

Universal Testing Machine

Universal Testing Machine „smarTens“

Single ball screw drive with solid state servo and motor controls

An affordable, accurate, single-column materials testing machine for those low capacity testing needs. Designed for use in a variety of applications including quality and production control, R & D and test labs. It is designed to perform a variety of test procedures, including compression, tension, shear, peel and flex. The large application range permits testing of plastics, elastomers, foam materials, papers, ropes, cords, wires as well as strength tests (tensile and compression tests) at finished parts.

Any machine can be used as a stand-alone machine but of course, also used with our extensive library of user friendly Windows®-based software. This software is available or can be upgraded for every testing application according almost every standard including ASTM, BS, DIN, ISO and JIS. Beside this, we are ready to design your specific application software!

Features:

- Force range upto 3 kN
- Stand-alone or PC-driven version
- User-friendly software
- Crosshead guidance system
- Quick-disconnect load cell and fixture system
- Adjustable overload stop
- Load measurement accuracy: Class1 from 1% to 100% of rated capacity acc. DIN EN ISO 7500 (optionally Class 0,5)
- Variable speed from 0,05 to 1300 mm/min.



Technical data:

Type of machine	smarTens 003
Dimension "working space"	
Width (mm)	-
Depth to column (mm)	105
Crosshead travel (without tools) (mm)	850
Load frame dimension	
Width (mm)	380
Depth (mm)	500
Height (mm)	1250
Characteristics	
Max. capacity (N)	3000
Resolution crosshead travel (µm)	< 0,1
Max. velocity (mm/min.)	1300
Power supply (V/Hz)	115/230 - 50/60
Power (VA)	700
Weight (kg)	45

Universal Testing Machine

Universal Testing Machine Series “smarTens”

Twin ball screw drive with solid state servo and motor controls

These universal tensile tester series “smarTens” (table standing) incorporate an advanced microprocessor technology (load resolution of 120000 digits). In combination with our user friendly software we provide an extremely efficient, reliable approach to any materials testing need.

Well-known for their versatile performance and rugged mechanical design, these machines are designed to accommodate a wide range of applications (e. g. quality and production control, R & D and test labs) to be able to meet the most demanding test requirements. It is designed to perform a variety of test procedures, including compression, tension, shear, peel and flex. The large application range permits testing of metals, plastics, elastomers, foam materials, papers, wood, ropes, cords, wires as well as strength tests (tensile and compression tests) at finished parts.

Features:

- Force range upto 20 kN
- User-friendly software
- Crosshead guidance system
- Quick-disconnect load cell and fixture system
- Adjustable overload stop
- Load measurement accuracy: from 1% to 100% of rated capacity: class 1 (class 0,5 optional)
- Crosshead travel resolution better than 1 μm
- Speed var. from 0,01 to max. 1000 mm/min.



Technical data:

Type of machine	smarTens 005	smarTens 010	smarTens 020
Dimension “working space”			
Width (mm) (enlargement on request)	420	420	420
Crosshead travel without tools (mm)	1100	1100	1100
Load frame dimension (without EDC)			
Width (mm)	685	685	685
Depth (mm)	550	550	550
Height (mm)	1420	1420	1420
Characteristics			
Max. capacity (kN)	5	10	20
Resolution crosshead travel (μm)	<1	<1	<1
Max. velocity (mm/min.)	1000	500	250
Return velocity (mm/min.)	1000	500	250
Power supply (V/Hz)	115/230 - 50/60	115/230 - 50/60	115/230 - 50/60
Power (VA)	0,7	0,7	0,7
Weighth (kg)	100	100	130

Universal Testing Machine

Universal Testing Machine Series “proTens”

Twin ball screw drive with solid state servo and motor controls for loads upto 250 kN

These universal tensile tester series “proTens” (table standing) incorporate an advanced microprocessor technology (load resolution of 120000 digits). In combination with our user friendly software we provide an extremely efficient, reliable approach to any materials testing need. Well-known for their versatile performance and rugged mechanical design, these machines are designed to accommodate a wide range of applications (e. g. quality and production control, R & D and test labs) to be able to meet the most demanding test requirements. It is designed to perform a variety of test procedures, including compression, tension, shear, peel and flex. The large application range permits testing of metals, plastics, elastomers, foam materials, wood, ropes, cords, wires as well as strength tests (tensile and compression tests) at finished parts.

