

# *THE CR SPECIALISTS*

## ***HD-CR/CR 35 NDT***

*COMPUTED RADIOGRAPHY SYSTEMS*



*Digital Intelligence - Ready to Change.*  
[www.duerr-ndt.com](http://www.duerr-ndt.com)

 **DÜRR  
N D T**

# VERSATILE AND DEPENDABLE

HIGH-TECH MADE IN GERMANY



## Portable & compact

At just 17.5 kg, is the lightest format scanner (27.5 kg incl.

## High throughput

Several imaging plates can be scanned simultaneously

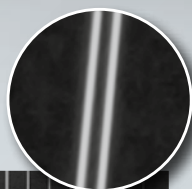
## Intuitive software

The DICONDE compliant D-Tect software assists you in image evaluation, thus maximizing your workflow

## No darkroom needed

Special imaging plate accessories are available to protect from light when used in daylight conditions

\*HD-CR 35 NDT



## Highest resolution

DÜRR NDT is the only manufacturer worldwide to offer 30 micron basic spatial resolution ( $SR_b$ ), BAM certified\* (according to ISO 16371-1, ASTM E 2445, ASTM E 2446)

## Flexible formats

Able to process imaging plates of all sizes and quality grades as well as shapes specific to a workpiece



## Universal

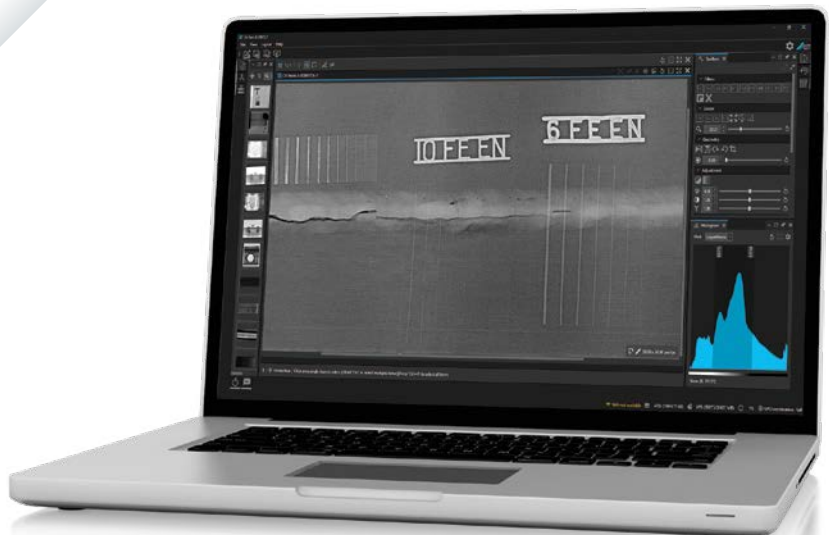
Perfectly suited to the diverse tasks of radiographic inspection, including to ISO, ASTM and ASME standards

## Extremely low maintenance

Only minor servicing required every 2 years even if used in dirty and dusty environments

## act

and most compact full-transport case)



*Computed radiography (CR) is the digital replacement of conventional X-ray film radiography and offers enormous advantages for inspection tasks - the use of consumables is virtually eliminated and the time to produce an image is drastically shorter.*

### How does CR work?

1. Instead of film, an imaging plate is exposed to X-ray or gamma radiation.
2. The plate is digitized by the scanner and then erased for immediate reuse.
3. The digital image is then displayed on a computer monitor for evaluation.

