



MICRO / MACRO SCRATCH TESTER

QSCRATCH 20

The Qscratch 20 is a fully automatic macro/micro scratch tester for quality control of coatings, functional surfaces, and critical loads. The system combines controlled force application, precise electronic load control, integrated optical evaluation, and guided operation in QpixControl2. This enables reproducible scratch testing with progressive or constant load, including structured evaluation, documentation, and reporting.

With motorized X/Y/Z axes, single and multiple measurements, and an 8-position automatic tool changer, the Qscratch 20 is designed for laboratories that need reliable surface-related decisions every day. It supports scratch tests according to standards such as DIN EN ISO 20502, ASTM C1624, ISO 27307, and ASTM G171. Optional Vickers hardness testing and Qpix Inspect analysis modules make the system a flexible platform for coating evaluation, surface testing, and quality assurance.



MICRO / MACRO SCRATCH TESTER QSCRATCH 20

VANTAGGI PRODOTTO

- | Fully automatic macro/micro scratch tester for coatings and surfaces
- | Single and multiple measurements for efficient test series
- | Electronic force control with a test force range of 0.5–200 N
- | Constant and progressive load for standards compliant scratch testing
- | 8-position automatic tool changer for test modules and lenses
- | Motorized X/Y/Z axes with precise positioning
- | QpixControl2 software with guided scratch workflow
- | Optional hardness upgrade and Qpix Inspect analysis functions

NOMINATED FOR THE BEST OF INDUSTRY AWARD

The Qscratch 20 has been nominated for the Best of Industry Award in the category "Best of Manufacturing & Design – Quality & Precision." Please support us with your vote!



MICRO / MACRO SCRATCH TESTER QSCRATCH 20

VIVI L'ESPERIENZA DEL MODELLO 3D NEL MONDO REALE!

SHARE



CHOOSE PRODUCT:

QATM-Model - Visita la pagina con il tuo smartphone oppure scansiona il QR code sotto la voce "Visualizza nella realtà" per vedere il modello 3D nel mondo reale!

Qscratch 20

MICRO / MACRO SCRATCH TESTER QSCRATCH 20

METODI DI PROVA E INTERVALLO DI FORZA



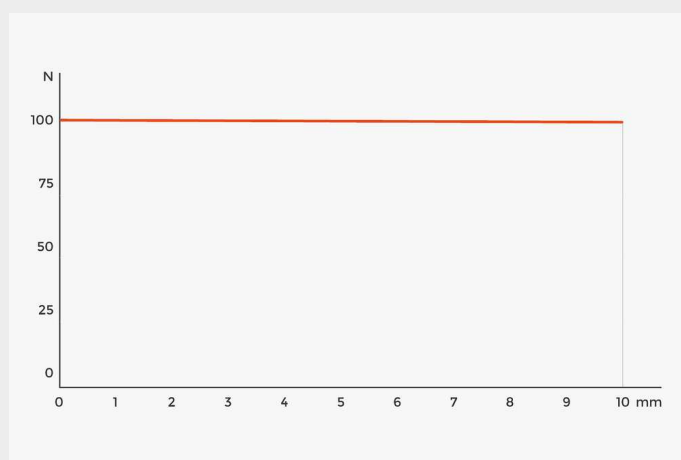
METHOD: PROGRESSIVE LOAD

The initial and final loads, as well as the load rate, are defined. The load increases along the scratch length; visible events can be assigned as Lc points at their respective positions.

ISO: PFST - progressive force scratch test

ASTM: PL - progressive load

Lc: Load critical



METHOD: CONSTANT LOAD

The normal force remains constant over the scratch length. This method is suitable for individual measurements, series comparisons, and recurring test conditions in a quality control setting.

ISO: CFST - constant force scratch test

ASTM: CL - constant load

Lc: Load critical

TEST METHODS

PROGRESSIVE OR CONSTANT
LOAD -
TAILORED TO THE TEST
REQUIREMENTS



STANDARDS & PROCEDURES

DIN EN ISO 20502 / ASTM C1624 -

Determination of adhesion and mechanical failure modes of hard ceramic coatings using a scratch test.

ISO 27307 - Evaluation of the adhesion and cohesion of thermally sprayed ceramic layers on a cross-section using a transverse scratch test.

ASTM G171 -

Determination of the scratch hardness of material surfaces using a defined diamond stylus, a constant normal force, and evaluation of the remaining scratch width.

FOR LABORATORIES THAT MAKE CRITICAL DECISION EVERY DAY

Qscratch 20 is a automated macro/ micro scratch tester for coatings and functional surfaces. The system combines controlled force application, integrated optical evaluation, and guided software operation and a report generation. It was developed specifically for laboratories that make critical surface-related decisions on a daily basis.

PRACTICAL QUALITY ASSURANCE & INTEGRATED WORKFLOWS

Designed for quality assurance: The system combines standardized scratch tests with high repeatability, efficient documentation, and intuitive operation. QpixControl2, the integrated workflow, flexible export options, and optional inspection functions turn it into a powerful, all-in-one solution rather than a simple stand-alone tester.

LONG-TERM INVESTMENT SECURITY THROUGH QATM EXPERTISE

QATM brings many years of experience in hardness testing, metallography, and global service to its scratch testing portfolio, thereby safeguarding your investment in the long term.

TEST PRINCIPLE DIN EN ISO 20502 | ASTM C1624

A DEFINED SCRATCH. A CONTROLLED LOAD. A CLEAR

EVALUATION.

The principle

In the scratch test, a diamond stylus is moved across the coated surface under a defined normal force. Visible events such as cracking, spalling, or penetration of the coating are localized along the scratch mark and assigned to the corresponding critical load. Thus, the scratch mark not only indicates that a failure is occurring; it also shows where it is occurring—and makes the load at the critical point traceable.



DEFINING AND ASSIGNING FAILURE EVENTS

Lc1 - Initial cracking / plastic deformation

Lc2 - Spalling

Lc3 - Penetration of the coating down to the substrate

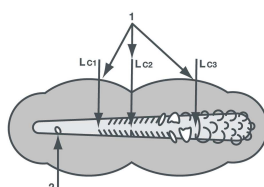


Figure: Failure Events

FROM SCRATCH TRACK TO TRACEABLE RESULT

CERAMIC COATINGS. EVALUATION OF ADHESION AND FAILURE MODES.

The following interactive section shows how typical failure events along the scratch track are analyzed. Click on the LC points to see how cracking, spalling, and coating penetration are associated with specific positions and loads.

SELECT A MATERIAL AND EXPLORE THE LC POINTS



**THIN, HARD CERAMIC
COATINGS (TYPICALLY 0.1 - 30
MM)**

- | Carbide, TiC, CrC
- | Nitride TiN, CrN, TiAlN
- | Oxide Al_2O_3
- | Diamond Diamond coating
- | Diamond-like carbon DLC

**THIN, HARD CERAMIC AND
TECHNICAL COATINGS
(TYPICALLY ≤ 20 MM)**

- | PVD TiN
- | PACVD DLC
- | Arc-discharge DLC
- | PVD/PACVD Cr-C
- | PVD Al_2O_3
- | Hard chrome

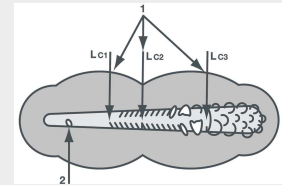


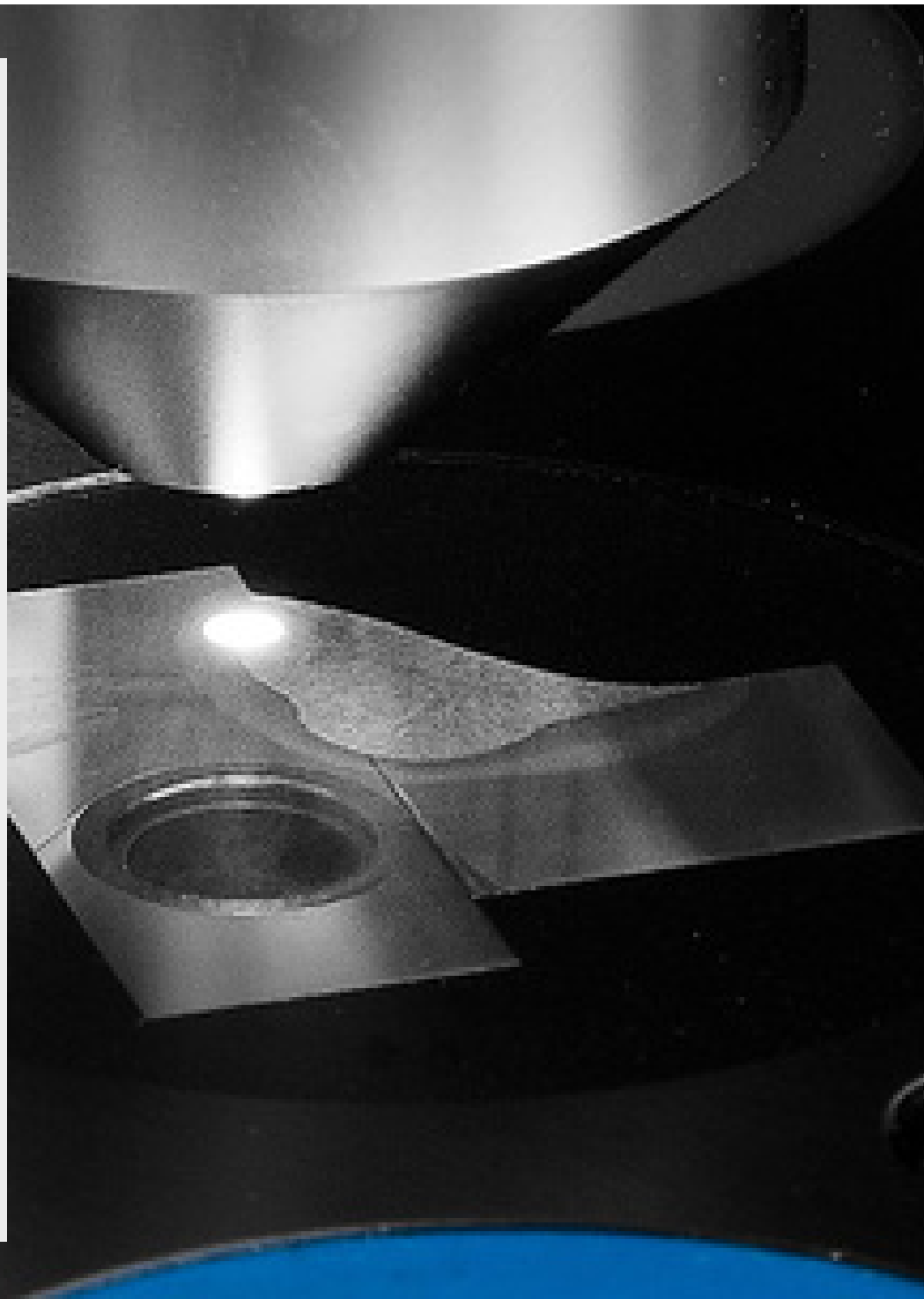
Figure: Failure
Events

MICRO / MACRO SCRATCH
TESTER QSCRATCH 20

SISTEMA OTTICO RIVOLUZIONARIO

The QATM-developed, in-house manufactured lens system sets new standards. As well as providing crystal clear image quality for hardness testing, Koehler illumination uses white LED light and motor-operated aperture shuttering to produce ideal contrast, even for high magnification images.

