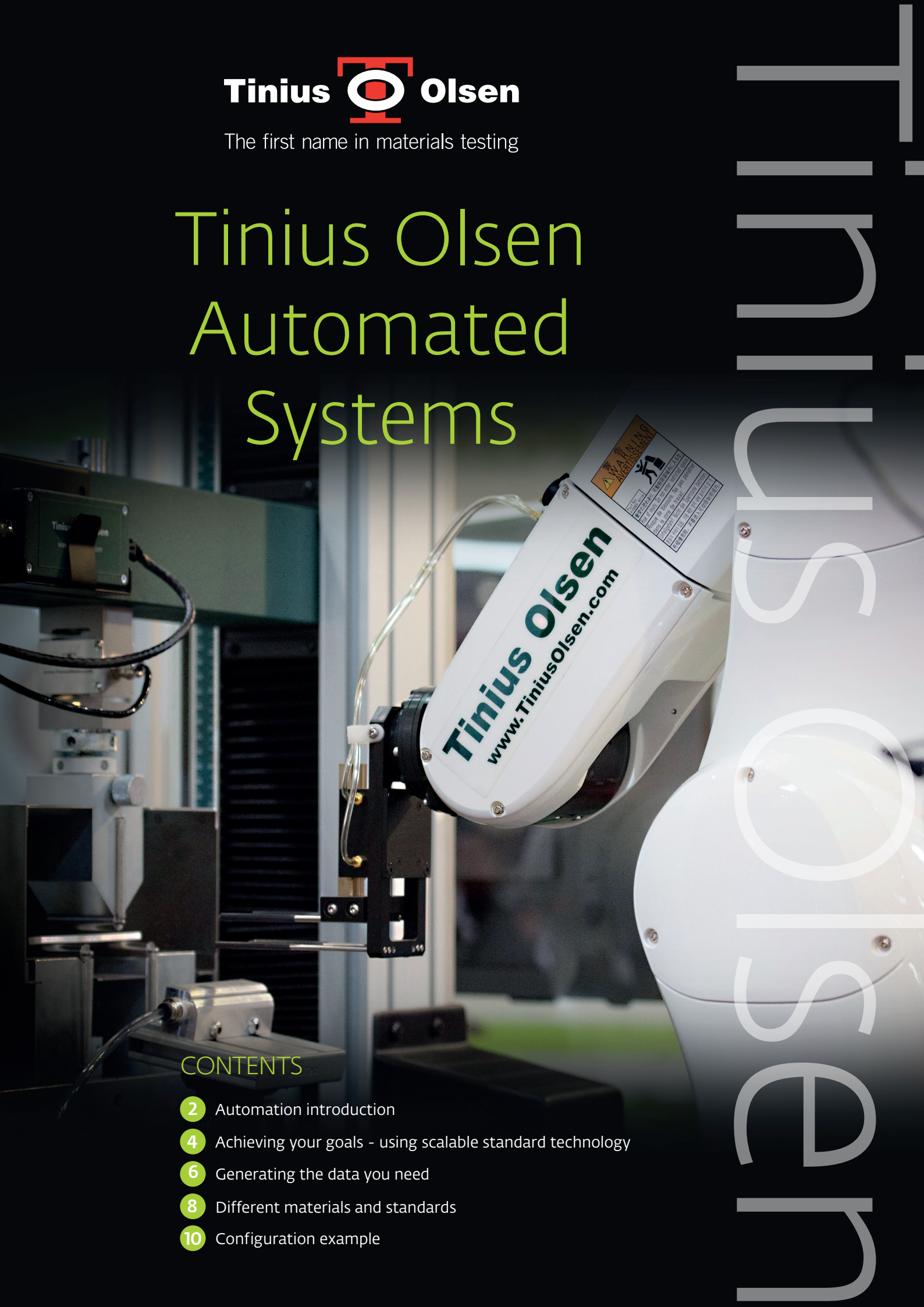
Tinius Olsen

The first name in materials testing

Tinius Olsen Automated Systems



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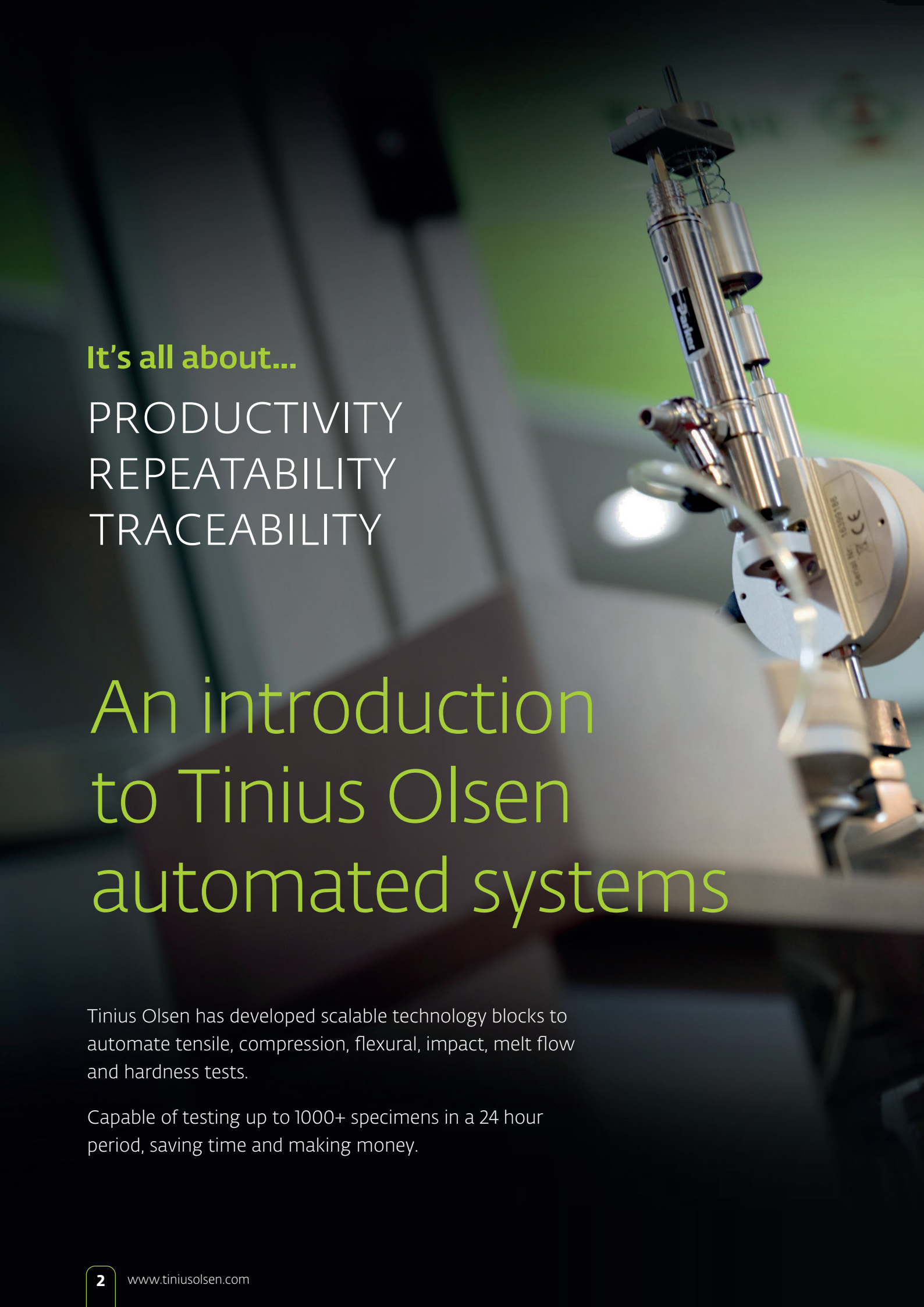

It's all about...

PRODUCTIVITY
REPEATABILITY
TRACEABILITY

An introduction to Tinius Olsen automated systems

Tinius Olsen has developed scalable technology blocks to automate tensile, compression, flexural, impact, melt flow and hardness tests.

