

AUTOMOTIVE SECTOR



opus
automazione

INTRODUCTION

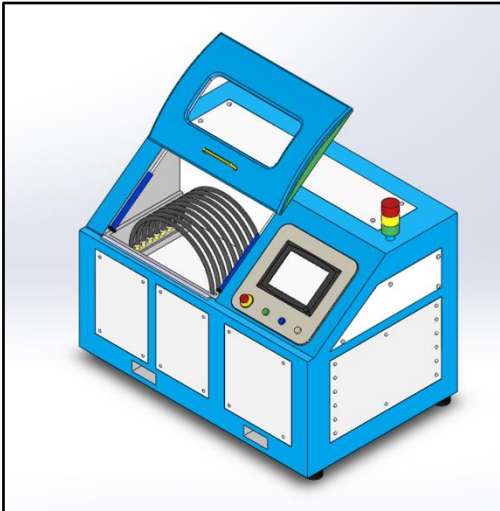
opus automazione S.p.A manufactures standard and customized test benches, which satisfy the test specifications requirements of the most important carmakers.

opus has been producing for twenty years test benches for a wide range of products and other kind of test benches for example exhaust gases analysis both diesel and petrol engines.

A standard test benches overview is shown in this catalogue.

INDEX

- ② Pulses test bench
- ③ Burst test benches
- ③ Volumetric expansion test bench
- ④ Vacuum brakes pump test benches
- ④ Defects analysis test bench
- ⑤ Pumps test benches
- ⑥ Brakes test benches
- ⑥ Hydraulic systems test benches
- ⑦ Dashboards efficiency test benches
- ⑧ Inertia tensors test benches



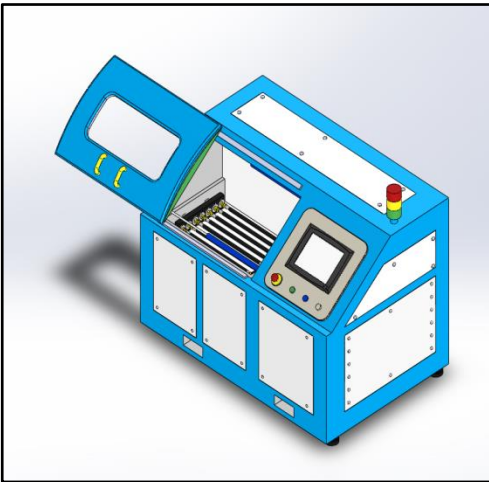
Pulses test bench

Description

The pulses test bench is used for the fatigue stress of flexible pipes addressed to different uses (pipes for oil, gas fuel). Tests carried out by the bench meet the requirements of the most important carmakers.

Main technical data

- Maximum working pulse rate: 1 Hz
- Maximum working pressure: 300 bar
- Pulses profile: square-wave, sawtooth, sinusoidal, free programmable
- The pressure profile generation takes place by valves suitable for pressures up to 350 bar
- Temperature of test chamber: -40 °C to +180 °C.
- The machine can be customized with special or standard hydraulic connections (SAE, ISO, etc.)
- CO₂ fire extinguishing system inside the chamber
- Pressure multiplier system which avoids the contamination of pilotage hydraulic oil with the test oil



Burst test benches

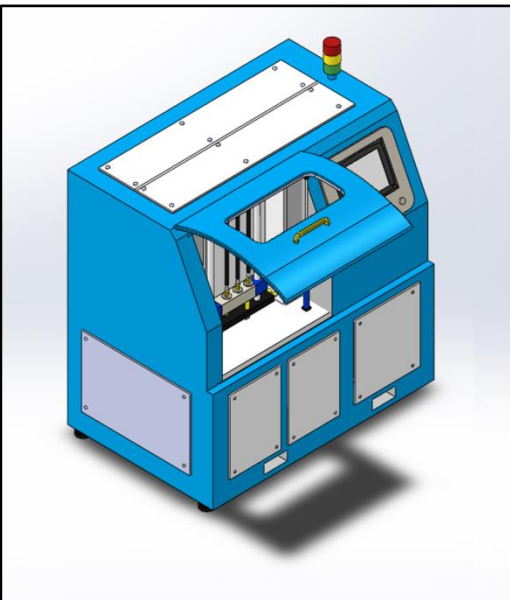
Description

The burst bench is able to arrange tests on different hydraulic components such as flexible or rigid pipes, valves, filters, fittings, etc.

