

High Force Universal Testing Machines

100 kN and Above Testing Capacity







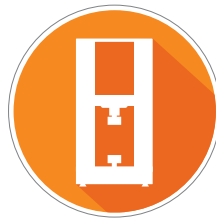
For over **75 YEARS**, the Instron® brand has been widely recognized for producing some of the most advanced mechanical testing systems in the world. Our systems are designed by industry experts, vetted by active members of major standards organizations, and supported by a global network of skilled and experienced service technicians. This comprehensive approach allows us to back each Instron system with an unmatched level of industry and application expertise designed to support it throughout its lifetime.



1,500+ employees
A highly educated, experienced, and diverse workforce



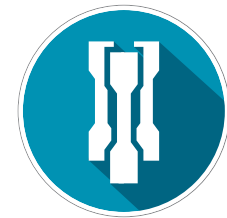
Representing **160 countries**, speaking **40+ languages**



50,000+ systems installed worldwide



75+ years of engineering and manufacturing testing systems



Diverse product range for nearly all global markets and industries

HOW WILL HIGH FORCE TESTING SYSTEMS MEET MY NEEDS?

Application-Based Testing Solutions

Instron® high force universal testing machines perform tensile, compression, bend, peel, tear, and other mechanical tests on materials and products to ASTM, ISO, and other industry standards. These systems are available in a range of sizes and maximum force capacities.

From electromechanical systems used to test high-strength metals and advanced composites to static-hydraulic systems for testing materials used in civil infrastructure, Instron has systems suitable for all applications. With over 50,000 systems installed worldwide, businesses and universities involved in quality control and research & development have relied on Instron systems to perform groundbreaking research, develop innovative new materials, and ensure best-in-class manufacturing processes.



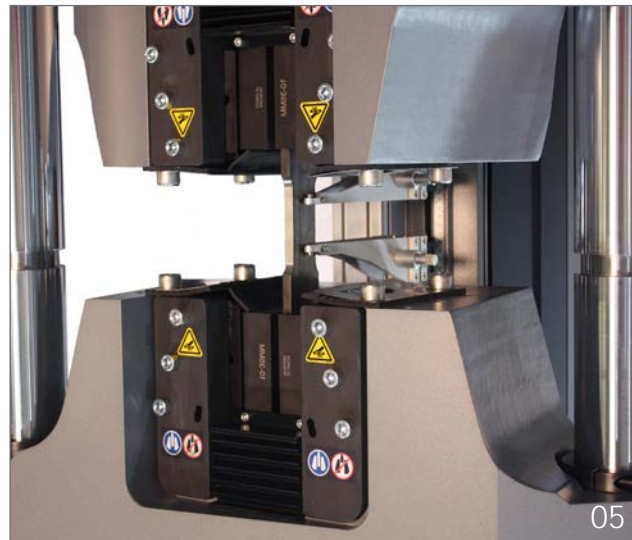
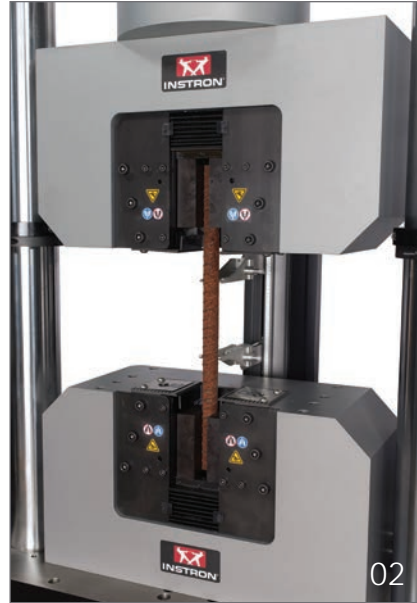


- 01 3-Point Concrete Bend Test
- 02 Debris Shield
- 03 Hemming Bend Test
- 04 Composite Tensile Test with Contactless Extensometer
- 05 High-Temperature Torsion Test with Modular T-Slot Table
- 06 Automated Tensile Test
- 07 Composite Tensile Test with Automatic Contacting Extensometer
- 08 Fastener Tensile Test
- 09 High-Temperature Testing in a Furnace



