

NOVO

Digital Radiography

The Leaders in Portable DR Systems

NDT



Oil & Gas



Aerospace



Shipyards



Construction



Munition



Railways



Power Line

INNOVATIVE • COMPACT • RUGGED

• About NOVO

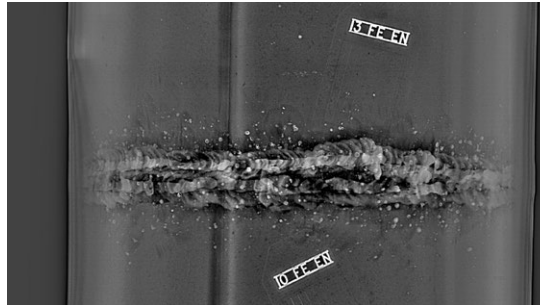
NOVO DR Ltd. is the leading developer and manufacturer of Portable Digital Radiography X-Ray Inspection Systems. We produce the latest generation DDA (Digital Detector Array) based radiography inspection systems for the NDT, Security and Science and Art sectors.

Combining our decades of experience and intensive inhouse R&D, NOVO DR is taking portable digital radiography to the highest level possible while emphasizing the following strong points:

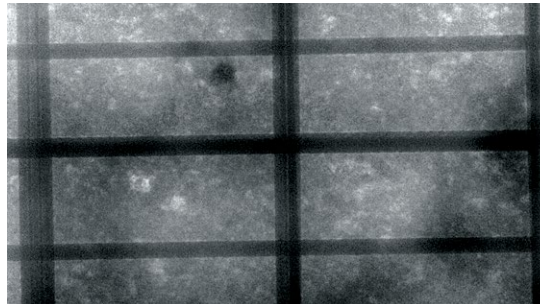
- Highest image quality
- Portability & Small footprint
- Ruggedness
- Efficient user experience
- Field work optimization

