High Force Universal Testing Machines

100 kN and Above Testing Capacity

INSTRON®


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For over **70 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.

1500+ employees
A highly-educated, experienced, and diverse workforce

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

50,000+ systems
installed worldwide

70+ years of engineering and manufacturing testing systems

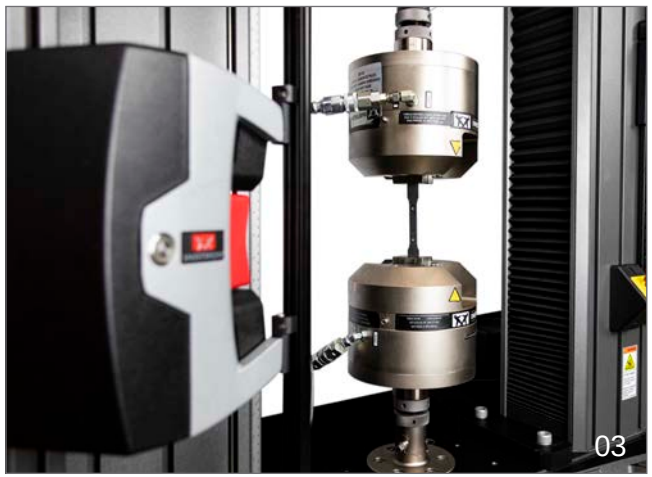
Diverse product range
for nearly all global markets and industries

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.



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01 3-Point Bend

02 Cord and Yarn Tensile

03 Sheet Metal Tensile with Contactless Extensometer

04 Multi-Head Test on Composites

05 High-Temperature Tensile with Contactless Extensometer

06 Automated Metals Tensile

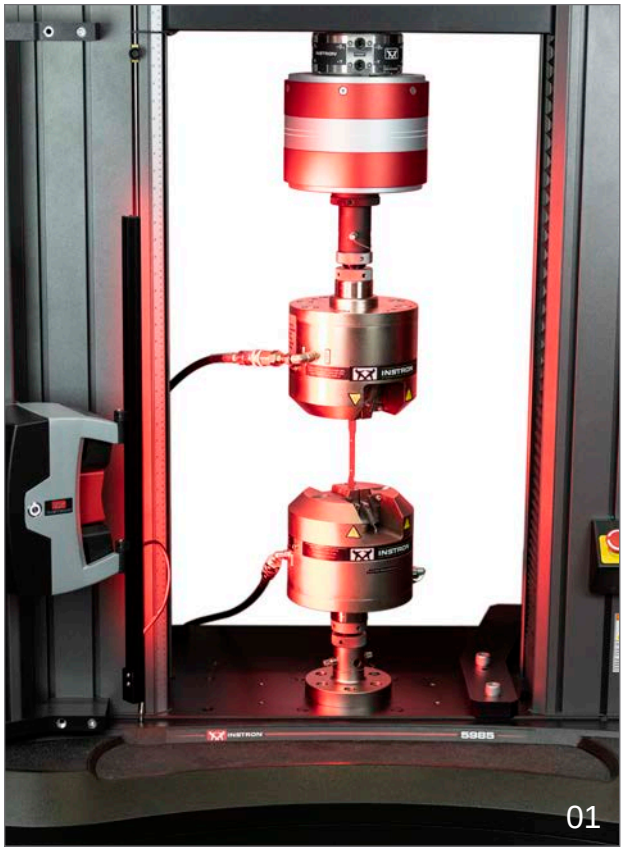
07 Hemming Bend Test

08 Fastener Tensile Test

09 Compressive Test on Concrete

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 tension, impact, fatigue, bend/flex, shear, and torsion testing, an Instron system is designed to adapt and grow with the changing needs of your industry.



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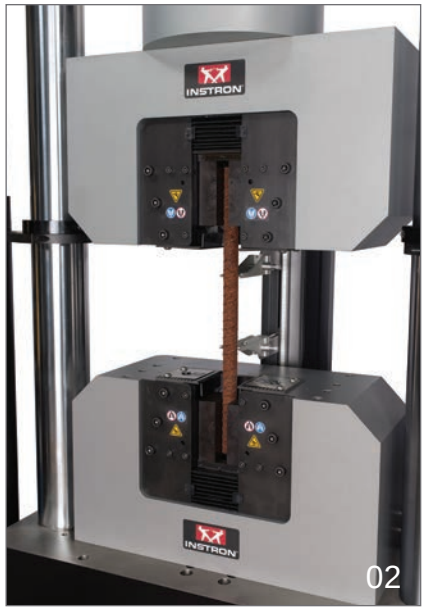