Metals Solutions

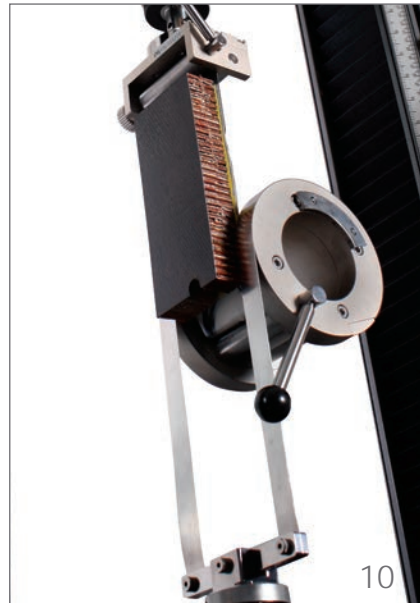
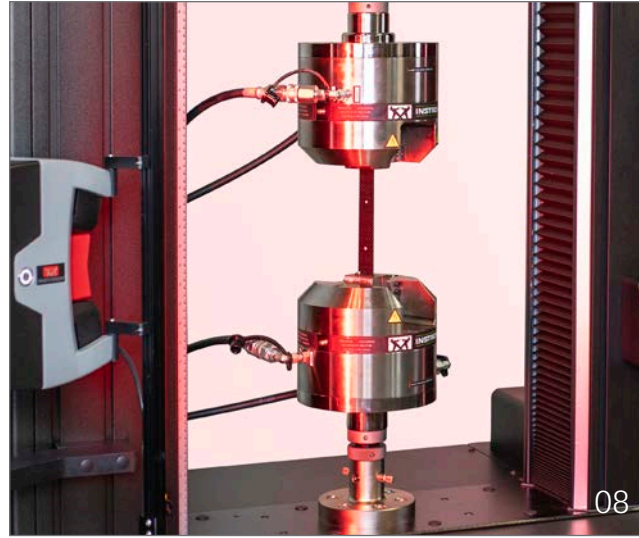
From automotive sheet metal to reinforced bar, pipe, and tubing, Instron® high force testing systems are ideally suited to meet all of your metals testing needs. As a total solution provider for tensile, impact, fatigue, bend/flex, shear, and torsion testing, an Instron system is designed to adapt and grow with the changing needs of your industry.



- 01 Sheet Metal r & n-value Testing
- 02 Reinforced Bar Tensile Test with Automatic Contacting Extensometer
- 03 Multi-Strand Wire Tensile Test
- 04 Fastener Tensile Test
- 05 Plate Steel Tensile Test with Automatic Contacting Extensometer
- 06 Reinforced Bar Bend Test

Composites Solutions

Instron® offers a wide range of grips and adapters compatible with stringent alignment requirements. These accessories allow you to perform tensile and/or compression testing without the need to remove the primary grips and compromise system alignment. They are also compatible with chambers for non-ambient testing and advanced extensometry solutions for the most accurate strain measurements.



- 07 Compression After Impact Test
- 08 In-Plane Laminate Tensile Test with Contactless Extensometer
- 09 Combined Loading Compression
- 10 Climbing Drum Peel Test
- 11 Supported Gauge Section Compression Test Fixture
- 12 Laminate Tensile Test in Environmental Chamber

HIGH FORCE TESTING

Systems at a Glance



3400 Series Electromechanical Testing Systems

The 3400 Series is available in force capacities ranging up to 300 kN and offers the simplicity and performance needed for routine, standardized QC tests and general-purpose mechanical testing. These systems are commonly used to perform simple tensile, compression, and bend tests.

6800 Series Electromechanical Testing Systems

The 6800 Series is built to handle the most demanding testing applications up to 300 kN. These systems are built with durable work surfaces, fortified against shock and vibration, and designed to reduce ingress from composite shards, rebar scale, and other debris — ensuring performance in some of the most demanding laboratory environments.



5980 Electromechanical Testing System

Built on the 5900 Series platform, the Instron® 5980 Series floor models are electromechanical testing systems with a maximum force capacity ranging up to 600 kN.