• Applications

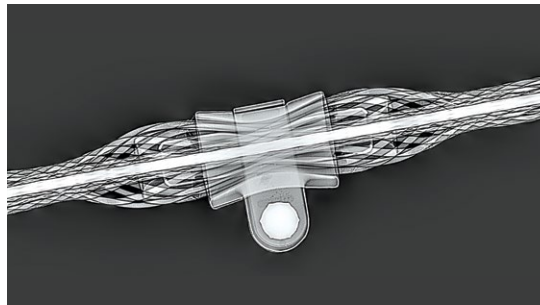
Oil & Gas



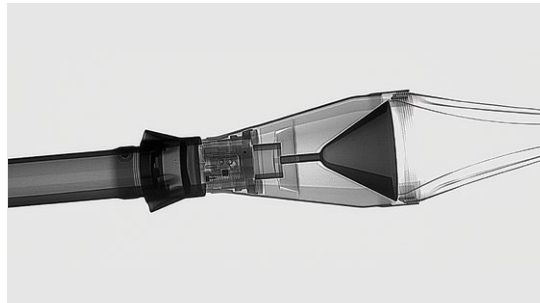
Construction



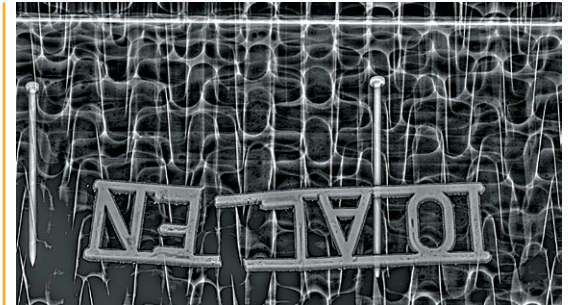
Power Line



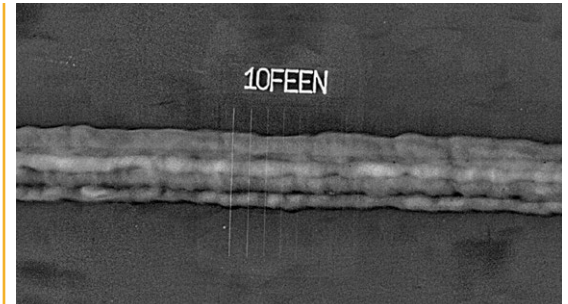
Munition



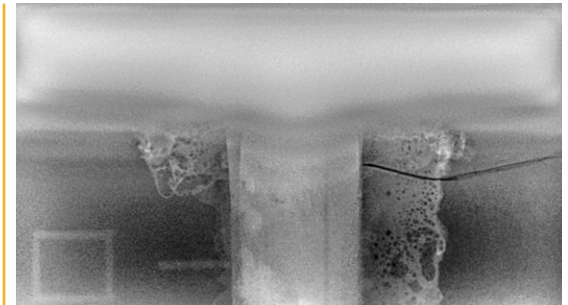
Aerospace



Ship Building



Railways



Science & Art



• Highlights

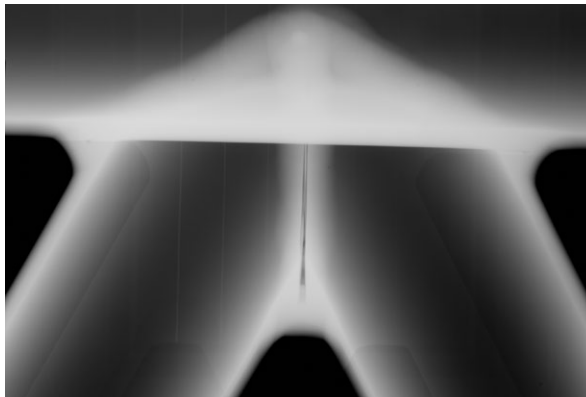


Highest Image Quality: 16-bit Latest Generation

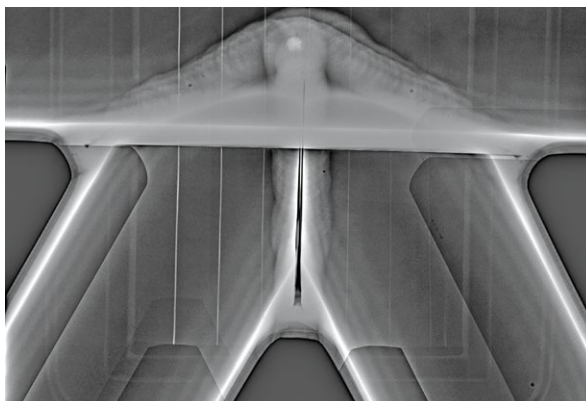
State of the art Digital Radiography detectors that produce, with a touch of a finger, exceptional high quality images with incredible detail and high penetration capabilities.



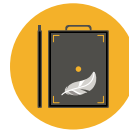
The Genie - One Touch Enhancement Feature



Before

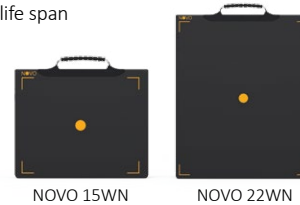


After



Cutting Edge Detectors: Thinnest, Lightest, most Durable

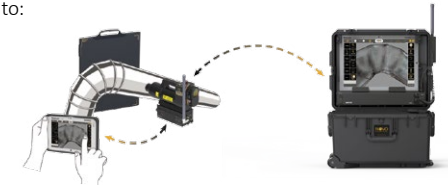
- Unmatched Image Quality!
- 16-bit Latest Generation
- Built-in shielding for maximum life span
- High Dose Compatible
- Thickness 0.6" (15.6mm)
- Drop Tested 20" (50cm)
- Load Proof 330 lbs. (150 kg)



Parallel Multi Location Control & Display:

Use one tablet closer to the inspected object and a second tablet from a greater distance.

- Both tablets can be used to:
- Control the System
 - Display X-Ray Images
 - Image Enhancing, Storing & Sharing.

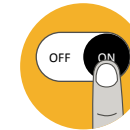


Versatile System Casing: Complete System in a Pelican Hard Case

- Each system includes:
- Detector
 - Tablet
 - X-Ray Source
 - Control Box
 - Custom Communication Reel
 - Additional Modules & cables



Backpack configurations are available as well.



Touch Software: Simple User Friendly Touch Interface

- Operating & Controlling the System
- Powerful Automatic Enhancing Algorithms
- Optimal Viewing Experience
- Supports Various International Standards
- Variety of Tablets; rugged 7" up to a 20" display.
- Windows® 10



Most Rugged System: Suitable for all Terrain and Weather Conditions

- Usage in Extreme Weather Conditions
- MIL-DTL 38999 Connectors
- Titanium Magnetic Connectors
- Proprietary Design Cables
- MIL-STD-810G Tablets
- Drop Tested Detectors
- Rugged Cases



Longest Battery Life: Over 16 Hours of System Operation

While out in the field battery longevity can be crucial, with over 16 hours of operation with a single full charge, you can focus on what's important.

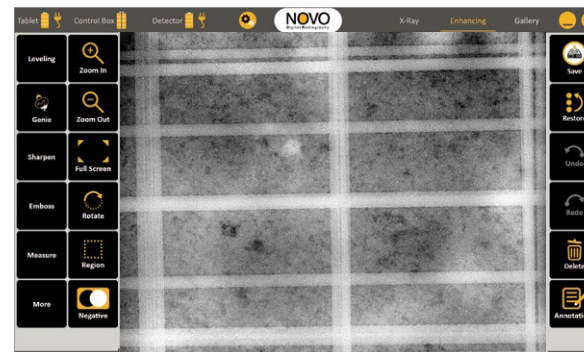
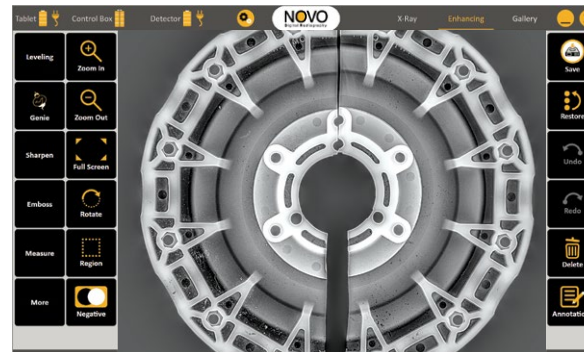


4 • NOVO Touch Professional Software



The NOVO Touch Professional Software is NOVO's proprietary software developed from the ground up to provide the best experience and functionality for field & laboratory operations.

