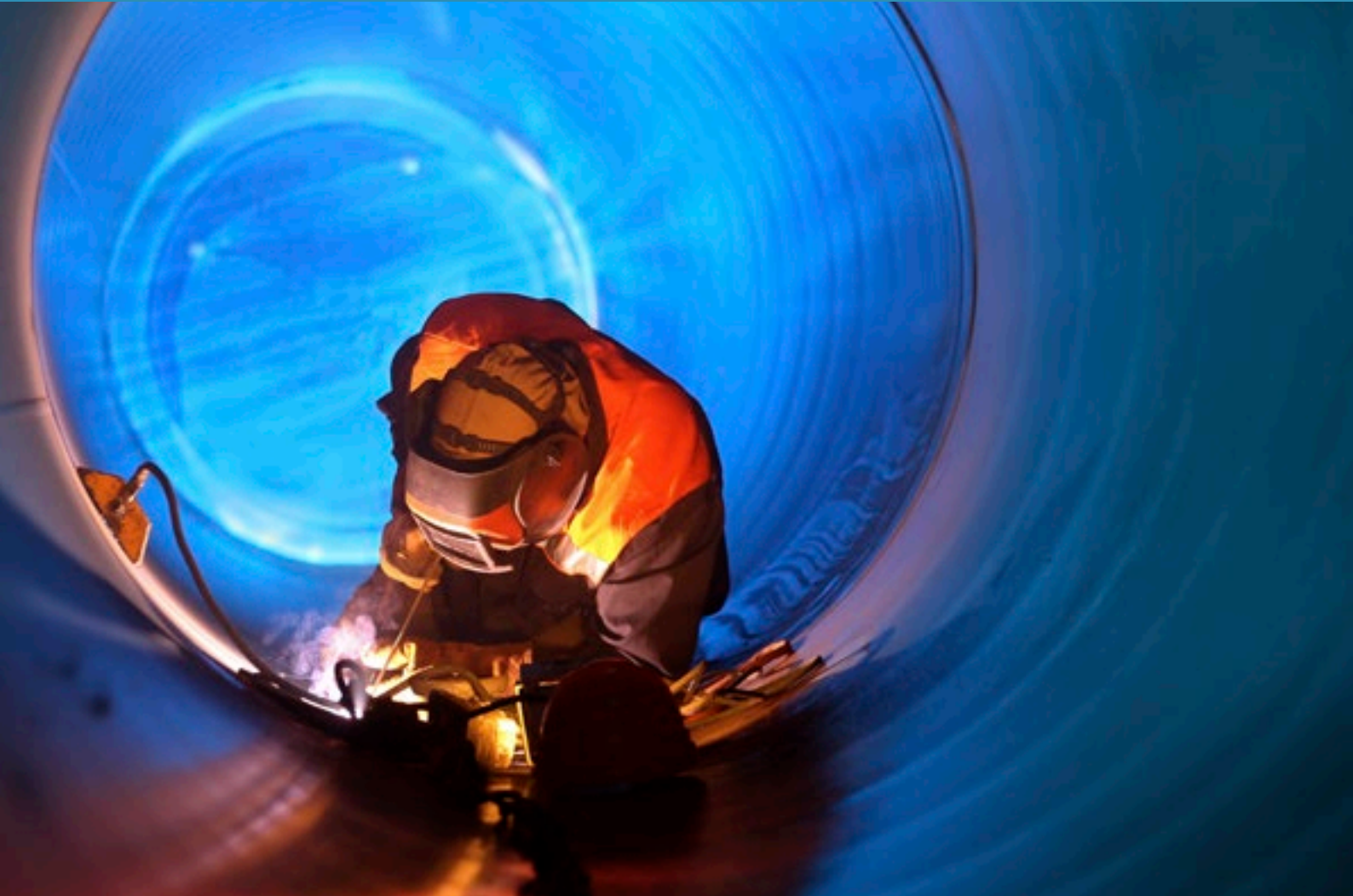


GE
Measurement & Control

High Resolution Weld Inspection and All-Purpose Computed Radiography Scanner



Inspection Technologies:

CRxVision

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. The scanner is developed to cover the stringent ISO 17636-2 Class A and B requirements, as well as ASTM, ASME and EN weld standards. Because of its versatility, it can also be used for many other applications across the NDT industry.



GE imagination at work

CRxVision: the versatile, new tabletop scanner from GE.

Flexible

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

Intuitive

no gain setting or photomultiplier adjustments required when exposing various thicknesses

Fast

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

High Resolution

new laser optics for profound reading and higher data extraction

Extended Plate Life

no mechanical handling of the imaging plate during scanning and erasing



6 ASTM DICONDE Compliant fully compatible with GE's 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)

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 GE 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 GE's Rhythm Software giving the inspector the ability to view, enhance, measure, annotate and comment on the images. The CRxVision

system is completely **DICONDE compliant** and compatible with all existing modules in GE's 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

