



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

### 長所

- | 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

**3Dモデルを実世界で体験！**

SHARE CHOOSE PRODUCT:

3Dモデル - スマートフォンでページにアクセスするか、「部屋で見る」のQRコードをスキャンして、3Dモデルを現実の世界で体験してください！

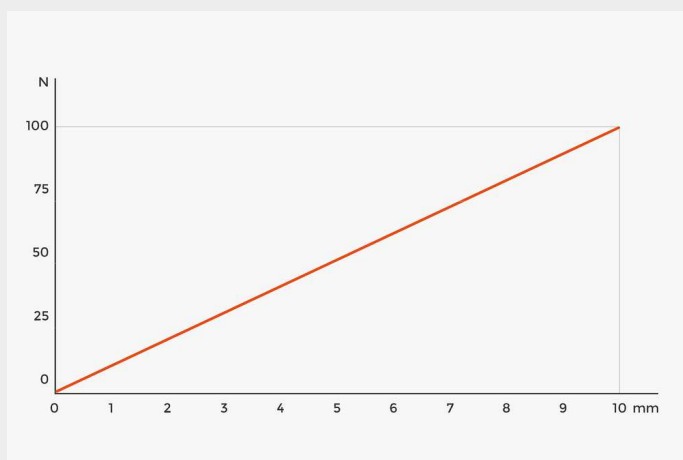


Qscratch 20



MICRO / MACRO SCRATCH TESTER QSCRATCH 20

## 試験負荷の種類



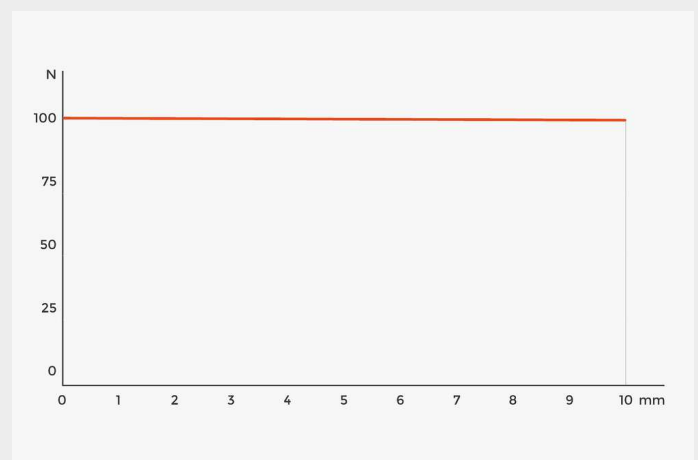
## METHOD: PROGRESSIVE LOAD

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.

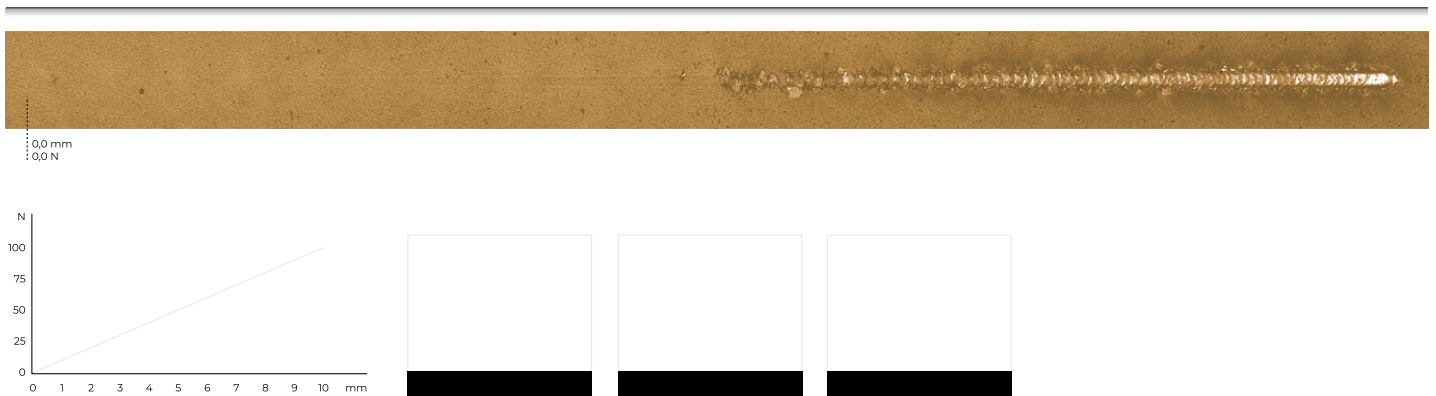
TEST PRINCIPLE DIN EN ISO 20502 | ASTM C1624