### Advantages of CR

- ✓ Substantial cost savings as imaging plates are reusable up to 1000 times (or more, depending on the application)
- ✓ Considerable reductions in exposure time
- ✓ Software-based evaluation and reporting
- ✓ Digital archiving
- ✓ More details visible and analyzable
- ✓ No darkroom or chemicals needed
- ✓ Safer for operators and the environment

# SYSTEMS FOR EVERY CR APPLICATION

DEVELOPED FOR THE HIGHEST QUALITY DEMANDS

*Whether for a portable application in the field or as part of the production process, with the HD-CR 35 NDT you have peace of mind, now and in the future. This is because its unique TreFoc Technology allows the widest range of applications and the highest resolution of all CR scanners. While the CR 35 NDT without TreFoc is more than capable of performing erosion and corrosion inspections.*

## Diverse range of applications

- Oil & gas
- Aerospace
- Automotive
- Power stations
- Research and testing
- Military
- Museums
- Special applications

## Standalone operation

*Complete control of the device is possible using the touchscreen.*

## Gentle imaging plate transport

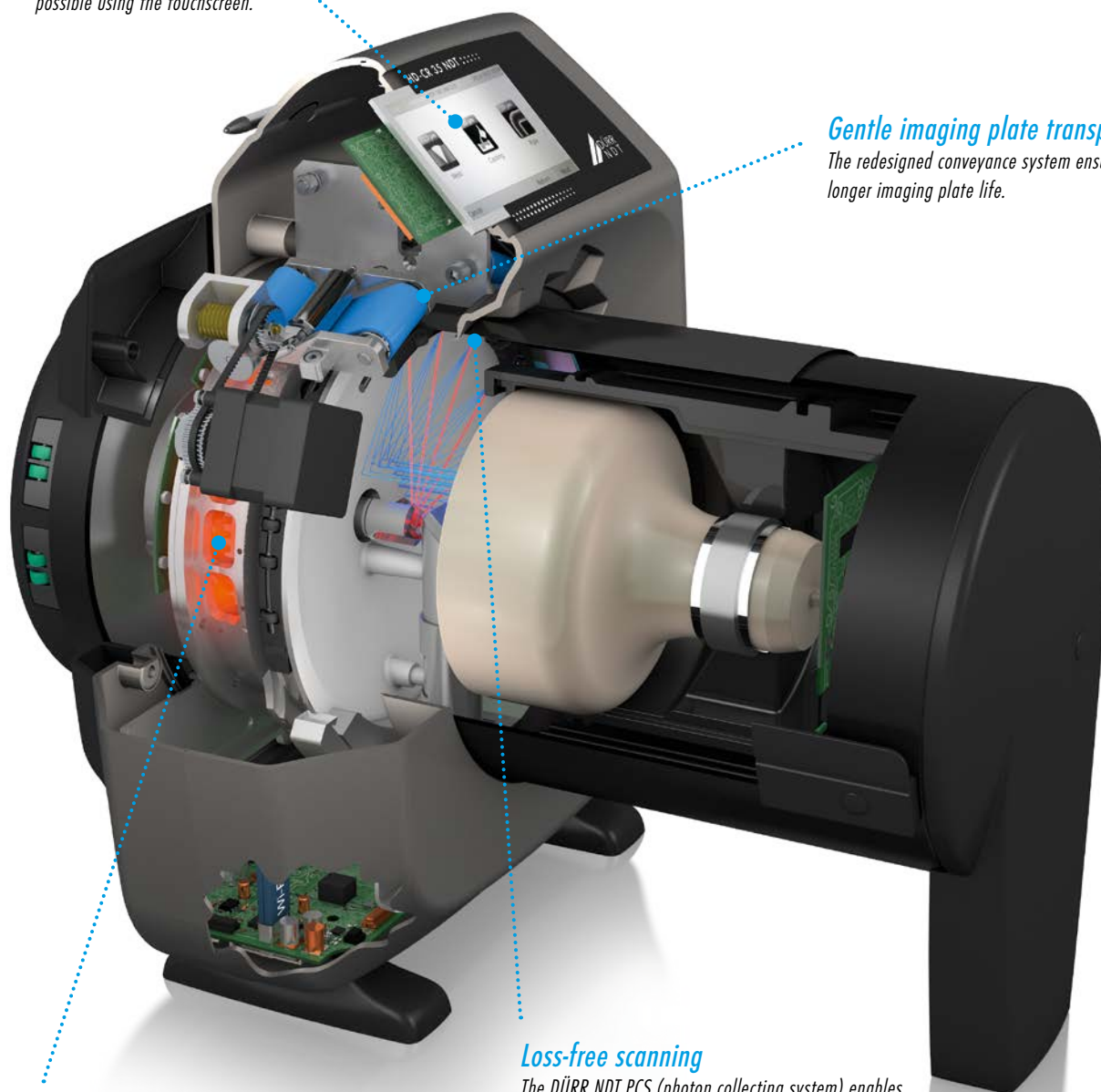
*The redesigned conveyance system ensures longer imaging plate life.*

