\text{KPa}</math></i>
Relative humidity: $\pm 1\%$	<i>Directive requires <math>\pm 5\%</math></i>
Roller speed: $\pm 0.12\text{ Km/h}$	<i>Directive requires <math>\pm 1\text{ Km/h}</math></i>
Brake torque: $\pm 0.25\%$	
Inertia, equivalent masses: $\pm 1\%$	<i>Directive requires <math>\pm 2\%</math></i>
Distance covered: $\pm 0.2\%$	<i>Directive requires <math>\pm 10\text{ m}</math></i>
Vol. gas: Venturi 50= $\pm 0.326\%$ ; Venturi 100= $\pm 0.181\%$	<i>Directive requires <math>\pm 3\%</math></i>
Concentration CO Diluted (Infrared analyser): $\pm 2\%$	<i>Directive requires <math>\pm 3\%</math></i>
Concentration HC Diluted (FID Analyser): $\pm 2\%$	<i>Directive requires <math>\pm 3\%</math></i>
Concentration NOx Diluted (FID Analyser): $\pm 2\%$	<i>Directive requires <math>\pm 3\%</math></i>
Concentration CO corrected (Infrared analyser): $\pm 2\%$	<i>Directive requires <math>\pm 3\%</math></i>
Sample gas: $\pm 2\%$ cylinder value	<i>Directive requires <math>\pm 2\%</math></i>



## Accessories

A series of accessories are available for carrying out research and development:

- Axial fan for simulation of wind speed corresponding to that of the motorcycle being tested as outlined in directive 97/24/EC Chap. 5 (max speed = 130 Km/h).
- Tecnotest 5 gas portable analyser (CO, CO<sub>2</sub>, HC, O<sub>2</sub>, NO<sub>x</sub>).
- Equipment for measuring consumption with volumetric method conforming to that outlined in ISO 7859.
- Sample gas system for checking setting and calibration of analysers (3 different concentrations per analyser).
- Pneumatic pulsator for conditioning of silencers conforming to that outlined in Directive 97/24/EC Chap. 9.