Merkmale:

- Force range upto 250 kN
- two different type of motor (300 W or 900 W)
- User-friendly software
- Crosshead guidance system
- Quick-disconnect load cell and fixture system
- Adjustable overload stop
- Load measurement accuracy: Class1 from 0,4 % to 100 % of rated capacity (optional: Class 0,5)
- Variable speed from 0,01 to 2000 mm/min.



Technical data:

Type of machine	T3-005	T3-010	T9-010	T3-020	T9-020	T3-050	T9-050	T9-100	T9-250
Dimension “working space”									
Width (mm) (enlargement on request!)	420	420	420	420	420	420	510	510	510
Crosshead travel without tools (mm) (enlargement on request!)	1100	1100	1100	1100	1100	1100	1100	1100	1100
Load frame dimension (without EDC)									
Width (mm)	685	685	685	685	685	685	880	880	880
Depth (mm)	550	550	550	550	550	550	670	670	670
Height (mm)	1420	1420	1420	1420	1420	1420	1580	1580	2250
Characteristics									
Max. capacity (kN)	5	10	10	20	20	50	50	100	250
Resolution crosshead travel (µm)	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
Max. velocity (mm/min.)	2000	1200	2000	600	2000	200	700	350	150
Return velocity (mm/min.)	2000	1200	2000	600	2000	200	700	350	150
Power supply (V/Hz)	115/230 50/60	115/230 50/60	115/230 50/60	115/230 50/60	115/230 50/50	115/230 50/60	115/230 50/60	115/230 50/60	115/230 50/60
Power (VA)	0,7	0,7	1,5	0,7	1,5	0,7	1,5	1,5	1,5
Weighth (kg)	100	100	100	130	130	150	200	400	600



Universal Testing Machine

EDC Controller

EDC 220 / EDC 222 / EDC 580:

The measurement and control electronics is built in a separate housing. On the front side of the EDC 222 / 580 there is a digital LCD which displays load and travel measurement as well as buttons to enter the test parameters and to operate the test machine.

Three different configurations are available:

- EDC 220 : • load resolution better than +/- 180.000 digits
- EDC 222: • 2 BUS channel
- EDC 580: • load resolution better than +/- 180.000 digits
- 8 BUS channels



Hand Keyboard RMC 5



Hand Keyboard RMC 7



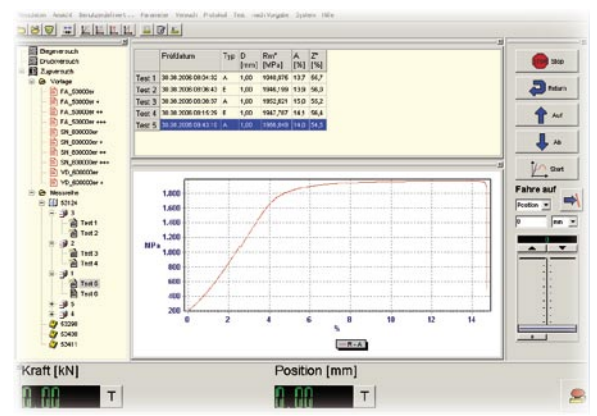
Software

If ordered, every universal testing machine comes with our basic software program which allows the user to perform any test according his need. We provide user definable test procedures according different kind of testing procedures. Beside these pre-defined programs, we offer our free programable module for users which want to create their individual testing and evaluation process. We can provide the following features:

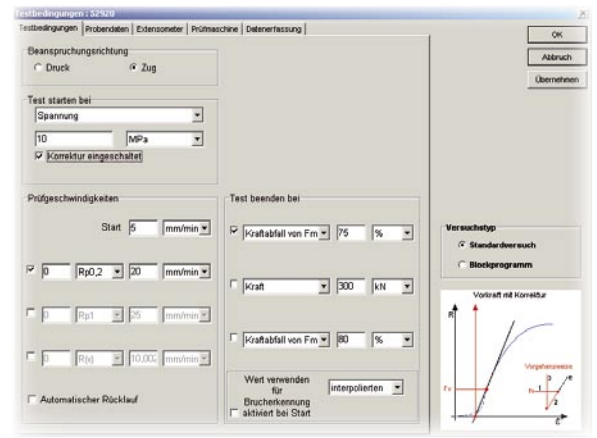
- controlling of the test according to any test procedure in static or dynamic mode
- individual parameter setting with calculation of user defined test results (force, travel, elongation or any other measured parameter)
- test results calculation by any arithmetical formular

Our materials testing software operates under Microsoft Windows® and provides a high level of "Office® - compatibility" by allowing individual test results to be sent to Microsoft Access®, Excel®, ASCII-file or to any other SQL application. The integrated report generator allows the preparation of quality test reports, complete with graphs and statistics (single or series mode).

