300 Series

UNIVERSAL TEST MACHINE
5 to 500 kN (1125 to 112500 lbf)



TESTRESOURCES

300 SERIES

TestResources' 300 Series electromechanical universal test machines are engineered for accuracy and durability in order to withstand high force test applications. Our 300 Series test machines are quieter and more cost effective compared to hydraulic high force test machines. With force capacities from 5 kN to 500 kN they cover a wide range of test applications including very low force requirements.

The 300 series is recognized globally for being reliable, low maintenance and dependable. These systems provide many years of error-free test results. Maximize your productivity and minimize your annual costs with convenient calibration and minimal infrastructure maintenance.

What's Different?

What sets the TestResources' 300 Series apart from traditional universal test machines?

- Load capacities up to 500 kN (112500 lbf)
- Turnkey application solutions
- Offers flexible and scalable software packages
- Broad product line of dual column electromechanical load frames including tabletop and floor mounted frames.
- Configurable to meet custom widths and heights to match any test requirement
- Includes high performance and easy to use controller with logical workflow design
- Can be configured for low force testing

What's New?

Newton Universal Controller

Affordable AND Smart: Pay only for what you need now and receive performance and capability for what you might need in the future.



Announcing the Newton Universal test controller with both tablet and computer based configurations.

What does this mean for you?

- User interface optimized for intuitive workflow and ease of use
- Configured and customized to meet YOUR immediate testing needs and available budget
- Upgrade and Expand as needed to meet ALL future unforeseen testing challenges
- Research quality accuracy, resolution and speed range
- Expands to 20 sensors (transducer control channels)

300 Series Universal Test Machines





What you can do with the 300 Series...

The 300 series is a single channel uniaxial test machine with mechanical test measurement and control, data acquisition, results analysis and customized test report generation. Standard and custom models are available.

Engineered for accuracy and durability in order to withstand high force test applications

Designed to meet a variety of applications including metal, wire and steel products, composites, plastics, wood, medical devices, textiles, rubber and elastomers, large components and many more.



Test Types

- Tensile
- Compression
- Flexural
- Peel
- Shear
- Tear
- Friction
- Torsion
- Strength
- Characterization
- Proof
- Viscoelastic (Stress Relaxation / Creep)

Test Profiles

- Monotonic
- Dual segment
- Multiple segment
- Cyclic

Adjustable Test Speed Control

Constant test speed (CRE); mm/min or in/min
Constant loading rate (CLR); N/min; lb/min or psi/min
Constant strain rate (CSR); %/min, in/in/min or mm/mm/min

Standards

Meets specific industry test methods from ASTM, ISO, EN, DIN, JIS, TAPPI, JEDEC and other international standards organizations.

Markets

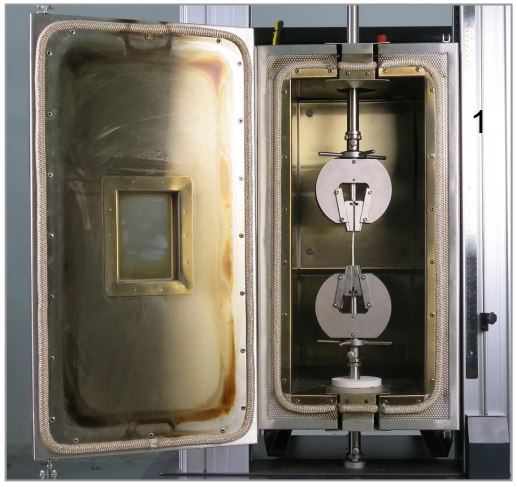
Product and materials testing in quality assurance, production, research, product development and educational test environments