**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

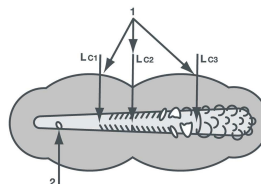


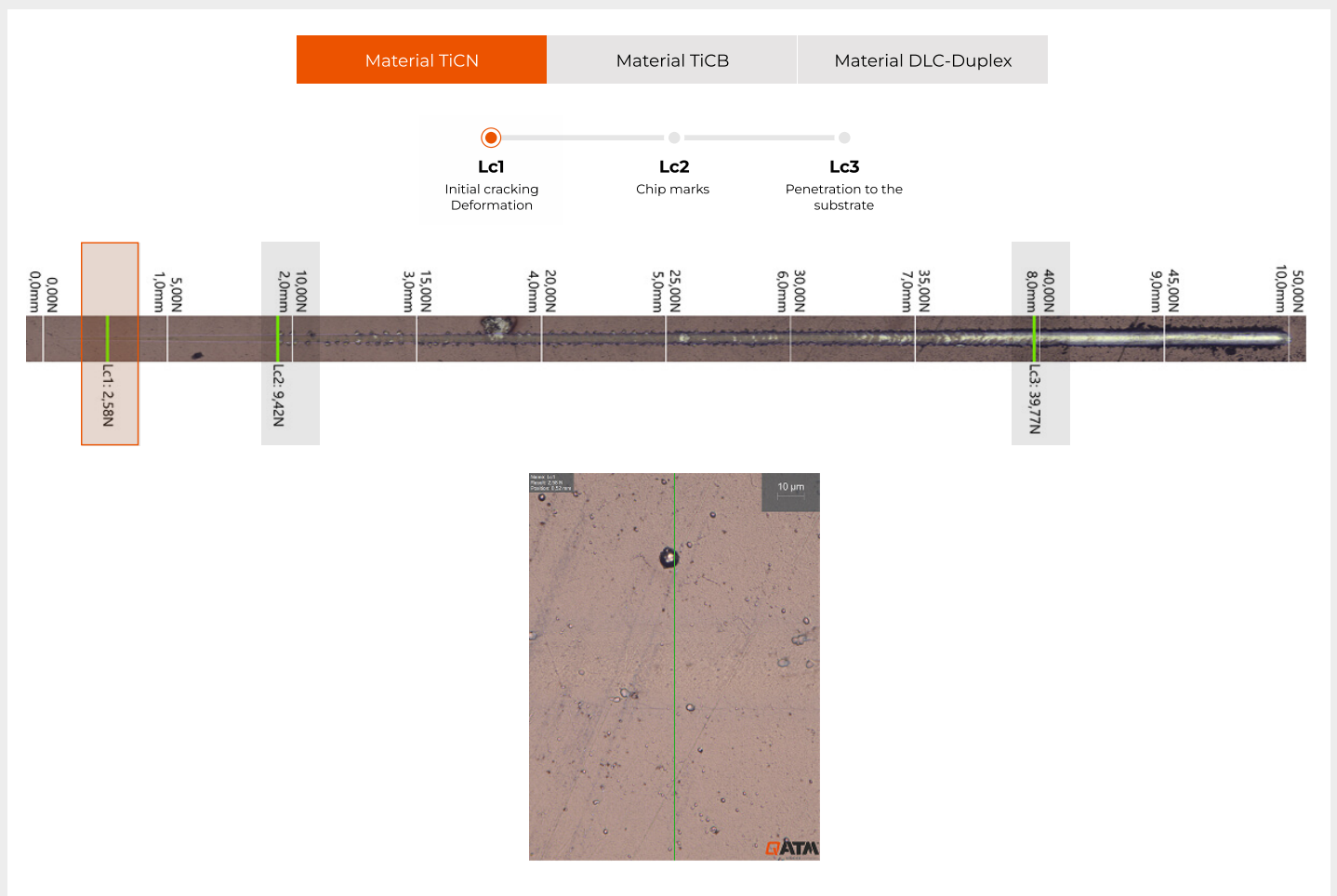
Figure: Failure Events

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  $\leq 20$  MM)**

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

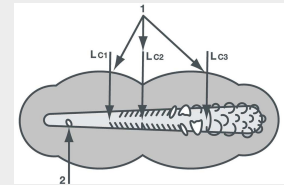


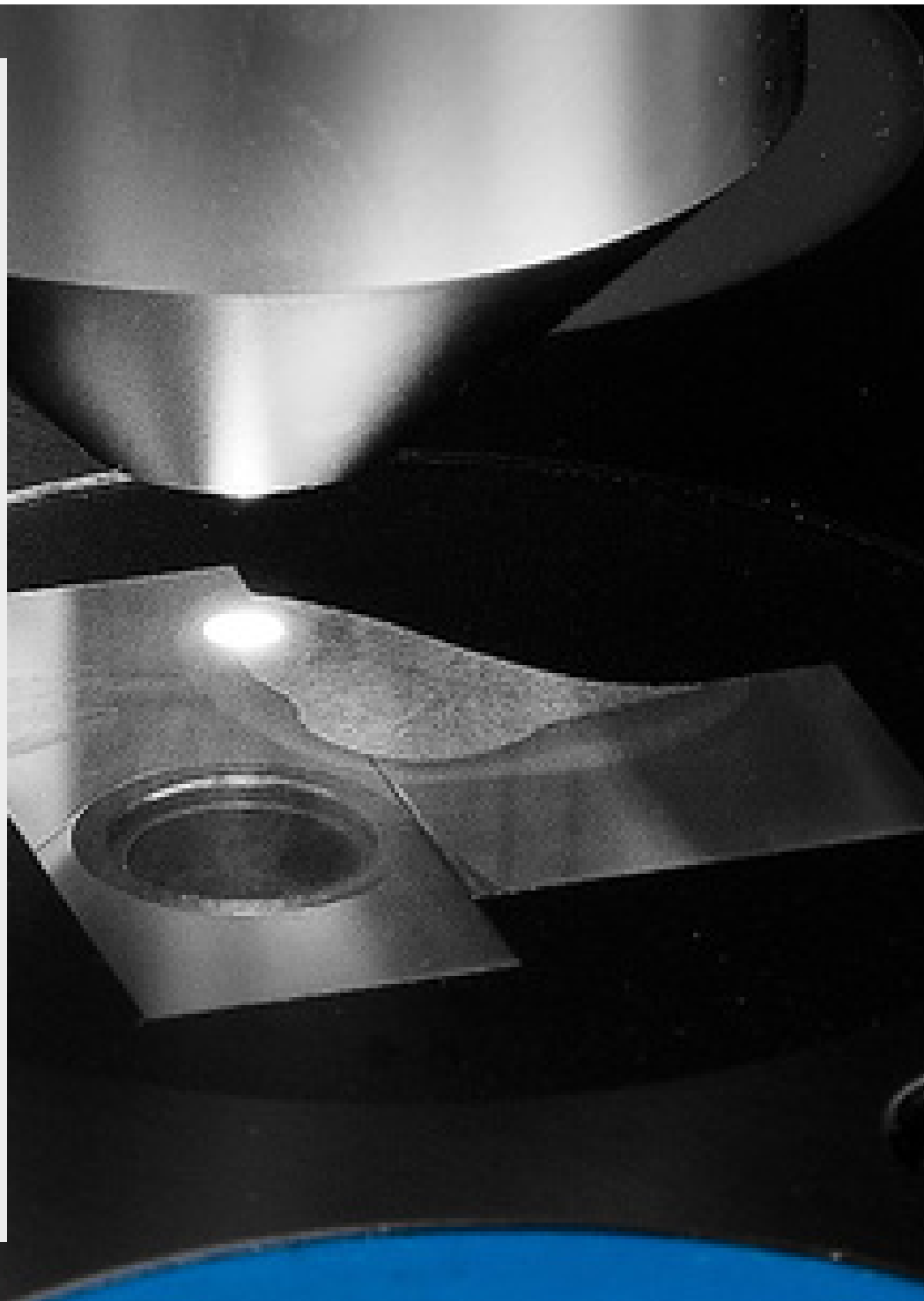
Figure: Failure  
Events

## MICRO / MACRO SCRATCH TESTER QSCRATCH 20

### 画期的な光学システム

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

## 革新的なオペレーション



テストスペースの照明

すべての機器に新開発のLED作業用照明を搭載。シングルピーステストのためのサンプルの位置決めが容易になりました。

点灯するステータス表示

## 暗闇に光をもたらす

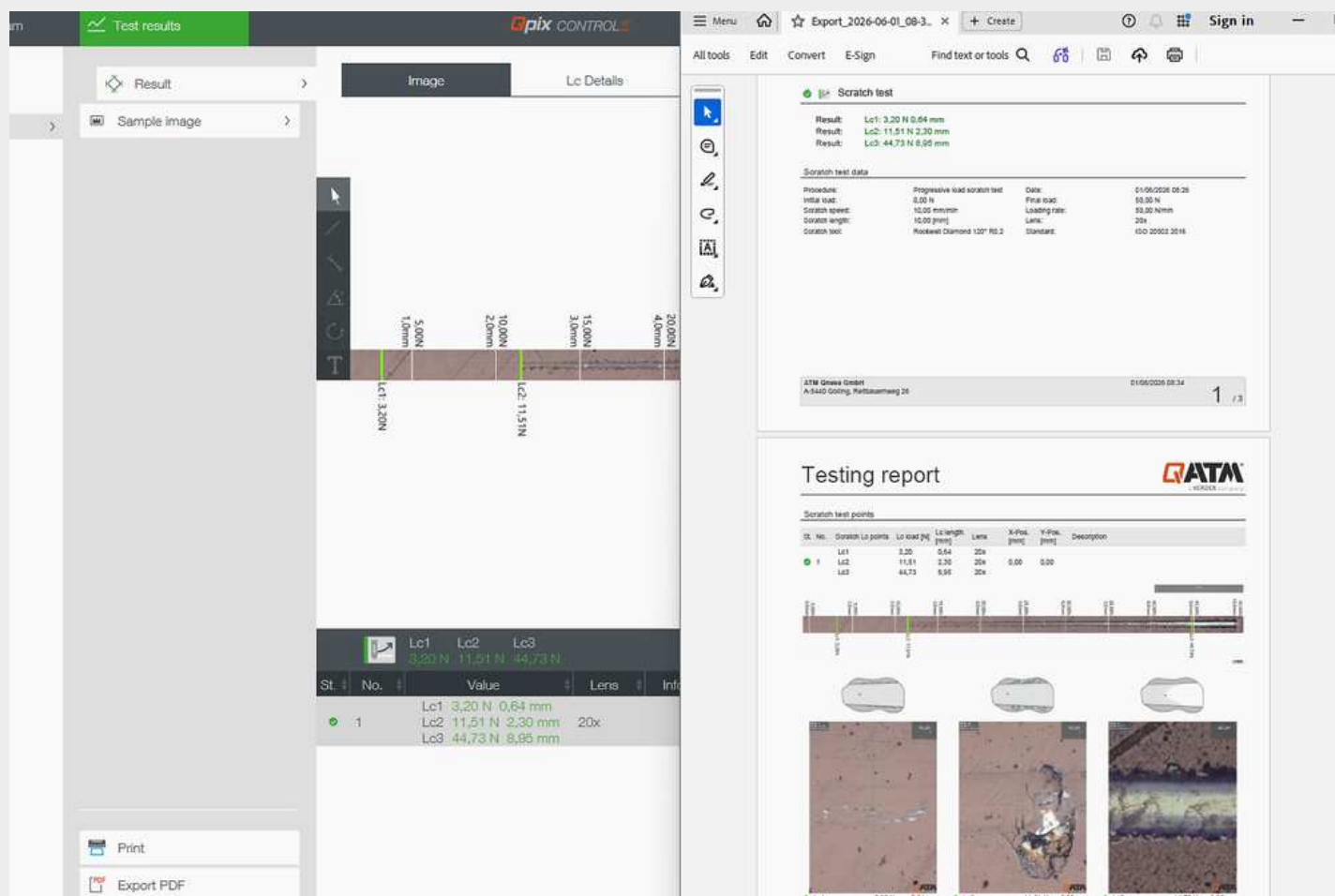
The illuminated QATM logo displays the current device status at a glance. The range of flash intervals indicates whether the device is operating automatically or is free to be used for new tasks for staff all around the lab. In addition, the LED test space lighting, installed as standard, ensures that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

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



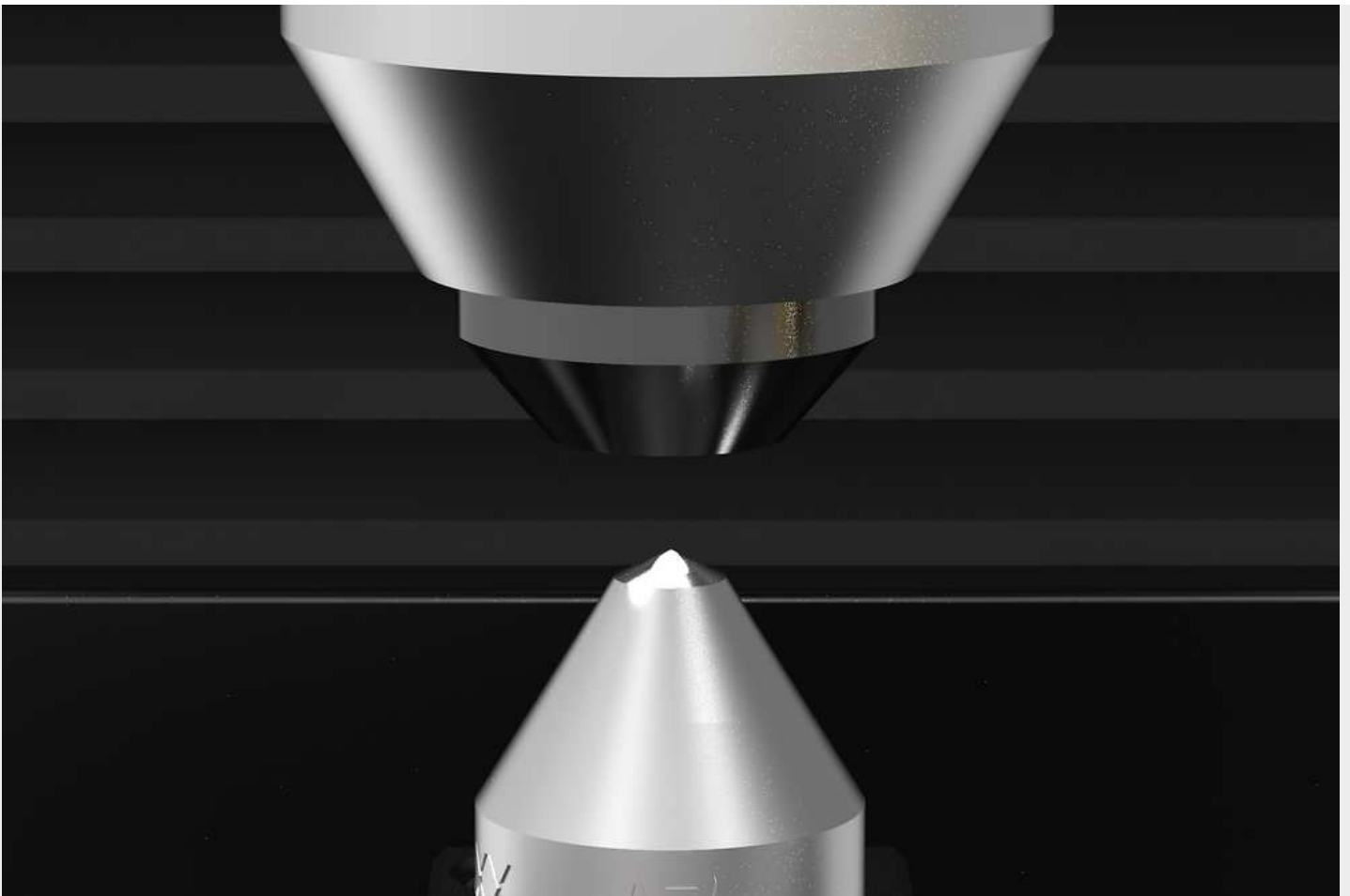
MICRO / MACRO SCRATCH TESTER QSCRATCH 20