- User friendly, native touch interface
- Built-in tools such as the Genie, Line Profile, SRb, DWT, Stitching, ROI Image Statistics and more
- Supports various International Standards
- Supports different file formats such as TIF, DICOM
- Intuitive operation for grabbing X-Ray images, annotating, archiving and sharing information
- Controls various hardware features such as illumination, switch from wired to wireless communication, activate a variety of X-Ray sources and more
- Compatible with the latest touch screen technology & standard PC's operating with Windows® 7-10

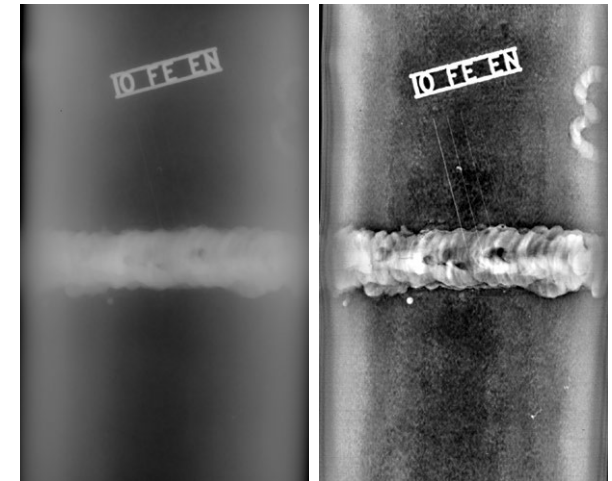


• Unique Software Features



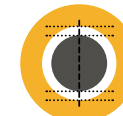
The Genie Enhancement Feature

Enhancing Images for Clear and Improved, Higher Quality Results



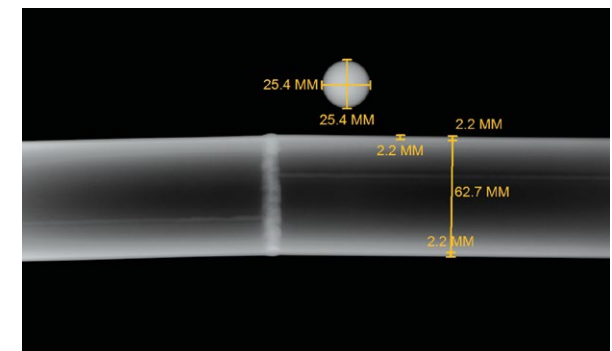
Before

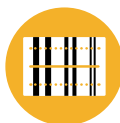
After



Line Profile

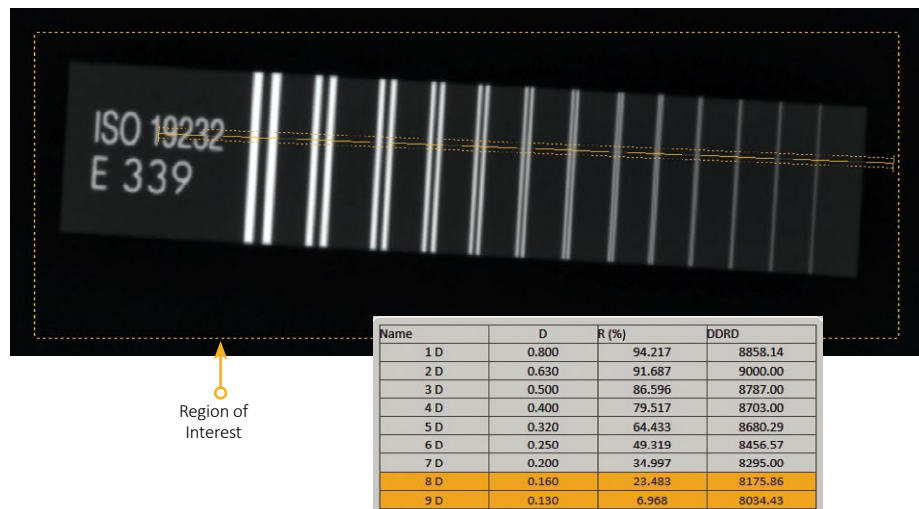
Fast, Easy & Automatic Wall Thickness Measurements





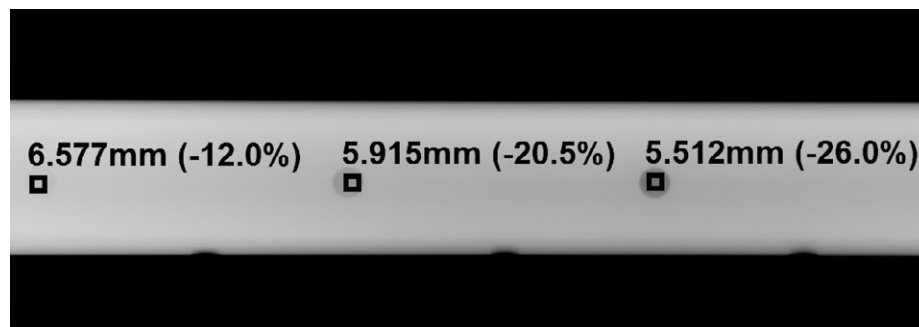
SRb

Select the Region of Interest and leave the rest to NOVO's Automatic Spatial Resolution Tool



