

洛氏及多用途硬度计

配置附加光学测量系统和全自动模式

Rock and more. Rockwell hardness tester with add-on modules for optical evaluation and full automation



Q150

多种规格

THE VARIANTS



Q150 R

洛氏硬度计

- 测试过程可以为手动操作模式，也可以在选择自动开始功能时实现全自动模式
- 试样可夹持或不夹持
- 可创建试验方法、数据统计、数据曲线，并且可以按照ISO及ASTM标准进行硬度值的转换
- 数据通过RS232, Ethernet 或USB接口直接输出
- Qpix T2R软件中可配置的协议和数据输出提供多种测量结果输出选择

ROCKWELL HARDNESS TESTER

Automatic test sequence with optional automatic start

- Test clamped or unclamped
- Creation of favorites, statistics, progression displays, ISO and ASTM conversions
- Direct data export via RS232, Ethernet or USB
- Various result export possibilities as configurable protocol or data export in
- Qpix T2R software



Q150 A

洛氏 / 布氏 / 维氏 / 努氏
全自动硬度计

- 全自动样品台
- 过载安全离合器提供CE安全保证（无需外壳）
- 最多可装夹8个端淬试验试样
- 可安装2个多试样夹具
- 手动控制各轴动作的动态3轴操纵杆

ROCKWELL / BRINELL / VICKERS / KNOOP FULLY AUTOMATIC SINGLE HARDNESS TESTER

Fully automatic test slide

- CE security via overload coupling (no housing necessary)
- Up to 8 Jominy-samples
- Up to 2 multi-sample holders
- Dynamic 3-axis joystick for the manual control of the axis

长期性投资

可按照用户的要求升级硬度计的配置及功能

A long term investment - a hardness tester that grows with your requirements

可升级模块及配件 UPGRADE MODULES / ACCESSORIES



Q150 A+

洛氏 / 布氏 / 维氏 / 努氏
全自动硬度计
带有全景摄像头

- 集成全景摄像头系统 (视野面积50×40mm)
- 可选择安装第二台显示器进行样品表面的全景显示
- 可升级到其它可选光学测量方法 (维氏、布氏、努氏)*

ROCKWELL / BRINELL / VICKERS / KNOOP
FULLY AUTOMATIC HARDNESS TESTER
with sample image camera

Integrated sample image camera (field of view 50 x 40 mm)