先駆的な技術 - ユニークな実装



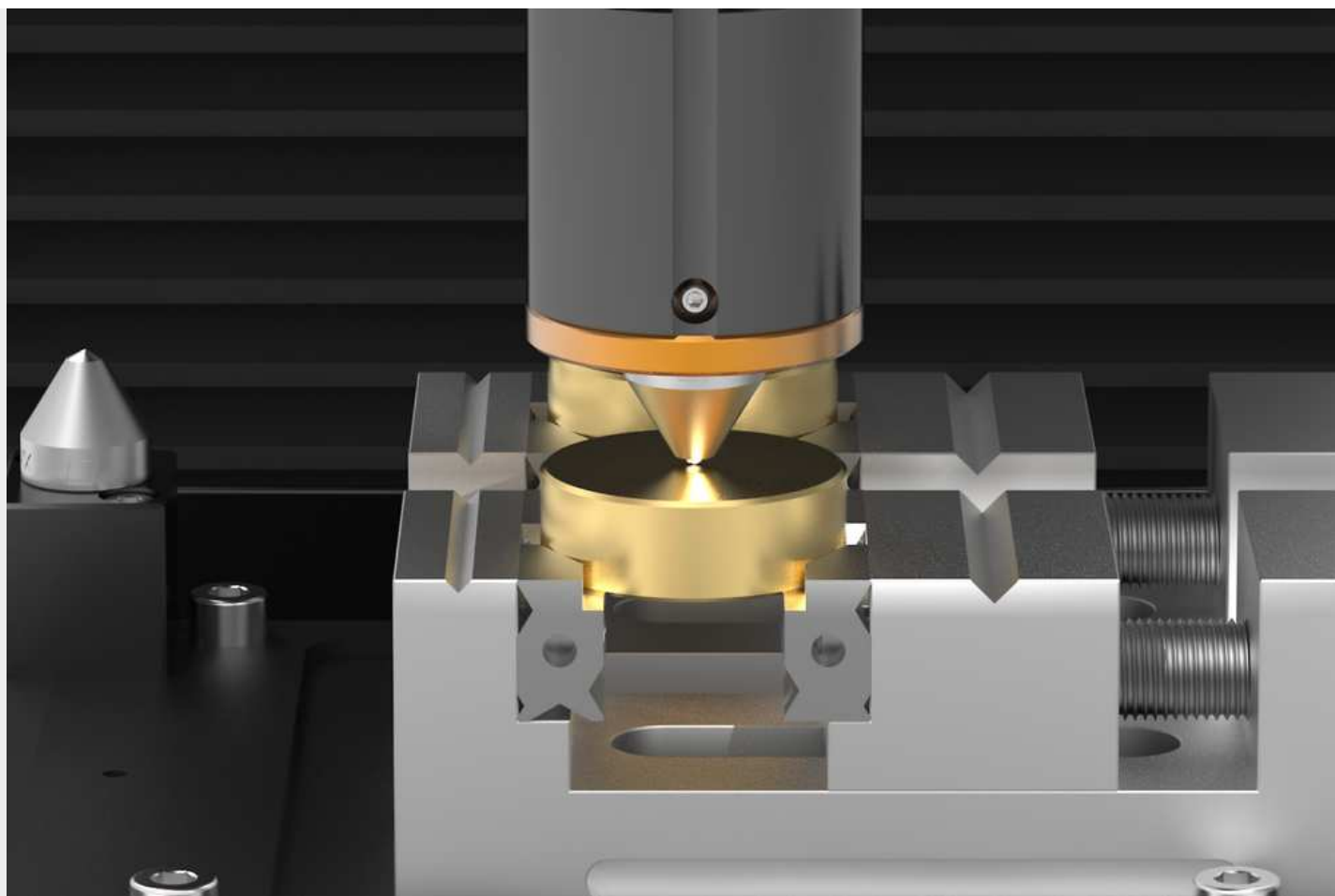
## EVALUABLE AND COMPARABLE

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.



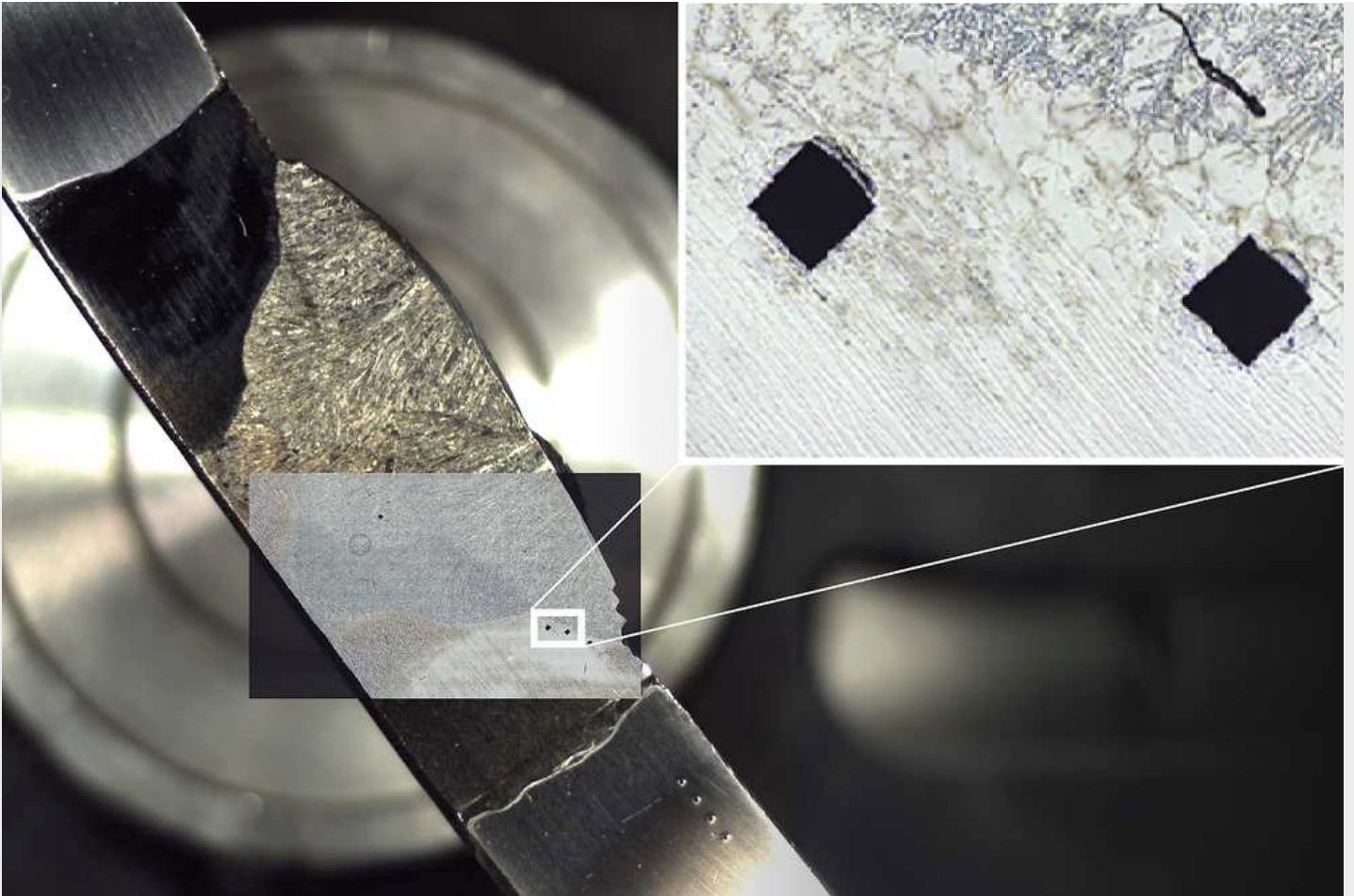
### **CHECKING THE DIAMOND STYLUS**

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.



