

dynamic 41 digital detectors

GE's superior image quality X-ray detectors for 2D radiographic inspection and 3D CT

dynamic 41|100 and 41|200 Key features & benefits

- 16" X-ray detectors with 100 μm / 200 μm pixel size (16 or 4 MPixels) designed and optimized for long-term reliability at industrial high-energy use
- High-resolution images for easy detection of subtle indications (up to 50 μm / 100 μm feature detection with minifocus X-ray tubes)
- Next generation photodiode design for up to 10x improved efficiency and sensitivity compared to state of the art 200 μm pixel DXR detectors allows 2x resolution increase without cycle time impact (41|100) or 2-3x cycle time increase without image quality impact (41|200)
- Detection of 2x smaller defects without increase of geometric magnification allows imaging of large objects at higher resolution (41|100)



GE's dynamic 41 detectors - Powering the next generation of X-ray inspection and CT

The dynamic 41|100 and 200 detectors are the first in GE's next generation industrial X-ray flat panel detector platform. The 41|100 detector combines superior image quality with improved detection speed at 410 x 410 mm² detection area and 100 µm pixel size. It achieves 100 micron results at 200 micron efficiency and contrast-to-noise-ratio, while the new 41|200 detector increases industrial inspection speed by factor 2-3, allowing high throughput fully automated CT on the production floor.

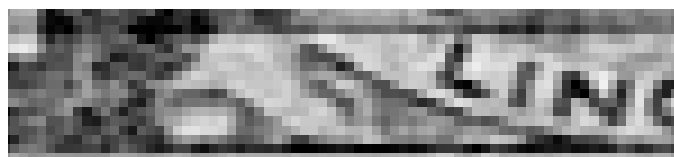
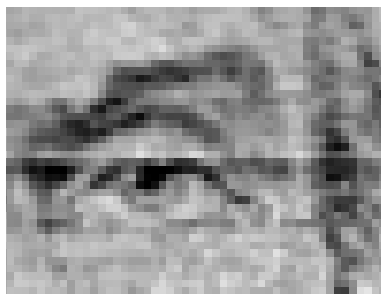
Based on proprietary GE Healthcare X-ray detector technology, GE Inspection Technologies exclusively offers its first 100 µm, 16M pixel detector designed and optimized exclusively for rough and high-energy industrial X-ray applications to its radiography and CT customers. GE's proprietary Endurance™ CsI scintillator offers superior resolution and brightness compared to conventional GadOx or other powder based scintillators.



100 µm imaging: See more to know more

The 5 US dollar bill comparison clearly visualizes the quality gain: at identical kV parameters, the new dynamic 41|100 detector provides doubled resolution at comparable signal-to-noise-ratio and dynamic range.

Conventional DXR250 200 µm pixel detector



dynamic 41|100 detector



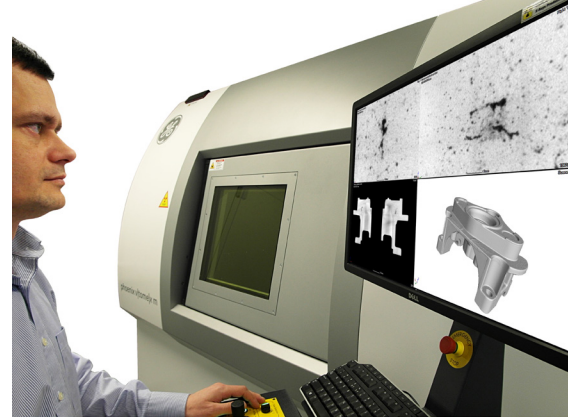
State of the art DXR flat panel detector with 200 µm pixel size

Superior GE dynamic 41|100 detector providing 100 µm pixel size for superior image quality and doubled resolution to detect two times smaller defects

Key Applications - Increasing industrial inspection quality and productivity

The dynamic 41 detectors demonstrate their excellent performance especially at industrial CT for failure analysis and 3D metrology as well as at 2D radiographic inspection of parts such as

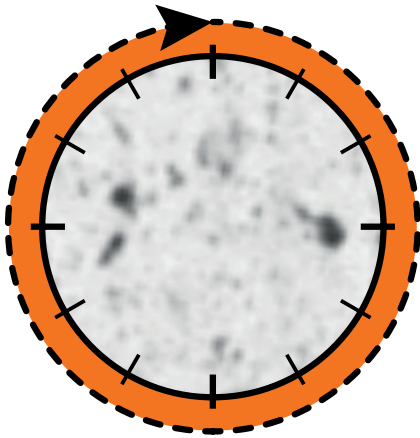
- Aerospace and automotive castings
- Additive manufactured and composite parts