DWT

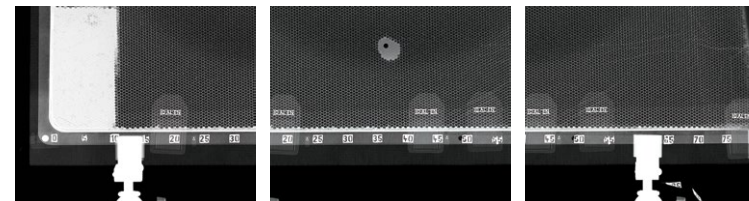
Simple & Intuitive **Double Wall Thickness Technique** Tool - Converting Gray Level into Material Thickness



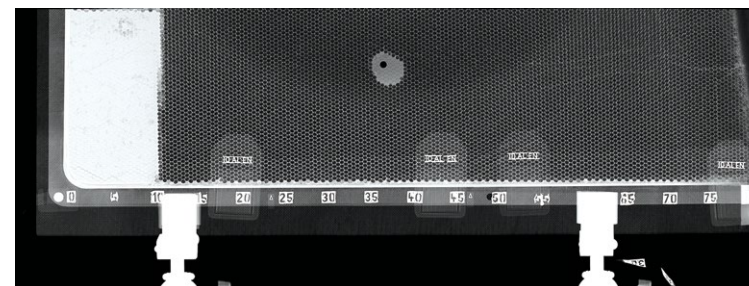
Stitching Feature

Use the Manual or Automatic Stitching Feature to Create One Large Image

Before
Multiple X-Ray
Images



After
One Large
X-Ray Image



International Standards

The NOVO Touch Professional Software can archive, share and process image reports. In addition, the Native Touch Software has numerous measuring tools and enhancement features all of which provide the necessary tools to support multiple international standards such as:

- BOEING 7044 Ver C
- ISO 17636-2 2013(E)
- ASME Section V article 2
- ASTM DICONDE

• Components

Detectors

The NOVO 15WN and NOVO 22WN Detectors provide outstanding image quality in a rugged, durable, thin design and are the latest in DR imaging technology.

- Built-in shielding for maximum life span
- High dose Compatible
- Dual direction titanium magnetic cable connector
- Quick removable & rechargeable battery
- Wireless & wired operation
- Specifically designed for fieldwork & harsh weather conditions



Detector Model	NOVO 15WN	NOVO 22WN
Detector Imaging Area	9.1" x 11.2" (23.1cm x 28.4cm)	14.0" x 16.8" (35.6cm x 42.7cm)
Detector Size	10.6" x 13" (26.9cm x 33cm)	15.2" x 18.2" (38.5cm x 46.2cm)
Active Area (Imaging Area / Detector Size)	74% Active Area	85% Active Area
Detector Weight	5.5 lbs. (2.5kg)	9.9 lbs. (4.5kg)
Detector Load Proof	330 lbs. (150kg)	330 lbs. (150kg)
Detector Drop Test	20" (50cm)	20" (50cm)
Detector Thickness	0.6" (15.6mm)	0.6" (15.6mm)
Bit Depth	16 bit latest generation	16 bit latest generation
Life Span	Over 100K rem*	Over 100K rem*

* Over 100K rem of direct exposure on the detector

Tablets

NOVO offers a variety of tablets that can be operated from our customized case or used handheld.

- Pre-installed with the NOVO Touch Software
- Used to control the system's operation
- One or multiple parallel location control & display
- Ruggedized Tablets
- Rugged 7" up to a 20" display
- A variety of Laptops Available
- Supports Windows® 10



	Panasonic Toughpad™ FZ-M1	Panasonic Toughpad™ FZ-G1	Panasonic Toughbook® CF-33	GETAC A140	Panasonic Toughpad™ 4K
Screen Size	7"	10.1"	12"	14"	20"
Screen Resolution	1280x800	1920x1200	2160x1440	1920x1080	3840x2560 (4K)
Screen Brightness (NIT)	500	800	1200	800	300
Multi-Touch	10 point, glove touch	10 point, glove touch	10 point, glove touch	multi touch screen	10 point touch
Operating System	Supports Windows 10	Supports Windows 10	Supports Windows 10	Supports Windows 10	Supports Windows 10
Weight	1.2 lbs. (0.54kg)	2.5 lbs. (1.1 kg)	3.4 lbs. (1.5 kg)	5.1 lbs. (2.3 kg)	5.27 lbs. (2.4 kg)
Military Standard	MIL-STD-810G	MIL-STD-810G	MIL-STD-810G	MIL-STD-810G	N/A
Dust & Water Resistance	IP65	IP65	IP65	IP65	N/A
Drop Rating	5 ft (1.5m)	4 ft (1.2m)	4 ft (1.2m)	4 ft (1.2m)	1 ft (30cm)

Cases

NOVO Offers a variety of customized cases for a wide range of applications.