Experienced metallurgists agree the image quality provided by the Qscratch is comparable in all aspects with that of established sophisticated microscopes. The up-to-date concept and new lenses in the optic system enable the device to completely meet even the strictest physical 'test system definition' requirements in compliance with DIN EN ISO6507-1/2:2018.



MICRO / MACRO SCRATCH TESTER QSCRATCH 20

INNOVATIVE OPERATION



ILLUMINAZIONE DELL'AREA DI PROVA

Tutti i dispositivi sono dotati della nuova illuminazione a LED dell'area di lavoro: Posizionamento semplificato dei campioni per i test su pezzi singoli.

DISPLAY DI STATO
ILLUMINATO

PORTA LA LUCE NEL BUIO

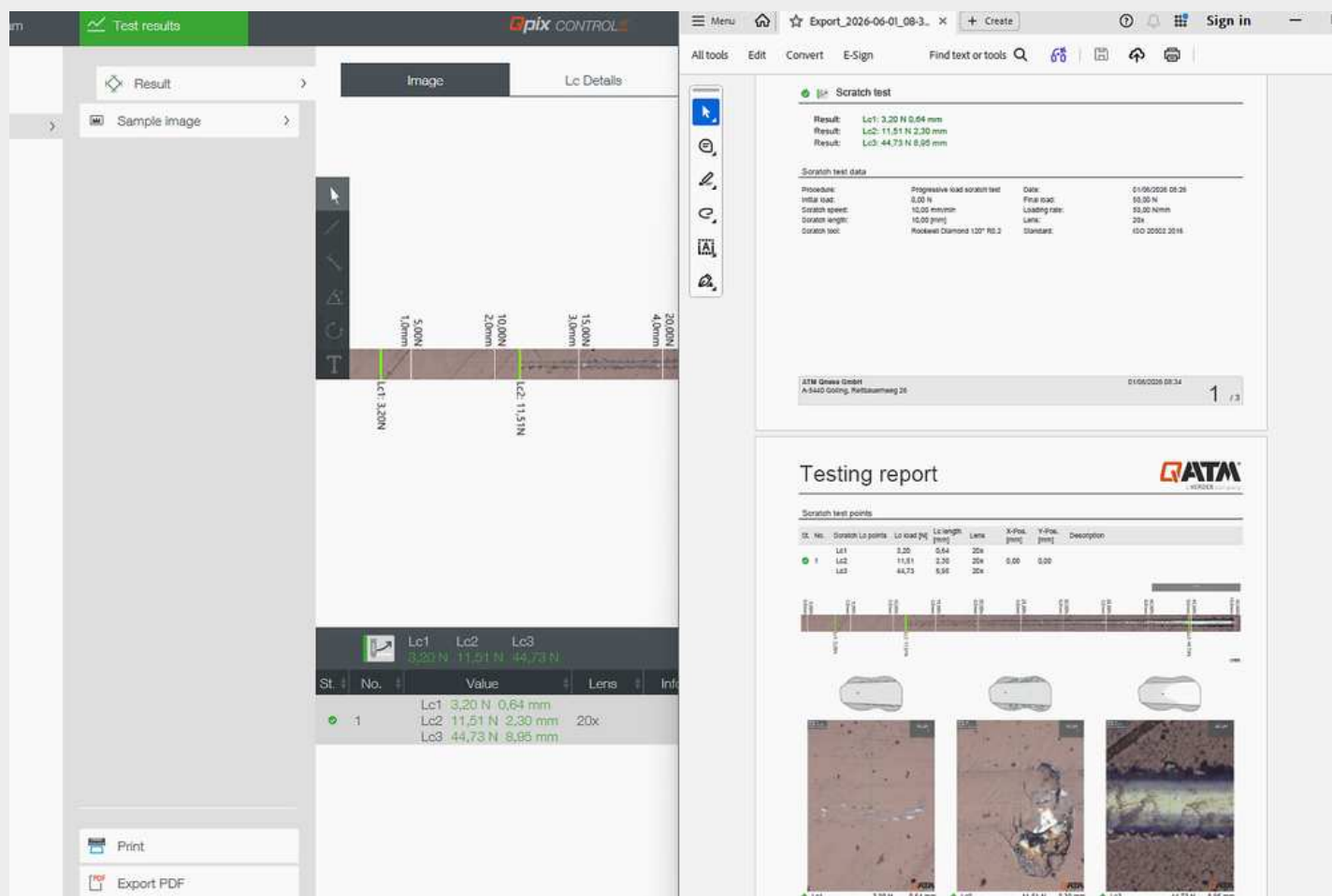
The illuminated QATM logo displays the current device status at a glance. The range of flash intervals indicates whether the device is operating automatically or is free to be used for new tasks for staff all around the lab. In addition, the LED test space lighting, installed as standard, ensures that samples and sample holders are positioned correctly.

On the Qscratch 20, it also ensures uniform light intensity for sample imaging.



MICRO / MACRO SCRATCH TESTER QSCRATCH 20

TECNOLOGIA PIONIERISTICA - IMPLEMENTAZIONE UNICA



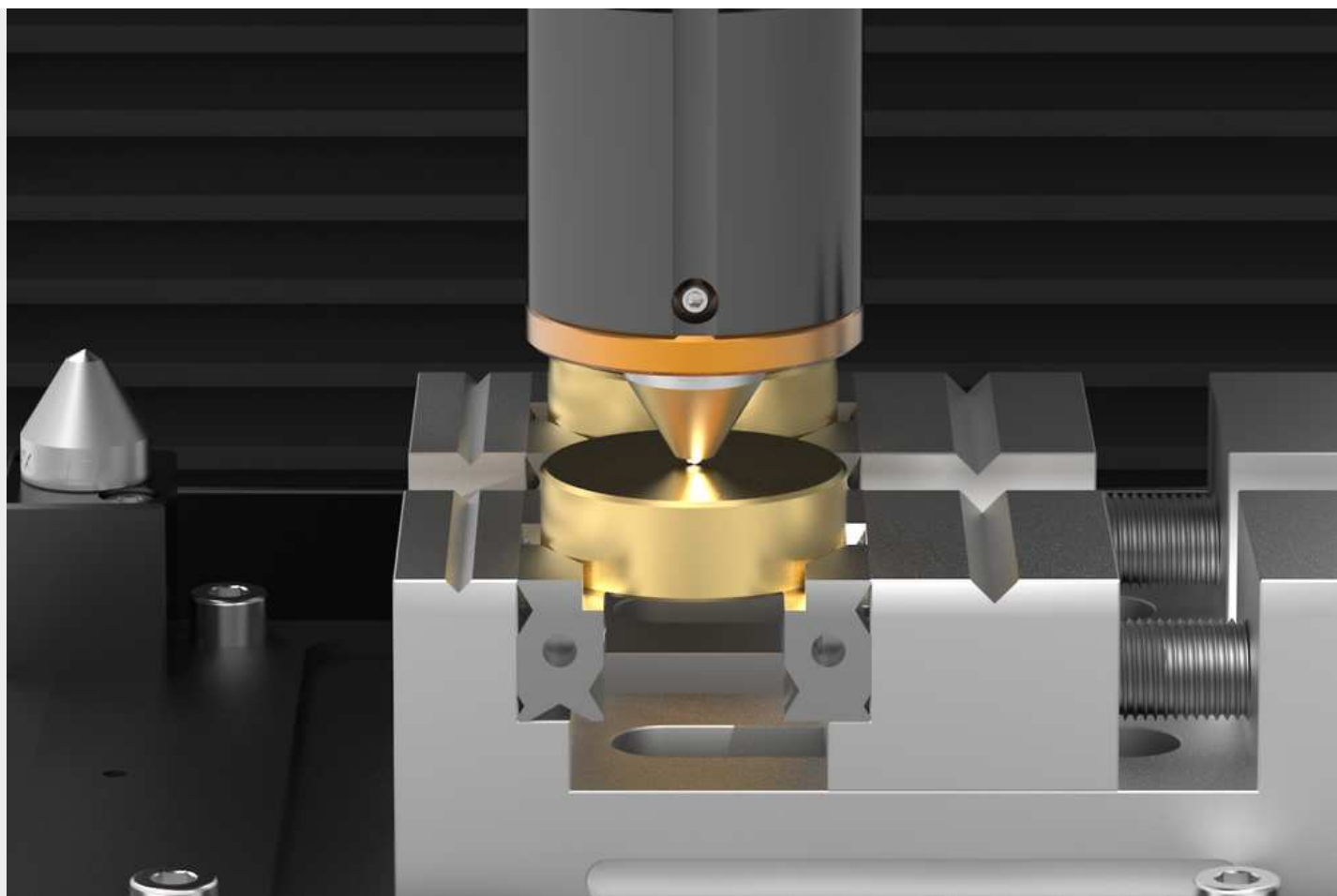
EVALUABLE AND COMPARABLE

The selected loading logic is linked to the scratch mark, position, and result. Methods can be applied to sample series, coating variants, and process comparisons.



