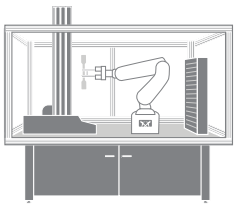
AUTOMATED TESTING SYSTEMS

A New Dimension in Testing Productivity

INSTRON®

LEADER IN AUTOMATED TESTING



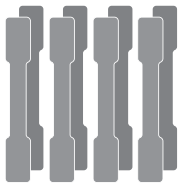
2,500+
Automation Systems
INSTALLED GLOBALLY

As a global leader in materials testing, Instron has successfully designed and installed over 2,500 fully and semi-automated testing systems worldwide.

30+
YEARS

EXPERIENCE Developing Automation Systems

For over 30 years, Instron has continually advanced its automation systems to be exceptionally adaptable and scalable — designed to meet the diverse needs of R&D and quality control laboratories, regardless of size or throughput demands.



500
Up to 500 Specimens per Run **UNATTENDED**

Each Instron automation system is built on a foundation of proven technology, expertly configured to meet your specific testing needs and optimized through decades of application expertise.

OUR PRODUCTS

Instron's automation solutions are available as complete turnkey systems or modular components that seamlessly integrate with existing universal testing machines — offering the flexibility to meet virtually any testing requirement.

AT2 AUTOMATED
Testing Systems

For smaller-volume labs with limited space, an automated XY stage enables automated batch and component testing.

AT3 AUTOMATED
Testing Systems

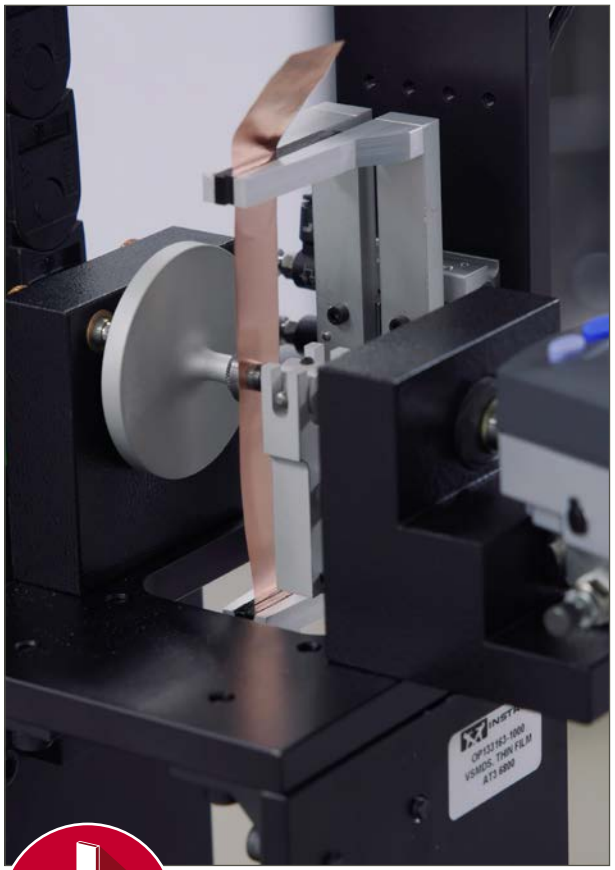
For mid-sized labs, our small-footprint AT3 increases testing capacity and handles everything from specimen measurement to strain measurement.

AT6 AUTOMATED
Testing Systems

For large, high-volume labs, Instron's robot-driven AT6 is capable of full in-line mechanical testing that can include multiple testing stations and 24/7 operation.

WHY AUTOMATE?

Looking Beyond Efficiency



Better Use of Skilled Labor and Lab Time

Skilled operators are a vital asset to any laboratory. By automating routine tasks such as specimen measurement and insertion, operators can leave the test system unattended - freeing up their time to focus on higher-value activities that enhance productivity.

Enhanced Safety

Automation can reduce an operator's time at the machine, decreasing the risk of operator strain from repetitive motion stress, or potential injury from physically interacting with specimens or operating the test frame.

Reduced Training Time and Expenses

For labs that experience high labor turnover, training new operators can be time intensive and costly. A fully automated system requires minimal training and provides reliable and accurate results.