- Customized internal & external design
- Rugged
- Covert and Smallest Foot Print
- Lightweight
- Hard Cases & Backpacks Available

NOVO's Hard Cases



Inspector Case

Rover Case

NOVO's Backpacks



Urban Backpack

Tactical Backpack

Ultimate Backpack

Patrol Backpack

NOVO's Customized Cases	Description	Case External Dimensions
Rover Case	Rugged iM2750 Pelican™ case	24.6" x 19.7" x 14.4" (62.5cm x 50cm x 36.6cm)
Inspector Case	Rugged iM2700 Pelican™ Case	24.6" x 19.7" x 8.6" (62.5 x 50 x 21.8 cm)
Patrol Case	NOVO's fully sized backpack	28.0" x 19.0" x 13.0" (71.1cm x 48.3cm x 33cm)
Ultimate Case	NOVO's Customized Ultimate backpack	23.0" x 17.3" x 9.45" (58cm x 44cm x 24cm)
Tactical Case	S115 Pelican™ backpack	18.0" x 13.0" x 10.0" (45.7cm x 33cm x 25.4cm)
Urban Case	5.11 Covrt™ 18 backpack	19.0" x 12.25" x 6.5" (48.3cm x 31.1cm x 16.5cm)

X-Ray & Gamma Sources

NOVO's systems are designed to operate with Isotopes, Constant Potential and Microfocus Sources & the entire range of Golden Engineering pulse X-Ray sources

- Reduce energy doses, increase safety, improve productivity, prolong tube life and enable Isotopes usage at a very low curie due to much higher detection sensitivity
- Operational safety distance is easily obtained with wired or wireless capabilities
- Specially designed connector/picatinny connects the Golden source to the Control Box for quick deployment
- The Golden X-Ray sources are portable, battery operated, lightweight & contain no radioactive materials



Constant Potential

Gamma Source

XR200

XRS-3

XRS-4

	XR200	XRS-3	XRS-4
KVP	150	270	370
Weight	10.7 lbs. (4.8 kg)	11.8 lbs. (5.3 kg)	22 lbs. (10.5 kg)
Size	10.7" x 4.3" x 5.8" (27.2cm x 10.8cm x 14.8cm)	14.2" x 4.3" x 5.8" (36.1cm x 10.9cm x 14.8cm)	17.4" x 5.4" x 7.9" (44.3cm x 13.8cm x 20.1cm)

8 • Components- Control Box

NOVO's Control Box provides unique power, communication, X-Ray control and lighting capabilities for maximum flexibility in field operation:

Power

- Built-in battery
- 16 hours of operation
- Unlimited power when connected to AC
- Built-in quick charger for fast charging
- The auto sense feature allows the control box to switch between AC power and battery power automatically

Communication

- Wireless Communication
- Wired Communication
- Hybrid Mode Communication

X-Ray Control

- Controls a variety of X-Ray sources
- Supports all Golden Engineering sources
- Compatible with Isotopes such as Iridium-192 source

Lighting

- White LED Flashlight
- Infra-red Flashlight
- LED is used for lighting the inspection environment and as a safety feature when the X-Ray is activated
- Infra-red Flashlight illumination provides a discreet solution when needed

Mounting Points

- D-Rings located on the top
- 1/4" Thread located on the bottom
- Can be mounted on a tripod or straps

Rugged & Weatherproof

- MIL-DTL 38999 connectors
- Special weatherproof design
- Reliable operation in all weather conditions

Direct Connection

- Easy connection to Golden sources
- Used as an elevated platform for the Golden source

LED Indicators

- LED Indicators show the CONNECTION, DC IN and BATTERY status at all times
- During Infra-red illumination, the LED indicators are switched off

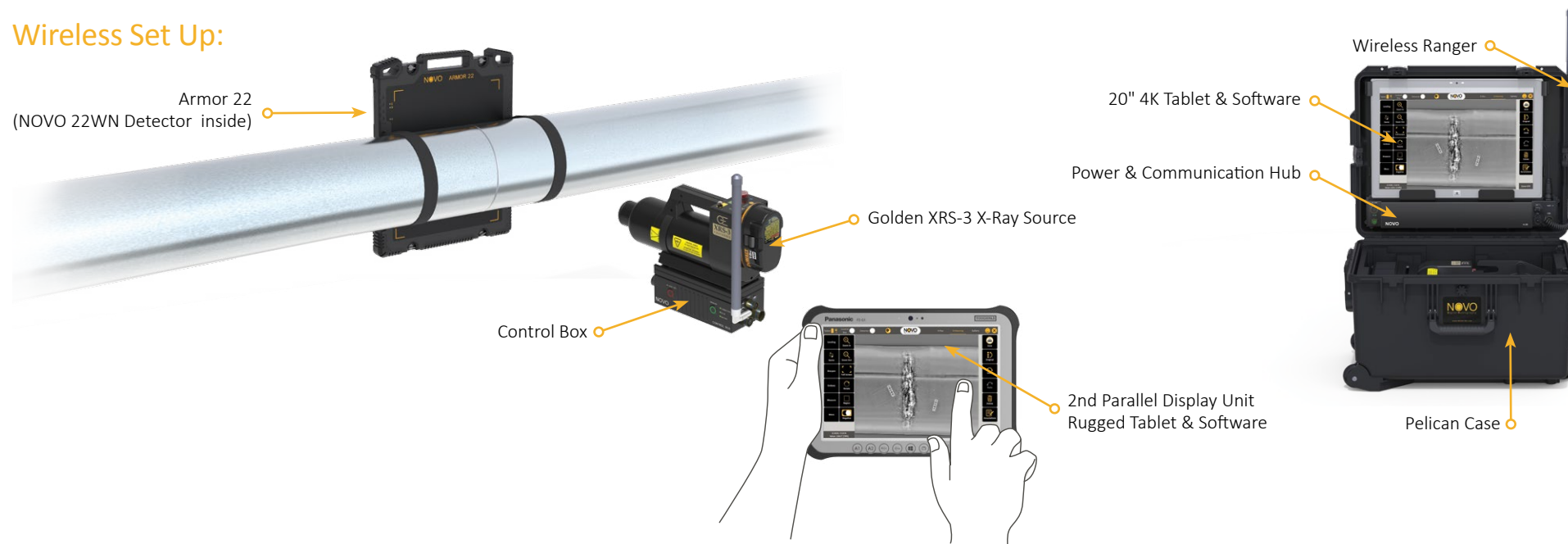
Audible Siren

- Audible Siren is automatically activated during X-Ray operation



• Configuration Examples

Wireless Set Up:



Wired Set Up



• Systems

The NOVO NDT products family is designed for NDT radiography professionals working in tough field & laboratory conditions.

