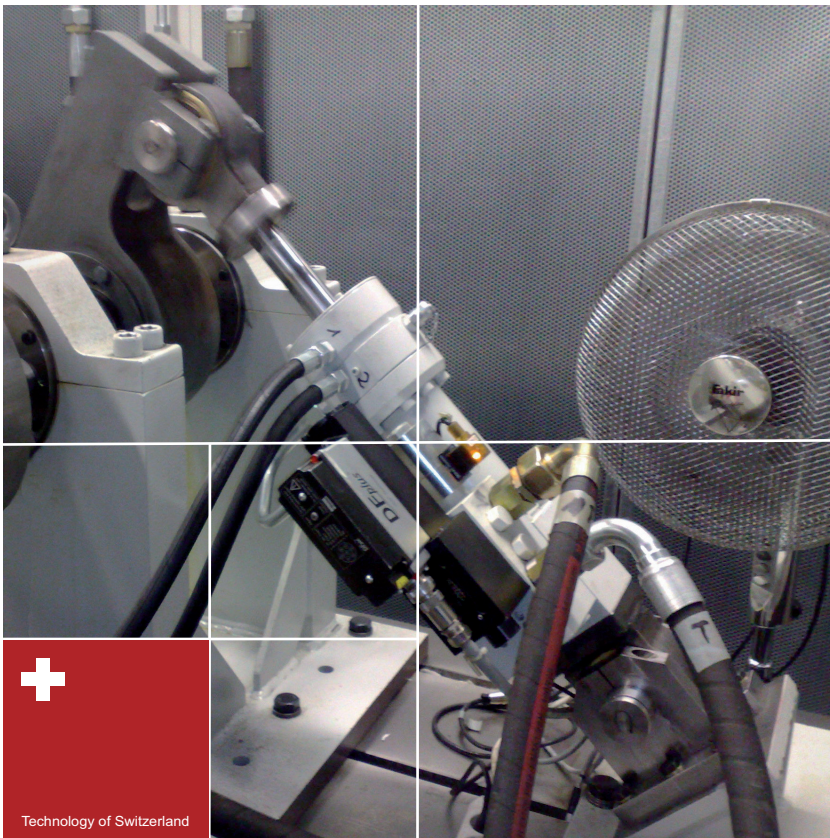


Single and multiple axle test

Applications and references



- Scalable, digital control system
- Adjustments to customer requests
- Real-time and multi-tasking system
- Interface modules which can control several drives

Single and multiple axle tests

Applications and references



Voit Turbo GmbH & Co. KG, Heidenheim

Torque control: Test of bus drive housing

The cylinder is equipped with a power measurement bushing and a distance measurement system. The user defines the geometry as well as the amplitude (Nm) and frequency of the test. Here the system controls the required path automatically so that the precise torque is created on the test subject.

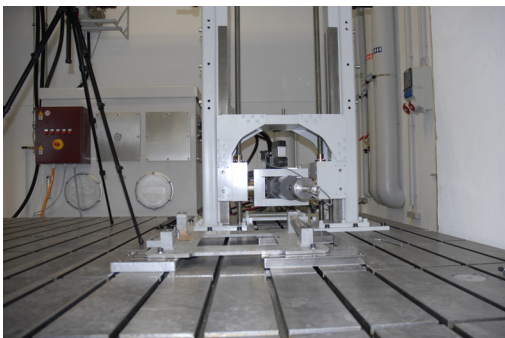
During the test, a supplemental module monitors changes in the amplitude and average value of the vibrations so that yielding or even breaks on the test subject can be detected and documented.



Fraunhofer Institut für Betriebsfestigkeit, Darmstadt

Test bench components for wheel testing systems

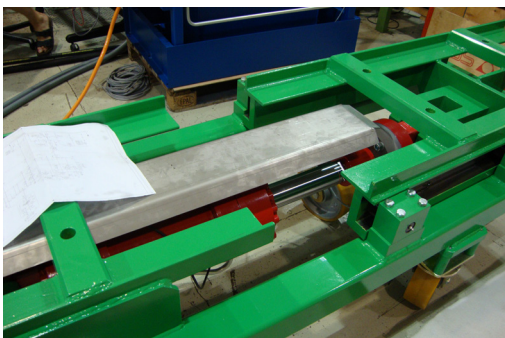
The LBF Fraunhofer Institute is a leader in the area of auto and truck wheel tests. The ZWARP has virtually developed into a standard test process in Europe. For newer machines, LBF uses hydraulic servo cylinder and control systems by Hagenbuch and has thereby selected a provider of complete systems. We were able to accompany the customer from the layout to the commissioning.



Brose Fahrzeugteile GmbH & Co. KG, Coburg

Flexible component tests

A MACS system with four (4) drives which actually show four independent test benches. The completely different applications of the drive axes show the flexibility of the system here. Highly integrated servo drives are integrated for the fastest possible power adjustments in fractions of seconds. A second drive is a hydraulic rotary drive to control torques. Two other drives ultimately allow simpler test tasks. Depending on the application, the axles can also be used in a synchronised way and thereby create multi-axle test machines.