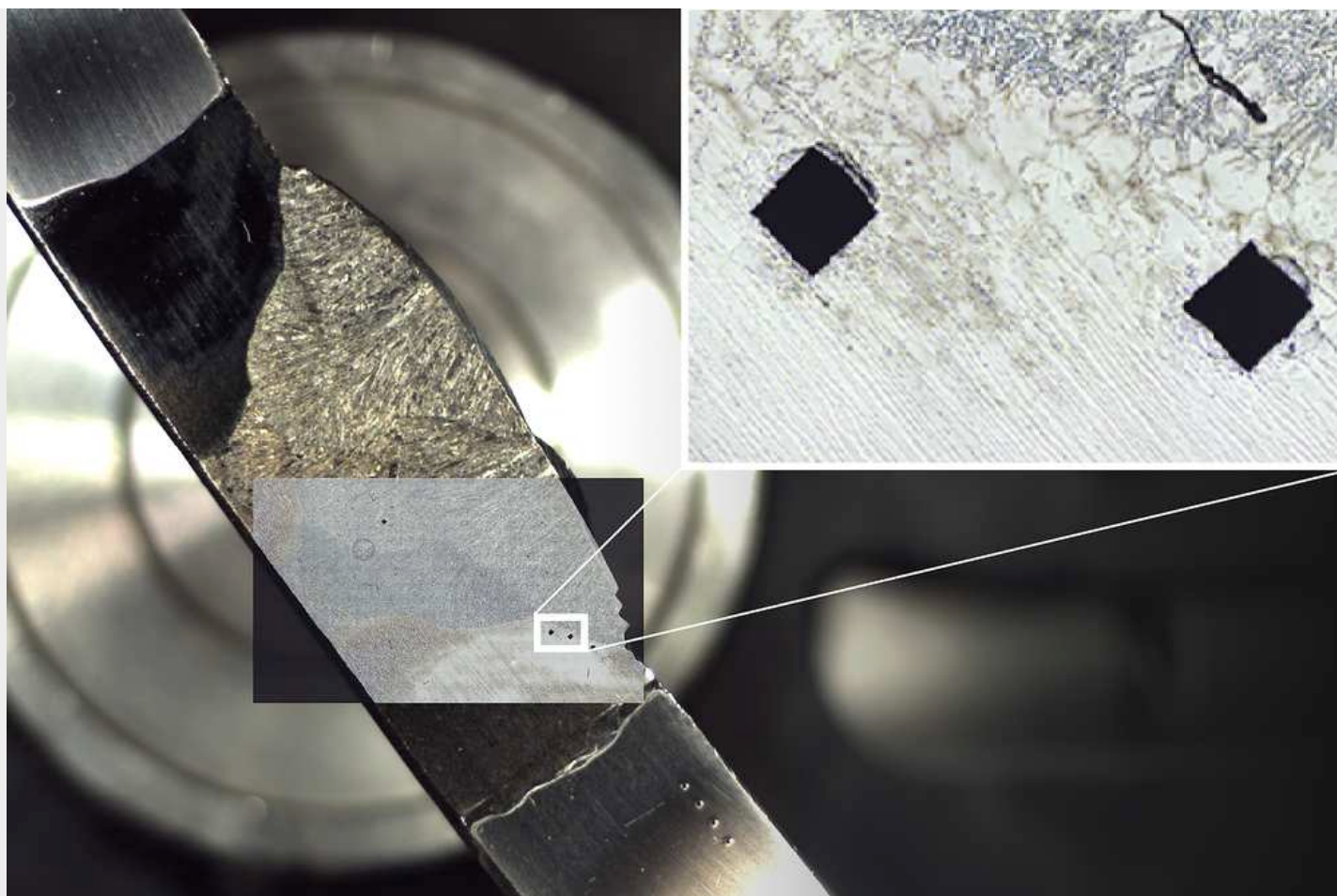
CHECKING THE DIAMOND STYLUS

The diamond tip can be visually inspected directly within the system. This allows the condition of the diamond stylus to be checked before or after the test - an important step for ensuring reproducible results and traceable test conditions.



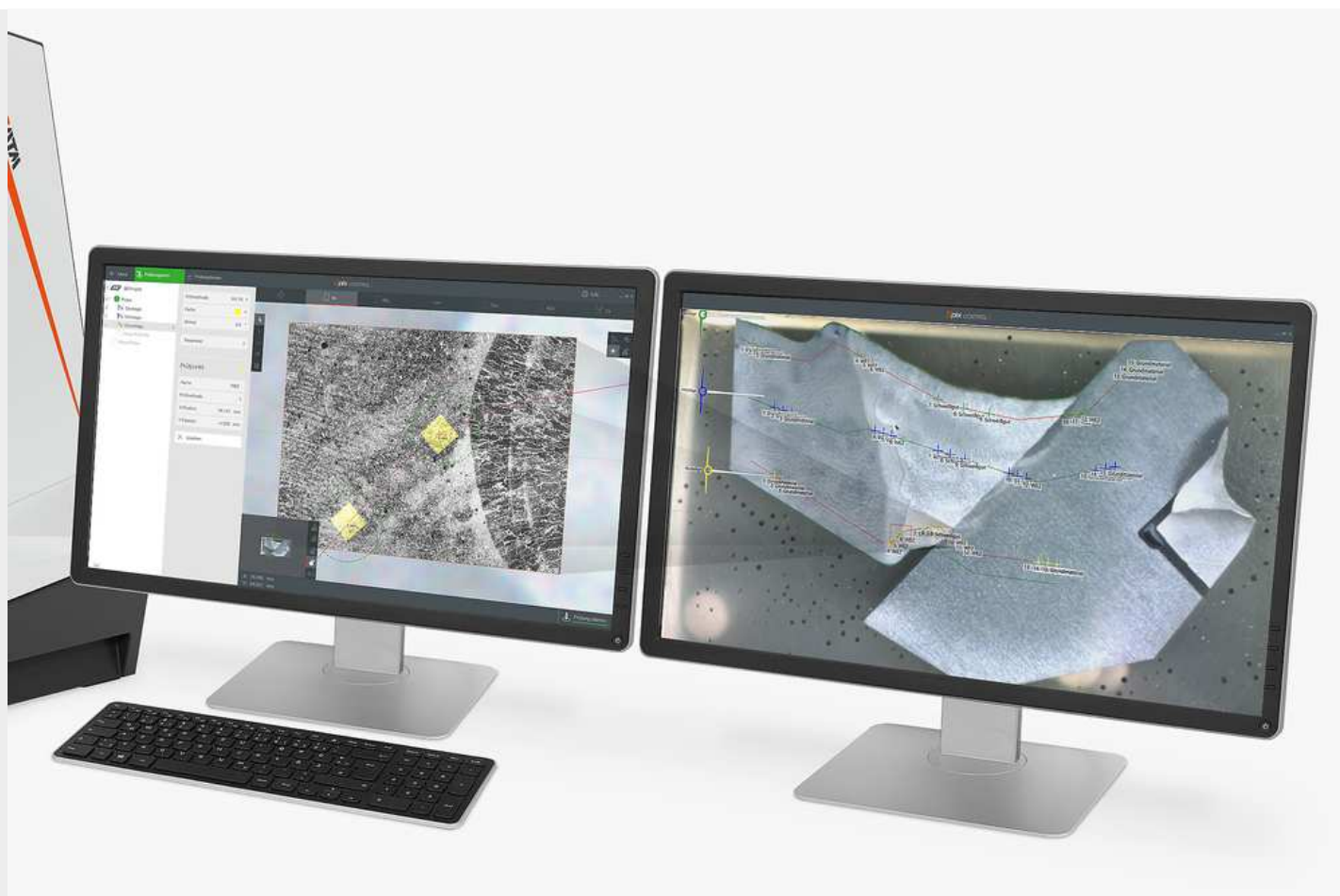
UNIVERSAL SAMPLE HOLDER

Adjustable clamping jaws allow for the secure holding of various specimen geometries - from flat and angular test pieces to round or very small specimens.



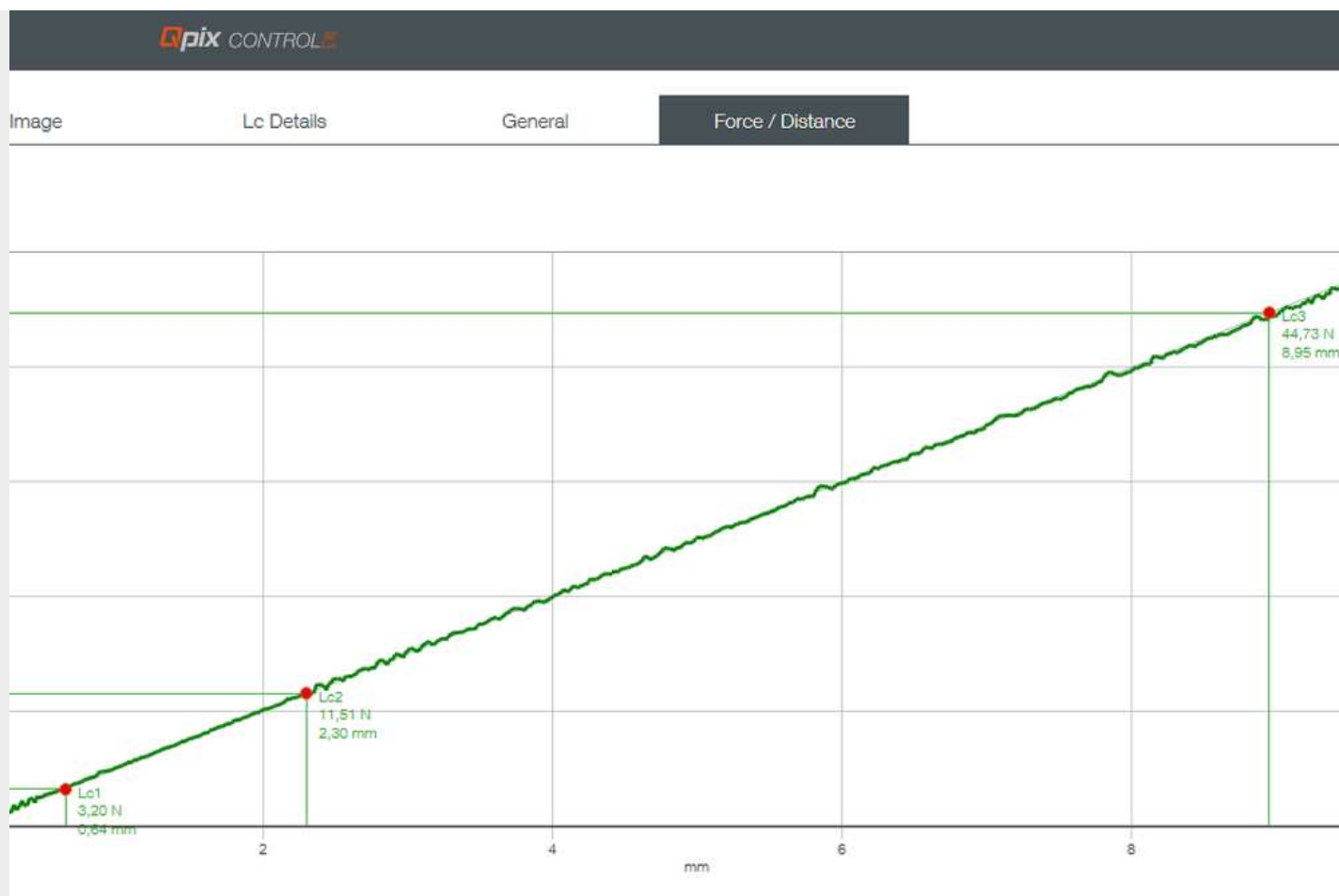
HIGH-RESOLUTION SAMPLE IMAGE (HRI)

If high-quality images of larger areas are required (e.g. for weld seam measurements), the area can be scanned using the HRI function. The Qpix Control 2 software automatically combines the individual images into one large overall image.