Our system is located in a Pelican™ Hard Case and includes a Detector, Tablet & Software, Control Box, 20m Comm. Cable or 50m Comm. Cable on a Reel, Tripod Mount and additional Modules & Cables. In addition, the NDT systems are designed to hold a variety of Golden X-Ray Sources- XR150, XR200 and XRS3.

✳ *Please contact us for any special **Laboratory configurations and requests.***

NOVO 15 DISCOVERY

- NOVO 15WN Detector (9.1" x 11.2" Imaging Area)
- Panasonic Toughpad™ FZ-G1 Tablet (10.1" Display)
- NOVO Touch Professional Software
- Wired and Wireless Communication
- iM2750 Pelican™ Storm Hard Case



NOVO 15 DISCOVERY 4K

- NOVO 15WN Detector (9.1" x 11.2" Imaging Area)
- Panasonic Toughpad™ 4K Tablet (20" Display)
- NOVO Touch Professional Software
- Wired and Wireless Communication
- iM2750 Pelican™ Storm Hard Case



NOVO 15 Inspector

- NOVO 15WN Detector (9.1" x 11.2" Imaging Area)
- NOVO Armor 15 Hard Protective Cover
- Panasonic Toughpad™ FZ-G1 Tablet (10.1" Display)
- NOVO Touch Professional Software
- Wired and Wireless Communication
- iM2700 Pelican™ Hard Case



NOVO 22 DISCOVERY

- NOVO 22WN Detector (14" x 16.8" Imaging Area)
- Panasonic Toughpad™ FZ-G1 Tablet (10.1" Display)
- NOVO Touch Professional Software
- Wired and Wireless Communication
- iM2750 Pelican™ Storm Hard Case



NOVO 22 DISCOVERY 4K

- NOVO 22WN Detector (14" x 16.8" Imaging Area)
- Panasonic Toughpad™ 4K Tablet (20" Display)
- NOVO Touch Professional Software
- Wired and Wireless Communication
- iM2750 Pelican™ Storm Hard Case



• Accessories

Communication Cable

The communication cable provides reliable and fast data transmission between the various system parts.

- Proprietary cable suitable for working in extreme weather conditions (starting from -20c)
- Power Over Line for unlimited operation when using an external power source
- Lightweight, robust custom reel- connected to the case or as “stand-alone”
- Extension cables of 50m, 100m and 150m
- Maximum of 300m wired operation range



Built-in 50m Reel



Extension Reel



Custom Reel for Inspector System

Eagle - Long Range Wireless

The NOVO Eagle is an Extremely Long Range Wireless transceiver, which extends the wireless communication between the tablet and the inspection area – Detector and X-Ray Source.

- 3.3km (2 miles) line of sight
- Fully Wireless or Hybrid Communication
- 1/4" Standard threads for tripod connection
- 5 Hours of Internal Battery Operation



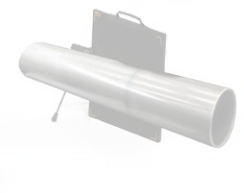
Tablet Side
(Up-range)



*Tripods not included

Detector Side
(Downrange)

Fully Wireless
Configuration



• Accessories

Wireless Ranger

The NOVO Wireless Ranger is a wireless transceiver, which extends the wireless communication range between the tablet and the inspection area.

- Battery-free
- Lightweight
- Staggering 400m line of sight
- Built in magnets to mount on any ferromagnetic object – tablet, case, vehicle etc.



Armor Kit

The Armor Kit Contains the NOVO Armor, which provides additional mechanical protection to the NOVO 15WN & NOVO 22WN Detectors, the Armor Stand and a traveling soft cover.

- Newest shock absorbent technology case
- Water resistant design
- Supports wired & wireless communication
- Multiple positioning options
- Tripod connection using the Built-in 1/4" threads
- Simple Detector battery replacement



Soft Protective Cover

The Detector Soft Protective Cover provides additional protection for the NOVO 15WN & 22WN Detectors.

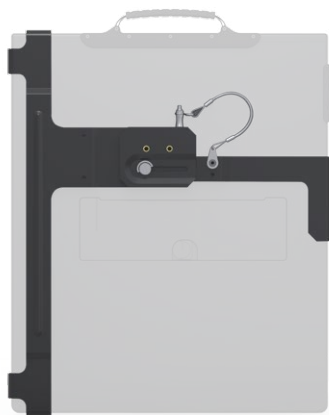
- Weather & impact protection
- Special opening for Tripod Mount access
- Various positioning options using a carrying strap or D-Rings
- Supports wired & wireless communication
- Lightweight & small footprint



Tripod Mounts

The Tripod Mount is a lightweight accessory that firmly holds the detector and provides various positioning options.

