

## DYNAMIC TEST SYSTEMS

Modular Units for  
Dynamic Tests





# Dynamic Universal Test Systems

<b>Load range:</b>	■ $F_{nom}$ : from 5 kN
<b>Specimens:</b>	■ standard test pieces, components and parts in the destructive and non-destructive test range (example: metals, elastomers, composite materials)
<b>Area of use:</b>	■ demanding dynamic testing in research and development and in quality control
<b>Test fields:</b>	■ aviation and car industry, ship building, railway vehicles, medical technology
<b>Application:</b>	■ dynamic tensile-, compression-, bending- and torsion tests ■ dynamic strength testing ■ cyclic testing, service load simulations
<b>Test Setups:</b>	■ in solid execution with high stiffness ■ 2- or 4-columns execution ■ modular units for an individual arrangement (modular system) ■ T-slot plate ■ angle plates ■ rail system ■ decoupling systems ■ test cylinder linear and rotary ■ high flexibility of adaption and fixing options ■ set-up by supported machine feet without special bed-plate
<b>Options / Accessories:</b>	■ hydraulic aggregate ■ distribution station ■ joints for bearing free from play ■ broad range of specimen holders, tensioning equipment, compression plates and bending tables ■ climate chambers ■ protective equipment

## Digital Control Systems

<b>Digital Control System:</b>	■ control stations with <b>DIGIMAXX®</b> to comply with demanding single- and multi-axial dynamic test requests
<b>Test Software PROTEUS<sup>MT</sup>:</b>	■ user-friendly operating surface for setting, execution and evaluation of dynamic tests

## Systems from FORM+TEST Seidner & Co. GmbH - Advantages arguing for us:

- own development, production, construction
- own service and calibration service provider



# System Components



## Hydraulic Aggregates Series PA:

- sizes up to 1000 l/min  
(other sizes possible on request)
- load-dependently controlled drives for energy-efficient use
- SPS for regulation and status messages of all control functions
- compact systems with and without soundproof hood
- with oil tray
- water- or air-cooled executions

## Distribution Stations:

- to connect several simultaneously operated hydraulic consumer units
- integrated soft start
- low pressure / high-pressure switching
- connections for leak oil pumps and pressure reservoirs

## Force Transmission Elements:

- for static and dynamic applications
- joint bearings or ball joints
- customer-specific executions possible on request

## Test Cylinders:

- double-action or sliding individual test cylinders or cylinders with hydrostatic bearing
- with highest production accuracy for longevity
- with special synthetic coating at the running surfaces
- with internal leak oil return (no additional hoses and pipes)
- for static, quasi-static and dynamic tests
- test loads selectable from 5 kN up to 12 MN (higher test loads on request)
- with valve plate, servo valve and pressure reservoir
- customer-specific configured cylinders on request



# Examples of Dynamic Test Systems



## Mechanical Test Setups:

- test frame PR 160
- with crosshead adjustable in height and passive clamping
- individual test cylinder EPZ-H 160, stroke 100 mm with load cell and magnetostrictive displacement transducer
- dimensions: 1800 x 1800 x 2200 mm

## Controller:

- **DigiMaxx® G-1000** with digital handwheel
- with **PROTEUS<sup>MT</sup>** test software for strength tests and durability tests under operating load conditions



## Mechanical Test Setups:

- test frame PR 400
- vibration-isolated, air-suspended bearing of the t-slot plate
- crosshead adjustable in height
- crosshead swivelling by 340°
- test cylinder horizontally moveable
- test frame longitudinally moveable
- individual test cylinder EPZ-H 250, stroke 250 mm, with ball joints at both sides
- dimensions: 2500 x 4000 x 5500 mm
- hydraulic aggregate PA 180 with soundproof hood

## Controller:

- **DigiMaxx® G-1000** with digital handwheel
- with **PROTEUS<sup>MT</sup>** test software for strength tests and operating load simulation tests



## Mechanical Test Setups:

- test frame PR 2000
- crosshead manually adjustable in height
- zur Aufstellung auf vorhandenem Schwingfundament
- individual test cylinder EPZ-H 2000, stroke 200 mm, 2MN load cell
- dimensions: 3500 x 1800 x 4500 mm



# Examples of Dynamic Test Systems



## Mechanical Test Setups:

- universal test frame UP 1000 PK-4 S
- hydraulically height adjustable crosshead with passive clamping
- with anti-twist protection, hydraulic parallel grip heads, bending device
- vibration-isolated, air-suspended bearing of the T-slot plate
- hose support
- individual test cylinder EPZ-H 1300, stroke 450 mm
- dimensions: 2000 x 6000 x 5000 mm
- hydraulic aggregate PA 210

## Controller:

- **DigiMAXX® C-30** with digital handwheel
- with **PROTEUS<sup>MT</sup>** test software