TELECAMERA PER L'IMMAGINE DEL CAMPIONE

It's no coincidence that most QATM customers choose the 'A+' version with a built-in sample image camera. In a few seconds the image of the sample is shot with the additional camera (field of view 52 x 39 mm). The image provides excellent navigational support within the software, particularly in combination with DOUBLE-VIEW TECHNOLOGY, and aids enhanced documentation in the automatically compiled test report.



PRECISE DISTANCE / FORCE APPLICATION

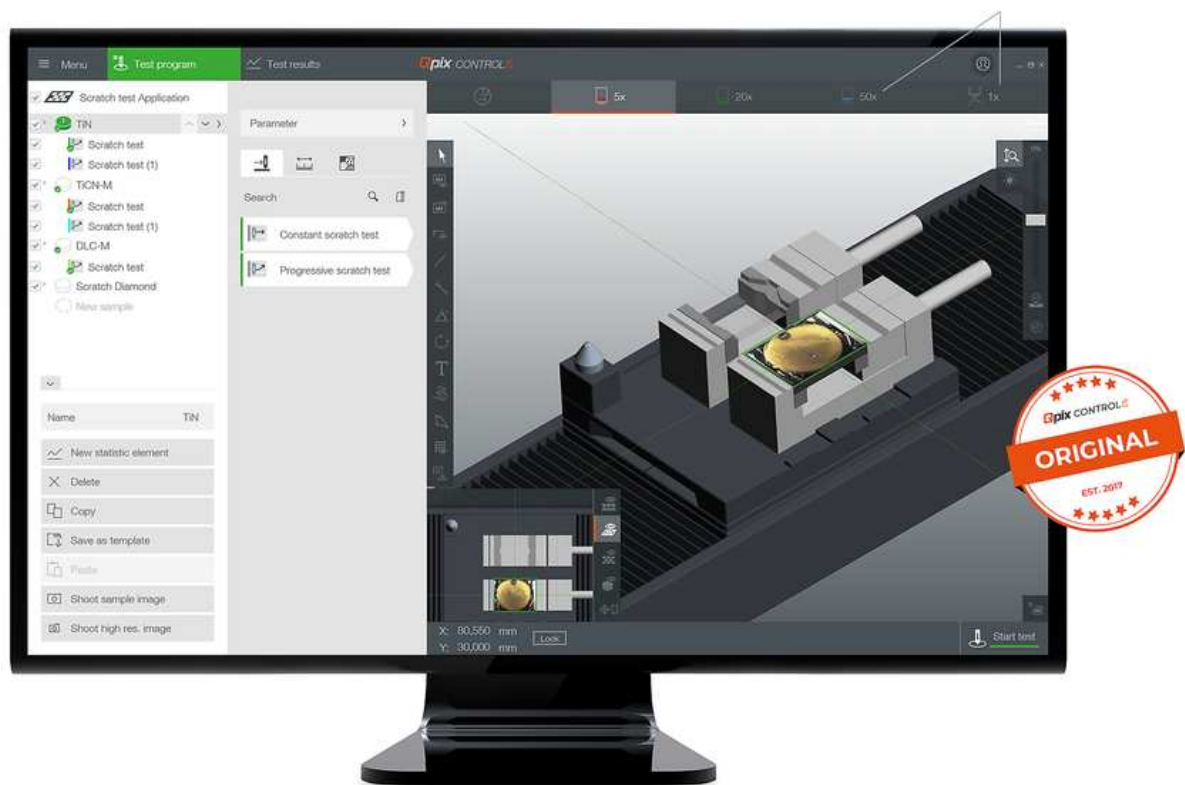
Precise electronic load control ensures that the test load—as a critical test parameter—remains controlled, reproducible, and traceable at all times.

Qpix CONTROL²

SCRATCH WORKFLOW

EASY TESTING, EFFICIENT ANALYSIS

QpixControl2 is more than just a user interface: The software combines a patented 3D user concept with a seamless scratch workflow. Tests can be easily created, scratch marks visually positioned, single or multiple measurements processed automatically, and relevant Lc events evaluated in a structured manner. From test definition through image capture and evaluation to data management, export, and standardized reporting, all steps remain integrated within an intuitive software environment. This reduces operational effort, supports reproducible processes, and enables the efficient use of scratch testing in production-oriented quality assurance.



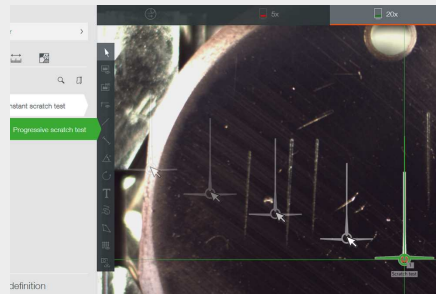
FROM SETUP TO REPORT

3 PASSI PER IL RISULTATO



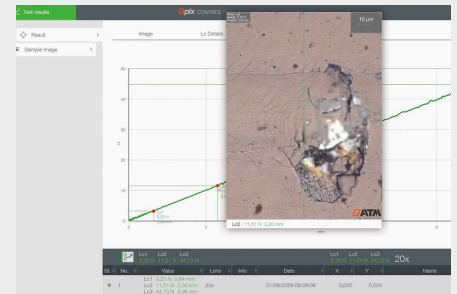
1. LOAD SAMPLE

The sample holder is automatically moved to the correct height, and the sample image is automatically captured.



2. POSITIONING

Drag and drop the starting point of the scratch test directly to the desired position.

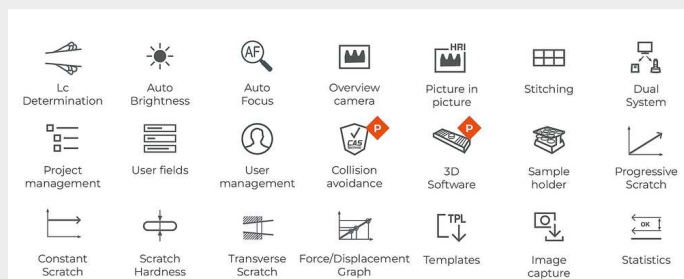


3. AVVIARE LA SEQUENZA DI TEST

The test sequence is fully automatically and in accordance with the Scratch test standards. Subsequently, the failure events can be evaluated and assigned to the respective Lc points.