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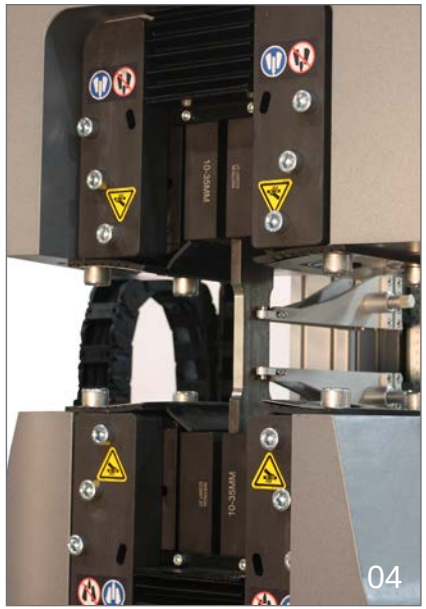

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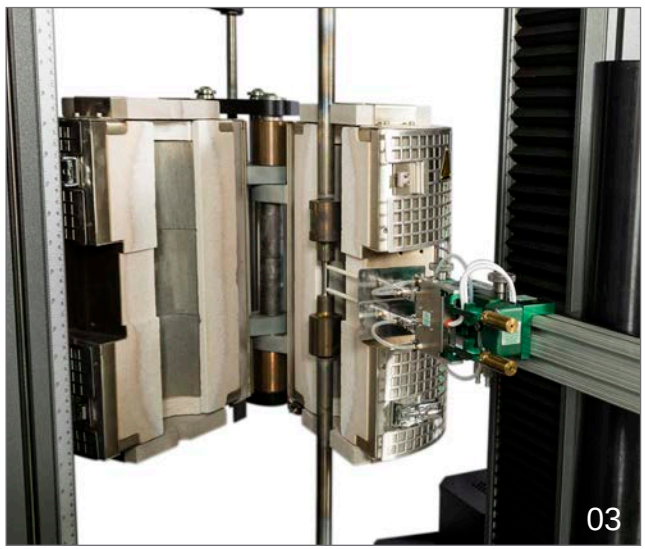

03

06

01 Sheet Metal r & n-value Testing

02 Reinforced Bar Tensile Testing

03 High-Temperature Furnace Testing

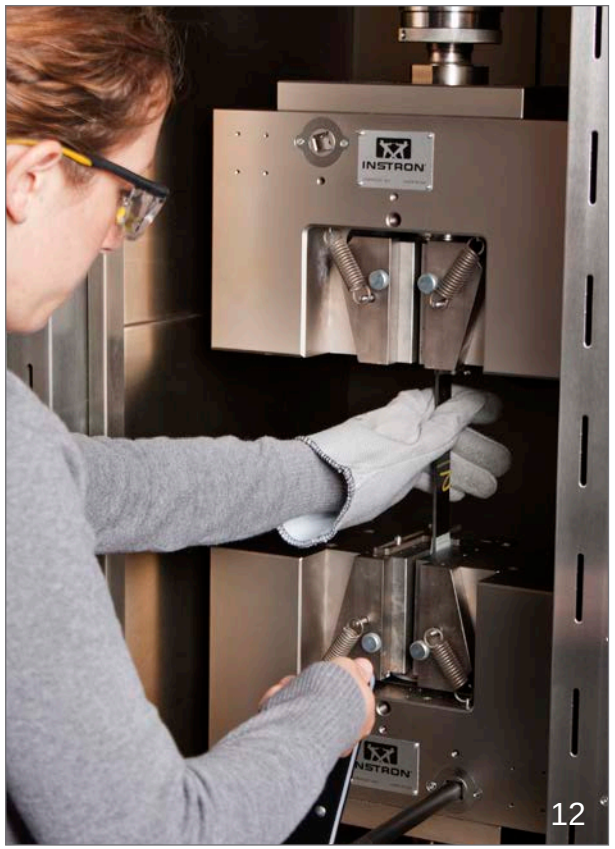
04 Plate Steel Tensile Test

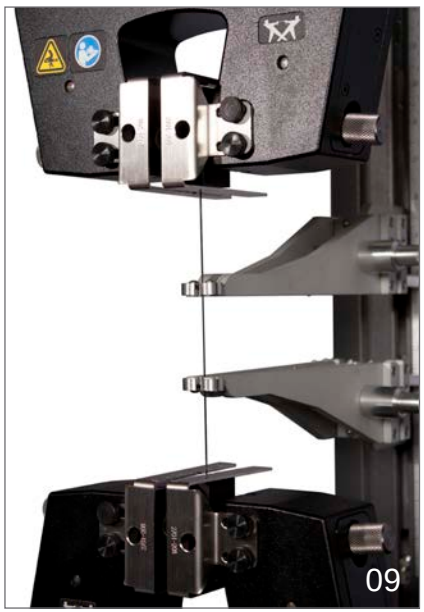
05 Fastener Tensile Test

06 Reinforce 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 tension 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 Supported End-Loading Test