The bench can be customized for various hydraulic fluids, according to the customer requests.

Main technical data

- Low pressure test: 15 - 400 bar (programmable with the control of the pressure ramp)
- High-pressure test: up to 3000 bar



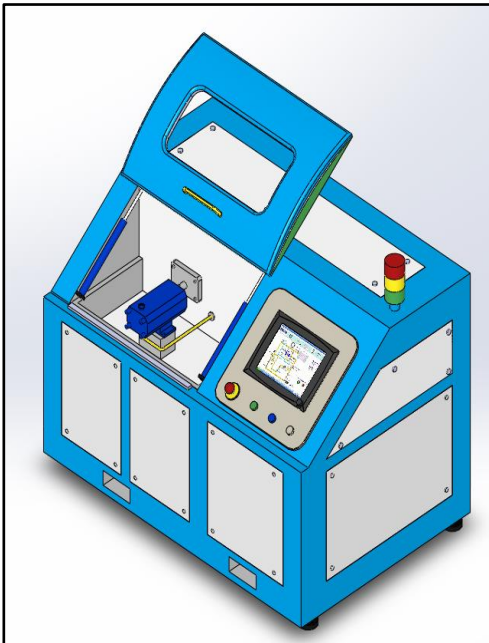
Volumetric expansion test bench

Description

The bench is able to detect the volumetric expansion of flexible piping, in accordance with the major European testing standards. It can be provided responding to other standards on customer request.

Main technical data

- Maximum working pressure: up to 800 bar
- Maximum pressure gradient: up to 1800 bar/min
- Temperature of test chamber: env.



Vacuum brakes pump test benches

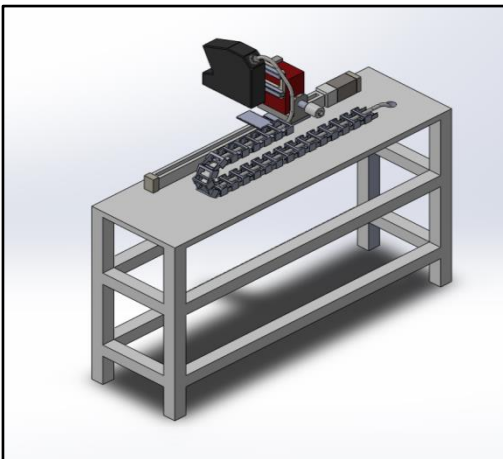
Description

This test bench is able to test the automotive components which make up the power brakes circuit. The mechanical interface and the hydraulic system of the bench respond to specific customer needs.

The bench is monitored by an automation system which manages all features and allows the tests configuration and the logging of acquired results.

Main technical data

- Maximum speed rotation: up to 8000 RPM
- Vacuum volume test: up to 15 L (customizable)
- AISI304 vacuum circuit