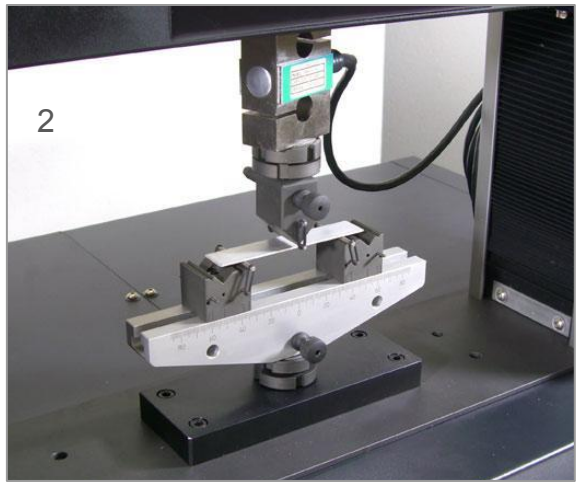
Industries

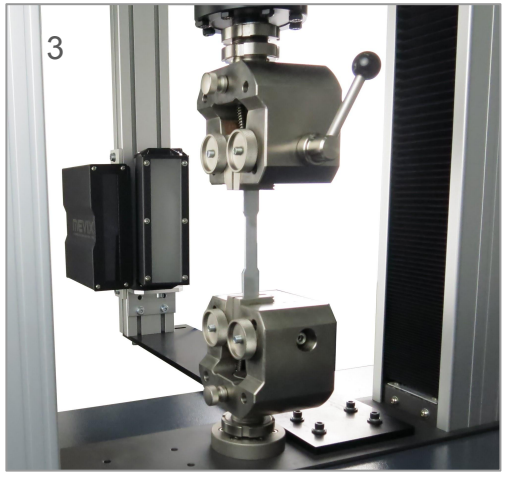
Medical devices, biomaterials, textiles, soft metals, rubber and elastomers, food, small components, wire, paper, plastic, film and many more.

Comprehensive Product Line of Grips, Fixtures & Accessories

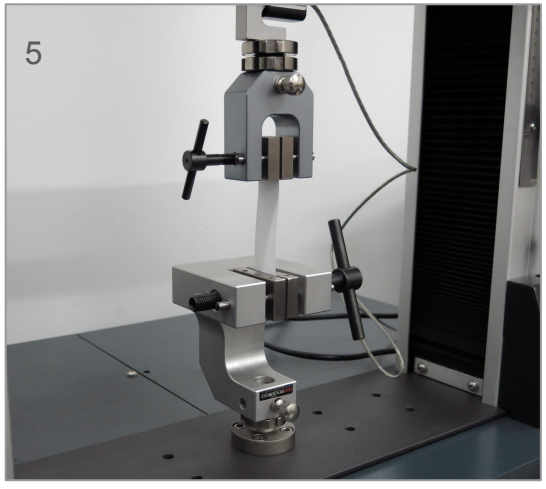
1. Environmental chamber with tensile grips
2. Three point flexural test of composites
3. Video extensometer for tensile test
4. Indentation fixture for wood products
5. Side action manual tensile grips
6. Special tensile grips for small samples
7. Special fixturing for industrial tool test
8. Compression fixture per ASTM standards
9. Tensile grips for structural foam
10. Engineered fixture for high temperature