Industrial Series Static Hydraulic Testing Systems

Instron's Industrial Series is comprised of static hydraulic testing systems that deliver superior frame stiffness and durability with force capacities ranging from 600 kN to 2,000 kN.

POWER AT YOUR FINGERTIPS

Convenient, Easy-To-Use Features



Bluehill® Universal Operator Dashboard

Bluehill Universal is the testing industry's most powerful and advanced testing software and is compatible with all Instron high force systems. Its intuitive workflows are designed to simplify operator training, increase testing efficiency, and minimize safety hazards.

Live Displays

Configure unlimited live displays to show force, displacement, time, and results that provide users with immediate feedback on current test status.

Graphs and Control Charts

Graphs, most typically displaying force vs. displacement data or stress vs. strain data, can easily be viewed in more detail by pinching to zoom. Multiple graphs can be displayed in the workspace, including control charts in a completely customizable layout.

Results Table

Using subsample, users have the ability to sort results by all parameters including operator name, specimen break location, and specific specimen properties.

Specimen Selector

Specimen selector allows users to view and manage tests quickly and easily. Press on any specimen to view the graph, results, test inputs, and status, with options to exclude or delete if permissible.

6800 Series Handset

The 6800 Series handset brings system controls closer than ever before with an all-new ergonomic handset, mounted directly to the frame. Operators can use the handset in the mounted position or removed from its dock.



Customizable Soft Keys

With 2 user-defined 'soft key' buttons, you can initiate a variety of commands. The soft keys can be defined per method, allowing you to customize them for each test.

Virtual Interlock

With Instron's patent-pending system architecture, the machine's movement is restricted during setup to prevent unintended motion of the crosshead.

Variable Speed Jog

During setup mode, your system will default to a safe speed appropriate for an operator to work in the test space.

Precise Positioning

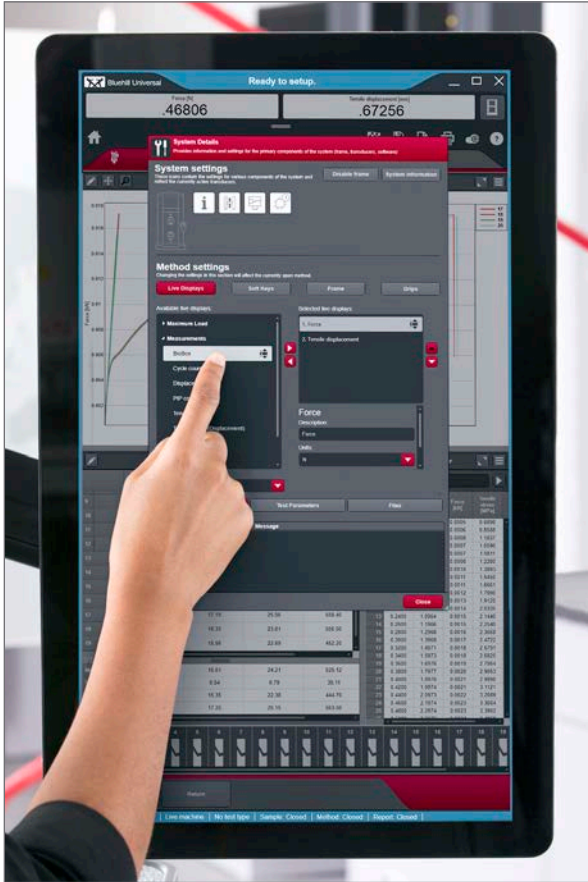
The fine position adjustment thumbwheel with tactile feedback allows for precision positioning of the crosshead in 4 μm increments when performing sensitive testing.

Specimen Protect

Specimen Protect prevents unwanted forces from being applied to the specimen by automatically making fine adjustments to the crosshead, protecting your valuable specimen from damage.

BLUEHILL® UNIVERSAL

Simpler. Smarter. Safer.



Effortless Workflows

Bluehill Universal's easy-to-use touch interface optimizes your testing workflow and is designed with ergonomics in mind.