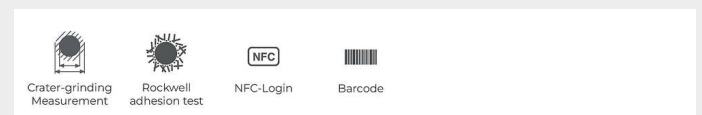
SOFTWARE

INCLUDED FEATURES

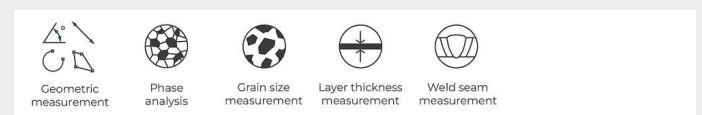


SOFTWARE

OPZIONI

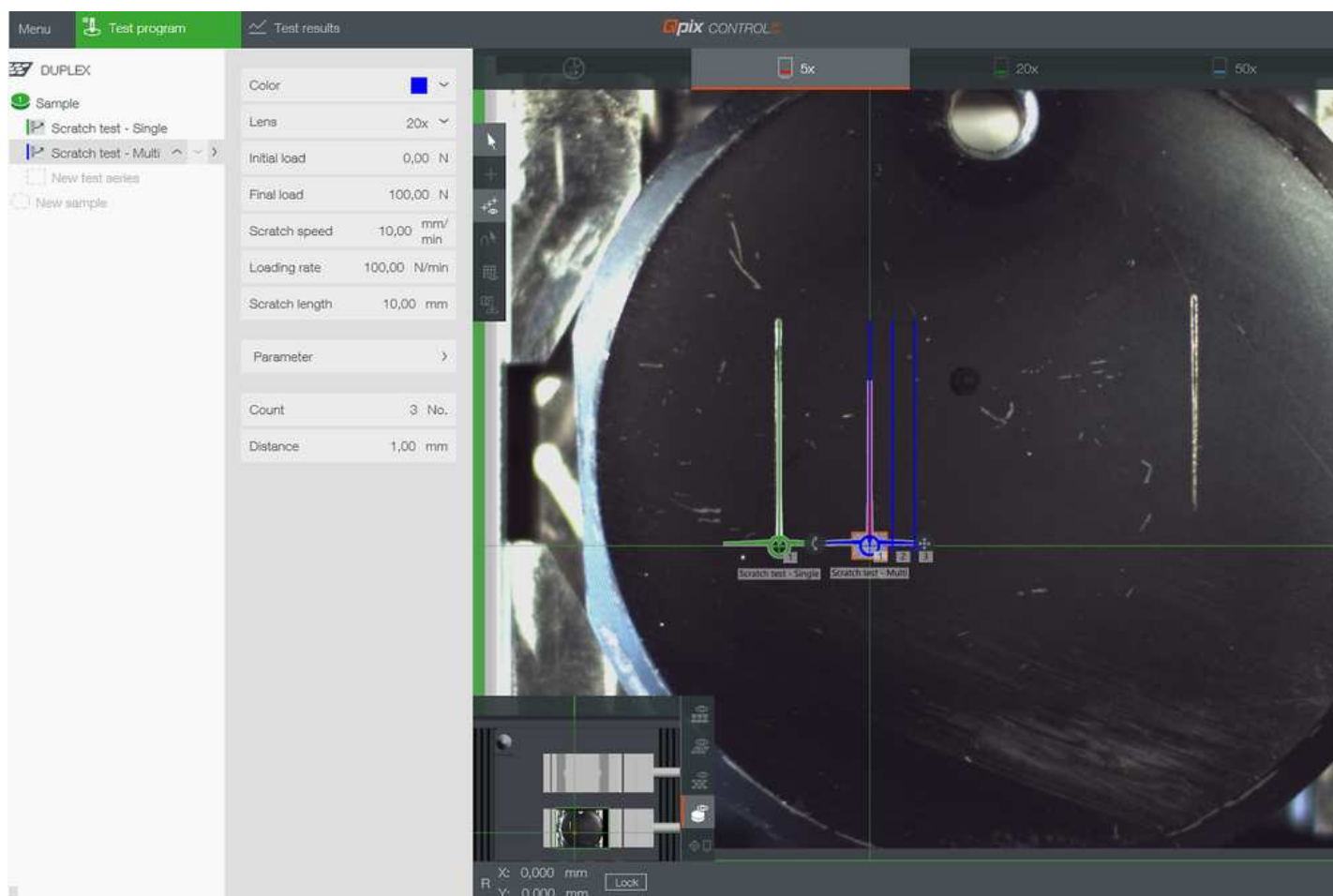


MICROSCOPY & ANALYSIS



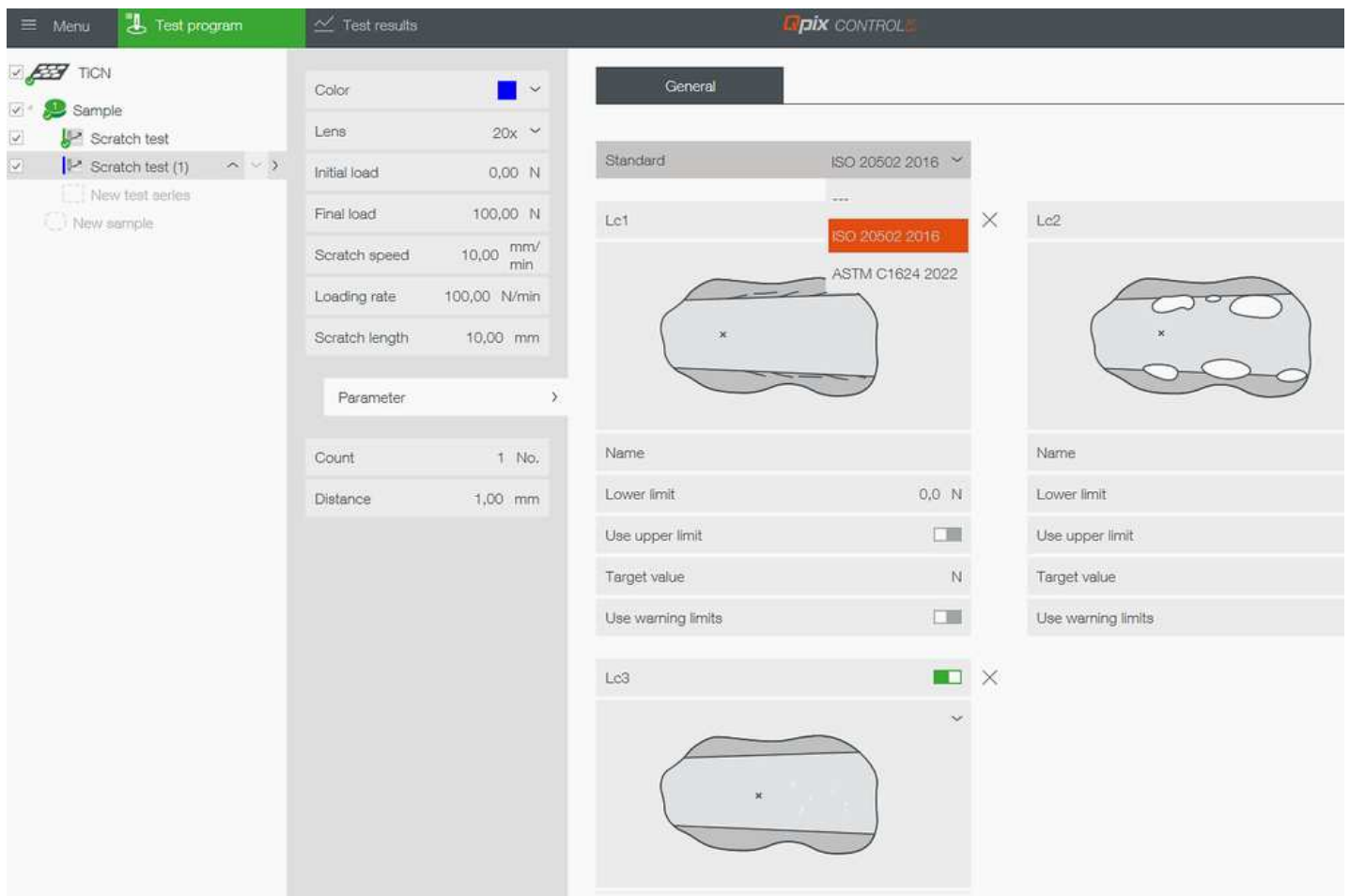
QPIX CONTROL2

INNOVATIVE SOFTWARE FUNCTIONS



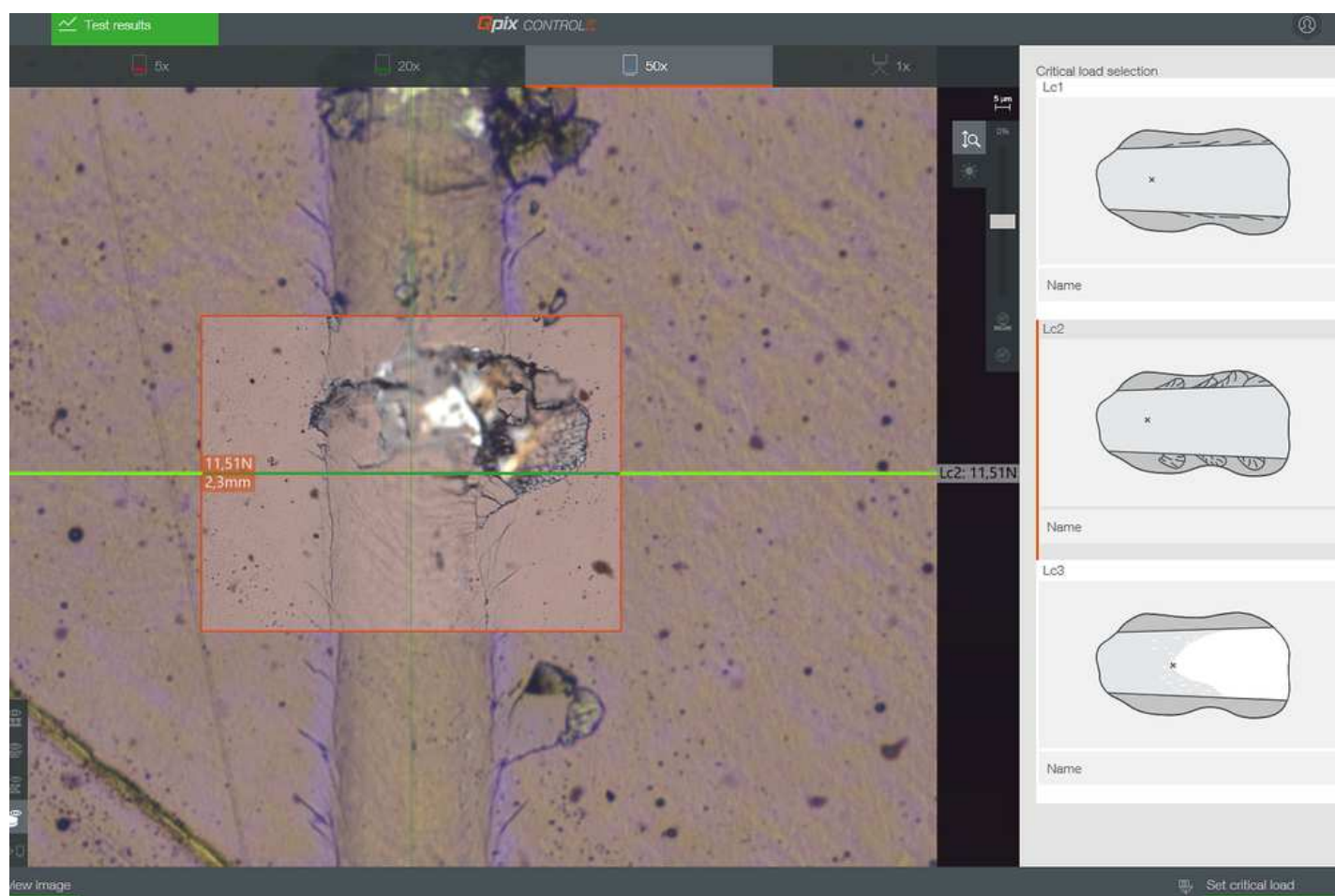
SINGLE AND MULTIPLE INSPECTIONS

Single or multiple measurements: Scratch marks can be positioned directly in the software, created with a defined offset, and processed automatically. The Lc results are evaluated for each test as well as as a series mean.