## Loss-free scanning

*The DÜRR NDT PCS (photon collecting system) enables maximum utilization of the information in the imaging plate by scanning without any loss.*

## LED erasing unit

*After scanning, high-performance LEDs efficiently erase all information in the imaging plate so they can be immediately reused.*



### TreFoc Technology<sup>1</sup>

Developed by DÜRR NDT, this technology adjusts the laser beam size in order to provide the optimum image result with the highest signal-to-noise ratio for the specific task at hand.

### Future-proofed with the highest resolution<sup>1</sup>

With certified 30-micron basic spatial resolution, even the tiniest defects are easily identified. At the same time you are also equipped for the more exacting requirements of the future.

### Individually adjustable

The pre-configured scan modes can be easily modified or new ones added to suit your particular application.

### High efficiency

Scanning several image plates simultaneously with automatic cropping and saving makes it possible to increase throughput.

### Imaging plate compatibility

It is possible to scan imaging plates of all sizes and quality grades, even with shapes specific to a workpiece, from 2 cm in width and up to 200 cm in length.

### Robust and durable

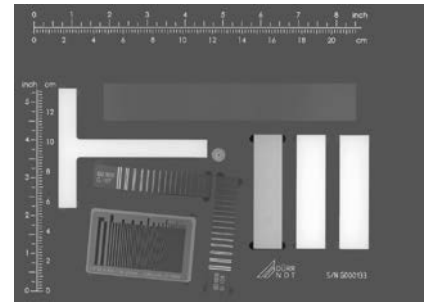
The scanning system is tried and tested with over 100,000 sold to-date. Further peace of mind is provided by the 5-Year Guarantee<sup>2</sup>. The scanner works flawlessly even in dirty and dusty environments.

### Consistent image quality

Using a special imaging reference object, the system can be quickly qualified to the latest standards. The separately available CR-Phantom also contains instructions for carrying out the qualification process.

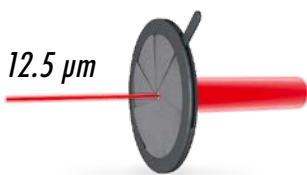
### Expertise

The scanner not only provides you with a CR system, but also a solution to your

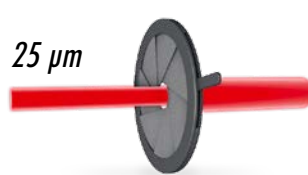


*Test image of the DÜRR NDT CR-Phantom*

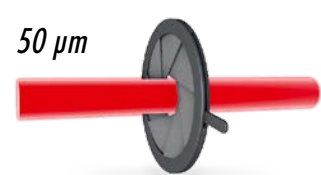
specific inspection problem. Providing you with presales expert advice and assisting you until you achieve the perfect workflow is just as important to us and our partners as giving you fast and professional service support. At our Training Academy we also make sure that our customers are able to fully exploit the potential and advantages of our systems.



