

# WAVEMATRIX™3

The Difference is Measurable





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**WAVEMATRIX™ 3**

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# INTRODUCING **WAVEMATRIX3**

The Difference is Measurable

WaveMatrix is the industry's market leading software suite for dynamic and fatigue testing that is trusted by scientists, engineers and quality managers worldwide.

The latest version of the software builds upon the potential of its predecessors and introduces new features such as **Test Review**, **Specimen & Test Inputs** and **Security**.

Developed to work seamlessly alongside the latest PC software and firmware, WaveMatrix3 will save time, enhance productivity, improve confidence in the results being produced and help to futureproof facilities needing to adapt to new technologies.

Designed for customers, with the support of customers, WaveMatrix3 guarantees that when advancing the boundaries of material testing; **the difference is measurable.**



Save Time



Enhance Productivity



Improve Confidence



Futureproof Facilities





# HOME SCREEN

WaveMatrix3



## Specimen & Test Inputs

Additional features have been added to the Method section that increases the quantity of additional test control options and simplifies the management and collection of test information.

## Tutorials

Quick video-based guidance highlighting both new and old features helps owners to quickly become product experts.

## Test Review

A completely new section of the software allows a user to instantly and retrospectively inspect, edit, annotate and interpret their test results.

## Always-on-Top Display

Console comes as standard with all systems hosting WaveMatrix software and is the bedrock for many Instron® innovations such as specimen protect and its patented stiffness-based tuning.





## Security

New easy-to-use features improve test reliability and auditability will maximize customer confidence.



# TECHNICAL HIGHLIGHTS

WaveMatrix3

|   | FEATURE                              | WAVEMATRIX3 | WAVEMATRIX2 | WAVEMATRIX |
|---|--------------------------------------|-------------|-------------|------------|
| SAVE TIME<br>                | Intuitive User Interface             | ✓           |             |            |
|   | Retrospective Test Review            | ✓           |             |            |
|   | Auto-Calibration                     | ✓           | ✓           | ✓          |
|   | Stiffness Based Tuning               | ✓           | ✓           | ✓          |
|   | Quick Test Setup                     | ✓           | ✓           |            |
| ENHANCE PRODUCTIVITY<br>     | Customizable Specimen & Test Details | ✓           |             |            |
|   | Integrated Virtual Test Information  | ✓           |             |            |
|   | Specimen Protect                     | ✓           | ✓           | ✓          |
|   | Example Methods                      | ✓           | ✓           |            |
|   | Video Tutorials                      | ✓           | ✓           |            |
| IMPROVE CONFIDENCE<br>     | PIN-Coded Accessibility              | ✓           |             |            |
|   | User Defined Access Rights           | ✓           |             |            |
|   | Visual Test Space                    | ✓           | ✓           | ✓          |
|   | Intuitive Test Setup                 | ✓           | ✓           |            |
|   | Visual Sequence Builder              | ✓           | ✓           | ✓          |
| FUTUREPROOF FACILITIES<br> | Microsoft Windows 11 Compatibility   | ✓           | ✓           |            |
|   | WaveMatrix Backwards Compatibility   | ✓           |             |            |
|   | Always-On-Top Display                | ✓           | ✓           | ✓          |
|   | Automatic Logging                    | ✓           | ✓           | ✓          |
|   | Robust File Structure                | ✓           | ✓           | ✓          |



# TEST REVIEW

Save Time

Reducing the time taken to accurately perform tests has been a continuous focus for product innovation and with WaveMatrix3, this concept was central to development. Designed using expert customer feedback, the following features have been produced to accelerate the process of reviewing a test.