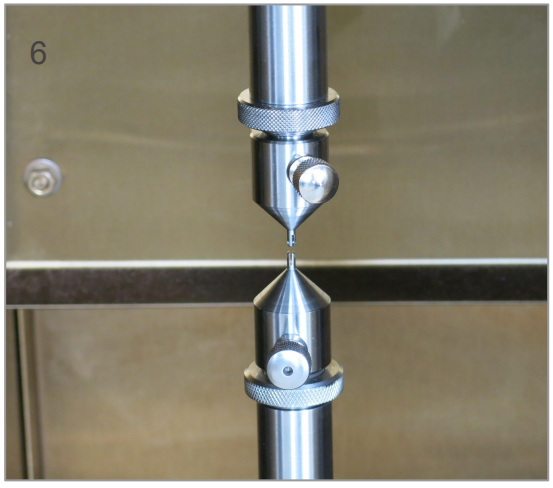


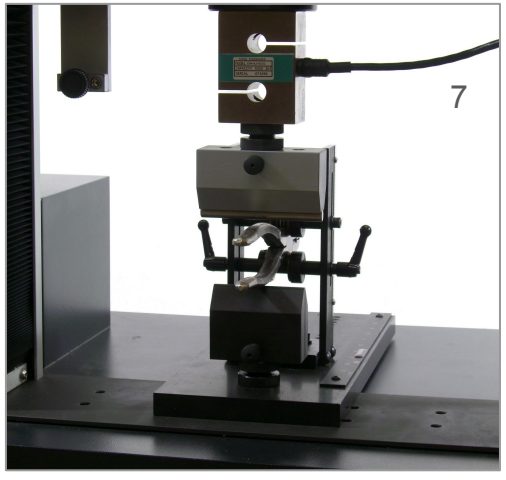


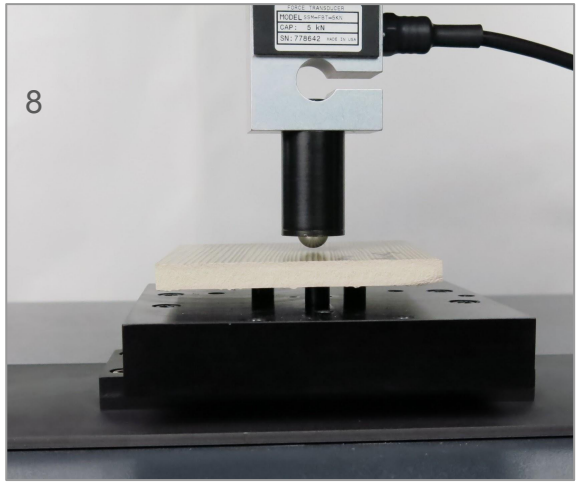


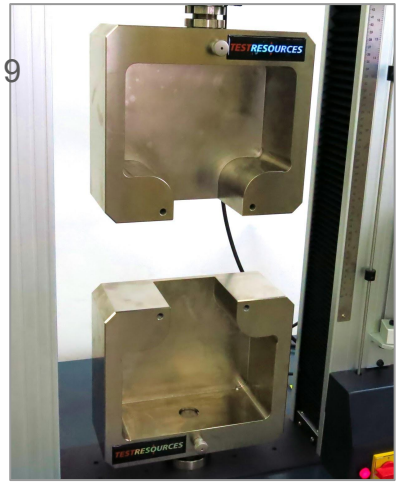














EXCEPTIONAL PERFORMANCE

At TestResources, exceptional performance is our top priority because we know that your business relies on it. This is especially evident with our 300 Series universal testing machines which produce precise, repeatable and reliable test results.

Load & Strain Measurement Accuracy

The 300 Series features accurate load measurements over a wide dynamic range, while meeting or exceeding industry standards such as ASTM E4, BS 1610, DIN 51221, ISO 7500-1, EN 10002-2 and AFNOR A03-501. Load accuracy is better than ± 0.5% over the entire calibrated range.



- Accurately measure forces as low as 0.0001 N (0.00002 lbf) with a low force rated load cell.
- Fourteen load cells available to cover a wide range of full scale capacities including 10 lbf, 25 lbf, 50 lbf, 100 lbf, 150 lbf, 250 lbf, 500 lbf, 1000 lbf, 2000 lbf, 5000 lbf, 10000 lbf, 22000 lbf, 55000 lbf and 112500 lbf. Metric models are also available.
- Controller automatically identifies each load cell with Plug ‘n’ Play simplicity, which improves operator efficiency and reduces likelihood of errors. Newton controllers meet TEDS IEEE 1451.4 standard.
- Strain measurement accuracy meets or surpasses ASTM E83, ISO 9513 and EN 10002-4

