

9400 Series

Impact Drop Tower System



You need absolute confidence in your impact testing system - confidence in accurate, reliable, repeatable results, in the system engineering and the manufacturer behind it.

Featuring future-proof high-speed and high throughout capabilities and user-friendly software based on the popular Instron BLUEHILL® platform, Instron Drop Towers give you the confidence you need in your results, time and time again.



Scan here to learn more
or visit go.instron.com/9400series

9400 Series

Impact Drop Tower System



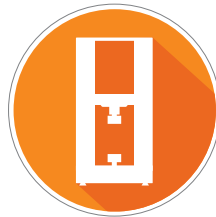
For over **75 YEARS** the Instron® brand has been widely recognized for producing some of the most advanced mechanical testing systems in the world. Our systems are designed by industry experts, vetted by active members of major standards organizations, and supported by a global network of skilled and 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.



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



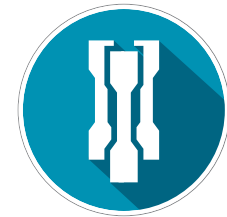
Representing **160 countries**, speaking **40+ languages**



50,000+ systems installed worldwide



75+ years of engineering and manufacturing testing systems



Diverse product range for nearly all global markets and industries



HOW WILL THE 9400 MEET MY NEEDS?

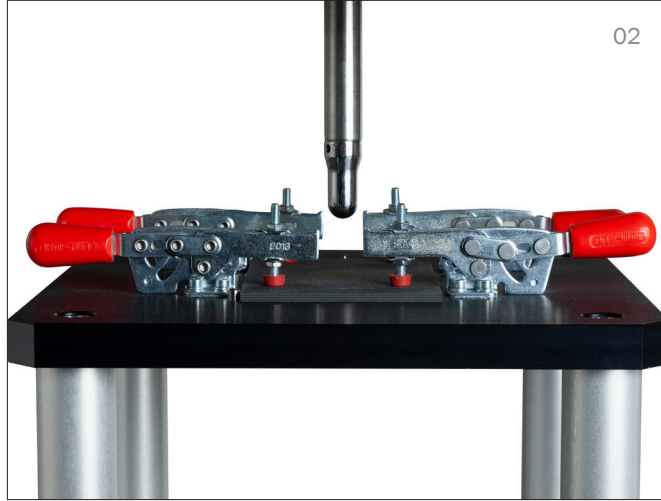
Delivering Your Advanced Materials To Market Faster

Instron Drop Towers are used to develop, fine tune, and validate material models.

Testing materials under real impact conditions is a crucial step prior of product design. Using the characterization data obtained with the Instron 9400, coupled with customer supplied high-speed video, you can have confidence in your results and deliver new materials to your customers faster.

Our Drop Tower impact systems, fixtures, and tups are designed to meet a wide range of applications and testing standards including: ISO, ASTM, ANSI, Airbus, Boeing, BSI, DIN, EN, FDA, Ford, GM, JIS, NASA, GOST, and more.





Range of Tests for your Application:

- 01 Pivoting System for High Throughput Puncture Testing
- 02 Compression After Impact on Composites
- 03 Tensile Impact on Plastic and Composites
- 04 Wedge Peel Impact Testing for Adhesives
- 05 Puncture Testing on Plastic Materials



HOW WILL THE 9400 MEET MY NEEDS?

Right-First-Time Products And
Continuous Process Improvement

Instron Drop Towers are designed to help you improve your product design process and minimize the risks of production.