TestProfiler

Build simple cyclic tests that include ramps, holds, and triangle waves. Conditional logic allows you to create looping patterns that help you re-create real-life scenarios with your tests.



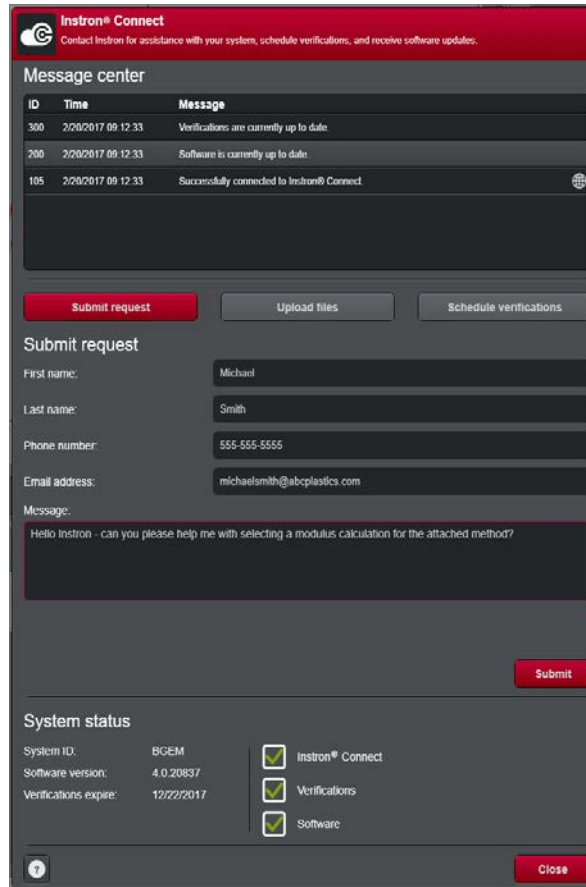
Prompted Tests

Users can be guided through the entire testing process with step-by-step instructions, ensuring that your tests remain repeatable, simple, and error-free. The prompts are customizable with your own text and images.



Pre-Loaded Templates

Bluehill Universal includes an extensive library of pre-configured methods for some of the most commonly used ASTM, ISO, and EN standards. The methods are packaged in modules that are specific to your testing application.



Instron® Connect

Instron's unrivaled application expertise and best-in-class service establishes us as the leader in customer satisfaction with the best ownership experience. Instron Connect introduces a powerful communication platform that brings our support engineers even closer to your organization.



Revision History

Revision history allows users to view the full version history of Bluehill methods, tested samples, and report templates. Each revision contains the details of the affected item, including a time stamp, both the previous and new values, and the name of the user who made the change.



Built for Durability

Instron® high force systems are designed with durability in mind, protecting your investment and providing decades of repeatable test results.

Tough Frames for Tough Materials

Large diameter columns, integrated hydraulic grips, and thick base beams allow Instron's static hydraulic systems to stand up to the strongest materials in the world.

Guarding for Debris

Precision components are protected from the debris and scale produced when testing reinforced bar and concrete.

Hydraulically Driven for High Forces

Driven by a hydraulic actuator, these systems can withstand the shock load associated with high energy breaks, reducing wear on mechanical components and dissipating high energy efficiently.

Variable Pressure Hydraulic Pumps

All static hydraulic machines are powered by Instron's variable pressure pump technology that builds pressure proportional to tensile load. The system remains at a low idle pressure between tests, which reduces heat generation, noise level, maintenance, and energy consumption.



Stiff Frames for High-Strength Materials

Pre-loaded bearings, precision ball screws, a thick crosshead and base beam, and low-stretch drive belts contribute to better performance by producing more accurate modulus and strain values and minimizing the energy stored during a test. This is especially evident when testing high-strength materials such as aerospace composites, metal alloys, and crystalline polymers.

Precision Guidance for Alignment

When you perform a uniaxial test, accurate stress and strain results can only be achieved with a system that contains robust, precise guide columns that ensure minimal specimen bending under load.

