



MICRO-X | ROVER™

A Story of
Discovery,
Development
& Design

ROVER.MICRO-X.COM



Traditional Thermionic Tube Vs Nano Electronic X-Ray (NEX Technology™)

THERMIONIC

Liberation of electrons from an electrode by virtue of its high temperature



FILAMENTS

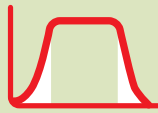


HEAT



HOT

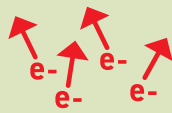
CONVENTIONAL X-RAY TUBE



PULSE RAMPS



KILOGRAMS



IMPRECISE ELECTRON GENERATION



POWER USAGE

CATHODE



FILAMENTS

Traditional cathodes use heated filaments (similar to lightbulbs). Energy inefficient and accelerates the degradation of filament electrode. Can fail suddenly without warning.

ELECTRONIC

Liberation of electrons from a cold source material controlled by a small voltage



CARBON NANOTUBES



ELECTRIC



COLD

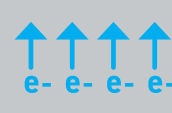
CARBON NANOTUBE X-RAY TUBE



INSTANT PULSE



2.35 KILOGRAMS



PRECISE ELECTRON GENERATION



POWER USAGE

CATHODE

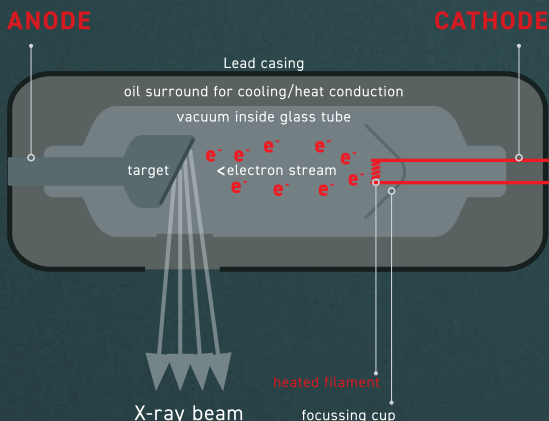


CARBON NANOTUBES

Electronic cathodes contain millions of microscopic hairs that emit electrons with voltage control instead of heat. Controlled and no sudden failures. Energy efficient, stable and long life span.

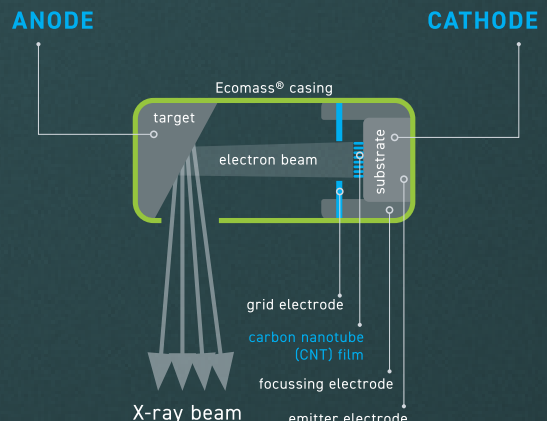
OLD

- Heated tungsten filament cathode emits streams of electrodes which accelerate into the anode.
- The impact on the anode generates massive heat and x-rays.
- The heat generated adds complexity:
 - needs cooling – a rotating anode, oil bath, lead casing
 - adding weight.
- Need ramp-up time to switch x-rays on and off.



NEW

- Cold cathode carbon nanotubes emit a precisely controlled electron stream to anode.
- The impact on the anode, produces x-rays.
- Low heat enables simplification of tube, improving efficiencies:
 - no rotating anode or oil bath
 - light weight due to reduction in size.
- X-rays can be switched on and off instantaneously with no ramping up time.



