

SYSTEM RETROFIT UPGRADES

Upgrades for Static and Servohydraulic Testing Systems







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 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



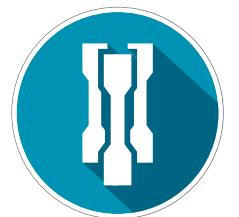
Representing **160 countries**, speaking **40+ languages**



50,000+ systems
installed worldwide

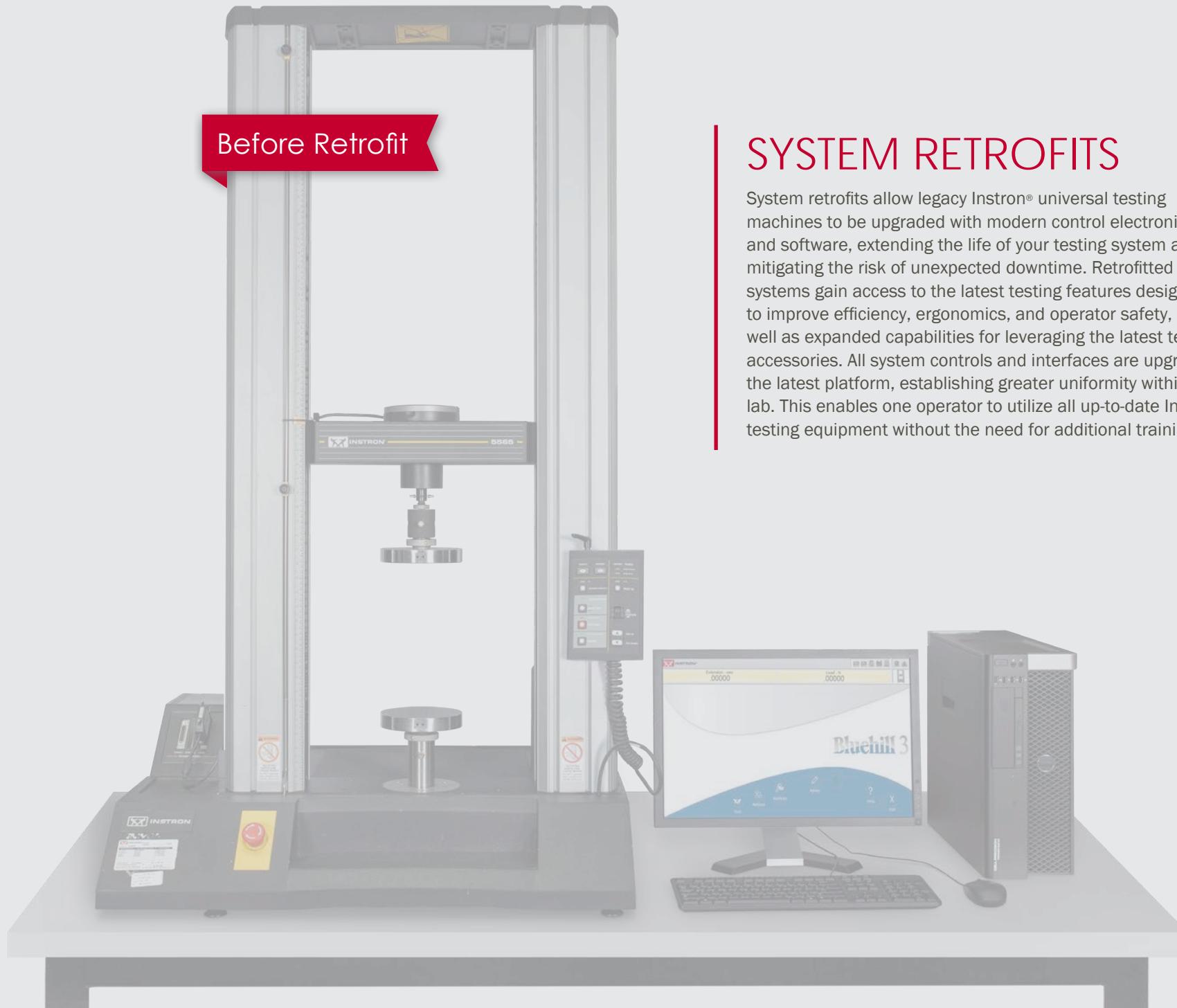


75+ years of engineering and manufacturing testing systems



Diverse product range
for nearly all global markets and industries

Before Retrofit



SYSTEM RETROFITS

System retrofits allow legacy Instron® universal testing machines to be upgraded with modern control electronics and software, extending the life of your testing system and mitigating the risk of unexpected downtime. Retrofitted systems gain access to the latest testing features designed to improve efficiency, ergonomics, and operator safety, as well as expanded capabilities for leveraging the latest testing accessories. All system controls and interfaces are upgraded to the latest platform, establishing greater uniformity within your lab. This enables one operator to utilize all up-to-date Instron testing equipment without the need for additional training.



MODERNIZING YOUR LEGACY INSTRON SYSTEM

Prevents Unplanned Downtime

Prevent downtime with comprehensive replacement of at-risk components.

Enhances Serviceability

Aging components are replaced by modern and fully stocked parts, facilitating rapid system maintenance and part replacement.

Comprehensive Part Replacement

The upgraded system is completely overhauled, replacing all critical aging drive and electronics components.

SYSTEM UPGRADES AT A GLANCE

6800 Series Upgrades for Electromechanical Systems

- Upgrade available for Instron® 4400, 5500, 5800, and 5900 Series electromechanical testing systems.
- Provides comprehensive replacement of critical system components, updated control interfaces, and allows backwards compatibility with legacy accessories.
- Full access to latest 6800 Series platform and Bluehill® Universal software.

3400 Series Upgrades for Electromechanical Systems

- Upgrade available for Instron 3300 Series electromechanical testing systems.
