Hegewald & Peschke
Meß- und Prüftechnik GmbH

Inspekt

Static electromechanical universal testing machines

Competency generates results

The great amongst the universal testing machines.

A real universal testing machine should allow more than only a small amount of standard tests. Suitably equipped it should, if necessary, also be able to generate heat, cold and humidity into the laboratory. It should not only test standard specimen, but even the most extraordinary finished products and components. And be able for automation. Universal testing machines by Hegewald & Peschke are this universal.

The series Inspekt fulfils highest demands in terms of measurement accuracy and versatility. It allows tensile, compression, bending or torsion tests, flexibly adapted to your test conditions. With little effort Inspekt may be transformed into an absolute expert. Thus, it is ideally suitable for the demanding measurement in industry and research.

With free selectable designs for the load frame up into the high load area, Inspekt is suitable for testing even high-strength materials and bigger components. Additional guide pillars make the construction extremely robust. The pure electromechanical drive – from the infinitely variable alternating current precision motor to the power transmission by means of precision spindles with spindle nuts adjusted free of clearance – provides a highly dynamic power transmission. It guarantees reproducible test results even at the lowest traverse speeds and powers.

Inspekt offers free selection: traverse, power or strain control. Thus, the metal tensile testing norm DIN EN ISO 6892 is always fulfilled. The load measurements are realized by high-precision strain gauge load transducers which fulfil the requirements of DIN EN ISO 7500, classes 0.5 or 1.

The control system Electronic Drive 5 specifically developed for universal testing machines provides the synchronous data acquisition of all measurement channels at the highest resolution. The testing software LabMaster allows an easy test realization and documentation even with very specific, customized machine designs and test jobs. The testing software, the precision mechanics as well as measurement and control technology are perfectly compatible.

All load frames are available with variable geometry, so that special specimen and components can be tested in series under the influence of temperature and media. This means not only the height, but also, the width and the depth can be adjusted in line to the requirements. Even several test rooms side by side or on top of each other are feasible. It is possible to select from an extensive range of easily interchangeable clamping devices for the different kinds of specimen. Inspekt is always delivered with a hand panel. It enables handy test setup and depicts the load and position channel, so that the machine may be operated without personal computer or test software for easy tests.

Universal testing machine Inspekt 250 with hydraulic clamping devices and fully automatic extensometer

	Inspekt 100	Inspekt 250	Inspekt 300	Inspekt 400	Inspekt 600	Inspekt 1200	Inspekt 2000
Max. test force (kN)	100	250	300	400	600	1,200	2,000
Width of test room (mm)	610	610	610	750	750	880	1,000 / 1,200
Height of test room (mm) without components	1,210	1,190	1,190	1,380	1,350	1,710	1,900
Max. test speed (mm/min)	1,000	450	250	500 / 1,000	300 / 600	250	250

Reliably manage medium loads.

The series Inspekt table was developed for standard material and component testing in the medium-load range. It is ideally suitable for the material testing of synthetic material or non-ferrous metals as well as for the testing of smaller components, for example from the equipment technology.

Inspekt table is available in six different versions regarding the load frame. The electro-mechanical drive with an alternating current motor and the power transmission by pretensioned recirculating ball screws free of play guarantees highest measuring precision.

The machines are, depending on the requirements of the workplace, available as stand or table option. The load frame with its prominent aluminium cover is constructed in a way that additional test and measuring devices may be attached very easily.

Basically, Inspekt table has a freely selectable traverse, force and strain control. This guarantees the fulfilment of the new metal tensile testing norm DIN EN ISO 6892. The high-precision force measurement with strain gauge load transducers is optionally sufficient for the conditions according to DIN EN ISO 7500, classes 0.5 or 1. The control system Electronic Drive 2 provides a synchronous data acquisition for all measurement channels at a maximum resolution. The operator software LabMaster developed especially for the application during the material and component testing guarantees an optimal test procedure and data acquisition.

On request Inspekt table can be equipped with a second test room. This allows the implementation of different tests on one testing machine without tool change. Thus, valuable tests and changeover times can be saved.

Machines within the load range of 10 kN to 50 kN are offered with drives of 300 Watt or 900 Watt power. This guarantees an optimal adaptation of the test speed to the tasks and simultaneously saves expanses. On request Inspekt table is equipped with a hand panel for manual operation.