Capable of testing up to 1000+ specimens in a 24 hour period, saving time and making money.

SCALABLE TECHNOLOGY BLOCKS

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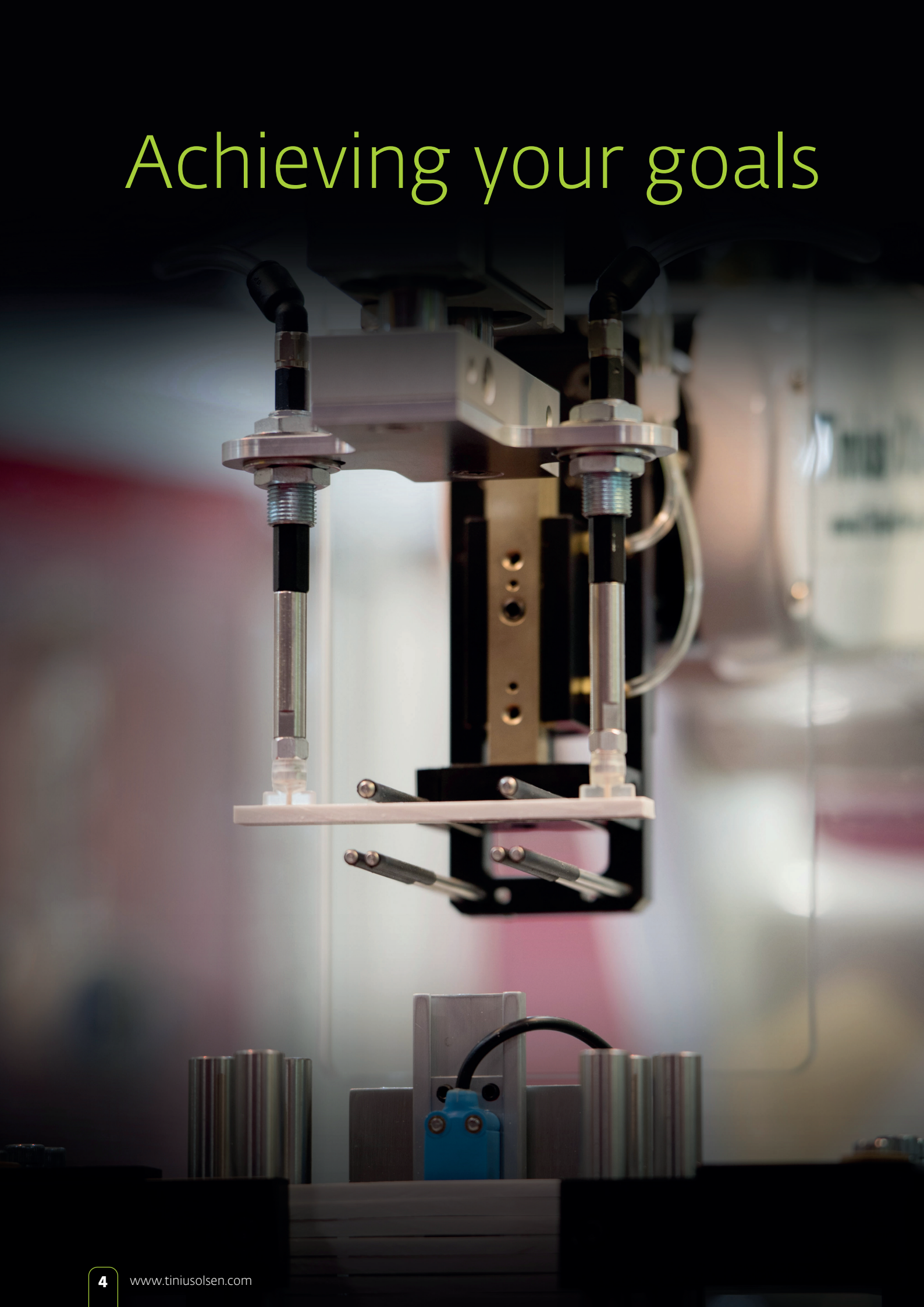
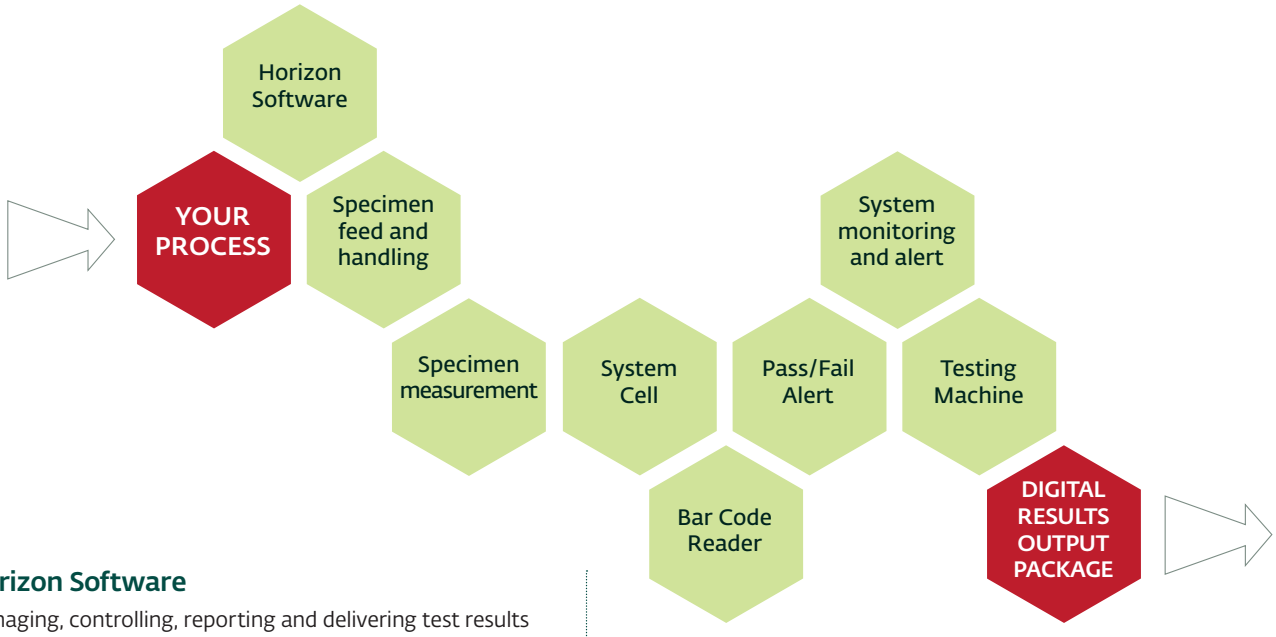
Achieving your goals