- Provides comprehensive replacement of critical system components, updated control interfaces, and allows backwards compatibility with legacy accessories.
- Full access to latest 3400 Series platform and Bluehill Universal software.

Static Hydraulic System Upgrades

- Upgrades available for a wide variety of Instron, SATEC™, Baldwin®, Tinius Olsen® and other static hydraulic systems.
- Provides updates to the at-risk components of a specific system based on current risk of failure, ability to source replacement parts, and existing machine functionality.
- Provides updates to the control electronics of the system, mitigating the risk of controller electronics failure and enabling compatibility with Instron's latest software and accessories.
- Adds up-to-date safety functionality and hydraulic integration on older systems specific to the existing machine being upgraded.



SCAN THE QR CODE
to learn more about
your upgrade options.



ANATOMY OF A RETROFIT



6800 SERIES ELECTROMECHANICAL RETROFIT

01 Original Mechanical Frame

Upgrade performed on existing legacy Instron® frames, extending the system's life.

02 Comprehensive Replacement of Critical Components

Full replacement of critical drive components and electronics with modern hardware prevents downtime and ensures future supportability.

03 Bluehill® Universal Software

Benefit from the simplicity, security, and advanced capabilities of Instron's latest software. Compatible with Bluehill Operator Dashboard and/or third party PC..

04 6800 Series Ergonomic Handset

Latest control interface is mounted directly to the column of the frame. The handset comes with customizable soft keys, Specimen Protect feature, and a fine position adjustment wheel.

05 Accessories & Extensometers

Upgrade is backwards compatible with legacy extensometers (AVE, AutoX, Laser, etc.), accessories (chambers, furnaces, etc.), and grips.

06 6800 Series Controller Upgrade

Instron's latest control electronics are capable of providing top-of-the-line performance and come in a small, robust, movable enclosure.

07 Expandable Capabilities

Fully modular SCM & I/O ports allow for the expansion of system capabilities.