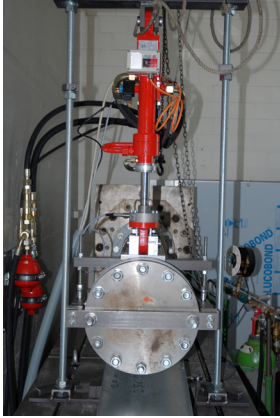
RSAG, Langnau i. E.

Static and dynamic test of concrete elements

A MACS system with one or two (2) axes in a foreseeable time. The test bench simulates a railway transition of a street from a fixed structure to a bridge or a viaduct. One cylinder simulates the movements, which result in the horizontal direction for temperature changes. The second, planned cylinder simulates the vertical changes when driving over the connection with different loads and frequencies. One motion is very slow, force-controlled and can reach a quite large tensile and pressure force. The other axis creates quick load changes vertically with variably defined frequencies.

Single and multiple axle tests

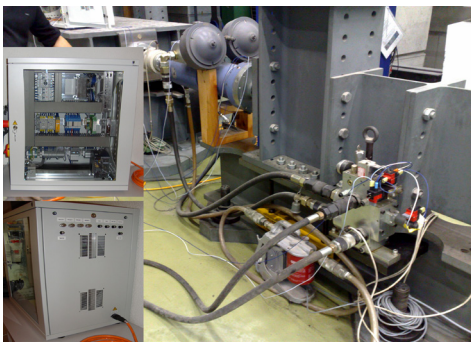
Applications and references



Hochschule für Technik und Architektur, Horw

System for single axis continuous tests

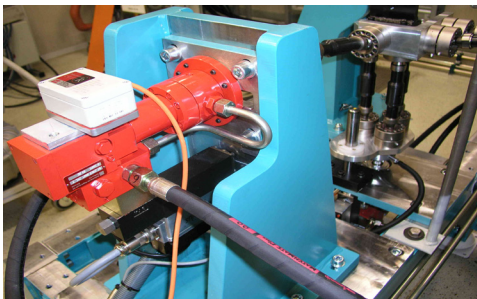
A MACS system with (1) axis. The test bench is used to create vibrations in components. The components are usually objects which result from collaboration with industry. In studies, such components such metal hoses with a wire sheathing (figure) or the connections of aluminium standard profiles are analysed. Here the results obtained by computer are proven with tests. Loads and frequencies can be prescribed variably. Settable threshold monitoring of force and/or distance allows the detection of fatigue just before visible damage is present.



ETH Zürich, Institut für Baustatik

Reconstruction/integration of MACS into an existing infrastructure

A MACS system was configured for an axle not produced for us. The controller controls force and distance. The operation and configuration has been created via a DLL from the Swiss Polytechnical College (ETH). The open and very flexible architecture of the controller with the accompanying development environment allows the customer to write expansions and software modules itself.



Burgmann Automotive GmbH, Eurasburg

Several test benches with a controller

A MACS system with five (5) drives. The five drives are compiled by the customer into three independent test benches. Highly integrated servo drives are integrated for the fastest possible power adjustments in fractions of seconds. A second drive is a hydraulic rotary drive to control torques. Two other drives ultimately allow simpler test tasks. Depending on the application, the axles can also be used in a synchronised way and thereby create multi-axle test machines.



Mobiles Steuerungs rack



Transportable MACS system

A MACS system with eight (8) drives has been created which offers the capability to achieve any number of set-up hexapods with a software change to Hexamove Control Studio. The eight drives are compiled and configured by the customer (film industry) depending on the application and scene on site. All connections are provided for proportional valves, a distance measurement system, force measurement bushings and analogue inputs and outputs have a variable application and include connectors. The movements are provided via drive files in most cases which are programmed on site and are programmed due to the settings. The controller is extremely flexible and built into plastic boxes with a sturdy construction. The operating side can be protected with a plastic cover. This makes transport easier and safer.

Single and multiple axle tests

Applications and references



Ammann Schweiz AG, Langenthal

Test bench for rollers

This test bench is at the end of the assembly line and is used to inspect rollers mounted in a series. The components and roller drives are put into operation and tested. Then an operating test is performed for approx. one hour with a full function including vibrations. In order for the vibrations not to be transferred to the building, a special vibrating foundation is installed on pneumatic springs. A variable axle adjustment is integrated in the foundation. This allows the inspection of wheels with a different wheel distance. The test program can be compiled flexibly. The test logs are automatically generated and saved on the network.



Keller AG Druckmesstechnik, Winterthur

Hydraulic universal test bench

This test bench has three independent pump units equipped with frequency converters. The volume stream or the pressure can be controlled. Different software modules are available to use drive files, function generators, acceptance of characteristic lines etc. A software library allows the customer to directly control the test bench with its own software.



Aerodyn Development + Marketing GmbH, Rendsburg

Life cycle test on a rotary hub

In our in-house testing centre, a test environment was constructed accordingly in order to verify the calculated data with a newly developed rotor hub. Here the static deformation under load was reviewed and the permanent reliability of > 2 million cycles was proven.



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201806/V03/E