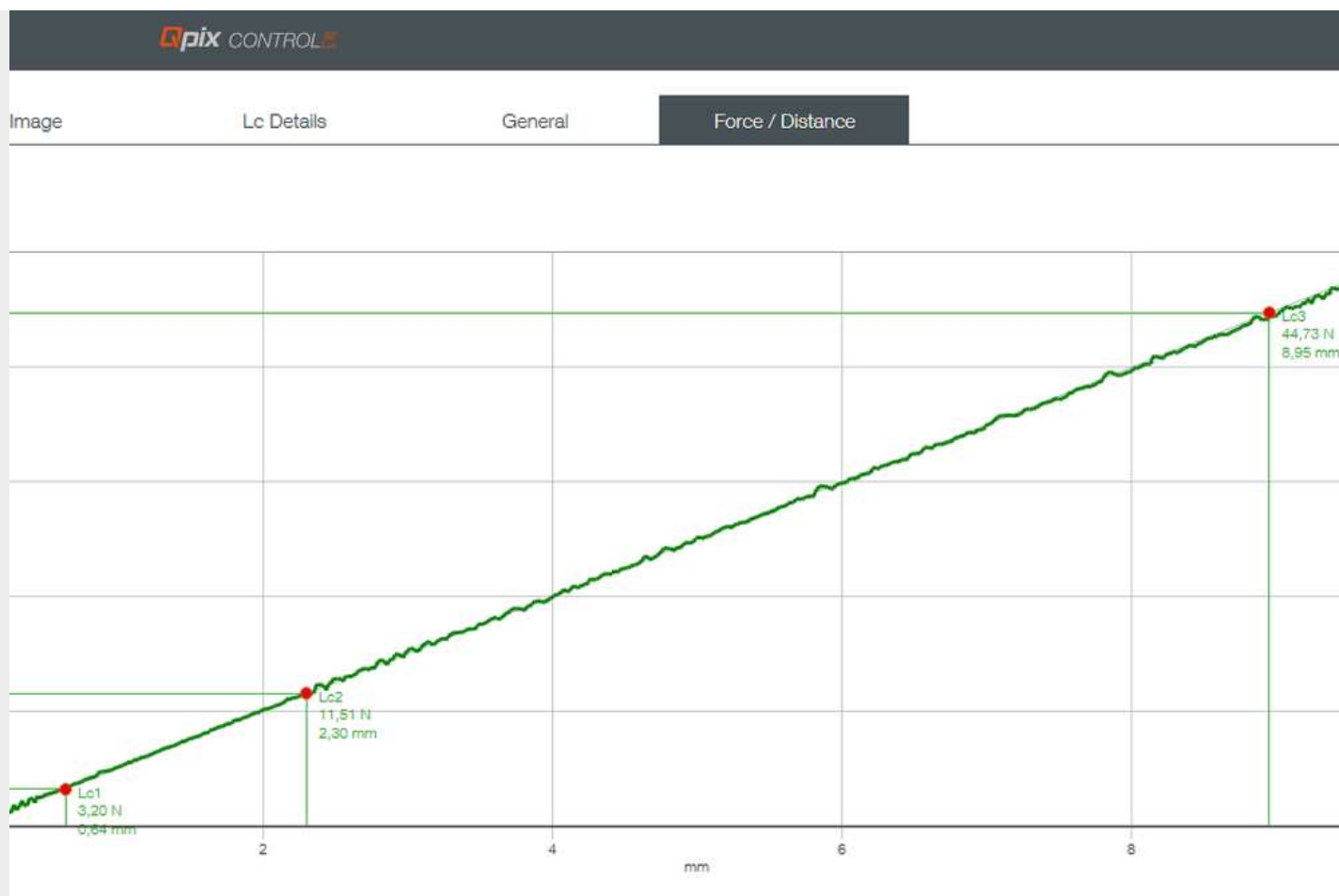
#### 高解像度サンプル画像（HRI）

より広い範囲の高画質画像が必要な場合（溶接継ぎ目の測定など）、HRI機能を使ってその範囲をスキャンすることができます。Qpix Control 2ソフトウェアが、個々の画像を1つの大きな全体画像に自動的に合成します。



### サンプルイメージカメラ

QATMのほとんどのお客様が、サンプル画像カメラ内蔵の「A+」バージョンを選ばれるのは偶然ではありません。追加カメラ（視野52 x 39 mm）により、数秒でサンプルの画像が撮影されます。この画像は、特にDOUBLE-VIEW TECHNOLOGYとの組み合わせで、ソフトウェア内での優れたナビゲーションサポートを提供し、自動的にコンパイルされる検査報告書の文書化を支援します。



## PRECISE DISTANCE / FORCE APPLICATION

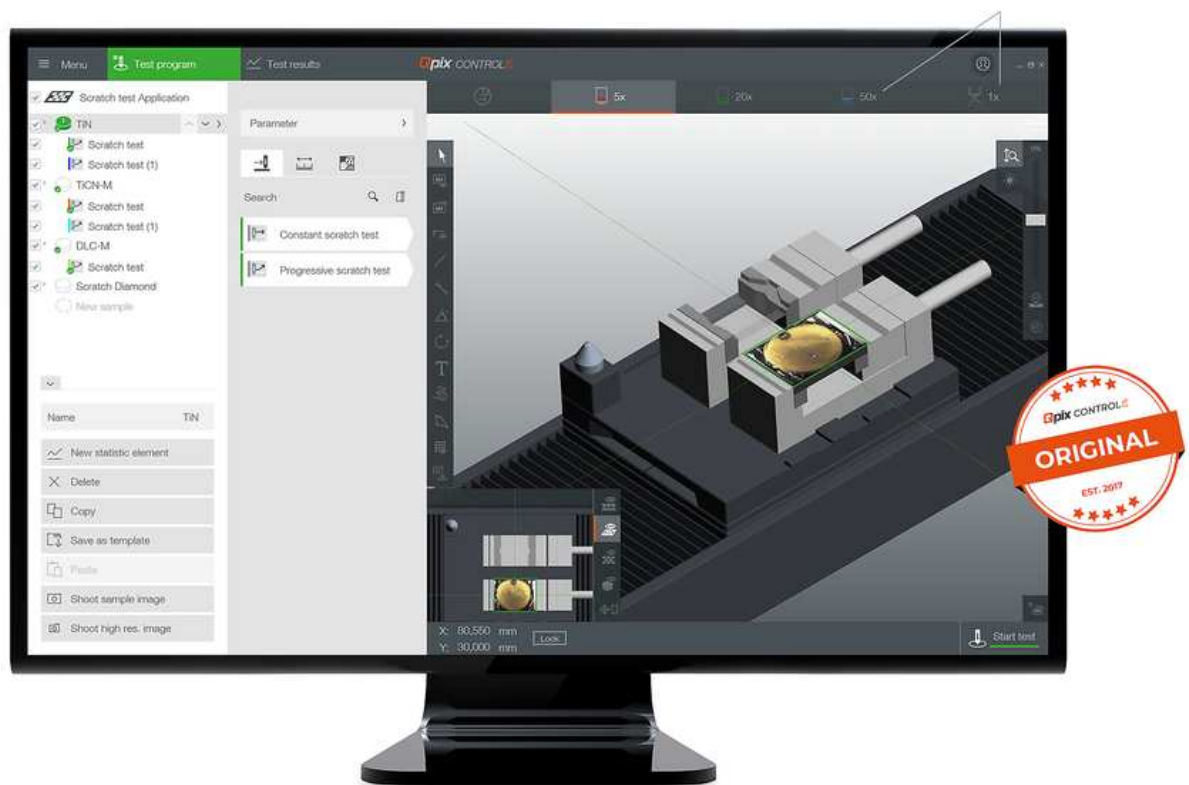
Precise electronic load control ensures that the test load—as a critical test parameter—remains controlled, reproducible, and traceable at all times.

# Qpix CONTROL<sup>2</sup>

## 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.



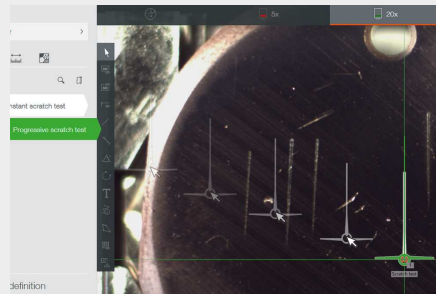
## FROM SETUP TO REPORT

### 試料の装着, パターンの設定, 試験の開始



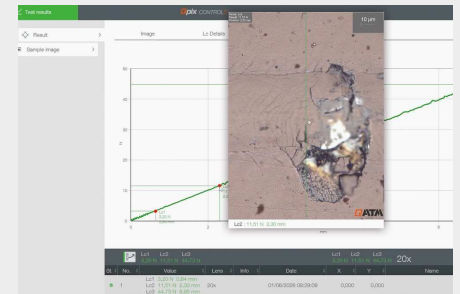
#### 1. LOAD SAMPLE

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.

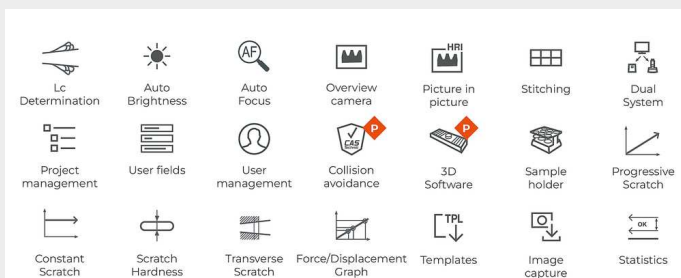


#### 試験の開始

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.

