

# CRxVision

## A High-Resolution CR Scanner for Weld and General Purpose Inspections

Packed with innovative features to increase throughput, extend plate life and provide excellent image quality, the CRxVision is designed specifically for the inspection of welds. Because of its versatility, it can also be used for many other applications across the NDT industry.



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# CRxVision: the versatile, new tabletop scanner.

## 1- Flexible

accepting a wide range of sizes, shapes and classes of imaging plates

## 2- Intuitive

no gain setting or photomultiplier adjustments required when exposing various thicknesses

## 3- Fast

multiple plate scanning option: side-by-side and back-to-back with a flat transport path

## 4- High Resolution

new laser optics for profound reading and higher data extraction

## 5- Extended Plate Life

no mechanical handling of the imaging plate during scanning and erasing

## 6- ASTM DICONDE Compliant

fully compatible with Waygate Technologies existing Rhythm Software Platform

## 7- Ambient Operation

cover protects the imaging plate from light exposure

## 8- Direct Laser Contact

the laser beam is in direct contact with the imaging plate (no glass to obscure data collection)

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## Your Benefits:

- Compliant to ISO 17636-2 Class A and B, ASME, ASTM and EN weld inspection standards.
- The CRxVision has an extremely wide latitude eliminating the need for multiple gain settings when exposing over a wide range of thicknesses. This is the result of a 16 bit image processing at selectable 35 or 70 microns resolution.
- Exposure times for welds are equal or better than existing film exposure times (to comply with Code Standards like EN and ASME) and can be reduced by up to ten times for non-code type applications like erosion/corrosion or valve placement.
- Designed for extremely high throughput: 90 plates/hr at 70 microns or 28 plates/hr at 35 microns for a 10 x 40 cm (4.5 x 17") plate. The scanner allows multiple imaging plates to be scanned simultaneously, side-by-side and back-to-back as well as various lengths to be scanned together. This is a result of the straight and flat, in-line scan and erase transport path.
- Ability to scan any shape or size of imaging plate from from 20 to 1500 mm (0.75 to 60") in length. Imaging plates can be exposed in any type of cassette, then simply removed and inserted directly into the scanner without the need of any type of adapter, template or leader.
- A new innovative imaging plate design now provides the CRxVision imaging plates with more flexibility. This new design allows each imaging plate the ability to return to a flat state after being constantly bent around pipes for the inspection of welds. This feature also helps improve productivity by allowing the imaging plates to be easily extracted and reinserted into cassettes.



- Plate transport through the scanners is achieved by a magnetic transportation system. This new combination of scanner and imaging plate design allows the imaging plate to be transported through the scanner without any mechanical handling of the phosphor ultimately extending the overall life of the plate.
- The updated Rhythm RT software simplifies inspection workflow. It now has the ability to automatically crop the images by detecting the physical edges of each individual plate when they are processed. Consequently, each individual plate can be separately identified and saved or grouped together and saved as one file.
- The new scanner enjoys all the functionality offered by Waygate Technologies' Rhythm Software giving the inspector the ability to view, enhance, measure, annotate and comment on the images. The CRxVision system is

completely DICOM compliant and compatible with all existing modules in Waygate Technologies' Rhythm Software platform.

- The CRxVision can be used in ambient light conditions with suitable handling as the light cover protects the plates from light exposure during the scan cycle. The cover can be removed for work in darkrooms if required.
- The scanner weighs less than 45 kg (99 lbs) and has a footprint of 560 x 560 mm (22 x 22 inches). It extends to 560 x 1280 mm (22 x 50 inches) when the feed and exit tables are attached.
- The light guide can be easily cleaned with an internal brush which is operated by simply turning a set screw. The eraser section of the scanner is completely sealed from the optics section to prevent migration of any dust particles into the machine.

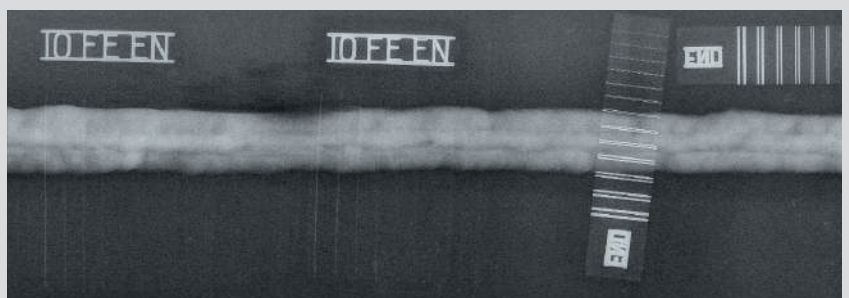
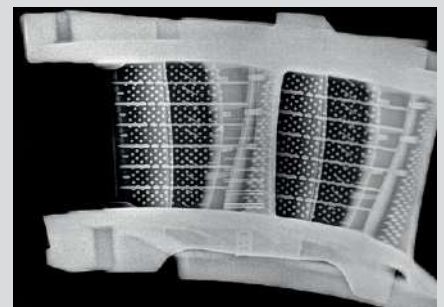
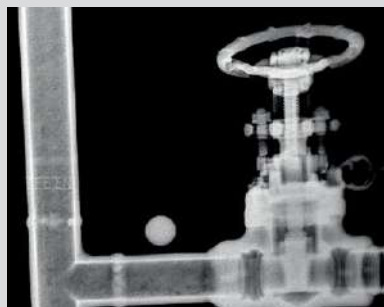
# Applications