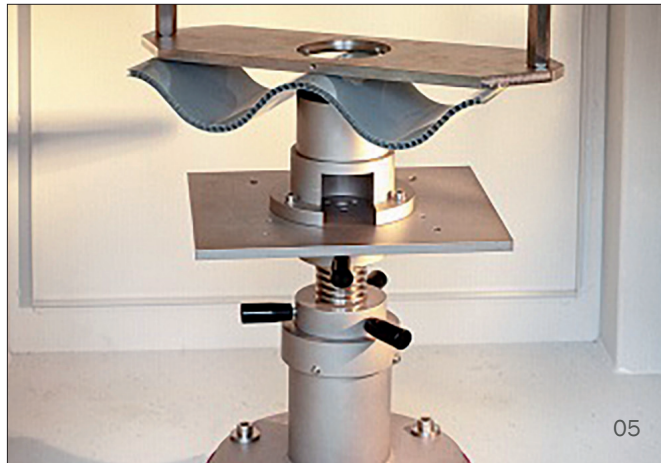
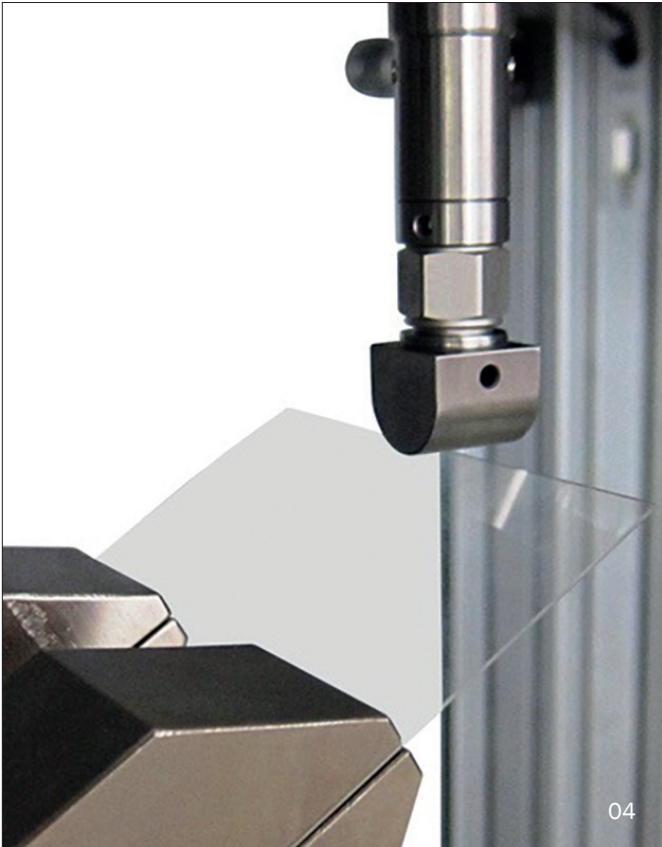
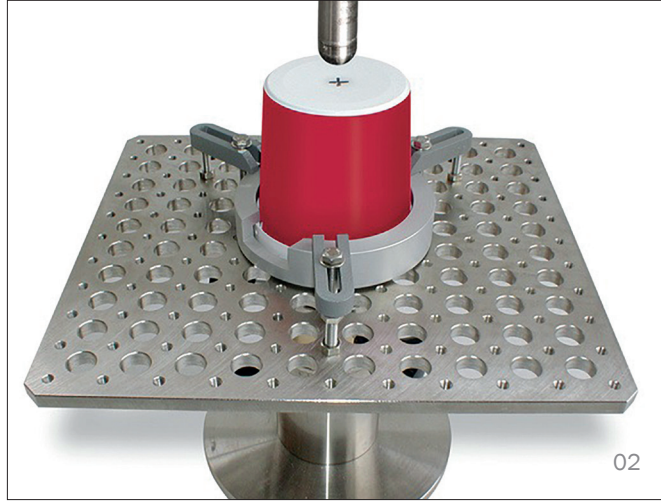
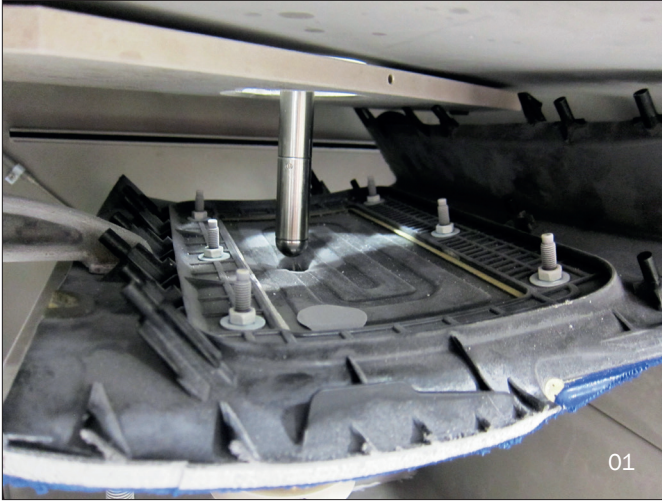
The 9400 produces reliable, repeatable results whether you are testing materials and components before production to improve product acceptance or testing during production to ensure continuous improvement.