## Mechanical Test Setups:

- universal test frame UP 5 H
- crosshead height adjustable via handwheel
- manual clamping
- T-slot plate
- individual test cylinder EPZ-H 5, stroke 250 mm

## Controller:

- **DigiMAXX® C-30** integrated in test frame
- with digital handwheel
- with **PROTEUS<sup>MT</sup>** test software



## Mechanical Test Setups:

- universal test frame UP 40-4 S
- dynamic testing tasks
- manually height adjustable and clampable crosshead
- exact column guidance
- increased frame stiffness
- excentric force application possible
- T-slot plate below and above
- force measurement by three load cells
- individual test cylinder EPZ-H 40, stroke 250 mm
- hydraulic aggregate PA 23

## Controller:

- **DigiMAXX® C-30**
- with digital handwheel
- with **PROTEUS<sup>MT</sup>** test software



# Digital Measurement and Control Electronics

## **DigiMAXX® C-30**

### Application:

- static, quasi-static or dynamic uniaxial tests depending on accessories
- for force, distance or deformation control – depending on expansion stage – in the closed control circuit of the servohydraulics with high resolution and automatic smooth changeover during testing
- control of up to 4 servo-hydraulic testing machines / test cylinders with independent setting (optional parallel running)
- testing of parts, components and complete structures

### Description:

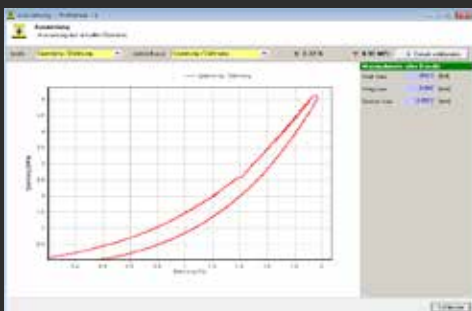
- digital control system for the highest outputs even with high test frequencies combined with a high level of reproducibility and accuracy
- PID controller with digital signal processor for control and signal processing
- modular system that can be expanded for specific applications and several control circuits
- hand wheel option for simple control during set-up
- the **PROTEUS<sup>MT</sup>** software is used for programme-controlled testing, data capture and evaluation
- each sensor can be used for control and measurement
- 8 control and measuring channels per control circuit with 24-bit resolution
- connection of external devices (digital I/O) and sensors  $\pm 10$  V
- safety door control

### Functions:

- peak value controller
- freely programmable test sequences - ramp function (cycle setting), rectangular, triangular, sine etc.
- rupture detection
- control circuit optimization - optimization is effected by setting the P, I, D rate
- control of hydraulics and safety circuits
- peak value, limit value and event detectors for test monitoring (min, max, amplitude, mean value)
- cycle counter
- linearization function for all channels

### Configuration:

- 1. portable design with 19" housing incl. integrated handle
- 2. static design with PC integrated in 19" cabinet





# Digital Measurement and Control Electronics

## DigiMAXX® C-1000

### Application:

- static or dynamic applications
- uni- and multiaxial test assignments in real-time
- tests with up to 32 synchronized channels
- life tests, functional tests, operating load simulation tests and special tests
- for development and quality control of components and materials
- servo-hydraulic and electric actuators
- for high control requirements



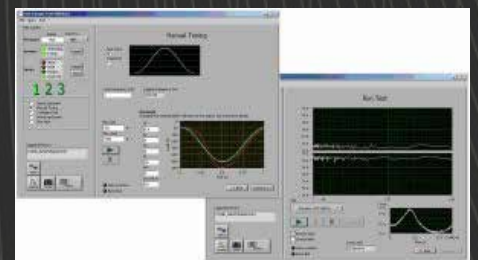
### Description:

- digital control system in real-time
- 32-channel data logging (6 kHz)
- 4-channel oscilloscope (25 kHz)
- USB-connection between controller and PC
- user-friendly Windows interface
- free configuration of user interface
- upgradeable for data acquisition of up to 128 channels



### Functions:

- freely configurable function sequences (sequential – block)
- signal input via function generator, file (operating load signals) or external input in ASCII or RPCIII format
- sweep-function
- pre- and post-trigger data memory with up to 25 kHz sampling rate
- periodic limit monitoring
- bumpless change-over of the control modes
- adaptive-learning control
- linearization function for all channels



### Configuration:

- mount or tabletop unit
- 19" rack







FORM+TEST Seidner & Co. GmbH  
Zwiefalter Str. 20  
88499 Riedlingen  
Germany

phone: +49 7371 9302-0  
fax: +49 7371 9302-99

info@formtest.de  
www.formtest.de



DAkkS-calibration



exchange program (electronics, servovalve, etc.)



repair / overhauling of test cylinders



move of testing machines



delivery of spare parts packs



extension of warranty



numerous spare parts



maintenance



commissioning



training



communication with our service-team



**made  
in  
Germany**