Ingress Protection

Reduction in debris ingress has been achieved through gasketing and a patent-pending airflow design. Internal electrical and mechanical hardware is located safely away from directly beneath the test area. The 12 mm metal work surface is treated with an abrasion-resistant coating for durability.

Servo-Controlled Drive System

Along with a powerful motor, the 6800 and 5900 Series drive systems consist of a rugged steel casting with a dual-belt drive system. Unlike systems that use gear-reducers, which create backlash and lower drive system stiffness, the dual-belt system provides synchronous movement of the ball screws, eliminating crosshead tilt and aiding system alignment.





Engineered for Precision

Instron's commitment to quality means no detail is overlooked. Every component is designed and manufactured knowing that it ultimately affects the accuracy of your testing data.



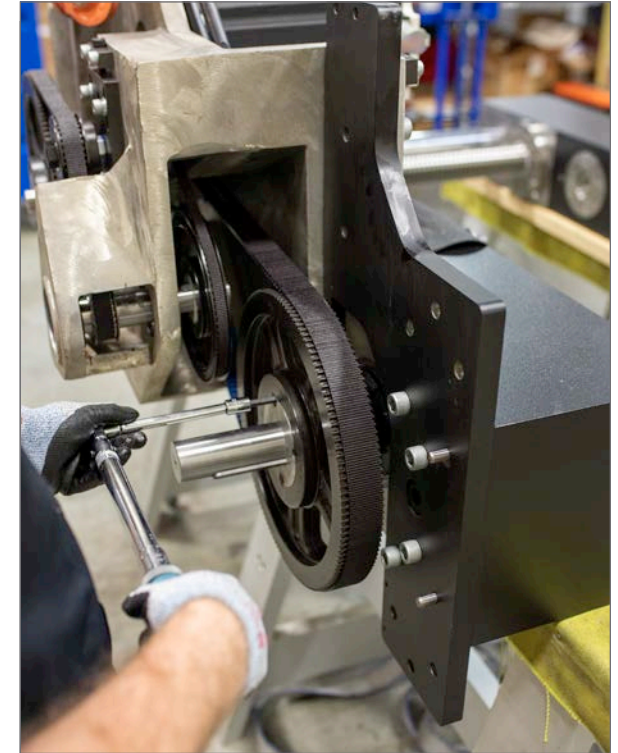
Load Cell Construction

The highest quality mechanical and electrical components ensure maximum performance levels and produce the most accurate results. Temperature compensation, on-board calibration ID, data storage, and superior resistance to off-center loading are some of the features that set Instron-designed load cells apart from the competition.



Unparalleled Load Verification

Instron's significant investment in primary force calibration standards is unique in the industry and ensures the highest level of force measurement accuracy. Our factory-based calibration laboratory possesses capabilities normally found only in a National Standards Laboratory.



Superior Stiffness and Alignment

All Instron® systems are designed to provide higher stiffness and precise alignment for testing everything from medical devices to high-strength composites. Rigid mechanical design ensures the best possible conditions for repeatable tests and reliable results.

Designed for Safety

Safety forms the core of Instron's high force systems. A host of safety features have been engineered into the systems to ensure safety of your operators, specimens, system, and data.