Position Resolution

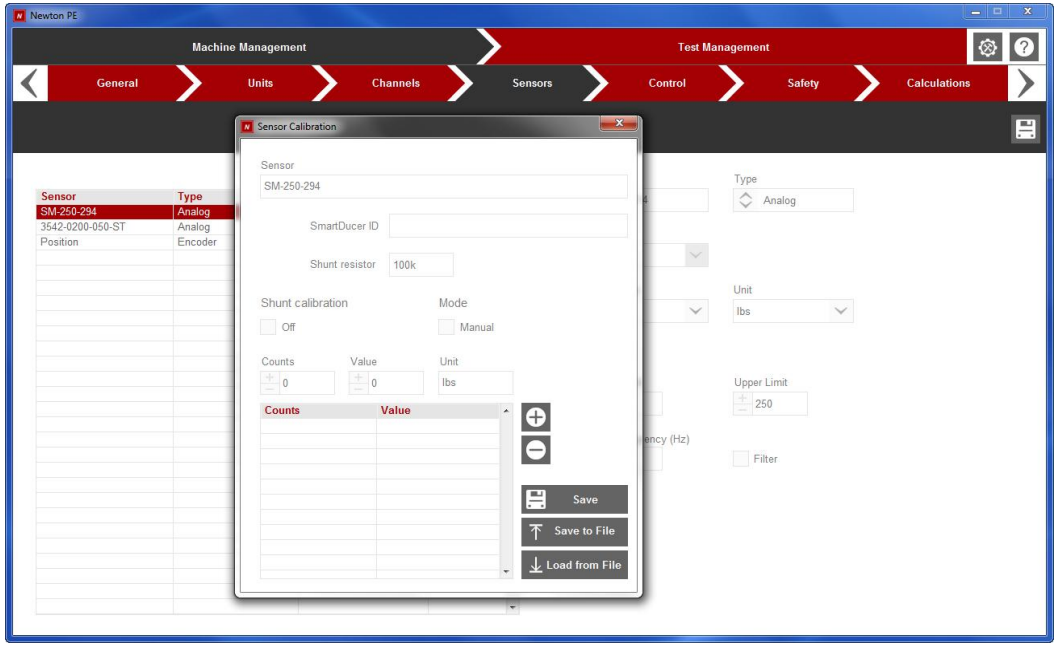
High resolution position encoders improve position data quality and improve machine control.

Data Acquisition Rates

Up to 5 kHz data acquisition rate on simultaneous load, extension and strain channels.

Flexible Control

Control variety of testing modes including constant crosshead speed (CRE), loading rate (CLM) and strain rate (CSR).



NEWTON UNIVERSAL CONTROLLER



Newton Universal, universal test machine controller, is an interactive and intuitive workflow guided controller that is configurable to your test requirements, preferences and budget.

User interfaces:

- Touchscreen tablet interface
- Desktop PC with keyboard and mouse interface

Software packages:

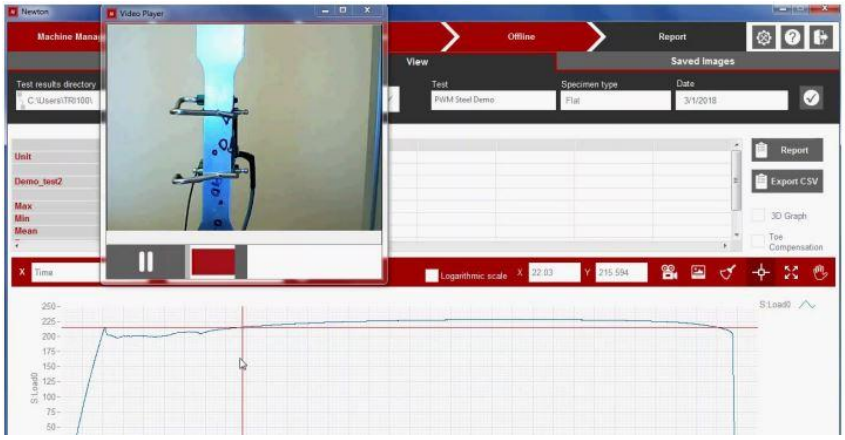
- Force Testing Package
- Materials Testing Package
- Premium Package

Optional features to enhance your testing capabilities:

- **TestVideo** Module for video capture and playback of tests with data synchronization
- **TestCreator** Module creates custom multiple segment profiles for product and component testing
- **TestCalc** Module enables you to create custom analyses and calculations
- **TestComply** Module to meet CFR 21 Part 11 FDA needs for biomedical applications
- **TestLingo** Module translates your controller interfaces to your language.

Additional options:

- Strain channel modules for standard and biaxial applications
- Inputs from up to 20 different sensors
- Up to 26 different digital input and output channels



BUY ONLY WHAT YOU NEED, WHEN YOU NEED IT

Newton is the latest technology on the market that gives you the ability to purchase only the capabilities and features you currently need while allowing you to easily and affordably expand the system's capabilities to meet all potential needs.