The software is available in many different languages, e. g. german, english, russian, etc. An integrated online help menu explains all functions/features and offers detailed help about individual test standards.



Main - Window



Parameter Setup - Window

Universal Testing Machine

Extensometer

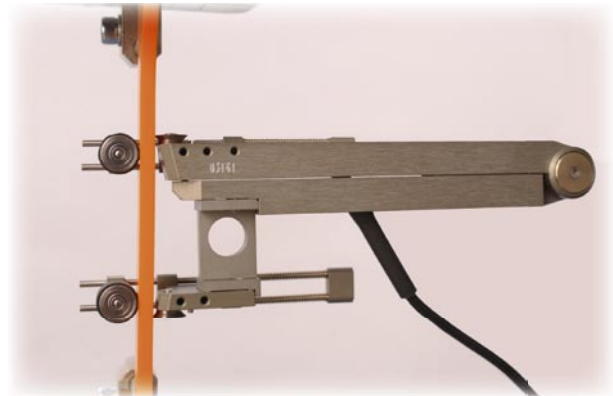
Extensometers are suitable for nearly all test pieces above an initial instrument gauge length (L_0) of 10 mm. They enable the determination of the module of elasticity and the restrictions of proof stress and ultimate strain. Simple handling creates the conditions for rational testing of a large number of pieces. Highly precise measurement with an accuracy up to 0.2 % of the indicated value is guaranteed.

MFA 25 / MFA 12

The MFA 25 / MFA 12 enables a travel of 25 or 12 mm by means of a rotation point system. It is suitable for plastic and metal test specimen.

Technical data:

Travel:	25 mm / 12 mm
L_0 :	25...100 mm
Class of accuracy:	0.5 / 0.2 (standard EN 10002)



MFN

The extensometer MFN is available in 14 models and is based upon a modular design. Options include manual, automated and climatic chamber arms.

The MFN-A offers both a small (4 mm) and a large range. It is suitable for determining the E-module from very short gauge lengths and for recording fracture elongation of $L_0 + \Delta L = 800$ mm.

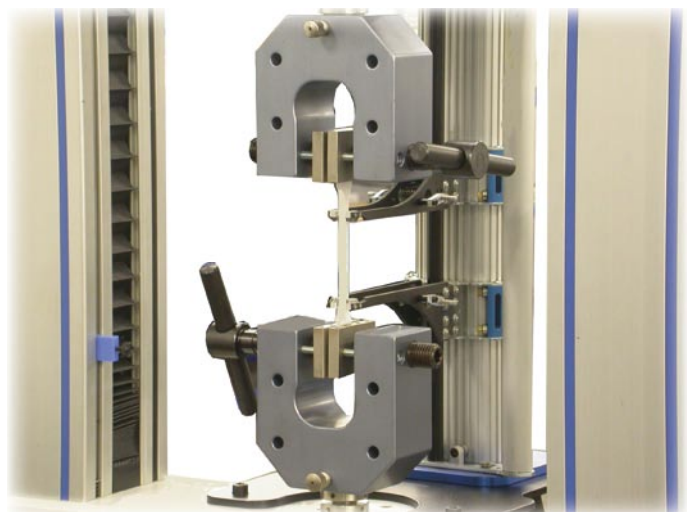
The MFN-B is available as the large measuring range device. The MFN-C is available as the small measuring range device.

Technical data

Travel max. 790 mm smallest L_0 10 mm Class of accuracy depending on model 0.2 or 1 (standard EN 10002)

Technical data:

Travel:	max 790 mm
Smallest L_0 :	10 mm
Class of accuracy depending on model:	1 / 0.2 (standard EN 10002)



Other types of extensometer available!