Universal testing machine Inspekt table 50 with safety door, wedge grips and a clip-on extensometer

	Inspekt table 5	Inspekt table 10	Inspekt table 20	Inspekt table 50	Inspekt table 100	Inspekt table 250
Max. test force (kN)	5	10	20	50	100	250
Width of test room (mm)	420	420	420	420 | 510	510	510
Height of test room (mm) without components	1,120	1,120	1,100	1,090 | 1,185	1,170	1,145
Max. test speed (mm/min) at drive power (W)	2,000 (300)	1,200 | 2,000 (300) | (900)	600 | 2,000 (300) | (900)	250 | 800 (300) | (900)	400 (900)	175 (900)

Optional: All load frames may be prolonged or broadened

Small, but univer
applicable.

The series Inspekt table blue and Inspekt m
were developed for standard material and
component tests within the small load area
under the aspect of high economic efficienc

As table devices of low weight and high
bending stiffness they are, because of their
construction and ergonomic design, suitabl
as a cost-effective alternative for serial test
of small specimen and components. The loa
frame is offered in four different designs.

Inspekt table blue and Inspekt mini are
equipped with electromechanical direct
current drive and freely selectable traverse
force and strain control.

The high-precision load measuring is imple
mented by strain gauge load transducers a
guarantees a measuring accuracy of class 1
(optionally 0.5) according to DIN EN ISO 750
within the area of 0.2 to 100 % nominal loa

	Inspekt mini	In
Max. test force (kN)	3	
Width of test room (mm)	–	
Height of test room (mm) without components	935	
Max. test speed (mm/min)	1,300	

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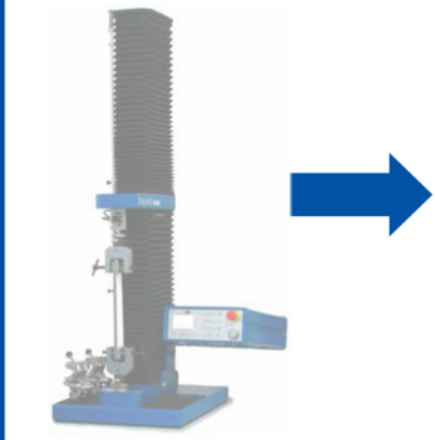
We have enhanced our testing machine series for the low load range.

inspekt mini becomes inspekt solo



The inspekt solo impresses with an innovative brushless drive without gear transmission. This guarantees reduced noise pollution due to low motor speed and an optimised frequency range.

The large machine base plate allows the assembly of accessories as well as the storage of tools and specimen, thus creating a compact workplace design.

The newly developed testing machine is available in three different test room heights and can thus be optimally adapted to individual requirements.

	inspekt solo S	inspekt solo M	inspekt solo L
Max. test load (kN)	2.5	2.5	2.5
Test stroke (mm) without installations	365	965	1265
Max. test speed (mm/min)	1200	1200	1200

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Our new universal testing machine series inspekt duo and inspekt blue replace the inspekt table blue

inspekt duo and inspekt blue

	inspekt duo 5	inspekt duo 10	inspekt blue 20	inspekt blue 30
Max. test load (kN)	5	10	20	30
Test room width	420	420	420	420
Test stroke (mm) without installations	970 (M) 1270 (L)	970 (M) 1270 (L)	1005	1005
Max. test speed (mm / min)	1200	600	400	240

Advantages:

- innovative brushless drive without gear transmission
- reduced noise pollution due to low motor speed and optimized frequency range
- freely selectable control of crosshead travel, load or strain
- high-precision load measurement by strain gauge force transducer
- compact workplace design
- designed for both standing and seated work at the worktable due to very flat lower traverse and lateral arrangement of electronics
- new load range 30 kN

From polar air to blast furnace.

Universal testing machine Inspekt 250 with temperature chamber and video-extensometer

There are seldom the same conditions in the real everyday life of a component or material like there are in the laboratory. In many cases these environmental conditions have such great influence on the expected test result that they have to be simulated in the smallest space, directly at the testing machine.

For this Hegewald & Peschke offers environment simulators adapted specifically to the individual series of Inspekt: These include climatic chambers, temperature chambers, which can generate temperatures far into sub-zero range, or high-temperature furnaces. All environment simulators can be mounted and dismantled quickly and easily. Furthermore, special devices allow them to be moved away from the immediate test area with only a few movements and within a very short time.

The respective retaining jigs or possibly necessary specific jigs for specimen and components will naturally be supplied as well.

In case the specimens are non-standardised specimen or specific components which cannot or can only be tested with great difficulty with conventional clamping devices, a special solution has to be considered, which is also offered by Hegewald & Peschke. These include also clamping concepts for high-temperature tests, for example for tensile tests at temperatures up to 1,600 °C.

Universal testing machine Inspekt table 50 with high-temperature furnace up to 1,200 °C

Universal testing machine Inspekt 250 with high-temperature furnace, temperature chamber and additional test room at the side

Entirely special.