This industry leading approach gives you the freedom of choice, the power to control your budget and the security for future growth.

Your controller and software can be easily enhanced at any time by adding standard or customized features. Have a unique calculation or report that you need? No problem. We can create any custom feature that your test application requires.

LOAD FRAMES

TestResources' 300 Series universal test machines are durable, accurate and feature a wide range of force capacities. The 300 Series offers tabletop machines, floor machines and custom extra tall and/or extra wide load frames.

Model	310	370-5-125	311	370-20-100	370-20-120	312	313	370-50	370-50-100	370-50-120	314	315	316	317
Type	Tabletop	Floor	Tabletop	Floor	Floor	Tabletop	Tabletop	Floor	Floor	Floor	Floor	Floor	Floor	Floor
Capacity	5 kN (1125 lbf)	5 kN (1125 lbf)	10 kN (2250 lbf)	20 kN (4500 lbf)	20 kN (4500 lbf)	25 kN (5500 lbf)	50 kN (11250 lbf)	50 kN (11250 lbf)	50 kN (11250 lbf)	50 kN (11250 lbf)	100 kN (22500 lbf)	150 kN (33750 lbf)	300 kN (67000 lbf)	500 kN (112500 lbf)
Minimum Speed (3)	0.001 mm/min (0.00004 in/min)													
Maximum Speed	1000 mm/min (40 in/min)	1000 mm/min (40 in/min)	500 mm/min (20 in/min)	300 mm/min (12 in/min)	300 mm/min (12 in/min)	500 mm/min (20 in/min)	500 mm/min (20 in/min)	200 mm/min (8 in/min)	300 mm/min (12 in/min)	300 mm/min (12 in/min)	300 mm/min (12 in/min)	300 mm/min (12 in/min)	300 mm/min (12 in/min)	300 mm/min (12 in/min)
Crosshead Travel (std)	980 mm (38.6 in)	900 mm (36 in); 1000 mm (40 in)	980 mm (38.6 in)	900 mm (36 in); 1000 mm (40 in)	900 mm (36 in); 1000 mm (40 in)	980 mm (38.6 in)	1205 mm (47.4 in)	900 mm (36 in); 1000 mm (40 in)	900 mm (36 in); 1000 mm (40 in)	900 mm (36 in); 1000 mm (40 in)	1215 mm (47.8 in)	1215 mm (47.8 in)	1131 mm (44.5 in)	1000 mm (40 in)
Vertical Test Space (std)	1100 mm (43.3 in)	1370 mm (54 in)	1100 mm (43.3 in)	900 mm (36 in)	1000 mm (40 in)	1100 mm (43.3 in)	1360 mm (53.5 in)	1000 mm (40 in)	900 mm (36 in)	1000 mm (40 in)	1400 mm (55.1 in)	1400 mm (55.1 in)	1316 mm (51.8 in)	1400 mm (55.1 in)
Horizontal Test Space	426 mm (16.8 in)	1250 mm (50 in)	426 mm (16.8 in)	1000 mm (48 in)	1200 mm (48 in)	426 mm (16.8 in)	420 mm (16.5 in)	1200 mm (48 in)	1000 mm (40 in)	1200 mm (48 in)	550 mm (21.6 in)	550 mm (21.6 in)	550 mm (21.6 in)	550 mm (21.6 in)
Extra Tall Option	✓		✓			✓	✓				✓	✓	✓	✓
Extra Wide Option	✓					✓					✓	✓	✓	✓

Notes

1. Load weighing system meets or surpasses ASTM E4, BS 1610, DIN 51221, ISO 7500-1, EN 10002-2 and AFNOR A03-501.
2. Strain measurement system meets or surpasses ASTM E83, BS 3846, ISO 9513, EN 10002-4.
3. Extra fast drive systems are available as options. Settings may be adjusted for ultra slow speed tests.
4. Total vertical test space on all systems is the distance from the top surface of the base platen to the bottom surface of the moving crosshead, excluding load cell grips and fixtures.
5. Load capacity is listed at maximum speed.

The specifications listed were developed per TestResources procedures and are subject to change without notice.