Optional 2nd screen for sample image

Upgrade for optical test methods (Vickers, Brinell, Knoop)*

*) Zubehör/Option, Accessories/Options



Q150 A Q150 A+

光学测量系统
Lens system



Q150 A

第二套光学测量系统
2nd lens system



Q150 R Q150 A

工作空间照明
Work space lighting



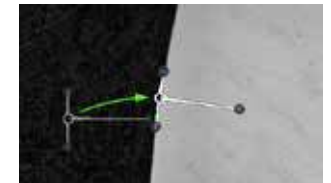
Q150 A

宏观摄像头
Sample image camera



Q150 A Q150 A+

轮廓扫描功能
Contour scan



Q150 A+

边界识别功能
Edge recognition



Q150 A+

硬度分布二维/三维模块
2D/3D mapping module



Q150 A Q150 A+

条形码阅读器
Barcode reader



Q150 A Q150 A+

端淬试验功能
Qpix JOMINITY



Q150 A Q150 A+

使用SPS/PCI协议 远程控制功能
Qpix REMOTE Control via SPS/PCI



Q150 R

大型数控导轨, 260 mm x 166 mm
Digital slide 260 mm x 166 mm



Q150 A Q150 A+

多样品位置识别
Sample magazine recognition

优越的性能特点

HIGHLIGHTS & FEATURES

1

试验方法和结果转换

Test methods and conversion

Q150 R Q150 A Q150 A+

Rockwell DIN EN ISO 6508, ASTM E-18



HRA	HRB	HRC	HRD	HRE	HRF
HRG	HRH	HRK	HRL	HRM	HRP
HRR	HRS	HRV	HR 15-N/T/W/X/Y		
HR 30-N/T/W/X/Y			HR 45-N/T/W/X/Y		

塑料硬度试验 / Plastic test DIN EN ISO 2039

Q150 A Q150 A+

mit Objektivsystem / with lens system

Brinell DIN EN ISO 6506, ASTM E-10



1/1	1/2.5	1/5	1/10
1/30	2.5/6.25	2.5/15.6	2.5/31.25
2.5/62.5	2.5/187.5	5/25	5/62.5
5/125	5/250	10/100	10/250
HBT (not acc. to standards)			

Vickers DIN EN ISO 6507, ASTM E-384, ASTM E-92



HV1	HV2	HV3	HV5	HV10	HV20
HV30	HV50	HV100	HVT (not acc. to standards)		

Knoop DIN EN ISO 4545, ASTM E-384



HK1	HK2
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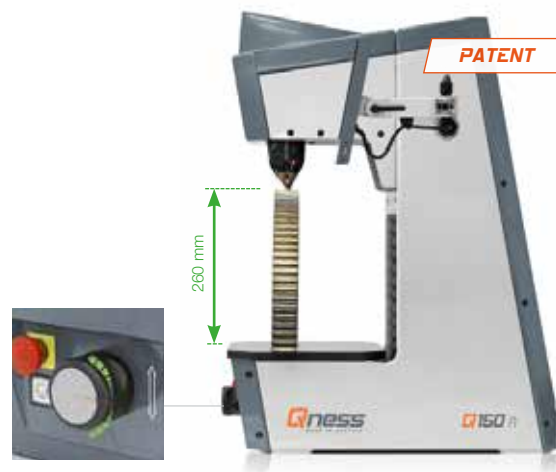
硬度值的转换 / Conversion

DIN EN ISO 18265, DIN EN ISO 50150, ASTM E140

2

动态高度调节

Dynamic height adjustment



电子运动控制系统被集成于硬度计中，使得试验头装置的上下移动非常快速、精确及灵敏。通过调节控制旋钮。可以轻松、精确、防撞地定位试验头（最大速度6mm/s）。

The compact hardness tester in combination with the electronic movement control allows quick, accurate and sensitive positioning of the test head. Forceless, precise and collision-proof positioning of the test head via rotating the control knob (6mm/s).

3

卓越性能，高度专业化

High performance and highly professional



在我们的标准设备中，即使是Q150R的基础型号，也可和性能优异配备固态硬盘的Windows PC实现完全连接。可按客户需求，提供定制数据连接和硬度解决方案。

Completely connected in high performance with the integrated Windows PC with SSD hard disk even in the base model Q150R in standard equipment. Customized data connection and integration into production lines possible up to request.

4

精确定位，大试验空间

Exact positioning and large test room



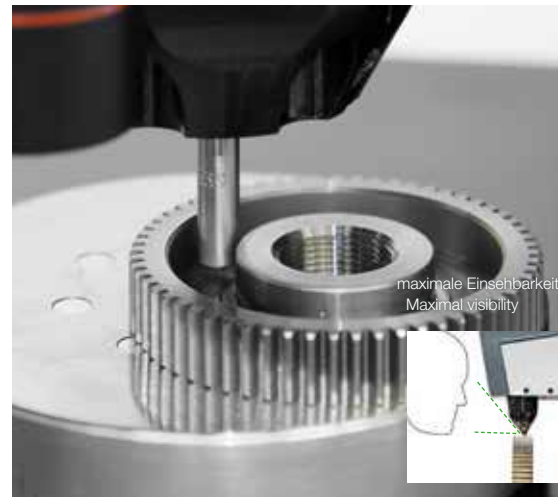
精细的结构可以提供一个大的合理的试验空间。采用高精度的光栅尺来控制全自动的XY载物台的位移。除了可以安装2个8试样的样品夹具外，还可以根据用户提出的特殊样品夹具的位置要求，在软件中建立相应的模型。

The sophisticated construction offers a large and well arranged test area. The fully automatic XY-slide with high precision optic path measurement system can be equipped i.e. with two 8-fold sample holders. Beyond that, customer specific magazines can be managed and created in the software.