Environmental chamber

Our standard temperature chambers (temperature range -70°C to $+250^{\circ}\text{C}$) with or without controlling humidity are robust and have been proven since many years. Each temperature chamber will be manufactured according to our customer demands (max. tension / travel range, dimension of the grips / tools, max. temperature, handling, etc.), but using standardized components.

Our environmental chambers are manufactured for use with double frames.

Standard features include:

- Electrical resistance heating
- Choice of compressor, CO_2 or liquid N_2 cooling
- Microprocessor-based temperature controller
- Portable, height-adjustable floor stand.
- Available temperature range: -70°C to $+250^{\circ}\text{C}$ (optional: $+600^{\circ}\text{C}$)
- Move-in adapters
- Usable for optical and mechanical extensometer

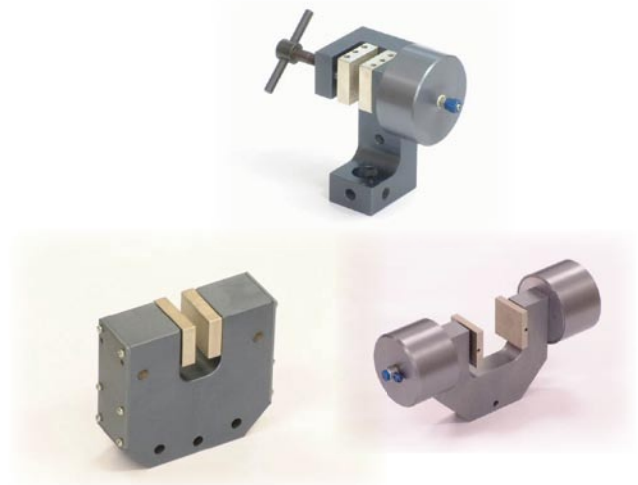


Grips / Fixtures / Vices

We offer a large range of specimen grips, fixtures, vices for almost any need. These devices are available in various designs, depending on the test load and test temperature used to cover a wide range of applications for the rubber and plastics testing.

Pneumatic grips

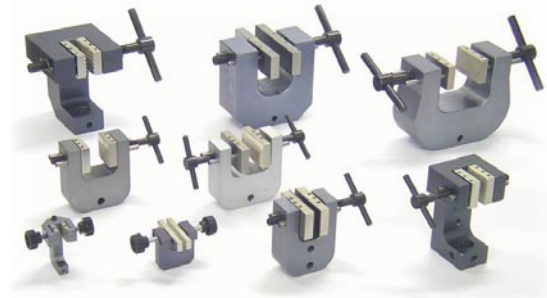
For low or medium test loads we offer different kinds of pneumatically operated grips which are working single or double sided. The clamping jaws are exchangeable and available in different versions (shape, surface structure and material) to cover all needs to get a slipping free test.



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Screw grips

These screw grips are operated manually via screw drive principle. One gripping jaw can be set in a fixed position; the other jaw is operated by a screw drive. Different jaws (fixed or exchangeable) are available to cover different applications.



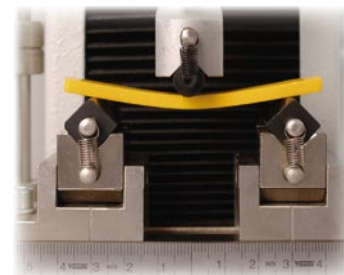
Wedge grips

For medium or higher test loads we offer different kind of mechanically operated wedge grips which are actuated manually via a lever, which is pressed against the specimen. The preload is generated by spring inside the clamping system. During the test the gripping force increase with the increasing tensile force. The clamping jaws are exchangeable and available in different versions (shape, surface structure and material) to cover all needs to get a slipping free test.



Vices for flexural test

Flexure or bending (3- or 4 point) tests can be carried out in 3- or 4-point way. Depending on the standard and the dimensions of the specimens, we offer different tables with different span (adjustable) and heads with different radius.



Further options:

- Devices for the determination of compressive properties of flexible materials acc. ISO 604 and ASTM D 695
- Tools for the determination of the ball indentation hardness according ISO 2039
- Devices for the determination of the static and dynamic coefficient of friction acc. DIN 53375, ASTM D 1894, ISO 8295
- Tools for the determination of the puncture resistance according ASTM D 5748
- Devices for 90° or 180° peel test
- Unit for the determination of the blocking load of plastic film by parallel platen method according ASTM D 3354, ISO 11502