09 Fiber Tow Tensile Test

10 In-Plane Laminate Test

11 Climbing Drum Peel Test

12 High Temperature Laminate Tensile Test

HIGH FORCE TESTING

Systems at a Glance

3300 Electromechanical Testing Systems

Available in 100 kN capacity. Commonly used to perform simple QC tensile, compression, and bend tests.

5900 Electromechanical Testing Systems

Models available in 100 kN, 150 kN, 250 kN, 400 kN and 600 kN Capacity. Commonly used to perform tensile, compression, and bend tests on high-strength metals and alloys, advanced composites, aerospace and automotive structures, bolts, and fasteners.

5900 Static Hydraulic Testing Systems

Models available in 300 kN, 600 kN, 1000 kN, 1500 kN and 2000 kN Capacity. Commonly used to perform tensile, compression, and bend tests on high strength metals and alloys, reinforcing bar, concrete, bolts, and fasteners.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POWER AT YOUR FINGERTIPS

Convenient, Easy-To-Use Features

5900 Productivity Panel

Found on both 5900 Electromechanical and 5900 Static Hydraulic systems, the adjustable user control panel provides multiple function keys and displays that allow the operator to interact with the testing system before, during, and after the test. While working at the load frame, users can perform common testing functions and view key testing information - such as live measurement data and calculation results - without returning to the computer workstation.

View Real-time Data and Results

The 4 user-defined live displays allow you to constantly monitor measurements and real-time results throughout the test.

4 User Defined 'Soft Key' Buttons

Users can toggle the display to enable a variety of operator-initiated test actions..

Protect your Specimen

The Specimen Protect feature prevents the load from exceeding a set threshold, protecting your specimen from damage.

Precise Positioning

The fine position adjustment wheel moves the actuator in very small increments, allowing operators to load specimens without the risk of overload.

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 Controls 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

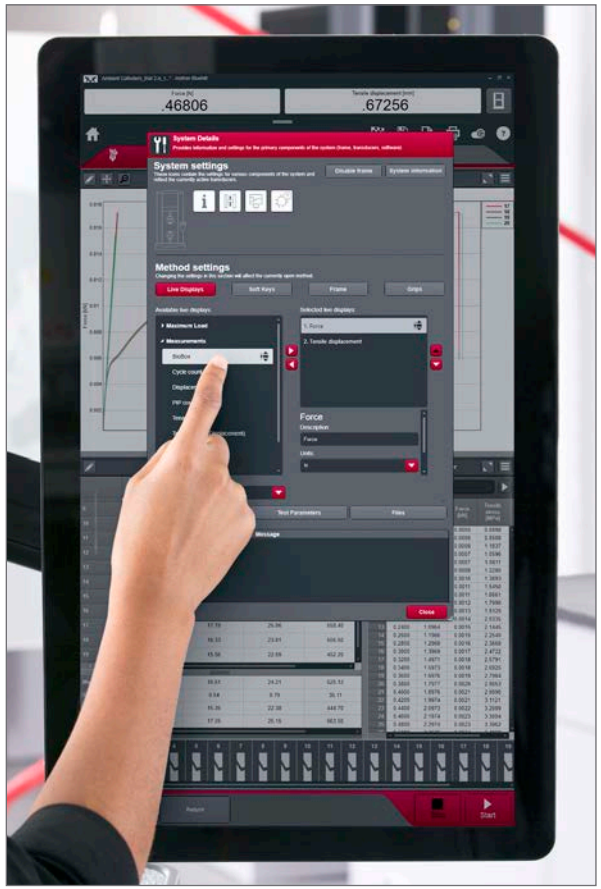
Using subsample, users have the ability to sort results by all parameters including operator name, specimen break location, and specific specimen properties.

Precise Positioning

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.