- Two 1/4" standard threads for tripod or manipulation arm connection
- Secured connection to the Detector using a safety pin
- Numerous positioning options



NOVO 15 Tripod Mount
~0.9lbs. (~0.4kg)



NOVO 22 Tripod Mount
~1lbs. (~0.5kg)

Detector Stand

The Detector Stand is a custom-made accessory that firmly holds the Detector in an upright position (portrait or landscape).

- Low profile design
- Utmost flexibility in tight places
- Multiple positioning options - standalone (figure a) or leaning on a wall (figure b)



Figure b



Figure a

Power & Communication Hub

The Power & Communication Hub is attached to the NOVO's Discovery 25" Pelican™ Case and can provide Wired Communication to the entire system when working in wired configuration or provide Power when external power is available.

- Contains MIL-DTL 38999 Connectors
- Fast data USB 3 ports
- AC outlet



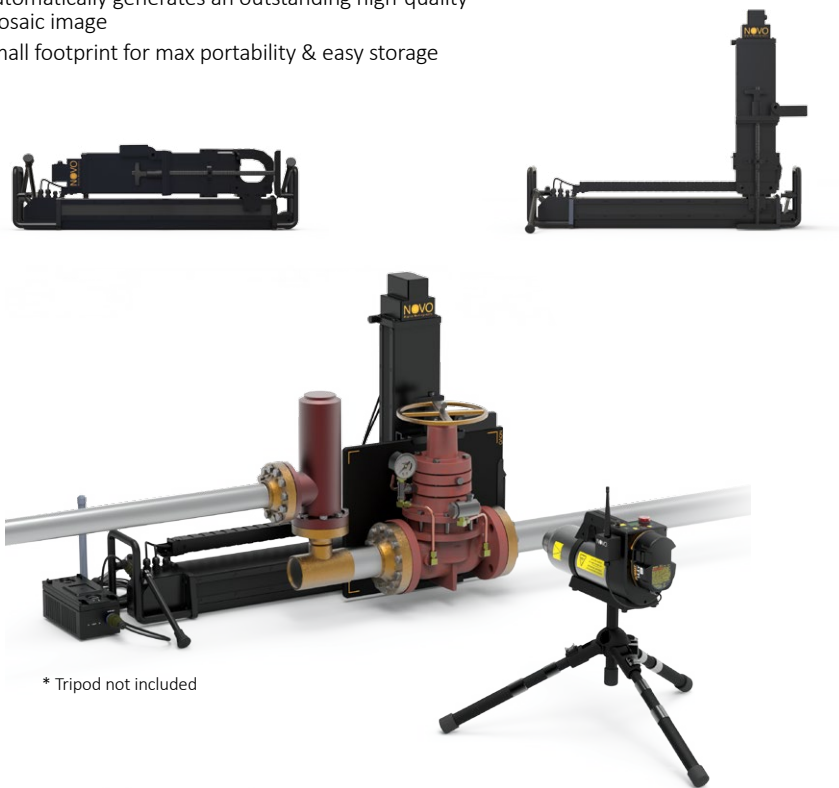
Power & Communication Hub

• Accessories

Folding Slider

The NOVO Folding Slider is the ideal solution for screening large objects.

- Screening area of 2X2 using the NOVO 22WN Detector
- Screening area of 3X2 using the NOVO 15WN Detector
- Controlled by the NOVO Touch Software
- Completely automated movement
- Automatically generates an outstanding high-quality mosaic image
- Small footprint for max portability & easy storage



	NOVO 15 WN Detector	NOVO 22 WN Detector
Grabbing Size	3x2	2x2
Folding Slider ~Size (folded)	37.4" x 13.8" x 7.9" (95cm x 35cm x 20cm)	
NOVO Folding Slider Rugged 1740 Pelican™ Case	44.2" x 16.1" x 14.0" (112.2cm x 40.9cm x 35.6cm)*	

*External Dimensions

Lookout

The NOVO Lookout is a Lightweight, 3 in 1 accessory enabling the following capabilities.

Live Video

- Provides a Live Video stream of the inspected item
- The Camera switches automatically between day / night mode (Infra-red)
- Provides a Still Image that can be grabbed and used for analysis and documentation