Horizon Software

Managing, controlling, reporting and delivering test results immediately and straight to your process wherever they are needed.

Specimen feed and handling

Implemented to meet your need, your volume, including separation and classification of spent specimen's post test.

Bar Code Reader

Reading in batch and test specimen details passing these to the test method, report output and results data base.

Specimen measurement

Be it width, thickness, diameter, or depth of notch, multiple measurements are taken, averaged and passed to the test method and reporting output.

Pass/Fail alert

Your Pass/Fail criteria established on each and every result means the instant the test is complete a result not meeting the criteria is flagged alerting the person responsible.

Testing Machine

Automate one testing process or multiple, check tensile and hardness or tensile and flexural or Charpy and Izod in the same automated "Cell".

Digital results output package

Results, graphs, video delivered to the teams that need it available at their works stations on their PC's, stored for recall and back up, wrapped with suitable traceability details in support of compliance.

System Cell

Built to accommodate your testing system whether a single machine or multiple machines, whether tensile, compression, flexural, impact, hardness or melt flow. The cell is impact-resistant and transparent. Parts of it can be open using light curtain technology, allowing people and robots to operate safely in the same space. It is interlocked with user and service password entry.

System monitoring and alerts

Digital and video monitoring 24 hours a day. The system monitors all aspects of its movement, measurement, control and performance parameters, updating its log, alerting if errors occur, and advising in support of planned maintenance.