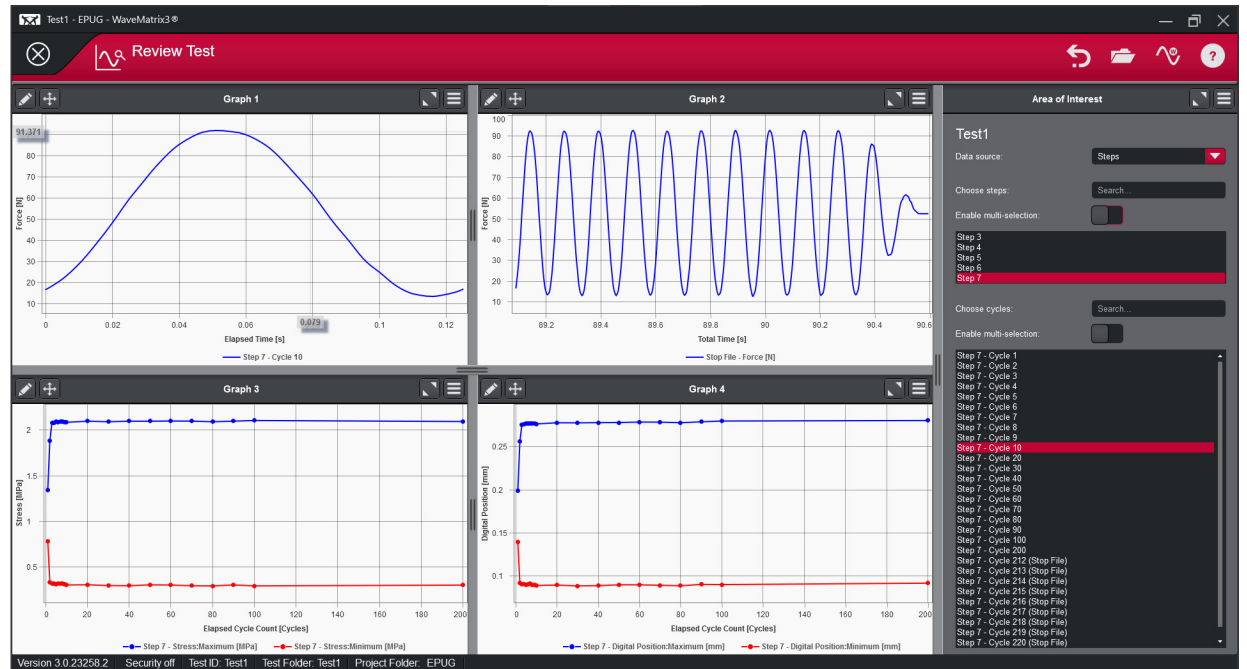
## Intuitive User Interface

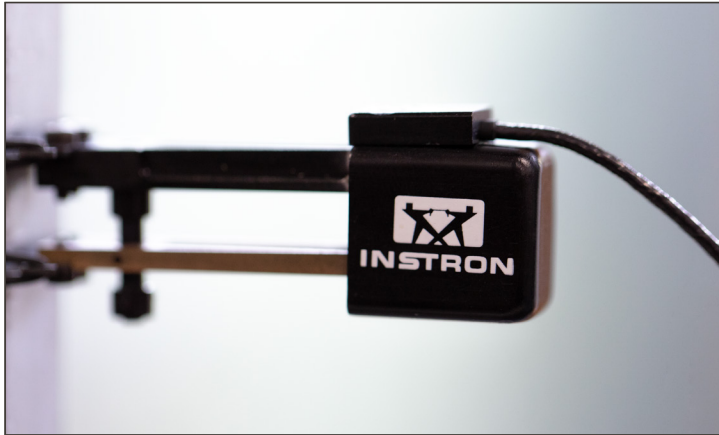
Modifying the layout of graph and control charts that are commonly used to compare cycles, overlay waveforms, observe hysteresis loops and view peak data for specific parts of a test are easy to customize, will repopulate instantly and facilitate the rapid manipulation of multiple datasets.