Did you know that **without automation**, operators spend approximately **10.3 hours per day** waiting for tests to run in a 24/7 operation? That translates to **72 hours each week — 156 days a year** of valuable operator time lost.*

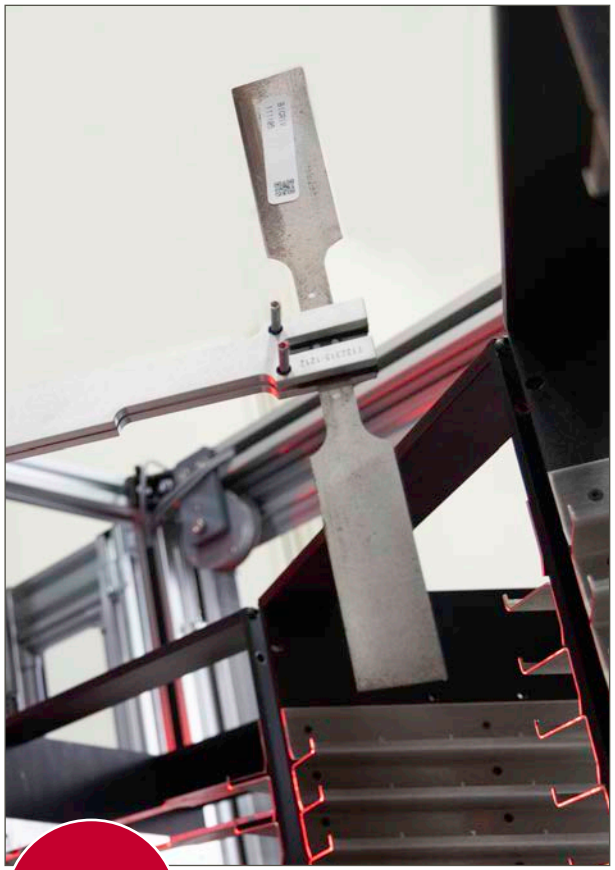
* Based on 1,440 specimens tested per week

Increased Throughput

With the ability to store up to 500 specimens, some automation systems can run unattended during both daytime and nighttime shifts, increasing throughput capabilities without the expense of additional shifts.

Increased Repeatability

Automation delivers precise, consistent processes and motions for every test, improving repeatability, eliminating operator variability, and reducing the need for expensive retesting caused by operator error.



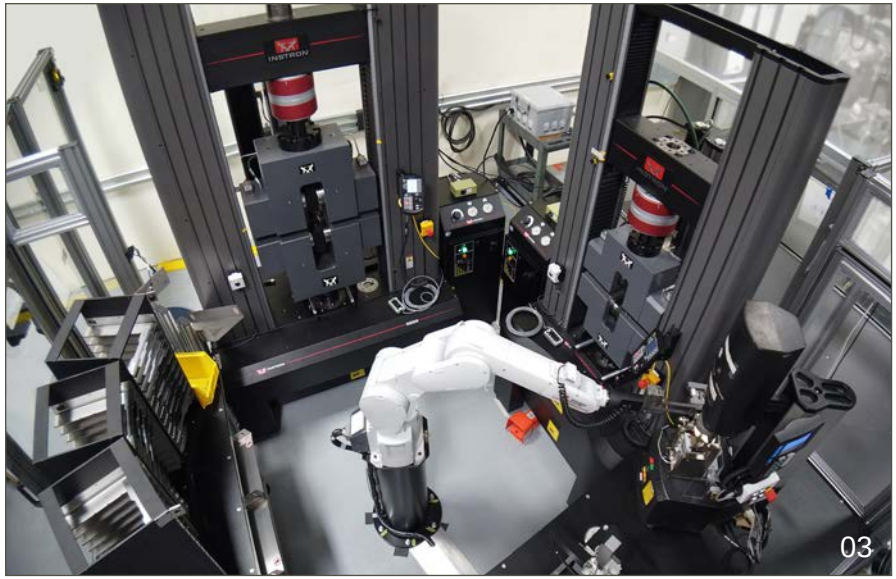
Reduced Specimen Waste

Automated testing systems quickly identify materials that are out of specification, reducing the amount of product that is scrapped during testing.

AT6
Automated Testing Systems

The Instron AT6 is a modular, 6-axis robot-driven system engineered to automate tensile, flexural, compression, and lap shear testing in accordance with common ASTM and ISO standards. Designed for versatility, it supports a wide range of materials — including metals, plastics, elastomers, thin films, composites, and sutures — at forces up to 600 kN. With the ability to run up to 500 specimens completely unattended, the AT6 delivers true “lights-out” testing, maximizing throughput day and night. The system can be configured with specimen measurement stations, automatic strain devices, temperature chambers, and multiple testing frames to perform different tests in parallel. It also integrates seamlessly with additional testing equipment such as durometers, hardness testers, and surface roughness testers, making it a comprehensive solution for high-efficiency, high-volume testing environments.