Bluehill Universal Software

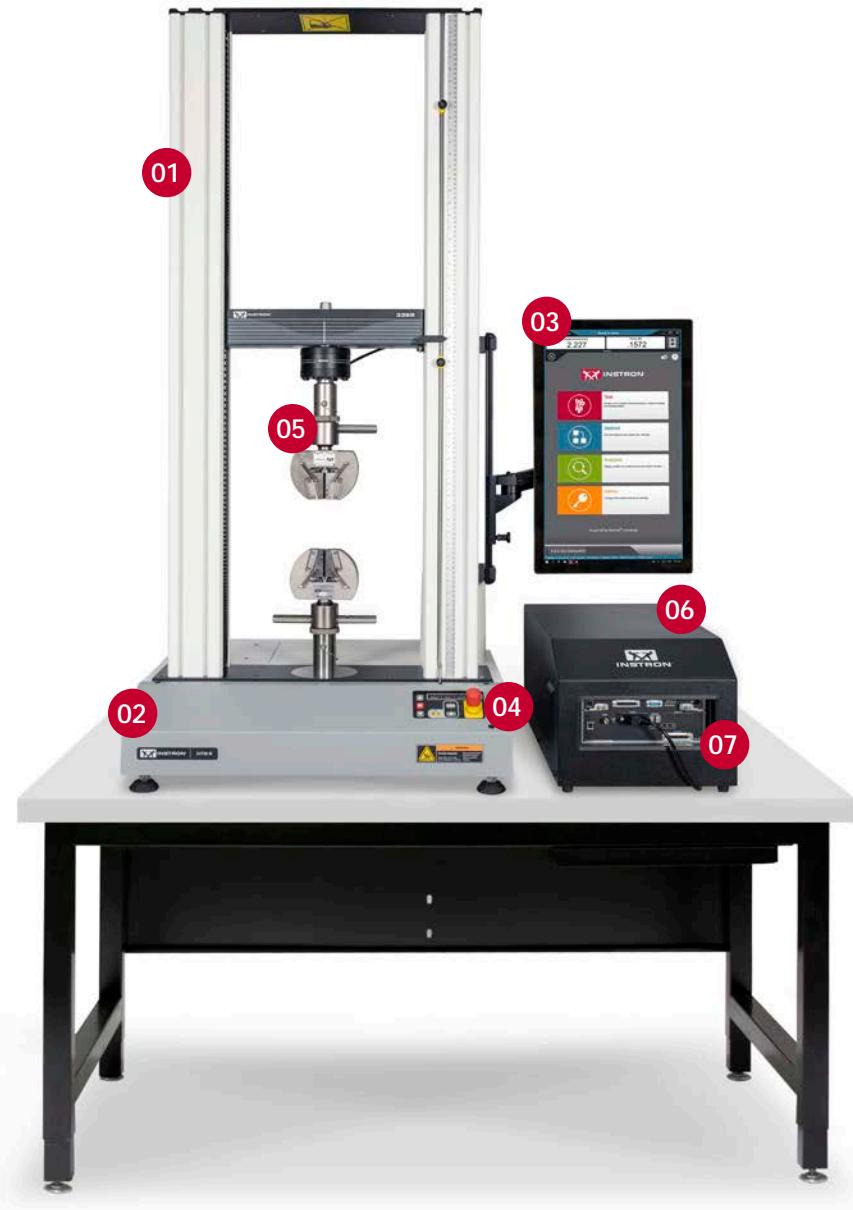


6800 Series Ergonomic Handset



Expandable Capabilities

ANATOMY OF A RETROFIT



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04 3400 Series Operator Panel

The operator panel includes LED status indicators for start, stop, jog, and return keys.

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STATIC HYDRAULIC RETROFIT

01 Original Mechanical Frame

Continue to utilize Instron's top of the line, mechanically robust frames.

02 5900 Series Controller Upgrade

Instron's 5900 control electronics include the ability to run tests in displacement as well as load/stress or strain control. It also replaces likely-to-fail electrical components and enables the use of advanced strain products.

03 Ergonomic Handset

The latest control interface is either mounted directly to the frame or on a movable pedestal. The handset comes with customizable soft keys, the Specimen Protect feature, and a fine position adjustment wheel.

04 Pedestal Mounted Jog and Pump Controls (On Applicable Systems)

Conveniently located control for operating the hydraulics of your testing system.

05 Bluehill Universal Software

Benefit from the simplicity, security and advanced capabilities of Instron's latest software. Optional: Bluehill Operator Dashboard.

06 V-Series Hydraulic Power Supply (On Applicable Systems)

Instron's optional V-Series variable pressure pumping system supplies pressure on demand. During the test, the pump output increases as the testing load is increased. Between tests, the system remains at a low idle pressure. The V-Series also provides operating pressure for most hydraulic grips.