## Retrospective Test Review

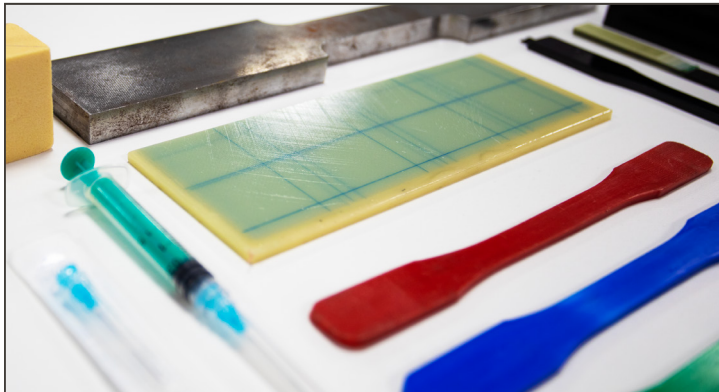
Data generated during previous tests can now be viewed once the session has finished, removing the time-consuming process of exporting the data and processing it using 3rd party software consequently accelerating the assessment stage and eliminates the potential to compromise the integrity of the original data.





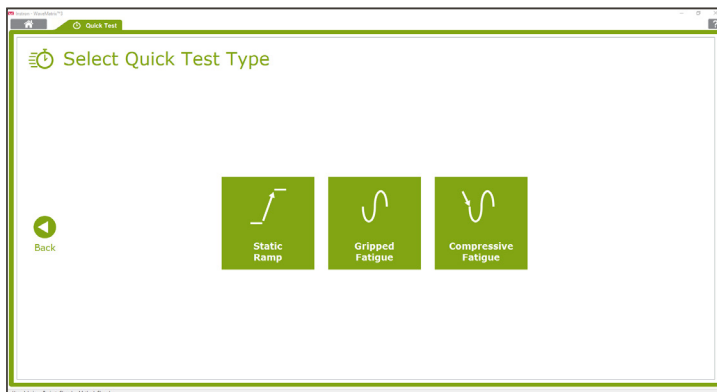
## Auto-Calibration

When selected, a simple and robust step-by-step process which has been integrated into the software can swiftly calibrate and setup both Instron and 3rd party transducers prior to tuning.



## Stiffness Based Tuning

Making testing machines accessible to users of all abilities, this patented game-changing technology reduces tuning time by up to 75%, avoids pre-cycling and helps to ensure that a test runs correctly first-time, every-time.



## Quick Test Setup

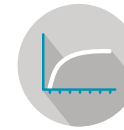
Materials testing system operators can set-up simple fatigue tests in seconds when using the intuitive, user friendly and flexible interface that is located on the quick access home-screen.



# SPECIMEN & TEST INPUTS

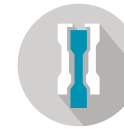
Enhance Productivity

Improving productivity can occupy a significant part of any organization's continuous improvement efforts and is a key component of sustainable growth and unlocking employee potential. WaveMatrix3 has been designed to improve throughput and minimize the inefficiency of routine testing.



## Customizable Specimen and Test Details

By simplifying the testing workflow so that user can input and record key test information, it is now easy to carry out tests in stress control and remove the need to complete pre or post test force or stress calculations.



## Integrated Virtual Test Information

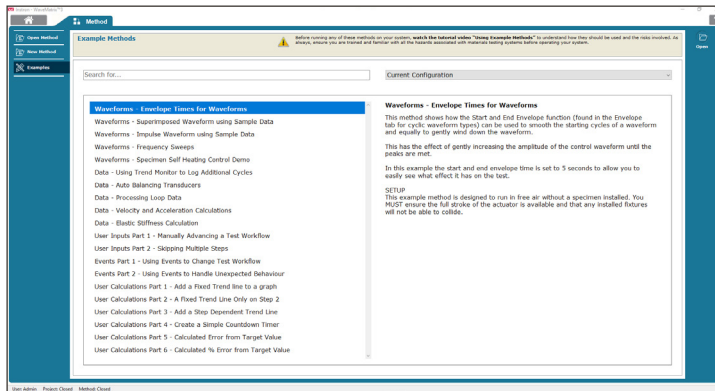
Being more efficient when collecting insights and entering inputs during a test reduces the potential for post-test data entry errors and allows an operator to focus on performing and repeating high quality tests.