ASTM D638 • ASTM D790 • ASTM D412 • ASTM D882 • ASTM E8 • ISO 527 • ISO 178 • ISO 6892



01 Precise specimen measurements

02 Floor model testing system with AutoXBiax for axial and transverse strain measurement

03 Multiple testing stations and systems with floor mounted robot

04 Customizable specimen racks hold up to 500 specimens

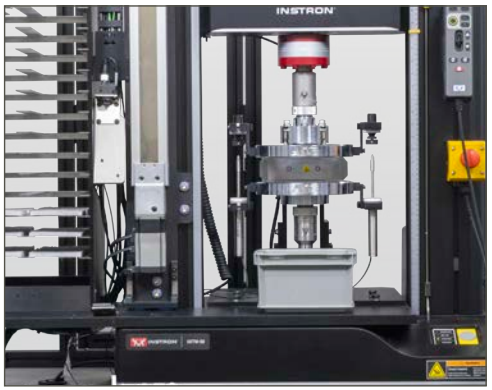
05 Automated hardness testers

06 Specimen marking machine

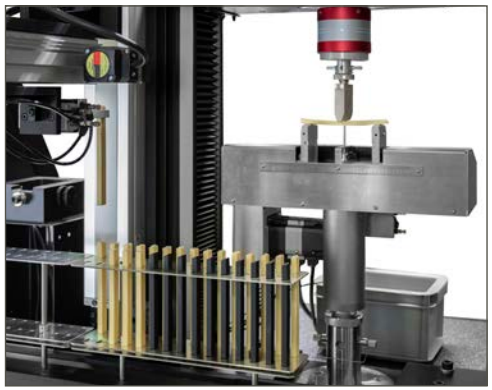
AT3

Automated Testing Systems

The Instron AT3 is a compact, versatile 3-axis actuator-driven testing system engineered for automated tensile, compression, flexural, and lap shear testing. Designed to meet a wide range of ASTM and ISO standards, it's ideal for plastics, elastomers, thin films, foils, metals, and more. From specimen measurement and material handling to strain measurement and specimen disposal, the AT3 handles it all—allowing operators to load up to 160 specimens and walk away with confidence. Maximize throughput, minimize manual effort, and ensure consistent, reliable results every time.