SCALABLE TECHNOLOGY BLOCKS

Tinius Olsen is excited to introduce the next evolution in materials testing – scalable automation.

At Tinius Olsen we have taken a fresh look at how our customers use materials testing machines and software to meet their specific needs in today's commercial environment.

Accuracy, resolution, data rates, control, precise adherence to test standards, calibration, measurement of uncertainty and traceability are all essential parameters tuned to the highest standards and capabilities in Tinius Olsen testing machines and software.

The next workplace evolution is to ensure this technology is used as efficiently as possible in your test lab and in the control of your materials, product quality and performance. It's about providing a financially quantified step gain in productivity using Tinius Olsen technology.

To achieve this we have developed scalable technology blocks to automate tensile, compression, flexural, impact, melt flow and hardness tests. Our systems can deal with low milli Newton forces to high thousands of kNs and process from 30 to 1250 tests a day.

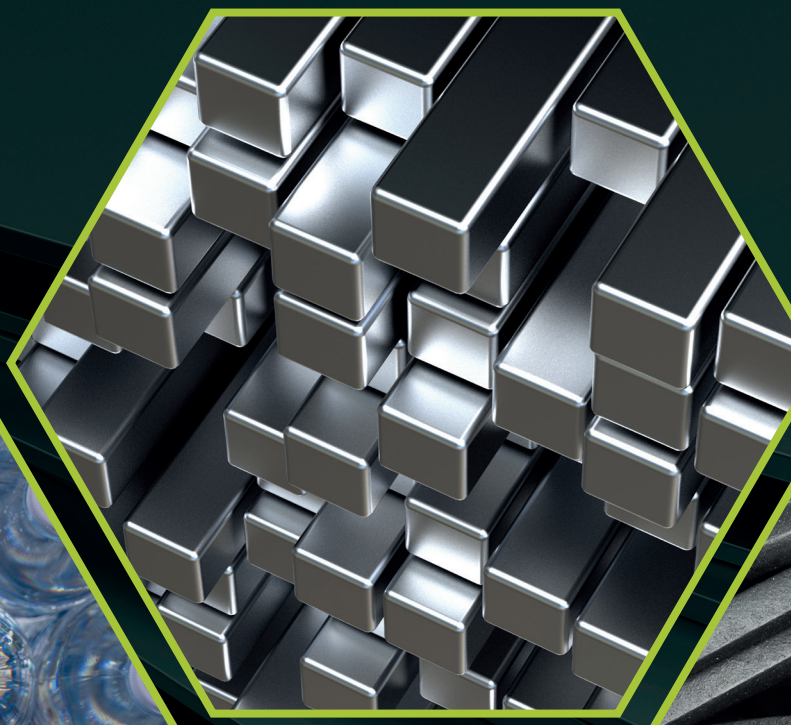
Tinius Olsen can provide an affordable solution to deliver the step change in productivity and profitability your business needs.

SCALABLE TECHNOLOGY BLOCKS

Generating the data you need

Tinius Olsen automated materials testing systems are designed with ambition for ambition, for those who are clear on making a focused investment to get a step change in productivity in the test lab to match the performance of their manufacturing or processes capability, delivering test results instantaneously posttest to the teams that need them. Results reported in accordance with the relevant test standard be it ISO, ASTM, JIS, GB or GOST standard.

Results which are repeatable and traceable and within the prescribed measurement of uncertainty budget. Results supported by graphs and where appropriate pictures and video, be it the image of a hardness indent or the classification of an impact break type or a clip within which the high resolution tensile strain data is embedded. In short an output package delivered efficiently to where it is needed, proof of your material or components performance.