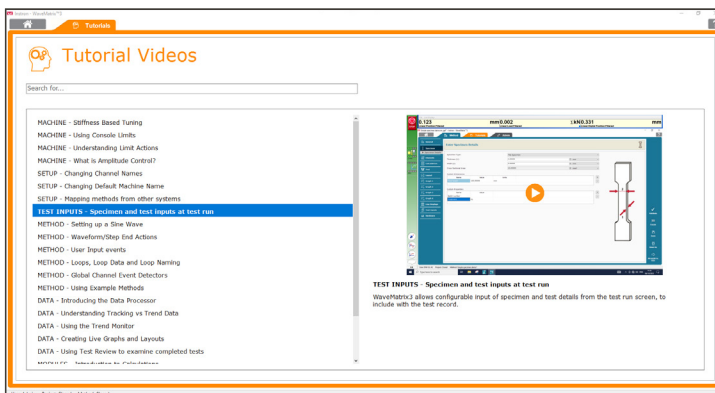
## Specimen Protect

By automatically helping an operator to remove unwanted tensile, compressive and torsional forces during test setup, the risk of accidental harm to the system, test sample and operator is reduced.



## Example Methods

A ready-to-use library of 20+ methods that have been optimized to work on the testing system without the need for special fixtures are able to be reviewed and edited to suit an operators needs.



## Video Tutorials

An array of pre-configured example methods and a source of effective contextual help is included and provides a practical and effective means of empowering a user to extract the maximum potential from their testing system.



# SECURITY

Improve Confidence

Resources required for test validation are necessary and critical to ensuring the quality of test data. WaveMatrix3 features help to simplify the conformity process so that laboratories are more effective, the potential for human error is reduced and confidence in the result is improved.