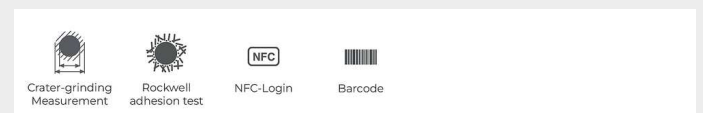
## ソフトウェア

### INCLUDED FEATURES

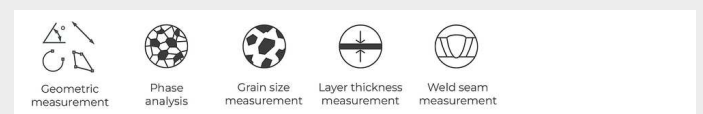


## ソフトウェア

### オプション

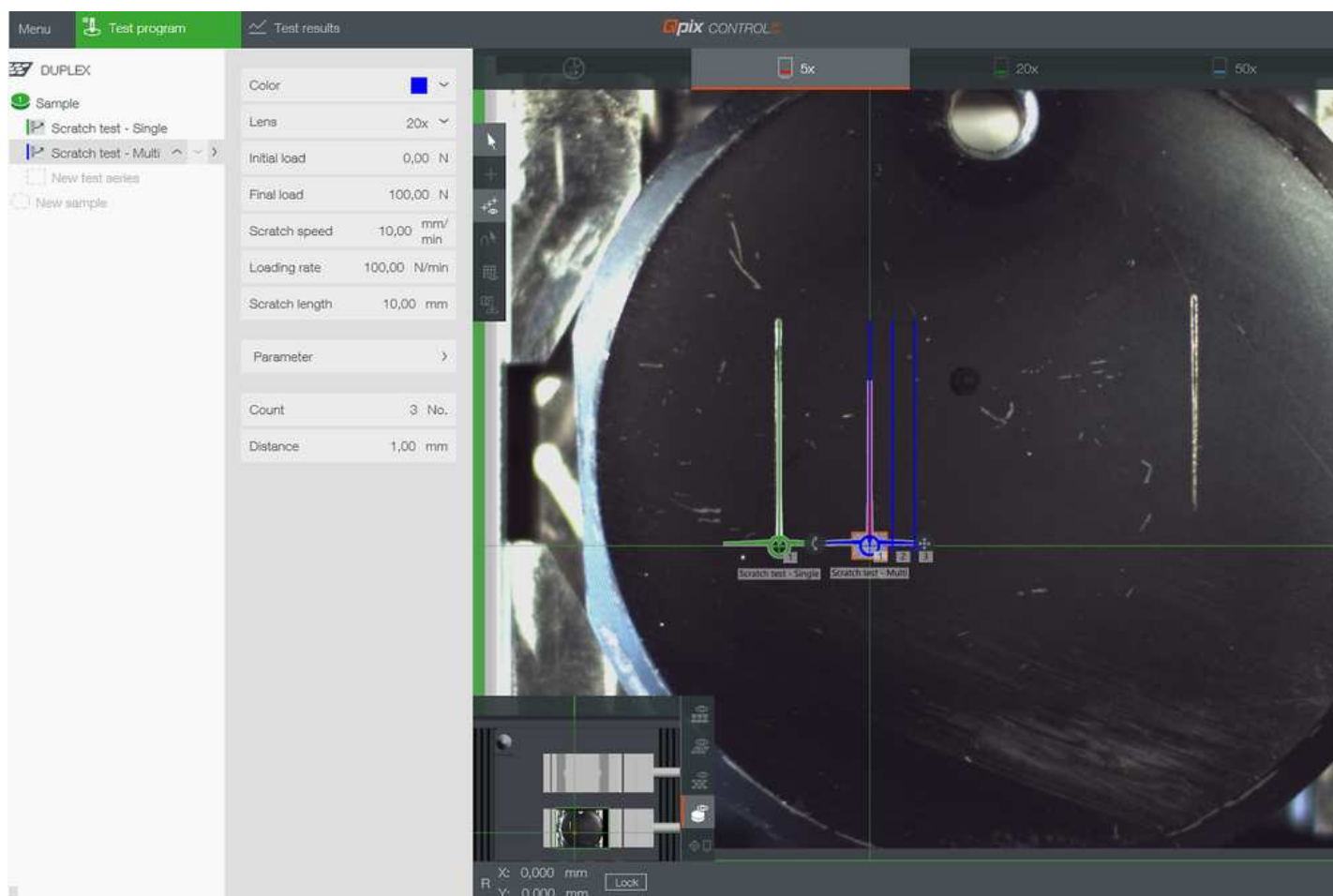


### 顕微鏡と分析



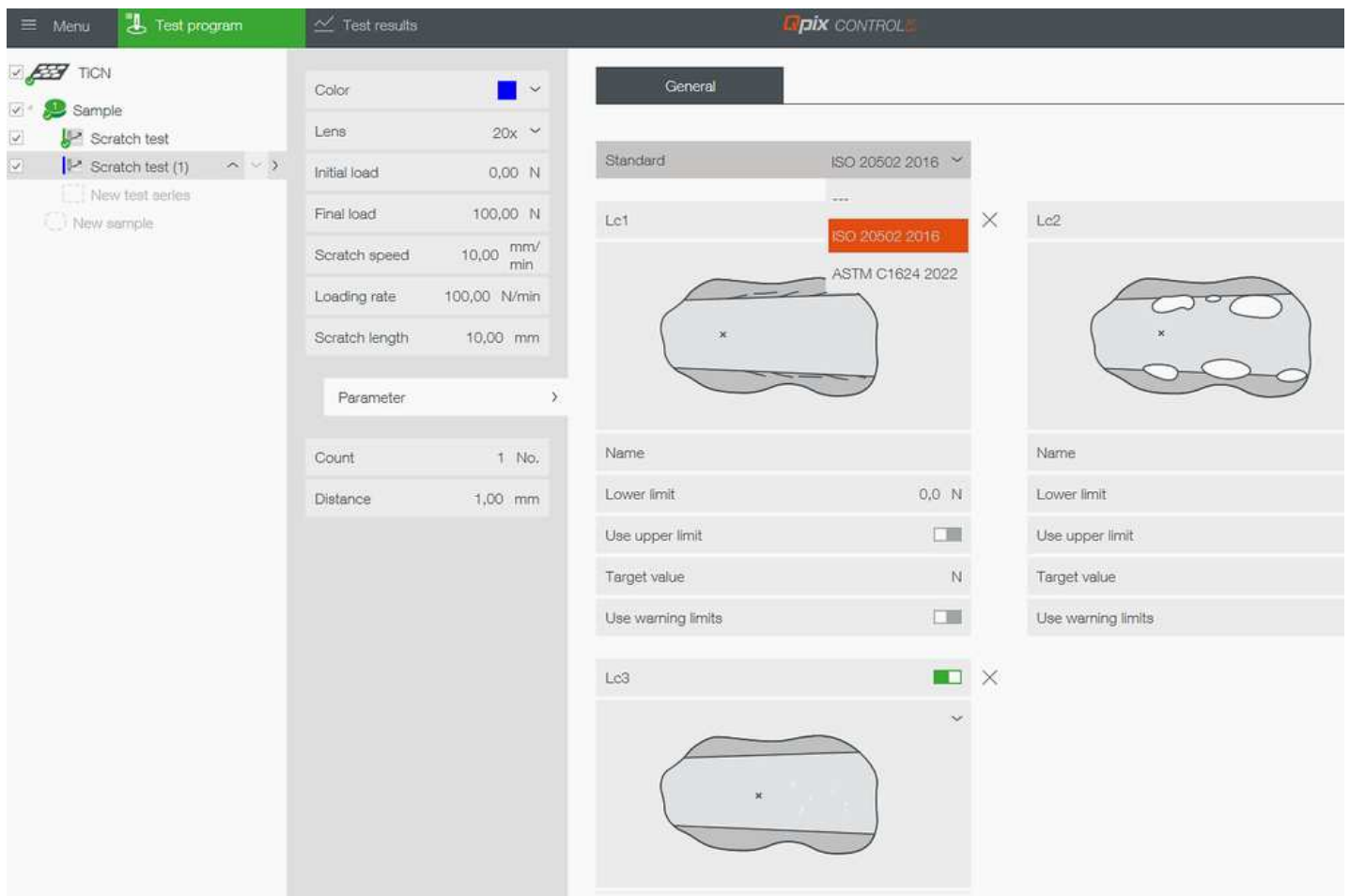
## QPIX CONTROL2

### 革新的なソフトウェア機能



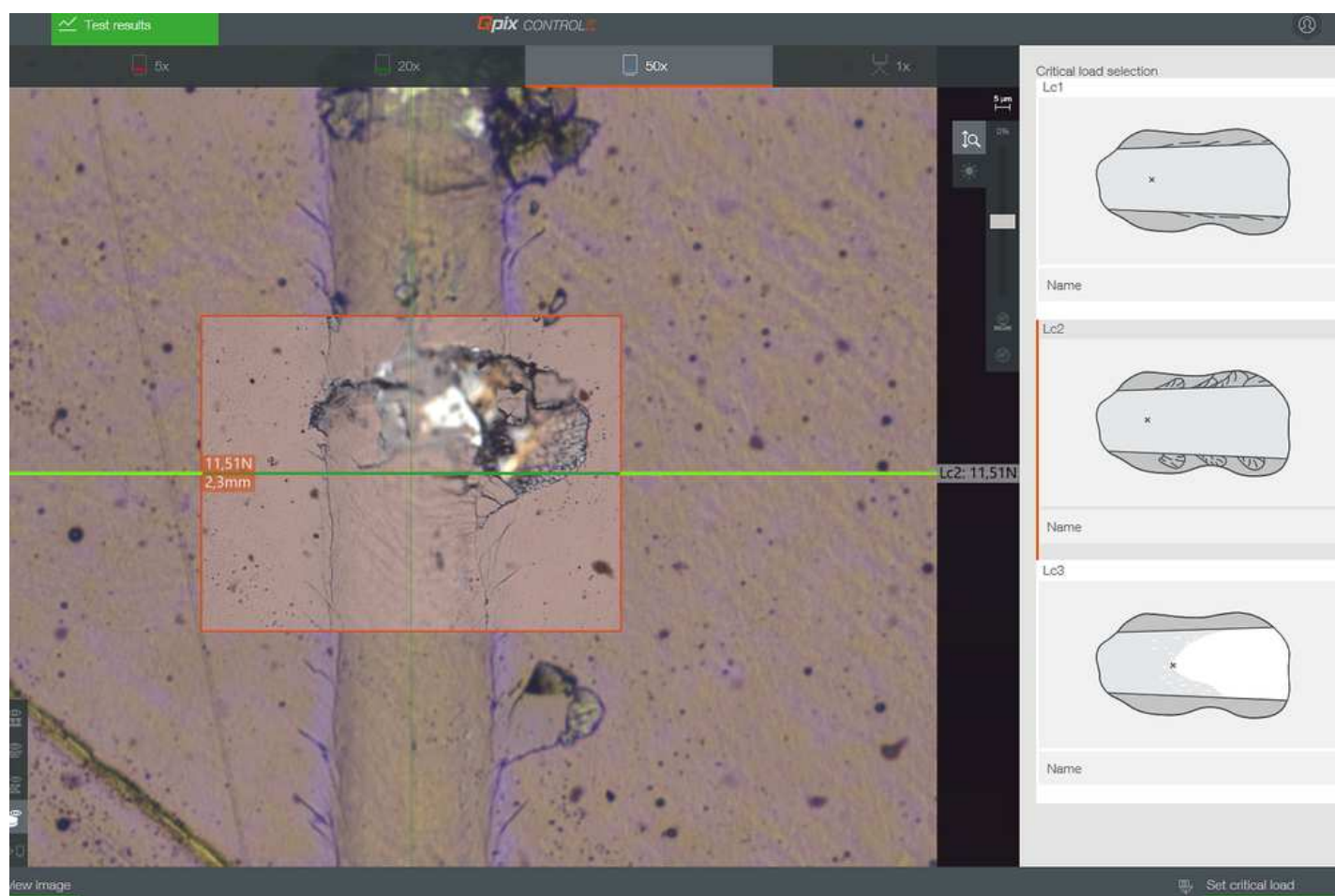
## SINGLE AND MULTIPLE INSPECTIONS

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.



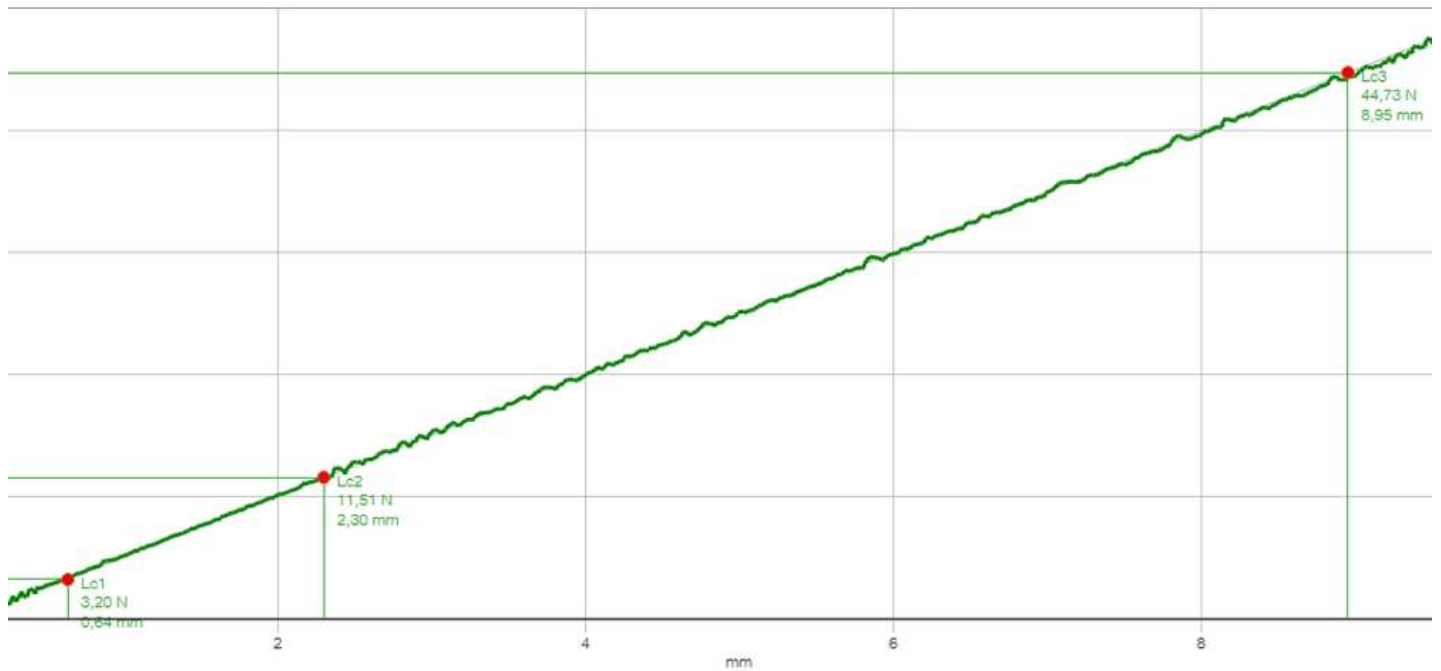