Testing components under real life impact conditions helps you to recognize faults before production starts, reducing risk and cost while accelerating the time-to-market for your new products.

Including Impact Testing during production helps to prevent product recalls and maintain the highest possible quality levels.

Whether you need to test small or large parts, 9400 Drop Towers can be set up to meet your specific application requirements.





Range of Tests for your Application:

- 01 Airbag Dashboard
- 02 Plastic Storage Containers
- 03 Car Bumper
- 04 LCD Screen
- 05 PVC Vinyl Material

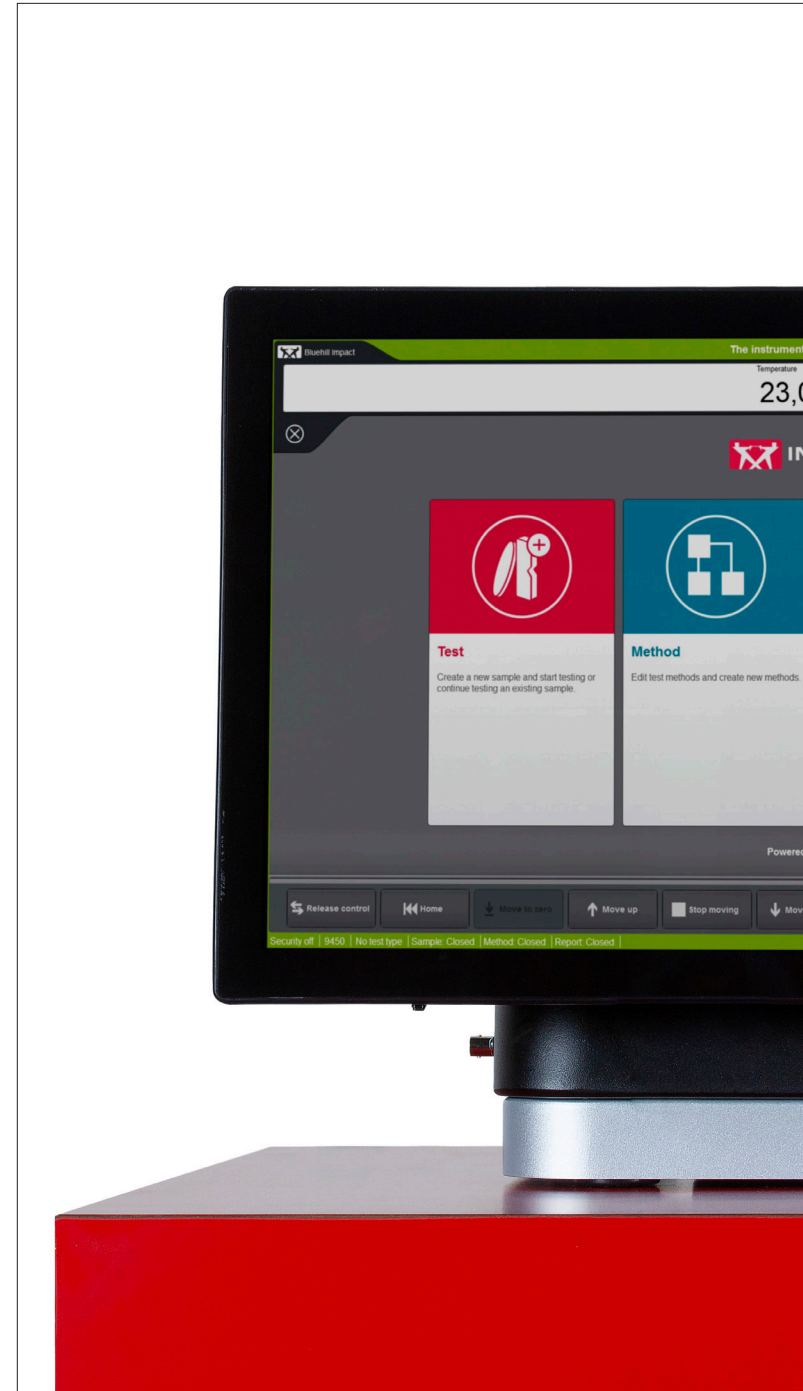
The development of Instron Drop Tower Systems and Bluehill® Impact Software is based on a full understanding of customer needs for both an enhanced user-experience and outstanding productivity.