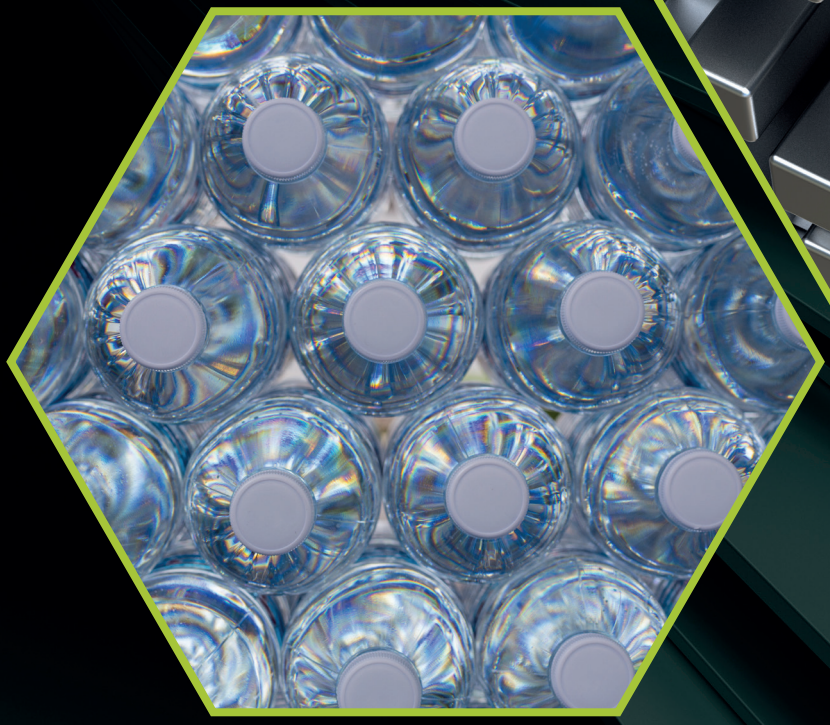
Metals

Tensile: ISO 6892-1, ASTM E8/E8M, GB/T 228.1

Impact: ISO 148-1, ASTM E23-16a, GB/T 229

Flexural: ISO 7438, ASTM E290, GB/T 232

Hardness: ISO 6508-1, 6506-1, 6507-1, ASTM E18-16, E10-17, E92-16, GB/T 230-1, 231-1, 340-1



Plastics

Tensile: ISO 527-1, 527-2, ISO 6259-1, ASTM D 638, GB/T 1040.1, 8804.1

Flexural: ISO 178, ASTM D 790, GB/T 9341

Impact: ISO 179, 180, ASTM D 6110-18, D256, GB/T 1043, 1843

Melt Flow: ISO 1133, ASTM D 1238, GB/T 3682

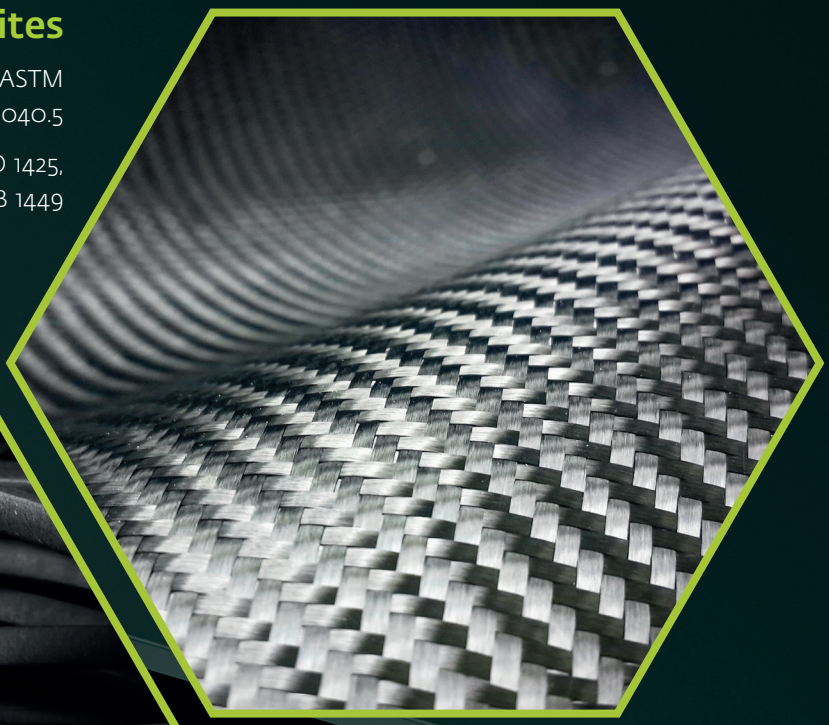
Different materials

If you have a need for routine repeatable testing on materials, components or devices – whether 30 specimens a day or over 1000 – you should consider investing in automation to get a step change improvement in productivity. Through its proactive input in developing international standards, Tinius Olsen can show compliance with relevant ASTM, ISO, JIS, GB or GOST standards meeting both your strategic and compliance needs.