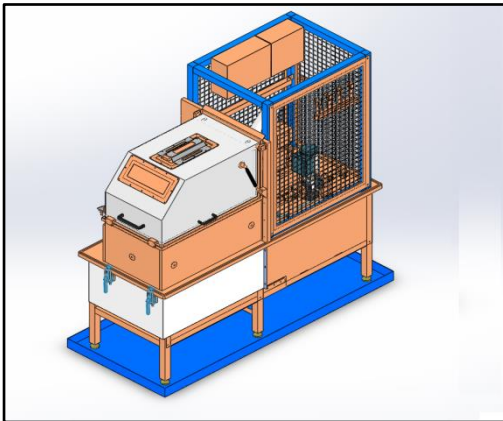
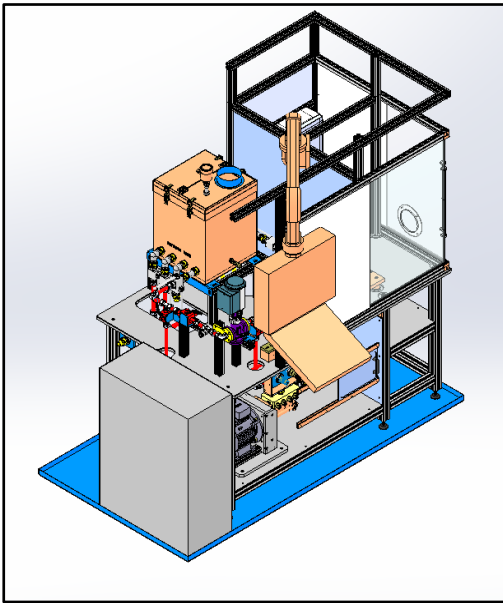
Defects analysis test bench (internal/external defects for pipes or similar)

Description

The bench is able to detect the surface defects by precision laser instruments. Defects inspection takes place along the longitudinal axis (X-axis), but on special request it is possible to customize the system to work on two axes. The control and verification logics which establish the outcome of the test are completely parameterizable.

Main technical data

- Maximum working distance: up to 250 mm
- Measurement accuracy: 0,05 mm - 2mm (according to the distance)



Pumps test benches (oil/water pumps, vacuum pumps, electric pumps)

Description

The oil/water test benches and electrical oil pumps test benches are designed both for durability and characterization tests.

The hydraulic system, the dragging/powering supply system and all the electrical, mechanical and hydraulic interfaces are made according to customer requests.

The test oil can be thermally conditioned to simulate the actual conditions of use.

Regarding the electric pumps, the bench is equipped with a power source which can be completely managed by the control system.

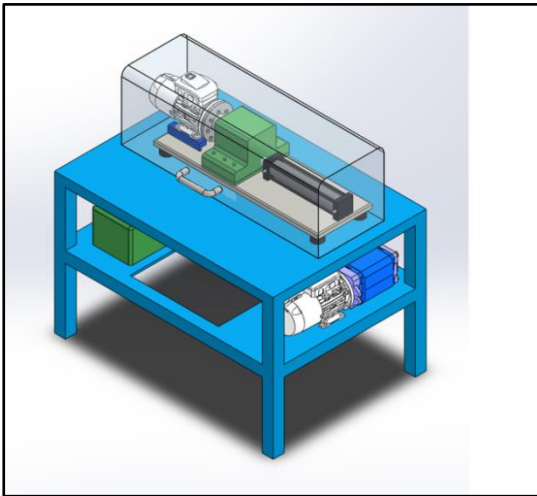
The system is arranged to interface the most important standard protocols (LIN, CAN, etc.).

Main technical data

- Test oil temperature: up to 150°C (optionally it is possible to reach temperatures from -20°C to 160°C)
- Measurement accuracy: 0,05 mm - 2 mm (according to the distance)

Examples of application





Brakes test benches

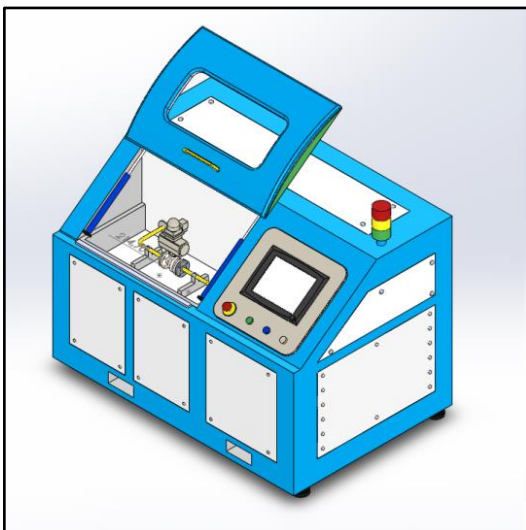
Description

The bench provides tests on manual, automatic or emergency braking devices, for the automotive and defense industry. The system minimizes the inertia of the run motor to measure only the torque applied to the test piece. The bench is equipped with instruments to acquire the torque, the vibration, the speed and the temperature of the test piece.