NANO ELECTRONIC X-RAY TUBE (NEX)

The next generation of Imaging Solutions

NEX TECHNOLOGY



Reliable

- ✕ NO MOTORS
- ✕ SIMPLE LIGHTWEIGHT MOVING PARTS
- ✕ LESS CHANCE OF BREAKDOWNS
- ✕ LOW TOTAL COST OF OWNERSHIP

Easy

- ✕ EASY TO MANOEUVRE
- ✕ FAST TO ACCURATELY POSITION
- ✕ LIGHT TO TRANSPORT AND EASY TO CONTROL
- ✕ FAST TO DISINFECT
- ✕ VERSATILE CLINICAL USE

Efficient

- ✕ LONG BATTERY LIFE
- ✕ FAST RECHARGE
- ✕ GREEN CHOICE
- ✕ SMALL FOOTPRINT

Micro-X has created proprietary Intellectual Property (IP) for the design and manufacture of electronic x-ray tubes, based on Carbon Nanotubes (CNT). We are calling this the **Nano Electronic X-ray (NEX) Technology**.

Micro-X is the first company in the world to introduce NEX Technology into medical imaging systems. NEX Technology is a simple, non-glass based x-ray tube, with no moving parts that generate minimal heat with no oil required for cooling. It uses carbon nanotubes to offer full medical imaging performance, in a smaller, lighter, and more reliable x-ray tube.

Micro-X's patented technology is set to revolutionize the potential of x-rays in a variety of industries and is currently being used as a development platform for all of our future products.

Sample User Interface ▾



Sample X-ray Images ▾



SCAN THIS
QR CODE TO
VIEW X-RAY
EXAMPLES.



SPECIFICATIONS

Rover Features



Head and Tusks



Counterpoise Arm



Ergoknobs

✦ **NUDGE BUTTON**

- Bed side brake release during positioning

✦ **HEAD**

- Easy access paediatric filter
- x 2 protractor
- LED collimator
- DAP
- Tape measure

✦ **TUSKS**

- Fingertip collimator controls
- Integrated LBD button
- Ensure minimum SID

✦ **BARCODE READER**

✦ **FULLY PORTABLE STORAGE**

- Bucket for exposure cord
- 3x grid/detector slots (43x43, 25x30, 43x36)
- Wipes, bags and documents
- Unique design for easy bagging/ battery exchange

✦ **WHEELIE PLATE**

- Crossing large thresholds (50mm)
- Designed for comfortable foot clearance
- Manual break release

✦ **COUNTERPOISE ARM**

- Self balancing set and forget
- 0.4m to 2.1m height x 750mm reach
- 270 degrees rotation

✦ **ERGOKNOBS**

- Allows operator to stand in any position
- Palm or finger brake release

✦ **TOUCH SCREEN DISPLAY**

- Can be used with gloves (capacitance)
- Separate charge and exposure LEDs

✦ **CUT AWAY FRONT**

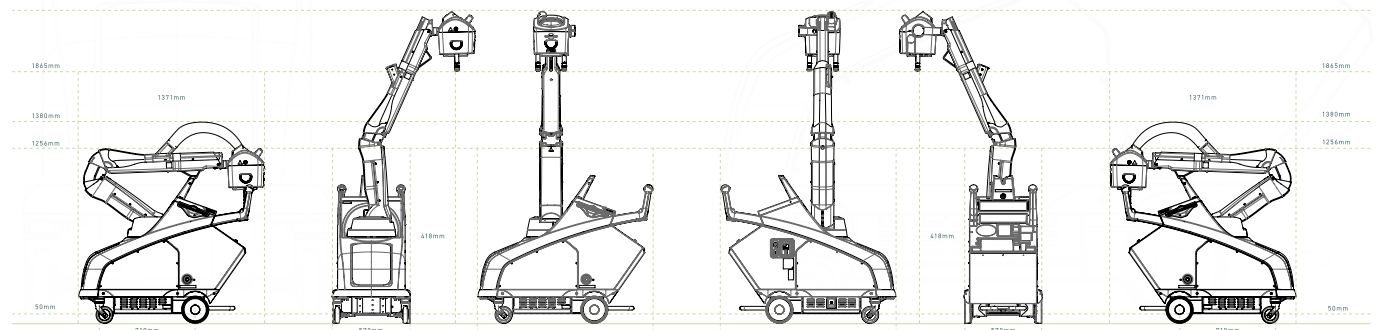
- Improve field of view

✦ **USER ACCESS PORTS**

- Elevated recessed plug, easier to pull and retract, less damage
- USB, Ethernet and tether ports

✦ **POWER**

- Mains or 5x LiPO4 batteries
- Up to 8 hours continuous use
- Motorless drive, very quiet
- No on/off buttons required - always 'on' design for convenience



SPECIFICATIONS

Rover Features

Options

The Rover is designed to perform radiographic X-ray examinations for disease/injury detection, diagnosis, medical and surgical treatment planning, and therapy monitoring, where patient condition contraindicates transport to a fixed X-ray unit. The Rover can be used on paediatric and adult patients, in all patient treatment areas. To adapt to these different circumstances, we have different options available upon request.