SPECIAL SOLUTIONS

Many special solution test machines are available in addition to our wide range of standard test machines. Through the use of some of our standard elements, we can configure a wide variety of unique solutions without paying a “custom price” or waiting months to receive your order. Our modular platform approach satisfies virtually any application requirement.



326 Family Universal Test Machine

326 Family universal test machine is an affordable compression testing solution for test applications requiring up to 300 kN (67000 lbf). Since this machine has half the capabilities of the other electromechanical test machines we can offer it to our customers for half the price.



Extra Wide Frames

Extra wide custom frame solutions are available for various unique testing applications with large samples. Allowing you to test efficiently and accurately.



Extra Tall Frames

Extra tall custom frame solutions are available for various unique testing applications with high elongation samples. Allowing you to test efficiently and accurately.

FLEXIBILITY TO EXPAND

1000's of Grips and Test Fixtures

- Wedge action and side action grips
- Mechanical, Pneumatic and hydraulic grips
- Compression platens
- 3 and 4 point bending jigs and fixtures.
- Self tightening grips
- Capstan bollard grips
- Meets specific ASTM and ISO standard test requirements
- Custom test fixture design service

Special Load Frame Accessories

- Safety enclosures
- T slot and engineered baseplates
- Test frame column spacing
- Control multiple actuators per test frame
- Multi-sample test setups

Extensometers and Deflectometers

- General purpose clip on extensometers
- High resolution video and laser extensometers
- Deflectometers for precision position measurements

Environmental Chambers with Test Fixtures and Extensometers

- Low temperature environmental ovens
- High temperature environmental ovens
- Humidity control options
- Biomedical bathes for testing in saline at 37 C (98.6 F)
- High temperature furnaces for tests at temperatures up to 1600 C (2912 F)
- Corrosion resistant grips and fixtures

Custom Solutions

Our modular approach makes quick and easy application engineered solutions practical. Changes can be made on modules, rather than at integrated system levels which are more complicated.



Add a Torsion Channel (Upfront or in the Field)

Simple twist-thrust biaxial tests help evaluate the mechanical performance of tubes, screws, connectors, wires and bottles. TestResources solves these applications in multiple ways that depend on the timing of your torsion add on. Our systems are inherently modular and flexible which allows you to add the torsion channel upfront or in the field in a short amount of time.

SIMILAR PRODUCTS

When you need more travel and higher test/return speeds.

200 Series Single Column Universal Test Machine

Consider a traditional 200 Series universal test machine if you have high extension or long travel testing applications. When compared to the 100 Series machines, the 200 Series offers several benefits:

- Force capacities up to 5 kN (1125 lbf) and test speeds up to 100 ipm (2500 mm/min)
- Travel lengths up to 1400 mm (55 in)
- Test high elongation test samples such as thin film and rubber with extended crosshead movement
- Flexible adjustment of crosshead travel limits.



When you need higher force.

600 Series Servo Hydraulic Universal Test Machine

Consider a 600 Series universal test machine if you need high capacity for tensile, compression, flexural bend or shear testing applications.

- Force capacities up to 2 MN (450 kip)
- 1,000 Hz data acquisition rate
- Large dual test space provides enough test space to test with large fixtures safely and efficiently
- Budget friendly



SUPPORT

With over 20 years of providing support around the world we have it figured out. TestResources is recognized globally for delivering reliable, low maintenance and budget friendly solutions. It all starts with well-designed products, the right people and a machine with easy to replace components.

TestConnect. Better Support--Faster

TestConnect, included as part of our Newton Universal support toolset, delivers powerful communication capabilities that bring our most experienced support engineers even closer to your organization and operators. Secure online screen share connection technology enables us to provide you with fast and straightforward technical support when you need it.

TestConnect reduces wait times, shortens support times and saves you money.

Additional Services

We offer on-site calibration, new operator training, refresher training, emergency repair and replacement parts which ensures that you can start testing faster and stay testing longer.

Facts about TestConnect

94% of our customers have no service calls within the first 5 years of operation
83% of our support calls are resolved within 4 hours



TestResources

Our team of experienced engineers help our customers find exact solutions based on their test requirements. Find out how we can help you ensure accurate and consistent test results!

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