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

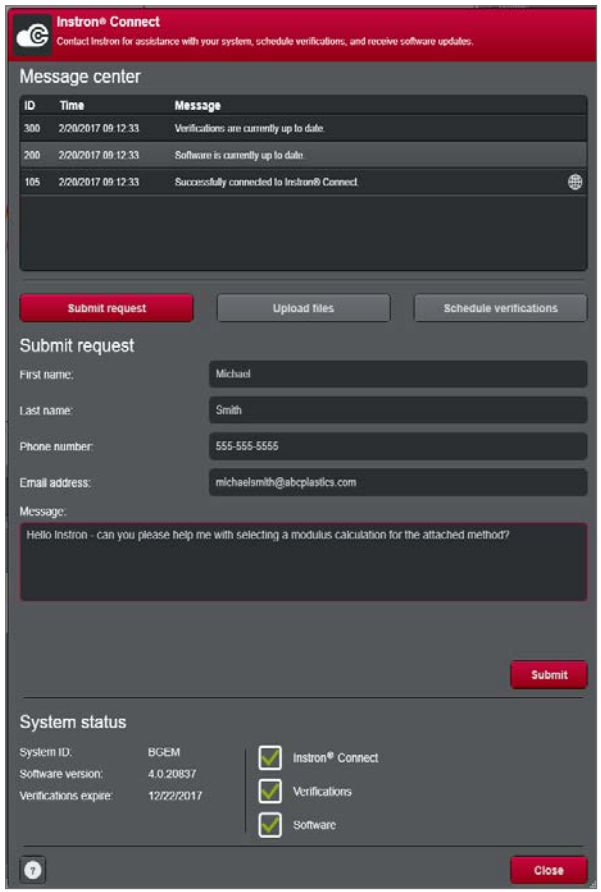
Build simple cyclic tests that include ramps, holds, and triangle waves. Conditional logic allows you to create looping patterns that help you re-create real-life scenarios with your tests.

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.

Analysis

Replay, analyze, or make modifications to previously tested specimens without having to re-run tests.

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

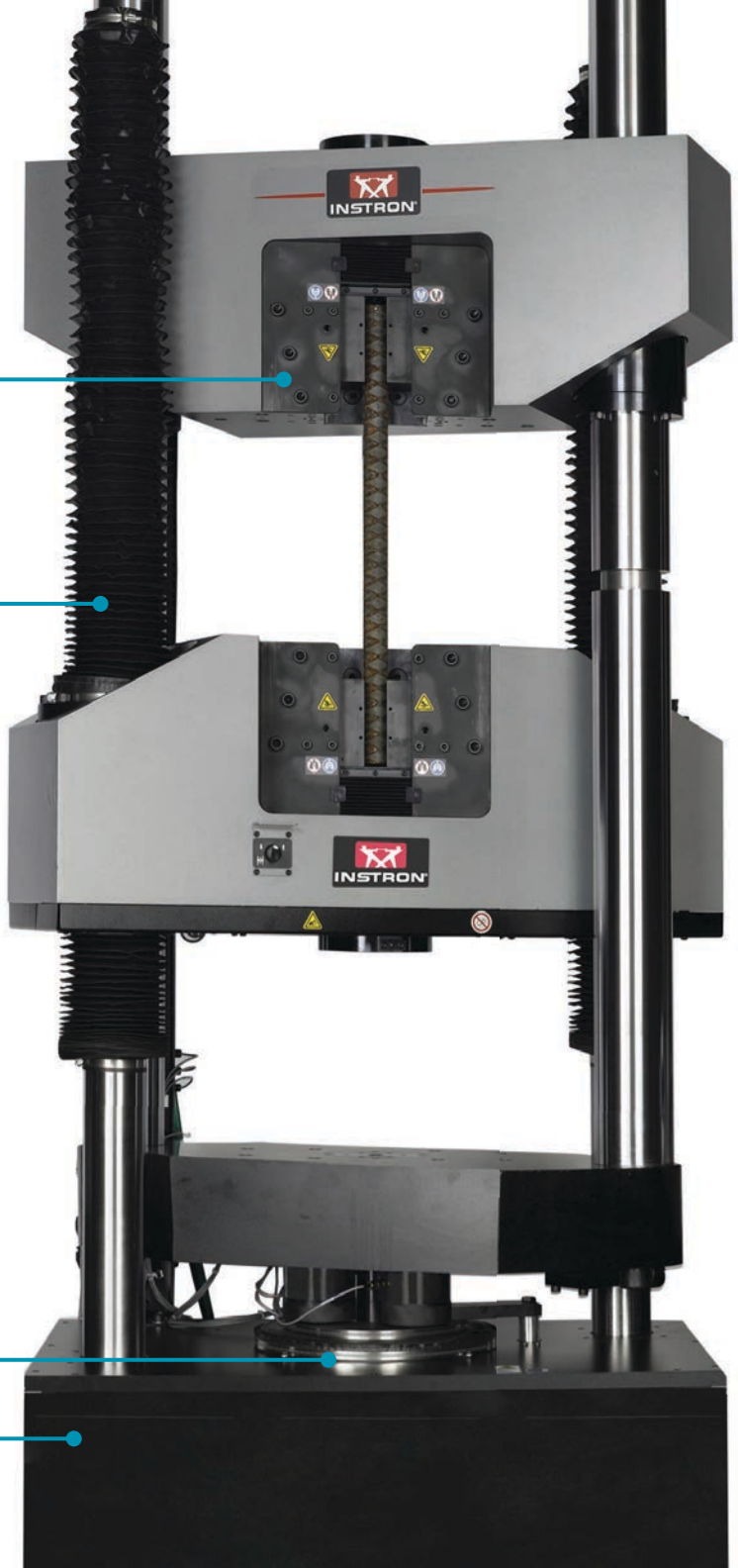
Precision components are protected from the debris and scale produced when testing reinforced bar and concrete.