Even though the CRxVision was designed for the inspection of welds, it also has the ability to cover a wide range of industrial radiography applications, from Oil & Gas to Aerospace, and from Power Generation to General NDT.

- Weld inspection
- Erosion/Corrosion inspection (CUI, FAC, etc.)
- Castings (In-process and final)
- Valve positioning
- Concrete and Structure inspection
- Government (Arsenals, National Laboratories, Proving Grounds)
- Military (in-service aircraft, ships, etc.)

In all applications the CRxVision offers the following significant benefits of digital radiography:

- No darkroom facilities/trucks needed
- Eliminate processing chemicals and chemical disposal/silver recovery
- Improved image interpretation and inspection quality level with Flash!Filters™
- Consistent & operator-independent results with the Automated WT Measurement tool
- High reduction in retakes due to the wide dynamic range of the imaging plates
- No development time, as images are immediately available after scanning
- High reduction in storage space when archiving digital images
- Data management (trending) and data sharing advantages
- Fully DICOM compliant

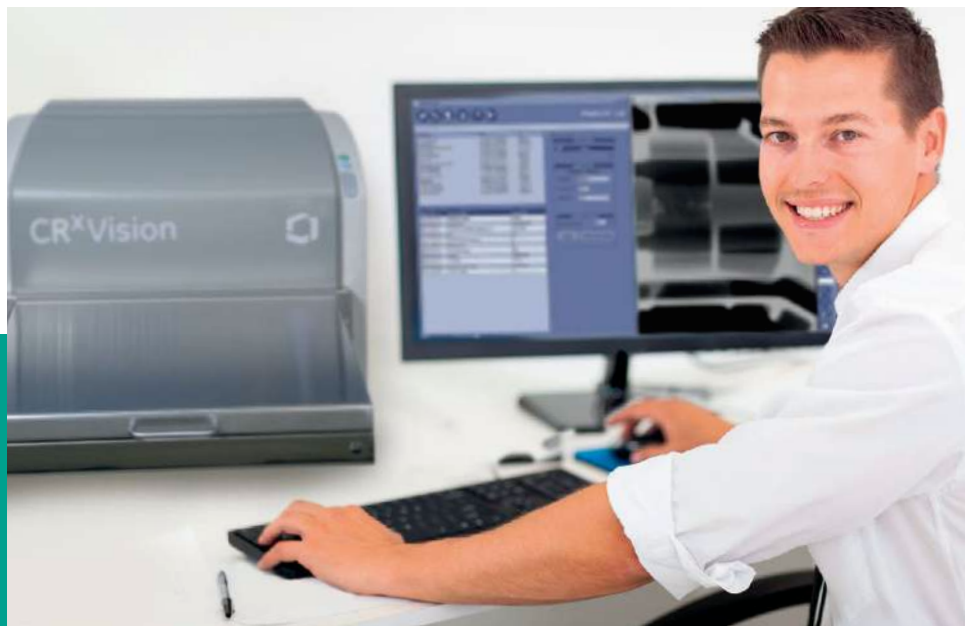


# Rhythm Insight RT for Workflow Optimization

Waygate Technologies' Rhythm Insight RT provides a powerful, ASTM DICONDE Compliant operational software platform, which simplifies the overall inspection workflow.

After entering the component and technique data, select the required scan resolution and then the scanner will prompt you to insert the imaging plate. Once the imaging plate is

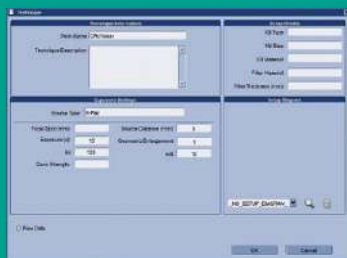
scanned, the image will appear and any Region of Interest (ROI) may then be identified on the computer screen and enhancements, annotations and measurements applied. The image can then be saved for further review and/or storage. The files can be saved in TIFF, BMP, JPEG, and/or DICONDE formats.