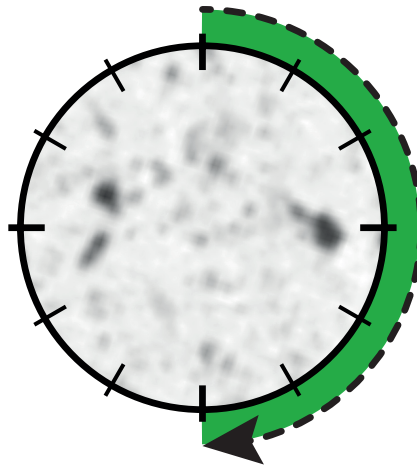
Doubled productivity at same quality level

Due to its equivalent or even higher sensitivity compared to state of the art 200 μm pixel size detectors, the new dynamic 41|100 detector allows a 2x resolution increase without cycle time impact or comparable result quality at significant reduced acquisition time (dynamic 41|100 & 200). The comparison below shows pores in a scanned aluminum casting.

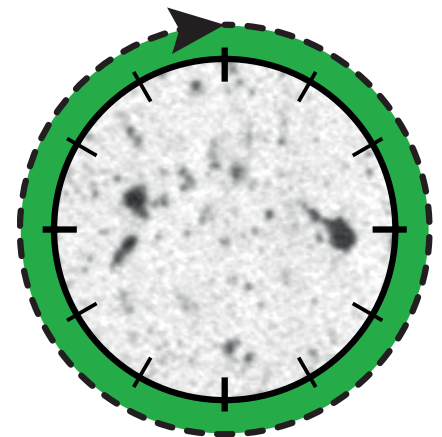
**State of the art detector
DXR250 (200 μm pixel)
Baseline scan time**



Advanced dynamic 41 series



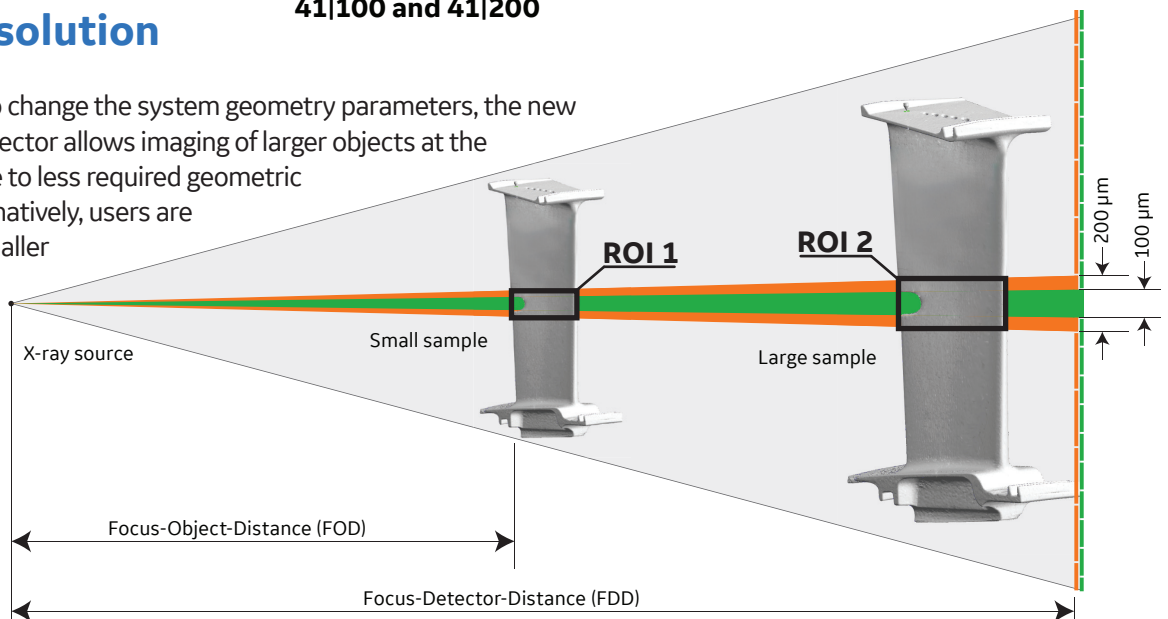
**Same quality level at half
baseline scan time with
41|100 and 41|200**



**Same scan time as baseline
but doubled resolution with
41|100**

Doubled resolution

Without the need to change the system geometry parameters, the new dynamic 41|100 detector allows imaging of larger objects at the same resolution due to less required geometric magnification. Alternatively, users are able to detect 2x smaller defects without increasing the geometric magnification.