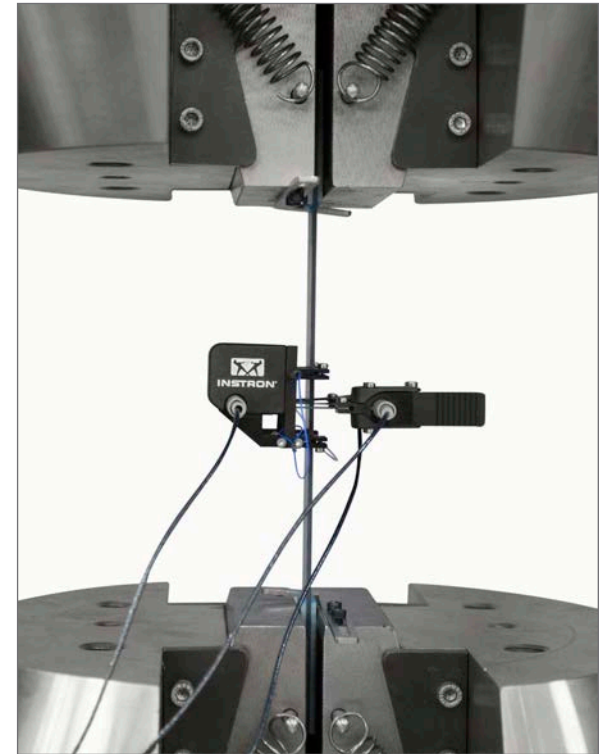
Operator Safety

Operator safety is an integral component of all Instron® test systems and has led to the creation of features such as E-stops, dual limit switches, optional debris shields, and other types of guarding.



System Protection

3400 and 6800 Series systems feature Collision Mitigation, automatically stopping the crosshead movement if unexpected force is detected, mitigating damage to your system.



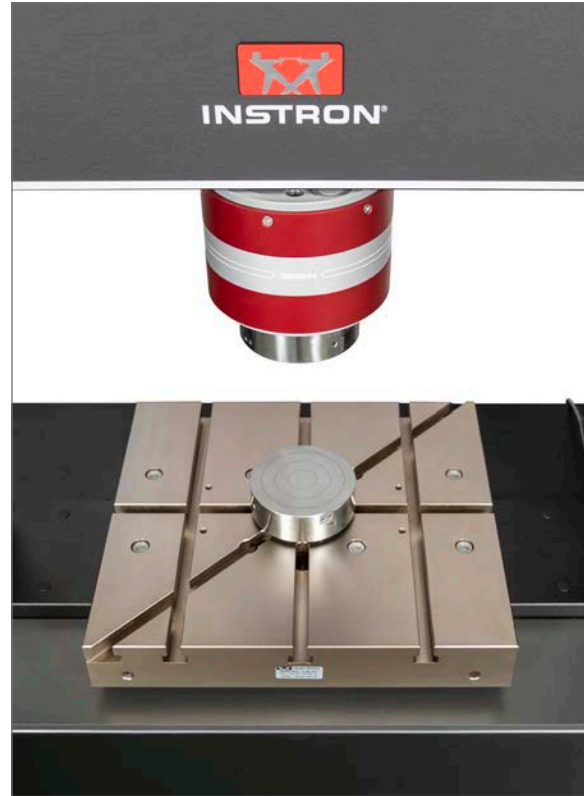
Specimen Safety

Specimen Protect prevents excessive forces from being applied to the specimen during setup, protecting your critical specimens from damage.



Flexibility for Customization

Instron's high force systems are ready to grow with the needs of your operation. With hundreds of modular accessories, your system can be used for tests ranging from adhesive peel to concrete compression.



Out of Production System Retrofits

Instron® system retrofits extend the longevity of compatible out of production electromechanical and static hydraulic testing systems and upgrades them with modern control electronics, software, and testing functionality.

T-Slot Tables

Available for testing components, parts, or unusual geometries, the T-slot table mounts to the load frame base and uses standard hold-down clamps to secure the test piece.