The Instron Drop Tower 9400 Series was developed to deliver faster results, fewer errors, and lower training costs for customers who are under pressure to deliver higher quality advanced materials for stronger yet lighter products.

This is achieved by simplifying workflows, providing preconfigured and prompted tests, streamlining data and exporting it for analysis, while providing advanced capability with high speed video and more.

These capabilities all make the 9400 Drop Tower Series:

SIMPLER, SMARTER, SAFER





SIMPLER

Powered by Bluehill® Impact

Bluehill **Impact** is built from the ground up for touch interaction. The Operator Dashboard features large touchpoints to make the user experience simpler and smarter. Easy-to-understand icons and workflows make it easy to train new or experienced users, simplify operator training, and allow you to start testing even faster than ever before.



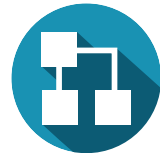
Simple Setup

The easy set up of the carriage, masses, tups, and supports allow you to benefit from high testing capabilities. Easily switch from high to low loads and from coupon to component testing.



Simple Test Procedures

Thanks to prompted tests and the integrated touch panel, setting up test procedures require just a few clicks. Users can be guided through the entire testing process with step-by-step instructions, ensuring tests remain repeatable, simple, and error-free. Prompts are fully customizable with bespoke text or messages.



Smart Defaults

Bluehill Impact provides a set of pre-configured methods to cover the most common impact testing scenarios.



Quicker Testing

Productivity is increased by 20% thanks to the combination of the new Dashboard and Bluehill Impact providing faster data acquisition and results.



SMARTER

Integrated Innovations for Efficient Tests



Flexible Data Analysis

Users can define unique data flow and procedures ensuring data processing flexibility. Bluehill Impact reports on anomalies and inconsistent results when they are outside set parameters.



Sharing Results

Easily share test method and results within your company or directly with your customers with our new file management system.



Calibration alert

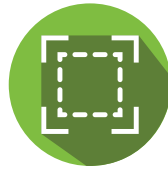
Automatic alerts are generated when Tup calibration period is expiring. This feature helps to reduce the risk of invalid tests and protect your results against inaccuracies.





High-Speed Camera Trigger

Increase your characterization data with the use of high-speed cameras. The 9400 Drop Towers are equipped with a high-speed camera connection to allow for a simultaneous and synchronized acquisition of high speed video with the Force profile.



Transparent panel

View your test from any side and record for future reference. When using a high speed camera, you save time by not having to move accessories when you change specimens or test method.



Top Force Range Scale (%)

Our tups are calibrated over different percentages of the maximum capacity – this allows you to refine the force scale resulting in better load resolution as well as higher levels of system flexibility.



SAFER

Safety Without Sacrificing Throughput



Fully Enclosed

Integrated safety circuits to protect your operator by disabling the system when any enclosure door is open.



Your results Are Always Saved

Never lose your results, even if power is lost during the test or the operator completes an unscheduled shutdown.



Enhanced Security

Bluehill Impact security allows the Lab manager to configure permissions in the software, granting full permissions to super users and limiting access where needed.