## A WIDE RANGE OF SETTING OPTIONS

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.



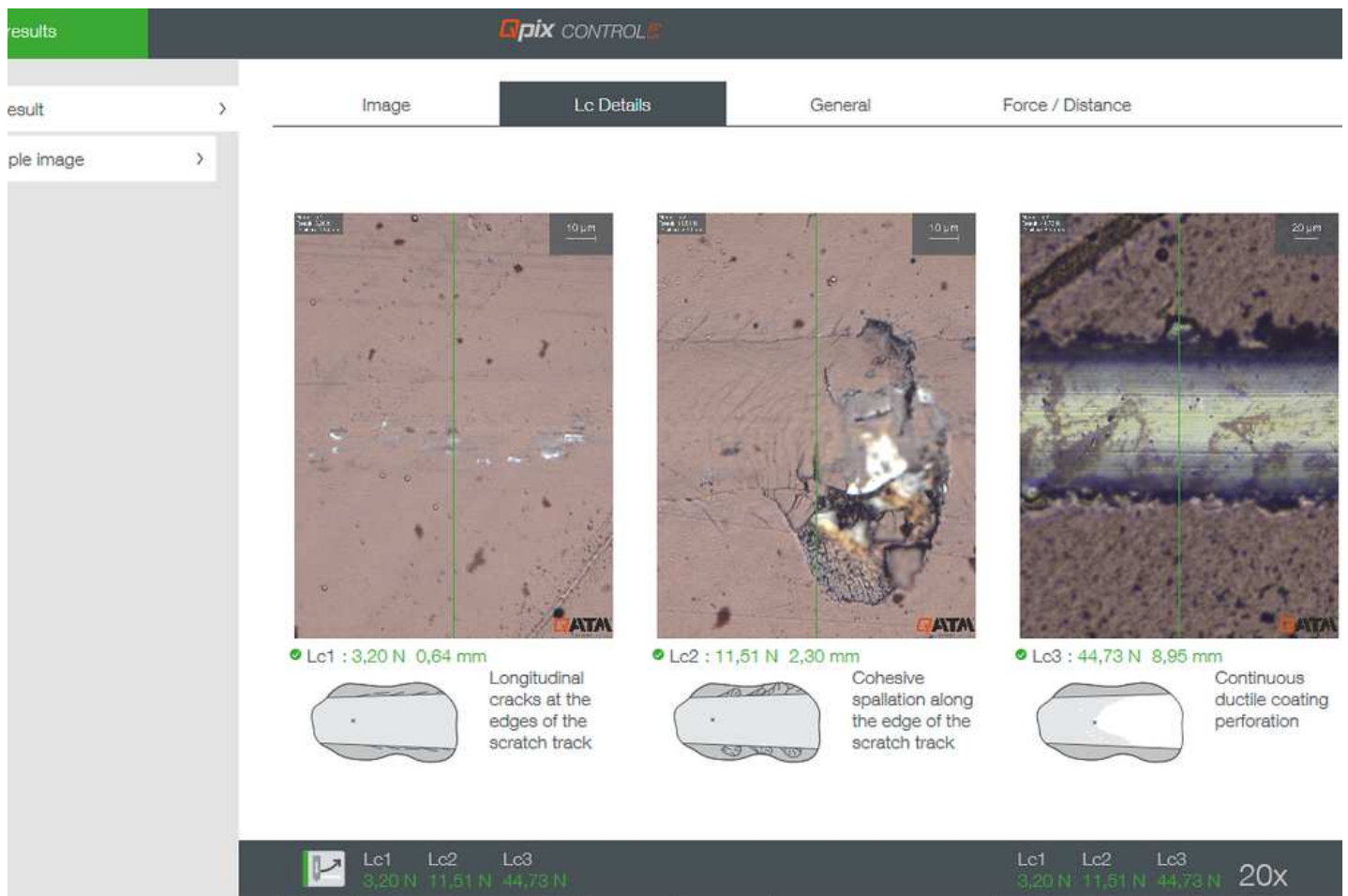
## GUIDED LC DETERMINATION

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

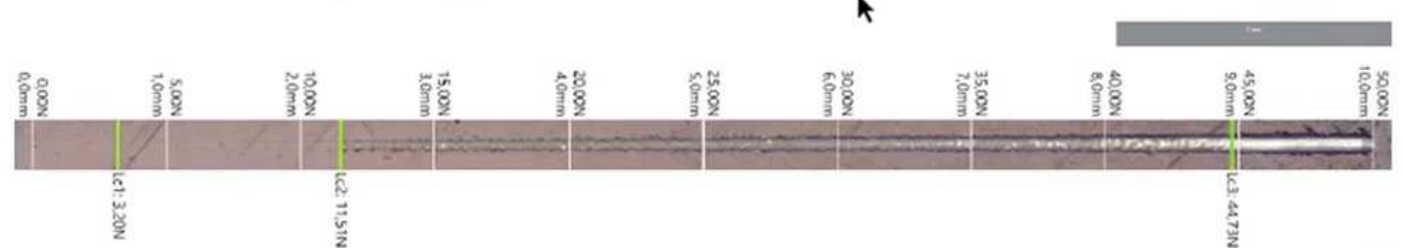
Relevant failure events along the scratch track can be viewed in detail in the image and assigned to the corresponding Lc details. This transforms the visual assessment into a verifiable test result