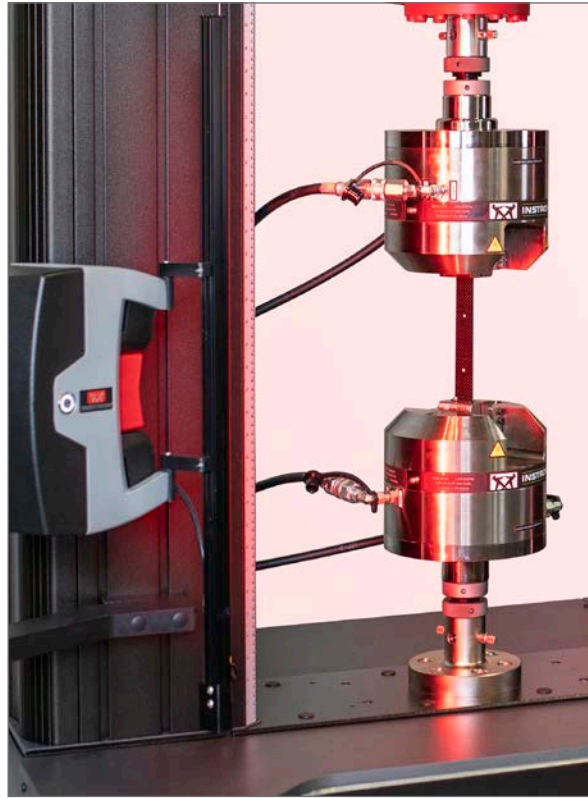
Furnaces

Furnaces are available for testing up to 1050 °C, meeting temperature stability requirements of ISO 6892-2, ASTM E21, JIS G0567, EN 2002-2, and EN 10002-5.



AutoX750

This high-accuracy automatic contacting extensometer produces reliable and repeatable results with no manual steps.



AVE 2

The AVE 2 is a non-contacting video extensometer that provides accurate and repeatable strain measurement without exhibiting any influence on the test specimen.



Extra Wide & Extra Tall Systems

Standard and custom extra wide and extra tall models are available to suit a variety of unique applications such as large samples or high extension materials. (Extra wide model shown)

SUPPORT FOR THE LIFE OF YOUR EQUIPMENT

Protecting Your Investment

Instron® is one of the largest suppliers of materials testing systems in the world. Our reliable testing systems are designed to run critical tests 24 hours a day. However, if something does go wrong, or if you have a question, we offer a variety of resources to ensure you receive the assistance you need as soon as you need it.



Instron Connect

Instron Connect allows you to securely share your screen with Instron service professionals and submit service requests directly through your test system. You can also use this portal to easily send test methods and sample data files for review.



Mobile Support

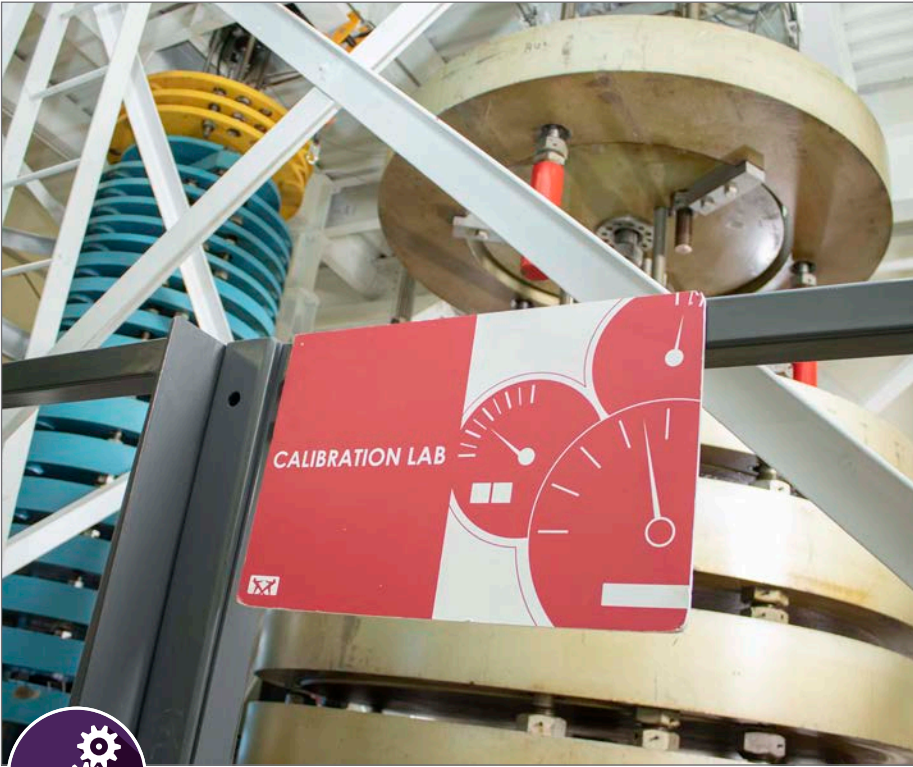
Instron offers access to a troubleshooting tool that can help you self-diagnose issues with easy to follow steps created by our technical experts.