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

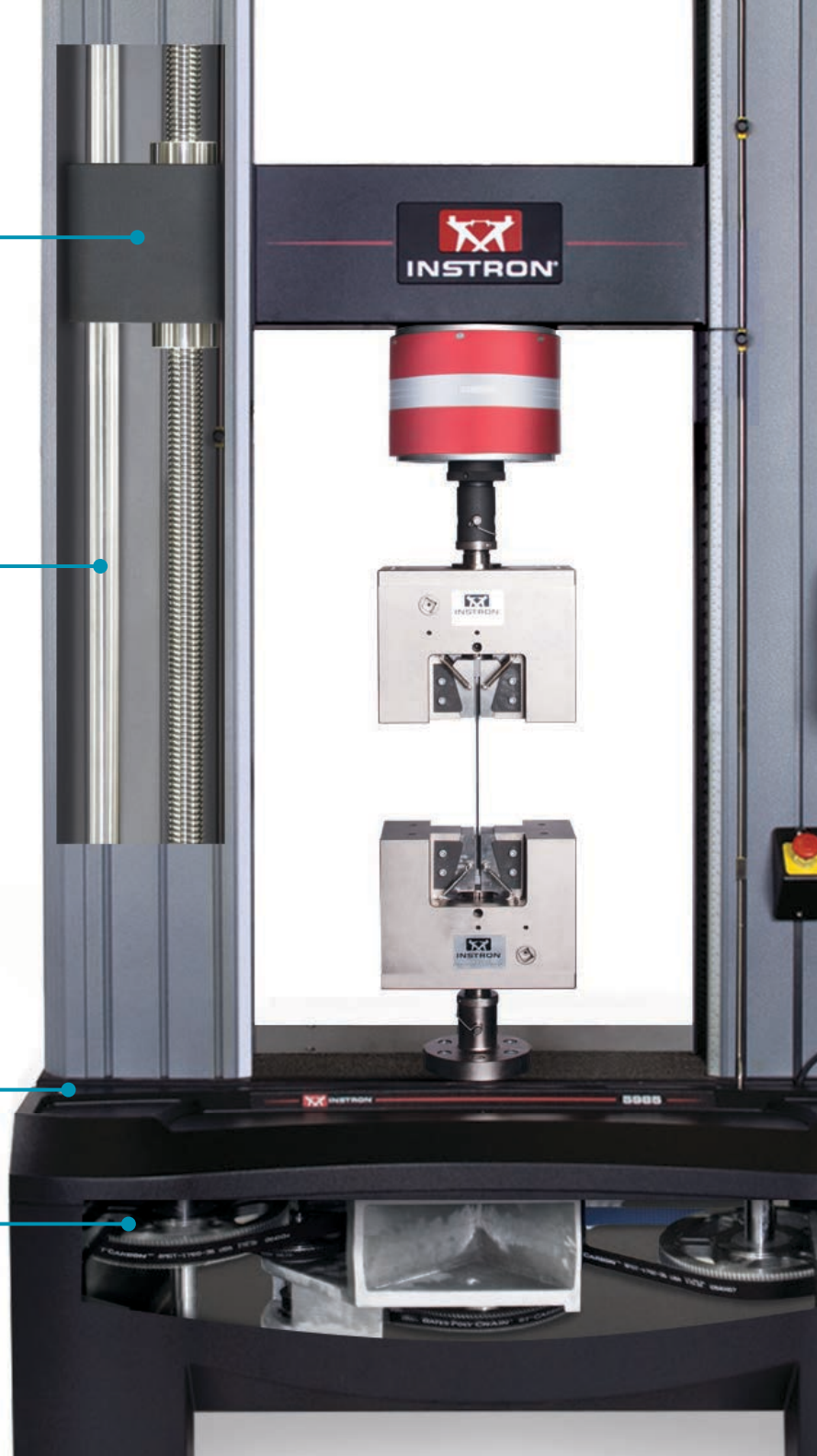
When performing a uniaxial test, accurate stress and strain results can only be achieved with a system that contains robust, precise guide columns that ensure minimal specimen bending under load.