The system is managed by a Real Time device which manages the data acquisition by all instruments.

Main technical data

- Maximum speed: up to 8000 RPM
- Data acquisition frequency: up to 1000 S/sec for each quantity



Hydraulic systems test benches

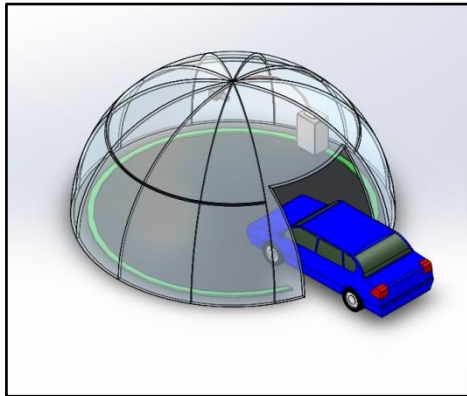
Description

The bench allows the characterization of hydraulic systems, such as valves, filters and other devices. The system is made up of a hydraulic circuit able to detect the pressure flow values (mass and volume flow). So it is possible to characterize accurately the test piece. The test circuit is also equipped with a proportional valve to simulate the hydraulic load.

It is possible to supply the bench with an oil cooling system which allows to work with other temperatures.

Main technical data

- Maximum pressure: 0 - 400 bar
- Maximum flow rate: 0 - 80 L/min.



Dashboards efficiency test benches

Description

This kind of bench allows the generation of different lighting environments to test the visibility of the instrument panel inside the cars.

The system is also equipped with a high-power lamp to simulate an artificial sun. The lamp can perform radial movements to simulate all inclinations. The position of the lamp is defined by different scenarios.

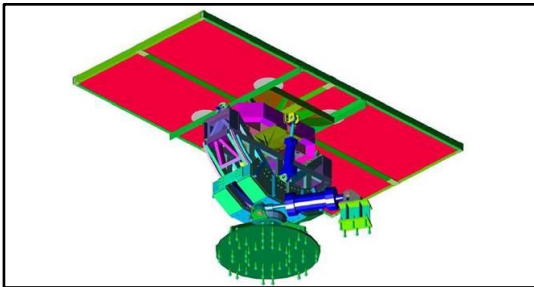
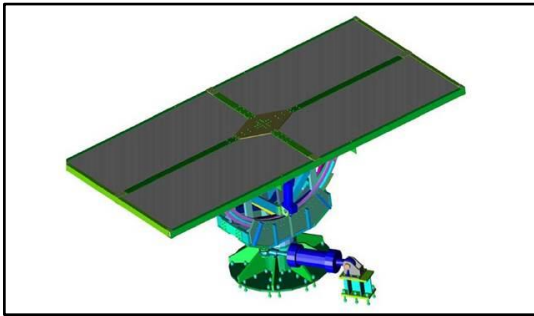
The system is made up of LED lighting sources whose intensity is modulated by a management system. The light temperature can be defined by the customer.

Main technical data

- Radius size: within 5 m
- Maximum height: 3 m
- Maximum illumination: 40 Klux
- Light temperature: 5400 K
- Sun light intensity: 75 kLUX on 2 m²

Examples of applications





Inertia tensors test benches

Description

The bench allows the calculation of the inertia tensor on the three Cartesian axes.

It is made up of a load platform where the objects in test can be fixed. The bench is equipped with a set of tools which provide all the quantities necessary for the calculation.

The movement system is arranged by hydraulic actuators. The system is configurable according to the positions that must be generated.

Main technical data

- Maximum weight: 3000 kg (bigger masses can be provided on request)

Examples of application



*To request a quotation write to:
Stefano Batistini
sbatistini@opus-automazione.it*



Via del Fonditore 845 58022 Follonica (GR) Italy

☎ (+39) 0566 58619 📠 (+39) 0566 58619-260

🌐 www.opus-automazione.it

✉ info@opus-automazione.it