5

可实现狭窄空间的测试

Accessibility to narrow test places



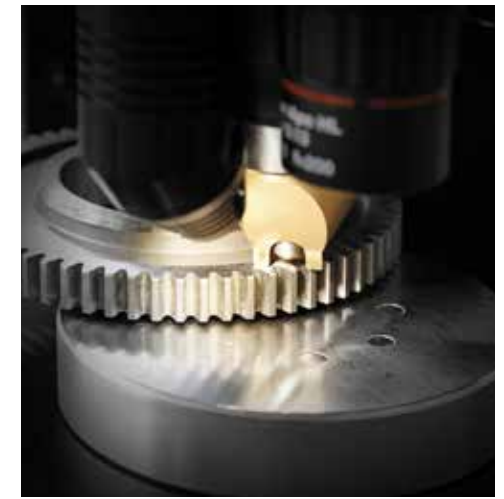
- LD透镜组可以提供一个较长焦距的镜头。
- 防碰撞保护罩
- 光学系统具有全景观察和测量功能
- 可观察的视野范围: 0.2 - 40 mm
- 采用全景观察时，可以同时观察样品沿X和Y轴的运动。

- LD lenses provide an increased working distance
- Collision proof
- Overview and analysis via optical system
- Field of view 0.2 - 40 mm
- The X-Y travel range can be displayed as one image via the standard panorama function

6

试验空间的照明

Work space lighting



集成的试验空间照明，可以保证压头的精确定位。

The functionally integrated work space lighting permits accurate positioning of the indenter.

操作简单易用的10.1英寸触屏显示器

MOST SIMPLE OPERATION ON 10,1" TOUCH-SCREEN



符合人体工程学的设计
Ergonomically adaptable

高质量、坚固的铝合金外壳
High-quality and sturdy aluminium case



采用USB接口进行数据的输入与输出
USB for data export and data input

- 连续的软件设计
- 大量统计功能：条状图、曲线图、柱状图
- 以'Excel'输出测试结果列表（CSV使用输出配置器）
- 每个压痕的标准详细数据
- A4 协议PDF报告/可直接打印
- 提供不同安全级别的管理权限
- Across-the-line software design
- Numerous statistic functions: bar graph, progression, histogram
- Measurement value list to export as „Excel“ (CSV via export configurator)
- Standardized detail information to each indentation
- A4 protocol as PDF / direct print
- User management with different security access levels



可配置的报告和数据管理
Configurable protocol and data management



超过界限硬度值的测量结果突出标记
Test result harder than allowed limit hardness



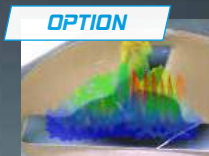
测量结果中的测试点识别
Result list test point identification