Large Motors for Better Reliability

Reliability is built into 5900 Series load frames through the use of powerful motors with reserve capacity. This allows for quicker rates of acceleration when starting a test and faster turnaround time when performing a cyclic test. It also ensures that your testing always occurs at the required speed for the duration of each test.

Servo-Controlled Drive System

Along with a powerful motor, the 5900 Series drive system consists of a rugged steel casting with a dual-belt drive system. Unlike gear-reducers, which create backlash and lower drive system stiffness, the dual-belt system provides synchronous movement of the ball screws, which eliminates crosshead tilt and aids alignment.

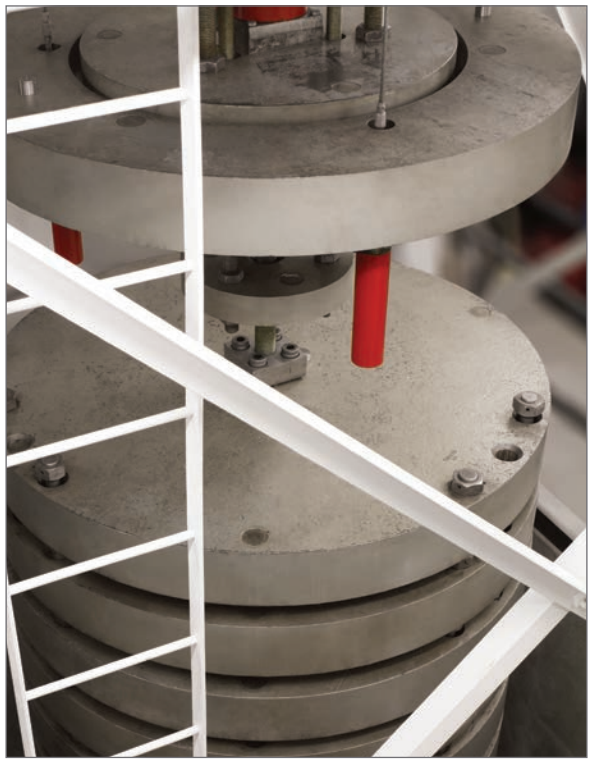


Engineered for Precision

Intron's commitment to quality means no detail is overlooked. Every component is designed and manufactured knowing that it ultimately effects the accuracy of the 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 5900 Series 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

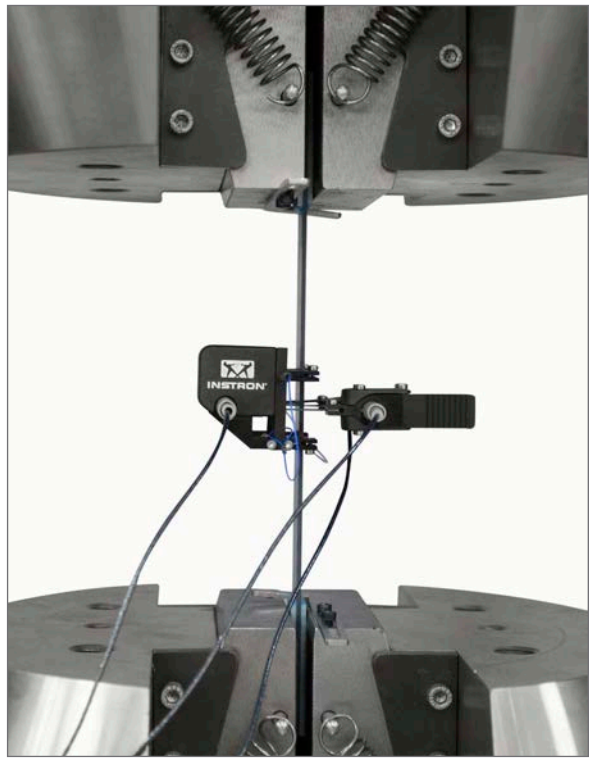
Safety forms the core of Instron's high force systems. A host of safety features have been engineered into the systems to ensure safety of your operators, specimens, system, and data.