*Weld inspection, aerospace, composite materials*



*Weld inspection, metal casting, isotope applications*



*Corrosion measurements, overview radiographs, isotope applications*



**TreFoc**  
TECHNOLOGY

<sup>1</sup> HD-CR 35 NDT, <sup>2</sup> see guarantee conditions at [www.duerr-ndt.com](http://www.duerr-ndt.com)

# THE PERFECT SOFTWARE SOLUTION

## DETECT RISKS QUICKLY AND RELIABLY WITH D-TECT X

*D-Tect X provides an optimal and time-saving NDT inspection workflow: from image acquisition and image evaluation to data import and export, everything you need is included.*

Despite its comprehensive set of features, D-Tect X is fast, intuitive and easy-to-learn. Support for the DICONDE standard ensures that images can be viewed and processed by any other DICONDE compatible system. An interface to DRIVE NDT enables seamless NDT workflow integration. DRIVE NDT is a unique management and reporting tool and is fully integrated into D-Tect X.

### Network integration

In addition to normal single-workstation use, the software can be effortlessly integrated into a network if a collaborative workflow is required. It is also possible to interface with external cloud solutions.

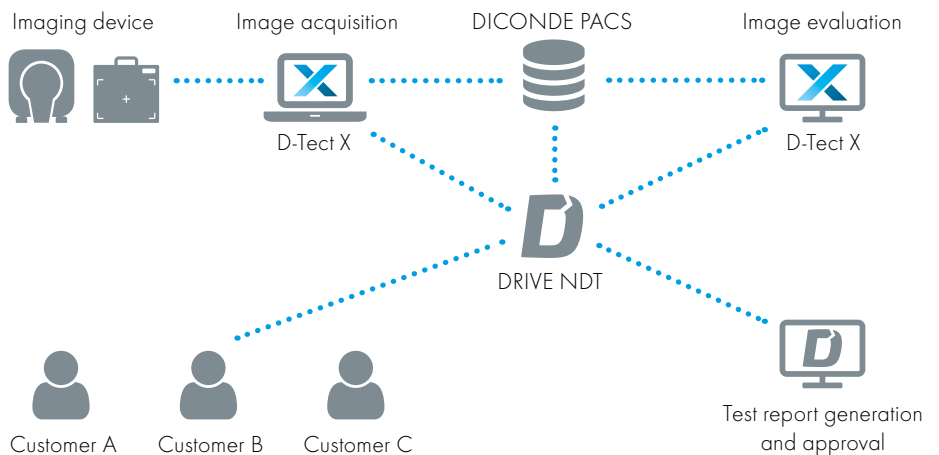
### Key functions

- Native DICONDE file format support
- Simultaneous reference image adjustment
- X-Filter: one-click image enhancement
- Image operation history and image operation presets
- Tools to assist with working with standards (ASME, ASTM, ISO)
- Unlimited image file size support
- Report generation via DRIVE NDT

### Other features

- Region of interest (ROI) histogram
- SNR and CNR calculation
- $SR_b$  determination
- Wall thickness analysis
- Image filters to assist with evaluation
- Length, area and angle measurement tools
- Image annotations with customizable detail information
- Line profile display
- Image calibration
- Extensive cropping functionality
- Unrestricted image zoom