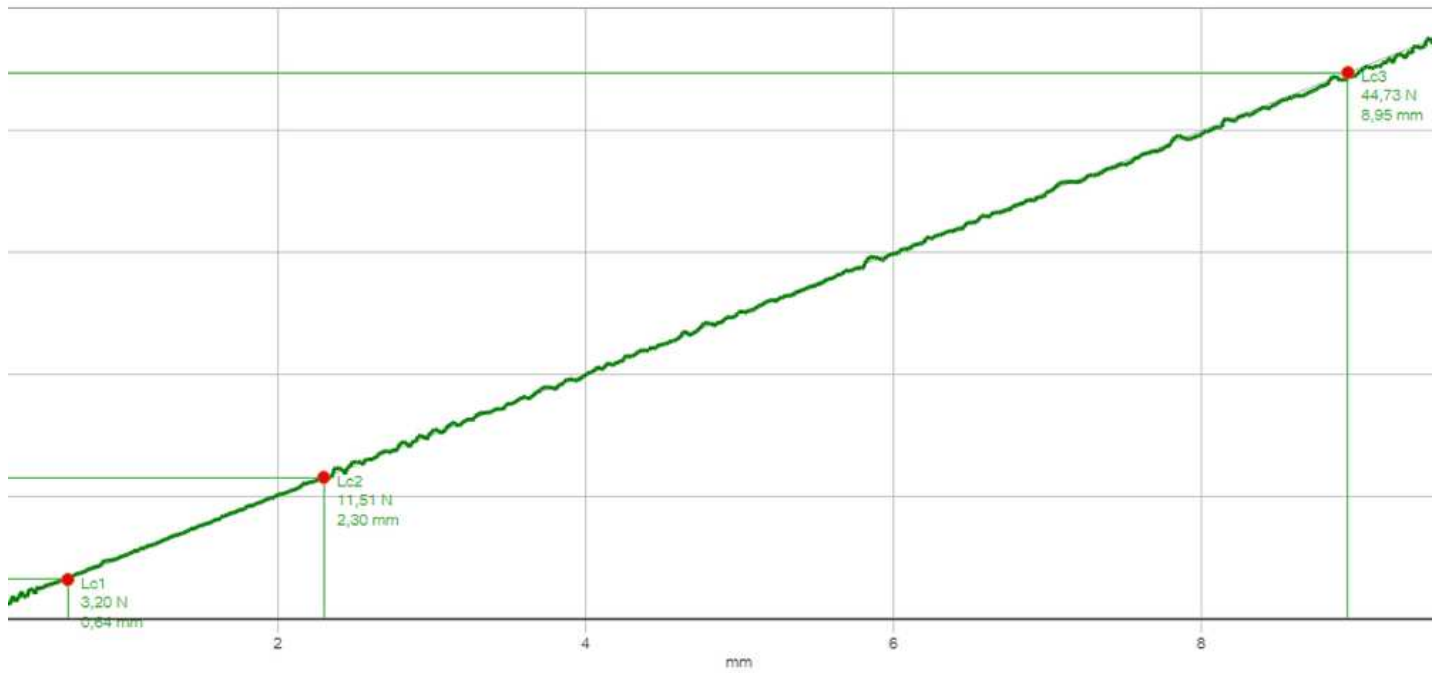
A WIDE RANGE OF SETTING OPTIONS

Load definition, crack length, load rate, speed, and lens selection are managed directly within the method. For evaluation, standardbased templates or custom templates can be used and supplemented with limit and target values.



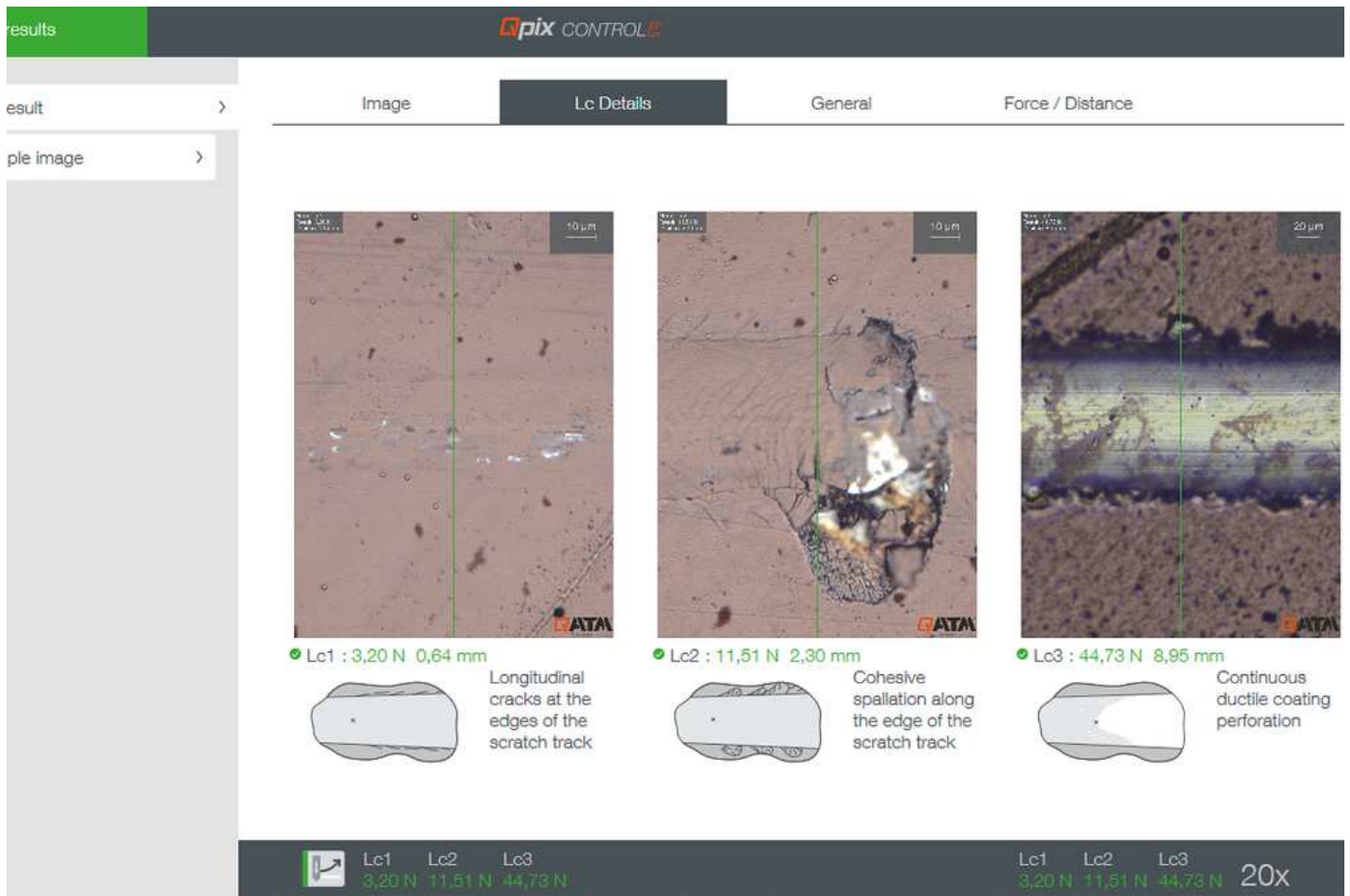
GUIDED LC DETERMINATION

Graphical templates support the consistent classification of typical failure events. This facilitates standard-based procedures and reduces room for interpretation.



FORCE/DISTANCE GRAPH

The force-distance curve documents the applied load along the scratch track. Anomalies in the curve can be compared with visible failure events and used for Lc evaluation



LC DETAILS

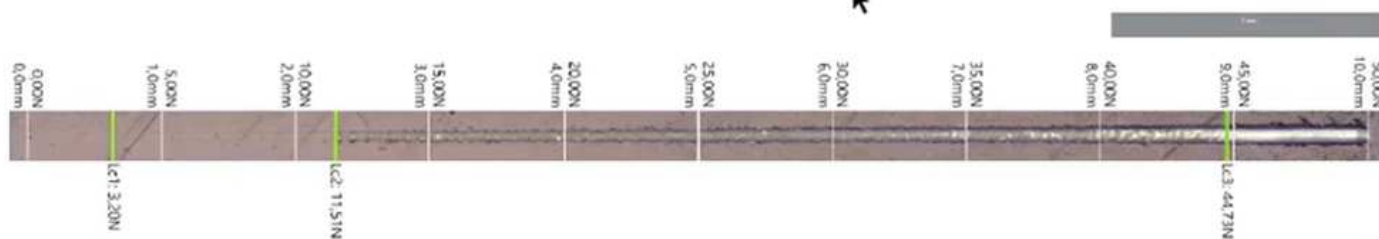
Relevant failure events along the scratch track can be viewed in detail in the image and assigned to the corresponding Lc details. This transforms the visual assessment into a verifiable test result

Scratch test data

Procedure:	Progressive load scratch test	Date:	01/06/2026 08:26
Initial load:	0,00 N	Final load:	50,00 N
Scratch speed:	10,00 mm/min	Loading rate:	50,00 N/min
Scratch length:	10,00 [mm]	Lens:	20x
Scratch tool:	Rockwell Diamond 120° R0.2	Standard:	ISO 20502 2016

Scratch test points

St.	No.	Scratch Lc points	Lc load [N]	Lc length [mm]	Lens	X-Pos. [mm]	Y-Pos. [mm]	Description
✓	1	Lc1	3,20	0,64	20x	0,00	0,00	
		Lc2	11,51	2,30	20x			
		Lc3	44,73	8,95	20x			



REPORT

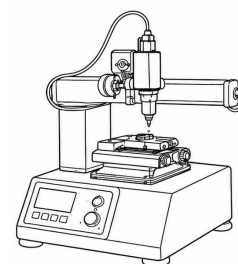
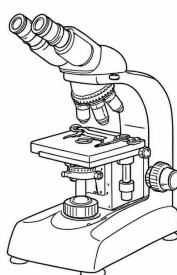
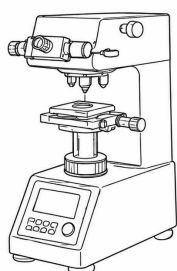
Test parameters, scratch track, Lc values and evaluation results are compiled into a test report. This simplifies documentation, the comparison of test series, and the dissemination of results within the quality process.

ONE PLATFORM

MORE THAN JUST SCRATCH TESTING

**QSCRATCH 20 / QNESS 60 A+
EVO**

Qscratch 20 is part of a modular QATM platform. In addition to scratch testing, hardness testing methods, analysis functions, and other coating tests can be optionally integrated. This reduces the need to switch systems, consolidates results in a familiar software environment, and ensures long-term investment security.



TEST DI DUREZZA

Optional hardness upgrade for Vickers, Knoop, Brinell, and Rockwell - integrated into the QpixControl2 software environment.

ANALYSIS

Optional analysis functions for coating thickness, phases, grain size, and weld seams - for more information from a single system.

SCRATCH TESTING

Controlled scratch testing with progressive or constant load - for evaluating coatings, surfaces, and critical loads.