A standard testing machine for the testing of complicated and unusual components or finished products is often not sufficient. Hegewald & Peschke develops and produces entirely individual testing machines for these cases. These client-oriented special solutions do not only have considerable test engineering advantages. Furthermore, they are often more cost-efficient and, thus, more than a mere alternative for the conventional test technique.

With the development of special solutions, the clients profit from the proven and perfected basic construction of the series Inspekt, which even allow changes of the load frame geometry with their modular basic structure, as well as from the professional expertise and the many years of experience of engineers and technicians of Hegewald & Peschke for the construction of material testing machines. Thus, perfect test systems for the solution of individual testing tasks come true even with the realisation of very detailed customer requests.

Special purpose machine for the testing of synthetic sewer pipes

Special purpose machine for the draw bead test on body sheets

Special purpose machine for determining the breaking strength of glass

Special purpose machine for 90° peeling test of solar panels

Entirely automatic.

An increasing number of companies rely on fully automated testing machines for their materials, semi-finished products and end products. An automated test centre from Hegewald & Peschke offers high test speeds, operator independent evaluation and automated registration of the test results. The core of the plant is a universal testing machine of the type Inspekt. All the handling tasks necessary for the test procedure are undertaken by a fully automatically working six-axis robot.

The specimen pass through several stations in the test centre where amongst others they are measured and marked, before the test begins. A particularity with this: The machine processes a multitude of different forms and dimensions of specimen, which is partially realised by the gripper system especially developed for the robot´s arm. The measure-

ment of the specimen in its original condition and during the experiment, where applicable, is done by a laser without direct contact – wear-free and precise.

Depots especially designed for the motor activity of the robot are used for the supply of the specimen. In these, a multitude of specimen, even in different versions, can be put to the test. At need, the testing machine works fully automated and without manual override in a 24-hour operation.

Generally, the testing machine is equipped with double-sided hydraulic clamping devices. These guarantee an exact positioning of the specimen as these may be approached regularly from both sides. Optic sensors control the clamping procedure and prevent malposition.

The test results are automatically transferred to a host-machine and can be managed directly by an ERP system.

Sampling from the depot in the automated test centre

Optical measurement of the specimen in the automated test centre

Specimen marking in the automated test centre

Automated test centre for tensile tests

For a long life of the testing machine.

Hegewald & Peschke offers its clients wide-ranging services. One of the most important is the commissioning of the machine on-site with factory or DAkkS calibration and briefing of the operating personnel. Furthermore, thorough retraining in the application laboratory from Hegewald & Peschke or directly with the client is possible.

Briefing of the operators at the commissioning

Modernisation of a universal testing machine 10 kN according to variation 2

The clients can count on a free software-service during the entire lifetime of the testing machine. The service-team advises not only regarding questions to the functions of testing machines and operator software, but provides also its expert knowledge in case of application problems and configuration of the test system according to specific norms free of charge.

The regular calibration of the test method guarantees the reliability of test results and serves as a basis for measuring and inspection equipment monitoring for quality assurance measures. The calibration laboratory from Hegewald & Peschke is accredited according to DIN EN ISO/IEC 17025 and implements calibrations for the mechanic measures power (MTM), length (MTM) and hardness (MTM).

The modernisation of used testing machines can be an economically interesting alternative to the purchase of a new machine – no matter which model, machine type and age. Thereby long-lasting machine components, such as the load frame, are re-used. Drive, electronics, control or measuring sensors, on the other hand, are, as required, replaced by components from Inspekt and the test software LabMaster. Thus, the machines are updated to the current status of the test technology.

With the most cost-effective modernisation alternative 1, the measurement channels of force, traverse and strain of the testing machine are captured and digitalised. With alternative 2, the existing regulation is replaced by a modern digital control. Alternative 3, which is the most extensive option, includes the retrofit with a modern digital control and complete drive. Only the load frame of the testing machine is used. In case of electromechanical testing machines, the existing drive is replaced by a modern brushless AC drive with servo amplifier.

Modernisation of a universal testing machine 250 kN according to variation 3

Hydraulic testing machines are equipped with a new hydraulics aggregate and servo valve. By the way Hegewald & Peschke also offers the contract testing of specimen. Experienced professionals execute them in the company-owned application laboratory.

Hegewald & Peschke is certified according to ISO 9001:2008 and registered under the DAkkS accreditation number D-K-17222-01.

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Further offers:

- Machines for dynamic component and product testing
- Portable and stationary hardness testers
- Length measuring devices
- Component and furniture testing machine
- Maintenance and DKD calibration services
- Hydraulic universal testing machines
- Special testing machines

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