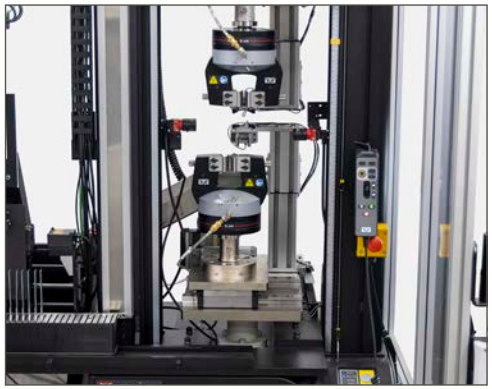


Compression



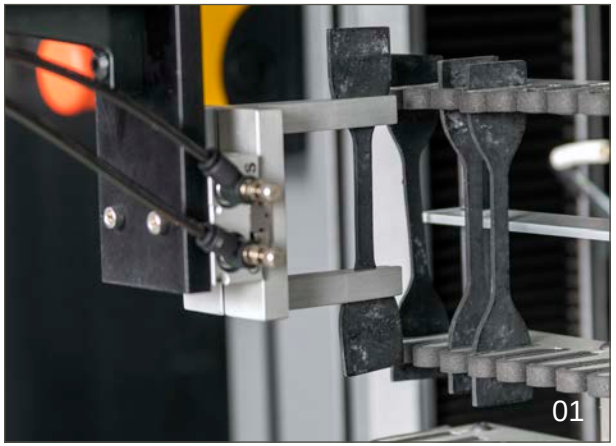
Flexure

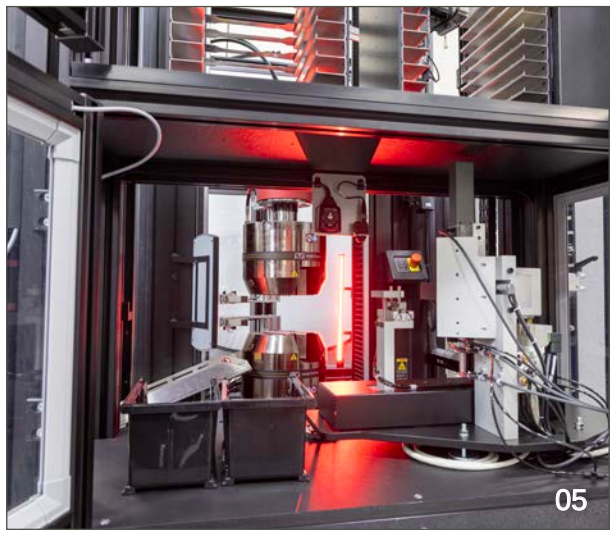
Tensile



Lap Shear

ASTM D638 • ASTM D790 • ASTM D412 • ASTM D882 • ASTM E8 • ISO 527 • ISO 178 • ISO 6892





01 Automatic specimen handling and removal

02 Integrated barcode reader to automatically associate specimen details with test data

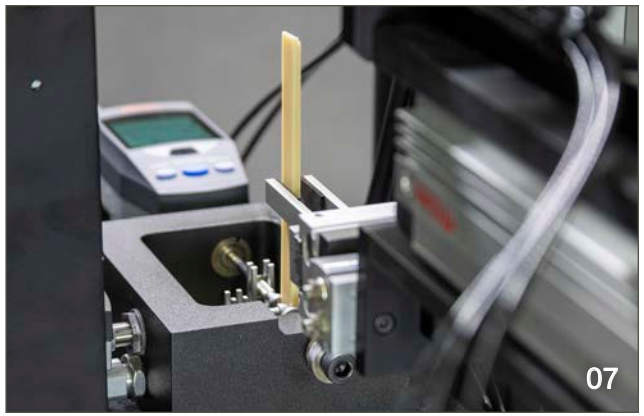
03 Custom racking and specimen handling

04 Automatic strain measurement via contacting or non-contacting extensometers

05 Capable of testing up to 300 kN force

06 Racking capable of holding up to 160 specimens

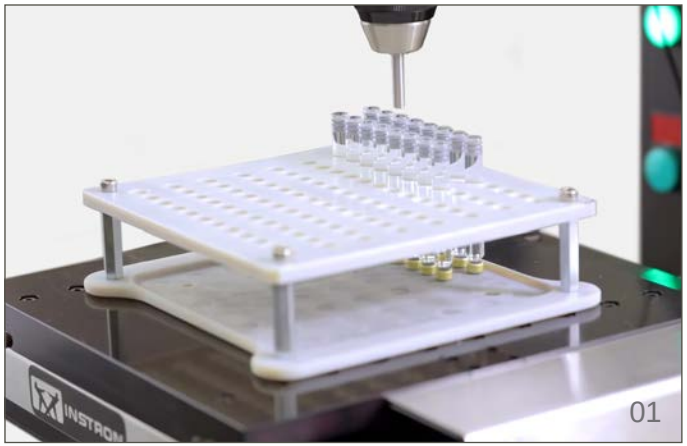
07 Automatic specimen measurement station



AT2

Compact Automated Testing Systems

The Instron AT2 is a compact automated XY stage capable of automating compression, tensile, and flexure testing for a batch of specimens with repetitive test points, or a single device or component with multiple test points. Designed to be added on to new or existing 6800 Series universal testing systems, the XY stage includes standard bolt holes to accommodate custom fixturing and unique component geometries. The AT2 is fully integrated with Bluehill Universal testing software, making it easy for operators to build out test locations using grid, diamond, or custom sequences.



01

02

01 Customizable racking solutions

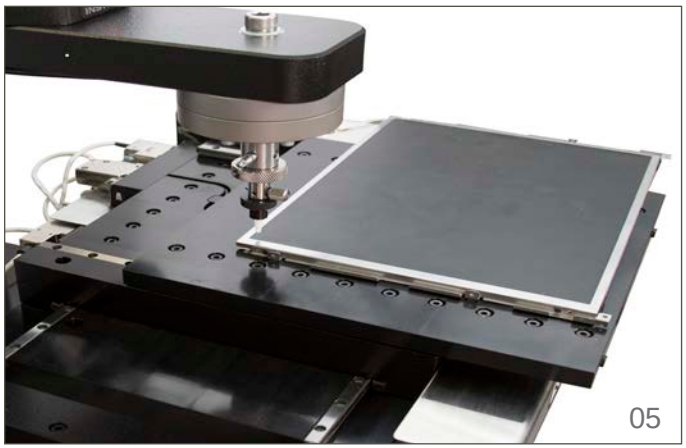
02 Optional extra-large stage

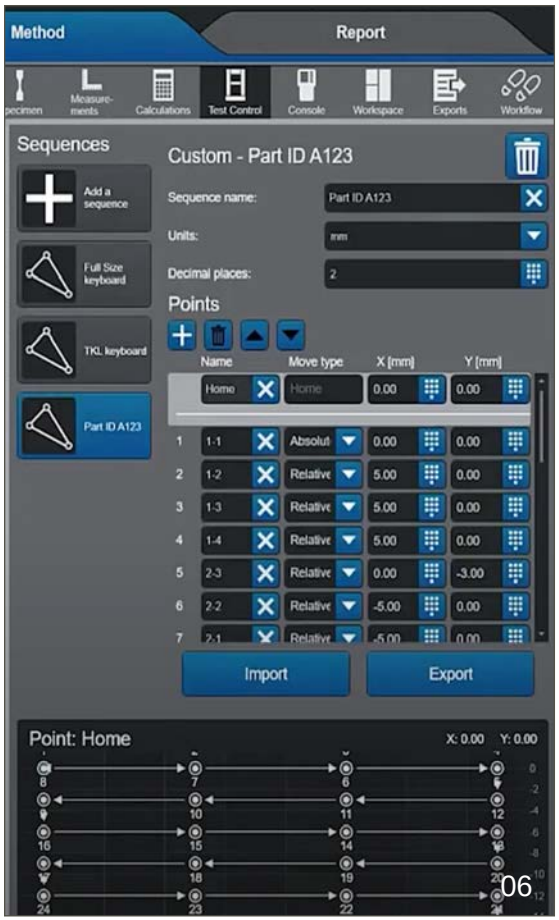
03 Laser alignment tool for precision test points