Live Audio

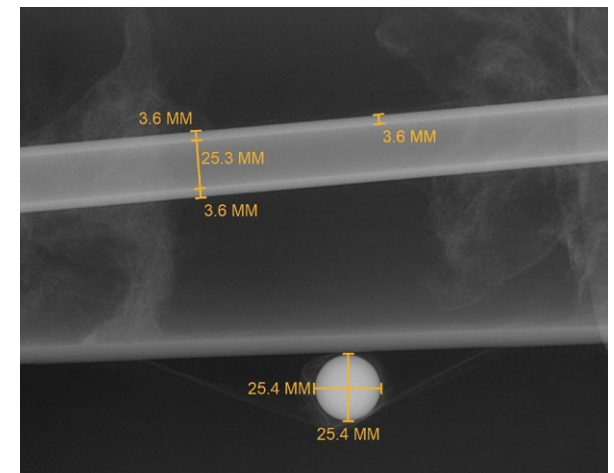
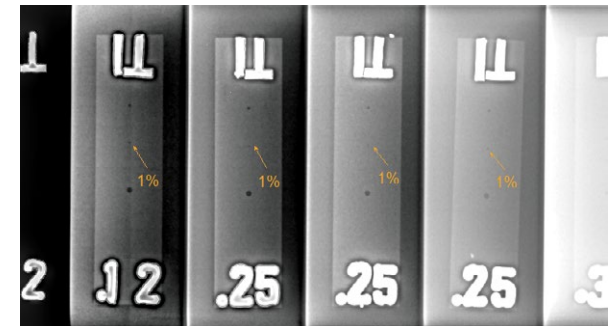
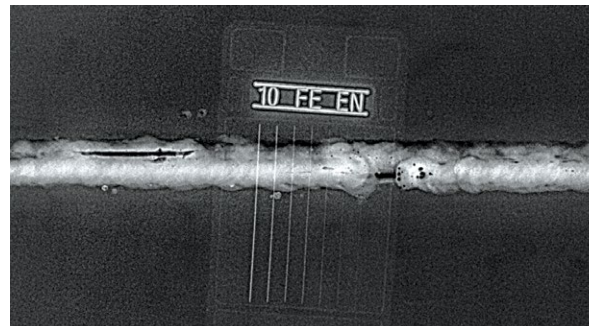
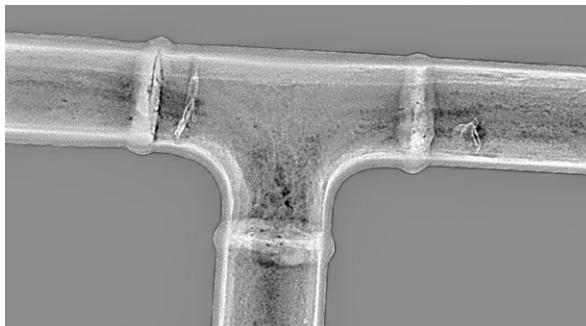
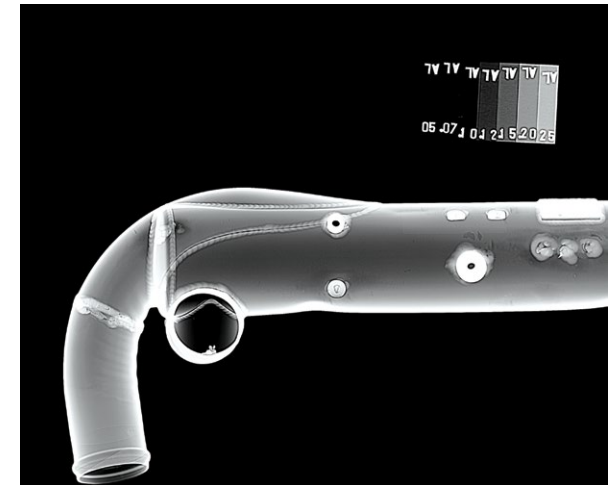
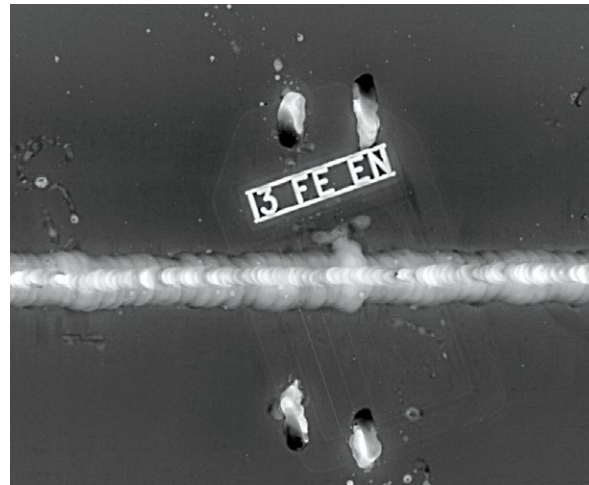
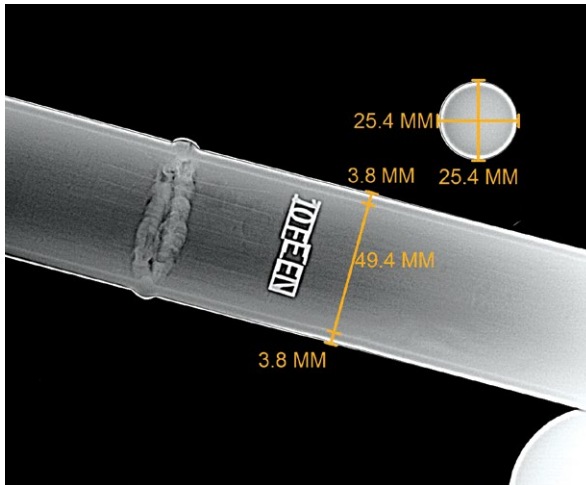
- Provides a Live Audio stream of the inspected environment allowing the operator to monitor the sounds in the surrounding area

Organic Detection

- Assists in identification of the content and nature of an inspected item by providing organic / in-organic detection
- A color X-Ray image is automatically displayed
- Controlled completely by the NOVO Touch Software
- Compatible with Golden Engineering XR150, XR200 and XRS-3 sources



- Sample Images



NOVO

Digital Radiography

The Leaders in Portable DR Systems

www.NOVO-DR.com

• Designs and specifications are subject to change without notice •• Numbers are rounded for convenience purposes ••• E&OE

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