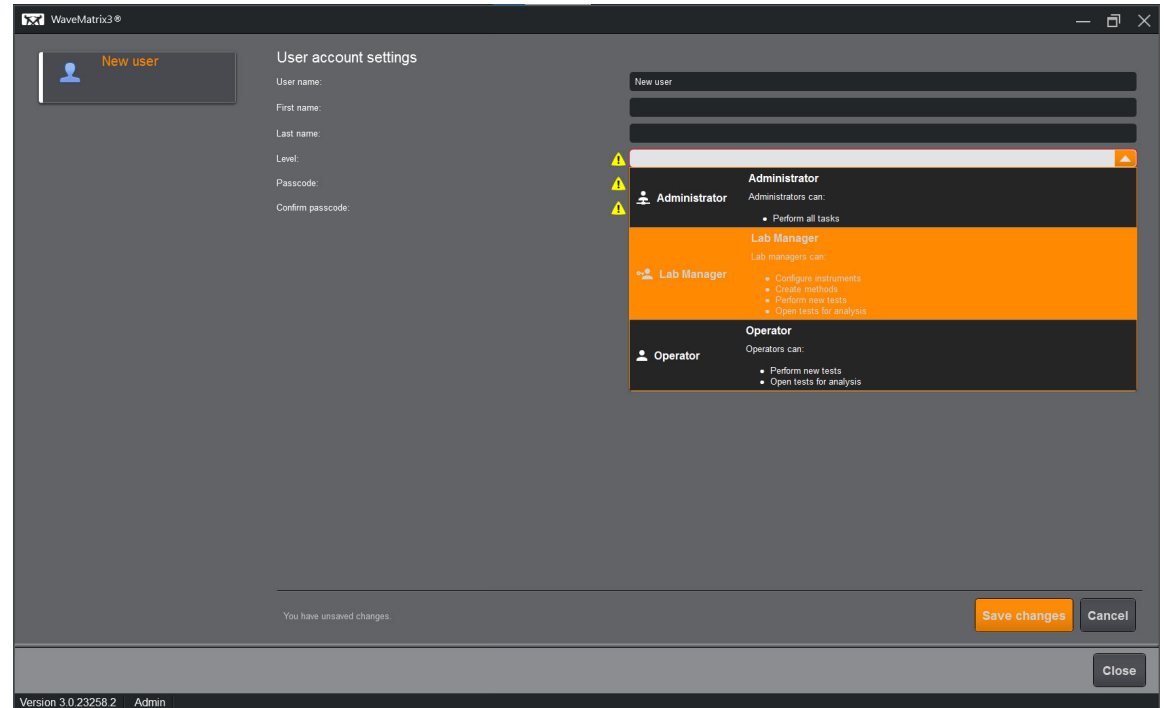
## PIN-Coded Accessibility

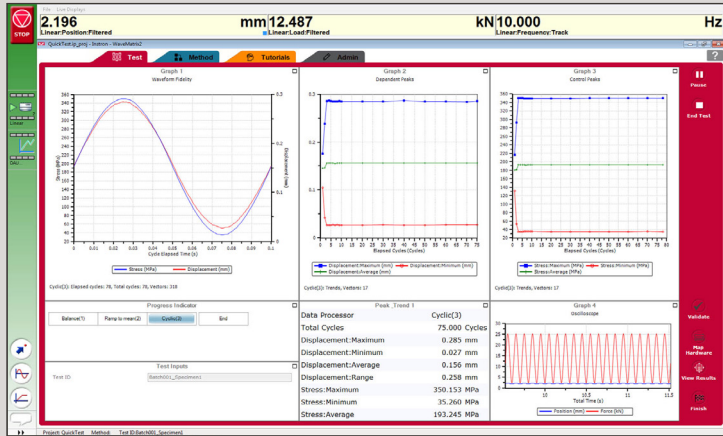
With the optional ability to limit access to authorized users only, the potential to deliver superior test method quality control and maximize the integrity of test data can now be aligned to meet the demands of your IT security network.



## User Defined Access Rights

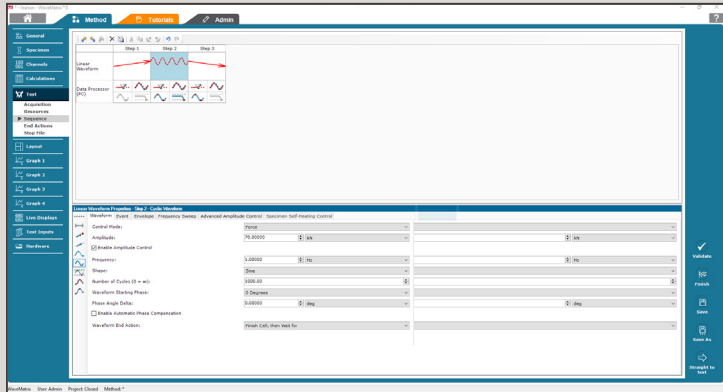
With three different pre-defined profiles to select from, it is possible to configure the workspace to suit the needs of different users and limit the functionality that is available to an individual. Doing so limits the complexity of the software; reduces the time taken to train and upskill staff and simplifies the auditing process.





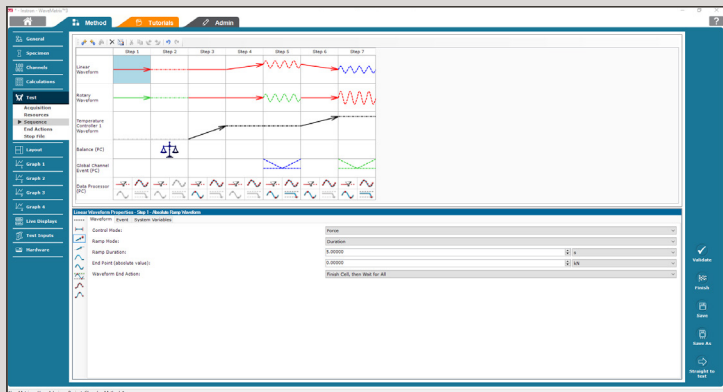
## Visual Test Space

The customizable workspace which can be configured to display the most relevant information via a range of graphs, progress indicators and data tables also hosts an automatic validation feature that will flag errors and warnings before the start of a test.