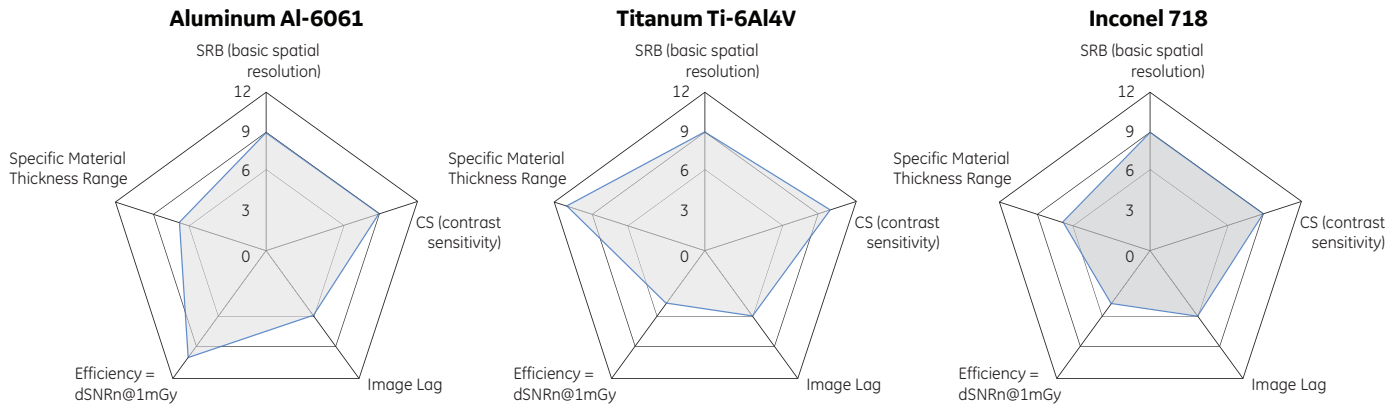


Scan resolution of ROI 1 is equivalent to ROI 2, but ROI 2 is 8 times larger due to smaller pixel allowing scanning larger parts with smaller magnification.

Detector characterization parameter

The dynamic 41|100 detector characterization according to ASTM E2597-14 for AL, TI and Inconel is displayed below*:

*) Valid for specific detector gain settings



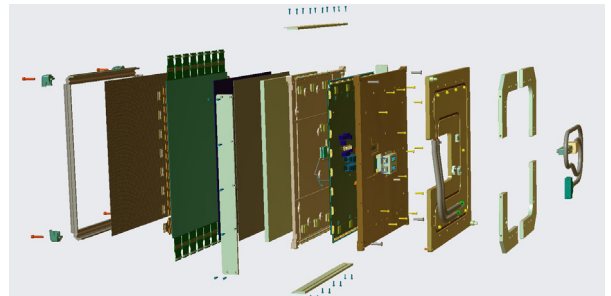
Exclusiveness

GE Inspection Technologies is the unique CT manufacturer not assembling core components mostly acquired by different suppliers, but combining GE proprietary core components like X-ray tubes, generators, software and also digital detectors to harmonized high performing systems. Hence, the new dynamic 41 detector series is exclusively available for following systems:

- **phoenix v|tome|x m**
- **phoenix v|tome|x c** (on request)
- **phoenix v|tome|x L** (on request)
- **Seifert x|cube** (on request)

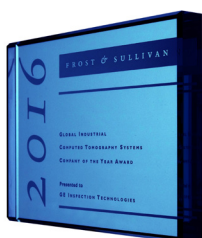
Technical Specifications

Detector	dynamic 41 100	dynamic 41 200
Pixel Size	100 µm; 200 µm with 2 x 2 binning	200 µm, 400 µm with 2 x 2 binning
Active Area (approx.)	410 x 410 mm (16" x 16")	
Pixel Matrix	4096 x 4096 (16 MP), usable: 4048 x 4048	2048 x 2048 (4 MP), usable: 2036 x 2036
Max. Frame Rate	Full FOV: 3 fps; 20 x 20 cm ROI: 5 fps	Full FOV: 12 fps; 20 x 20 cm ROI: 30 fps
A/D Conversion	14 bit	
Dynamic Range	10 000:1	
Lifetime Extension	Design optimized for industrial high energy CT applications	
Low Ghosting	To take images in quick succession	
High Sensitivity	Shorter exposures for same brightness	
ASTM E2597/DICONDE	Compliant	



dynamic 41|100 & 41|200 - Your Advantages

- Large area detector with superior image and result quality
- GE's proprietary dynamic 41 detector family is exclusively available for GE Inspection Technologies system customers
- Reduce inspection times due to increased detector sensitivity, faster frame rates, larger imaging area and adaptive imaging modes
- 100 µm CT results at state of the art 200 µm DXR detector efficiency and CNR (41|100)



**Awarded by
Frost & Sullivan as
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the Year 2016**

www.gemeasurement.com/x-ray
phoenix-info@ge.com

GEIT-31354EN (08/17)