Composites

Tensile: ISO 527-4, 527-5, ASTM D3039, GB/T 1040.4, 1040.5

Flexural: ISO 1425, ASTM D7264, GB 1449



Rubber

Tensile: ISO 37, ASTM D412, GB/T 528

Devices and Components

Fasteners: **Bolts and nuts**
ISO 898-2, ASTM F606, GB/T 3098.2

Medical devices: **Drug delivery devices and components** under a CFR21 Part 11 compliant structure

Configuration

Manufacturing Vision System

This is a video camera which supports the test output package with visual analysis at points throughout the test. It strengthens the data recorded for future replay, either in a virtual test environment or for recognition of specimen break types in support of an impact test.

Cell

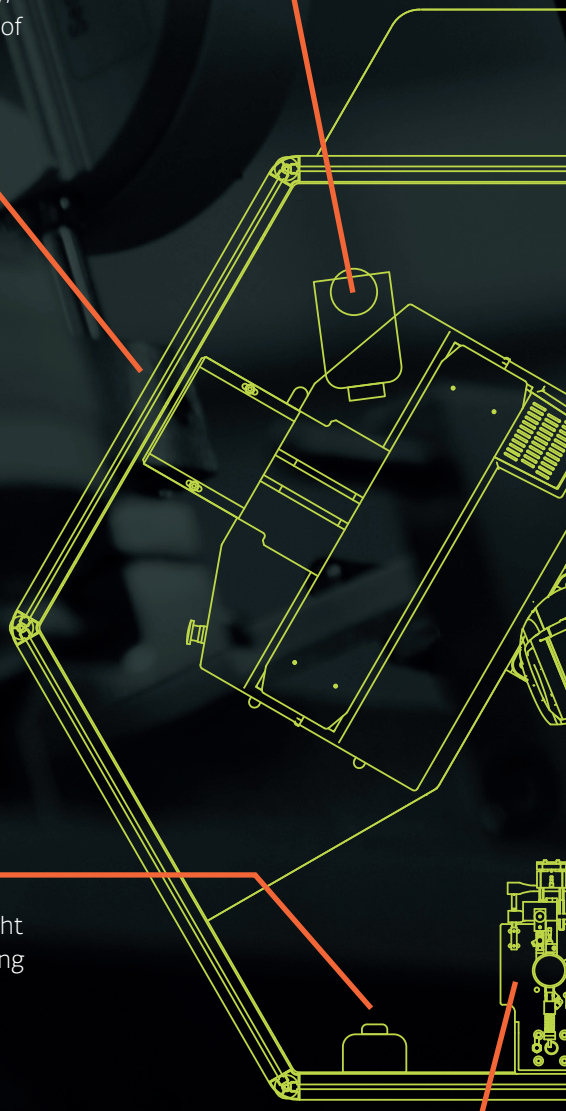
The cell housing the automation system is configured with four specific objectives and capabilities;

1. FOOTPRINT. Optimize the footprint and envelope of the automation cell in support of productivity.

2. SAFETY. Transparent impact resistant panels give the user a clear view of the system while providing protection from moving parts. Optional user recognition for interlocked cell access for users and/or service personnel.

3. ACCESS. Light curtains in the cell panels allow people to operate safely while near the robotics.

4. FLEXIBILITY. The system is an investment in performance for many years, therefore the cell design and construction supports future repositioning if required.