04 Available adapter plate for non-automated testing

05 Multi-point testing

06 Building a sequence of test locations in Bluehill Universal





CT6

Cobot Testing Systems

The Instron CT6 pairs a collaborative robot (cobot) with your universal testing system to automatically load, test, and remove specimens for unattended batch testing. The CT6 is designed to increase efficiency for labs that require a high degree of flexibility in their testing systems. It is differentiated from other automation systems in that it is designed to be quickly and easily programmed for different testing requirements and specimen geometries by your lab manager or operators, with little to no help from Instron.

Compact in size, the cobot delivers precise loading movements that improve repeatability, eliminating operator influence related to specimen alignment and data collection.

01 The use of automation reduces operator introduced errors.

02 Specimen racking is highly customizable.

03 The CT6 is designed to handle a wide range of specimen and component geometries.

04 Collaborative robots are built to operate safely alongside human workers — but when cobots handle potentially hazardous specimens like sharps, we strongly recommend using protective shielding to ensure maximum safety.

Automated Carousel

Testing Systems

Instron's Automated Carousel Testing System utilizes an innovative, adaptable design for testing of medical vials, cartridges, and pre-filled syringes. The small footprint allows it to be placed on standard lab benches, adding automation to even the smallest labs. It is designed with easy wipe-down surfaces and stainless steel covers for biomedical environments, and is commonly configured to automate testing of residual seal force (RSF) and friction testing.

01 Easy to clean surfaces

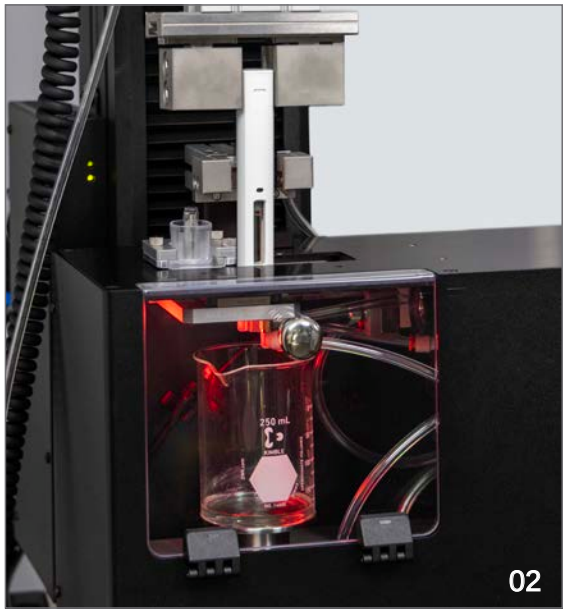
02 Interlocked safety enclosure

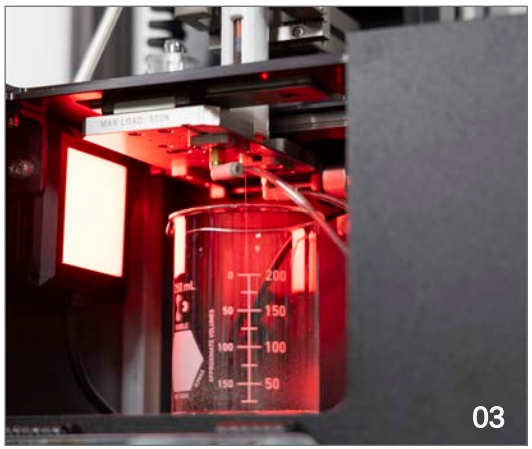
03 Removable racks test up to 24 specimens

Autoinjector

Testing Systems

Developed in close partnership with pharmaceutical device manufacturers and CDMOs, Instron's Autoinjector Testing System can perform full functionality testing on a wide range of drug delivery devices – such as needle shield and button-activated devices, as well as safety syringes. This system measures a variety of essential drug delivery outputs, including cap removal, dose accuracy, activation force, injection time, needle depth, click detection, and needle guard lockout – allowing labs to meet internal quality requirements and international standards such as ISO 11608. This system can be integrated with a cobot.