### Example network

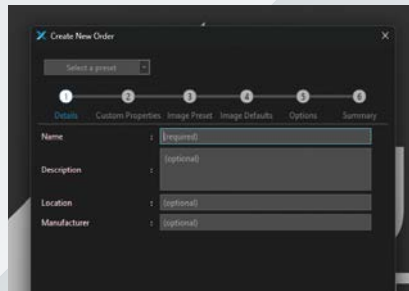


## WORKFLOW

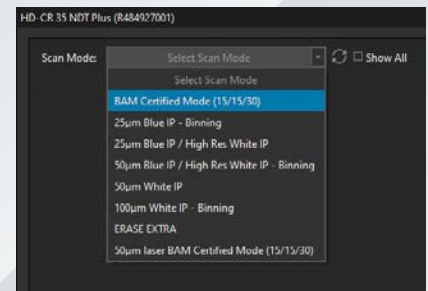
### STANDARD OPERATION



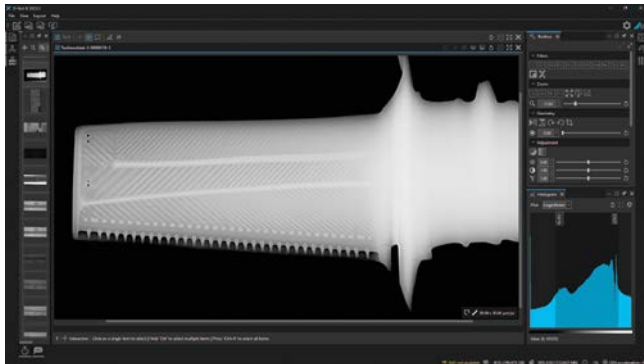
**1** Position imaging plate and expose.



**2** Select an existing order or create a new one.

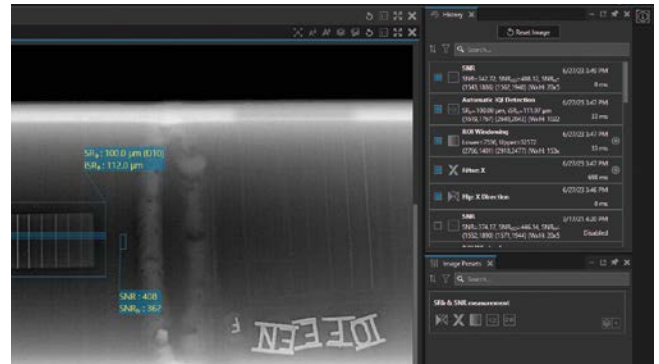


**3** Select the desired scan mode.



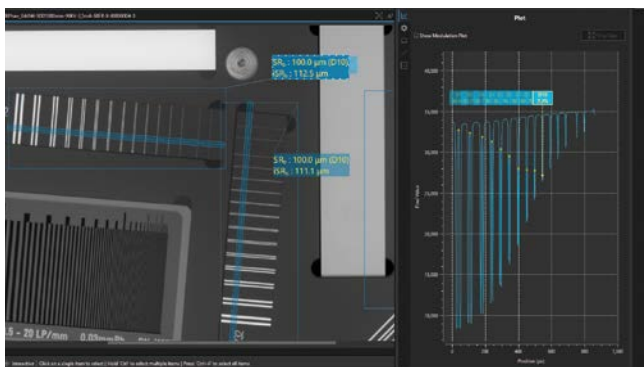
### Easy and reliable evaluation

Consistent quality and detection of the finest details are essential for NDT – specially designed filters and tools make simple and effective evaluation possible. To save time, it is also possible to save optimal evaluation settings for use with subsequent images.



### Image operation history and presets

Every action applied to an image since it was imported or acquired is recorded and each action can be individually activated or deactivated. The selected actions can also be saved as a preset and applied to other images with a single click. Since every step is recorded and stored, this feature ensures complete traceability.



### Intelligent basic spatial resolution ( $SR_b$ ) determination

After loading an image, the  $SR_b$  can be automatically determined according to DIN EN ISO 17636-2 and ASTM E 2446 by simply drawing a rectangle over a duplex wire IQI. The tool automatically uses the optimal measurement line.

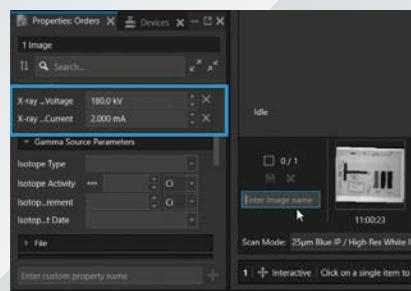


### Advanced Wall Thickness Tool

This optional tool determines the thickness at one or more points along the walls of a pipe. The measurement is performed with a single click on the point to be measured and can be moved if necessary.