集成的测量结果统计
Integrated statistic view

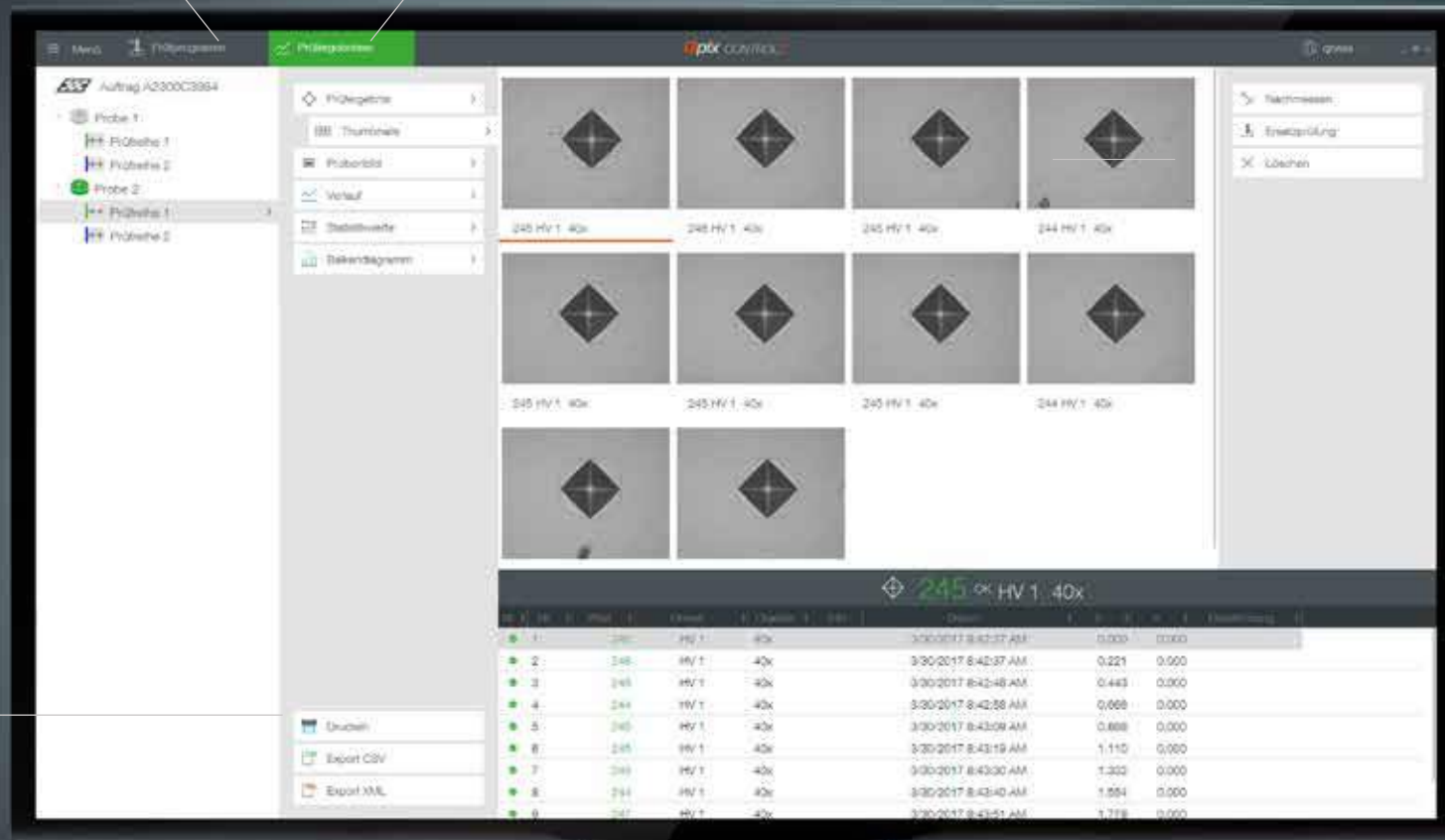
1 建立试验参数
Creation of test data

2 测试结果的管理
Test result management



硬度值2D, 3D分布
的彩色显示

Color representation of the
hardness in 2D and 3D



Qpix Control2 软件可配置协议和数据
显示, 测试数据储存有宽范围的结构选
择。可改编的输出文件内容和协议内容
简化了日常操作。



Configurable protocol and data presentation. Wide range of structuration options for stored test item data. Adaptable content for export files and protocol content simplifies daily operation with Qpix Control2 software.

测试结果拥有最大化的可重复性。每个测试点的所有数据均同该试验结果一起存储, 因此, 可以容易地调取和重新测量。

Maximum repeatability. All test specific data are stored for every single test point. Test points can be easily checked or tested a second time.