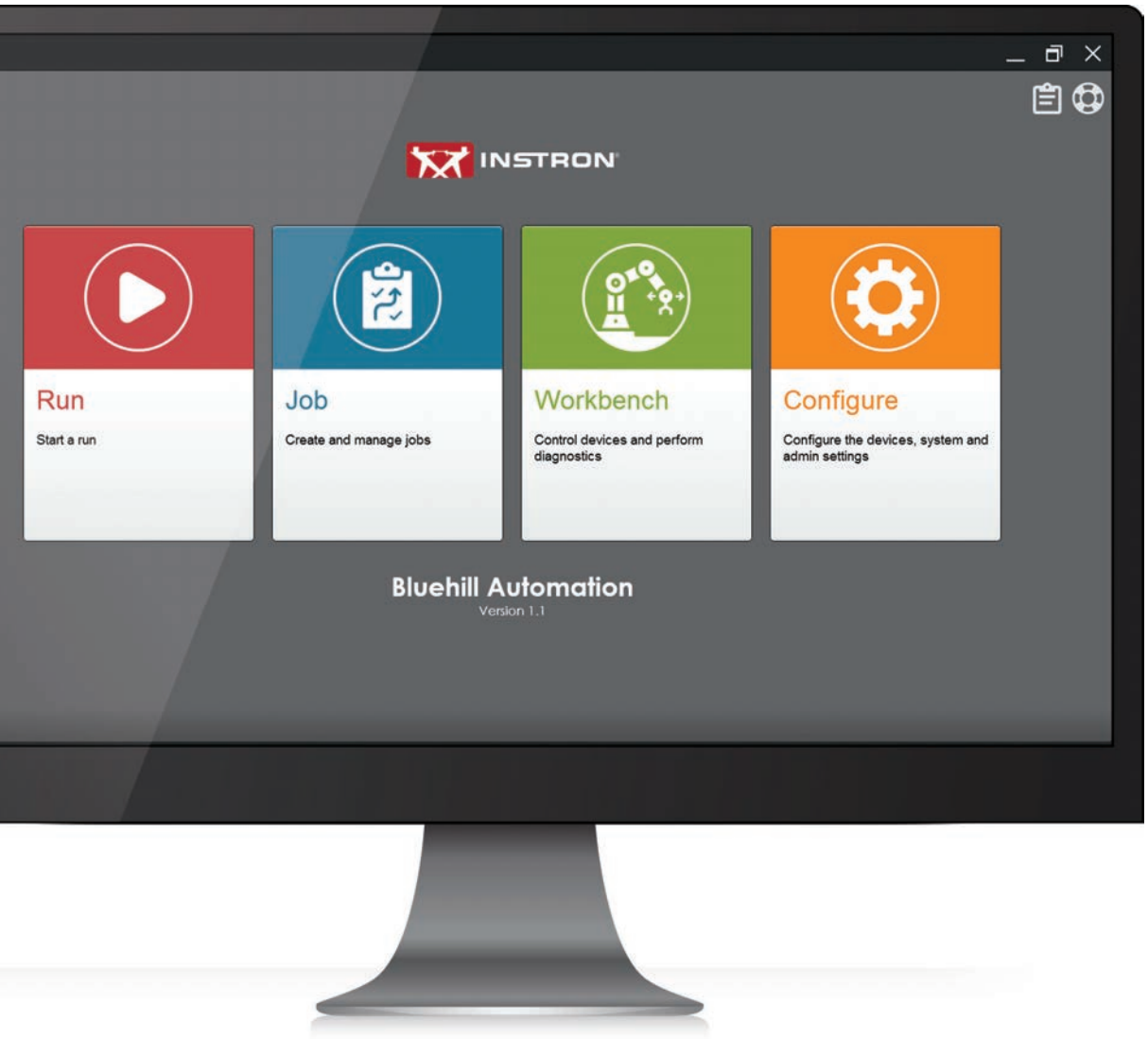
01 Reduce time and number of devices required to complete testing

02 Save money on testing equipment, maintenance, and specimens

03 Simplify data consolidation, analysis, and validation process

BLUEHILL® AUTOMATION SOFTWARE

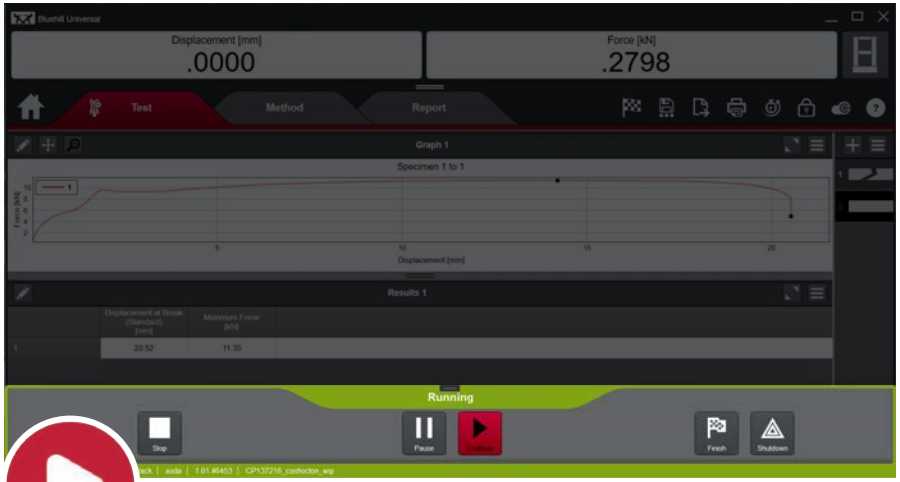
A Simpler Way to Program Automation



Bluehill Automation is a software application designed to manage the automated devices and sequences required by Instron® AT3 and AT6 testing systems. Bluehill Automation operates alongside Bluehill Universal software to seamlessly test multiple racks of specimens without human interaction.