## Rhythm Insight RT workflow



**1** Select the required resolution



**2** Enter the component and technique information



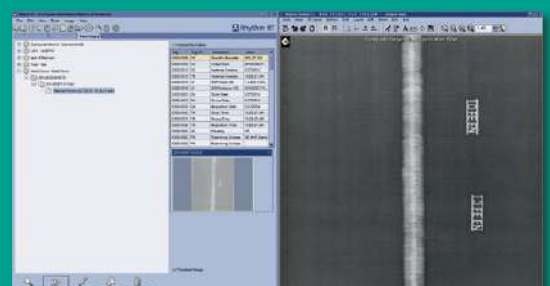
**3** Insert the imaging plate(s) to start the cycle



**4** Press scan



**5** Select a specific ROI (if desired)



**6** Send image to review

# Imaging Plates



Four different types of imaging plates with a ferromagnetic back layer have been developed specifically for the CRxVision. This allows the imaging plates to be magnetically transported through the scanner with no phosphor touch points. In addition, this new design helps reduce backscatter which improves the overall quality of the image as well as allows the imaging plate the ability to return to a flat position after being constantly bent around curved objects.

Waygate Technologies' four imaging plate types are as follows:

- IPC2: Standard Resolution & High Speed – for general purpose
- IPS: High Resolution & Medium Speed – for inspection of welds
- IPS2: High Resolution & Medium Speed – for inspection of welds
- Excellent for very low contrast, homogeneity type applications and premium weld quality inspections.
- IPU: Extreme High Resolution & Slow Speed – for extremely high resolution applications when very low micron range sensitivity is required.

Plates are available in various size formats ranging from 70 mm (2.76") wide to 1500 mm (60") in length.

## Protective Cassettes

A range of flexible and hard cassettes are also available. Both versions may be supplied with or without lead, depending on the application.



# Technical Specifications of CRxVision

## Functional Data

Principle	High performance table-top flatbed scanner with contactless plate transport	
Eraser	Inline	
Resolution	Standard resolution (SR): 70 $\mu\text{m}$	High resolution (HR): 35 $\mu\text{m}$
Maximum basic	Standard resolution (SR): 80 $\mu\text{m}$ (6,25 LP / mm)	
Spatial resolution	High resolution (HR): 40 $\mu\text{m}$ (12,5 LP / mm)	
Scan width	35 cm (14 inch)	
Throughput (10 x 40 cm / 4.5 x 17")	Standard resolution (SR): 90 plates/hour	High resolution (HR): 28 plates/hour
Time to image (in Rhythm RT)	Standard resolution (SR): 40 sec	High resolution (HR): 147 sec
LUT (look up table)	Linear (native Square root)	
Bit depth	16 Bit	
Dimensions	Scanner: 56 x 56 x 47 cm (22" x 22" x 19")	Scanner including I/O table and light cover: 128 x 56 x 47 cm (52" x 22" x 19")
Weight	Scanner: 45 kg (99 lbs)	Scanner including I/O table and light cover: 50 kg (110 lbs)
Interfaces	Ethernet, RJ45; DC voltage, coded 8-pin, female	
Certifications	CE, UL (NRTLus), cUL (cNRTLus), C-Tick, Customs Union Mark	

## Environmental Conditions

Operation	Temp. allowed: 15 °C to 35 °C (59 °F to 95 °F) Relative humidity : 15% to 80% (non condensed)
Magnetic field	Compliant with EN 61000-4-8, Level 2

## Electrical Data

Operating voltage	Auto-ranging external power supply from 100 V to 240 V, DC Output 24V	
Mains frequency	50/60 Hz	
Mains fuse protection	Europe: min. 10 A, max. 16 A	USA & Japan: min. 10 A, max. 15 A
Power consumption	Standby 110 V - 240 V / 50-60 Hz, max. 22 W During operation 110 V - 240 V / 50-60 Hz max. 140 W (absolute peak)	

## Application Compliance

ASME	ASME Code Section V Article 2
ISO 17636-2	Class A / Class B (in defined exposure conditions); Verified with X-ray, Ir-192, Se-75, Co-60
EN14784-1	IPS, IPS-2: 1/80, IPU: 1/40; Certified by BAM
EN2446-06	IPS, IPS-2: S/80, IPU: S/40; Certified by BAM

## Accessories

I/O Table with light cover	Quick mountable, stainless steel, input/output table set with 43 cm (17") tray length and light cover for input side
Long I/O table	Input/output extension for long plates scanning 150 cm (59")
Flight Case	Robust Flight Case with shock-absorbers, wheel, ruggedized handles and compartments for I/O tables, laptop, accessories

## Imaging Plates

IPC2	High speed plate
IPS + IPS2	High resolution
IPU	Extremely high resolution (X-ray)

Use (all Plates): CRxVision can scan any shape or size imaging plate from 20 to 1500 mm (0.75 to 60") in length.

## Cassettes

Flexible cassettes	PVC or vinyl envelopes; different sizes
Hard cassettes (for defined exposure conditions)	35 x 43 cm, 20 x 24 cm, 24 x 30 cm, 15 x 30 cm (14" x 17", 8" x 10", 10" x 12", 6" x 12")

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