对测试行或一系列测试点进行全自动测试
Fully automatic row- and progression measurement

连续和直观的测试循环
Across-the-line and intuitive test cycle

InfoGraphic-Technic

- 样品位置序列号
Sample place No.
- 测试模式
Measurement mode
- 用于统计的颜色分配
Colour allocation for statistics
- 已测量
Measured



使用不同视场观察样品和测试点的位置
View work pieces and test positions with different fields of view

客户指定的样品夹具

Customer specific sample holder



LiveVision-Technic

相同的样品可以用3D模式在软件中按比例建立
Identical samples can be set up in the software in scale as 3D model.

3D-SmartView

直观，结构化和专业：Qpix Control2预示着新一代硬度测试软件的到来。它建立在客户的建议和反馈基础上，保证最大化的用户友好。由于测试头的自动高度调整功能和非接触测量，Qness样品夹具的完全集成，CAD与3D图像的兼容，大量的、易于理解的3D控制元素以及软件中的视角使其成为硬度测试领域的新标准。

Intuitive, structured and professional: Qpix Control2 heralds a new generation of hardness testing software. It has been developed based on customer input and feedback to guarantee maximum user-friendliness. New standards in hardness testing are now being established thanks to the controlled test head with automatic height adjustment and contact-free gauging, complete integration of the Qness sample holders, CAD compatibility with 3D component imaging and a wide variety of easily comprehensible 3D control elements and view angles within the software.



创新的CAS技术（防碰撞系统）通过生成可视区域所有移动的3D预览计算，保护设备中的机械零部件不受到碰撞和防止操作错误。

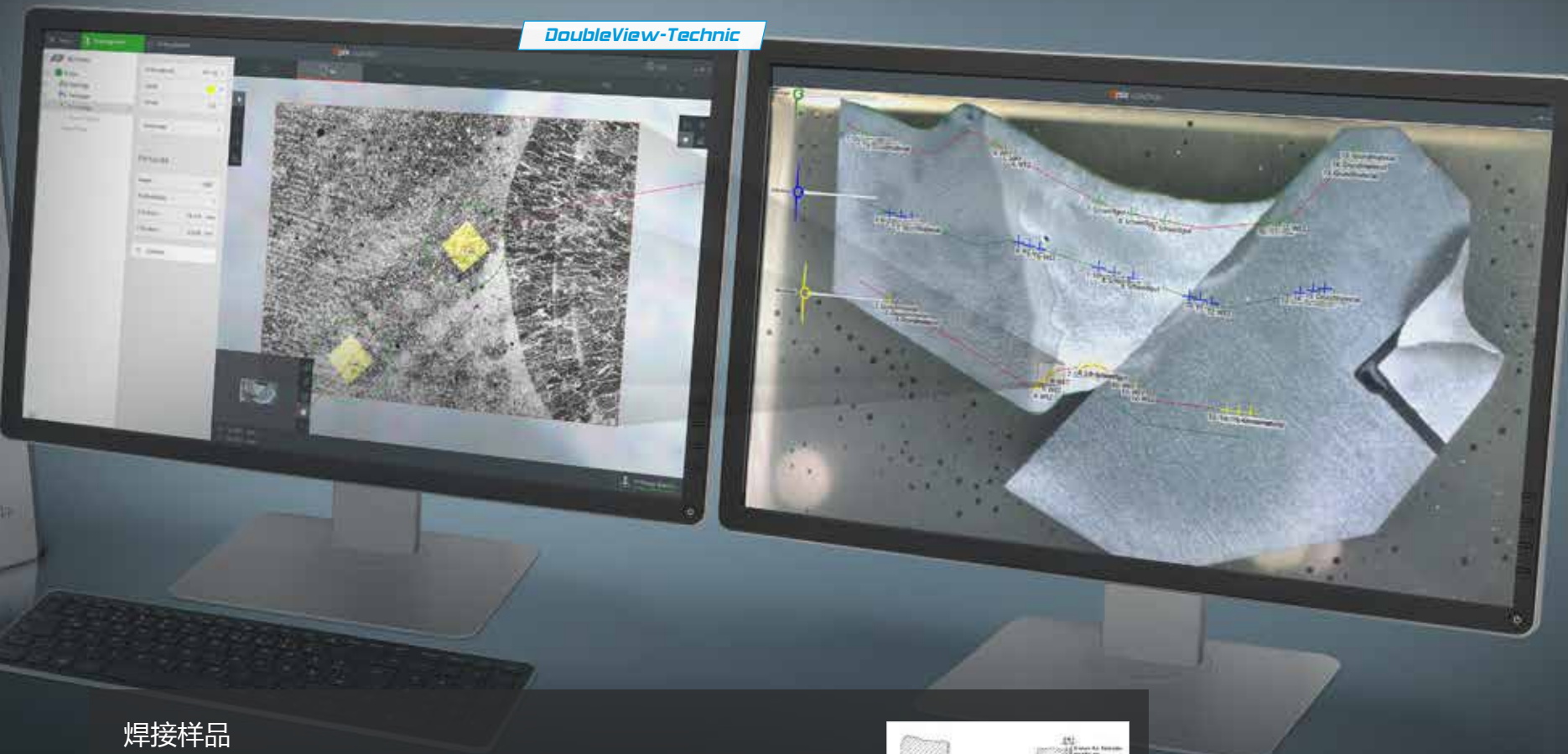
Innovative CAS technology (Collision Avoidance System) protects the mechanical components in the device from collisions and operating errors by generating 3D preview calculations of all movements in the visualized testing area.