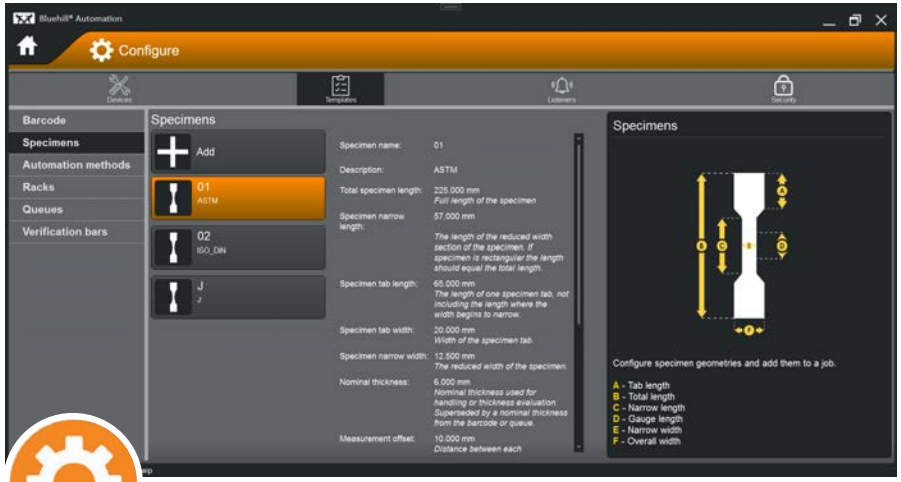
Designed for Automated Testing Systems

- Select from tensile, compression, and flexural test types
- Barcode parsing of specimen identification is easily configurable
- Conveniently stores all test data and results in a SQL database for easy retrieval
- Ability to test multiple methods, geometries, or test standards in one automated test run
- Sorted disposal of specimens based on Pass/Fail criteria
- Security configurable to control user permissions
- Support for metals-specific calculations: R-bar, Delta R, and bake hardening



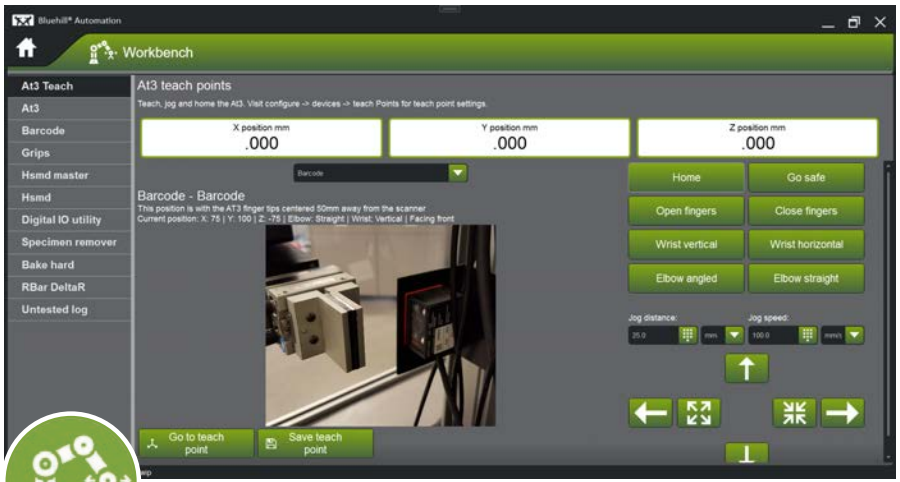
RUN TEST

While a test is running, Bluehill® Automation will appear as an overlay in Bluehill Universal, displaying the status of the sequence.