## Intuitive Test Setup

Build and understand complex test methods at a glance, rename devices, steps and data channels, control the test workflow using; loops, events, user interactions, digital inputs and the trend monitor and expand machine testing capabilities with additional devices.



## Visual Sequence Builder

Confidently design, visualize, modify and refine the test method sequence safe in the knowledge that your specimen will be tested correctly; limiting waste, unlocking productivity and reducing costs.



# IT COMPATIBILITY

Futureproof Facilities

As the world advances into the 4th industrial revolution, the demands for automation and data exchange in the materials testing industry has increased. Software has often been used to solve this challenge and WaveMatrix3 has been designed to meet these challenges and ensure testing facilities are as futureproofed as possible.



## Microsoft Windows 11 Compatibility

Developed to work with the latest PC operating system ensures that when using WaveMatrix3, test facilities are as futureproofed as possible; minimizing the risk of downtime associated with aging digital infrastructures.



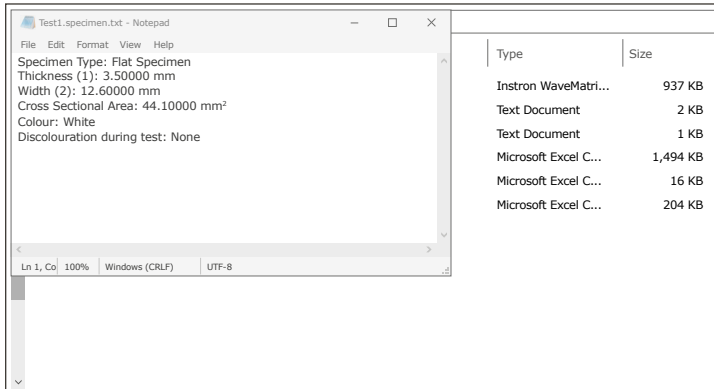
## WaveMatrix Backwards Compatibility

Upgrading to WaveMatrix3 means that all the valuable features available in previous versions can be still be used alongside the ability to seamlessly import existing test data and methods that were previously created.



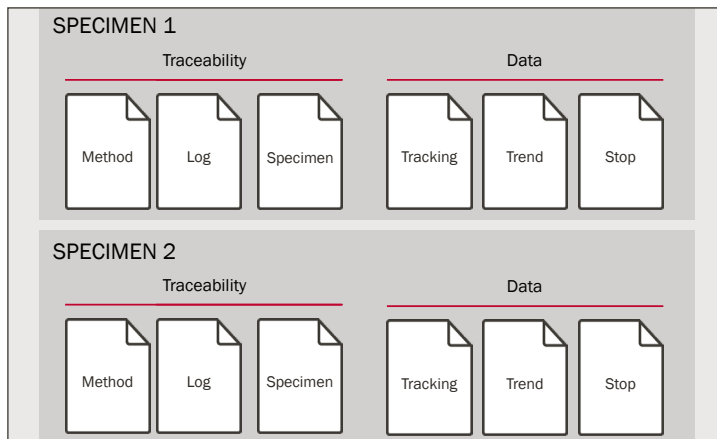
## Always-On-Top Display

Critical real-time operation and status information for the overall system is always displayed in a fixed location and cannot be covered; resulting in improved familiarity, enhanced safety and continuity between different users.



## Automatic Logging

All test folders contain a time-stamped log of all test events, an archived copy of the test method used to produce the result and a results datafile including referenced cycle, step and loop numbers to aid post-test processing.