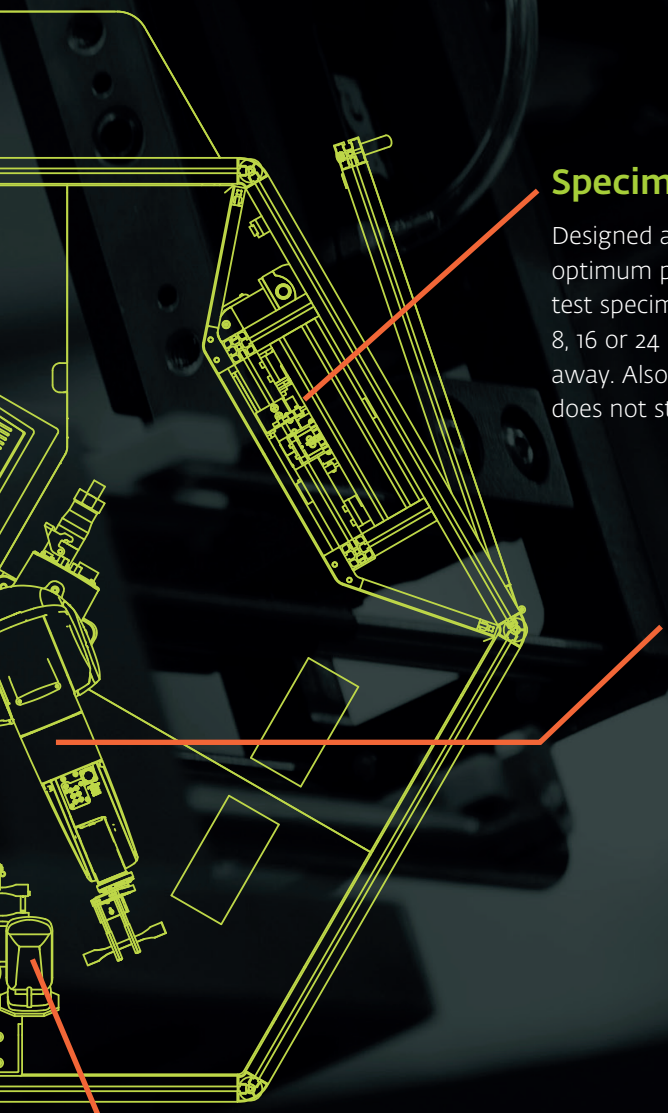
Camera Monitoring

Samsung 1080P full HD streaming camera with night operation for when the automated system is running in a light-out energy efficient room. PC and Cell phone accessible 24 hours a day by operators and maintenance teams in support of system SMS or email system monitoring and performance alerts.

Specimen Measurement Station

Consists of single or multiple measuring heads enabling fast measurement of specimens in one or more axes whether rectangular, round or profiled shapes. Available in measuring range 12.5 to 150mm, 6-digit display, max error on 3µm scale 0.001mm, repeatability 2µm. Measurement force ranging from 0.65N to 5.7N based on configuration.
10 measurements per second.

Example



Specimen Racking

Designed and configured to support the system for optimum productivity. It holds a suitable number of test specimens to cover a shift or product run, whether 8, 16 or 24 hours. It allows you to load once and walk away. Also supports live loading so that actual testing does not stop.

Robots

From two-axis linear robots to full 6-axis articulated solutions, the automated system is configured to meet productivity objectives and achieve optimum handling of test specimens from entry into the cell through to ejection and post-test handling.

Robots are configured for light weight pay loads such as thin films and medical devices, through to heavy metal component payloads of up to 7kg with a maximum composite movement speed of 11,000mm/sec. The robot's position detection and brake systems are fully integrated with the Tinius Olsen control and monitoring system platform.

End effectors or hands are designed to meet specimen needs in terms of shape, profile, gripping force and surface finishes.

Bar Code Reader Station

1D or 2D bar code reading enabled using reading light source pattern of single dots, 625nm LED illumination: 630nm LED's. Image field 46° horizontal x 29.5° vertical, max swipe/read speed 2.3m per second.

Tinius Olsen

Automated Systems

www.tiniusolsen.com

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• Noida, UP, India • Shanghai, PR China