CAS-Technic



通过宏观和微观图像同步性实现最优的方位

BEST ORIENTATION BY SIMULTANEOUS MACRO AND MICRO VIEW



完善的软件
辅助工具

Sophisticated
Software tools



预计算图形压痕尺寸图像显示
Image with graphic indentation size
pre calculation



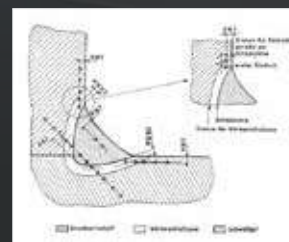
当测试点间距靠近时有图形提示
Graphic hint when test points are
located to close to each other (3x d)

焊接样品

- 焊缝硬度测试及定点测试最理想的设备
- 各个测试点都可以按照产品标准的要求进行精确定位

Welding test samples

- Ideal for welding test samples or visual test point positioning jobs
- Test points can be norm-positioned based on the visual presentation



应用实例

PRACTICAL APPLICATIONS

1

相同样品的重复试验

Identical part testing



相同样品的测试序列可以存储为样板。采用预先定义的样品模板，可以激活所有相关的数据，包括测试序列点阵，测试方法和用户注释。

Identical sample test series can be saved as templates. Pre-defined sample magazines can be used to activate all relevant data, such as test patterns, test methods and user fields.

2

镶嵌样品进行CHD, NHD, SHD试验

Embedded samples for CHD, NHD, SHD



通过程序，可以方便地选择样品模型，除了单独的试验和系列点试验外，用户还可以选择CHD、NHD和SHD方法。

The sample patterns can be easily selected using the program. In addition to the single and row measurement, the user can select CHD, NHD and SHD.

3

多试样JOMINY端淬试验

Multi Jominy sample testing



使用可夹持8个样品的样品架，增加一个Jominy控制模块，就可以按照相关标准进行最多8个样品的端淬试验。整个试验过程完全自动化进行。

Up to 8 samples can be placed in the Jominy sample holder for testing. The testing cycle is fully automatic and executed according to the norm.