Training

Training courses are available on-site, regionally, at an Instron factory, or online. Utilize our Applications Engineering Lab or Custom Solutions Group for all the latest technological advances in materials testing.

SCAN THE QR CODE
to learn more about how Instron®
can help protect your investment.



Calibration

Our state-of-the-art Calibration Laboratory offers a comprehensive range of accredited calibration and verification services complying with ASTM, ISO, and Nadcap standards for force, speed, strain (extensometers), displacement, impact, temperature, torque, creep, strain gauge channel, and alignment.



On-Site Services

When on-site assistance is needed, our team of 300+ global Field Service Engineers can help get you back up and running. Our factory-trained technicians are located all around the world and speak 40+ languages to help solve problems no matter where they occur.

SPECIFICATIONS

Electromechanical Models

Model	Capacity		Minimum Speed		Maximum Speed ¹		Crosshead Travel		Vertical Test Space	Horizontal Test Space	Footprint Dimensions (h ² × w ³ × d)
	kN	lbf	mm/min	in/min	mm/min	in/min	mm	in	mm	mm	
68FM-100	100	22480	0.00005	0.000002	(1PH) 1016 (3PH) 1080	(1PH) 40 (3PH) 42	(E1) 1407 (E2) 1906	(E1) 55.3 (E2) 75	(E1) 1494 (E2) 1993	(F1) 575	2287 (B1), 2587 (B2) × 1140 (F1), 1499 (F2) × 786
68FM-300	300	67440	0.00005	0.000002	(1PH) 508 (3PH) 560	(1PH) 20 (3PH) 22	(E1) 1359 (E2) 1858	(E1) 53.5 (E2) 73.1	(E1) 1446 (E2) 1945	(F1) 575 (F2) 934	2287 (B1), 2587 (B2) × 1140 (F1), 1499 (F2) × 786
34FM-100	100	22480	0.00005	0.000002	508	20	1407	55.3	1494	575	2287 (B1), 2587 (B2) × 1140 × 786
34FM-300	300	67440	0.00005	0.000002	508	20	1359	53.5	1446	575	2287 (B1), 2587 (B2) × 1140 × 786
5988	400	89920	0.0001	0.000004	508	20	1850	72.8	2050	763	3128 × 1594 × 964
5989	600	134880	0.0001	0.000004	508	20	1850	72.8	2000	763	3128 × 1594 × 964

Notes:

1. Single phase (1PH) and three phase (3PH) power options are available on 6800 systems. Three phase (3PH) is preferred for maximum speed performance.
2. Standard height and short base dimensions only. The extra height (E2) option adds 499 mm to overall height, the tall base (B2) option adds 300 mm to overall height.
3. The footprint width is for the system only. The Operator Dashboard monitor may add 500 mm to the overall width of the frame.



34FM-100



34FM-300



68FM-100



68FM-300



5989

Static Hydraulic Models

Model	Capacity		Minimum Speed		Maximum Speed		Crosshead Travel		Vertical Test Space	Horizontal Test Space	Footprint Dimensions (w × d)	Height
	kN	lbf	mm/min	in/min	mm/min	in/min	mm	in	mm	mm	mm	mm
600DX	600	135000	0.1	0.004	80	3.2	152	6	(E1) 965 (E2) 1372	524	974 × 1205	(E1) 2925 (E2) 3330
1000HDX	1000	225000	0.1	0.004	100	3.9	254	10	(G7B) 1016 (G7C) 1524	741	1228 × 832	(G7B) 3380 (G7C) 3890
1500KPX	1500	337500	0.1	0.004	203	8	610	24	(J3C) 2921 (J3D) 3226	876	1878 × 1219	(J3C) 5135 (J3D) 5440
2000KPX	2000	450000	0.1	0.004	203	8	610	24	(J3A) 2311 (J3D) 3226	876	1816 × 1410	(J3A) 4675 (J3D) 5590



600DX



1000HDX



1500KPX

Accurate,
Trusted, Reliable
HIGH FORCE
Testing Systems



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.