07 Force and Position Transducer Upgrades (On Applicable Systems)

Ensure the repeatability and accuracy of your testing results with high performance load measurement and position measurement systems.



SAFER & SMARTER

Powered by Bluehill® Universal

All system retrofits are upgraded to Instron's patented Bluehill Universal software. Equipped with easy-to-understand icons and workflows, Bluehill Universal makes it simple to train users and set up tests, helping you maximize lab efficiency while minimizing costly errors.



Operator Protect

An intelligent workflow keeps equipment and operators safer by controlling system status and speed from setup to test completion.



Collision Mitigation

Reduces damage to equipment and delicate specimens by detecting unexpected force during jog or return.



Smart-Close Air Kit

Finger pinch hazards from low-force pneumatic grips are reduced through lower grip-closing pressure and restricted speed during the setup phase of your test.



Built-In Safety Coaching

Provides clear, visual feedback regarding system status at all times. Users will easily understand when the system is in a safe setup mode, and are clearly reminded to exit the test space once these safety limits are removed.



Auto Positioning

Auto Positioning saves the correct fixture separation starting location for each test method. This ensures all operators run each test from exactly the same place across all shifts every day.

LAB UNIFORMITY

Unify Control Interfaces Across Frame Generations

All machines updated with a **6800 Series System Retrofit** receive the ergonomic handset, mounted directly to the frame. Operators can use the handset in the mounted position or remove it from its dock.



01 Customizable Soft Keys

With two user-defined 'soft key' buttons, the operator can initiate a variety of commands. The soft keys can be defined per method, allowing for customization for each test.

02 Virtual Interlock

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

03 Variable Speed Jog

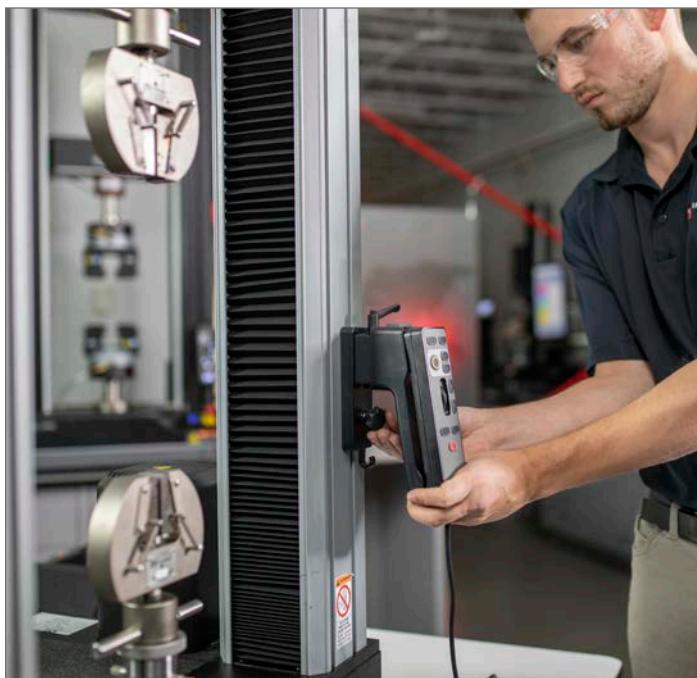
During setup mode, your system will default to a safe speed appropriate for an operator to work in the test space.

04 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.

05 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.





All machines updated with a **3400 Series System Retrofit** receive a fully integrated operator panel. The panel improves ergonomics and throughput by starting and stopping tests, jogging the crosshead, and returning to the starting position directly from the instrument.

01 Status at a Glance

Monitor the system status with indicator lights and corresponding Safety Coaching messages in Bluehill® Universal.

02 Variable Speed Jog

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

03 Virtual Interlock

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



FLEXIBILITY

Simple Lab Integration



Expandable Strain Channels

The controller features expandable I/O and strain ports, allowing system capability to be augmented. Front facing ports ensure that load transducers can be quickly and easily swapped.



Compatible with Legacy Accessories

The 6800 Series retrofit upgrade is fully compatible with the latest software and accessories. It is also backwards compatible with most legacy extensometers, load cells, and accessories, helping to save time and money.