4

钢管测试

Pipe testing



采用Q150A或Q150A+, 可以按照适用的标准进行经济的钢管剖面硬度测试。

Check pipes economically with the Q150A/A+ according to the applicable standards.

5

铁轨测试

Rail testing



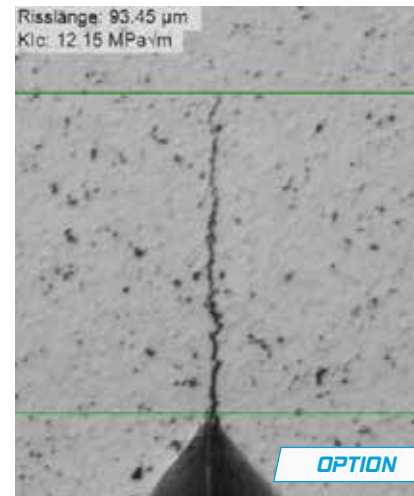
一个完美的应用案例是铁轨剖面的硬度测试。通过全景摄像头扫描样品的轮廓, 可以同时精确和快速地确定一系列试验点中的每个点的位置。

Another perfect application is the testing of rail profiles. The complete track can be scanned via the standardized panorama picture function, thus allowing accurate and fast positioning of the individual test series.

6

裂缝长度测量

Crack length measurement KIC



根据标准测量4条裂纹评估KIC值, 全自动评估得到MPa_√m值。

For evaluating the KIC value the 4 cracks are measured according to the norm. After that the MPa_√m value is evaluated automatically.

7

扩展的可测试区域

Extended test area



可根据用户的要求定制Q150系列产品。发给我们要求的技术参数, 您将很快收到为您专门设计的定制解决方案。

The complete Q150 series can be customized. Send us your specifications and you will immediately receive a customized concept.

R 版
R version



A/A+ 版
A/A+ version



带测试高度扩展
with Test height extension



Q150 R

Q150 A

Q150 A+

测试载荷范围 / Test force range	1 - 250 kg (9,81 - 2450 N)	1 - 250 kg (9,81 - 2450 N)
测试高度/喉深 / Test height/Throat depth	260 mm / 180 mm	187 mm / 180 mm
测试高度扩展 / Test height extension	450 mm (可选)	377 mm (可选)
高度调节 / Height adjustment	v max 6 mm/s	v max 6 mm/s
软件 / Software	Qpix T₂ 00	Qpix CONTROL₂
集成的光学系统 / Integrated optic system	-	(可选)
相机系统 / Camera system	-	最多2个1800万像素彩色摄像头 / up to 2x 18MP color camera
全景摄像头 / Sample image camera	-	- 包括 / Yes
砧板/水平载物台 / Test anvil/Cross slide	250 x 260 mm	电机驱动 / motorized 170 x 250mm
样品台移动路径 / Traverse path	-	X 260 / Y 166 mm
数据接口 / Data interface	3x USB, 1x Ethernet, 1x RS232	PC-硬度计界面: 1x USB3.0 Interface PC-Hardness tester: 1x USB3.0
主机重量 / Weight of basic machine	95 kg	120 kg
扩展的测试台 / with Test height extension	112 kg	137 kg
可测试工件的最大重量 / Max. work piece weight	100 kg	50 kg
电源 / Power supply	230~1/N/PE, 110~1/N/PE	230~1/N/PE, 110~1/N/PE
最大功耗 / Max. power consumption	~ 240 W	~ 240 W
附件和选项 / Accessories and options		
标准附件 / General	砧板, 压头 Test anvils, Indenters	单样品及多样品夹具、端淬样品夹具 压头, 物镜, 软件模块 Single and multi sample holders, Jominy sample holder, Indenters, Lenses, Software modules

可浏览Qness公司网址上的产品配置,
了解其他可选模块和附件

Additional modules and accessories can be viewed
using the online product configurator at www.qness.at



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