**4** Feed in the imaging plate – intake then starts automatically.



**5** Set image name and save. X-ray source parameters can also be recorded.



**6** Examine the image or forward it for examination.

## Technical data

## HD-CR 35 NDT

## CR 35 NDT

|                                                  |                                                                                                                                                                                                 |       |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <b>Laser spot size</b>                           | 12.5 – 25 – 50 µm, TreFoc Technology                                                                                                                                                            | 50 µm |
| <b>SR<sub>b</sub></b> (basic spatial resolution) | 30 µm, BAM certified*                                                                                                                                                                           | 80 µm |
| <b>Grayscale resolution</b>                      | 16-bit (65,536 gray levels)                                                                                                                                                                     |       |
| <b>Min./Max. imaging plate size</b> (W x L)      | 2 to 35 cm x 3 to 200 cm (0.8 to 14" x 1.2 to 79")                                                                                                                                              |       |
| <b>Dimensions</b> (H x W x D)                    | 40 x 37 x 47 cm (15.8 x 14.6 x 18.5")                                                                                                                                                           |       |
| <b>Weight</b>                                    | 17.5 kg (38.6 lbs)                                                                                                                                                                              |       |
| <b>Power supply</b>                              | 100 – 240 VAC / 50 – 60 Hz, < 140 W                                                                                                                                                             |       |
| <b>Operating conditions</b>                      | 10 to 35°C (50 to 95°F)                                                                                                                                                                         |       |
| <b>Noise level</b>                               | < 39 dB(A)                                                                                                                                                                                      |       |
| <b>Interfaces</b>                                | Ethernet, WLAN                                                                                                                                                                                  |       |
| <b>Touchscreen</b>                               | 4.3" TFT, 800 x 480 px                                                                                                                                                                          |       |
| <b>Internal storage</b>                          | SDHC, max. 32 GB                                                                                                                                                                                |       |
| <b>Software</b>                                  | DÜRR NDT D-Tect (DICONDE compliant to ASTM 2339)                                                                                                                                                |       |
| <b>Imaging plates</b>                            | High sensitivity, regular definition, high resolution, ultra-high resolution                                                                                                                    |       |
| <b>Standard formats</b>                          | 6 x 24 cm, 6 x 48 cm, 10 x 24 cm, 10 x 48 cm, 18 x 24 cm, 24 x 30 cm, 30 x 40 cm, 35 x 43 cm, 4.5 x 10", 4.5 x 17", 5 x 7", 8 x 10", further formats and individual shapes available by request |       |
| <b>Accessories</b>                               | Transport case, DÜRR NDT CR-Phantom, Mobile Power Adapter, feed guides, protectors for imaging plates, and more                                                                                 |       |

\*according to ISO 16371-1, ASTM E 2445, ASTM E 2446

## Applications

## HD-CR 35 NDT

## CR 35 NDT

|                                                     |       |       |
|-----------------------------------------------------|-------|-------|
| <b>Weld inspection<sup>1</sup></b>                  | ★★★★★ | ★★★☆☆ |
| <b>Erosion and corrosion inspection<sup>2</sup></b> | ★★★★☆ | ★★★★★ |
| <b>Metal casting<sup>3</sup></b>                    | ★★★★★ | ★★★☆☆ |
| <b>Metal precision casting<sup>3</sup></b>          | ★★★★★ | ☆☆☆☆☆ |
| <b>Composites</b>                                   | ★★★★★ | ☆☆☆☆☆ |
| <b>Arts</b>                                         | ★★★★★ | ★★★☆☆ |
| <b>Concrete inspection</b>                          | ★★★★☆ | ★★★★★ |
| <b>Crystal structure analysis</b>                   | ★☆☆☆☆ | ★★★★★ |

Also suitable for inspections according to <sup>1</sup> ISO 17636-2, ASME V, <sup>2</sup> EN 16407-1, <sup>3</sup> ISO 16371-2

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