## Robust File Structure

Designed to maximize traceability and data accessibility, a clearly defined structure that organizes project data and individual test results is used to generate an open CSV file that can be used for the post-test analysis.



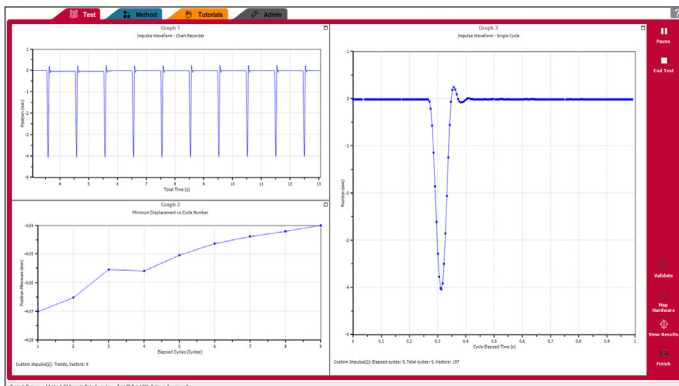
# ADDITIONAL MODULES

Upgrade Your Software and Unlock New Capabilities



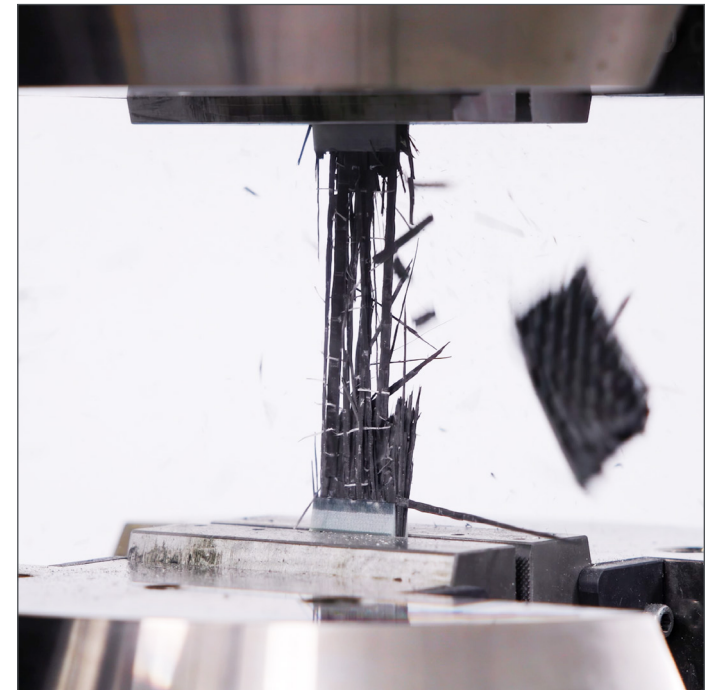
## Calculations

Use live calculations and process data in real-time to gather more insightful data quicker whilst reducing post-test processing time. Choose from an extensive library of 20+ built-in algorithms (such as cyclic energy, or dynamic modulus) or create your own.



## Advanced Control

Use an increased range of control modes and waveform types which automatically adjust the applied loading. Combine with live calculations to create sophisticated adaptive tests.



## Specimen Self-Heating Control

Specimen Self-Heating Control helps to accelerate test programmes for polymer composites where specimens generate heat internally under cyclic loading. Adaptively controlling frequency in response to specimen temperature reduces time for long life tests and improves consistency between stress levels.



# INSTRON® TESTING SYSTEMS

WaveMatrix3 Works with All Dynamic & Fatigue Test Systems



## ElectroPuls® All-Electric Dynamic and Fatigue Test Systems

Linear electric motor driven dynamic test machines for fatigue and fracture mechanics testing



## General Purpose Hydraulic Fatigue

General purpose servohydraulic systems ideal for high-cycle and low-cycle fatigue, fracture mechanics and quasi-static testing.





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## 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.

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