## 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

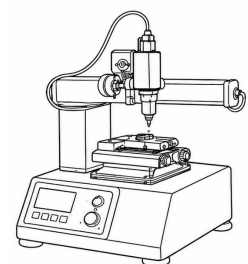
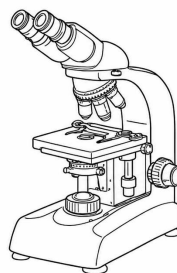
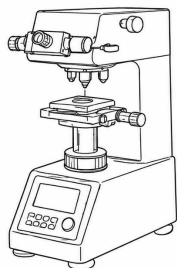
Test parameters, scratch track, Lc values and evaluation results are compiled into a test report. This simplifies documentation, the comparison of test series, and the dissemination of results within the quality process.

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.



## 硬さ試験

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.

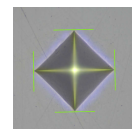
## 硬さ試験



### 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 |



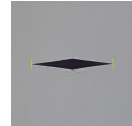
HV 60\*



### Knoop

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

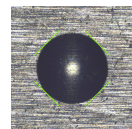
|          |          |          |         |          |        |
|----------|----------|----------|---------|----------|--------|
| HK 0.001 | HK 0.002 | HK 0.005 | HK 0.01 | HK 0.015 |        |
| HK 0.02  | HK 0.025 | HK 0.05  | HK 0.1  | HK 0.2   | HK 0.3 |
| HK 0.5   | HK 1     | HK 2     |      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



### Brinell

DIN EN ISO 6506, ASTM E-10

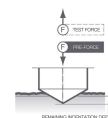
|             |               |              |          |          |
|-------------|---------------|--------------|----------|----------|
| HBW 1/1     | HBW 1/2.5     | HBW 1/5      | HBW 1/10 | HBW 1/30 |
| HBW 2.5/6.5 | HBW 2.5/31.25 | HBW 2.5/62.5 |          |          |
| HBW 5/25    | HBW 5/62.5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



### Rockwell

DIN EN ISO 6508, ASTM E-18

|     |     |          |          |          |
|-----|-----|----------|----------|----------|
| HRA | HRF | HR15-N/T | HR30-N/T | HR45-N/T |
|-----|-----|----------|----------|----------|



### 変換機能を内蔵

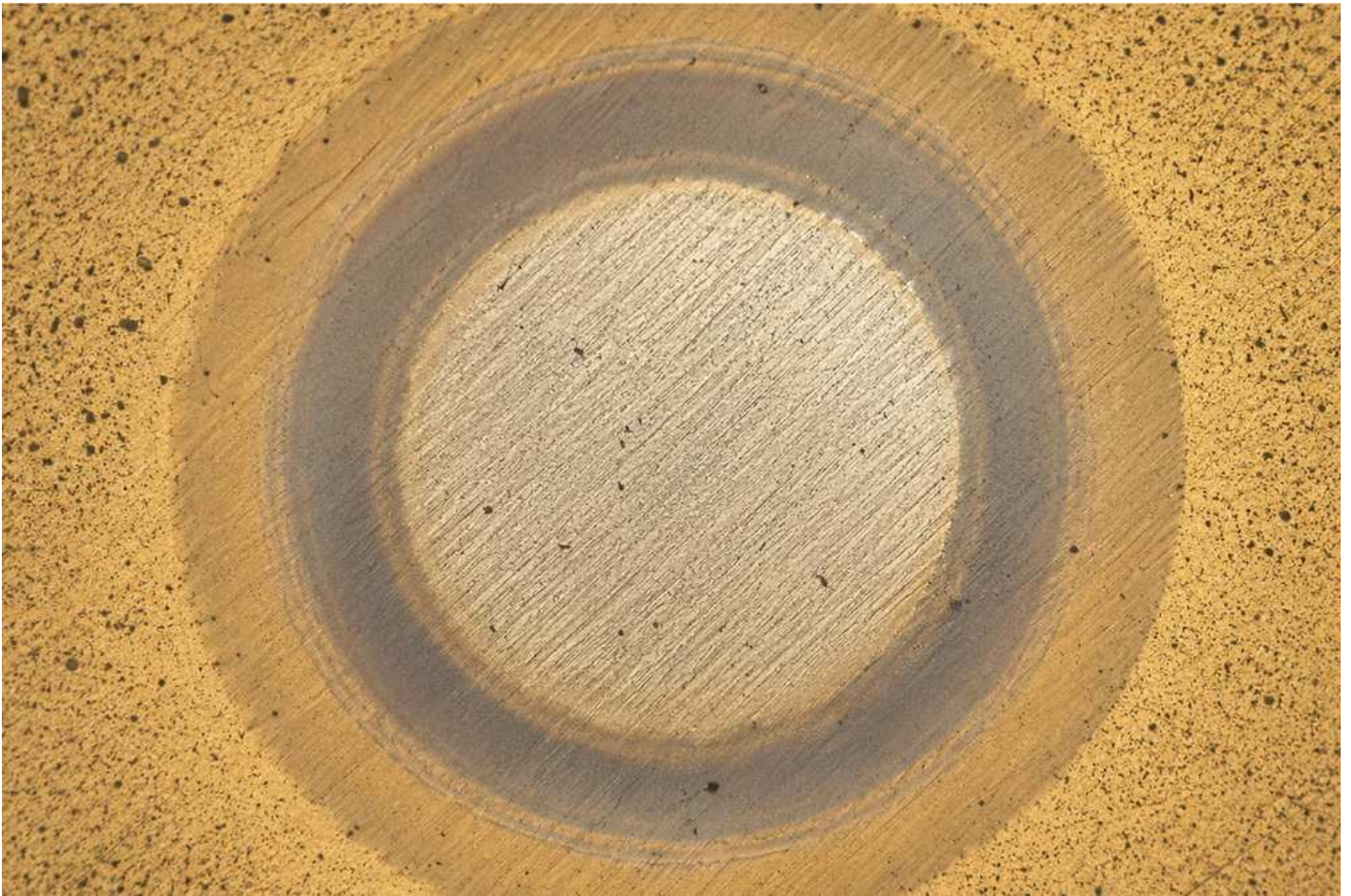
DIN EN ISO 18265, DIN EN ISO 50150, ASTM E-140

\* 規格に準拠していない

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.



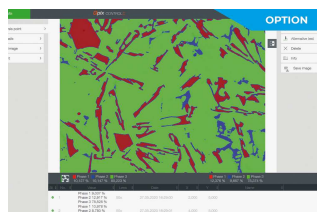
## ROCKWELL INDENTATION TEST

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

STRUCTURAL ANALYSIS MADE EASY

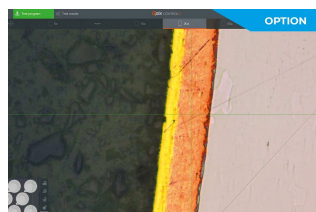
## QPIX検査ソフトウェアモジュール

直感的でユーザーフレンドリーなQpix INSPECTソフトウェアの機能は、顕微鏡評価と結果の文書化のための包括的なツールボックスを提供します。この多機能ソフトウェアは、お客様固有の測定タスクに合わせてカスタマイズしたり、アドオンモジュールで補完することができます。



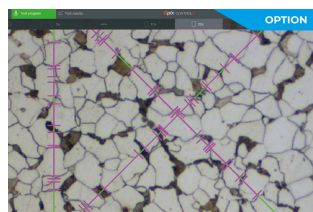
### 検査段階の分析

- | 画像オブジェクトの自動寸法計測
- | ISO 9042およびASTM E562に基づく位相差の評価
- | 分析結果は、表面の割合（パーセンテージ）または表面の公称値として、表や図で表示されます。



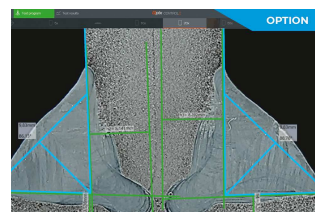
### 検査層の厚さ測定

- | DIN EN ISO 1463に基づく層の厚さの決定
- | 水平、垂直、半径方向の層を半自動で測定
- | 層の厚さを統計値として表や図にして提供する。



### 粒子径の測定

- | 粒子径はDIN EN ISO 643およびASTM E112に準拠し、直線法または円形断面法で測定
- | 表や図で示された分析結果
- | 粒子径と粒子を切断するセグメント長の統計的特性の文書化



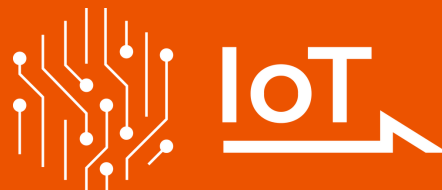
### 検査 溶接継ぎ目の測定

- | 標準化された測定と溶接継ぎ目の評価
- | スロート厚さ、溶接補強、溶け込み深さなど、すべての関連測定ツールを備えたプレハブ・テンプレート
- | 良品/不良品の自動評価とレポート作成