Built-In Safety Notifications

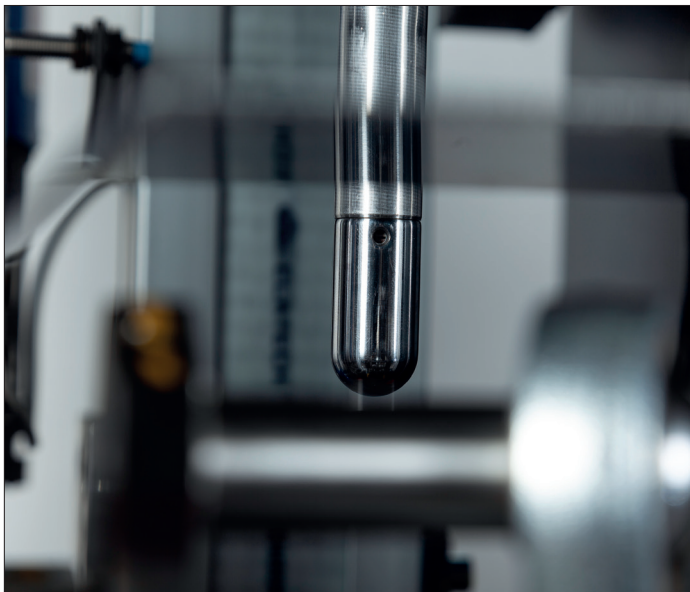
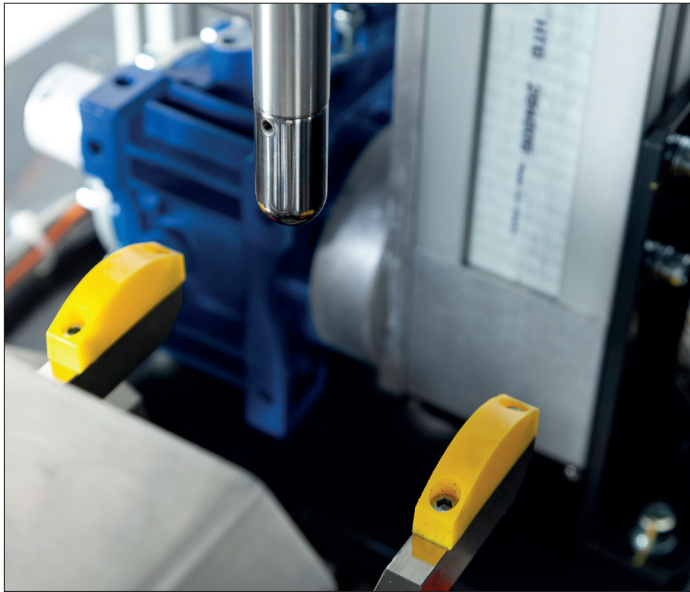
The 9400 system is a fully enclosed system to conform with CE regulations. As an additional safety measure, the system gives clear visual information on the instrument status, so users always know when a test is in progress.





SUPPORT FOR THE LIFE OF YOUR EQUIPMENT

Protecting Your Investment



Instron® is the largest supplier of materials testing systems in the world. Our reliable testing systems can run 24 hours a day, 7 days a week, 365 days of the year. 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.



Training

Training courses available on-site or in one of our Regional Training Centers Utilize our Applications Engineering Lab or Custom Solutions Group for the latest technological advances in materials testing



Advanced Support

Our Sales, R&D, and Tech Support teams work together with you from initial enquiry through to delivery, offering full access to demonstration models at our design facilities across the world.



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.