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 Safety

5900 systems automatically detect and stop at maximum load cell capacity to prevent damage to the load cell, system, or accessories.



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.

Extend

Instron's Extend Retrofit program updates your legacy systems to the 5900 control platform, which ensures the reliability of your older system and increases its capabilities.

T-Slot Table

Available for testing components, parts, or unusual shapes, the T-Slot table mounts to the load frame base and uses standard hold-down clamps to secure the test piece. (Wide model shown)

Furnace

Furnace are available for testing up to 1050° C, meeting temperature stability requirements of ISO6892-2, ASTM E21, JIS G0567, EN 2002-2 & EN10002-5.

AutoX750

This high-accuracy automatic extensometer produces reliable and repeatable results with no manual steps. (Biaxial model shown)

AVE 2

The AVE 2 is a non-contacting video extensometer that provides accurate and repeatable strain measurement without affecting material properties.

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 tall and wide model shown)

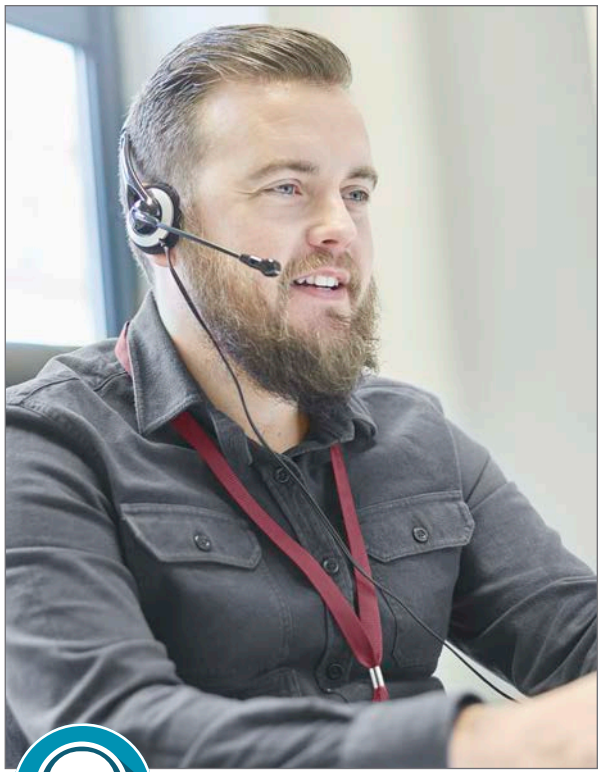
SUPPORT FOR THE LIFE OF YOUR EQUIPMENT

Protecting Your Investment

Instron® is among 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.