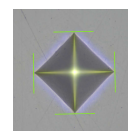
TEST DI DUREZZA



Vickers

DIN EN ISO 6507, ASTM E-384, ASTM E92

HV 0.00025*	HV 0.0005*	HV 0.001	HV 0.002			
HV 0.003	HV 0.005	HV 0.01	HV 0.02	HV 0.025*		
HV 0.05	HV 0.1	HV 0.2	HV 0.3	HV 0.5	HV 1	HV 2
HV 2,5	HV 3	HV 5	HV 10	HV 20	HV 30	HV 50



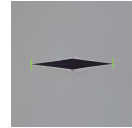
HV 60*



Knoop

DIN EN ISO 4545, ASTM E-384, ASTM E92

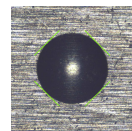
HK 0.001	HK 0.002	HK 0.005	HK 0.01	HK 0.015	
HK 0.02	HK 0.025	HK 0.05	HK 0.1	HK 0.2	HK 0.3
HK 0.5	HK 1	HK 2			



Brinell

DIN EN ISO 6506, ASTM E-10

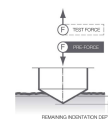
HBW 1/1	HBW 1/2.5	HBW 1/5	HBW 1/10	HBW 1/30
HBW 2.5/6.5	HBW 2.5/31.25	HBW 2.5/62.5		
HBW 5/25	HBW 5/62.5			



Rockwell

DIN EN ISO 6508, ASTM E-18

HRA	HRF	HR15-N/T	HR30-N/T	HR45-N/T
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Integrated conversions

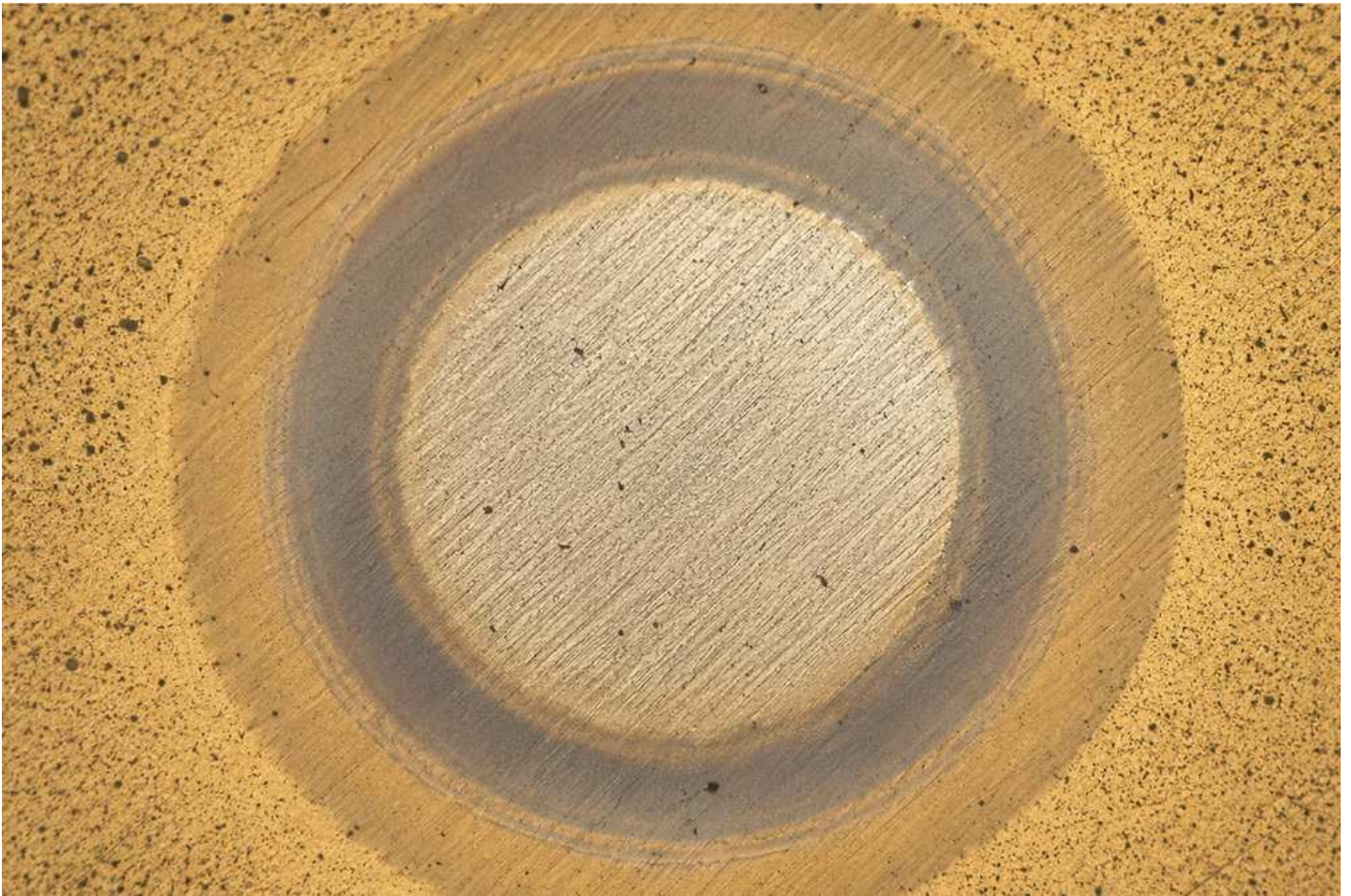
DIN EN ISO 18265, DIN EN ISO 50150, ASTM E-140

* non conforme agli standard

COATING INSPECTION MADE EASY

QPIX INSPECT FOR CRATER-GRINDING AND ROCKWELL ADHESION TESTING

The optional Qpix Inspect modules expand the Qscratch 20 with practical functions for coating evaluation. Crater-grinding supports microscopic coating thickness measurement in accordance with DIN EN ISO 26423, while the Rockwell adhesion test enables qualitative adhesion evaluation of ceramic coatings in accordance with DIN EN ISO 26443. This allows additional information on coating quality to be captured, evaluated, and documented directly within the familiar QpixControl2 software environment.



CRATER-GRINDING COATING THICKNESS MEASUREMENT

Crater-grinding method for microscopic coating thickness determination as supplementary information for coating evaluation in accordance with DIN EN ISO 26423.



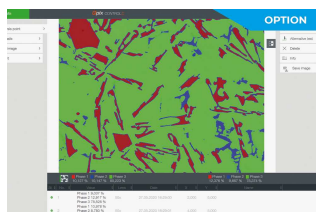
ROCKWELL INDENTATION TEST

Rockwell indentation test for qualitative adhesion evaluation of ceramic coatings in accordance with DIN EN ISO 26443.

ANALISI STRUTTURALE RESA FACILE

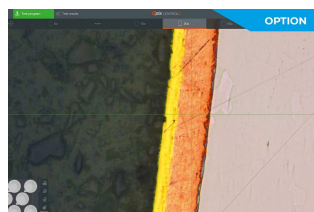
MODULI SOFTWARE QPIX INSPECT

The intuitive and user-friendly Qpix INSPECT software functionality provides a comprehensive toolbox for microscopic evaluations and result documentation. The multifunctional software can be customized for customer-specific measuring tasks and complemented with add-on modules.



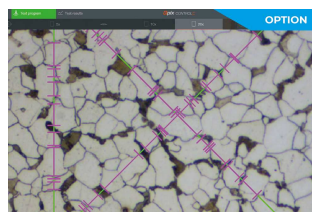
ANALISI DELLE FASI DI ISPEZIONE

- | Dimensionamento automatico dell'oggetto dell'immagine
- | Valutazione delle frazioni di fase secondo DIN 9042, ASTM E-562 e ASTM E-1245.
- | Fornisce risultati analitici come proporzioni percentuali di una superficie o come valori nominali della superficie sotto forma di tabelle o diagrammi



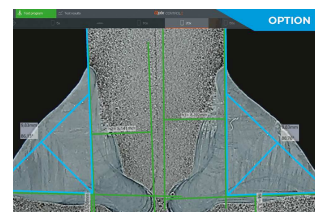
MISURAZIONE DELLO SPESSORE DELLO STRATO INSPECT

- | Determinazione dello spessore dello strato secondo DIN EN ISO 1463
- | Misurazione semiautomatica di strati orizzontali, verticali e radiali
- | Fornitura dello spessore dello strato come valori statistici per lunghezze sotto forma di tabelle o diagrammi



ISPEZIONE DELLA DETERMINAZIONE DELLA DIMENSIONE DELLE PARTICELLE

- | Determinazione della dimensione delle particelle secondo DIN EN ISO 643 e ASTM E112 con il metodo della sezione lineare o circolare
- | Risultati dell'analisi forniti come tabelle o diagrammi
- | Documentazione delle caratteristiche statistiche delle dimensioni delle particelle e delle lunghezze dei segmenti che tagliano le particelle



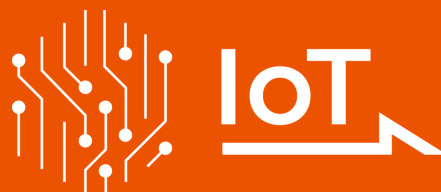
INSPECT WELD SEAM MEASUREMENT

- | Standardised measurement and evaluation of weld seams
- | Prefabricated templates with all relevant measuring tools such as throat thickness, weld reinforcement, penetration depth, etc.
- | Automatic good/bad evaluation and report generation.

IOT - INTERNET OF THINGS

THE PLATFORM FOR REMOTE ACCESS TO YOUR DEVICES

All QATM hardness testers with QpixControl2 and QpixT2 software seamlessly integrate into the Verder Scientific IoT platform, providing enhanced functionality and seamless connectivity.