SPECIFICATIONS

9400 Series



9440



9450



9450 with Large Base

Energy range	J ft-lb	0.3 - 405 0.22 - 299	0,59 - 1800 0,44 - 1330	0,59 - 1800 0,44 - 1330
Impact velocity	m/s ft/s	0.77 - 4.65 2.53 - 15.3	0,77 - 24 2,53 - 78,7	0,77 - 24 2,53 - 78,7
Drop height	m in	0.03 - 1.10 1.18 - 43.3	0,03 - 29,4 (equivalents) 1,18 - 1160 (equivalents)	0,03 - 29,4 (equivalents) 1,18 - 1160 (equivalents)
Mass range ¹	kg lbs	1.00 - 37.5 2.2 - 82.7	2,00 - 70,0 4,41 - 154	2,00 - 70,0 4,41 - 154
Mass increments	kg lbs	0.5 1.1	0,5 1,1	0,5 1,1
Force transducers	kN lbs	0.45 to 90 101 to 22000	0,45 to 222 101 to 50000	0,45 to 222 101 to 50000
Machine dimensions (w x d x h)	mm in	985 x 610 x 2620 38.7 x 24 x 103	1015 x 866 x 3180 40 x 34 x 125,2	1520 x 940 x 3330 60 x 37 x 132
With thermostatic chamber (w x d x h) ²	mm in	985 x 695 x 2620 38.7 x 27.4 x 103	1015 x 1150 x 3180 40 x 45,3 x 125,2	1520 x 1918 x 3375 60 x 75 x 133
Test area dimensions (w x d x h)	mm in	490 x 450 x 565 19.3 x 17.7 x 22.2	700 x 720 x 570 27.5 x 28.3 x 22.4	1200 x 730 x 745 47.2 x 28.7 x 29.3
With thermostatic chamber (w x d x h) ²	mm in	370 x 300 x 495 14.6 x 11.8 x 19.5	550 x 540 x 500 21,6 x 21,3 x 19,7	550 x 540 x 500 21,6 x 21,3 x 19,7
Machine weight	kg lbs	340 749	775 1708	1200 2646
With thermostatic chamber ²	kg lbs	550 1213	925 2039	1775 3913
Electrical supply	-	220-240V 50/60Hz 100-120V 50/60Hz	220-240V 50/60Hz 100-120V 50/60Hz	220-240V 50/60Hz 100-120V 50/60Hz
Compressed air supply	bar psi	6 to 10 72.5	6 to 10 72,5	6 to 10 72,5

¹ 9440 Includes an average tup weight of 0,5 kg (1,10lbs) and 9450 includes an average tup weight of 0,7 kg (1,10lbs)

² 9450 with large base can be equipped with a removable thermostatic chamber



SPECIFICATIONS

9400 Series

Data Acquisition Rate and Points

65'536 points acquired up to 4 MHz, simultaneous on Strain Gauge, Piezoelectric, and Analog channels.

High Speed Camera Trigger

Guarantees simultaneous acquisition across HSC and data acquisition system. Output voltage: 0 to +12 V nominal (*), positive polarity. Output current: maximum 10 mA.

(*) max value depends on absorbed current

Testing Speed Accuracy

Measured by optical detector $\pm 1\%$, repeatability $\pm 2\%$ of set value.

Drop Position Accuracy

Measured by digital encoder ± 1 mm, repeatability ± 0.5 mm of set value.

Load Measurement

Piezoelectric and Strain Gauge sensors with selectable working ranges among 10-20-50-100% of the full scale. Traceable and accredited verification certificate can be released for the evaluation of measurement uncertainty.

Overload Capacity

From 160% to 600% depending on the transducer type.

Force Measurement Accuracy

Indicated error $\leq 1\%$ of rated output at full scale and Resolution at zero force for all selectable working ranges 0.04%, both estimated according to ISO 7500-1 Annex C; Linearity $\leq 1\%$ of the full scale (including charge amplifier for Piezoelectric load cells).

Instrument Supplies

Electrical 100-120 V UL/CSA-ready, 220-240 V; 50-60 Hz.
Compressed air 6 to 10 bar (72.5 to 145 psi)

Touch Screen

Flat screen, 21.5", industrially-rated touch monitor.

Operative System

Built-in computer is installed with Windows 11 LTSC

Dashboard Overall Dimensions

525 x 460 x 420 mm (W x D x H)

Extras

Compatible with Bluetooth/Wi-Fi keyboard and mouse.

Dashboard Supplies

2 Electrical electrical supplies are required.
Multitension 50-60 Hz UL/CSA-ready.

Notes:

These specifications were developed in accordance with Instron's standard procedures and are subject to change without notice.
All systems conform to all relevant European standards and carry a CE mark.



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.