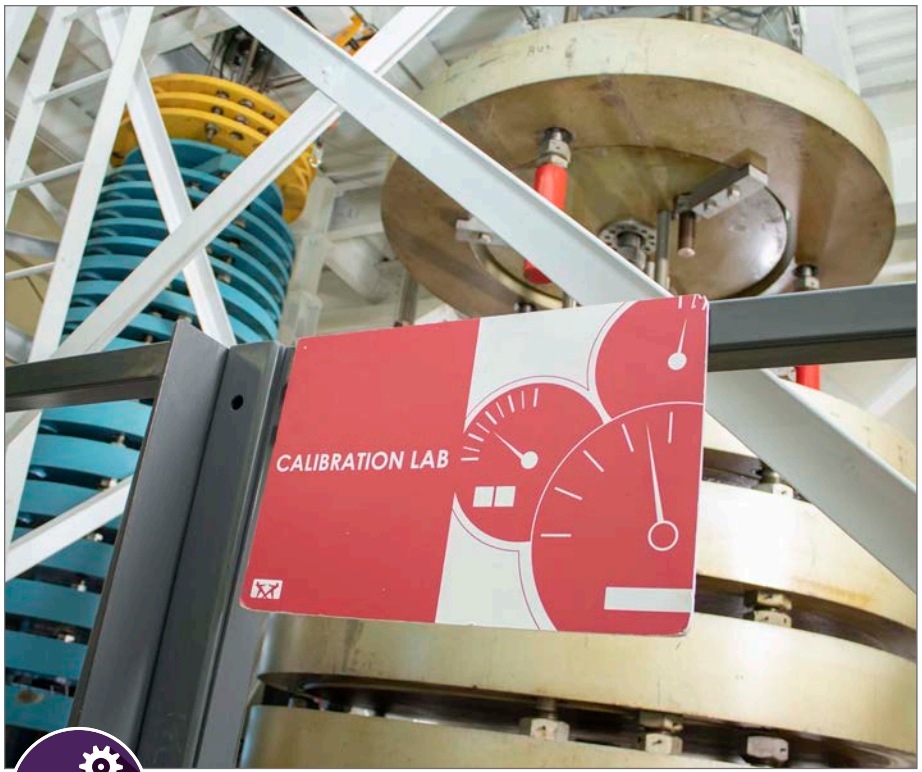
Remote Support

6800 Series testing systems can send errors and diagnostics to our expert technical support teams around the world for troubleshooting.

Training

Training courses are available on-site, regionally, at an Instron factory, or online. Utilize our Applications Engineering Lab or Custom Solutions Group for 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 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

Model	Capacity		Minimum Speed		Maximum Speed		Crosshead Travel		Vertical Test Space[1]	Horizontal Test Space	Footprint Dimensions (w² × d)	Height
	kN	lbf	mm/min	in/min	mm/min	in/min	mm	in	mm	mm	mm	mm
Electromechanical Models												
5982	100	22480	0.0001	0.000004	1016	40	(E1) 1330 (E2) 1830	(E1) 52.4 (E2) 72.0	(E1) 1430 (E2) 1930	(F1) 575 (F2) 934	1130 × 777	(E1) - 2273 (E2) - 2773
5984	150	33720	0.0001	0.000004	762	30	(E1) 1330 (E2) 1830	(E1) 52.4 (E2) 72.0	(E1) 1430 (E2) 1930	(F1) 575 (F2) 934	1130 × 777	(E1) - 2273 (E2) - 2773
5985	250	56200	0.0001	0.000004	508	20	(E1) 1330 (E2) 1830	(E1) 52.4 (E2) 72.0	(E1) 1430 (E2) 1930	(F1) 575 (F2) 934	1130 × 777	(E1) - 2273 (E2) - 2773
5988	400	89920	0.0001	0.000004	508	20	1850	72.8	2050	762	1594 × 964	3128
5989	600	134880	0.0001	0.000004	508	20	1850	72.8	2000	762	1594 × 964	3128
3382A	100	22480	0.005	0.0002	508	20	1330	52.4	1430	575	1130 × 777	2273
Dual Test Space Static Hydraulic Models												
300DX	300	67500	0.1	0.004	150	6	152	6	(E1) 711 (E2) 1321	382	786 × 993	(E1) 2595 (E2) 3205
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	101	4	254	10	(G7B) 1016 (G7C) 1524	741	1228 × 832	(G7B) 3380 (G7C) 3890
1500HDX	1500	337500	0.1	0.004	114	4.5	305	12	(G7B) 1067 (G7C) 1676	762	1279 × 962	(G7B) 3610 (G7C) 4220
400HVL	1775	400000	0.1	0.004	114	4.5	(HVL) 228 (WHVL) 304	(HVL) 9 (WHVL) 12	–	(HVL) 609 (WHVL) 762	(HVL) 1423 × 1108 (WHVL) 1554 × 1070	–
Single Test Space Static Hydraulic Models												
300LX	300	67500	0.1	0.004	152	6	305	12	(E1) 965 (E2) 1321 (E3) 1854	508	786 × 870	(E1) 2390 (E2) 2745 (E3) 3280
1000KPX	1000	225000	0.1	0.004	203	8	610	24	(J3C) 2921 (J3D) 3226	762	1687 × 1219	(J3C) 4995 (J3D) 5300
1500KPX	1500	337500	0.1	0.004	203	8	610	24	(J3C) 2921 (J3D) 3226	876	1878 × 1219	(J3C) 4995 (J3D) 5300
2000KPX	2000	450000	0.1	0.004	203	8	610	24	(J3A) 2311 (J3D) 3226	876	1816 × 1410	(J3A) 4675 (J3D) 5590

3382A

5982

5989

300DX

300LX

1000HDX

1000KPX

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.

www.instron.com

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