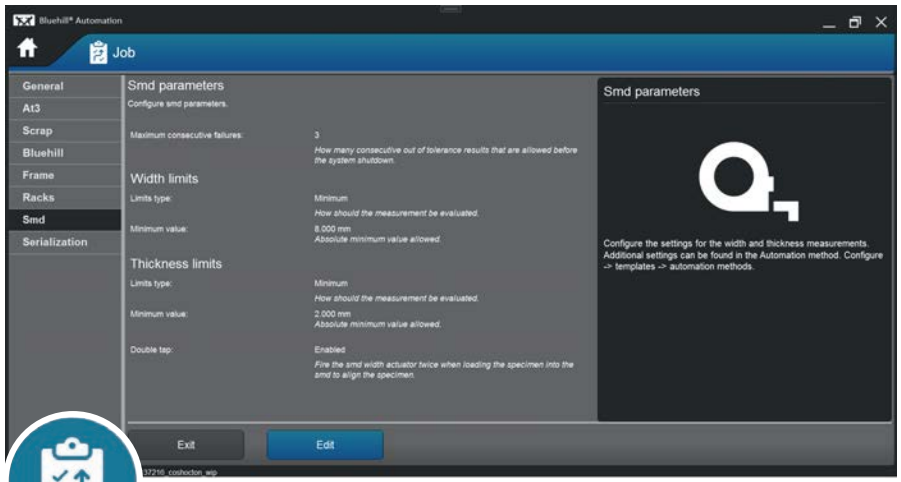
CONFIGURE SYSTEM

Devices and specimen types are configured to identify the system's stations and specimen properties. User security permissions and notifications can also be configured.



SET UP WORKBENCH

With the system configured, the workbench is used to "teach" the machine where each device station is located to ensure precise, repeatable movements during the test sequence. Manual control, diagnostics, and live readings of the robotic arms and other devices are available.

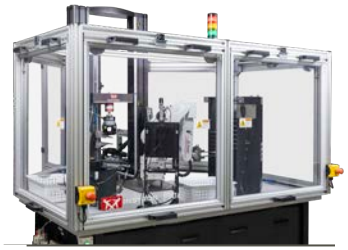


CREATE JOB

A job defines the sequence of the automated test, the specimens to be used, and other settings not outlined in the Bluehill Universal test method. To start a test, an operator selects one or more jobs to run.

PUTTING AUTOMATION INTO PERSPECTIVE

Automation Systems at a Glance



	AT6	AT3	AT2	CT6	Carousel
Applications	Metals Plastics Composites Elastomers Components Sutures Thin Films Foam	Metals Plastics Elastomers Thin Films Foam	Components (Medical Devices, Pharmaceutical, Electronic, etc.)	Raw Materials Components (Medical Devices, Pharmaceutical)	Components (Medical Devices, Pharmaceutical)
Test Types	Tensile Compression Flexure Lap Shear	Tensile Compression Flexure Lap Shear	Compression Tensile Flexure	Tensile Compression Flexure Lap Shear	Compression
Maximum Specimens*	500	160	36	36	24
Maximum Force Capacity	600 kN	300 kN	10 kN	5 kN	5 kN
Space Requirements	Large lab	Small lab	Tabletop	Tabletop	Tabletop
Customization Options					
Barcode Scanner	●	●	—	—	—
Specimen Measurement	●	●	—	—	—
Multiple Testing Machines	●	—	—	—	—
Additional Devices (Hardness, Roughness, etc.)	●	—	—	—	—
Temperature Testing	●	—	—	—	—

*Note: Specimen Dimension Dependent

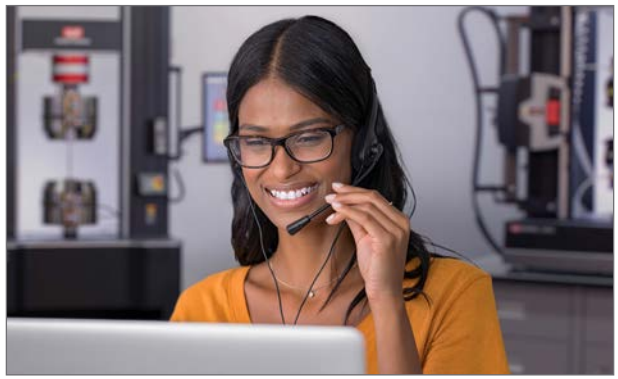
OUR PROMISE

With You Every Step of the Way

With a network of **over 300 field service engineers spread across every major market**, Instron delivers the tools, expertise, and personalized service you need to keep your testing operations running smoothly. Our global team is dedicated to helping you meet your goals — whether through routine preventative maintenance, precise calibration, expert application support, or hands-on training. Partnering with Instron means more than just service — it's a commitment to extending the life of your equipment, minimizing downtime, reducing total cost of ownership, and future-proofing your testing processes.

CALIBRATION

PREVENTATIVE MAINTENANCE



TECH SUPPORT AND TRAINING

CONNECTED SERVICES

REPAIR AND REFURBISHMENT

SYSTEM UPGRADES AND RETROFITS

THE WORLD STANDARD

We stake our reputation on the integrity of data. From the measurement of primary test data to result generation, we design and manufacture the full data integrity chain (e.g. load cells, sensor conditioning, and software). Additionally, we calibrate more than 90,000 of these sensors annually with the lowest accumulated uncertainty.

30,000+

We service and calibrate more than 30,000 Instron systems in active use worldwide every year.

96%

96% of the Fortune 100 list of the world's largest manufacturing companies use Instron test systems.

18,000+

Instron systems have been cited in more than 18,000 patents since 1975.

www.instron.com

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