The 6800 Series controller box can be flexibly relocated to save valuable workspace and floorspace. The robust sheet metal enclosure ensures critical control electronics are protected from dust, debris, and impact.

| SIMPLE & EFFICIENT INSTALLATION



Pre-installation Inspection

Prior to beginning the installation, an initial system survey will be conducted to ensure the system can be viably upgraded.



On-site Installation

Upgrade will be installed on-site by an Instron® Field Service Engineer.



Rapid Installation

Typical installation time is 1-2 days.



On-site Service

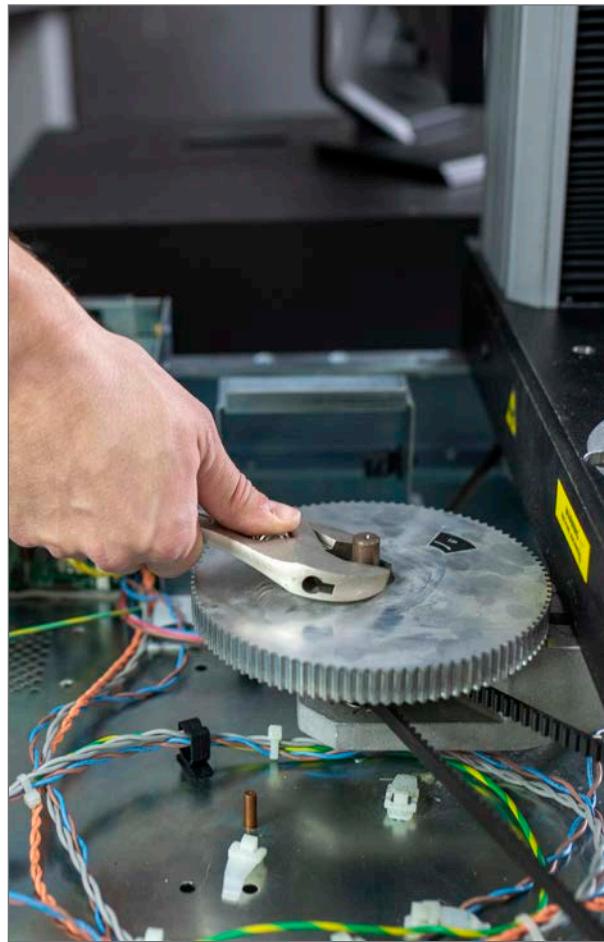
System calibration and required training will be provided as needed.



Proper Part Disposition

Instron handles disposition of all removed components.





RETROFIT SPECIFICATIONS

Frames Eligible for 6800 Series System Retrofits

Table Models

Model	Capacity (kN)	Support Phase	Manufacturing Period
4464	2	4	1993 - 2002
4465	5	4	1993 - 2002
4466	10	4	1993 - 2002
4467	30	4	1993 - 2002
4469	50	4	1993 - 2002
5564	2	4	1993 - 2008
5565	5	4	1993 - 2008
5566	10	4	1993 - 2008
5567	30	4	1993 - 2008
5569	50	4	1993 - 2008
5864*	2	4	2001 - 2009
5865*	5	4	2001 - 2009
5866*	10	4	2001 - 2009
5867*	30	4	2001 - 2009
5869*	50	4	2001 - 2009
5565A	5	4	2009 - 2010
5566A	10	4	2009 - 2010
5567A	30	4	2009 - 2010
5569A	50	4	2009 - 2010
5965	5	2	2008 - 2020
5966	10	2	2008 - 2020
5967	30	2	2008 - 2020
5969	50	2	2008 - 2020

Floor Models

Model	Capacity (kN)	Support Phase	Manufacturing Period
4481	50	4	1993 - 2002
4482	100	4	1993 - 2002
4484	150	4	1993 - 2002
4485	200	4	1993 - 2002
5581	50	4	1996 - 2010
5582	100	4	1996 - 2010
5584	150	4	1996 - 2010
5585	200	4	1996 - 2010
5585H	250	4	1996 - 2010
5881*	50	4	2001 - 2009
5882*	100	4	2001 - 2009
5884*	150	4	2001 - 2009
5885H*	250	4	2001 - 2009
5982	100	2	2010 - 2022
5984	150	2	2010 - 2022
5985	250	2	2010 - 2022

Additional Notes:

1. Unlisted models can be upgraded upon request. Please contact Instron for support.
2. System speed, compliance, and general operating specifications are limited by the system being upgraded and the strain and load equipment utilized.