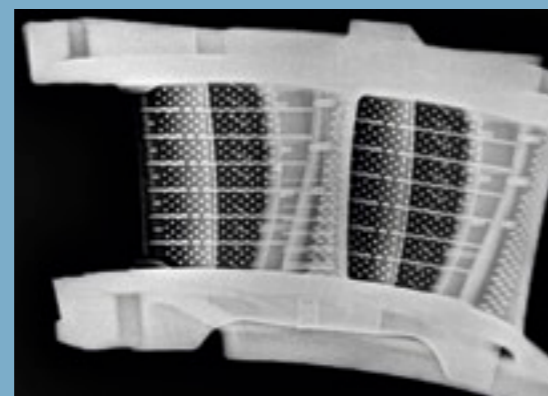
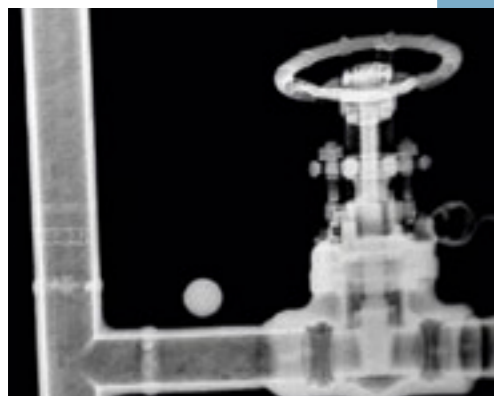
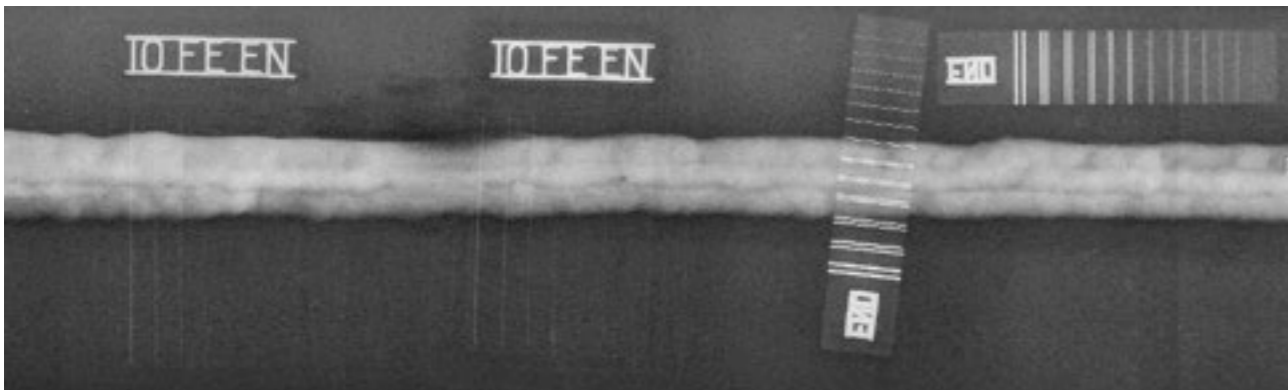
Even though the CRxVision was designed for the inspection of welds, it also has the ability to cover a wide range of industrial radiography applications, from Oil & Gas to Aerospace, and from Power Generation to General NDT.

- 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 RT for Workflow Optimization

Both GE's Rhythm RT and Rhythm RT Lite provide a powerful, ASTM DICOM 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 DICOM formats.

Rhythm 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.

GE's 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 µm |
| | High resolution (HR) | 35 µm |
| Maximum basic | Standard resolution (SR) | 80 µm (6,25 LP / mm) |
| | High resolution (HR) | 40 µm (12,5 LP / mm) |
| Spatial resolution | High resolution (HR) | 40 µm (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 |
| Transport | IEC 721-3-2 (1997): class 2K2 and 2M3, with following restrictions | |
| | Temperature | -25 °C to +55 °C (-13 °F to 131 °F) |
| | Vibration | 5 to 200 Hz (vertical, longitudinal, transversal axis) |
| Mechanical conditions for transport | In packaging | IEC 721-3-2 (1997): class 2M2 |
| Shock specifications | In packaging | IEC TR 60721-4-5 (1997): class 5M2 |

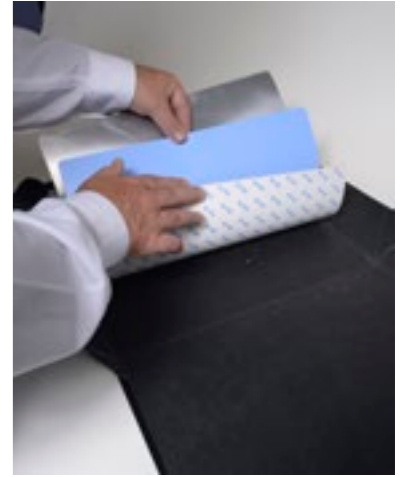
| Electrical Data | | |
|-----------------------|-----------------------------------------------------------------------|----------------------------|
| Operating voltage | Auto-ranging external power supply from 100 V to 240 V, DC Output 24V | |
| Mains frequency | 50/60 Hz | |
| Mains fuse protection | 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 | Use: CRxVision can scan any shape or size imaging plate from 20 to 1500 mm (0.75 to 60") in length. |
| IPS | High resolution | |
| IPS2 | High resolution | |
| IPU | Extremely high resolution (X-ray) | |

| 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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www.ge-mcs.com/x-ray

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