✦ CROSS COUNTRY

- Reinforced undercarriage with 50% higher ground clearance than standard unit to allow for easy movement over uneven terrain without risk of damage to internal workings.
- Battery tray modifications to enable a faster easier exchange than standard designs, so can be replaced on the go.
- The battery box is built with aluminium thickness of 2.5mm, more than double the standard version.
- Rounded wheelie bar, behaves more like a handle than the standard square design, to help with movement over irregular terrain.
- Handles in the front carriage for good grip for a second operator, to assist with movement over rough terrain.

✦ SPECIALISED

- Paediatric filter option.
- Paediatric wraps – standard and personalised.
- Dose Area Product (DAP) option.



KEY SPECIFICATIONS

Rover Mobile DR

PHYSICAL CHARACTERISTICS	
Height	1300 mm (51.2 in), head in docked/transport position, exc. cable
Width	Wheel base: 583 mm (22.9 in) Main chassis: 500mm (19.7 in)
Length	1371 mm (53.9 in), head in docked/transport position
Weight (standard version)	95 kg (209 lbs)
Drive handle height	1000 mm (39.37 in)
Operating specifications	Temperature range: +10° C to +30° C Relative humidity range: 30% to 60% Atmospheric pressure range: 70 kPa to 106 kPa

DRIVE CHARACTERISTICS	
Drive type	Manual
Speed	Walking speed
Brakes	Dead Man Braking controlled through buttons located on the drive controls
Maximum incline	5 degrees (head in docked/transport position)

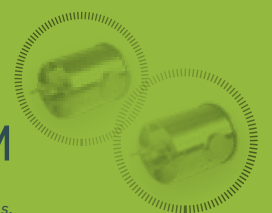
KEY SPECIFICATIONS

ELECTRICAL / CHARGE CAPACITY	
Number of batteries	5
Type	LiFePO ₄ , also called LFP for Lithium Ferro-Phosphate
Nominal voltage	14.4 Vdc each, total battery bank of 72 Vdc
Capacity	7.5 Ah each
Charge time	1.5 hrs to fully charged
Charge power requirements	100 to 240 Vac, 50/60 Hz, 11 A to 5.5 A (110 W max.)
Battery LED	Light indicator displays battery charge level

DETECTOR			
Scintillator	Csi: Ti (Cesium)	Csi: Ti (Cesium)	Csi: Ti (Cesium)
Filed of View	17"x17" (43cm x 43cm)	14"x17" (36cm x 43cm)	10"x12" (25cm x 30cm)
Pixel Array	3072 x 3072	2560 x 3072	1755 x 2136
Pixel Size	139 micron	139 micron	139 micron
A/D Conversion	16 bit	16 bit	16 bit
kVp Range	40-150	40-150	40-150
Dimensions	18.1" x 18.1" x 0.6"	15.1" x 18.1" x 0.6"	11.02" x 13.06" x 0.6"
Weight (without battery)	3.3kg (7.28lbs)	2.8kg (6.18lbs)	2.1kg (4.6lbs)
Data interface	WiFi 802.11n/ac (5GHz)	WiFi 802.11n/ac (5GHz)	WiFi 802.11n/ac (5GHz)
Battery (Two incl.) Lithium Polymer	1600 images for 8 hours	1600 images for 8 hours	1600 images for 8 hours

We are so confident in the performance of our NEX Technology, we are providing a "Tubes for Life" program* for all Micro-X Mobile DR systems. This means a non-transferable guarantee for the lifetime of the x-ray product, ensuring Micro-X customers enjoy and benefit from cutting edge technology with the assurance of long-lasting performance.

**TUBES
FOR LIFE
PROGRAM**



* "Lifetime of the x-ray product" is defined by Micro-X as 10 years. This offer is subject to the Micro-X Inc Product Warranty Terms and Conditions.

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