## IOT - INTERNET OF THINGS

### デバイスへのリモートアクセスのためのプラットフォーム

QpixControl2とQpixT2ソフトウェアを搭載したすべてのQATM硬さ試験機は、Verder Scientific IoTプラットフォームにシームレスに統合され、機能強化とシームレスな接続性を提供します。

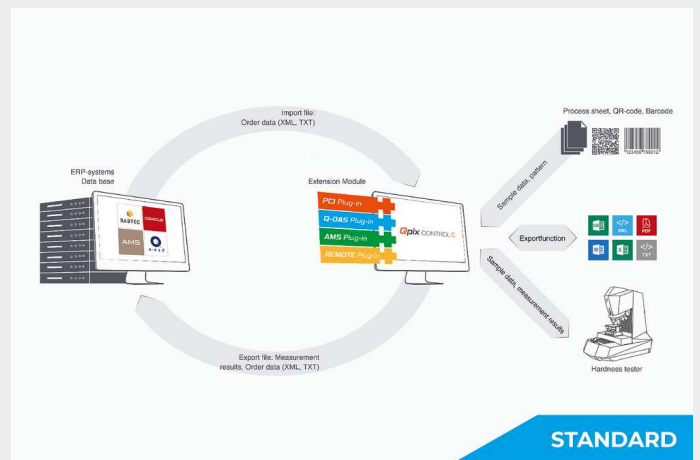
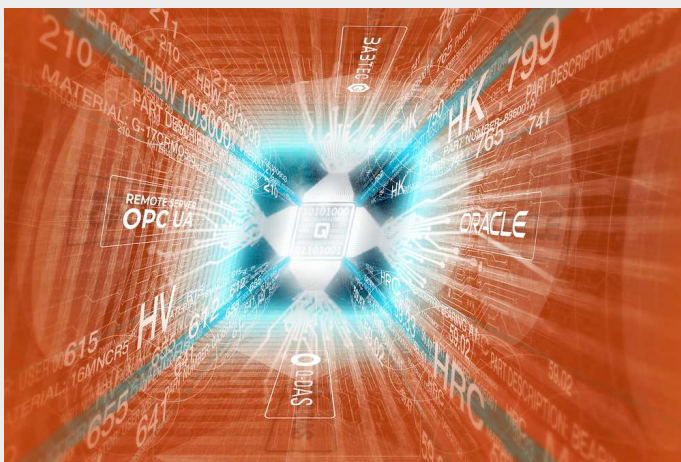


- | リアルタイム・モニタリング：世界中のどこからでもリアルタイムで機械を監視します。このデータ主導のアプローチにより、情報に基づいた意思決定を簡単に行うことができます。
- | ライブ通知：即座のアラートとアップデートで先手を打ちましょう。リアルタイムの通知により、機器のパフォーマンスに関する情報を常に入手できるため、積極的なメンテナンスが可能になります。
- | 簡単バックアップ：データ保護を簡素化します。1台のデバイスをバックアップする必要がある場合でも、全フリートをバックアップする必要がある場合でも、当社のプラットフォームはプロセスを合理化し、ダウンタイムとデータ損失を最小限に抑えます。
- | 自動 & 無料ソフトウェア アップデート：手動更新に別れを告げましょう！ Verder Scientific IoT は、お客様の機械に常に最新のソフトウェアを搭載し、性能と信頼性を最適化します。

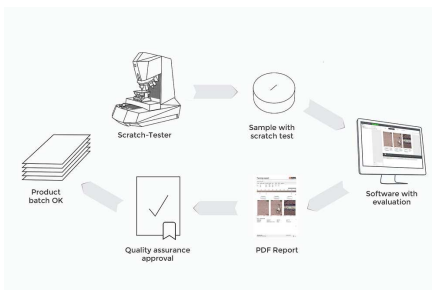


## インダストリー4.0

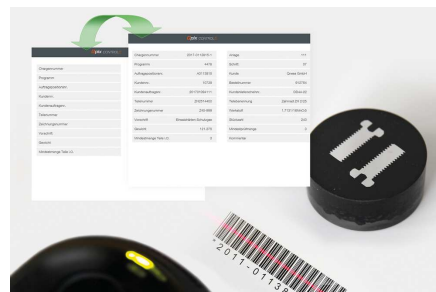
Qconnectは、QATM Qpix Control2ソフトウェアのインターフェイスで、シリアル製造、オープンXMLインターフェイス（双方向）、QDAS Plug-In+などの事前に指定されたプラグインソリューションから、QATMが完全に実装するお客様固有の接続ソリューションまで、デバイス間接続の完全なポートフォリオをお客様に提供します。あらゆるアプリケーション要件に対応する専門的なソリューションをご用意しています。



認定品質



## REPORT & AUTO-EXPORT



バーコード/QRコード/DMCリーダー

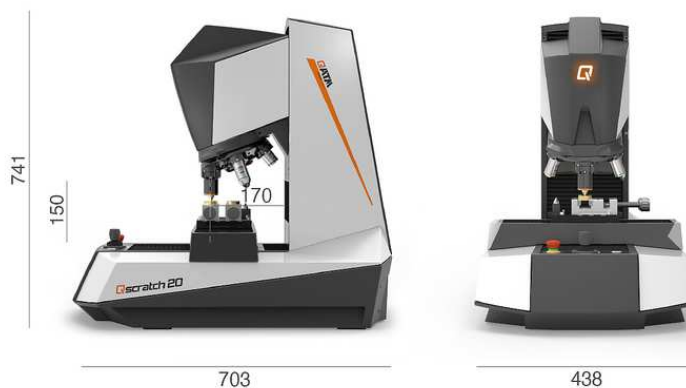


## NFC経由でのログイン

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.

Qpixソフトウェアプラットフォームは、バーコードリーダーとQRコードリーダーに対応しています。ヘッダーファイルの挿入（シリアル）、テンプレートの自動選択のための読み取りデバイスの完全な統合管理、上位システムからのデータの呼び出し（オプション）など、バーコード/QRコードリーダーは、テストの作業手順を簡素化し、操作ミスを防止します。

Qpix Control 2ソフトウェアは、外部NFCリーダーを使用したユーザーログインをサポートしています。NFCタグ/カードによっては、顧客の既存のアクセスカードもプログラム可能です。



|                          |                                                           |
|--------------------------|-----------------------------------------------------------|
| 試験荷重範囲                   | 0.5* - 200 N                                              |
| Constant load            | Single and multiple measurements                          |
| Progressive load         | Single and multiple measurements                          |
| Z-軸                      | Z 150 mm (5.91")                                          |
| ツール?ポジション                | 8-fold motorized tool changer (max. 7 lenses)             |
| Included basic equipment | Rockwell diamond; 5x, 20x, 50x Lenses                     |
| Lens types               | Standard (Achromat) for hardness testing and microscopy   |
| サンプル?イメージ?カメラ            | 5 Mpixel - CMOS color, USB 3.0; 52 x 39 mm (2.05 x 1.54") |
| Cross slide              | Motorized X/Y axis                                        |
| テーブル?サイズ                 | 150 x 120 mm (5.91 x 4.72")                               |
| Positioning accuracy     | X/Y-axis +/- 0.2 µm                                       |
| 移動経路                     | X 150, Y 150 mm (5.91 x 5.91")                            |
| Control elements         | Emergency stop, Start button, Joystick X/Y/Z              |
| ワークピースの最大重量              | 50 kg (110 lbs)                                           |
| 標準機の重量                   | 60 kg (132.3 lbs)                                         |

## Optional

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## Hardness Upgrade and Qpix Inspect Module

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\* 0.5 N and 1 N > 1% accuracy

[www.qatm.com/qscratch-20](http://www.qatm.com/qscratch-20)

## 注文データ

### FULLY AUTOMATIC SINGLE MACRO/MICRO SCRATCH TESTER

#### ベース機械

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

#### ウェア?プレート XY- スライド用

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)



#### PCシステム 機械コントロール用

QA0057500      ハイ-エンド PC システム Full HD - Qpix Control2

QA0057600      第2 24" Full HD UltraSharp モニター

QA0057501      ハイ-エンド PC システム Ultra HD (4K) - Qpix Control2

QA0057601      第2 27" Ultra HD (4K) モニター

#### サンプルホルダー

QA0116300      Universal Precision fine vise

#### REFERENCE MATERIAL

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

#### ソフトウェア?モジュール

QSO013600      Qpix バーコード / QR コード?スキャナー ソフトウェア?モジュール

QA0089600      Barcode/QR-Code 1D/2D Scanner Kit - Bluetooth

QA0071700      電子測定ノギス - Qpix Control2互換

QA0108200      NFC Login Package QpixControl2

QSO213600      RFID Tag MIFARE, key chain gray 10 pcs.

#### QPIXインスペクト 微細構造解析

QSO171100      Qpixインスペクト 相解析

QSO171200      Qpix Inspect - Layer thickness measurement

QSO171300      Qpix Inspect - Grain size determination

QSO194100      Qpix Inspect - Weld seam measurement

#### QPIX コネクト - データ接続

|           |                              |
|-----------|------------------------------|
| QSO031600 | Qpix Control2 - PCI プラグ-イン   |
| QSO013500 | Qpix Control2 - AMS プラグ-イン   |
| QSO030400 | Qpix Control2 - Q-DAS プラグ-イン |

#### アクセサリ

|           |                                                 |
|-----------|-------------------------------------------------|
| QSO165900 | Dust protection cap - Qness 60 EVO, CHD Master+ |
| A5810431  | 振動軽減天板                                          |
| 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 - 無停電電源装置 900VA                             |
| QSO232600 | Accessory box - Scratch tester                  |
| QVV0030   | 報告書                                             |
| QVV0001   | 認証作業                                            |
| QVV0002   | 硬さ換算チャート                                        |