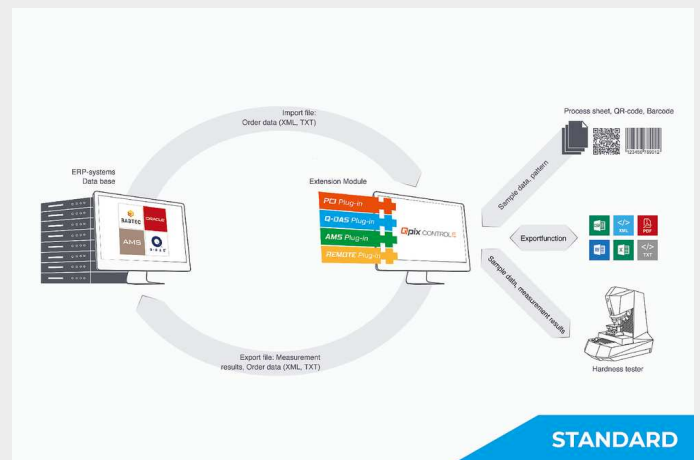
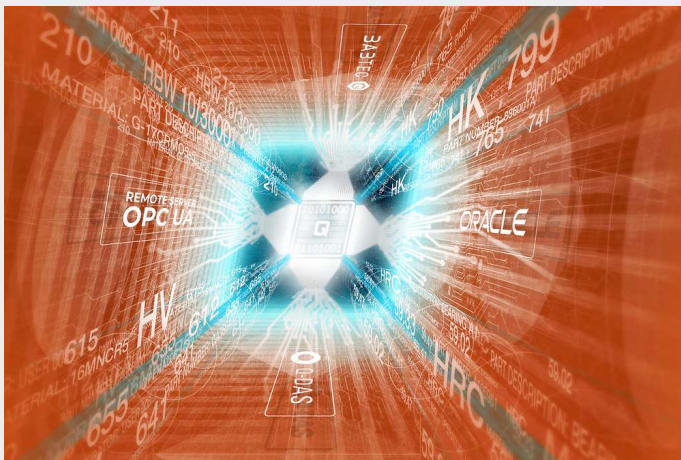
- | **Real-time Monitoring:** Monitor your machinery in real time, from anywhere in the world. This data-driven approach empowers you to make informed decisions with ease.
- | **Live Notifications:** Be ahead of the curve with immediate alerts and updates. Real-time notifications ensure you stay informed about your equipment's performance, leading to proactive maintenance.
- | **Effortless Backup:** Simplify your data protection. Whether you need to back up a single device or an entire fleet, our platform streamlines the process, minimizing downtime and data loss.
- | **Automatic & Free Software Updates:** Bid farewell to manual updates! Verder Scientific IoT ensures your customers' machines are consistently equipped with the latest software, optimizing performance and reliability.



INDUSTRIA 4.0

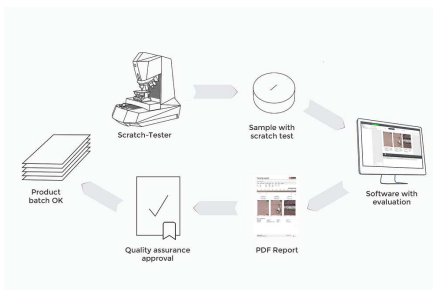
QCONNECT PER UN DOMANI CONNESSO

Qconnect è l'interfaccia del software QATM Qpix Control2, che fornisce ai clienti un portafoglio completo di connettività tra dispositivi - dalla produzione in serie, interfacce XML aperte (bidirezionali) e soluzioni plug-in pre-specificate, come il QDAS Plug-In+, fino a soluzioni di connettività specifiche del cliente implementate completamente da QATM. Abbiamo una soluzione professionale per ogni esigenza applicativa.

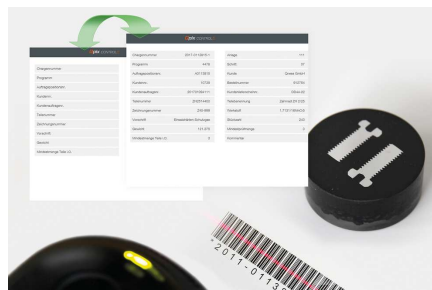


APPROVED QUALITY

DATA EXCHANGE & MONITORING



REPORT & AUTO-EXPORT



**LETTORE DI CODICI A BARRE/
QR CODE/DMC**

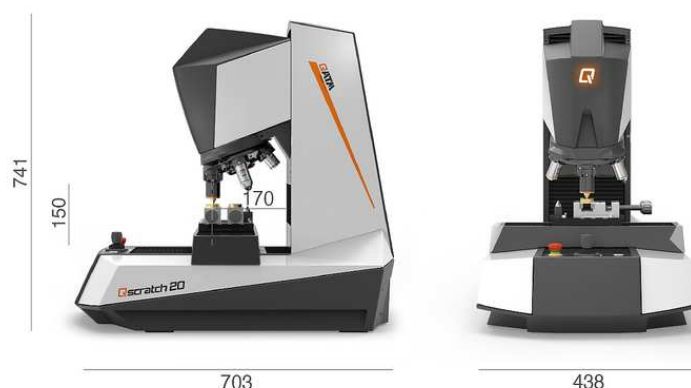


LOGIN VIA NFC

Test results, Lc results, scratch track information, and test parameters can be documented in a structured format and exported. Standardized test reports and flexible export options facilitate the transfer of results to quality assurance, documentation, or higher-level systems.

Le piattaforme software Qpix supportano l'uso di lettori di codici a barre e QR code, semplificando i flussi di lavoro per gli ispettori e prevenendo gli errori degli operatori. Il caricamento dei dati di intestazione è semplice (standard), e i lettori possono essere completamente integrati per selezionare automaticamente i modelli o recuperare i dati da sistemi di livello superiore (opzionale).

Il software Qpix Control 2 supporta l'accesso utente tramite lettore NFC esterno. A seconda del tipo di tag o card NFC, è possibile programmare anche le carte di accesso già in uso dal cliente, ad esempio.



Gamma di forza di prova	0.5* - 200 N
Constant load	Single and multiple measurements
Progressive load	Single and multiple measurements
Asse-Z	Z 150 mm (5.91")
Posizioni dell'utensile	8-fold motorized tool changer (max. 7 lenses)
Attrezzatura di base inclusa	Rockwell diamond; 5x, 20x, 50x Lenses
Tipi di lenti	Standard (Achromat) for hardness testing and microscopy
Telecamera per immagini campione	5 Mpixel - CMOS color, USB 3.0; 52 x 39 mm (2.05 x 1.54")
Cross slide	Motorized X/Y axis
Dimensione della tavola	150 x 120 mm (5.91 x 4.72")
Precisione di posizionamento	X/Y-axis +/- 0.2 µm
Percorso di traslazione	X 150, Y 150 mm (5.91 x 5.91")
Elementi di controllo	Emergency stop, Start button, Joystick X/Y/Z

Peso massimo del pezzo	50 kg (110 lbs)
Peso del dispositivo di base	60 kg (132.3 lbs)
Optional	Hardness Upgrade and Qpix Inspect Module

* 0.5 N and 1 N > 1% accuracy

www.qatm.com/qscratch-20

ARTICOLI

FULLY AUTOMATIC SINGLE MACRO/MICRO SCRATCH TESTER

UNITÀ BASE

QB0180101  Qscratch 20 GO

QB0180201 Qscratch 20

OPTIONS FOR QSCRATCH 20 GO

QA0117300 X Linear Slide 55 mm - Qscratch 20 GO

SCRATCH TEST UNITS AND TEST TOOLS

QA0103800 Scratch test module - Normal force - included

QER14000EA Diamond Rockwell scratch tester 120° R0.2 - included

QER14000EU Diamond Rockwell scratch tester 120° R0.2 - no cert

QSH14005EU Scratch stylus carbide 0.5 mm, ISO 1818-1

QSH14010EU Scratch stylus carbide 1.0 mm, ISO 1818-1

LENSES FOR SCRATCH TESTING AND QPIX INSPECT

QA0115900 Lens 10x/0.3 - FL 60 / WD 16

QSO220800 Exchange Lens 20x to 10x/0.25 FL 60 / WD 13

QA0116200 Lens 100x/0.90 - FL 60 / WD 1.0

HQ LENSES FOR SCRATCH TESTING AND QPIX INSPECT

QSO213300 Upgrade to HQ Lens 5x/0.15 - FL 60 / WD 23.5

QSO166400 HQ Lens 10x/0.30 - FL 60 / WD 17.5

QSO213400 Upgrade to HQ Lens 20x/0.45 - FL 60 / WD 4.5

QSO213500 Upgrade to HQ Lens 50x/0.80 - FL 60 / WD 1.0

QSO166700 HQ Lens 100x/0.90 - FL 60 / WD 1.0

PIASTRE DI USURA PER SLITTE XY

QA0117800 Wear plate 150x120x8 mm - Qscratch 20 - included

HARDNESS TESTING OPTION

QA0117900 Vickers Hardness - Upgrade package "Qscratch 20"

QEV05000EA Test diamond Vickers - included (Knoop/Brinell/Rockwell also possible)



SISTEMA PC PER IL CONTROLLO DELLA MACCHINA

QA0057500 Sistema PC di fascia alta Full HD - Qpix Control2

QA0057600 2° monitor 24" Full HD UltraSharp

QA0057501 Sistema PC di fascia alta Ultra HD (4K) - Qpix Control2

QA0057601 2° monitor 27" Ultra HD (4K)

SUPPORTO CAMPIONE

QA0116300 Universal Precision fine vise

REFERENCE MATERIAL

QA0118000 QATM Scratch Reference Material - PACVD TiN 2-4 µm - included

MODULI SOFTWARE

QSO013600 Qpix - Modulo software per lo scanner di codici a barre / codici QR

QA0089600 Kit scanner 1D/2D per codici a barre/QR-Code - Bluetooth

QA0071700 El. Calibro di misura - Compatibile con Qpix Control2

QA0108200 NFC Login Package QpixControl2

QSO213600 RFID Tag MIFARE, key chain gray 10 pcs.

QPIX INSPECT - ANALISI DELLA MICROSTRUTTURA

QSO171100 Qpix Inspect - Analisi di fase

QSO171200 Qpix Inspect - Misura dello spessore dello strato

QSO171300 Qpix Inspect - Grain size determination

QSO194100 Qpix Inspect - Misura dei cordoni di saldatura

QPIX CONNECT - CONNESSIONE DATI

QSO031600	Qpix Control2 - plug-in PCI
QSO013500	Qpix Control2 - Plug-in AMS
QSO030400	Qpix Control2 - Plugin Q-DAS

ACCESSORI

QSO165900	Dust protection cap - Qness 60 EVO, CHD Master+
A5810431	Top da laboratorio con smorzamento delle vibrazioni
M7500006	Laboratory table 880x770x800 with stone plate
M7500009	Laboratory table 880x900x800 with stone plate
M7500007	Laboratory table 1320x770x800 with stone plate
M7500010	Laboratory table 1320x900x800 with stone plate
M7500008	Laboratory table 1760x770x800 with stone plate
M7500011	Laboratory table 1760x900x800 with stone plate
QA0048500	UPS - Gruppo di continuità 900VA
QSO232600	Accessory box - Scratch tester
QVV0030	Documentazione
QVV0001	Certificato di lavoro
QVV0002	Tabella di confronto della durezza