* Retrofitted 5800 frames are converted to static testers.

Data Acquisition Rate at the PC:

Up to 5 kHz simultaneous on force, displacement, and strain channels.

Load Measurement Accuracy:

±0.5% of reading down to 1/1000th of load cell capacity with 2580 Series load cells (Advanced Performance Option).

±0.5% of reading down to 1/500th of load cell capacity with 2580 Series load cells.

±0.5% of reading to 1/250th.

±1.0% of reading to 1/500th of load cell capacity with 2525 or 2530 Series load cells.

Strain Measurement Accuracy:

Meets or exceeds ASTM E83, BS 3846, ISO 9513, and EN 10002-4 standards.

Displacement Measurement Accuracy:

±0.01 mm or 0.05% of displacement (whichever is greater).

Testing Speed Accuracy:

(Zero or constant load) ±0.1% of set speed.

Single Phase Voltage:

100, 120, 220, or 240 VAC ±10%, 47 to 63 Hz.

Operating Temperature:

+5 to +40 °C (+41 to +104 °F).

Storage Temperature:

-25 to +55 °C (-13 to +131 °F).

Ingress Protection (IP) Rating:

IP 2X. Protective measures may be required if excessive dust, corrosive fumes, electromagnetic fields, or hazardous conditions are encountered.

Humidity Range:

+10 to +90%, non-condensing at 20 °C.



RETROFIT SPECIFICATIONS

Frames Eligible for 3400 Series System Retrofits

Table Models

Model	Capacity (kN)	Support Phase	Manufacturing Period
3365	5	2	2002 - 2020
3366	10	2	2002 - 2020
3367	30	2	2002 - 2020
3369	50	2	2002 - 2020

Floor Models

Model	Capacity (kN)	Support Phase	Manufacturing Period
3382	100	2	2002 - 2019
3382A	100	2	2019 - 2022
3384	150	3	2002 - 2010
3385H	150	2	2002 - 2010

Data Acquisition Rate at the PC:

Up to 1 kHz simultaneous on force, displacement, and strain channels.

Load Measurement Accuracy:

±0.5% of reading down to 1/200th of load cell capacity.

±1.0% of reading down to 1/500th of load cell capacity.

Displacement Measurement Accuracy:

±0.02 mm or 0.15% of displacement (whichever is greater).

Testing Speed Accuracy:

(Zero or constant load) ±0.2% of set speed.

Single Phase Voltage:

100, 120, 220, or 240 VAC ±10%, 47 to 63 Hz.

Operating Temperature:

+5 to +40°C (+41 to +104°F)

Storage Temperature:

-25 to +55°C (-13 to +131°F)



Ingress Protection (IP) Rating:

IP 2X. Protective measures may be required if excessive dust, corrosive fumes, electromagnetic fields, or hazardous conditions are encountered.

Humidity Range:

+10 to +90%, non-condensing at 20°C

Notes:

1. Additional unlisted models can be upgraded upon request. Please contact Instron for support.
2. System speed, compliance, and general operating specifications are limited by the system being upgraded and the strain and load equipment utilized.

EXPAND YOUR TESTING CAPABILITIES

Drop Through Load Cell Adapter

The drop through load cell adapter allows for 2580 Series load cells to be used on a retrofitted frame, enabling you to take advantage of the advanced performance features in Bluehill Universal software. This includes the ability to measure forces down to 1/1000th of the rated load cell capacity and it gives the retrofitted frame full access to Instron's Collision Mitigation feature.



6800 Table Model Retrofit

Catalog Number	Frame Compatibility	Load Cell Compatibility	Maximum Daylight Reduction
2501-290	4464, 4465, 4466, 5564, 5565, 5566	2580 Series (500 N - 10 kN)	153 mm
2501-291	4467, 4469, 5567, 5569	2580 Series (500 N - 50 kN)	165 mm

6800 Floor Model Retrofit

Catalog Number	Frame Compatibility	Load Cell Compatibility	Maximum Daylight Reduction
2501-291	4481, 5581	2580-50kN	133 mm
2501-292	4482, 5582	2580-100kN	111 mm





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.